Council Meeting: 06/16/2015
Agenda: Study Session
Item #: 3. a.

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Kurt Triplett, City Manager

From: David Godfrey, P.E., Transportation Engineering Manager
Kathy Brown, Public Works Director

Date: June 4, 2015

Subject: Transportation Master Plan Update

RECOMMENDATION:

It is recommended that the City Council receives a briefing and gives direction on the Transportation Master Plan (TMP). Specifically, staff is seeking comment on any changes Council would like to see based on their review of the final draft Plan.

BACKGROUND DISCUSSION:

Introduction

Council has previously reviewed goals and policies, the 20 year transportation project list, impact fees and concurrency. A final draft plan, which takes prior Council discussion and direction into consideration, has been completed and is Attachment A to this memo. Although no other Council briefings are currently scheduled, the TMP will come back this fall for a final review and adoption.

One of the reasons for writing the TMP is to serve as a revision to the Transportation Element of the Comprehensive Plan. After consultation with the Transportation Commission, the Planning Commission and staff, the current intention is to form the Transportation Element from the TMP. The Actions and most of the sidebar material will be removed from the Plan, leaving introductory material, existing conditions, background sections, goals, policies, key maps and other illustrations or sidebars that are fundamental to understanding the material in the Transportation Element.

Reviewing the Document

The following sections are ordered as they appear in the TMP and briefly highlight areas where:

- Council has indicated previous or current question about a particular item that may need clarification;
- Key information may not have been emphasized or available in previous presentations;
- Staff seeks guidance from Council;
- For other reasons attention is warranted.

At the Study Session, more information will be provided by staff and there will be an opportunity to answer any other questions Council has or review any other areas that Council may wish to discuss.

General comments
There are many illustrations and sidebar material throughout the current draft that have not yet been reviewed by Council. Although there are still some missing photos and other formatting irregularities that will be cleaned up in the final document, the substantive information needed for Council review is available in this draft.

Introduction and Transportation Concept
The Transportation Concept will be included in the Transportation Element of the Comprehensive Plan in order to keep it consistent with the other elements in the plan.

Existing Conditions
Existing conditions are presented in a series of maps that include brief explanations of their purpose.

Chapter 1 Safety

At the April 21, 2015 City Council meeting, Council asked for more information about the Vision Zero safety program. The illustration on the next page shows the proposed layout of the discussion in the TMP.

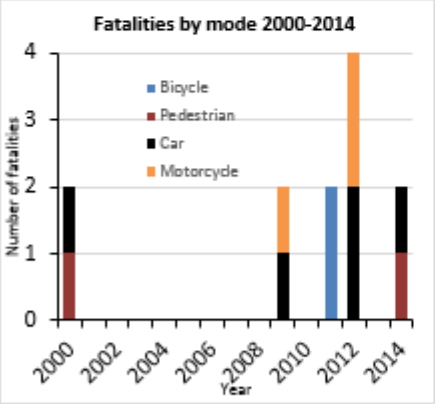
The vision zero concept is not new to Washington State. The WSDOT's Target Zero Strategic Highway Safety campaign began in 2000 and is a statewide effort with roots in the vision zero approach. Kirkland's program would be tailored to the needs of our City which are different than those across the state. For example, on a statewide basis, alcohol involved crashes on rural roads may be a main source of fatalities, which is quite different from the safety challenges faced by the City of Kirkland. In response to increased interest in Vision Zero in our region, specific training is available; staff is scheduled to attend a workshop being held later this month.

Council may wish to further discuss how the Vision Zero concept is handled in the Plan.

Chapter 2 Walking, Chapter 3 Bicycling
No particular issues are identified for review in these sections.

Four Key elements of a Vision Zero safety Plan

1. **Emphasis:** On crashes resulting in fatalities and serious injuries, with a date specific goal.
2. **Partnerships:** Policy makers, Enforcement, Education, Advocacy, Engineering, Emergency Medical Services, Vehicle Manufactures all work together.
3. **System Approach:** Rather than exclusively faulting drivers and other users of the transportation system, Vision Zero places the core responsibility for accidents on the overall system design.
4. **Data:** Carefully analyze crashes and use data to make decisions for improvements.



CHAPTER 1. → SAFETY

Background

An idea that began in Sweden in 1994, "zero based" safety goals have been adopted by a number of states and cities including Washington State. Since 1997, traffic fatalities fell 25% faster in the group of States with a vision zero policy when compared to states without such a policy. Because the Kirkland City Council feels that no lives should be lost on our streets and sidewalks they have also adopted a zero fatality, zero serious injury safety goal as a part of Kirkland's transportation policy.

The point of a zero based safety plan is to raise awareness by setting bold goals going beyond typical engineering and enforcement based efforts. Vision zero programs involve creating a multi-facetted approach involving engineering and enforcement components while adding emergency response, strong behavior programs and working with advocacy and private sector interests.

- ***Goal T-0. By 2035, eliminate all transportation related fatal and serious injury crashes in Kirkland.***

Policies

Policy T-0.1 Develop a vision zero safety plan that is multi-disciplinary and focuses on innovative approaches to safety.

More specifics around this policy are included in the policies for walking, biking, motor vehicles and in other areas of the plan.

This chart shows the number of fatalities in Kirkland for the period 2000 through 2014. Note that number of fatalities is slightly greater than the number of fatal crashes; for example a single motorcycle crash in 2012 resulted in two fatalities.

The boundaries of Kirkland were expanded through annexation in 2011. All the crashes resulting in fatalities after 2009 were in the new area of Kirkland, with the exception of the motorcycle crash in 2012. The pre 2011 annexation area of Kirkland has been fatality-free since 2000 for pedestrians, and for more than 20 years when considering bicycle crashes.

Page Break

New York City Vision Zero Action Plan

Chapter 4 Public Transportation
There is material under Policies T-3.4 and T-3.5 that describe Transportation Demand Management.

Chapter 6 Link to Land Use
New material has been added under several policies including T-5.2 (trees) and T-5.5 (street connections) to better capture important material from the current Transportation Element.

Chapter 7 Be Sustainable
Tables describing the 20 year Transportation Project List like those from the Council meeting on April 21, 2015 have been incorporated into this chapter. A 20 year project list will be needed and will be finalized as part of the CIP process. Council may want to discuss any changes needed to the 20 year project list table. One subject of interest may be completion of School Walk Routes.

Material about the relationship between the City's climate goals and transportation has been included in this chapter.

Chapter 8 Be an Active Partner
A proposed transit system map is in this chapter. This is also the Chapter where a partnership with Sound Transit is described. The proposed language is as follows:

Policy T-7.1 Play a major role in development of Sound Transit facilities in Kirkland

> Sound Transit will likely be implementing one or more new phases of high capacity transit over the life of this plan and each new phase should build on the preceding phase.
>
> Each of these phases require an update to Sound Transit's Long Range Plan, followed by a System Plan revision that describes projects that are on a ballot put before voters. Connecting the Totem Lake Urban Center, downtown Kirkland and the 6th Street Corridor with the regional transit system is Kirkland's primary interest for regional transit.
>
> Bus rapid transit and light rail are the preferred modes and the preferred route is the Cross Kirkland Corridor. However, Bus Rapid Transit operating in Express Toll Lanes on I-405 may be the first Regional High Capacity Transit link serving Totem Lake.
>
> It is important that any such system travels through the Urban Center, and includes connections to all parts of Kirkland, particularly Downtown and the 6th Street Corridor. Rebuilding freeway interchanges, fixed guideway connections, people movers, and using the Houghton and Kingsgate Park and Rides are ways by which this may be accomplished.
>
> The City sees Transit Oriented Developments (TOD) as essential for its continued growth and economic development, with the Totem Lake Urban Center at the heart of this goal. This includes both TOD on publically owned land, such as the Kingsgate P&R, but also TOD on privately owned land.

Kirkland can best affect these plans by cultivating productive and ongoing working relationships with Sound Transit and by being active and persistent advocates for our interests, as directed by the City Council, at both the staff and Sound Transit Board level.

Kirkland should work with Sound Transit, Metro and other partners to make investments as part of a seamless and integrated transit network.

Chapter 9 Transportation Measurement
This chapter includes Level of Service standards, a target mode split for the Totem Lake Urban Center and information about the types of measures that will be reported on in the future.

Other items

The TMP, as part of the Comprehensive Plan Update, will be reviewed by the State Department of Commerce. Comments received during this review will be included in the final plan.

The TMP will be considered at a joint Public Hearing between the Transportation Commission, Planning Commission and the Houghton Community Council scheduled for June 25. The Public Hearing will be proceeded by a "mini" open house. The Transportation Commission will meet following the Public Hearing to make final comments on the Plan and consider recommending it to the City Council.

The Plan in whole and in part as the Transportation Element of the Comprehensive Plan, is scheduled to come to the City Council at a study session in October and for adoption in December.

DRAFT TRANSPORTATION MASTER PLAN

June, 2015 ver 5.0

City Council Draft

City of Kirkland Transportation Master Plan

Adopted by the Kirkland City Council, December ___, 2015. Resolution _____

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INTRODUCTION

Purpose

This Plan has two functions. One is to serve as the Transportation Element of the Comprehensive Plan. The Goals and Polices are the primary content in the Transportation Element. The other purpose is to expand upon the Comprehensive Plan and give more detail, context and background to the goals and policies. For example, Actions are associated with many of the policies and additional background is provided through sidebars, maps and illustrations.

Relation to other elements of the Comprehensive Plan

In keeping with the rest of the Comprehensive Plan, this a 20 year document with a target year of 2035. To ensure consistency across the plan, the assumptions in other elements of the Comprehensive Plan have been used in the **Transportation Master Plan** (TMP). For example, the land use forecasts from the Land Use element were used to predict traffic volumes.

Relationship between the Transportation Master Plan and the Capital Improvement Program

Linkage to priorities and projects. The Transportation Master Plan contains a set of projects that will improve the multimodal transportation network. Programming of these projects for funding in future years is accomplished through the Capital Improvement Program. The Plan also includes priorities that are to be used in deciding the order in which projects are funded.

Multimodal

A main principle of the Master Plan is the need for the transportation system to support multiple *modes* of transportation; Walking, Biking, Transit, Auto. Through much of the document, material presented is organized by four modes, walking, bicycling, transit and auto travel.

Concurrency

A new concurrency method for Kirkland is described in this plan. The concurrency method is multimodal and measures completion of the transportation network against the realization of new trips (from land use development) to determine if the proper balance exists.

Level of Service

Fundamentally, **Level of Service** (LOS) for various modes is determined by the extent to which the network for that mode is completed. This stems from the assumption that the 20 year Transportation Network is adequate to support the 20 year land use plan at an acceptable level of service.

Public involvement

The Transportation Master Plan has been developed with considerable comment from the Public in a variety of settings including workshops and presentations. The Transportation Commission has be instrumental in steering the course of the Plan's development.

THE TRANSPORTATION CONCEPT

In 2010, the Transportation Commission proposed, and City Council endorsed four principles for transportation in Kirkland in a document titled *Transportation Conversations*:

Safely Move People	Support a transportation system and related government and private actions that promote all viable forms of transportation.
Link to Land Use	Ensure consistency between land use and transportation planning and implementation.
Be Sustainable	Support a transportation system that can be sustained over the next 50 years.
Be an Active Partner	Actively build and maintain partnerships locally, regionally and nationally, to further our transportation goals.

These themes serve as the foundation of the Transportation Concept for the City of Kirkland.

Livable, vibrant cities like Kirkland offer safe, accessible, well maintained and fully connected alternatives for getting people where they need to go. An approach to safety that permeates multiple aspects of the transportation system is fundamental to achieving a city where there are no fatalities or serious injuries due to transportation. Safe and approachable interconnected walking and biking networks designed for "all ages and abilities" can offer everyone options for all kinds of trips. When efficient, frequent easy to understand transit connects popular destinations it can be viewed as a good choice for many trips. Auto congestion will continue to be heavy during some of the day; it has been recognized that it is not desirable or financially feasible to build auto capacity sufficient to remove all congestion, nor is this in keeping with the City's land use plan. Efficient deliveries are the major component of the local freight system which supports economic development.

Land use and transportation visions are inextricably linked. This plan tailors a transportation network to a land use vision and the companion land use plan is based on realistic transportation expectations. Economic development is nurtured through a careful Land Use-Transportation balance. Level of Service is established based on the completion of the 20 year Land Use and Transportation networks rather than aspiring to a certain standard of performance. The 20 year transportation network is planned to serve the community's transportation needs for all modes of travel in a safe and efficient manner. Completion of the 20 year transportation network is the measure of accomplishment that serves as the level of service.

Sustainability is a multi-dimensional concept. It refers to transportation practices that value the health of the environment, particularly those that affect air quality, water quality and climate change. It also encompasses fiscal prudence –spending within likely revenue, sound maintenance policies –emphasizing repair of what we have and equitable accessibility for all as well as considering and removing a range of barriers to the transportation system.

Transit providers and the Washington State Department of Transportation immediately come to mind as important partners in implementing Kirkland's Transportation Plan. In order for the Plan's goals to be fully recognized however, entities such as schools, neighboring cities, regional groups and the private sector must become active partners.

Measurement and reporting of progress toward accomplishing goals, policies and actions is critical to ensuring that the plan is well understood and effective. A revised concurrency system offers a simpler more multimodal approach to balancing land use changes and network development.

With the expressed purpose of moving people, goods, and services, the City's transportation decisions will generally reflect a hierarchy of modes:

1. Walking
2. Biking
3. Transit
4. Motor vehicles

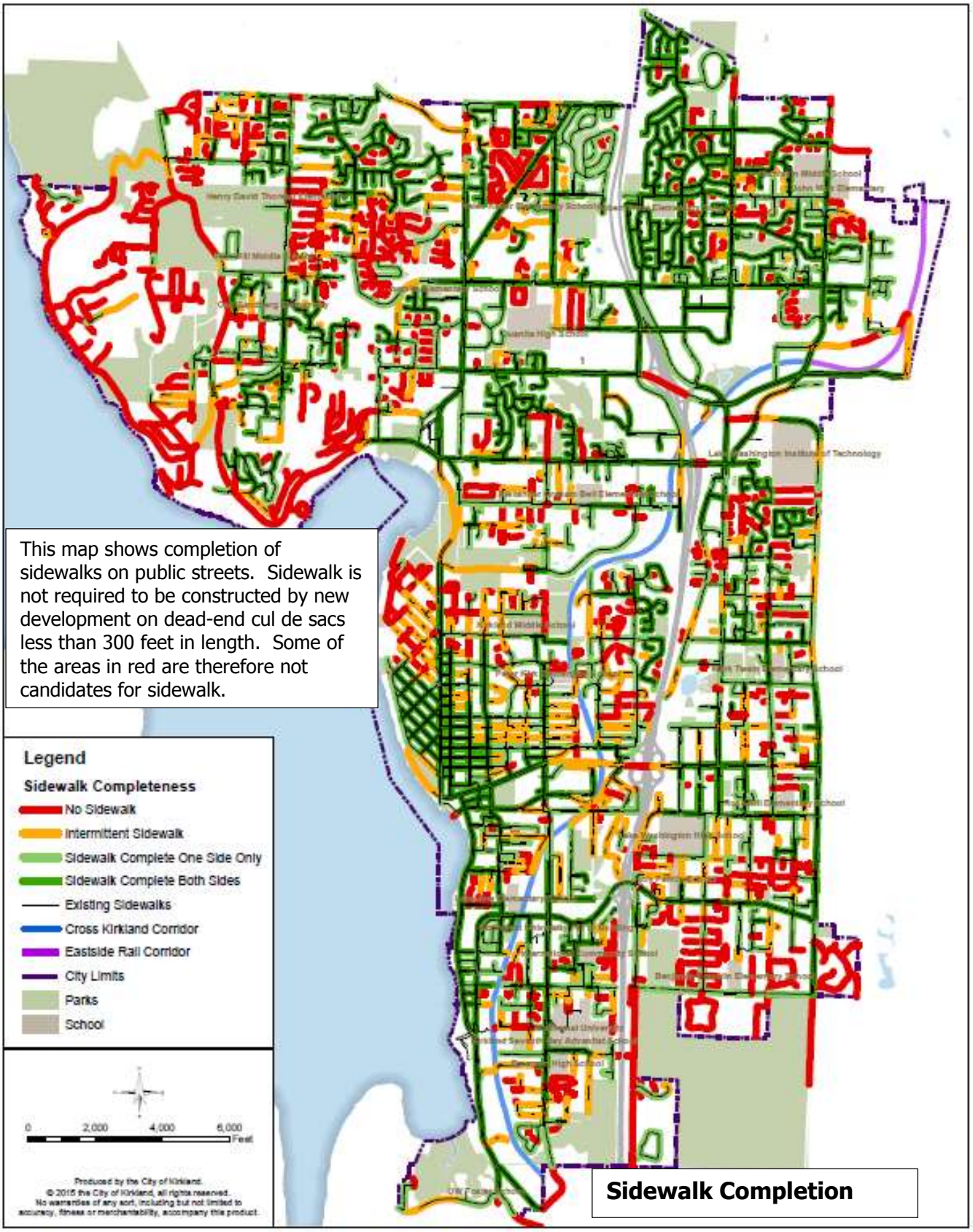
This hierarchy is intended to help ensure that the needs of each group of users is considered in the City's planning process. This approach does not mean that users at the top of the hierarchy will always receive the most beneficial treatment on every street. It is not possible to provide ideal accommodations for every mode in every location. Nor does it mean that certain modes will necessarily receive greater funding. However, when lower hierarchy modes are prioritized above higher priority modes, the underlying reasons for this approach will be shared and the city will make special efforts to provide reasonable alternative accommodations such as parallel routes.

Some examples of transportation mode hierarchy in the current system includes Juanita Drive, Lake Street, Central Way and other locations, where pedestrians use crosswalks that cause motor vehicles to stop and, in this sense, pedestrians have a higher priority than motor vehicles at these locations. There are not currently plans to install bicycle facilities on sections of NE 124th Street in Juanita/Totem Lake nor on NE 85th Street on Rose Hill. This exemplifies a case where motor vehicle traffic could be said to receive a higher priority than bicycles, but this decision was carefully considered and documented in the Active Transportation Plan. Another example of the hierarchy could occur in the future where transit receives priority over other motor vehicles through traffic signal prioritization.

EXISTING CONDITIONS

The existing condition of the Kirkland's transportation system is shown in the following maps.

1. Sidewalks by completion level: Where sidewalks are completed on streets
2. Crosswalks: Crosswalks and improvements
3. Walkability: Walkability by street segment
4. School walk routes: Completion of sidewalks on school walk routes
5. Existing bike lanes
6. King County Metro Transit and Sound Transit Routes in the Kirkland vicinity
7. Volume of riders and presence of shelters at transit stops
8. Transportation Management Program and Commute Trip Reduction sites
9. Pavement condition index on each street
10. Freight weight on selected routes
11. Signals and other devices maintained by the City of Kirkland
12. Parking locations in downtown Kirkland
13. Existing traffic congestion
14. Classification of arterials and other streets
15. Existing traffic volumes on selected streets


This map shows completion of sidewalks on public streets. Sidewalk is not required to be constructed by new development on dead-end cul de sacs less than 300 feet in length. Some of the areas in red are therefore not candidates for sidewalk.
Legend
Sidewalk Completeness
No Sidewalk
Intermittent Sidewalk
Sidewalk Complete One Side Only
Sidewalk Complete Both Sides
Existing Sidewalks
Cross Kirkland Corridor
Eastside Rail Corridor
City Limits
Parks
School
0
2,000
4,000
6,000
Feet
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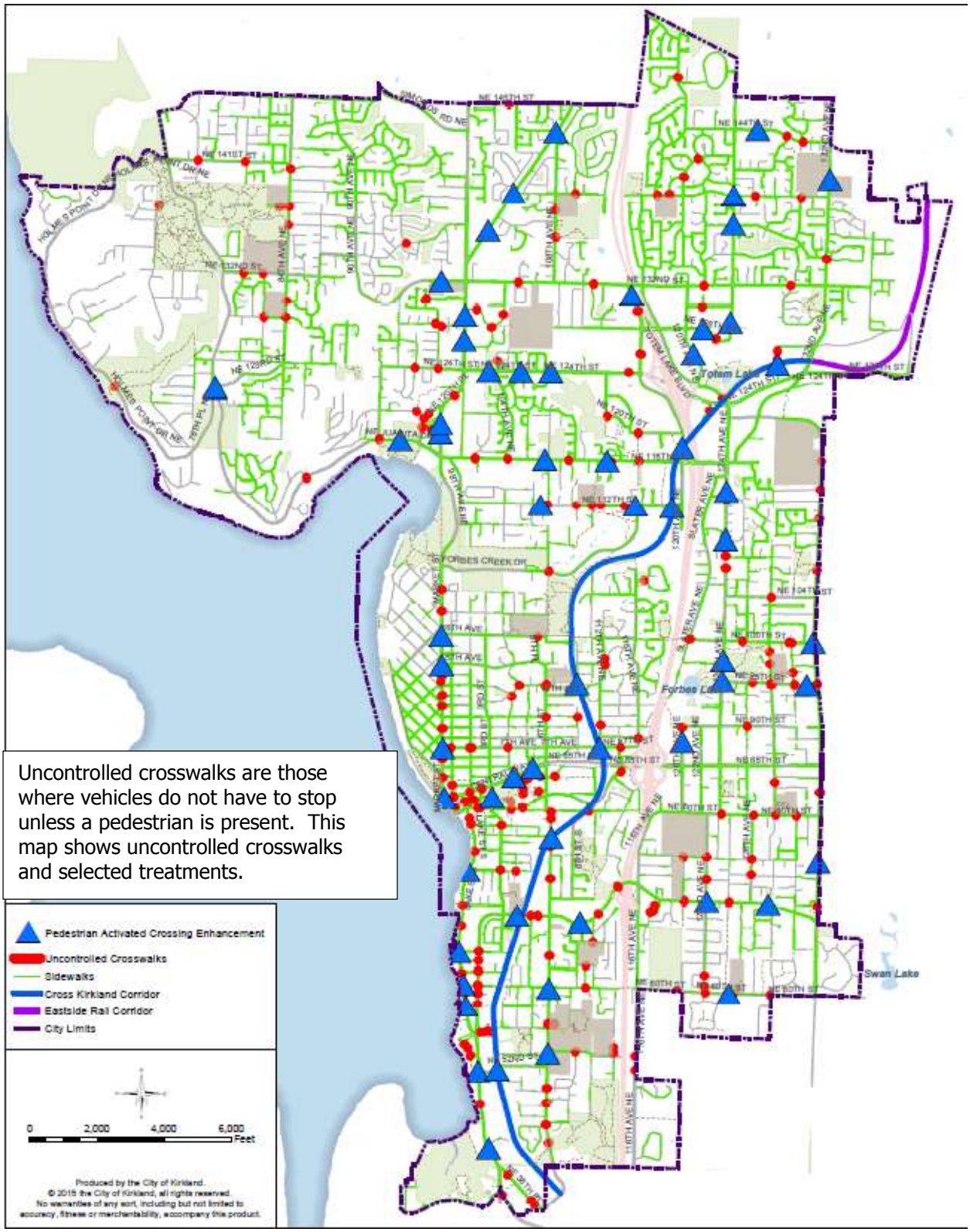
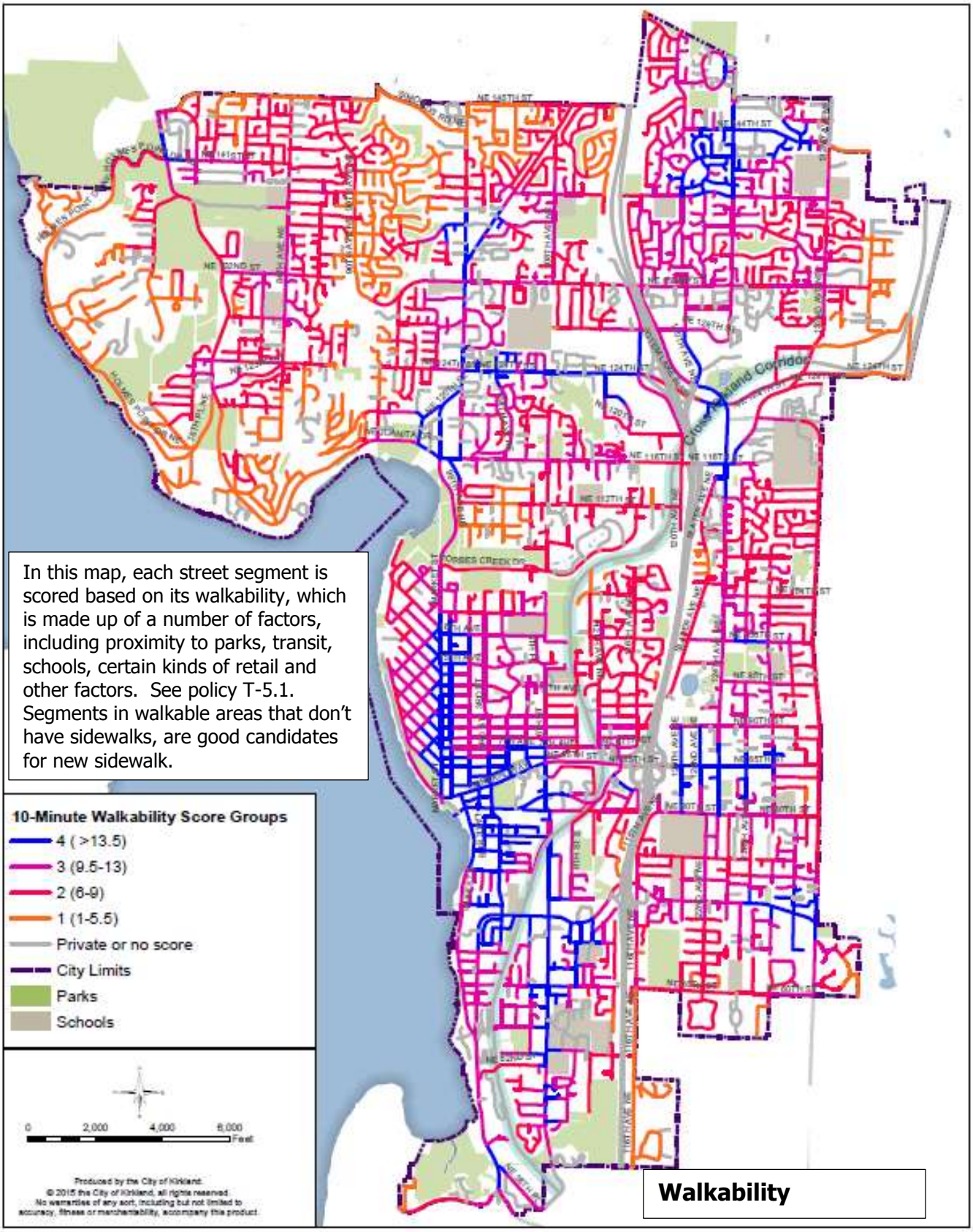
Sidewalk Completion



Uncontrolled crosswalks


In this map, each street segment is scored based on its walkability, which is made up of a number of factors, including proximity to parks, transit, schools, certain kinds of retail and other factors. See policy T-5.1. Segments in walkable areas that don't have sidewalks, are good candidates for new sidewalk.
10-Minute Walkability Score Groups
4 (>13.5)
3 (9.5-13)
2 (6-9)
1 (1-5.5)
Private or no score
City Limits
Parks
Schools
0 2,000 4,000 8,000 Feet
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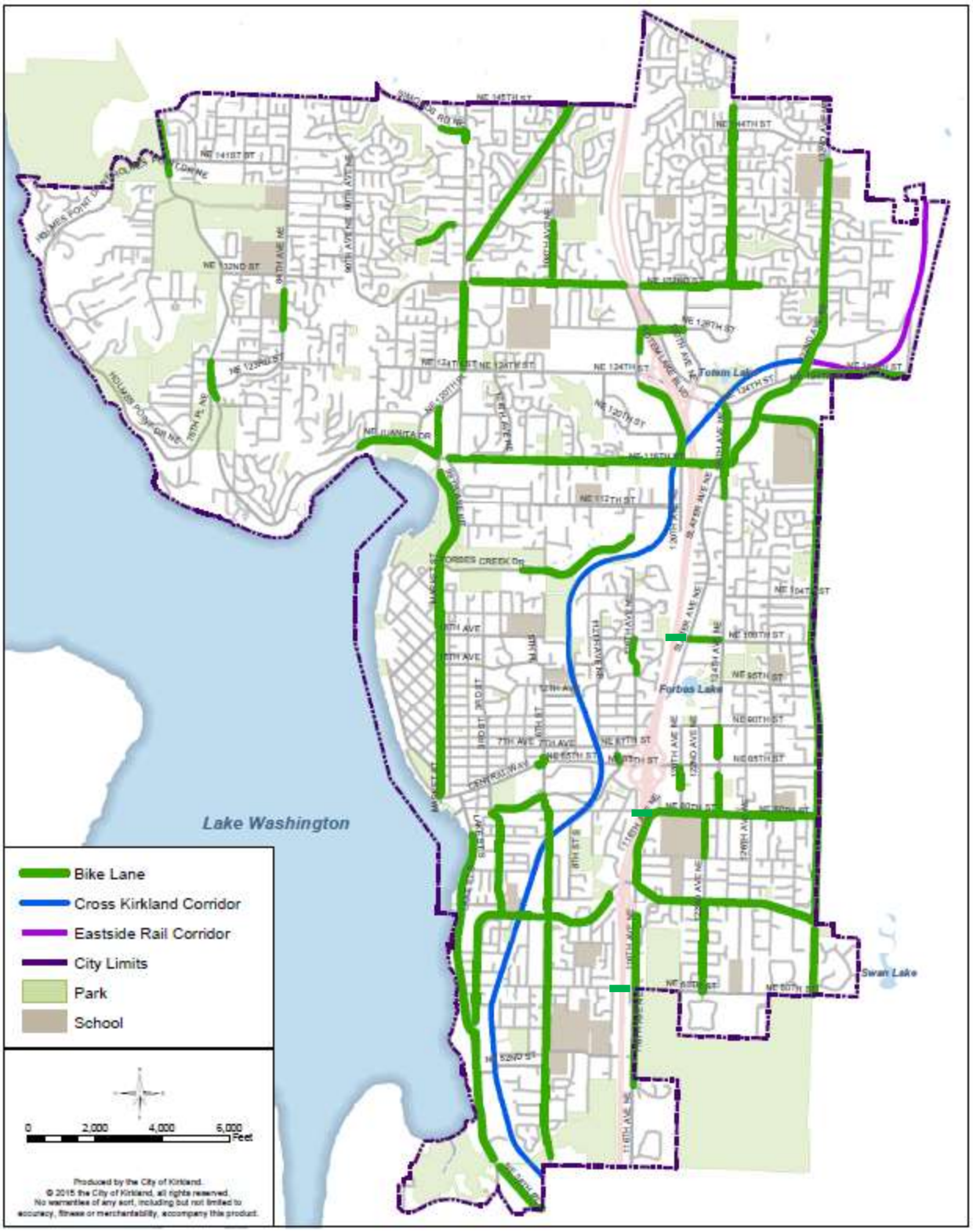
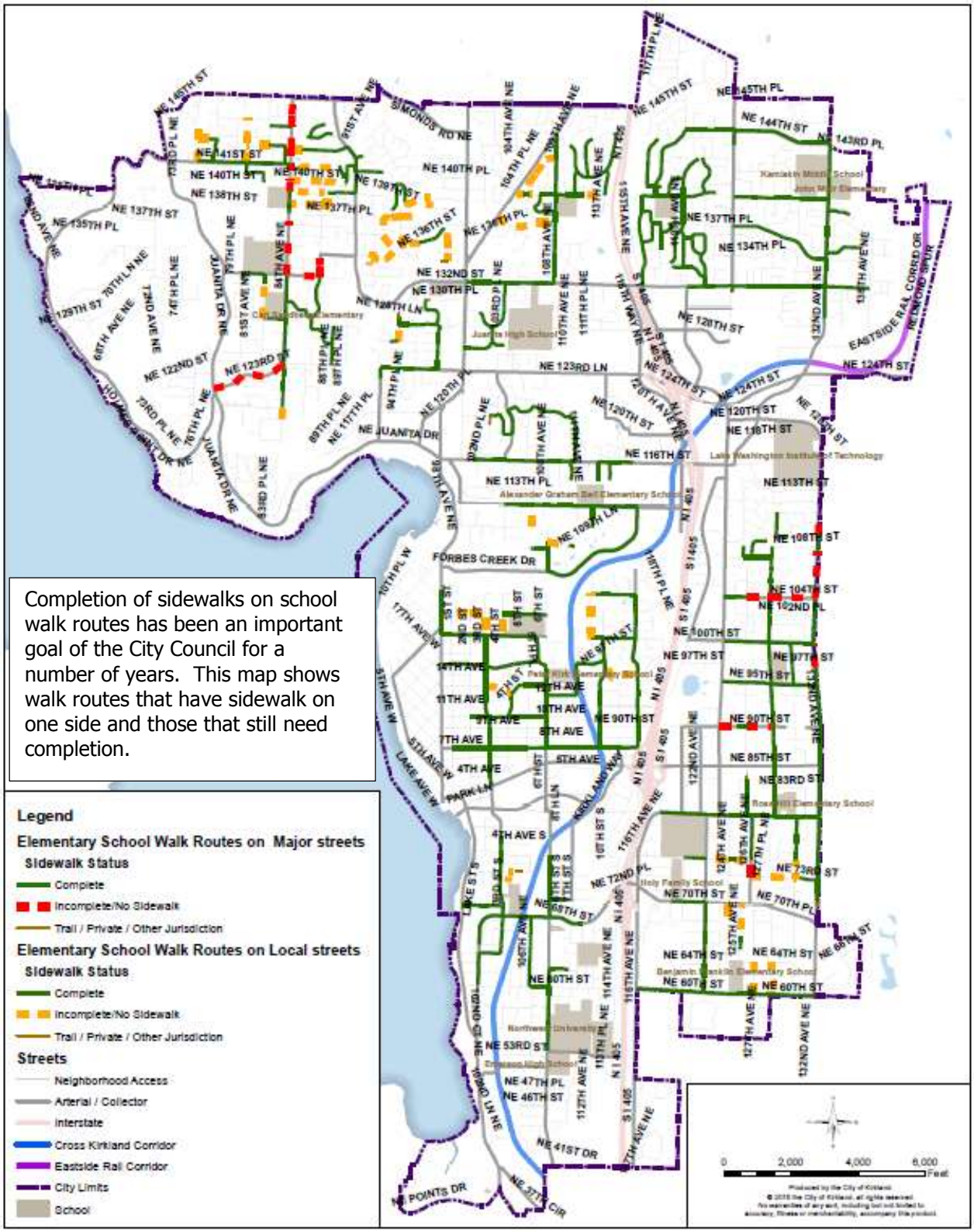
Walkability

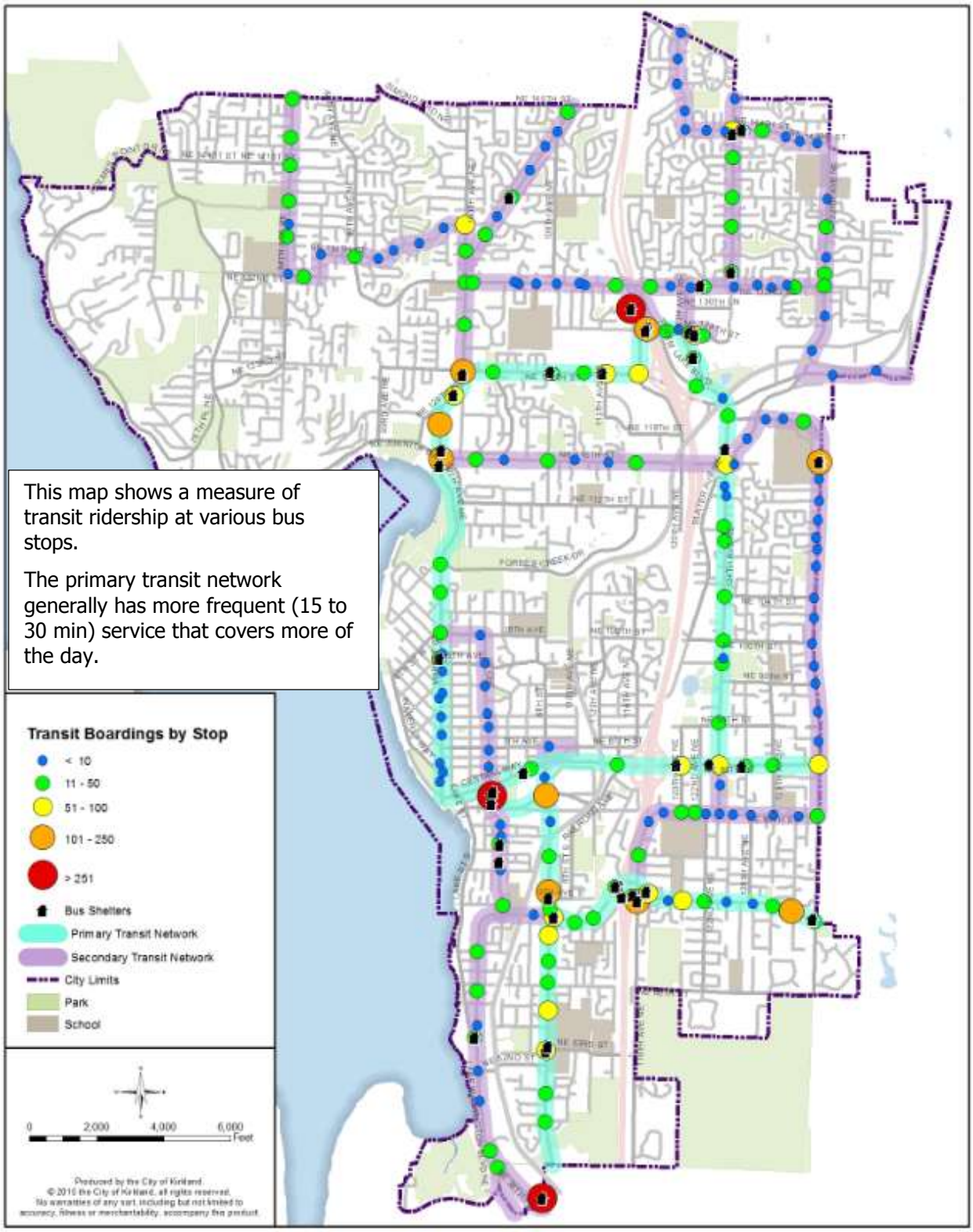


Existing on street bike lanes

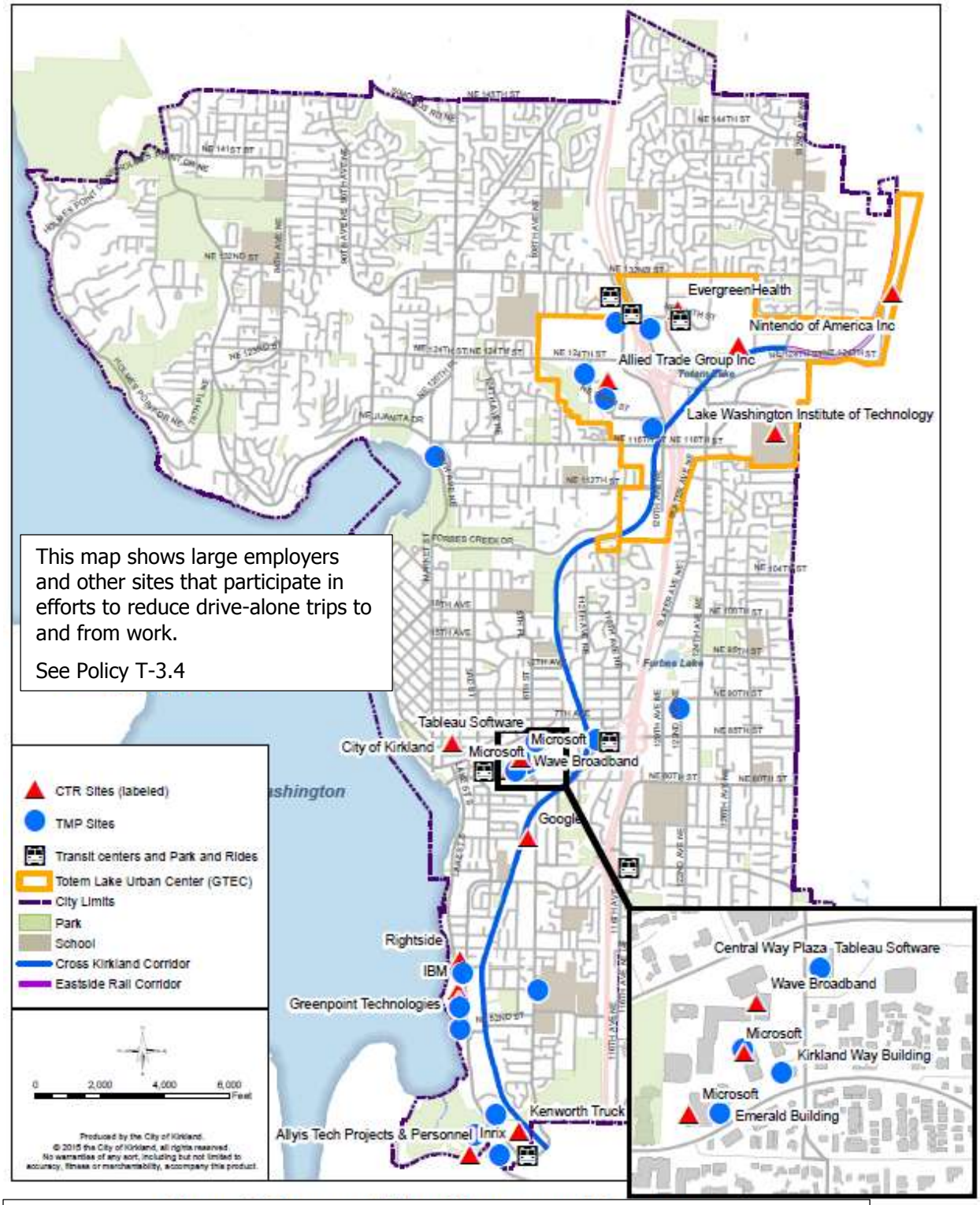


Completion of sidewalks on School Walk Routes

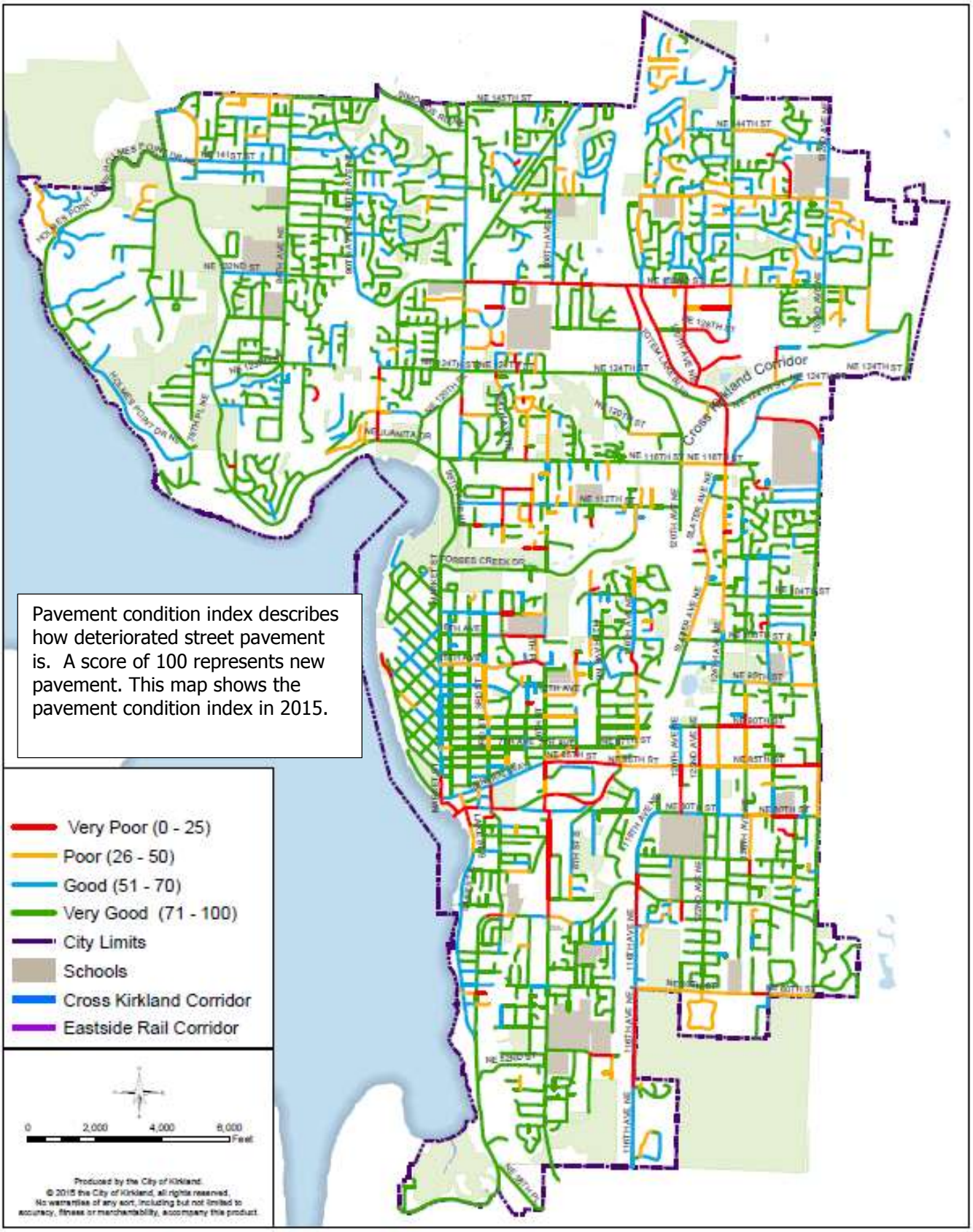
Transit Routes in the Kirkland Vicinity



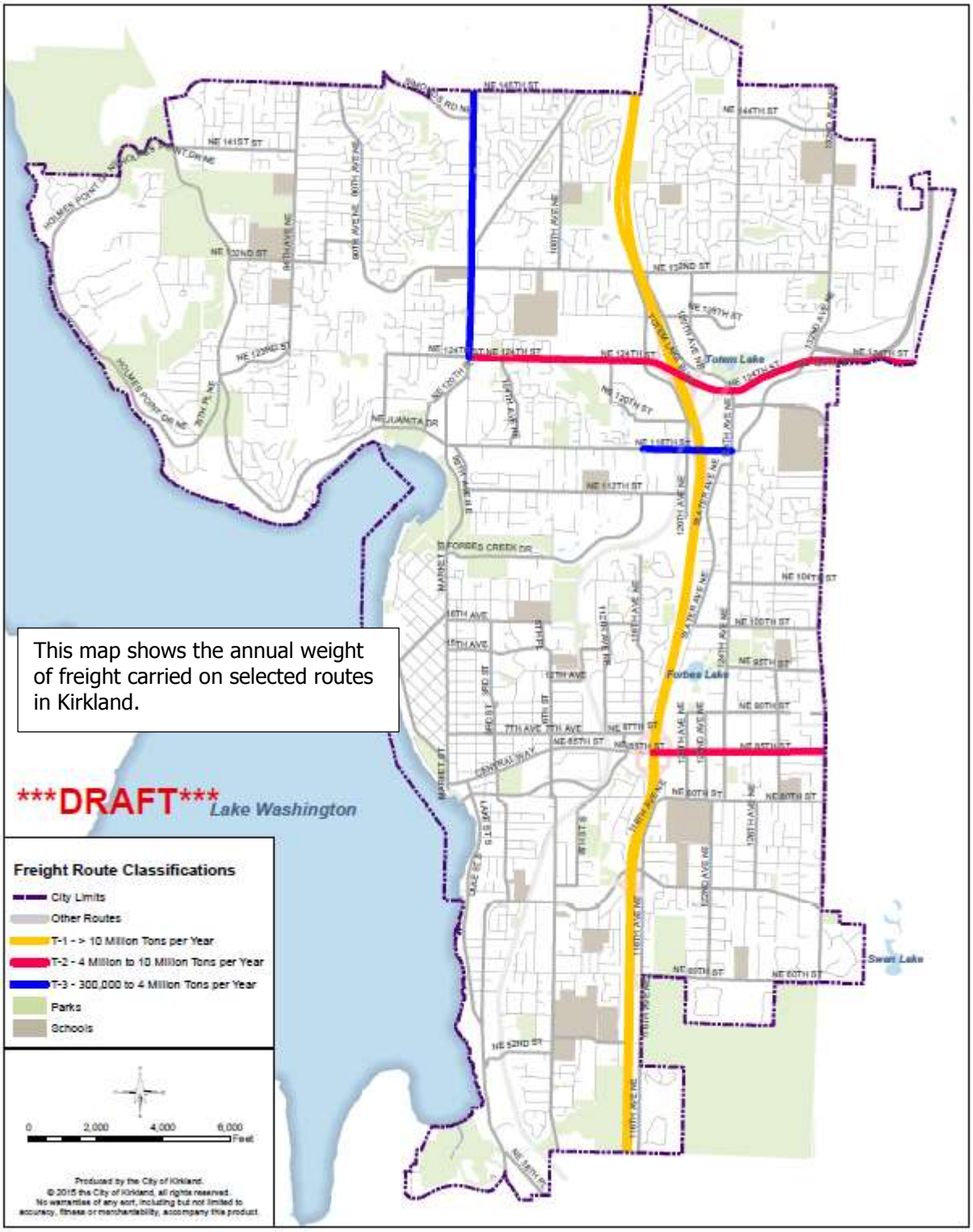
Volume of riders and location of shelters at transit stops



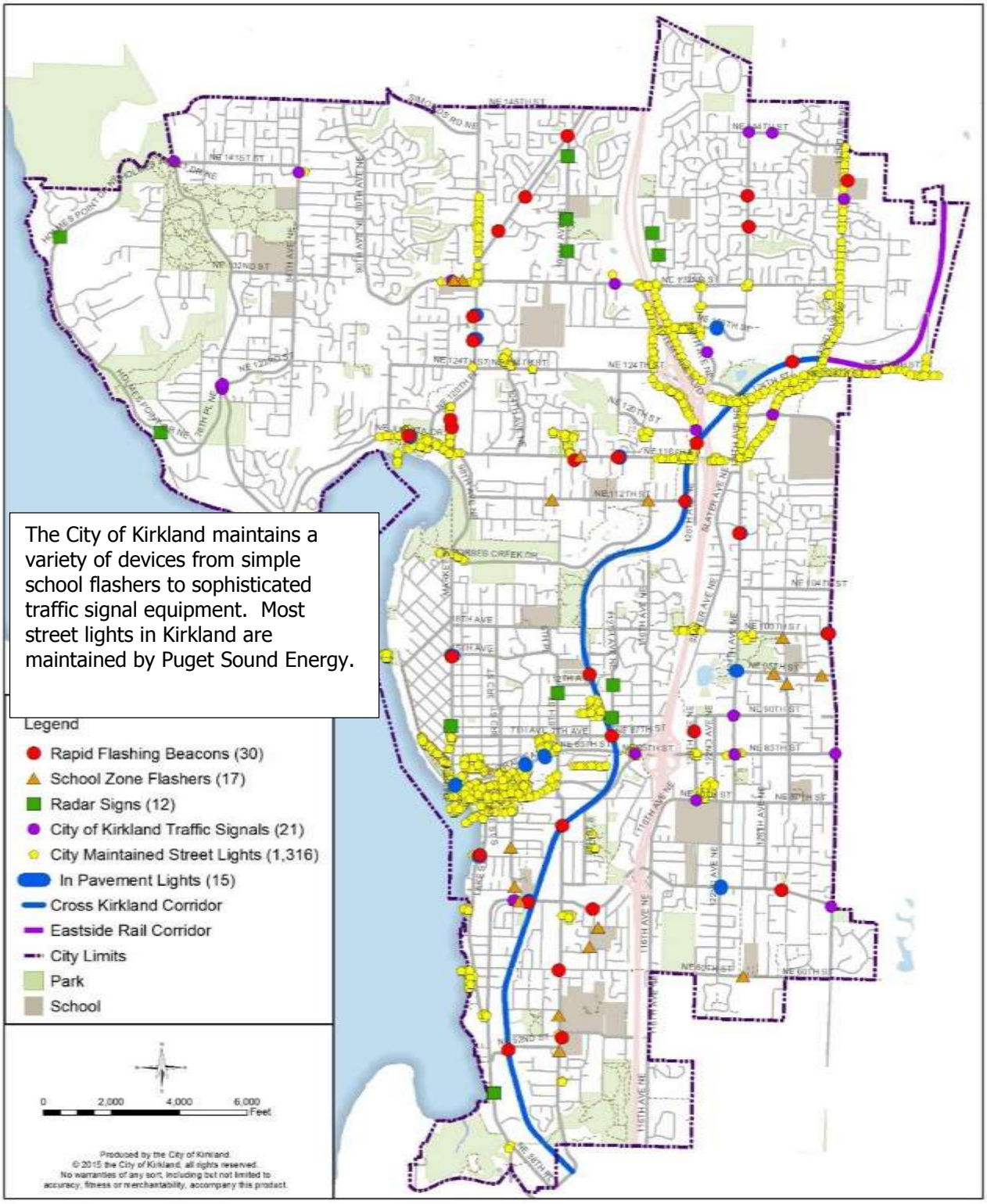
Location of transportation management program and commute trip reduction sites



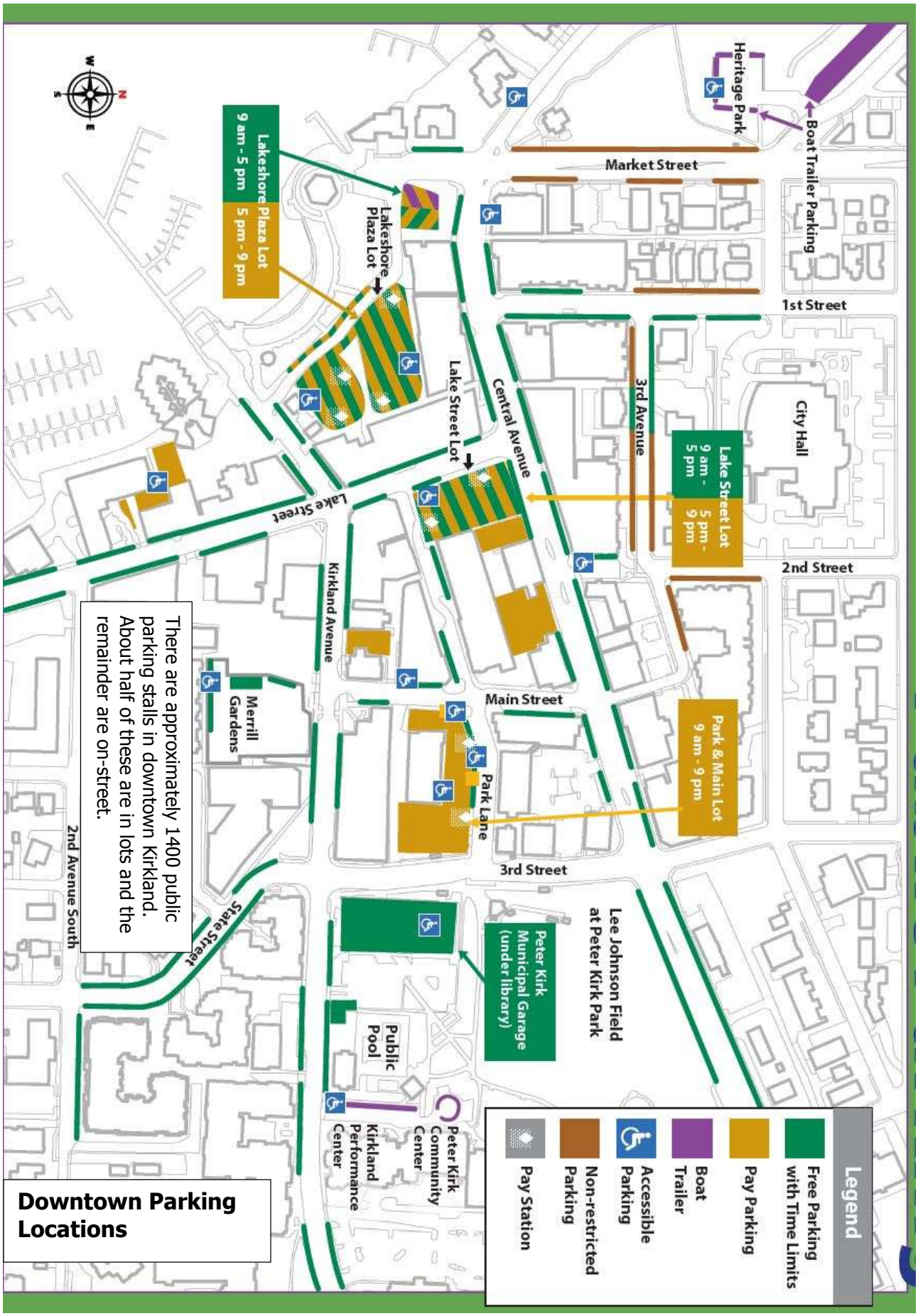
Pavement Condition Index



Freight volume on selected routes

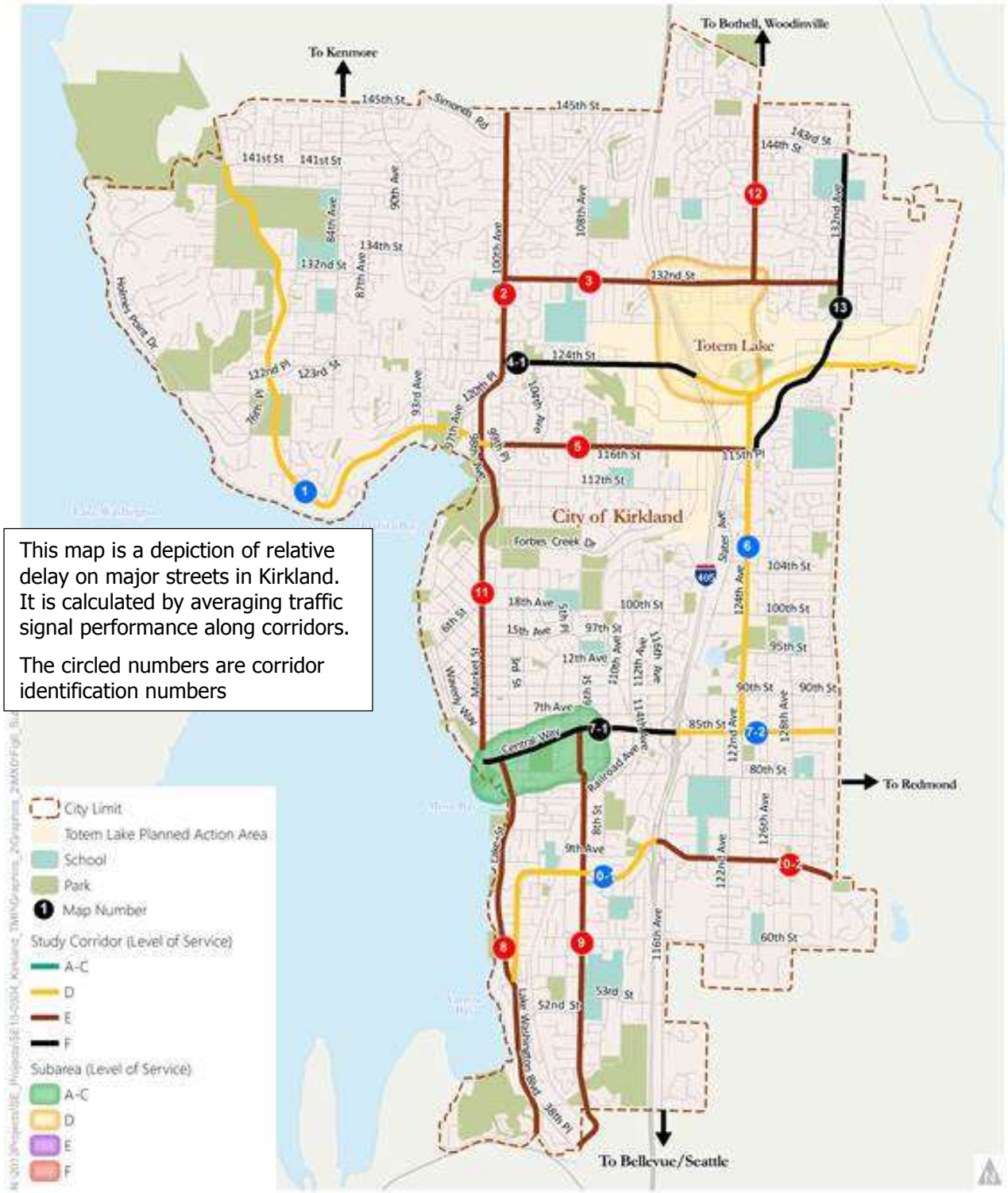


Items Maintained by COK Signal Shop



There are approximately 1400 public parking stalls in downtown Kirkland. About half of these are in lots and the remainder are on-street.

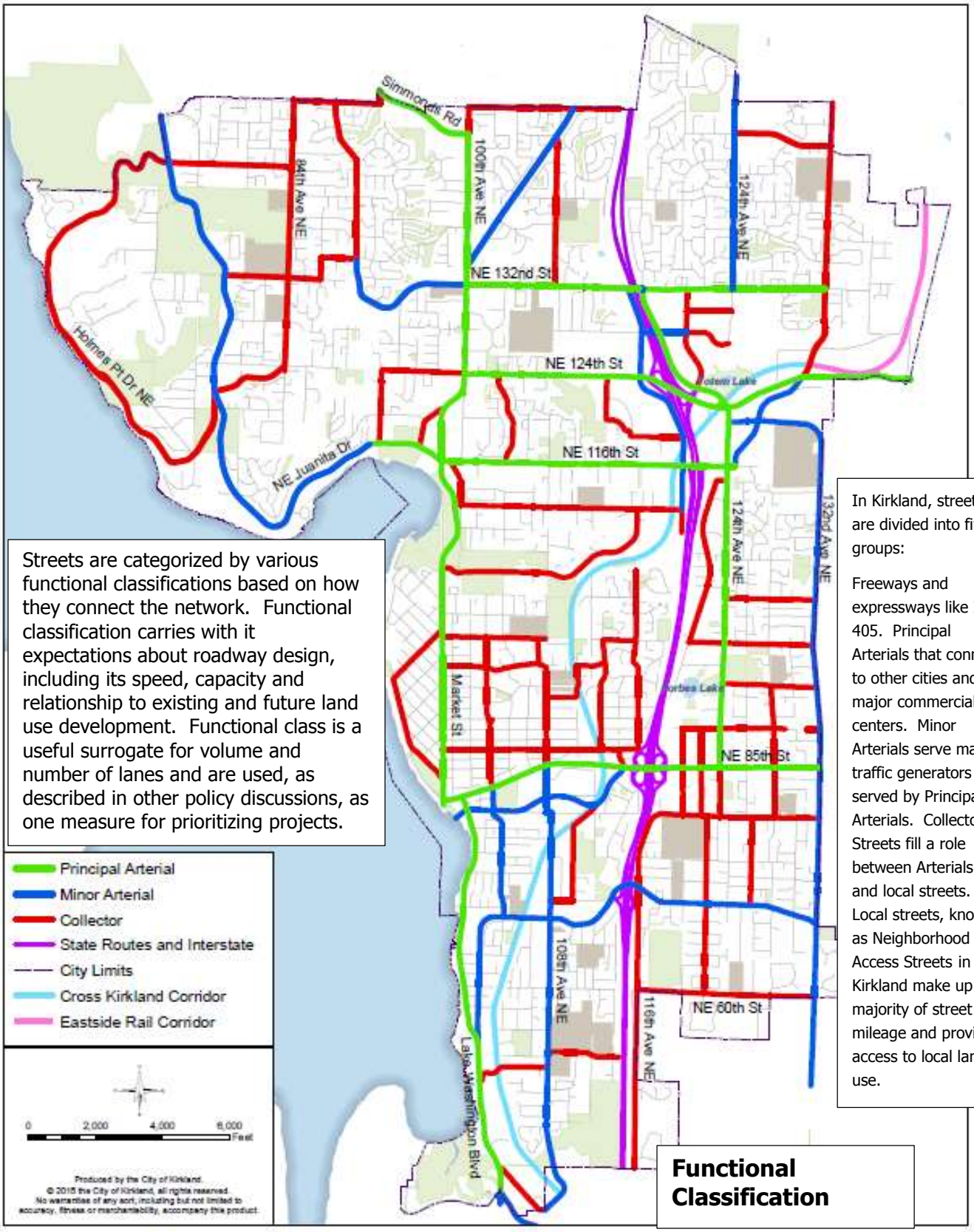
Downtown Parking Locations



This map is a depiction of relative delay on major streets in Kirkland. It is calculated by averaging traffic signal performance along corridors.

The circled numbers are corridor identification numbers

Existing traffic congestion

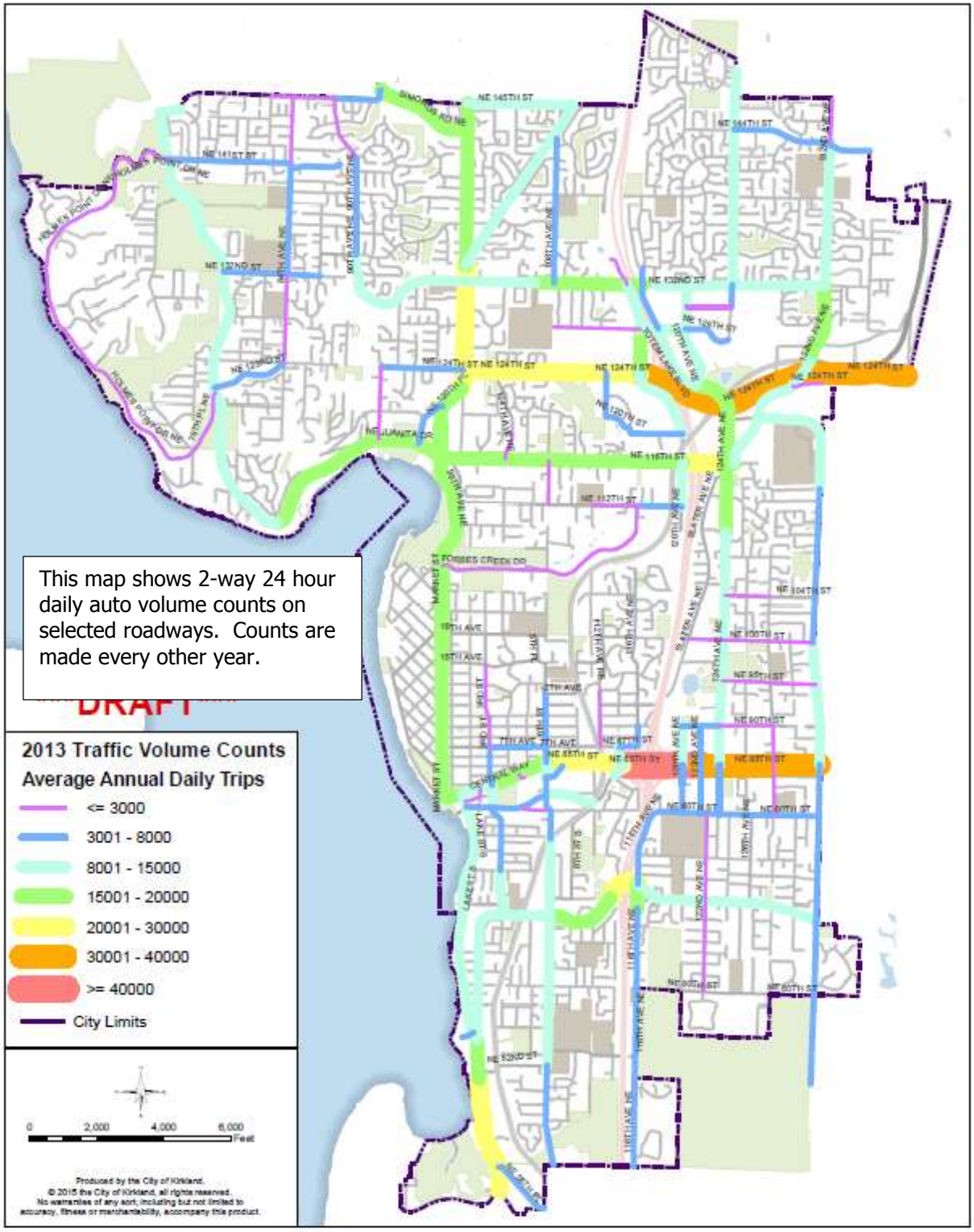


Streets are categorized by various functional classifications based on how they connect the network. Functional classification carries with it expectations about roadway design, including its speed, capacity and relationship to existing and future land use development. Functional class is a useful surrogate for volume and number of lanes and are used, as described in other policy discussions, as one measure for prioritizing projects.

In Kirkland, streets are divided into five groups:

Freeways and expressways like I-405. Principal Arterials that connect to other cities and major commercial centers. Minor Arterials serve major traffic generators not served by Principal Arterials. Collector Streets fill a role between Arterials and local streets. Local streets, known as Neighborhood Access Streets in Kirkland make up the majority of street mileage and provide access to local land use.

Functional Classification



Volume of auto traffic on selected streets

Summary of goals

The goals that guide the Transportation Master Plan support the plan vision and are consistent with previous work done by the Transportation Commission. They are also consistent with County wide goals and policies.

Goal T-0 Safety By 2035 eliminate all transportation related fatal and serious injury crashes in Kirkland.

Goal T-1 Walking - Form a safe network of sidewalks, trails and crosswalks where walking is comfortable and the first choice for many trips.

Goal T-2 Biking – Interconnect bicycle facilities that are safe, nearby, easy to use and popular for people of all ages and abilities.

Goal T-3 Public Transportation - Support and promote a transit system that is viable and realistic for many trips.

Goal T-4 Motor Vehicles - Efficiently and safely provide for vehicular circulation recognizing congestion is present during parts of most days.

Goal T-5 Link to Land Use - Create a transportation system that supports Kirkland's land use plan.

Goal T-6 Be Sustainable – As the transportation system is planned, built and maintained, provide mobility for all using reasonably assured revenue sources while minimizing environmental impacts.

Goal T-7 Be an Active Partner - Coordinate with a broad range of groups to help meet Kirkland's transportation goals.

Goal T-8 Transportation Measurement - Measure and report on progress toward achieving goals and actions.

Four Key elements of a Vision Zero safety Plan

1. **Emphasis:** On crashes resulting in fatalities and serious injuries, with a date specific goal.
2. **Partnerships:** Policy makers, Enforcement, Education, Advocacy, Engineering, Emergency Medical Services, Vehicle Manufactures all work together.
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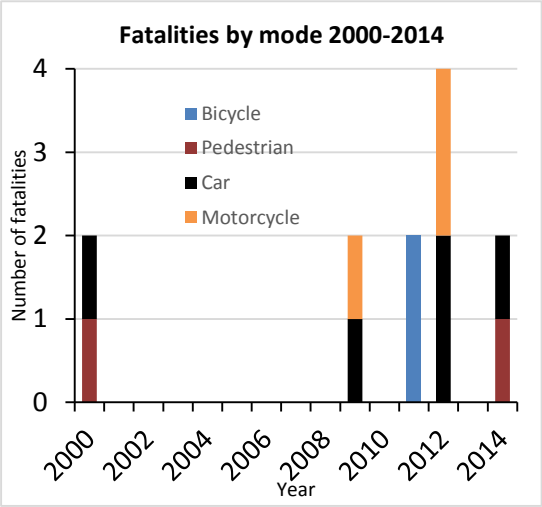

CHAPTER 1. SAFETY

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Policy T-0.1 Develop a vision zero safety plan that is multi-disciplinary and focuses on innovative approaches to safety.

More specifics around this policy are included in the policies for walking, biking, motor vehicles and in other areas of the plan.

This chart shows the number of fatalities in Kirkland for the period 2000 through 2014. Note that number of fatalities is slightly greater than the number of fatal crashes; for example a single motorcycle crash in 2012 resulted in two fatalities.

The boundaries of Kirkland were expanded through annexation in 2011. All the crashes resulting in fatalities after 2009 were in the new area of Kirkland, with the exception of the motorcycle crash in 2012. The pre 2011 annexation area of Kirkland has been fatality-free since 2000 for pedestrians, and for more than 20 years when considering bicycle crashes.

[1] New York City Vision Zero Action Plan

CHAPTER 2. WALKING

Background

Walking supports a livable community through increased interpersonal interaction, commerce, and health. Pedestrians, including those who use wheelchairs or other mobility aids, are an important priority on Kirkland's transportation network because every traveler is a pedestrian at some stage of their trip, regardless of travel mode.

Walking has long been a cornerstone of the transportation system in Kirkland as evidenced by the creation of lakefront walkways, use of innovative crossing treatments and, most recently, through the purchase of the Cross Kirkland Corridor. Because of an emphasis on walking facilities around schools, improvements have been made at almost every school in Kirkland during the past few years.

Despite these efforts there is more to be done. I-405 is a barrier to pedestrians, too many busy streets do not have sidewalks, crosswalks need upgrades and there are still areas around schools, parks and commercial areas that need improvements. Better lighting, separation from traffic, wayfinding, and facilities to help those who rely on curb ramps and other aids are also areas where improvement is needed.

Focusing on what makes a great walking environment – accessibility, safety, comfort, clarity, completeness -and applying these throughout Kirkland is fundamental to this goal. Two places in particular, the shores of Lake Washington and the Cross Kirkland Corridor offer the opportunity to create places that are both transportation facilities and spaces offering truly remarkable experiences for walking.

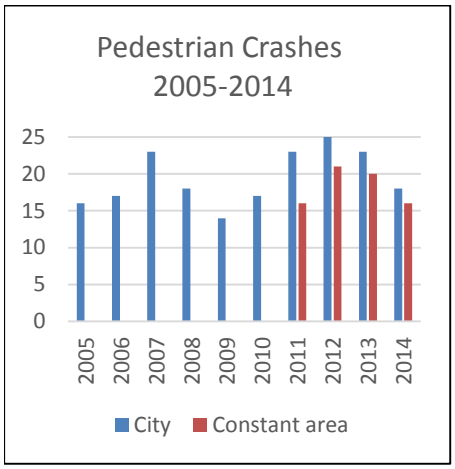
Walking in Kirkland

View from I-405 ped bridge

Cross Kirkland Corridor

Crosswalk with flasher

Crossing a school walk route



The chart above shows the number of pedestrian crashes in the City of Kirkland for the past 10 years. In 2011 the city boundaries expanded. The red lines show the number of crashes within the pre-2011 city boundaries.

A starting place for a vision zero approach is formation of a cross-department city staff team; bolstered with members from organizations like:

- Evergreen Health Care,
- King County Public Health
- Feet First
- Cascade Bicycle Club
- Kirkland Greenways
- Lake Washington School District
- Kirkland Youth and Senior Councils

Smart pedestrian pushbuttons can send count information back to City Hall and are part of an intelligent transportation system.

Goal T-1. - Complete a safe network of sidewalks, trails and improved crossings where walking is comfortable and the first choice for many trips.

Policies

Policy T-1.0. Improve the safety of walking in Kirkland.

Protecting pedestrians is one of the most important values held by Kirkland's residents but also by the current City Council, City Councils of the past, and, it is safe to assume, City Councils of the future. Therefore this policy is foundational to the planning of transportation system.

Data necessary for an accurate and cost-effective safety evaluation is critical to improving safety and must be gathered over time. Rate-based measures like crashes-per-unit-of-pedestrian-volume are more helpful than simply the number of pedestrian crashes because they help prioritize where crash countermeasures are most needed.

Meaningful increases in pedestrian safety require a multi-disciplinary, multi-agency approach addressing more than the implementation of engineering solutions and simply keeping track of the number of crashes involving pedestrians. Washington State's Target Zero Campaign and other programs throughout the US are examples of this approach. Such efforts should be adopted fully by the City of Kirkland.

Action T-1.0.1 Develop a program to count pedestrian volume in a manner that is meaningful for measuring safety trends.

Action T-1.0.2 Integrate efforts between the Public Works and Police Departments to ensure timely reporting and accurate cataloging of crash data.

Action T-1.0.3 Revise Kirkland's pedestrian safety program using a vision zero style program.

Policy T-1.1. Identify and remove barriers to walking

All the policies and actions associated with goal T-1 are associated in one way or another with removing barriers to walking. This policy serves not only as the basis for the removal of specific barriers but also the policy by which general actions are supported.

The **Active Transportation Plan** (ATP) is a means for coordinating pedestrian needs on a more detailed level than is done here and the ATP should be updated regularly, ideally at least every five years.

Common physical barriers to walking include vegetation that extends into walkways from public and private property. Solid waste receptacles are a common source of obstructed walkways because often there is no place for their storage besides sidewalks. Because of our long fall and winter evenings, lighting is a necessary feature in the pedestrian network.

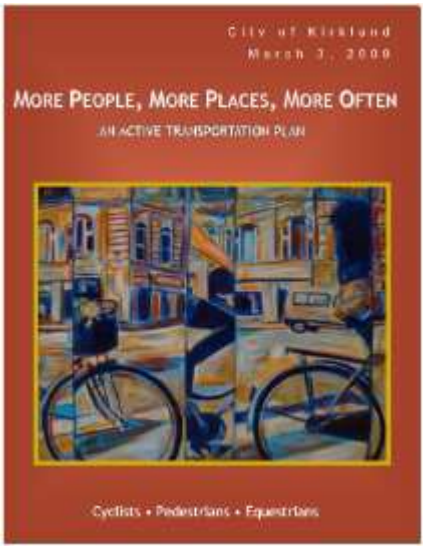
Making facilities accessible to all users is a large and important undertaking. The City of Kirkland carefully scrutinizes new construction and maintenance activities to make sure that those projects meet the most current standards for accessibility. There is a large fraction of existing facilities that need comprehensive review and possible mitigation. Those mitigations represent a sizable investment relative to the amount of funding that has traditionally been available for capital projects.

Projects that remove barriers to traditionally underserved populations such as low income and senior populations should be prioritized. Often these communities have relatively low auto-ownership rates and therefore draw substantial benefit from pedestrian improvements. Young people should be considered in the design of the pedestrian network for all types of trips; not just for the journey to school.

Because it bisects the City from north to south I-405 is an effective barrier to pedestrian travel. This barrier should be made more permeable wherever feasible. This could include new bridges and improved pedestrian facilities at interchanges.

Connections between cul-de-sacs and dead end streets that remove barriers to pedestrian travel should be planned and implemented. Connections to Lake Washington are of particular importance. Many of these connections are built with new development. (see policy T-5.5)

More detailed planning



Kirkland's ground breaking 1995 Non-Motorized Transportation Plan was revised in 2001 and rewritten as the Active Transportation Plan (ATP) in 2009.

The goals and policies in the ATP are now largely in this plan. The new role for the revised ATP is to fill in the details that are not covered in this broader plan. Examples could include topics like wayfinding, crosswalk treatments, and a plan for trails on Finn Hill.

Perhaps the best example of removing barriers is the lake front access that is required of new developments.

Barriers at I-405

Built in a time when pedestrians were not actively considered, the I-405 interchange at NE 124th Street is a barrier to pedestrian travel. This has been mitigated in part by a new walkway.

Three was to make walking accessible to more people.

Curb ramps allow easier access for those who have difficulty seeing or navigating changes in elevation.

Brightly colored and detectable surfaces indicate that users are about to enter traveled ways.

Removing obstructions like trash receptacles.

Action T-1.1.1 Regularly (every 5 years as a goal) update the ATP to cover all of Kirkland's neighborhoods and to further guide implementation of the policies in this plan for walking and biking.

Action T-1.1.2 Reduce sidewalk blockages by reviewing, revising and enacting regulations or other measures.

Action T-1.1.3 Finalize an **Americans with Disability Act** (ADA) Transition Plan for transportation facilities. Fund improvements that come from the plan in a manner that allows for completion of an accessible network in a timely manner.

Action T-1.1.4 Engage Washington State Department of Transportation and other agencies in discussions in order to advance improvement of existing interchanges with the intention of securing funding to design and construct new interchanges at NE 124th Street, NE 85th Street and NE 70th Street. (See policy T-7.3).

Action: T-1.1.5 In order to provide the best possible designs, Review and revise pre-approved plans and other design guidelines that affect pedestrians. Adopt street design guidelines in keeping with guidance published by the **National Association of City Transportation Officials** (NACTO) and the **American Association of State Highway and Transportation Officials** (AASHTO).

Policy T-1.2. Make getting around Kirkland on foot intuitive.

A complete wayfinding system for pedestrians complements and makes a sidewalk and trail network more functional. Wayfinding systems that move beyond signing only, for example those that integrate web-based systems, should be explored. Up-to-date mapping that is convenient for those traveling by foot is also beneficial to activating neighborhoods where people can walk regularly for daily tasks. Making this information available in multiple formats and across multiple platforms will increase its usefulness.

Action T-1.2.1 Develop and implement a pedestrian-scaled wayfinding system available in multiple formats and across multiple platforms. This will involve identifying destinations, choosing routes, designing and installing infrastructure.

Action T-1.2.2 Regularly update Kirkland's walking map, ideally every 5 years or less.

This illustration is a portion of a walking map of Kirkland. It shows transit routes, certain types of retailers and other elements that are valuable to pedestrians but which change from time to time, therefore requiring regular updating.

Good wayfinding is deceptively difficult; many details have to be coordinated to lead people easily to their destinations. The examples below show the use of multiple styles, the incorporation of color and the need to choose appropriate destinations for inclusion in the system.

10 minute neighborhoods equals walkability

If you live in a "10 minute" neighborhood, you can walk conveniently to stores, parks buses and schools within 10 minutes.

Streets in 10 minute neighborhoods that don't have good sidewalks are excellent candidates for new sidewalk projects.

10 minute scores can be developed given the location of parks, schools, certain kinds of retail, etc. The northern part of Kirkland is shown in the map above. Brighter areas have a higher 10 minute score than darker areas. For example, note the bright areas around Juanita and Evergreen Hospital. White lines show streets that have a relatively high 10 minute score, but incomplete sidewalk.

Policy T-1.3. Prioritize, design and construct pedestrian facilities in a manner that supports the pedestrian goal and other goals in the Plan.

Safe and convenient walkways of the appropriate size are a foundation for pedestrian activity. Kirkland's existing codes call for sidewalks on both sides of almost all streets. Because of the cost to construct sidewalks wherever they are missing in Kirkland's system, it is important that clear priorities are used to assign funding to the most worthy projects first. Locations should prioritized using the following factors:

- Improve safety— prioritize locations based on crash history and indicators of crash risk like adjacent street auto volume, speed and number of lanes.
- Link to Land Use— choose sidewalks that expand and enhance walkability and places where current pedestrian volumes are high.
- Connect to the Cross Kirkland Corridor—make numerous strong links to the CKC.
- Make Connections— give high priority to projects that fill gaps by connecting existing sidewalks.
- Connect to Transit—complete walkways that allow easy access to transit, particularly regional transit.
- Community input—because of the scale of pedestrian projects, gathering the on-the-ground knowledge of community input is particularly important in selecting pedestrian projects.
- Cost/likeliness to receive grant funding – projects that have lower cost or that are good candidates for grant funding should generally have a higher priority. However, caution must be exercised so that high cost, high value projects are also considered.

Design of sidewalks should include features that make them safe and comfortable. The need for planter strips and wider sidewalks increases where land use is more intense and where the number of auto lanes and speeds on adjacent streets are greater. On street parking can also serve as a buffer between pedestrians and moving vehicles.

Action T-1.3.1: Develop a method for prioritizing sidewalk projects within the Capital Improvement Program.

Action T-1.3.2: Review and revise design requirements for sidewalks.

Policy T-1.4. Develop world-class walking facilities along the Cross Kirkland Corridor with ample connections to the rest of Kirkland. Consider creating a plan for a Promenade along portions of the shore of Lake Washington.

Kirkland is fortunate to have two walking environments that distinguish it from many other cities. The first is the 5.75 mile long **Cross Kirkland Corridor** (CKC), part of the 42 mile Eastside Rail Corridor. The corridor Master Plan recognizes that the corridor is at once a place for both transportation and recreation, a place to go through and a place of activity in its own right. Realizing the Master Plan vision will result in a corridor of the highest value to the pedestrian network and to the community.

The second environment of note is the shore of Lake Washington south of downtown Kirkland is a popular spot for recreational walking, but like the CKC, it can be imagined as the site of a richer pedestrian experience; not only a place to walk through, but a lively gathering place that enhances the entire community. A planning study would be a logical first step in evaluating if and how the space along the lake could and should be used.

Action T-1.4.1: Construct the CKC according to the Master Plan vision

Action T-1.4.2: Consider developing a Master Plan for a lake front Promenade

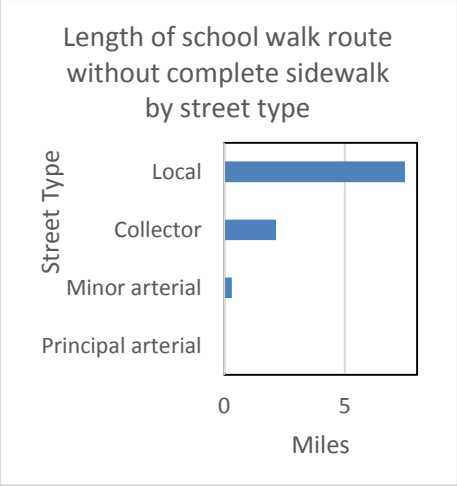
Below: The CKC Master Plan considers the corridor in a series of zones, each with its own character.

Four goals from the CKC Master Plan

1. **Connect:** link the corridor to the community; trails, schools, parks, businesses.
2. **Place:** Make it a place to go ***to*** not just ***through***.
3. **Evolve:** The corridor has the ability to change parts of the City, for example the Par Mac area. Transit is envisioned for the corridor.
4. **Green:** Environmental sustainability should be woven through the corridor. Central to this is the corridor as a bicycle transportation facility.

Walking to school

Completion of school walk routes is an important goal for the City of Kirkland.



The chart above shows the number of miles of school walk routes that don't have complete sidewalk on at least one side by type of street. Local streets make up the bulk of these streets, the busiest streets are mostly complete.

6 possible barriers to kids walking to school and other places:

1. *Lack of walkways*, safe street crossings.
2. *Takes too long*, kids have to get up earlier to go to school.
3. *Parents are driving anyway*, might as well drop the child off.
4. *Lack of certainty* that the child arrived at destination.
5. *Perceived danger* outweighs

Policy T-1.6 Make it safe and easy for children to walk to school and other destinations.

Because of the many benefits of walking, encouraging children to walk to school is a long standing priority of the Kirkland City Council and a Goal in the current Active Transportation Plan. As a result of this focus, the number of school walk routes with sidewalks has steadily increased. Completion of improved walkways on all school walk routes is an ultimate objective. Paved paths that are separated from auto traffic with a planter strip are considered complete. Areas without sidewalk or where walkers are separated from auto traffic by an extruded curb are not considered complete. Within the realm of school walk routes, projects should be prioritized based on the factors in Policy T-1.4.

The City has adopted and maintains a set of elementary school walk routes in Kirkland. In order to get substantial numbers of children to walk to school however, more than walk routes with sidewalks are needed. A multi-dimensional approach that identifies and systematically removes barriers to children walking is necessary. This may include programs within schools that promote walking along with programs like walking school buses. Planning must address the safety concerns of parents. The city should encourage, coordinate and be a resource for improving school walking programs but should not necessarily be responsible for their implementation.

In addition to travel to and from School, youth should be encouraged to walk to other activities; for example to a friend's house or to run errands. The same principles that support walking to school should be used to encourage walking for these other purposes.

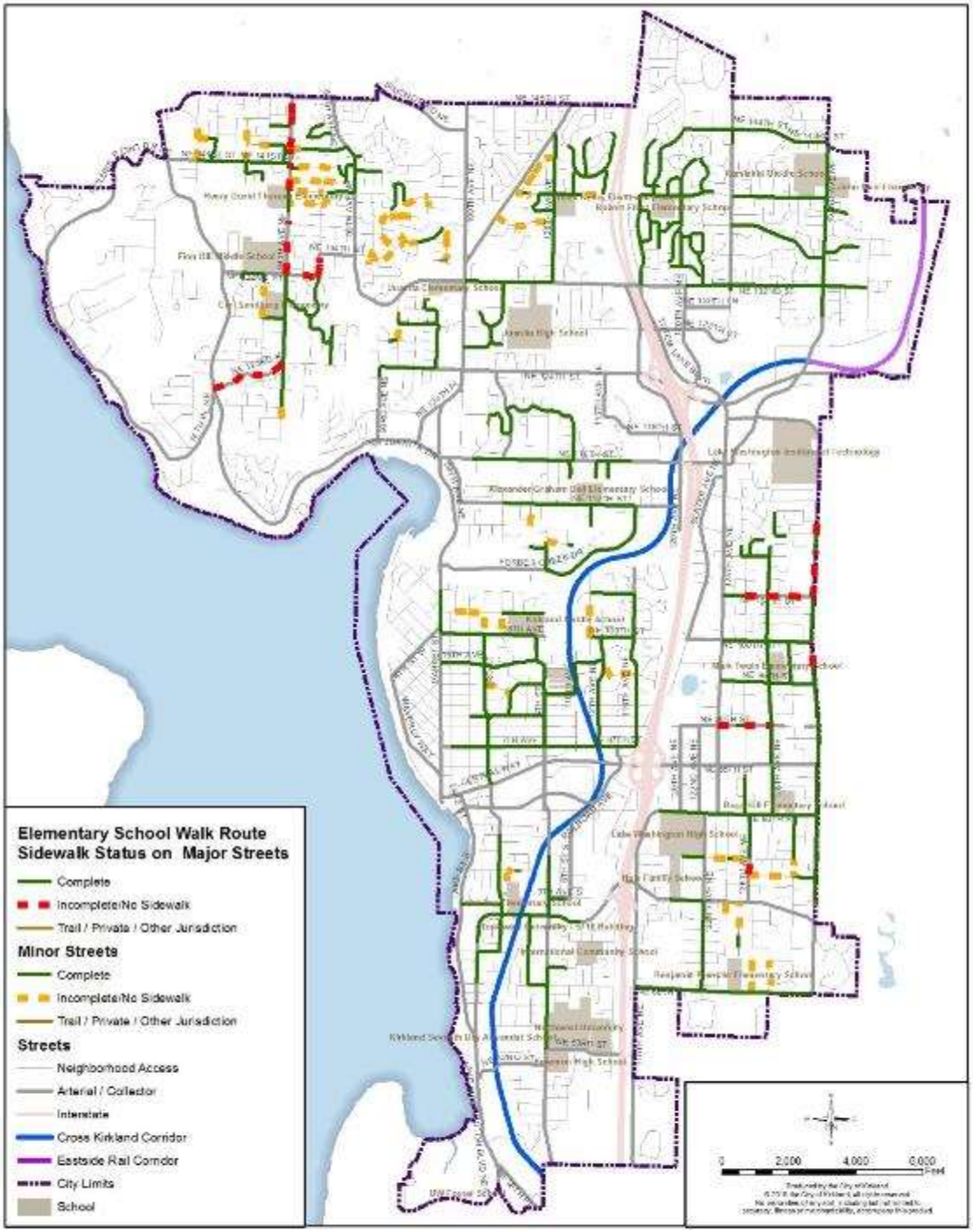
Action T-1.6.1: Plan and prioritize school walk route projects

Action T-1.6.2: Increase the number of children who walk to school by helping school communities develop and implement programs.

Action T-1.6.3: Help youth to be able to walk to activities by connecting places such as parks and practice fields with safe walkways.

The Parks Department's Senior Stepper Program support walking by older Kirklanders.

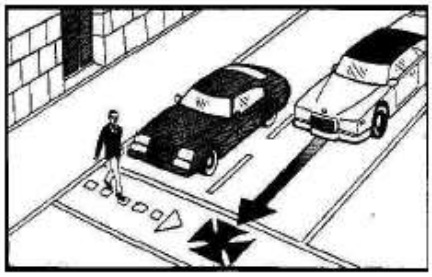
Map of school walk routes by street classifications



School Walk Routes

The 3 factors that most influence crosswalk safety:

1. **Number of lanes.** Multi-lane streets can leave pedestrians vulnerable to the "double threat" crash where one vehicle stops, the pedestrian begins to cross and the other vehicle, not seeing the pedestrian proceeds through the crosswalk.



2. **Traffic volume.** When the number of cars increases more protection is needed at a crosswalk.
3. **Traffic Speed.** It's intuitive that increased traffic speeds lead to higher pedestrian risk.

All three of these factors interact to determine what's needed at a particular crosswalk. As lanes, speed and volumes increase, a marked crosswalk alone is less appropriate and more protection is needed.

Policy T-1.7 Improve street crossings

Street crossings are critical to the success of a pedestrian network. Kirkland has a history of innovation in treatments at uncontrolled (crosswalks where vehicles are not required to stop) crossing locations and this should continue. Rapid flashing beacons or other state of the art devices should be used to enhance pedestrian visibility. Best practices and research[2] should be used to guide decisions.

The pedestrian flag program should be continued at crosswalks where volunteers are available to help stock and maintain the flags. Program improvements that increase flag usage should be sought.

Prioritization for street crossing improvements should be similar to those used for sidewalk projects:

- Improve safety—consider crash history and indicators of crash risk such as vehicle speed. Within the context of a vision zero program.
- Link to Land Use—prioritize crossings on routes with sidewalks that expand and enhance walkability or that otherwise help achieve Kirkland's land use goals. Improvements in the Totem Lake Urban Center should be given priority.
- Connect to the Cross Kirkland Corridor—improve crossings on routes that lead to or are near the CKC.
- Connect to Transit—give priority to crosswalks that allow easy access to transit, particularly regional transit, including near stops or at locations where multiple routes converge.
- Community input—continue to involve the community in deciding where crosswalks are located and improved.
- Cost/likeliness to receive grant funding – prioritize projects that have lower cost or that are good candidates for grant funding, but apply caution so that high cost, high value projects are also included.

Medians have been proven to have high value in improving pedestrian safety, and should be given special consideration at multi-lane locations where vehicle volumes are high. Adequate lighting and accessibility are other features that are a basic requirement at any crossing location.

[2]For example Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations Final Report and Recommended Guidelines, FHWA, 2005

The bulk of pedestrian crashes occur at intersections and turning vehicles are often involved. Features that reduce pedestrian exposure to risks at signalized intersections should be incorporated into the design of all intersections.

Traffic signal operation should regularly implement features that make crossing easier and safer for pedestrians.

Action T-1.7.1: Continue to support the Pedestrian Flag program; measure and improve its performance.

Action: T-1.7.2 Develop a prioritization method for crosswalk improvements including priority for islands at multilane streets

Action: T-1.7.3 Adopt traffic signal operational procedures that include practices such as advance pedestrian phases, generous walk intervals and protected left turn phasing.

Shorter Crossing distances

Source: Google Street view

The photos above show the intersection of 6th Street and Central Way. In the before photo (top) a separate right turn lane increased the speed of right turning traffic and the distance that pedestrians had to cross. In the lower photo the right turn lane has been removed, and a shorter fully signalized crossing is in place.

Three treatments for safety at crosswalks

1. Medians

Median islands make it necessary for pedestrians to focus on just one direction of traffic at a time. They also provide a location for lighting and warning devices.

2. Rapid Flashing Beacons

Kirkland has installed RFBs a number of locations often as an upgrade to in-pavement lights. Initial results in national research shows them to be very effective in getting drivers to stop for pedestrians.

3. Making crossing distances shorter.

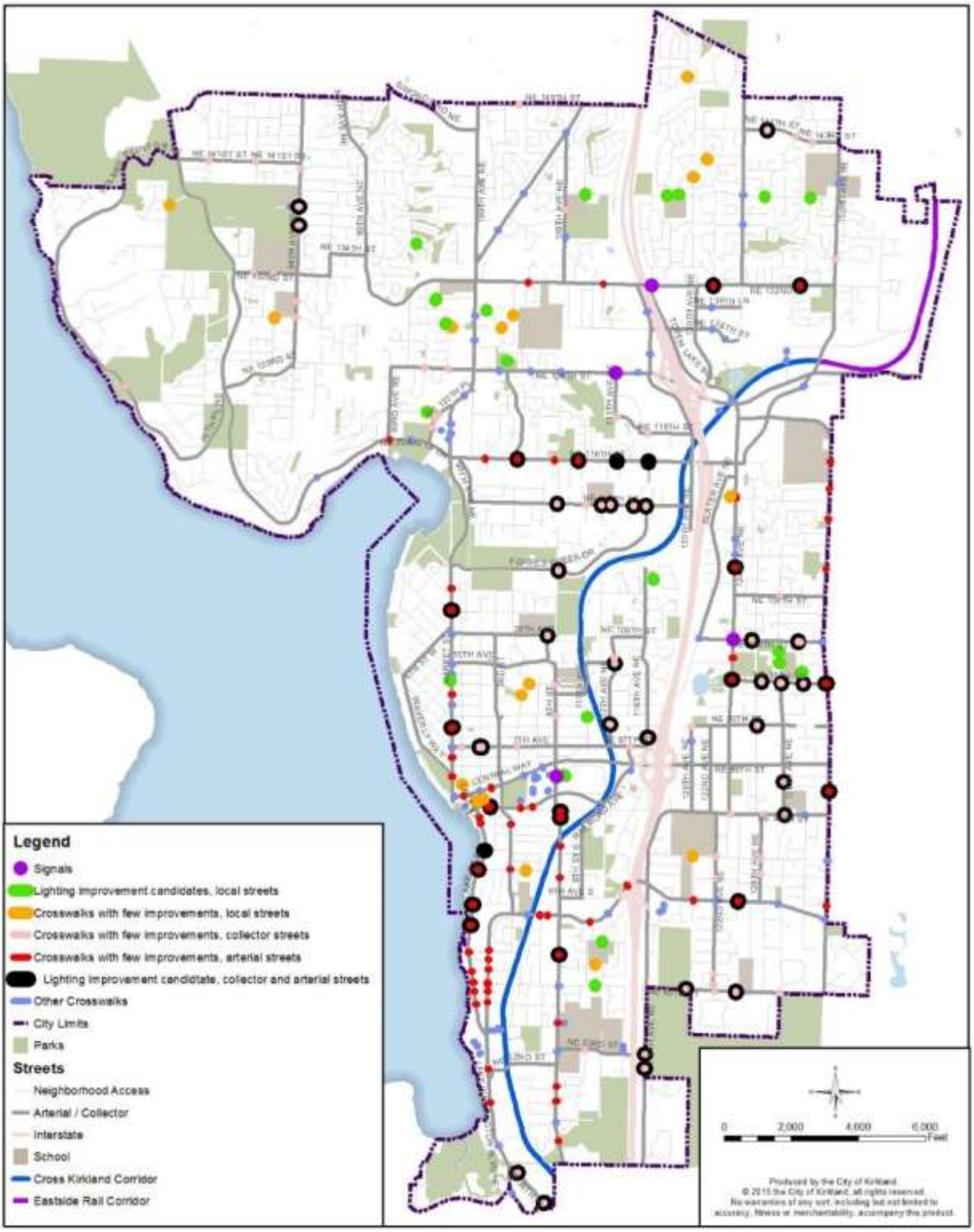
Shorter crossing distances are easier to navigate. An examples are shown in the photos at left.

4. Signal control.

Signal control can be used to help pedestrians feel comfortable crossing streets at traffic signals

- Display walk sign without needing to push a button.
- Use generous crossing times.
- Show the walk sign before displaying green for cars.
- Prohibit right turns on red signals

Most of these techniques can be controlled to operate all the time or at certain times of the day or days of the week.



Possible Crosswalk treatment candidates

CHAPTER 3. BICYCLING

Goal T-2 Interconnect bicycle facilities that are safe, nearby, easy to use and popular with people of all ages and abilities.

Background

Like walking, bicycling is a clean, healthy and efficient way to make many trips in a livable city. Today, many Kirkland residents would like to make more trips by bicycle; one reason they do not is because the current network of on-street bicycle lanes does not meet their needs for safety and convenience. In order to unlock the potential of bicycling, the existing network of on-street bicycle lanes should be improved by supplementing it with facilities that people of all ages and abilities find safe and welcoming. A large toolbox of options including but not limited to buffering and or widening bike lanes, creating physical separation from traffic with parking or other means, building Greenways and off-street trails should be developed to improve bicycle facilities.

Cities around the globe, including Portland, OR and Vancouver, BC have documented the relationship between more bicycling facilities and safety. When top notch facilities are available, bicycle ridership increases and safety (for all modes) improves. This leads to more cycling, support for more facilities and further safety improvements.

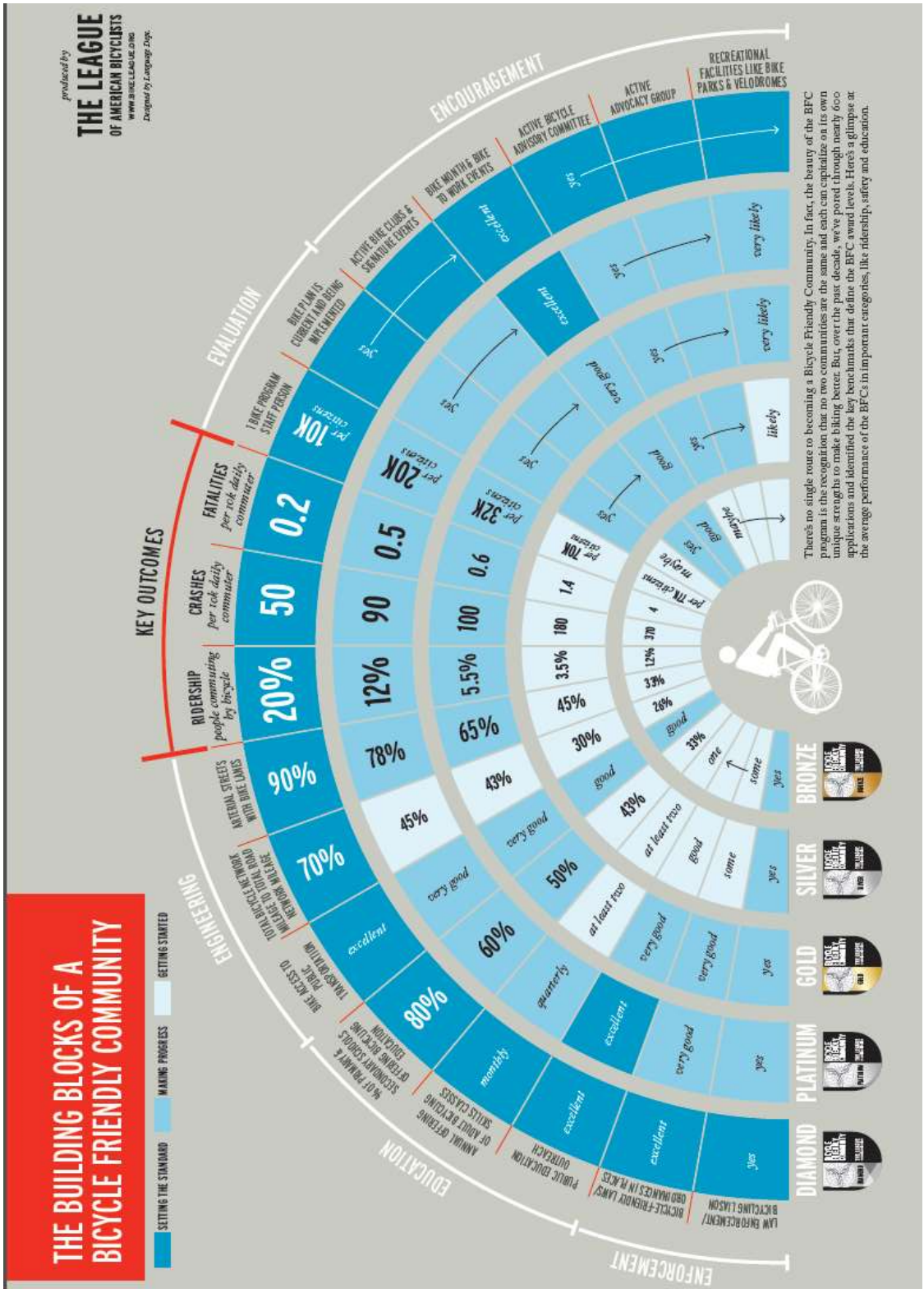
For bicycling to be a viable for people of all ages and abilities to make a wide variety of trips, bicycle parking must be widespread and plentiful, not just at commercial locations but at parks and transit facilities. Signing and marking for the bicycle network should be applied generously but in a way that fits with the surrounding neighborhood. Routes need to be supported by carefully chosen wayfinding that is integrated with that of neighboring cities. Kirkland's terrain means that special treatments for bicycles like runnels should be considered at stairways and steep grades to help cyclists get up and down elevation changes.

The graphic on the next page shows The League of American Bicyclists' definition of attributes that make a bicycle friendly community.

This illustration shows a spectrum of bicycle facilities. Those on the right are more comfortable for more users. In this illustration Greenways are called Local Street Bikeways.

Source: City of Vancouver, B.C.

This chart lists attributes that make a bicycle friendly community and it could serve as a blue print for Kirkland's efforts



Policies

Policy T-2.1 Make bicycling safer

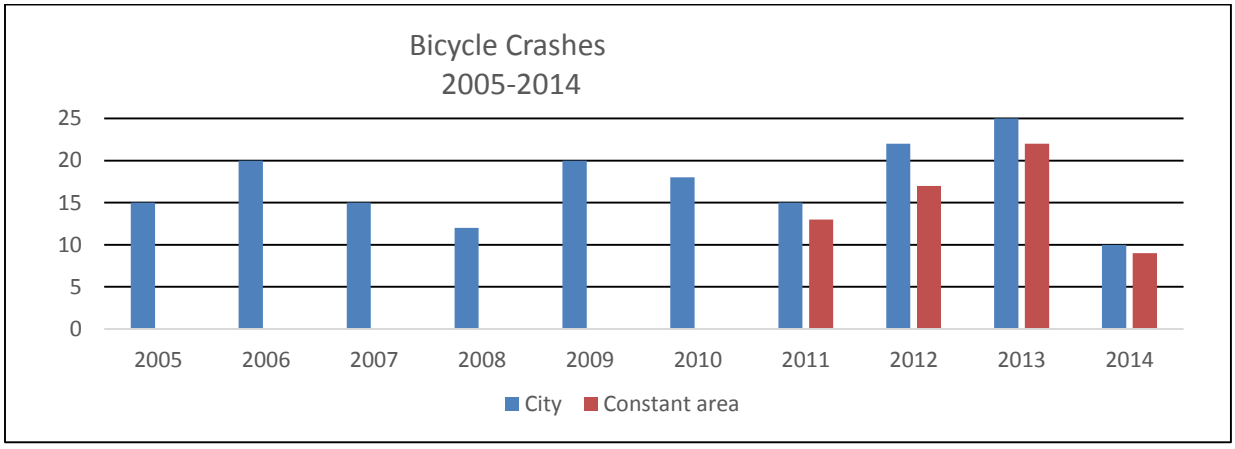
As with pedestrian safety, the vulnerability of cyclists to motor vehicles dictates that bicycle safety must be relentlessly pursued.

Bicycle use should be measured to understand trends in usage, where new facilities are needed. The impact of improved facilities on ridership must be measured. Volume data is needed to assess improvements while also used to identify and improve crash rates.

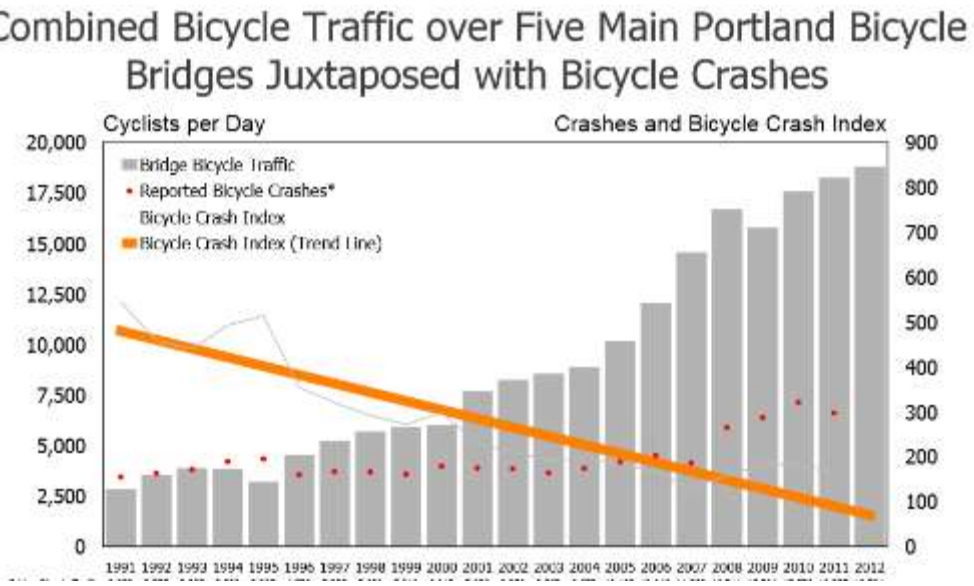
The same principles that apply to safety for other transportation modes apply to bicycling. Increases in safety will require a multi-disciplinary, multi-agency approach addressing more than the implementation of engineering solutions and more than simply keeping track of the number of bicycle crashes. Such efforts should be expanded at the City of Kirkland.

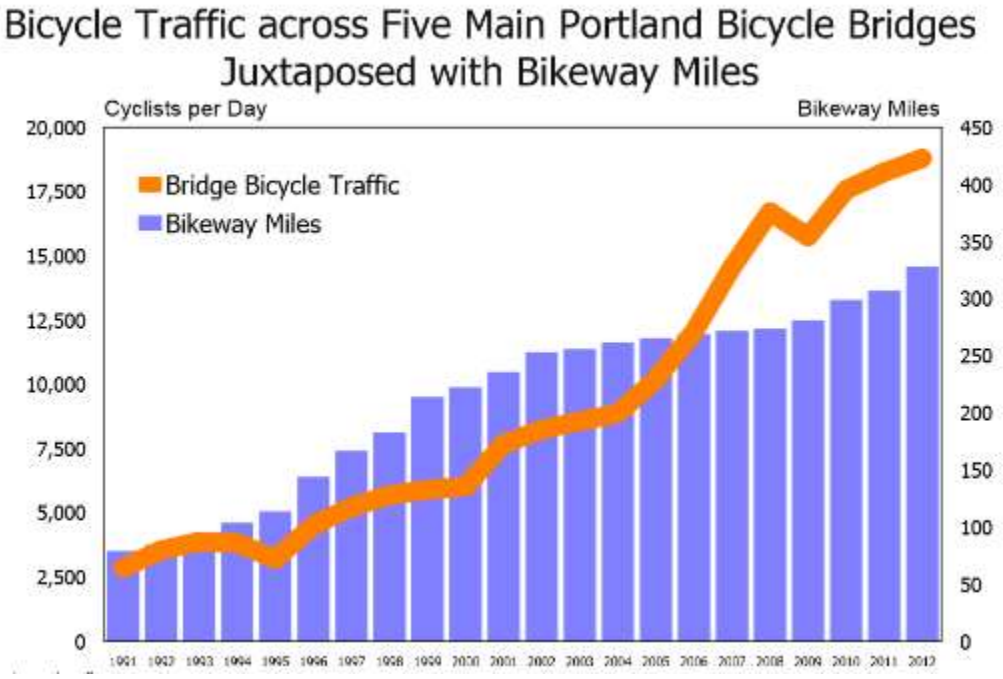
Action T-2.1.1 Use vision zero techniques to revise and implement Kirkland's bicycle safety program.

Action T-2.1.2 Develop a program to gather bicycle volume at key points in the City in a manner that is meaningful for measuring safety and ridership trends. Reporting from bicycle detectors can be one means of obtaining this information. Integrate efforts between the Public Works and Police Departments to ensure timely reporting and accurate cataloging of crash data. These data collection measures should be part of Intelligent Transportation Systems. Data should be collected in a way that allows comparison with data from other cities in our region.



The chart above shows **the number of bicycle crashes in the City of Kirkland** for the past 10 years. In 2011 the city boundaries expanded. The red lines show the number of crashes within the pre-2011 city boundaries.





Safety in numbers. *The upper chart from the City of Portland shows a negative correlation between bicycle traffic (grey columns) and crash trends (gold line). As the numbers of bicycle riders has increased from 1991 to 2012, the crash rate has decreased.*

The lower chart shows that bicycle traffic has increased along with an increase in miles of bikeway. Combining the charts suggests that one of the best ways to increase safety is to increase the number of safe and convenient facilities for cyclists.

Policy T-2.2 Create new and improve existing on-street bike facilities.

A system of on-street bicycle lanes currently forms the basis of Kirkland's bicycle network and is likely to do so in the near future. Most of these bicycle lanes are of minimum width and have no barriers between auto and bicycle traffic. Research has shown that improving on-street bicycle lanes by widening, separating and/or buffering from auto traffic makes bicycling more attractive. The Map in this section shows a proposed network of bicycle facilities. One of the ongoing challenges for a bicycle network is the limited number of north-south arterials in Kirkland. The paucity of arterials forces auto and bicycle traffic together through the need for both auto and bicycle travel.

Many of Kirkland's existing bicycle facilities can be made wider through changing pavement markings, and, similarly, new bicycle lanes can sometimes be created relatively inexpensively by narrowing auto lanes.

High quality, separated on-street facilities (formerly known as cycle tracks) should be part of Kirkland's bicycling network. This concept is especially important along high volume arterials where bicyclists are threatened by automobile traffic and from door openings of parked vehicles. Sometimes these facilities may include traffic signal modifications for bicycles. Higher levels of signing and marking could significantly improve the on-street bicycling experience and therefore the viability of bicycling. Continuing bike facilities through intersections where they are currently dropped, and including better signal detection would have similar effects. Methods for making these improvements and others should be detailed in a revised Active Transportation Plan.

Guidelines that illustrate enhanced bicycle facility design are becoming widely available and should be adopted by Kirkland. These facilities should be the focus for improvement projects.

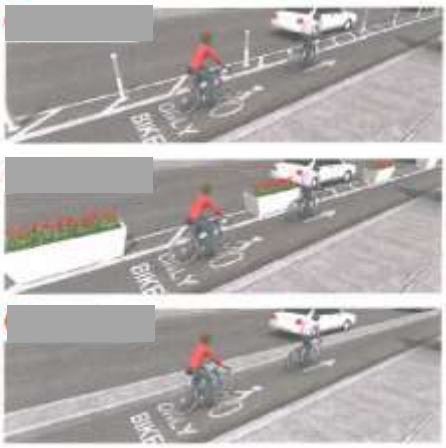
Improvements to bicycle facilities should be prioritized based on their ability to:

- Improve safety - consider safety history and the potential to reduce conflicts.
- Link to Land Use - make connections to local and regional destinations and trails with particular emphasis on the CKC and the Totem Lake Urban Center.
- Fill gaps in the network and evenly fill in the network – prioritize projects that add geographic balance to the network or fill gaps between completed portions of the network. Consider routes on both sides of I-405 because of the impact of 405 as a barrier for east-west connections and the limited number of north-south arterials.
- Connect to Transit - give higher priority to bicycle connections that lead to locations on the regional transit network.
- Community support – give priority to projects that have broad community support.

Doing more with less. 100th Avenue between NE 132nd and NE 124th Streets had five lanes for cars. The City won a grant to narrow the car lanes and add bike lanes without altering the curb to curb distance. This helped close the gap in bike lanes on an important north-south link in the bicycle network.

3 ways to separate bike lanes.

These examples show that paint—in a variety of patterns—markers, or other methods can be used to separate bike lanes from car lanes.



Source: NACTO Urban Bikeway Bicycle Design Guide

Parking can also be used to separate bikes and cars, but extra width is needed. Separated lanes can be single direction or, if conditions are appropriate, two direction.

3 Treatments for bicycles

Colored pavement can be used in areas of conflict. This photo is from NE 116th Street at I-405

Source: City of Seattle

Bike boxes are marked at signalized intersections to help prevent crashes between bicycles and cars. Cars stop behind the box, bike stop in the box. This allows bikes to move in front of cars and avoid conflicting movements.

Bike detection. Marks like those above show cyclist where to stop in order to activate a green signal. **Video detection** uses virtual detection zones that can be created where cyclists naturally stop; rather than forcing cyclists to move to where the detector is located.

- Cost/likeliness to receive grant funding – prioritize projects that have lower cost or that are good candidates for grant funding, but apply caution so that high cost, high value projects are also included.

Action T-2.2.1: Recognize the National Association of City Transportation Officials and the American Association of State Highway and Transportation Officials bicycle design guidelines and adopt them into pre-approved plans used by the City of Kirkland.

Action T-2.2.2: Guide implementation of the policies in this plan and develop a set of standards for improving the bicycle network by updating the Active Transportation Plan.

Action T-2.2.3: Study and implement improvements to the system of on-street bicycle lanes.

Action T-2.2.4: Develop a prioritization system for on-street bicycle improvements.

Bicycle Network

3 attributes of an ideal greenway according to the NACTO Urban Bikeway Design Guide

- Volume of cars is low, less than 3000 vehicles per day
- Speed of cars is low, less than 15% of drivers are traveling faster than 25 MPH
- Crossings of major streets are designed to help bicyclists cross safely and efficiently.

The ideal volume and speed requirements often suggest traffic calming measures. There may be situations where it is important to complete a segment of greenway even if the speed and or volume targets can't be achieved.

Source: City of Seattle

Greenway systems usually have consistent branding and naming along with strong wayfinding.

To reduce car volumes, this diverter in Vancouver B.C. allows bicycles to pass, but not motor vehicles.

Greenways can have special facilities for pedestrians.

Policy T-2.3 Build a network of greenways

Greenways are bicycle facilities on streets that have lower auto speeds and volumes. Greenways have special signing and marking and may have traffic calming features. Traditionally, they are on streets that are parallel to major streets to provide quick access to destinations located on such streets. Greenways can also include trails and paths that are off the street networks. Examples of this could include trails between cul-de-sacs or through parks. Other trail connections that are not necessarily part of greenways should also be completed with special emphasis on connections to Lake Washington and the Cross Kirkland Corridor. Where Greenways cross arterial streets special treatments are usually needed. Ideally, Greenways form a network that supports bike travel by itself, but together with the on-street network make an even more comprehensive network.

Priorities for Greenway construction should reflect those in Policy T-2.2 including higher priority for those in 10-minute neighborhoods and those connecting to the CKC, parks or transit.

The map on the previous page shows a network of bicycle facilities including greenways.

Action T-2.3.1: Develop standards for Greenways in Kirkland

Action T-2.3.2: Prioritize and construct greenway projects.

Policy T-2.4 Implement elements and programs that make cycling easier

Secure, convenient parking is an important part of most bicycle trips. Policies that affect bicycle parking must accommodate increased bicycle usage and optimize the location of bicycle parking. The City should actively partner with the private sector to facilitate bicycle parking on both public and private property.

Pronto! bikeshare has launched in Seattle and the City should actively pursue bringing Pronto! to Kirkland. Kirkland should implement policies that remove barriers to bike sharing including facilitating the location of bike share stations throughout the City. Pronto! should complement transit, with stations at transit centers and hubs.

Because of Kirkland's terrain, innovative devices that make climbing hills and using stairs with bikes easier should be pursued. Bike Stations where a range of support items for cyclists are available such as day use lockers, repairs, sales of bike parts, etc. should also be considered.

High-use cycling routes should be given more priority for bicycle friendly signal timing, street sweeping, paving repair and other maintenance activities.

Action T-2.4.1: Provide high quality bicycle parking convenient to all business districts.

Action T-2.4.2: Create a strategy to increase the supply of public bicycle parking in Kirkland. Adopt guidelines that encourage business and property owners to provide bicycle parking on private property.

Action T-2.4.3: Work with bike share providers to create regulations that facilitate bike share such as making stations easy to site and operationally sound.

Action T-2.4.4: Adopt roadway and bicycle way maintenance policies that support high-use cycling routes.

What makes for great bike parking?

Shape. Simple racks that hold bikes at two points. The rack in the photo below is Kirkland's standard. **Space.** Racks against walls or other obstructions can't be used easily. **Site**. Short term parking should be close to popular destinations.

Source: Jim Hunt

Runnels help bicycles navigate stairs

Source: City of Seattle

In 2014, **Pronto! Bike share** began in Seattle with the intention of expanding to Kirkland and other cities on the eastside.

Source: Pronto!

Good wayfinding begins with an agreed on set of destinations to which users should be directed. In Kirkland this includes destinations like Downtown and Totem Lake, the CKC, neighborhood business destinations, etc. Often bicycle guide signs list the distance and in some cases an estimated time to a destination.

Cities across the country including Bellevue, Redmond and Seattle are examples of places that are using signs in this format for directing cyclist to their destinations.

Signs like this are used to designate specific routes. The Lake Washington Loop route passes through Kirkland, but is not currently signed.

Policy T-2.5 Make it easy to navigate the bicycle network

A system of bicycle wayfinding makes bicycling easier. It should be tied into the systems of surrounding cities and should identify direction and distance to important destinations along major routes. Advanced wayfinding techniques that incorporate more than signs should also be considered. Maps that provide value to cyclists should be developed. Because of the distance cyclists cover, this may mean partnering with other agencies to create a regional map that also covers Kirkland effectively. Bicycle wayfinding should be coordinated with pedestrian wayfinding and mapping efforts.

Action T-2.5.1: Work with surrounding jurisdictions to establish a set of destinations and routes for wayfinding. These may include techniques that allow information to be obtained across a wide range of platforms.

Action T-2.5.2: Site and install wayfinding signs and/or other systems.

Action T-2.5.3: Develop mapping as appropriate, possibly in combination with transit mapping.

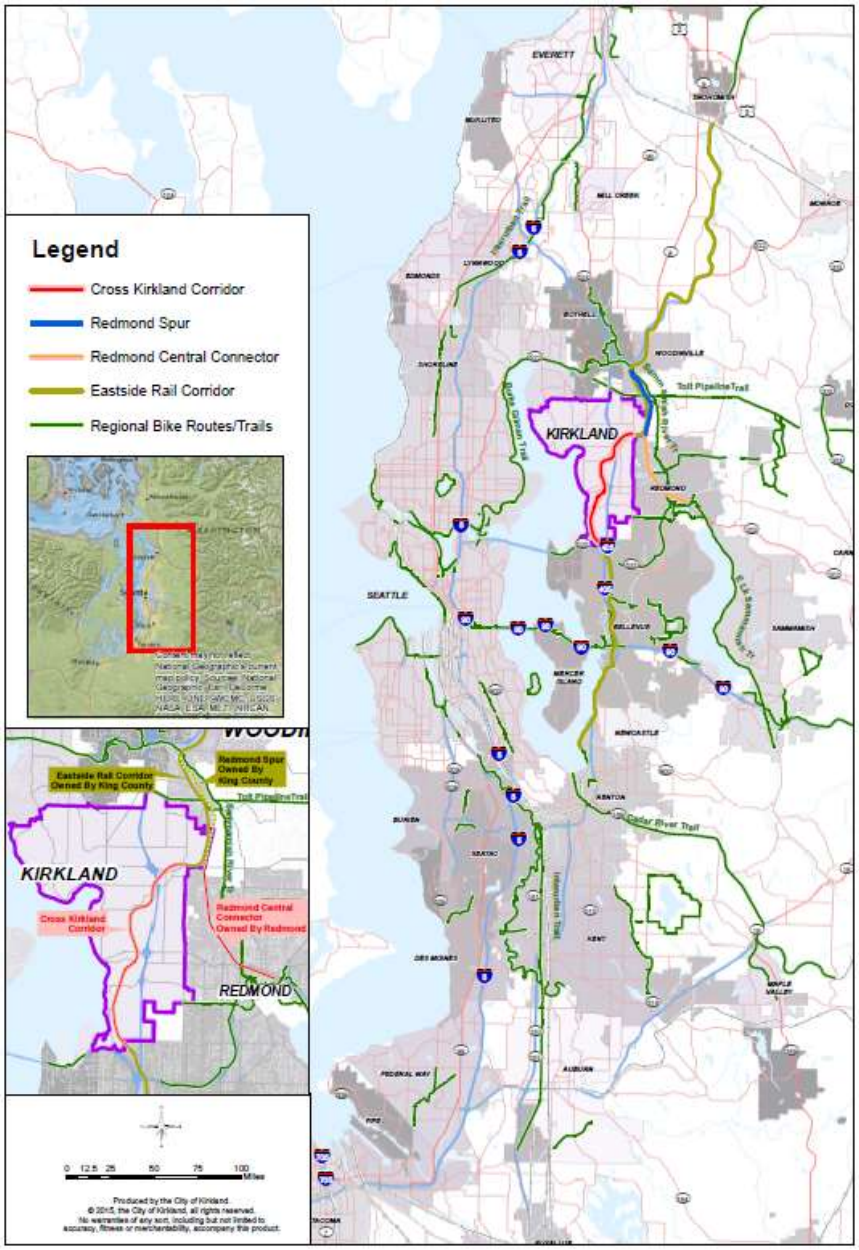
Policy T-2.6 Make the Cross Kirkland Corridor an integral part of the bicycle network and connect it to the region.

The Cross Kirkland Corridor is uniquely situated to serve many bicycle trips in Kirkland. The CKC Master plan describes how the corridor itself should be developed to suit this purpose. Links to the CKC have to be constructed and well signed to make the corridor fully connected and integrated to the bicycle network. (see Policy T-1.)

Action T-2.6.1: Construct the CKC with the Master Plan vision

Action T-2.6.2: Develop bicycle connections to the CKC

Cross Kirkland's connections to trails throughout the region.



Cross Kirkland Corridor & Connections

CHAPTER 4. PUBLIC TRANSPORTATION

Goal T-3 Support and promote a transit system that is recognized as a high value option for many trips.

Background

Historically, transit in Kirkland focused on connections oriented to Seattle in the morning and from Seattle in the afternoon. Bus frequencies were sometimes as low as one hour especially in off-peak periods. Today, Kirkland is served by a number of routes connecting to a variety of Eastside destinations as well as Seattle. Frequency on some routes is 15 minutes, with most service at 30 minute intervals over most of the system. Additionally, instead of being solely a source for trips to employment centers, Kirkland is becoming an employment center that attracts transit trips from residential centers.

Transit with the right characteristics can make an important contribution to Kirkland's transportation system. At its best, transit is

Fast – making long trips competitive and cost effective with driving.

Frequent – frequencies of 15 minutes or less with service hours extending from early morning to late night.

Reliable – trip times are consistent from day-to-day and riders trust they'll arrive on time.

Accessible – facilities and vehicles are designed for all users.

Comfortable – all elements of the system are sized to meet demand and offer amenities that make trips pleasant.

Complete – popular destinations are served and transfers between routes are easy and clear.

Transit providers will continue to be faced with constrained resources for maintaining existing service hours limiting their ability to add new service. This, combined with the characteristics described above, suggest that Kirkland's transit needs will best be served by a focused network of higher frequency service near major concentrations of residential and commercial land uses.

This plan challenges the idea that because Kirkland does not provide transit service, it has little effect on the quality of that service. Because transit, more than any other mode, is dependent on land use for success, Kirkland's land use choices will have an important influence on where transit service is deployed.

Metro Route 255 runs every 15 minutes between Totem Lake, Juanita, Downtown, Houghton and Seattle.

Source: Daily Journal of Commerce

Juanita Village is an example of **transit supportive land use**—a mixed use development located adjacent to good transit service.

Transit oriented development. Working with several partners, Kirkland created a mix of housing types and retail at the South Kirkland Park and Ride

Technology that changed the way taxi trips are delivered may offer opportunities to change the way transit is delivered in

King County Metro and Sound Transit operate bus service of various types that connects Kirkland to other areas.

Source: King County Metro

Kirkland is, of course, responsible for maintaining the streets on which transit travels. Additionally, Kirkland can make improvements to waiting areas, including improved lighting, more shelters and clearer wayfinding. Parking policy—such as pay parking—that is favorable to transit and projects that increase transit speed and frequency are other ways that Kirkland can support good transit.

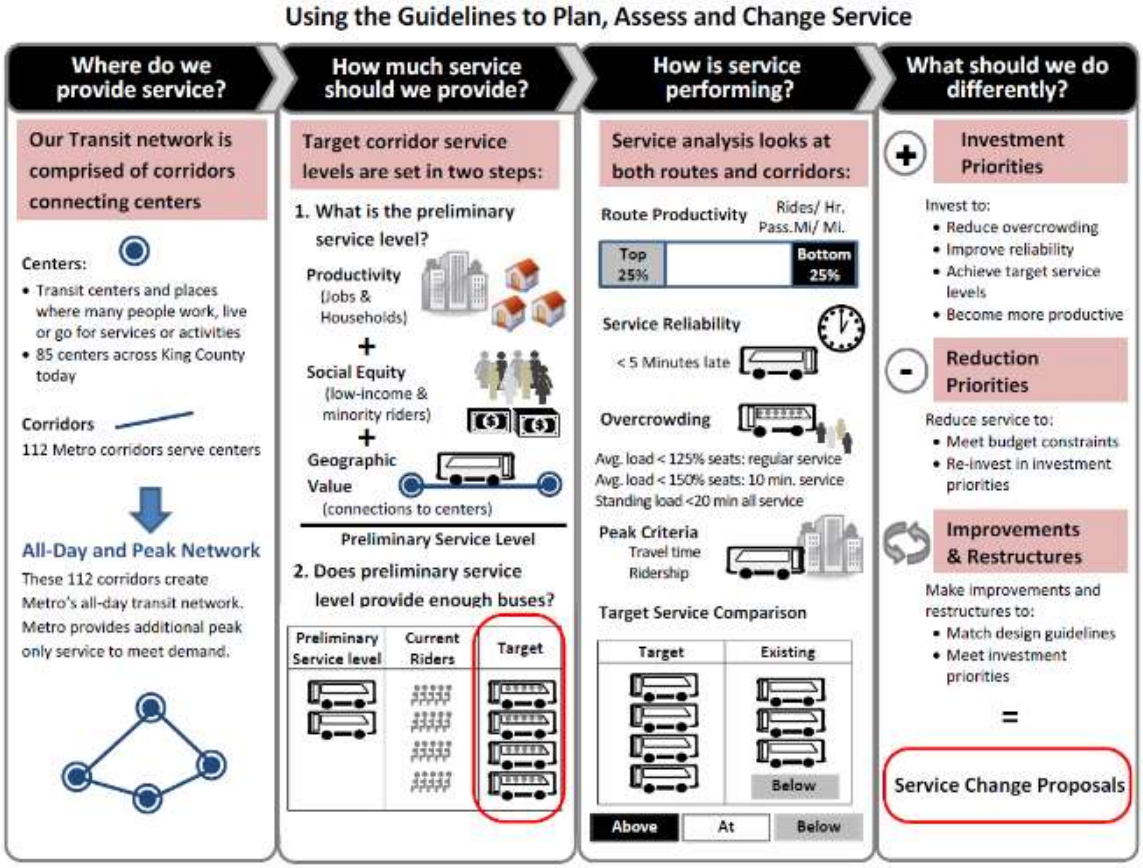
In the next 20 years, Sound Transit will have a greater service presence in Kirkland. This is likely to come in the form of bus rapid transit on I-405 and/or Link light rail, both of which will connect to the Totem Lake Urban Center, downtown Kirkland and the 6th Street corridor. Additionally, transit has been assumed as an element throughout the planning of the Cross Kirkland Corridor and Sound Transit holds a transit easement on the Corridor. Regardless of where Sound Transit provides service, walking, biking and local transit connections to the regional transit system are paramount for its success.

The successful aspects of the development of the South Kirkland Park and Ride into a Transit Oriented Development should be explored at the Kingsgate and Houghton Park and Rides. The transit system should be operated so that excess parking does not inappropriately impact neighborhoods.

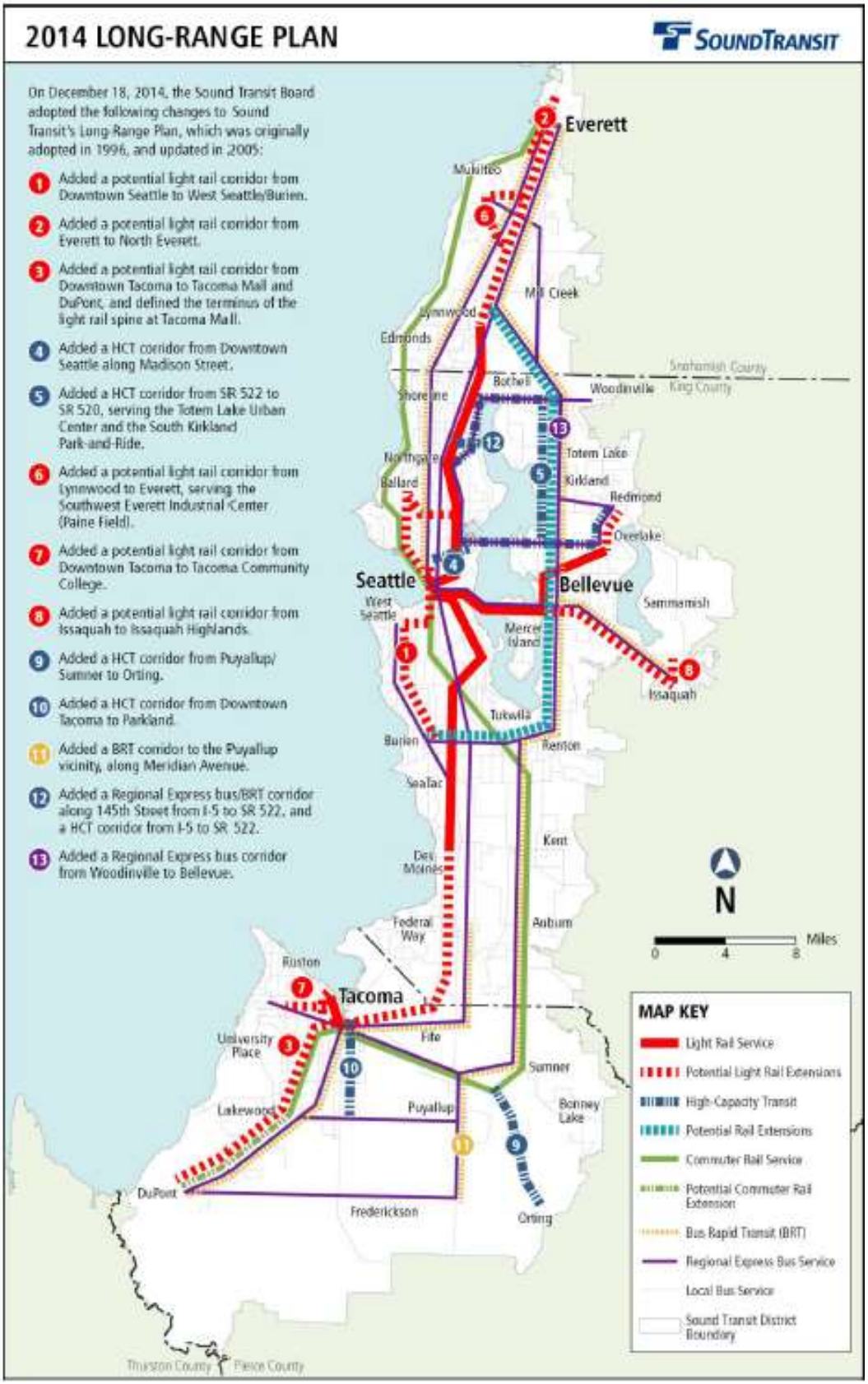
Other modes of public transportation such as taxis and ridesharing can help fill gaps in transit service that are created when residents have mobility needs that traditional public transit cannot serve. Also, Kirkland should consider other forms of service provision such as partnering with the private sector, human service agencies and aggressive adoption of new technology that make sharing rides easier.

Kirkland is responsible for monitoring and encouraging Commute Trip Reduction affected employers located in the City.

The chart below shows how Metro Transit plans service. More information on Metro service is in the [service guidelines available on line.]



Sound Transit Long Range Plan



The map at left shows Sound Transit's long range plan. Projects from the long range can become elements of a voter approved plan. The Long Range Plan is does not have a particular forecast year, nor is it financially constrained.

Connecting the Totem Lake Urban Center to the regional transit system was Kirkland's main interest in the latest plan update.

The plan includes possible connections via: The Eastside Rail corridor (including Cross Kirkland Corridor), I-405 and SR 522 with all four of Sound Transit's modes; Light Rail, Commuter Rail, and Bus Rapid Transit and Regional Express Bus.

Policies

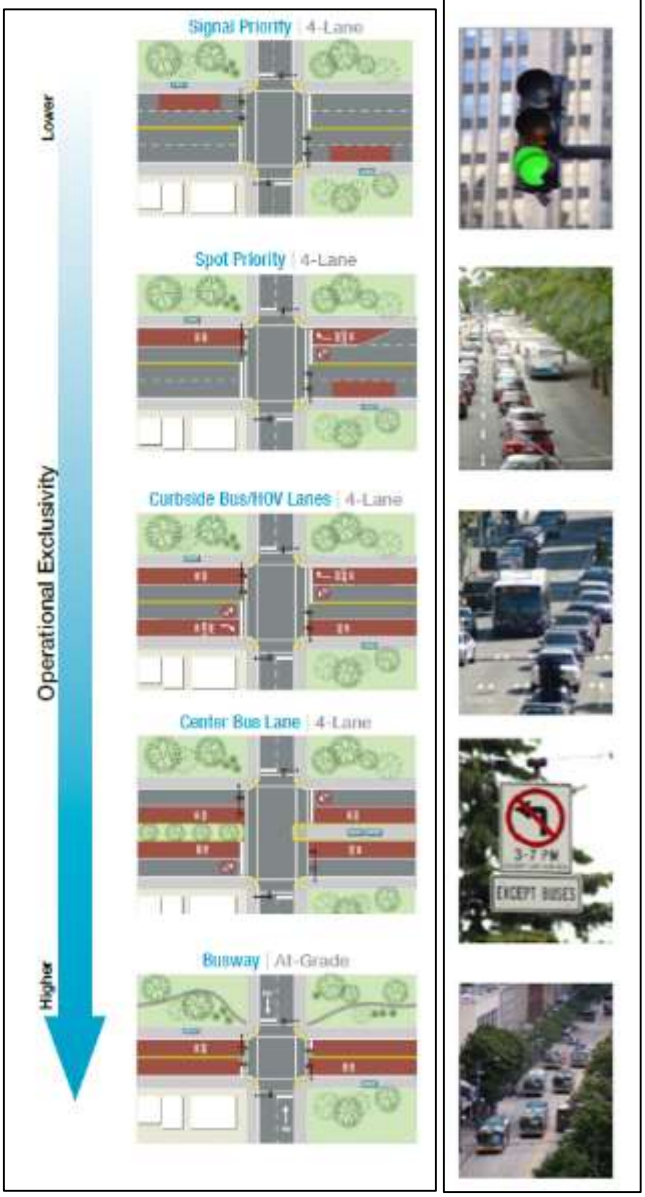
Policy T-3.1 Plan and construct an environment supportive of frequent and reliable transit service in Kirkland.

A Kirkland Transit Plan should be created and maintained that coordinates and describes in detail actions needed to meet the policies in this goal.

Transit operates primarily on facilities owned and operated by the City of Kirkland. Kirkland should make improvements that increase the speed and reliability of transit in order to attract service that is more useful. These improvements could include Intelligent Transportation System elements like signal priority or more significant projects like separate lanes for transit are necessary to maintain the ability of transit to compete effectively with single occupancy vehicle travel. In return for these improvements, transit providers should agree to maintain high quality transit service.

Improvements should be prioritized by their ability to decrease rider hours spent delayed in traffic, and effects on other street traffic.

In areas that do not lend themselves to productive service by standard transit modes, innovative solutions should be examined with the intent of providing coverage at a reasonable cost. This could include direct investment by the City in transit service.



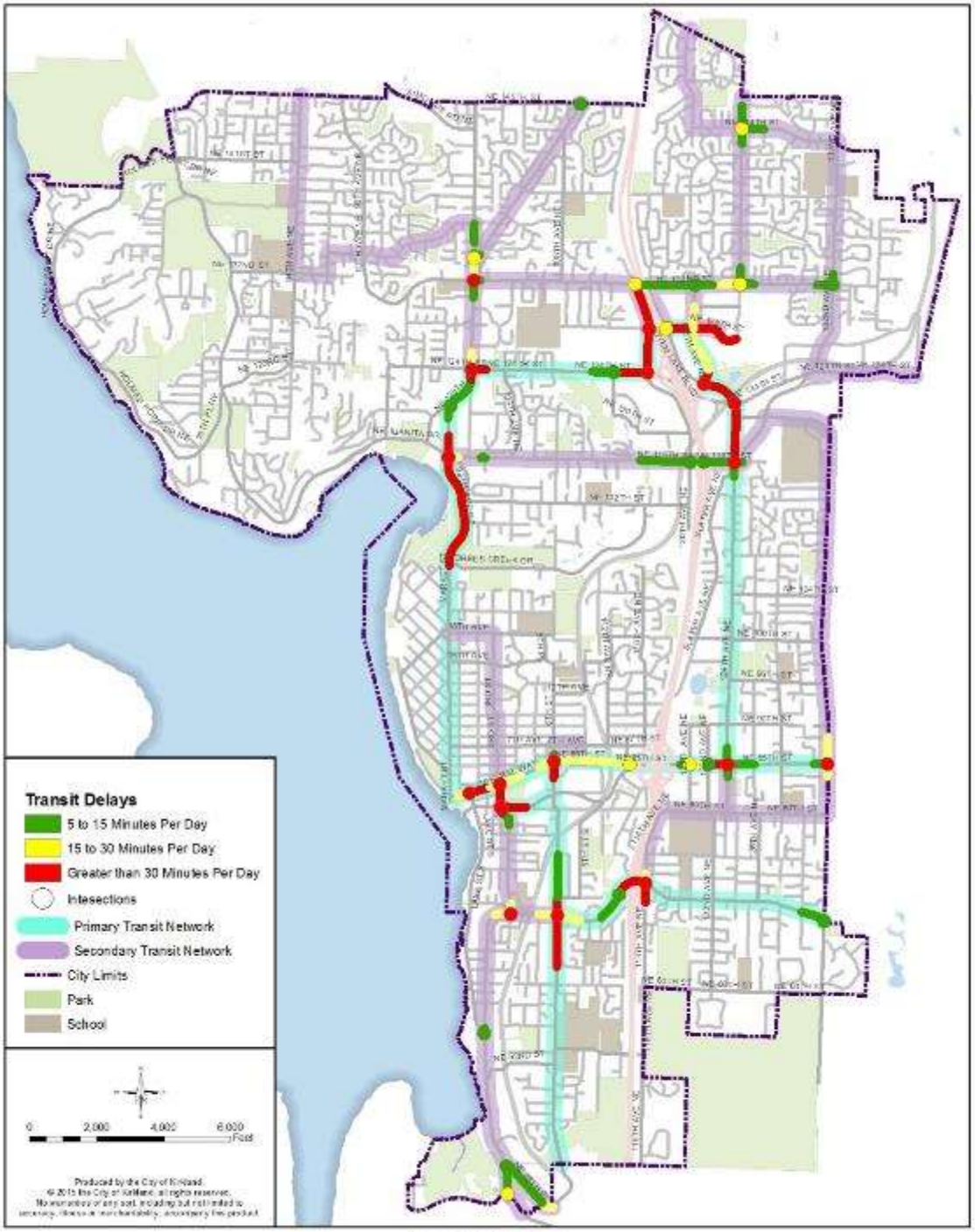
Source: City of Bellevue

Examples for **reducing bus delays** are shown above, ranging from systems that give buses priority at traffic signals to separate roadways. Bus pullouts are a way of reducing delays to autos that queue behind buses that are stopping to pick up or drop off passengers.

Ideally, transit riders should not drive an auto as a part of their trips. Every effort should be made to make walking and bicycling integral components of travel to the transit site. Such efforts may include making for bicycle storage available at the transit site. At the same time, transit riders should not be prohibited from using on-street parking, but there may be cases where impacts of excess parking need to be managed.

The need for high quality transit service is also discussed in **Goal 7, Active Partnerships.**

Action T-3.1.1: Create Transit Plan for Kirkland that details how to achieve the policies of this goal.



Transit Delay

Policy T-3.2 Support safe and comfortable passenger facilities.

Passenger facilities must be clean, well lit, accessible to all and give a feeling of comfort. The location of stops should be coordinated with adjacent land use. Bus arrival information and the ability to obtain fare payment cards are examples of features that should be available. Improvements should be prioritized first to higher ridership stops served by higher frequency, longer span service.

Action T-3.2.1: Develop standards for improvements at transit stops

Action T-3.2.2: Develop a prioritization system for improvements at transit stops

Action T-3.2.3: Working with transit providers, fund and construct improvements at transit stops

Action T-3.2.4: Manage the effects of parking from transit users in an appropriate manner.

Policy T-3.3 Integrate transit facilities with pedestrian and bicycle networks.

Ideally people can walk or bike to transit facilities. Making this possible requires the construction of pedestrian walkways and crosswalks and bicycle facilities so that people can walk and bike to transit, particularly when transit is on arterial streets. Work with transit providers to locate bus stops at areas that facilitate walking and biking to transit. A quarter of a mile (about 1200 feet or about a 5 minute walk) is considered a maximum distance for a convenient walk trip to transit. Transit facilities must be accessible to all users.

Action T-3.3.1: Coordinate prioritization and construction of pedestrian and bicycle facilities based on the Transit Plan and proven ways to improve use of transit.

The illustrations below show a **high quality bus stop.** Note the covered waiting area, route information, integrated lighting, trash receptacle, and integration with adjacent walkway.

At some of Metro's "Rapid Ride" stations, real-time information about the arrival of the next bus is available.

Source: King County Metro Transit

Five goals for a City of Kirkland Transit Plan:

1. Document route-level goals for service.
2. Provide a detailed look at capital needs for passenger and route facilities.
3. Clarify transit options for the CKC
4. Integrate with the long range plans of Metro and Sound Transit
5. Bring Kirkland citizens more fully into the transit planning process.

5 Things that make a good Transportation Demand Management Program

1. **Support from the employer.** Programs are most successful when they have committed upper management and dynamic people implementing the program. Ideally TDM fits with the company's mission.
2. **Economic incentives.** Employers may offer free transit passes and/or have limited or fairly expensive parking. Many employers offer free-ride-home programs for their employees who carpool.
3. **Availability of and connections to transit.** Locating in an area where transit is plentiful and easy to access makes it a much more likely commute option.
4. **Surrounding land use.** Employees are less likely to drive personal vehicles when they can walk or bike for errands or other needs throughout the day.
5. **Facilities that support bicycling.** Secure, covered parking, showers and lockers and areas where simple repairs can be made are examples of facilities that make biking to work easier.

Source: Evergreen Healthcare

The Evergreen Health campus in the Totem Lake has several of the characteristics of a good TDM program.

Policy T-3.4. Support Transportation Demand Management in Kirkland particularly at the work sites of large employers and other locations as appropriate in order to meet adopted goals for non drive alone trips .

Kirkland has a number of employers that fall under the requirements of **Washington's Commute Reduction (CTR)** Law and has established goals for several measures such as vehicle miles of travel and drive alone trips for these employers. Additionally the City of Kirkland is required to set a goal for the aggregate performance of CTR sites. Both of goals are established in the City's CTR Plan and must be within the framework established by the CTR Law. The current goals are:

Performance Goals for individual CTR employers	
Measure	2020 Goal for change from baseline*
Non Drive Alone Trips	+18.0%
Vehicle Miles of Travel	-18.0%
Greenhouse Gas Emissions	

*2008 or first year of CTR survey, whichever comes later

The ability of a particular worksite to meet goals is influenced primarily by the resources provided by the employer. However, Kirkland should encourage and support these employers by providing tools and resources to support Transportation Demand Management in general and CTR employers in particular. The City is responsible for the performance of CTR sites and is required by CTR law to annually monitor and report results.

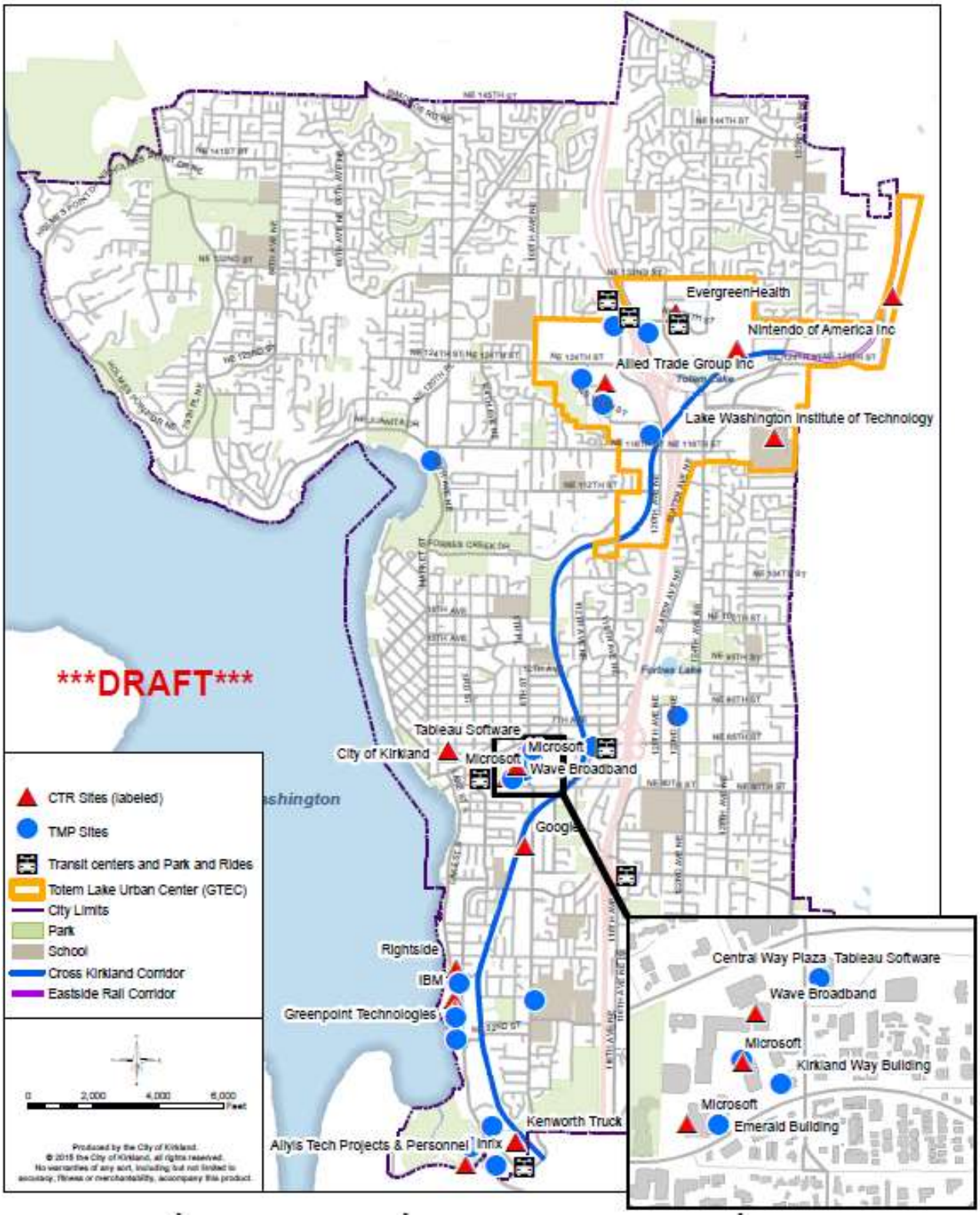
The City Council has designated the Totem Lake Urban Center as a Growth, Technology and Efficiency Center (GTEC) as described in Washington State Law. The Totem Lake GTEC is required to have separate goals for performance above and beyond the CTR goals. These goals are established in the Totem Lake GTEC Plan

Non Drive Alone Rate = 55%
Greenhouse Gas =28%
Vehicle Miles of Travel =28%

There is room for innovation in order to significantly improve ridesharing, and innovations should be made; whether it be new ways of helping people find ridesharing partners, or allowing new kinds of taxi-like services. Given the relatively small numbers of vanpools serving Kirkland employers, an opportunity exists to increase their number.

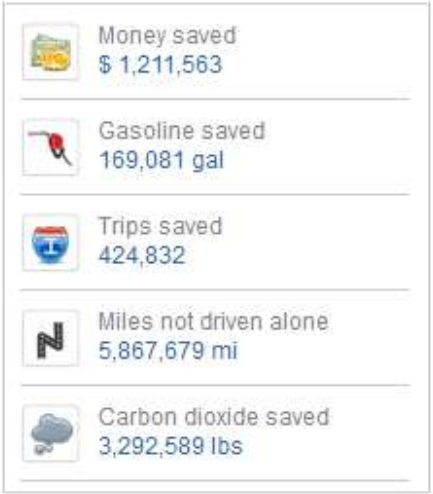
The City's CTR Plan provides further details on CTR and TDM plans.

Commute Trip Reduction and Transportation Master Plan Sites



Totem Lake Green trips

The Totem Lake Green Trips Project was funded with federal grant funding. Its purpose was to reduce drive alone auto trips by giving people incentives to choose other modes. As shown in the table below it has been very successful.



Between 2011 and 2013, 121,388 trips were reduced with a program cost of $644,452. The cost of $5.31 per trip is about one-third the cost of similar programs operated by other agencies.

Rideshare Online began at King County Metro and has spread throughout Washington and expanded to Idaho and Oregon. It allows commuters to easily see the destinations and schedules of others who are looking to carpool and vanpool. The ubiquity of mobile devices offers the opportunity to build on such as system and offer real-time connections between people looking to share rides.

RIDE SHARE WITH RIDEMATCH
The easy way to ride or drive with someone else.
1-888-814-1300

Kirkland may be able to more easily meet its transit goals if its control over transit funding was broadened. This idea is explored further in Goal T-8 *Be an Active Partner*. Because the cost of fuel and drivers make up a high fixed cost of the transit system, automated vehicles and alternative fuels may be helpful in making transit service more affordable and therefore should be pursued.

Programs that support ridesharing should be results focused and cost effective. Grant funding should be sought for the bulk of program costs and partnering with transit and other agencies should be promoted.

Action T-3.4.1: Create targeted programs that monitor and encourage increases in non-SOV travel rates.

Action T-3.4.2: Develop codes and policies to ensure support of innovative ridesharing

Action T-3.4.3: Maintain the City's CTR and GTEC plans to comply with state and regional requirements and guidelines and to support the goals of the Transportation Master Plan.

Policy T-3.5. Require new developments to establish appropriate Transportation Demand Management Plans.

If the vision of the Transportation Master Plan is to be met, developers and property owners will have to establish **Transportation Management Plan (TMP)** sites at the direction of the City. Transportation Management Plans are required at sites where, for example, there may be several employers, none of which are by themselves, are affected by CTR law but together constitute a sizeable population of employees. TMPs may have a wide set of requirements that need to be enforced by the city; from basic requirements such as providing transit passes up to a cap on the number of trips a site can generate. These sites also need monitoring and support by the City if they are to meet performance goals for trip reduction.

Action T-3.5.1: Codify requirements for the types of developments that are subject to Transportation Management Plans and the elements that make up such plans.

Policy T-3.6 Pursue transit on the Cross Kirkland Corridor

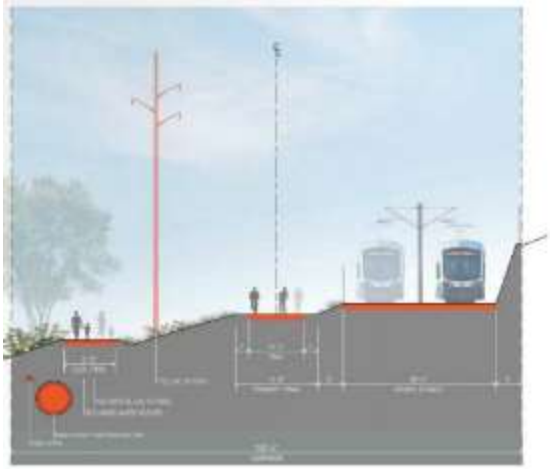
The vision for the Cross Kirkland Corridor includes quiet, low or no emission transit. This could be regional level light rail or more local service that connects to regional service, for example to Eastlink near Overlake Hospital. New types of transit should be considered where they offer advantages to more standard modes. Appropriate transit on the CKC may well be something for which the City must lead the way as opposed to waiting for traditional transit providers to act. Heavy rail is not a mode that meets Kirkland's interests for transit on the CKC.

Action T-3.6.1: Implement transit on the CKC in keeping with the CKC Master Plan.

Policy T-3.7 Work with Sound Transit to incorporate investments in Kirkland. (see coordination policy T-7.1)

Policy T-3.8 Partner with transit providers to coordinate land use and transit service (see Partner policy T-7.2)

Transit on the Cross Kirkland Corridor is an integral part of the Master Plan. As the cross-section below shows, the corridor is wide enough to simultaneously accommodate excellent bicycle and pedestrian facilities, utilities and transit.



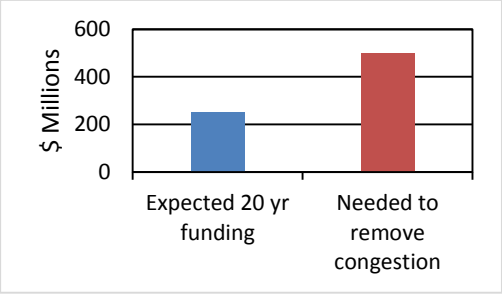
Source: City of Kirkland, University of West Virginia

The best mode of transit for the CKC is yet to be identified. Creative, forward thinking ideas should be used as inspiration for this decision.

Rites of Passage the chart below shows that people are getting their driver's licenses later perhaps signaling decreased reliance on motor vehicles; older drivers are more abundant than they were 30 years ago.

Building our way out?

It's estimated that a program of widening streets to "eliminate" peak hour congestion would cost more than $500 million and require widening of streets that would be in contrast to Kirkland's vision and goals for transportation. Funding for all types of transportation programs is estimated to be about $250 over 20 years



CHAPTER 5. MOTOR VEHICLES

Goal T-4 Provide for efficient and safe vehicular circulation recognizing congestion is present during parts of most days.

Background

Currently, many Kirkland residents travel by private automobile for a high proportion of their trips. In the peak travel period there is congestion at many signalized intersections resulting in poor levels of service. Both of these phenomena are expected to continue over the next 20 years. At the same time, trends such as decreased motor vehicle ownership, decreased vehicle miles of travel and the increased age at which young people obtain their driver's licenses mark fundamental change from trends of the past 50 years.

Over 20 years ago Kirkland recognized that to attempt to entirely eliminate vehicle congestion with wide ranging automobile capacity improvements were not in keeping with Kirkland's desired urban form nor would these expansions in miles of pavement financially sustainable. Because the sole measure of level of service was performance of motor vehicles at signalized intersections, fulfilment of the land use vision may have suffered in favor of providing capacity for motor vehicles.

This plan seeks to maximize the operational efficiency and safety of the existing road network rather than look to continuing expansion. **Intelligent Transportation Systems** (ITS) will play a role in this, but so will the aggressive promotion of other transportation technologies. Autonomous vehicles, or vehicles that can change speeds in relationship to the vehicles around them in order to maximize safety and flow are examples.

Businesses continue to rely on motor vehicles for deliveries and customer access critical to their operations and these needs must be served.

Totem Lake was developed around the assumption that people would be traveling mainly by automobile. The current Land Use vision for the future at Totem Lake is completely different. In order to support this new vision and associated economic development, a finer grid of smaller scale streets and new connections will be needed. Completion of this grid may require dedication of property for the transportation system from those who develop it.

Parking policy is an important factor in determining how vehicles will be used in Kirkland. Totem Lake and Downtown are areas where active refinement of parking policy will remain an important issue. Over the long term, changes in how people use cars such as car sharing, autonomous vehicles and innovative taxi-style services will change the way parking is used and is expected to decrease the amount of parking that is needed.

More uniform implementation of a broad set of Transportation Demand Management strategies can be used to increase walking, transit and bicycling.

I-405 and SR 520 are important travel arteries for Kirkland which are under the jurisdiction of the Washington State Department of Transportation. New and revised interchanges will be needed to better fit Kirkland's Transportation and Land Use goals. Operating policies such as tolling and HOT lanes have promising benefits but require careful monitoring because of their potential downsides for Kirkland.

Motor vehicles can have negative impacts on neighborhood streets, where higher speeds and volumes need mitigation to improve livability.

Policies

Policy T-4.1 Make strategic investments in intersections and street capacity to support existing and proposed land use.

The vision for the Comprehensive Plan supports walkable, livable communities and this transportation plan makes a change from previous plans by placing less emphasis on intersection performance for cars as the main measure of effectiveness for the transportation system. Therefore, there is less emphasis on widening intersections where such projects do not support the surrounding land use vision.

Some areas, like NE 132nd Street, may have substantial reductions in congestion from modest intersection improvements that are in keeping with the surrounding land use. Priorities for street improvements should include:

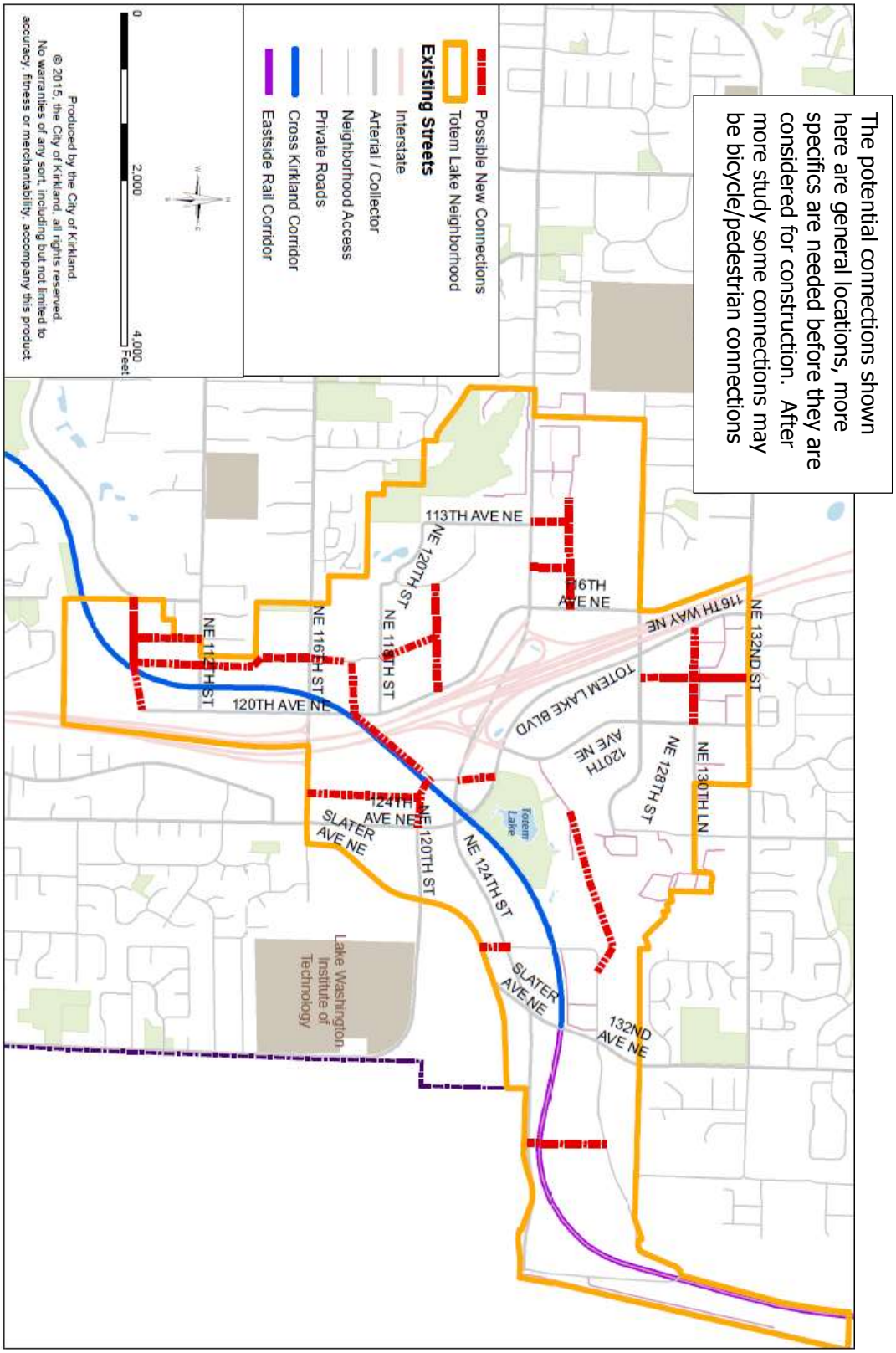
- Increasing safety
- Minimization of person delay and queuing for motor vehicles
- Linking to land use; focus improvements in Totem Lake Urban Center.
- Supporting economic development
- Improving bicycle and pedestrian connections
- Funding/Cost effectiveness
- Community support

In Totem Lake for example, new streets can help with economic development and general circulation. They should be developed in keeping with neighborhood plans but coordinated with the interests of private development.

Action T-4.1.1: Using the priorities in this plan, prioritize and construct intersection and roadway projects.

Action T-4.1.2: Review and update as necessary, street network concepts for Totem Lake that focus on efficiency as well as expansion.

Map of totem lake possible connections



Making Connections: A basic element of ITS is making communication linkages between equipment in the field and the control center at City Hall. This allows devices to be monitored and adjusted remotely.

Photo of Transportation Control Center.

Policy T-4.2 Use Intelligent Transportation Systems (ITS) to support optimization of roadway network operations.

Because there is less emphasis on capacity projects, there is more need for elements like **Intelligent Transportation Systems** (ITS) to get the most from existing capacity. ITS makes other tasks easier so that the benefits to drivers can be realized. The City has made sizable investments in ITS, including installation of a Transportation Management Center. These investments are still being brought on-line and their potential has not been fully realized. Once the existing projects have been completed, the current ITS Plan should be revised and updated regularly, beginning with the base of finished projects and emphasizing steps needed to make the system more productive.

Parking management is another area in which ITS projects can be deployed. Connections to devices that take payments and to signs that show the number of available stalls are two examples of this.

ITS projects should be prioritized on their ability to provide the benefits in the chart below and improve:

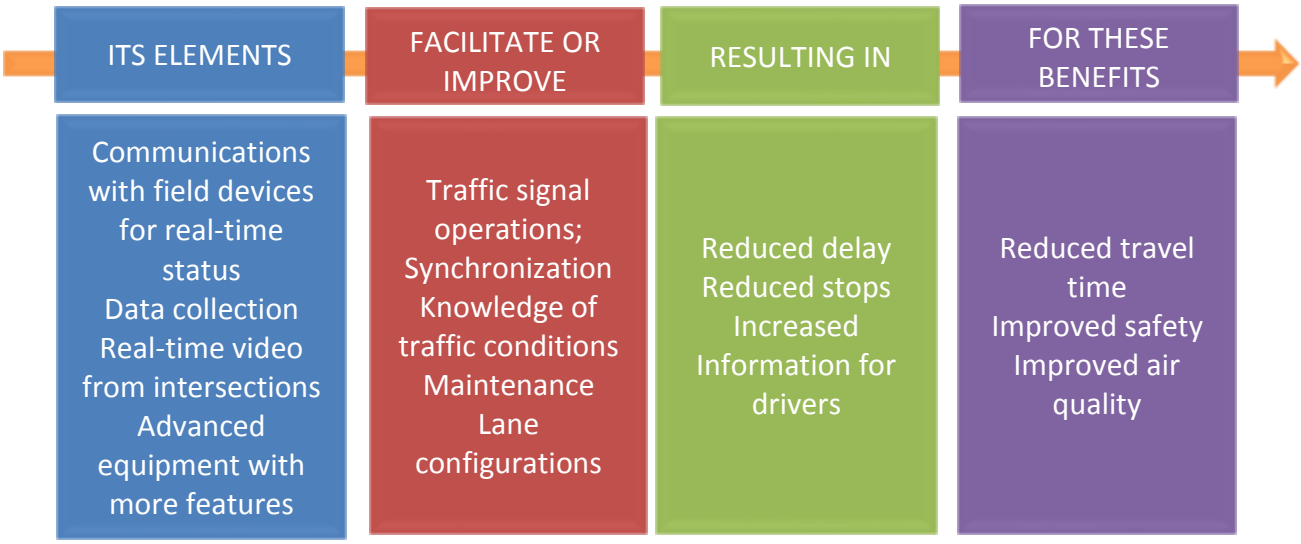
- Transit speed and reliability; person throughput
- Parking management
- Funding opportunities/cost effectiveness.

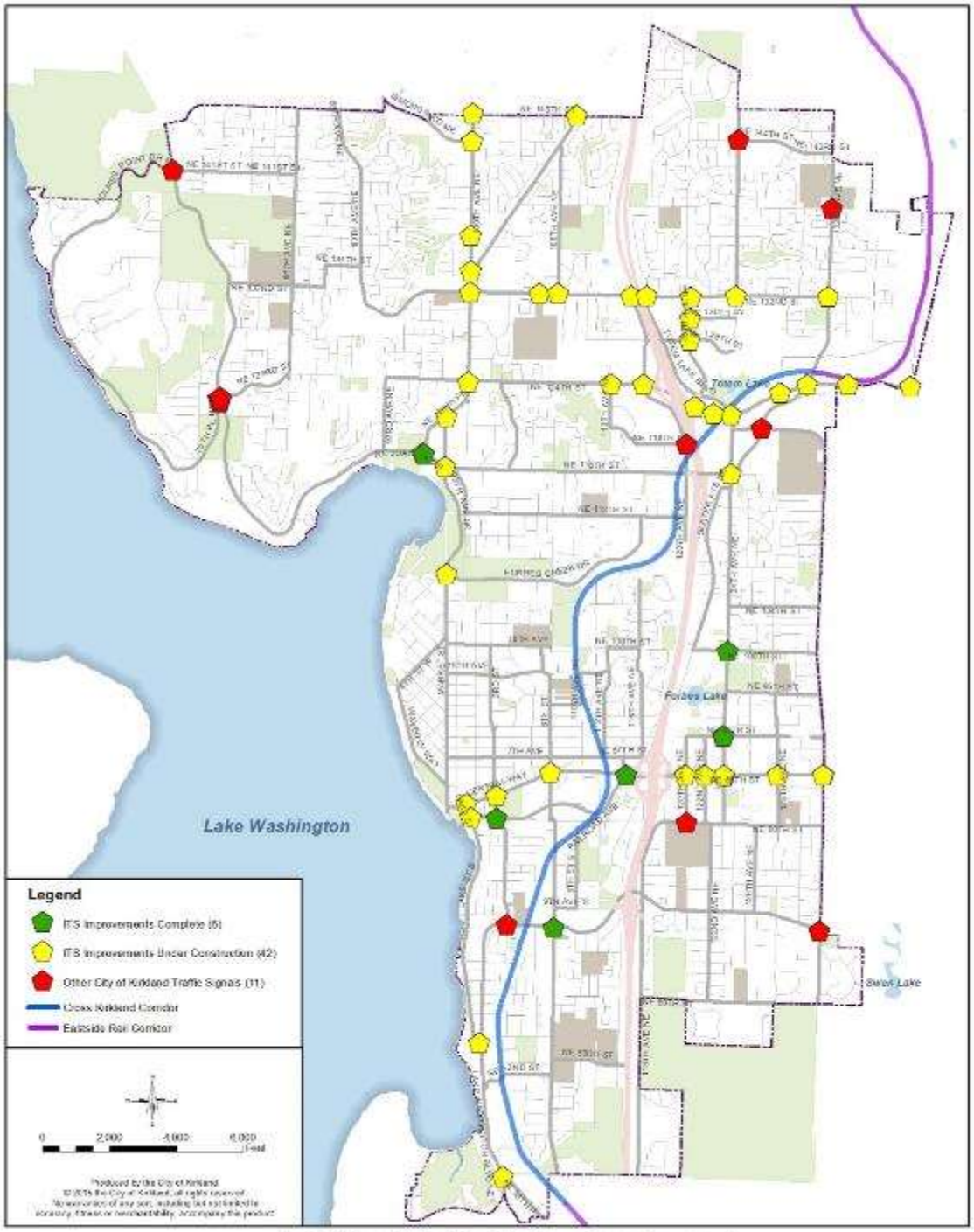
Changes in technology will result in major changes to the types of ITS projects that are available and the way they are delivered over the next 20 years. Kirkland's ITS system will have to be continually improved to keep up with such changes.

Action T-4.2.1: Complete construction of and make operational ITS phases that have already been funded for construction.

Action T-4.2.2: Update the City's ITS Plan on a regular basis

Action T-4.2.3: Prioritize and Construct ITS projects





Intelligent Traffic System Development

Policy T-4.3 Position Kirkland to respond to technological innovations, such as electric vehicles and autonomous vehicles.

It is difficult to predict how changes over the next 20 years will affect the way we currently drive. Over the next few years vehicles with features that can communicate with other cars, the roadway, and avoid hazards are likely to become more common. Kirkland should stay aware of these trends and look for ways to be a leader in innovative transportation. This is could include partnering with other groups to test and deploy pilot projects.

Action T-4.3.1: Work with regional groups such as Puget Sound Regional Council to identify trends in vehicle innovation and seek opportunities to implement them in Kirkland. (See Partnership Policy T-7.4)

This vision of an electrically powered autonomous vehicle from the 1950s shows that elements of the future can be predicted but often the context in which those elements occurs is difficult to pin point.

Cars of the future

"And so we have to recognize that for companies, like Ford, to reach that younger consumer it's not going to be about aspiration or status symbol. It's going to be about a lifestyle accessory, a toolbox on wheels that allows them to stay connected to the things that are most important to them." –Sheryl Connelly, Manager of Global trends for Ford Motor Company. *Source: NPR*

What does the future look like?

It is very difficult to predict future transportation technologies. Even more difficult to predict, but perhaps more important with regard to how transportation will change in the future are societal changes. For example, the increase in woman in the workplace led to large increases in driving in the 1970's and 1980's.

Source: Jefferson County Historical Association

Built in 1929, this hotel in Birmingham, Alabama, included a mooring mast on the roof to accommodate guests arriving by dirigible. The mast was never used but is still in place today.

The City of Kirkland's website includes **map of downtown parking** colored by cost and time limits. There are approximately 1400 stalls about half the stalls are off-street and about half are located on-street.

Who pays for parking?

Parking experts contend that there is no free parking. Instead, the costs associated with parking such as land acquisition, operation, maintenance and enforcement are hidden to the parker. When parking is "free" these costs are paid for by:

Property owners –these costs are generally passed on to customers.

Tax payers – Construction of the Kirkland's library garage was funded in part by bonds paid with general revenue.

When "pay" parking is in place Parkers pay directly for some of the costs of parking.

Policy T-4.4 Take an active approach to managing on-street and off-street parking.

Parking policy can have substantial effects on Urban Form. Ideally, parking occupancies are around 85 percent; at this level, parking spaces are available, but there is not a large vacancy indicating oversupply. Pricing can be used to influence the choices people make about where and how long to park. Pay parking also generates revenue that can be used for a variety of purposes.

Kirkland's business areas; Downtown, Totem Lake, and neighborhood business districts have different needs for parking and should be treated individually.

Large amounts of new parking supply are often expensive and difficult to site. Therefore, efforts should focus on increasing supply strategically in smaller amounts. Where occupancies are high, pay parking has the potential to decrease demand for the best stalls and generate revenue for other improvements, but it is implementable only when supported by the community. Effective signing and information about available stalls are other ways to get the most from existing supply. How employee parking is provided also has implications that affect Kirkland's downtown parking supply and therefore employee parking policy should be carefully considered. Parking spill over from commercial areas can have impacts on residential neighborhoods and those impacts should be monitored and appropriately mitigated.

Over the long term, increasing use of walking, biking and transit along with changes in land use will make differences in the amount of parking that is needed. Similarly, car sharing and other changes in car ownership may change the way parking is used; for example places for cars to wait for shorter times may be an increasing need.

Action T-4.4.1: Review and update parking codes to ensure they require appropriate amounts of supply.

Action T-4.4.2: Develop strategies for parking issues and regularly monitor parking occupancy and other factors by periodically undertaking parking studies.

Action T-4.4.3: Prioritize and construct/implement projects and policies that improve the parking experience in Kirkland.

Policy T-4.5 Work with the Washington State Department of Transportation and the State Legislature to improve the way I-405 and SR 520 meet Kirkland's transportation interests. (see Partnership Policy T-7.3)

Policy T-4.6 Reduce crash rates for motor vehicles.

Crash severity, rates and frequency are starting places for prioritizing safety projects. As described in other safety related policies, taking a comprehensive look that involves all aspects of the system is the best approach for reducing crashes.

Like other modes, a sizable fraction of auto crashes occur at signalized intersections and involve turning vehicles so these areas should be a focus of safety efforts.

Factors used to prioritize safety projects should include a given project's ability to:

- Reduce crash severity,
- Reduce the number and rate of crashes
- Address locations with highest risk.

Action T-4.6.1: As described in other policies, monitor and evaluate crash data in a comprehensive way. Use a zero fatality/zero serious injury safety approach for revising and implementing Kirkland's auto safety program.

Action T-4.6.2: Prioritize and construct projects that improve safety.

Flashing yellow arrows are used at traffic signals to more safely manage left turns. They increase the signal's operational flexibility and can improve efficiency. Because they can increase certain types of pedestrian crashes, they need to be used selectively.

Source: startribune.com

Auto Crash Data facts

Considering the 10 year period 2005 to 2014…

900 average number of crashes per year.

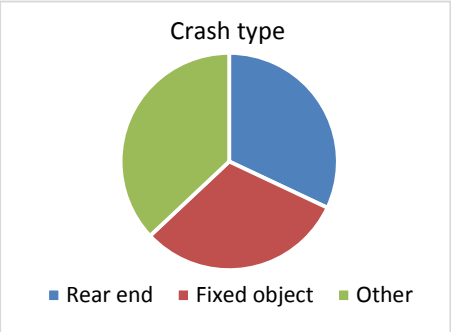
33% of all crashes occur at signalized intersections but they account for

70% of all left turn crashes

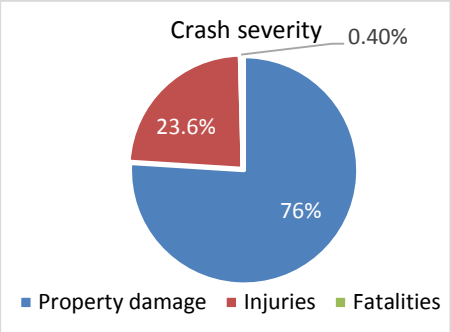
57% of sideswipe crashes

42% of rear-end crashes

15% of all injuries



Rear end, fixed object and other types of crashes each account for about 1/3 of the total crashes.



About three fourths of all crashes result in property damage only. Although only a fraction of 1% of crashes result in a fatality, there have been 11 fatal crashes over the past 10 years.

Public involvement is a foundational principle of the Neighborhood Traffic Control Program. Groups of citizens, in cooperation with City Staff make decisions about proposals for physical improvements like speed cushions. These proposals are then considered by the larger neighborhood.

Photo of NTCP public working group

3 facts about speed limits.

1. On streets like those in Kirkland, **changing speed limits** alone does not change driver behavior in a meaningful manner.
2. **Lower vehicle speeds have a significant safety benefit**. For example, fatality rates in pedestrian crashes decrease exponentially with decreases in speed.
3. **Speed limits are set based on how most people drive**. This is founded on the premise that 85% of people drive reasonably.

The Kirkland Police and Public Works Department work closely to control speeds on neighborhood streets. It is difficult to manage speeds through enforcement alone.

Policy T-4.7 Mitigate negative impacts of motor vehicles on neighborhood streets.

The livability of neighborhoods is improved when vehicle traffic does not dominate the streetscape. There is a tension between limiting volume on neighborhood streets and creating a network over which traffic is diffused

While the volume on neighborhood streets is relatively low, neighborhood streets make up the vast majority of the City's street network so they require special attention. Excessive speed and volume are the most commonly cited negative effects of motor vehicles on neighborhood streets and should be the focus of the city's neighborhood traffic control program. Traditionally, these effects have been treated with speed humps and traffic circles on a neighborhood-wide basis as opposed to viewing individual streets in isolation. Although the tools may continue to evolve, the practice of looking at projects across neighborhoods should continue.

In 2012, Kirkland voters approved a dedicated source of funding for neighborhood safety projects and this source should be used as appropriate to help fund projects that increase safety.

Many concerns on neighborhood streets stem from issues related to parking, sight distance and other issues that do not require major projects in order to resolve them but the resolution of which contributes greatly to citizens' quality of life.

Action T-4.7.1: Help citizens solve neighborhood traffic concerns by maintaining a program focused on addressing such concerns.

CHAPTER 6. LINK TO LAND USE

Goal T-5 Create a transportation system that is united with Kirkland's land use plan.

Background

The Land Use chapter of the Comprehensive Plan provides a blueprint to complement Kirkland's transportation network. "Transportation improvements" should truly be improvements to the community that help create place and reflect the character of Kirkland, not only improvements to mobility. Because the built environment influences travel behavior in so many ways, it's often said that the best transportation plan is a good land use plan. This is demonstrated by the land use transportation connections illustrated in the following smart growth "Ds:"

Density: Higher densities shorten trip lengths, allow for more walking and biking, and support quality transit.

Diversity: A diverse neighborhood allows for easier trip linking and shortens distances between trips. It also promotes higher levels of walking and biking and allows for shared parking because of varied demand times amongst the uses.

Design: Good design is that which improves connectivity, encourages walking and biking, and reduces travel distance.

Destinations: Destination accessibility links travel purposes, shortens trips, and offers transportation options.

Distance to Transit: Close proximity to transit encourages its use, along with trip-linking and walking, and often creates accessible walking environments.

Development Scale: Appropriate development scale provides critical mass, increases local opportunities, and supports transit investment.

Two views of Totem Lake

The interchange at I-405 and NE 124th In 1936 (top photo) the area was rural. A modest freeway interchange supported the suburban land of the mid 1960's. However, the fact that there was an interchange at all presented an opportunity to intensify the land use. As the land use changes increased, more capacity was added to the interchange which in turn spurred additional land use growth as shown in the bottom photo from 1997. This has left a

The Land Use-Transportation Connection is not one way. For example increased density should be supported by an emphasis on transit, but at the same time, increased density should be planned in areas that are easy to serve by transit. Land use should coordinate with travel patterns as well. For example currently in the mornings, there is more capacity northbound than southbound on I-405, while the opposite is true in the afternoons. There may be land use choices in Kirkland that can take advantage of this capacity.

The Totem Lake Urban Center is transitioning from an auto oriented district to one that relies on a range of modes to support increased density. In particular, improved access to transit hubs by walking and bicycling access should be a focus.

In neighborhoods where larger areas of single family residences make it difficult to support high quality nearby transit, greenways, on-street bike lanes and sidewalks will offer options that help support a more livable community. Connections should focus on schools, parks, transit and commercial areas.

For employers in Kirkland to be competitive with those in other cities, their employees must be able to get to job sites quickly and easily and have adequate auto and bicycle parking during the work period.

Skinny Streets

Kirkland adopted skinny street standards in 1995.

Local streets can be as narrow as 20' with parking allowed on one side. Skinny streets have several advantages over wider streets:

- Narrow streets use less material, and therefore cost less to build and maintain.
- Speed is reduced on narrower streets, especially when parking is present.
- The reduced crossing width of skinny streets is beneficial for pedestrians.
- Less impervious surface means less surface water impact.

This Kirkland Street is 34' wide and was built to King County standards before annexation. Speed humps were installed to slow traffic.

A 20' wide skinny street where parking is allowed on one side.

Policies

Policy T-5.1 Focus on transportation system developments that expand and improve walkable neighborhoods.

The prioritization of transportation improvements should be weighted toward those projects that expand or enhance connections within 10 minute neighborhoods (see Land Use chapter of Comprehensive Plan). These could include building missing sidewalks within such neighborhoods or creating new trails that expand high quality walkable neighborhoods.

These areas should serve as focal points for local and regional transit service and should include high quality passenger environments. (See Policy T-1.4)

Similarly, bicycling should be easy and comfortable for a wide range of users in and between 10 minute neighborhoods. (See Policy T-2.2, T-2.3)

Based on the vision for the Comprehensive Plan, street improvements to add vehicle capacity should be designed to facilitate walking, biking and transit as well.

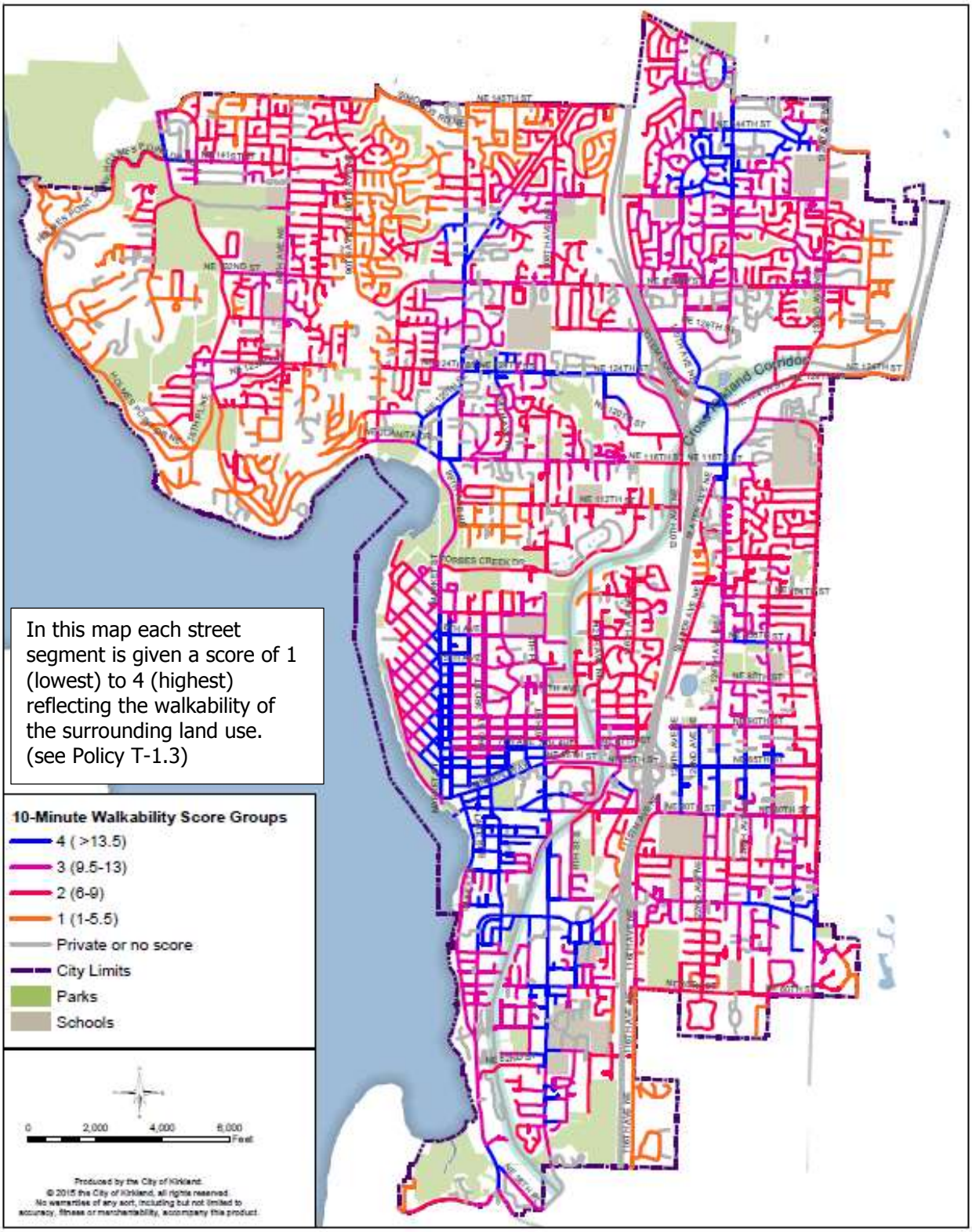
Action T-5.1.1: As described in connection with Goals T-1 through T-4, ensure that walkable neighborhoods are considered in the planning of transportation projects and programs.

Policy T-5.2 Design Streets in a manner that supports the land use plan and that supports the other goals and policies of the transportation plan

Street design should be guided by modern, urban focused design guidelines such as those published by the National Association of City Transportation Officials Urban Street Design Guidelines. (See Policy T-1.1) and should include lighting, green spaces, street trees, way finding, street furniture, etc. Kirkland's zoning code contains policies for street widths.

Street design should preserve existing significant trees and include new street trees and landscaping in the right-of-way to enhance the streetscape. Where significant trees are removed, they should be replaced or the loss should be otherwise mitigated. Street trees should be selected to minimize interference with other infrastructure and obstruction of public views from streets.

Action T-5.2.1: Review design standards and adopt guidelines that are in keeping with policies in this plan and that consider the best design practices in the industry.


In this map each street segment is given a score of 1 (lowest) to 4 (highest) reflecting the walkability of the surrounding land use. (see Policy T-1.3)
10-Minute Walkability Score Groups
4 (>13.5)
3 (9.5-13)
2 (6-9)
1 (1-5.5)
Private or no score
City Limits
Parks
Schools
0
2,000
4,000
8,000
Feet
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Policy T-5.2 Create a transportation network that supports economic development goals.

All transportation improvements should be evaluated in terms of their ability to support economic development. In addition to street improvement projects that build capacity for new commercial development, examples of projects that support economic development include bicycle parking improvements that bring bicycle customers to local businesses, transportation demand programs that make it easier for employees to get to work by a variety of modes, and creation of loading zones that expedite delivery of goods. (See the Economic Development Chapter of the Comprehensive Plan). Benefits to economic development goals need to be balanced with impacts that may be created by pursuing these benefits.

Action T-5.2.1: As described in connection with Goals T-1 through T-4, ensure that economic development goals are considered in the planning of transportation projects and programs.

Freight and Loading

Most of the freight traffic in Kirkland travels through on I-405.

Deliveries in downtown could be the area where freight traffic most impacts Kirkland. Loading zones give businesses needed space to load, but also take valuable parking from customers.

On-street parking is in low demand early in the morning and can be used for loading without creating conflicts

In addition to loading zones, alleys can also be used for loading.

The truck using this loading zone is encroaching into a bike lane, illustrating some of the multiple needs of street space; for parking, loading, cars and bikes.

Policy T-5.3 Develop transportation improvements tailored to commercial land use districts such as Totem Lake, Downtown and neighborhood business areas.

Fostering growth in Kirkland will require careful consideration of transportation facilities. This is particularly important in areas where traffic congestion occurs regularly and where increases in growth are planned.

The land use vision must not be lost in a quest to remove traffic congestion. For example, it should not be expected that street or intersection widening will be a primary tool in developing walkable, bikeable, livable neighborhood business areas, because this strategy would contradict the very land use vision it is intended to support. Instead, transportation facilities that allow safe and convenient travel by other modes should be promoted. This is not to suggest that cars will be abandoned, but rather to recognize that over the next 20 years the City of Kirkland is pursuing a transportation approach consistent with its vision; a path that is different than the one laid out in previous plans.

Totem Lake and Downtown Kirkland should have primary connections to regional transit. Because of the size of the Totem Lake Urban Center it is important to make sure that regional transit effectively serves the entire center. (See Policy T-7.1)

New and reconfigured interchanges with I-405 will improve transportation for all modes and should be pursued. (See Policy T-7.3) As discussed in the chapters on walking and biking, the existing freeway interchanges are barriers and, in the case of NE 124th Street, severely constrain, the ability to move from one side of the Totem Lake Urban Center to the other. The space dedicated to the NE 124th Street interchange is substantial and if the interchange were designed more efficiently, valuable space could be freed up for more productive purposes. While reconstructing interchanges has large benefits, it also has high costs and long time frames.

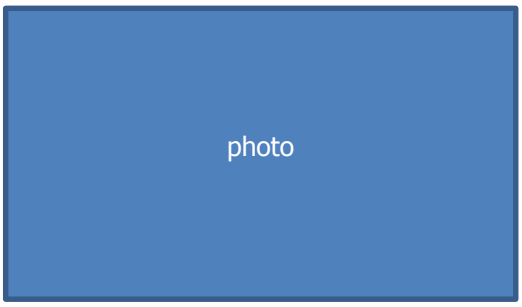
The illustration below shows the I-405/NE 124th interchange superimposed on downtown Kirkland to give a relative sense of its footprint.

Four elements of development review

1. **Concurrency** ensures that rate at which new trips from new development is in keeping with construction of the 20 year network to accommodate those trips has been constructed.
2. **State Environmental Protection Act (SEPA)** This state legislation allows jurisdictions to require developments to mitigate site-specific impacts, for example building a traffic signal at a project driveway.
3. In contrast to SEPA which covers site-specific issues, **Impact Fees** are paid by development to help fund system-wide improvements.
4. Frontage improvements, like sidewalks.

Tale of 2 Cities. The illustration below shows the differences in travel options between two street networks. The connecting streets in the lower half of the figure make it possible to walk or bike between destinations. Cul-de-sacs and loop roads in the upper part of the drawing make trips between destinations; even those that are physically close, longer and more likely to be auto oriented.

The photo below shows a connection that was made as a part of new development.



Policy T-5.4 Require new development to mitigate site specific and system wide transportation impacts.

A sizable number of public improvements are built by the private sector as part of new development projects. Therefore, it is critical that policies, guidelines and practices used to plan, design and construct private improvements are consistent with this Plan.

For individual development, the nature and timing of the mitigation should be based on the magnitude and proportionate share of the impacts and the timing of development. Mitigation may be necessary for impacts to intersections and local roadways, including pedestrian, bicycle and transit facilities. In addition, mitigation may be needed for site access to and from the local roadway system. The City maintains traffic impact guidelines to establish the basis for mitigation its timing and its extent.

Throughout the city, private development is required, as part of the development process, to fund improvements needed to mitigate the impacts of their developments such as new streets, traffic signals and turn lanes.

To reduce the risk of crashes and or to mitigate traffic congestion, it is sometimes necessary to limit access between roadways and driveways. This may come in the form of fewer driveways or limitations on the driveways that are allowed. In other cases private development will be required to provide turn lanes to ease access.

Private development is often required to dedicate land for construction of streets, sidewalks, bicycle facilities, through

connections and other improvements needed to support transportation goals and policies.

Kirkland maintains a transportation demand planning model (the Bellevue-Kirkland-Redmond or BKR model) in cooperation with the Cities of Redmond and Bellevue. This planning model should continue and the model should be improved to recognize advances in regional modeling such as better modeling of transit, biking and walking.

Action T-5.4.1: Review, streamline and codify as reasonable, components of transportation-related development review.

Action T-5.4.3: Participate in the maintenance and improvements of the BKR model.

Policy T-5.5: Create a system of streets and trails that form an interconnected network.

As a part of land development, new connections to the existing street system are often required. These may be full streets or connections for emergency vehicles, bicycles and pedestrians.

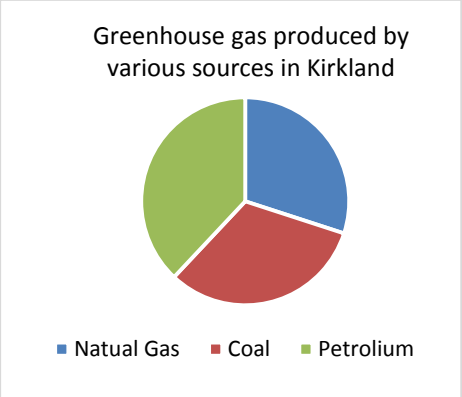
Traffic spread over a grid of streets, balances and minimizes impacts across the network. Therefore, the fact that new connections may increase traffic volume on some existing streets is not a sufficient reason for rejecting such new connections.

Emergency response times are shorter and more reliable when responders have several routing options and new connections often provide these additional options.

Time saving and safe bicycle and pedestrian connections can be made by adding trail connections between cul-de-sacs.

Action T-5.5.1: Develop a plan for connections between street ends and complete those connections.

A Greener Future



It's estimated that about 38% of Kirkland's greenhouse gas emissions are attributable to the consumption of petroleum in transportation. Coal and natural gas are the source of about two thirds of greenhouse gas emissions.

Kirkland has a goal of reducing greenhouse gas emissions to 50% of their 2007 levels by 2030. There are several components that are forecast to be needed in order to accomplish that goal such as: higher reliance on renewable energy sources, greater energy conservation, etc. One of the components is the reduction of vehicle-miles-of-travel by 40%. This is an ambitious goal and will require the realization of the goals and objectives in this plan.

2012 Street Levy for Maintenance

The 2012 Street Levy raises an average of about $2.7 million per year over the next 20 years. This will be added to the approximately $1.75 million of non-levy funding. This funding is set aside by policy for pavement maintenance. 5% of the levy is set aside for school walk routes and 5% for neighborhood safety.

CHAPTER 7. BE SUSTAINABLE

Goal T-6 As the transportation system is planned, designed, built, maintained and operated, provide mobility for all using reasonably assured revenue sources while minimizing environmental impacts.

Background

Kirkland faces challenges related to both fiscal and environmental sustainability that affect the transportation system.

Fundamental to economic sustainability is the need to keep costs for transportation in line with expected revenue. A list of unfunded transportation projects should be developed to provide opportunities for grant funding or other unexpected revenue sources and as a way of indicating future aspirations for the transportation system. Transportation Impact fees are a source of revenue that can be used for a variety of transportation projects, including the Cross Kirkland Corridor, that meet certain criteria.

Maintaining existing infrastructure in good condition is a critical requirement of sustainability. Kirkland's residents have continued to show support for maintenance efforts by passing a Street Levy in 2012. The bulk of the funding from the levy goes toward pavement maintenance. There are a number of other systems – sidewalks, traffic signals, lighting systems, that do not currently have robust maintenance programs and this plan proposes remedying that shortcoming.

Because roughly half of greenhouse gas emissions are transportation related, it is virtually impossible to meet adopted climate change goals without changing the way we travel. Electric vehicles may be one way that technology can help meet this challenge. Auto-based transportation is also a primary contributor to water and air pollution. It is increasingly being recognized that active transportation like walking and bicycling can play important roles in promoting public health in a community.

Natural disasters have the potential to severely damage or destroy key links and systems in the transportation network. Sustaining the transportation system requires planning for the prevention of and recovery from such events.

Sustainability also encompasses accessibility of transportation. The transportation system should be accessible and provide benefit to all users throughout Kirkland regardless of mobility, vision, hearing and cognitive capabilities.

In accordance with Federal and State law, care is needed to ensure that low-income, special needs and minority populations are not unduly subject to negative impacts from transportation improvements and that they are fully included in decision making processes.

Cars and surface water

When it rains, stormwater runoff carries dirty car wash water, petroleum products and exhaust particulates to rivers, streams, lakes and Puget Sound. These products degrade water quality and can harm wildlife and habitat

Car wash runoff

Dirty car wash water contaminates waterways with petroleum hydrocarbons, heavy metals, phosphorus, nitrogen, and sediments. Soaps (including biodegradable soaps) dissolve the protective mucous layer on fish and the natural oils in gills, making fish more susceptible to disease. Commercial car washes help solve this problem by sending dirty water to treatment plants.

Vehicle leaks

Vehicles drip an estimated 7 million quarts of motor oil into the Puget Sound watershed each year. This accounts for slightly less than two-thirds of the total estimated release of petroleum-related compounds into Puget Sound. Watching for and fixing leaks right way can minimize this form of contamination.

Exhaust particulates

Vehicle emissions send large amounts of harmful contaminants into our air which are deposited onto our roads and into local rivers, lakes, and streams.

Brake pads and tires

As brake pads and tires wear down, copper, zinc and other metals are deposited on roadways, where they are washed into our streams and rivers. Copper is highly toxic to fish and other aquatic species. Young salmon are especially susceptible to the effects of copper. Washington's Better Brakes Law, passed in 2010, restricts the use of several heavy metals and asbestos, beginning in 2015, and provides a phase out of copper.

How much is enough?

This plan's funding assumptions are based on conservative estimates of past performance.

As the plan is revised in the future these assumptions may need to be adjusted for changes in revenue or costs or the goals of the plan. Over time, the goals of the Plan may be altered with a resulting need to change the blend of transportation projects to be constructed.

In any case, regular adjustments should be made to funding and expenses to ensure that the goals of the Plan are met in a manner.

Non-Capital expenses

Fulfilling some of the policies of the plan will require funding from sources other than the Capital Facilities Program.

Support for bicycling. Counting bicycle volumes, promoting bike use and creating wayfinding maps are examples of important projects that would not be typically be funded with capital revenue. (see policy T-2.4) Support for walking has similar funding needs.

Transit service. The City may wish to provide funding for transit

Policies

Policy T-6.1 Balance overall public capital expenditures and revenues for transportation.

Because certain projects are good candidates for specific types of funding and for other reasons, there is a need to maintain a list of "unfunded" projects, but the cost of all unfunded projects should be a small percentage of the expected revenue over the 20 year plan. The unfunded list should also be focused on the goals of the plan rather than a collection of unconnected projects.

Impact fees are a means for new growth to pay for a fair share of system improvements; projects that benefit the entire transportation system, not just a particular development. In Kirkland, Transportation Impact fees represent up to about 15 percent of the expected revenue over the next 20 years.

Fundamental to Kirkland's transportation vision is the concept that Kirkland's transportation system is multimodal. Therefore, all types of projects contribute to the capacity of the transportation system and therefore, are eligible for impact fees. Because of this, impact fee calculations should be based on person trips rather than vehicle trips.

Notably, the Cross Kirkland Corridor is eligible for impact fees because of the capacity it provides for as a vital link for north-south transportation.

Action T-6.1.1: Revise the Impact Fee policy to support the goals of the Transportation Master Plan.

Many types of funding are used to fund the transportation system

Capital project funding	
Source	*Annual Amount (million)*
Gas tax	$ 0.56
Business Licenses	$ 0.27
Real estate excise tax	$ 1.42
Street levy	$ 2.60
Solid waste fund	$ 0.30
Surface water fund	$ 0.50
Impact fees	$ 2.00
Grants	$ 3.50
Developer Fees	$ 1.25
Other	$ 0.25
TOTAL	$12.65
$12.50 million per year	***$250 million over 20 years.***

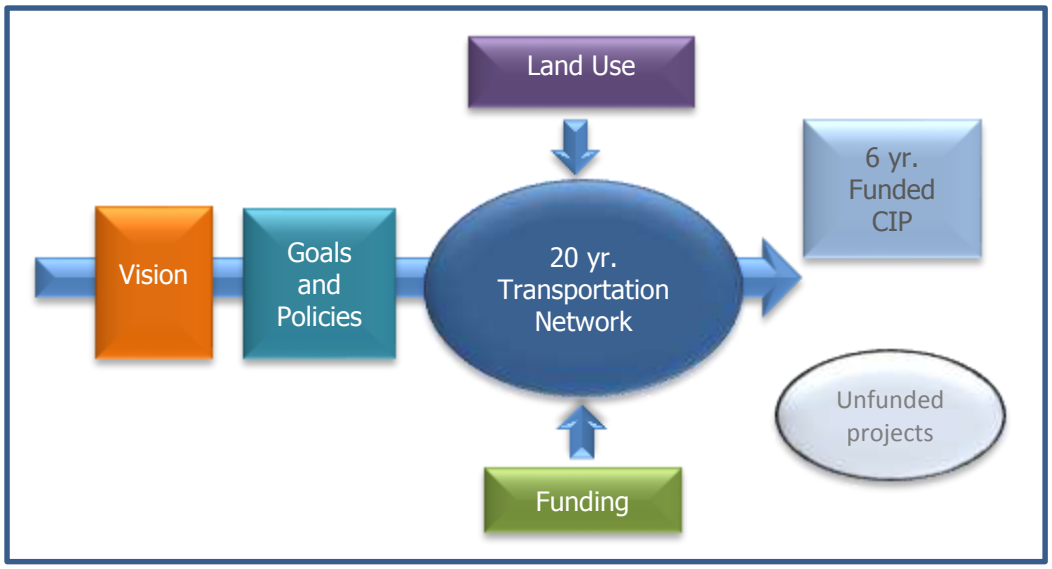
20 year Transportation Project List.

A 20 year project list is a required element of the Transportation Element and of the Capital Facilities Element of the Comprehensive Plan. It is a set of projects that is estimated, at a high level, to be funded within reasonably expected revenue. As described below, for some categories project detail is available, and in other areas, less detail is available. In these cases, a placeholder amount of funding shown as necessary to complete the 20 year list. The costs projected for many projects is at the early planning level.

Because the 20 year Transportation Project List will be updated regularly, it should be viewed as a document that gives planning direction and that reflects the policy direction in the TMP rather than spelling out the specifics of each project to be completed between now and 2035. Revisiting the 20 year transportation project list when the Capital Improvement Program is updated would be a logical course of action. The 6-year Capital Improvement Program is the document that draws on the 20 year transportation project list to develop a set of specific projects that can be programmed with immediately available revenue.

Once overall funding levels were established, the 20 year project list was as follows:

1. By policy, recognize a 20 year street maintenance budget of approximately $85 million of street levy and other committed funds.
2. Following the Goals and Policies in this document, establish project categories within each main area of the Plan (Safety, Maintenance, Walk, Bike, Transit, Auto) (see Table 2).
3. For each project category, develop a recommended set of funded projects. For most project categories, this is based on a combination of a) projects that will meet the goals and policies in the plan selected from a variety of sources, b) fiscal balance across project types c) projects that have been previously considered and d) staff's judgment of a sensible level of completeness for a project category. Sometimes it represents a placeholder amount awaiting another level of analysis. Often a study is called for that will provide guidance for more detailed project analysis.



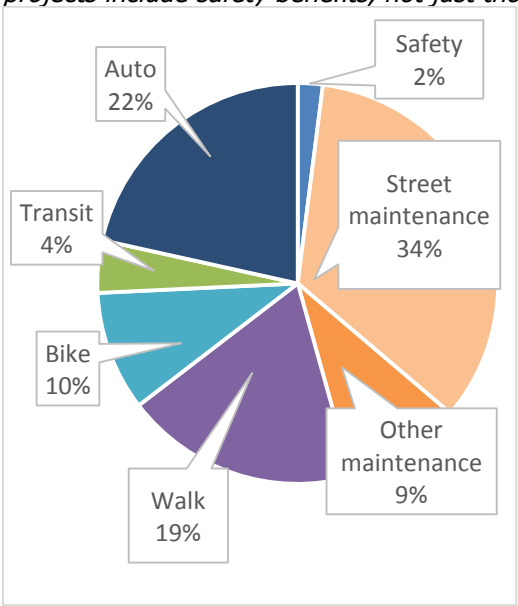
The illustration above shows how vision, goals and policies, funding and land use influence the 20 yr. Transportation network. The network is the source of projects for the 6 yr. funded CIP and unfunded projects are also part of the list.

It is expected that the 20 year Transportation Project List will serve a main source of future transportation Capital Improvement Program projects and individual projects will be prioritized within groups based on the prioritization criteria in the Goals and Policies of the TMP. As mentioned above, the 20 year Project List should be updated at least every two years in coordination with the Capital Improvement Program process. Revenue assumptions and level of funding will be adjusted with each biennial budget.

An initial allocation of funding has been made as summarized in the following Table which contains eight columns as follows:

1. *Mode:* This is the general category of project. In addition to Walk, Bike, Transit and Auto, Safety and Maintenance are included as modes for simplicity. The Safety and Maintenance areas actually have projects in several modes.
2. *Category:* Categories divide the Modes into project areas, like school walk routes vs. projects that support sidewalks in 10 minute neighborhoods. This column includes Map reference number.
3. *Basis for 20 year funding:* This describes how the funding amount was set for the 20 year Transportation Project list in a particular category.
4. *20 Yr. funding:* This a planning level estimate of the amount needed to fund the basis for the 20 year list in millions of dollars.
5. *Early Priorities:* As the title suggests, this is staff's recommendation for the first projects that should be funded in the CIP from this category. Projects that meet multiple policy objectives and grant funded projects were ranked as high priority and should be reflected in the current CIP process.
6. *Key Unfunded Elements:* Projects that are not included in the *Basis for 20 year funding* column are described here. Not all categories have an entry in this column.
7. *Unfunded Costs:* Funding necessary for the key unfunded elements
8. *Transportation Master Plan Policy Support:* Policies from the Master Plan that support the mode

The chart shows the split, by mode, of funding for the 20 yr. Transportation Plan. Note that many projects include safety benefits, not just those designated as safety projects.



20 year project Table part a

MODE	CATEGORY	BASIS FOR 20yr FUNDING	20 YR FUNDING (million)	EARLY PRIORITIES	KEY UNFUNDED ELEMENTS	UNFUNDED COST	TRANSPORTATION MASTER PLAN POLICY SUPPORT
Safety	Vision Zero Safety	Opportunity fund for projects that result from Vision Zero process.	$ 1.0	Develop a vision zero program.	Unsure until Vision zero gets started.		Develop a vision zero safety plan that is multi-disciplinary and focuses on innovative approaches to safety.
	New signals, driveway management, flashing yellow arrow.	Opportunity fund. Estimate of need.	$ 3.0	Flashing yellow candidate intersections	May need more or different new signal locations, driveway mitigation areas etc.	New signals at around $.75 m each.	Reduce crash rates for motor vehicles, mitigate impacts of motor vehicles on neighborhood streets.
	Neighborhood Traffic Control Program	Opportunity fund. Same funding level as when program was previously funded.	$ 1.0	Previously identified locations; Slater Ave.	This level of funding should be adequate to meet the currently anticipated need.		
Maintenance	Pavement	Pavement Condition Index, meeting 20 year targets of 70 for arterials and collectors and 74 for other streets.	$ 85.0	Based on existing condition.	Should be adequate to achieve PCI target.		Previous policy decision.
	Signals	Basic replacement schedule.	$ 7.5	Oldest signals/equipment.	Some items will be obsolete before they are replaced.	$13.5	Place high priority on maintenance, Use ITS.
	Markings	Estimate of need.	$ 12.0	Annual inspection.	Funding level should be adequate; revaluate in the future.		Place high priority on maintenance, increase safety, improve facilities, and build networks for bikes.
	Sidewalk	Opportunity fund. Same funding level as past years.	$ 4.0	Base on inventory of sidewalk conditions. Expected to be completed in 2015.	Reassess after inventory is completed.		Place high priority on maintenance, Remove barriers to walking improve safety of walking, integrate transit with ped/bike networks.

20 year project Table part b

MODE	CATEGORY	BASIS FOR 20yr FUNDING	20 YR FUNDING (million)	EARLY PRIORITIES	KEY UNFUNDED ELEMENTS	UNFUNDED COST (million)	TRANSPORTATION MASTER PLAN POLICY SUPPORT
Walk	School Walk Routes	Complete sidewalk on one side of arterials and collectors.	$ 4.5	Places where these 3 categories overlap. Also Revised Active Transportation Plan.	Local streets.		Walking: remove barriers, increase safety, improve walk to school. Improve pedestrian connections to transit. Improve walkable neighborhoods, connect to commercial areas. Promote energy efficient modes, reduce pollution, and provide mobility for all users.
	10 min Neighborhoods	Top 2 groups on arterials and collectors.	$ 6.0		Other categories of 10 minute walkability, other street classifications.	$9	
	Arterials and Collectors	Missing sidewalks on Principal arterials.	$ 3.0		Complete sidewalk on other streets.	Has not been estimated.	
	New crosswalks, poor lighting, fewer improvements, at signals	Improving lighting at candidate locations on all streets, locations with few improvements on arterials, new crosswalks, improvements at signals.	$ 9.5	Groups of crosswalks on arterials, NE 124/113 NE signal.	Crosswalks on local streets.	Has not been estimated.	All policies for sidewalks (above) plus, improve crossings for pedestrians
	CKC	Opportunity fund. Some design and some construction of the CKC to master plan vision and completion of some connections to the corridor.	$ 15.0	Design of NE 124th/124th NE bridge, South Kirkland Park and ride to 6th Section. Connections to Park Place, Forbes Creek drive.	Complete design and construction of corridor and connections.	Design and construction of complete corridor is estimated at $70 to $80 m. Full connection costs have not been estimated.	Develop CKC for walking and biking, integrate ped and bike networks with transit, promote energy efficient modes, reduce pollution, implement transit on CKC, Provide mobility for all users.
	Other trails	Opportunity Fund. Need plan from revised Active Transportation Plan.	$ 2.0	Connections between Finn Hill and Juanita Beach area.	Reassess after Plan is completed.		
	Accessibility	Opportunity fund, placeholder funding amount.	$ 7.0	Complete ADA Transition plan.	Reassess after Plan is completed.		Remove barriers to walking, provide mobility for all users, minimize impacts to special need populations.

20 year project Table part c

MODE	CATEGORY	BASIS FOR 20yr FUNDING	20-YR FUNDING (million)	EARLY PRIORITIES	KEY UNFUNDED ELEMENTS	UNFUNDED COST (million)	TRANSPORTATION MASTER PLAN POLICY SUPPORT
Bike	On-Street / Protected	Juanita Drive, Protected lane placeholder, other restriping.	$18.0	Juanita Drive and Lakefront grants.	Need to define after revised Active Transportation Plan.		Improve safety, create and improve on-street bikeways, bicycle connections to transit, connect to commercial areas.
	Greenways	Complete network.	$…6.0	NE 75th/Kirkland Way, NE 140th, NE 100th 128th Ave"	Bridges over I-405 at NE 90th and NE 140th Streets.. Redefine after revised Active Transportation Plan.	$9	Improve safety, build a network of greenways, bicycle connections to transit, connect to commercial areas.
Transit	Speed and Reliability	Placeholder -need transit plan.	$…6.5	Complete transit plan.	Transit on CKC.	Has not been estimated.	Create environment to support transit service, partner to provide transit projects in exchange for service.
	Passenger environment	Improvements at 30 high ridership stops -need transit plan.	$…4.0	Complete transit plan.	Kingsgate P&R TOD.	$30 (place holder estimate)	Support safe and comfortable passenger facilities.
Auto	Efficiency	Placeholder amounts for connecting additional signals, updating control methods, better traveler information.	$…5.5	Complete existing ITS projects, Revise ITS plan.	Need to define after revised ITS Plan.		Use ITS to support optimization of roadway networks.
	Respond to Support Development	Opportunity fund for downtown, Totem Lake and parking.	$13.0	Totem Lake Mall improvements (funded separately) downtown parking solutions.	Connections in Totem Lake have not been estimated.		Make investments in capacity to support proposed land use, support economic development goals, tailor improvements to commercial land use districts.
	Other Auto projects	NE 132nd, Juanita Drive, 100th Avenue, interchange development funds.	$35.0	100th Avenue design and construction.	Many other projects are on the current unfunded CIP list.		Make strategic investments in intersection and street capacity, Work with WSDOT on interchange improvements.

3 sources of transportation maintenance

Public Works Street Division

The Streets Division performs everyday maintenance and operation of the facilities in public rights-of-way.

Private Development

Sidewalks, drainage facilities and pavement are examples of improvements made by private developments. These improvements may reduce maintenance costs by replacing items near the end of their useful lives or installing items with lower on-going maintenance costs.

Capital Improvement Program

Some maintenance element are funded by the Capital Improvement Program due to their size and the fact that they are provided by contractors. These include:

- Pavement maintenance
- Pavement markings
- Sidewalk maintenance

Higher quality bicycle facilities often require more pavement markings and their maintenance warrants an increase in maintenance budget.

Pavement marking photo

Policy T-6.2 Place highest priority for funding on maintenance and operation of existing infrastructure rather than on construction of new facilities. Identify and perform maintenance to maximize the useful lifetime of the transportation network at optimum lifecycle cost.

Maintaining what we have before constructing new facilities is a foundation of sustainability. Therefore, when funding decisions are being made, an amount adequate to fund maintenance and operation should be identified before allocating funding to other needs.

In some areas of the transportation system, true maintenance costs and optimum investment levels need to be identified so that accurate information about deferred maintenance and life cycle cost is available for decision makers.

Action T-6.2.1: Identify and sustain reasonable maintenance funding levels for a complete set of transportation assets.

Action T-6.2.2: Develop and maintain inventories of assets that require maintenance such as pavement markings, traffic signals, sidewalks, etc.

Action T-6.2.3: Develop lifecycle costs for capital and maintenance projects.

"Life-cycle cost analysis is a process for evaluating the total economic worth of a usable project segment by analyzing initial costs and discounted future costs, such as maintenance, user, reconstruction, rehabilitation, restoring and resurfacing costs, over the life of the project segment."

-Transportation Equity Act for the 21st Century

The Council has identified performance standards around pavement maintenance calling for a Pavement Condition Index (PCI) of 70 on arterial and collector streets. The least cost PCI is 85. The City may wish to consider pavement maintenance funding that will eventually achieve this least cost PCI.

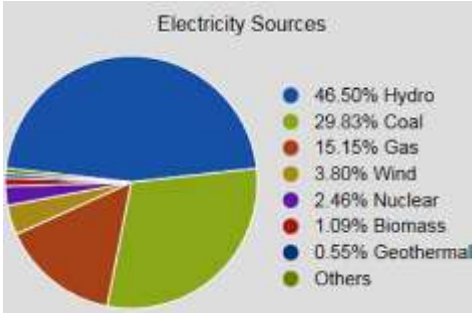
Policy T-6.3 Support modes that are energy efficient and that improve system performance

Bicycling and walking may be the most efficient transportation modes available and consistent with other policies in this plan, those modes should be supported. Over the next 20 years, energy efficiency of other modes and transportation related elements will be improved, this may include improvements to auto and truck technology, transit alternatives or more energy efficient street lighting systems. Kirkland's Transportation network should support these innovations. Intelligent Transportation Systems can help reduce auto delay and stops thereby reducing energy use and improving system performance.

Action T-6.3.1: Work with regional groups such as PSRC and King County Climate Change Collaborative to identify trends in vehicle innovation and seek opportunities to implement them in Kirkland. (See Partnership Policy T-7.4)

Well to wheels

The sustainability energy used by electric vehicles depends on the source of the electricity used to power them. The chart below approximates the source energy mix for electricity in Kirkland.



Source energy.gov

LED street lighting

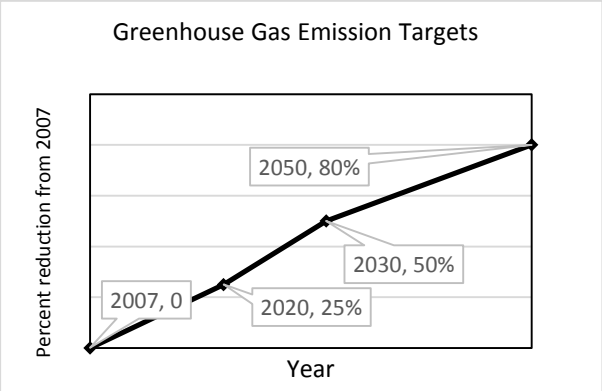
LED street lights can replace conventional lamps and can use less energy to provide similar amounts of light, especially where the conventional lights being replaced are lower wattage. LED street lights are evolving and increasing the amount of light per unit of energy produced and therefore becoming a more cost effective option.

Source allledlighting.com

In addition to their energy saving benefits, many people find the color of LED light more pleasing than that provided by high pressure sodium lights.

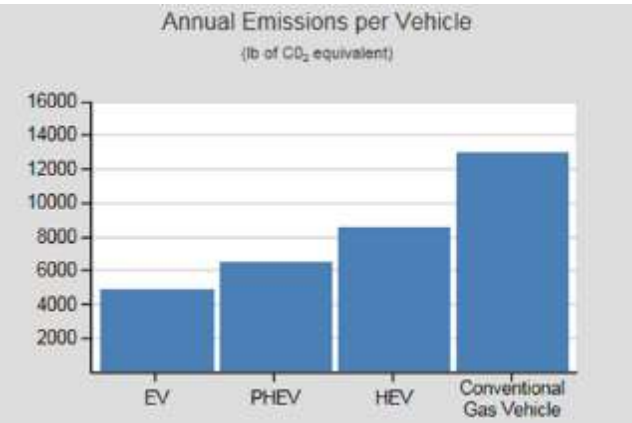
Climate Action Targets

Kirkland's greenhouse gas emissions reduction targets are based on 2007 baseline:



Emissions by type of vehicle

This chart shows emissions for various types of vehicles; Electric (EV), Plug-in Hybrid (PHEV), Hybrid-electric (HOV) and conventional. Emissions vary based on the source of electricity; this chart is calibrated to Kirkland.



Source: energy.gov

Policy T-6.4 Minimize the environmental impacts of transportation facilities, especially the contribution of transportation to air and water pollution. Comply with Federal and State air and water quality requirements.

Motorized transportation is the chief contributor to air and water pollution. This comes in many forms from tailpipe emissions to the production of petroleum products used for paving to substances that drip from cars, trucks and buses and which eventually find their way to water sources.

When planning transportation facilities, both public and private, the environmental impacts of the facility need to be evaluated and minimized, and appropriate mitigation included. Environmental impacts of transportation facilities and services can include shoreline, wetland and stream encroachment, vegetation removal, air quality deterioration, noise pollution, and landform changes.

Kirkland has adopted goals for reduced greenhouse gases (see Environment Chapter Goal E-5). Because of the role that vehicle emissions play in greenhouse gas production, reducing those emissions is a requirement if the goal is to be met. The Environment chapter cites promotion of cleaner fuels, a reduction in vehicle miles of travel and more reliance on renewable energy as three key transportation related actions to meet the City's Greenhouse Gas reduction targets.

Many actions that will reduce greenhouse gases are included in other goals. Primary among these is making walking, biking and transit more viable for more trips.

Action T-6.4.1: Coordinate transportation improvements and programs with goals from the Environment Chapter of the Comprehensive Plan to meet the City's greenhouse gas targets.

Policy T-6.5 Safeguard the transportation system against disaster

Because of the risk that natural and other disasters can pose to the transportation system, prevention and recovery should be actively planned for. This should be done in coordination with goals and policies in the Comprehensive Emergency Management Plan.

Action T-6.5.1: Develop and keep current strategies for preventing and recovering from disasters that impact the Transportation System.

Policy T-6.6 Create an equitable system that provides mobility for all users.

Our transportation system has many potential barriers. A sustainable transportation system is open to users of all abilities. There may be cost barriers such as tolls or transit fares that prevent some citizens from using public transportation facilities. Language may be a barrier to some users and this should be considered in the design of written materials. Kirkland should be sensitive to the potential barriers and treat them as required by law or by the need to make the transportation system as open as possible to all users. (See Policy T-1.1)

Action T-6.6.1: Periodically review existing procedures and if needed, adopt new procedures to ensure accessibility to the transportation system.

Policy T-6.7 Implement transportation programs and projects in ways that prevent or minimize impacts to low-income, minority and special needs populations.

As required by applicable state and federal regulations, Kirkland should continue to make sure that all citizens are involved in decision making about transportation projects and that impacts (such as health, environmental, social and economic effects) do not fall disproportionally on vulnerable populations.

Action T-6.7.1: Ensure inclusion of vulnerable populations and ensure that impacts to these populations are not disproportionate by periodically reviewing existing procedures and when needed, adopting new procedures.

FAQ on ADA

The American with Disabilities Act requires accessibility to civic life by people with disabilities. One part of this is making sure that the transportation system is accessible to everyone.

Does every new sidewalk have to be accessible, no matter the cost?

Access can usually be provided at a reasonable cost. In rare cases where it is extremely expensive or physically impossible to provide access, it does not have to be provided.

Do all routes to the CKC have to be accessible?

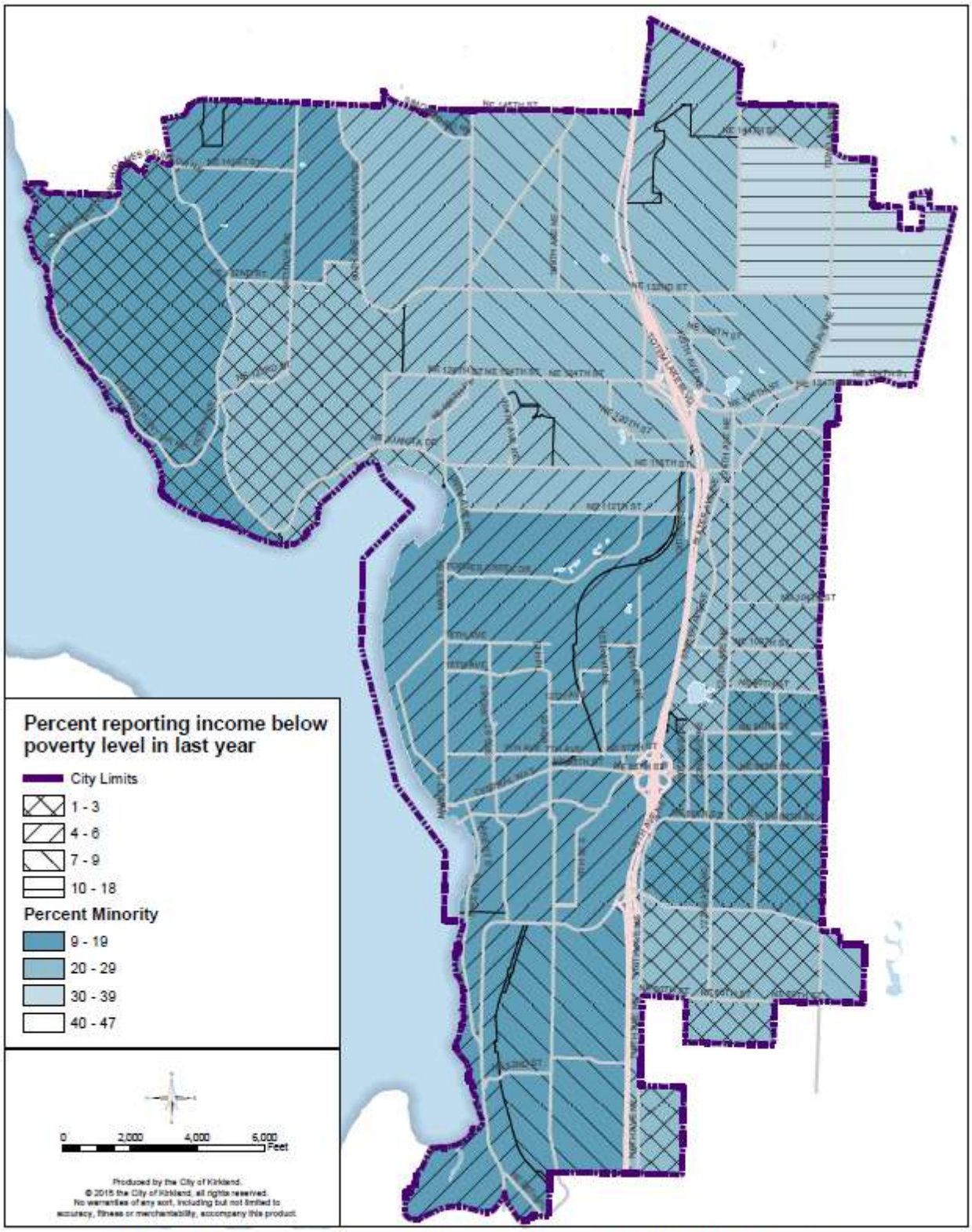
No, but accessibility has to be provided. For example there may be several ways of accessing a park from the CKC; at least one of them must be accessible.

Why do perfectly good sidewalk ramps have to be replaced?

Because the standards for ADA have evolved some ramps that were built several years ago look "perfectly good" but don't meet current standards. Often they are too steep or don't have adequately sized landings for wheel chairs.

When will work on accessibility be completed?

It will take time to complete all the improvements that are needed, that's why it's important to properly prioritize projects and comply with the most recent standards.



Minortiy Percent of Population and Percent of Population that reported Income below poverty level in last year (2007-2011)

Policy T-6.8 Actively pursue grant funding and innovative funding sources

Kirkland has a history of successfully pursuing a wide range of grant funding opportunities for transportation projects and this should continue. Grant funding is expected to make up more than a quarter of transportation funding over the next 20 years. Projects that are a good candidates for particular grant funding sources should be have a prominent place in the lists of potential projects. Sidewalk projects on School Walk Routes and Safe Routes to School grants are an example of this type of pairing.

Action T-6.8.1: Ensure that all applicable grant opportunities are reviewed and competitive grant applications are submitted by periodically reviewing grant application procedures.

State and Federal transportation grant funding

State funding can be allocated by the legislature directly to programs like Safe routes to School or through organizations such as the Transportation Improvement Board.

The Washington State Department of Transportation administers some Federal grants such as the Highway Safety Improvement Program and oversees expenditure of other federal funds.

Other federal funds are allocated by the Puget Sound Regional Council, allocations for some grants are recommended first by groups at the county level.

Examples of grant funded projects:

<NEED PHOTOS>

CKC interim trail Federal Congestion and Air Quality Mitigation, 2013.

Slater Avenue, State Transportation Improvement Board, 199X

Redesigned pedestrian flags, Federal non-motorized grant, 2007

School Walk Routes, State Safe Routes to School, 2012

Totem Lake Green Trips, Congestion and Air Quality Mitigation, 2013.

Howdy Partner

The Washington Department of Transportation (WSDOT) maintains and operates traffic signals at the intersections of city streets and freeway interchanges. These are some of the busiest intersections in the City so coordinated operations with WSDOT are important.

The Eastside Transportation Partnership is made up of elected officials from Eastside Cities, King County and other transportation related agencies. The Partnership meets monthly to receive information and influence policy decisions.

Cascade Bicycle Club, Feet First and Kirkland Greenways are examples of important advocacy partners in the areas of bicycling and walking. Partnering with advocacy groups makes sure that solutions have broad support in the community.

CHAPTER 8. BE AN ACTIVE PARTNER

Goal T-7 Coordinate with a broad range of groups; public and private, to help meet Kirkland's transportation Goals.

Background

Travel doesn't stop at city borders. Cars, buses, bicycles and pedestrians all travel between cities. Kirkland is bisected by I-405, a facility which is the responsibility of the **Washington State Department of Transportation** (WSDOT). Transit service is provided by King County Metro and Sound Transit both of which are governed by separate boards of elected officials. Regional policy determines, to a large extent, the minimum number of person trips that Kirkland must plan for. For all these reasons, working with other agencies is a requirement for achieving Kirkland's transportation goals.

Kirkland must be proactive in its work with regional partners. Kirkland should come to other partners with a strong sense of our needs rather than reacting to what is offered by others. An example of this can be seen in the work of our City Council and State Legislature, where recent sessions have resulted in securing important funding for the Cross Kirkland Corridor.

At the county-wide and regional levels, there are a number of groups that influence funding decisions and transportation policy. These are often structured with staff groups making recommendation to boards of elected officials. Kirkland should have an active role in these groups.

Partnerships should not end with the transportation agencies such as the Washington State Department of Transportation or King County Metro. Partnering with the private sector, schools, advocacy groups and neighboring cities and sub-regional coalitions will inform and build support to achieve Kirkland's transportation goals.

Policies

Policy T-7.1 Play a major role in development of Sound Transit facilities in Kirkland

Sound Transit will likely be implementing one or more new phases of high capacity transit over the life of this plan and each new phase should build on the preceding phase.

Each of these phases require an update to Sound Transit's Long Range Plan, followed by a System Plan revision that describes projects that are on a ballot put before voters. Connecting the Totem Lake Urban Center, downtown Kirkland and the 6th Street Corridor with the regional transit system is Kirkland's primary interest for regional transit.

Bus Rapid Transit and light rail are the preferred modes and the preferred route is the Cross Kirkland Corridor. However, Bus Rapid Transit operating in Express Toll Lanes on I-405 may be the first Regional High Capacity Transit link serving Totem Lake.

It is important that such any system travels through the Urban Center, and includes connections to all parts of Kirkland, particularly Downtown and the 6th Street Corridor. Rebuilding freeway interchanges, fixed guideway connections, people movers using the Houghton and Kingsgate Park and Rides are ways by which this may be accomplished.

The City sees Transit Oriented Developments (TOD) as essential for its continued growth and economic development, with the Totem Lake Urban Center at the heart of this goal. This includes both TOD on publically owned land, such as the Kingsgate P&R, but also TOD on privately owned land.

Kirkland can best affect these plans by cultivating productive and ongoing working relationships with Sound Transit and by being active and persistent advocates for our interests, as directed by the City Council, at both the staff and Sound Transit Board level.

Kirkland should work with Sound Transit, Metro and other partners to make investments as part of a seamless and integrated transit network.

Action T-7.1.1: Advocate for increases in meaningful Sound Transit services in Kirkland, with a connection to Totem Lake as a first priority.

Sound Transit Modes

Link Light Rail

Source: Sound Transit

Powered by electricity, operates on tracks, sometimes in mixed traffic. High frequency, high passenger capacity. Preferred connection to Totem Lake.

Regional Express Bus

Source: Sound Transit

Buses that operate mainly on freeway HOV lanes; wide stop spacing.

Other modes Sound Transit may operate in the future.

Bus Rapid Transit

Service levels and vehicles similar to Light Rail, but operates mainly on highways, such as I-405. Has the capability of operating on city streets.

Street Car

Lower speed, lower capacity, operates on tracks and often in mixed traffic. Possible option for the Cross Kirkland Corridor.

Who runs the buses?

Metro Transit is a function of King County Government and is therefore governed by the King County Council. **The Regional Transit Committee** (RTC) makes recommendations to the King County Council on certain transit issues including the Strategic Plan for Public Transportation. The RTC consists of four County Councilmembers, two Seattle Councilmembers and eight representatives from other cities in King County.

Policy T-7.2 Establish commitments from transit providers to provide high quality transit service to Kirkland. This should be provided in exchange for land use and transportation commitments that support transit. Partner with King County Metro to meet mutual interests.

Final decisions about King County Metro transit service rest with the King County Council and therefore change can happen without the approval of the City of Kirkland. This lack of certainty weakens the foundations of both the land use and transportation plans, both of which rely heavily on high quality transit service.

In order to thrive, transit service needs certain land use and transportation elements such as transit supportive land use along a network, and those elements are largely within the control of cities. Therefore, Kirkland should pursue, ideally in cooperation with other jurisdictions, an

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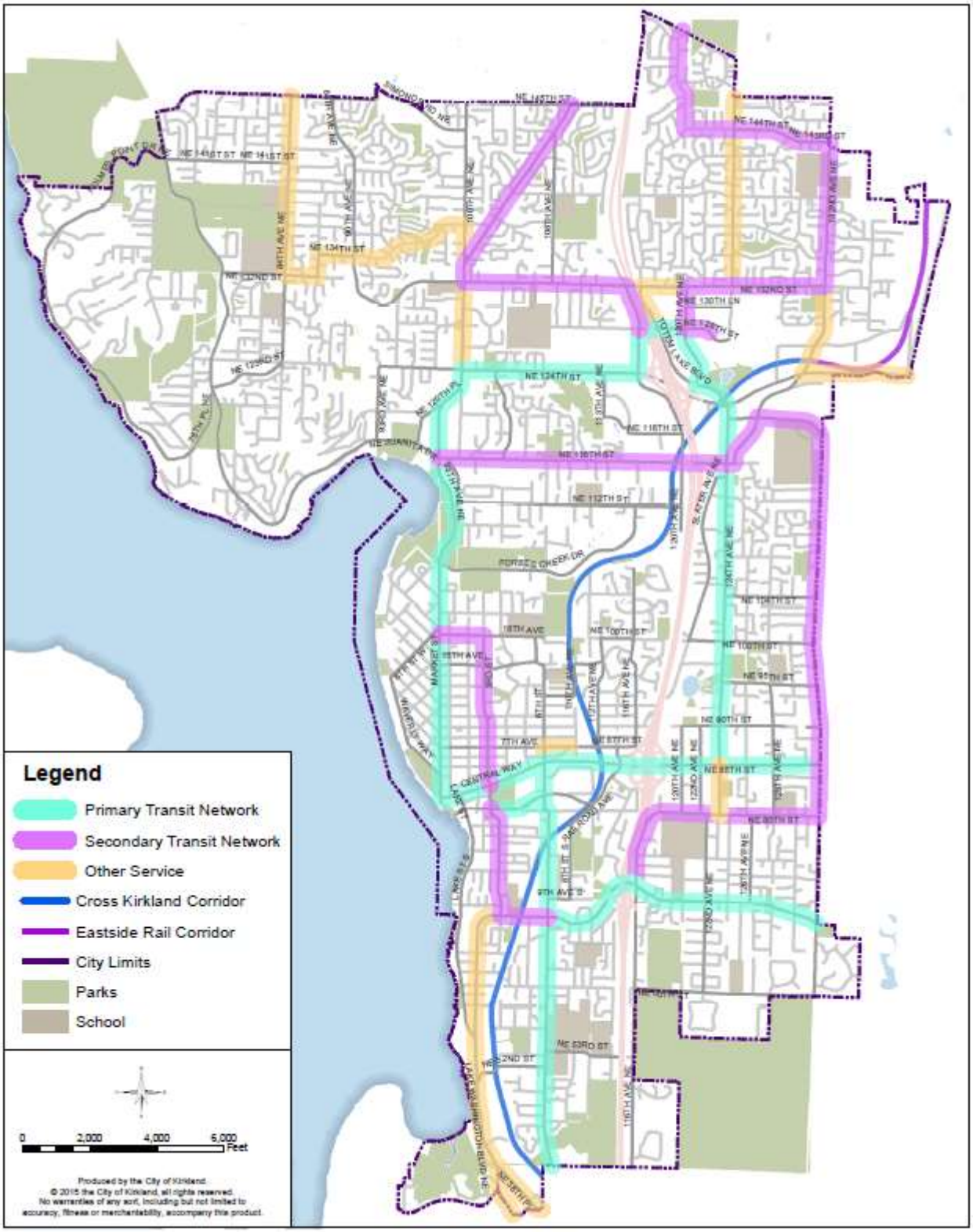
As described in the transit section of this plan, the City should maintain a Transit Plan that details its expectations for transit service and capital facilities. At a minimum, 15 minute frequency service should be provided on the network shown in the map on the following page.

Action T-7.2.1: Actively pursue agreements with transit providers that help support Kirkland's land use and transportation plans.



Transit Network

A region-wide coalition of businesses, developers, local governments, transit agencies, and nonprofit organizations—the Growing Transit Communities Partnership—spent three years working together to create solutions that will encourage high-quality, equitable development around rapid transit. The table (below) shows the strategies and actions that are the primary recommendation of the Puget Sound Regional Council's Growing Transit Communities Strategy. Kirkland is a signatory to the Growing Transit Communities Compact that supports these strategies and actions.

1. Establish a regional program to support thriving and equitable transit communities
2. Build partnerships and promote collaboration
3. Engage effectively with community stakeholders
4. Build capacity for community engagement
5. Evaluate and monitor impacts and outcomes

6. Conduct station area planning
7. Use land efficiently in transit communities
8. Locate, design, and provide access to transit stations to support TOD
9. Adopt innovative parking tools
10. Invest in infrastructure and public realm improvements

11. Assess current and future housing needs in transit communities
12. Minimize displacement through preservation and replacement
13. Increase housing support transit-dependent populations
14. Implement a TOD property acquisition fund
15. Expand value capture financing as a tool for infrastructure and affordable housing
16. Make surplus public lands available for affordable housing
17. Leverage market value through incentives
18. Implement regional fair housing assessment

19. Assess community needs
20. Invest in environmental and public health
21. Invest in economic vitality and opportunity
22. Invest in equitable mobility options
23. Invest in equitable access to high quality education
24. Invest in public safety in transit communities

WSDOT and Roadway pricing

There are two primary reasons for roadway pricing. One is to raise revenue, for example the tolling of the SR 520 bridge was implemented to help pay for the bridge. The other is to improve operations. Express Toll Lanes on

I-405 are designed to keep flow in the lanes moving at 45 MPH.

The City of Kirkland has been a proponent of roadway pricing for a number of years. This support is caveated with the need to mitigate negative impacts of pricing such as toll divergence to other routes.

Street classifications

In Kirkland, streets are divided into five groups:

Freeways and expressways like I-405. **Principal Arterials** that connect to other cities and major commercial centers. **Minor Arterials** serve major traffic generators not served by Principal Arterials. **Collector Streets** fill a role between Arterials and local streets. **Local streets, known as Neighborhood Access Streets** in Kirkland make up the majority of street mileage and provide access to local land use. More information on street classification is available at the Federal Highway Administration website

A street classification map is located in the existing conditions section of this plan.

Policy T-7.3 Work with the Washington State Department of Transportation and the Washington State Legislature to achieve mutually beneficial decisions on freeway interchanges and other facilities.

As described elsewhere, decisions made by the **Washington State Department of Transportation** (WSDOT) on how facilities are designed and operated have significant bearing on Kirkland's transportation system. Because WSDOT traditionally has viewed the Land Use-Transportation Connection from an auto-oriented viewpoint, previous decisions have resulted in facilities that are less than optimal for meeting Kirkland's goals in a modern urban setting. Age of facilities and prioritization of Kirkland's projects in a statewide context are also complicating factors. These issues could potentially be mitigated by working more closely and regularly with WSDOT leadership, inclusion of transportation and land use items on Kirkland's legislative agenda, and advancing Kirkland's interests by funding initial design work for projects like interchange designs on I-405. Also, Kirkland should advocate for improving the interchange of I-405 and SR 520 including new HOV connectivity.

WSDOT must approve any changes to functional classifications on Kirkland's streets to ensure that they meet federal guidelines and are coordinated with neighboring jurisdictions. Functional classification carries with it expectations about roadway design, including its speed, capacity and relationship to existing and future land use development. They are a useful surrogate for volume and number of lanes and are used, as described in other policy discussions, as one measure for prioritizing projects.

Action T-7.3.1: Foster a strong working relationship with WSDOT leadership

Action T-7.3.2: Advance Kirkland's transportation interests with actions on legislative agendas

Action T-7.3.3: Fund initial studies in order to make it easier to secure funding for construction projects.

Action T-7.3.4: Periodically review and update, when needed, functional classifications.

Policy T-7.4 Participate in and provide leadership for regional transportation decision making.

Multiple regional groups impact funding and policy decisions that affect transportation in Kirkland. As an example, Puget Sound Regional Council has a host of boards and groups. Some of these groups are made up of staff members, others are exclusively for elected officials. Kirkland is a member of the King County-Cities Climate Collaboration, a partnership between the County and these cities to coordinate and enhance the effectiveness of local government climate and sustainability efforts.

Action T-7.4.1: Develop a clear plan for being a part of groups to allow for the efficient representation and support of Kirkland's transportation interests.

Vision 2040 is a regional strategy and Transportation 2040 is focused on transportation solutions. Both are produced by the PSRC.

PSRC

The Puget Sound Regional Council is our region's Metropolitan Planning Organization (MPO). MPO's were established by Federal regulation in the early 1960s. Main roles of the MPO include allocation of federal funding and helping to coordinate regional planning including a regional transportation planning model.

As a City in King County, Kirkland is a member agency of PSRC. Because of the size of its population, Kirkland has a seat on the PSRC executive committee. Kirkland Staff supports the elected officials that serve on this committee.

Kirkland has been active in the following PSRC committees:

Regional Project Evaluation Committee
Makes recommendations on criteria and specific projects for federal funding and deal with related transportation planning issues.

Regional Traffic Operations Committee
Works to create a collaborative and coordinated approach to regional traffic operations investments and practices in the Central Puget Sound region.

Land Use Technical Advisory Committee
Advises on demographic, economic, and land use data and modeling projects and technical long-range land use planning activities.

TDM Steering Committee

Coordinates with and advises PSRC staff, policy boards, and other advisory committees on the various transportation demand management-related activities happening throughout the region.

Kirkland would benefit from a more active role in the

Bicycle Pedestrian Advisory Committee

Coordinates with and advises PSRC staff, policy boards, and other advisory committees on a variety of bicycle and pedestrian-related planning issues.

School walk routes

By State Law, (RCW 28A.160.160) the Lake Washington School District is responsible for establishing safe School Walk Routes.

The City of Kirkland has adopted a set of school walk routes to establish a benchmark for various purposes.

In addition to safe routes to school, getting more children walking and biking to school will require examining the reasons why parents make choices about how children travel and overcoming barriers. Another element that needs consideration may be the District's policy on children biking to school.

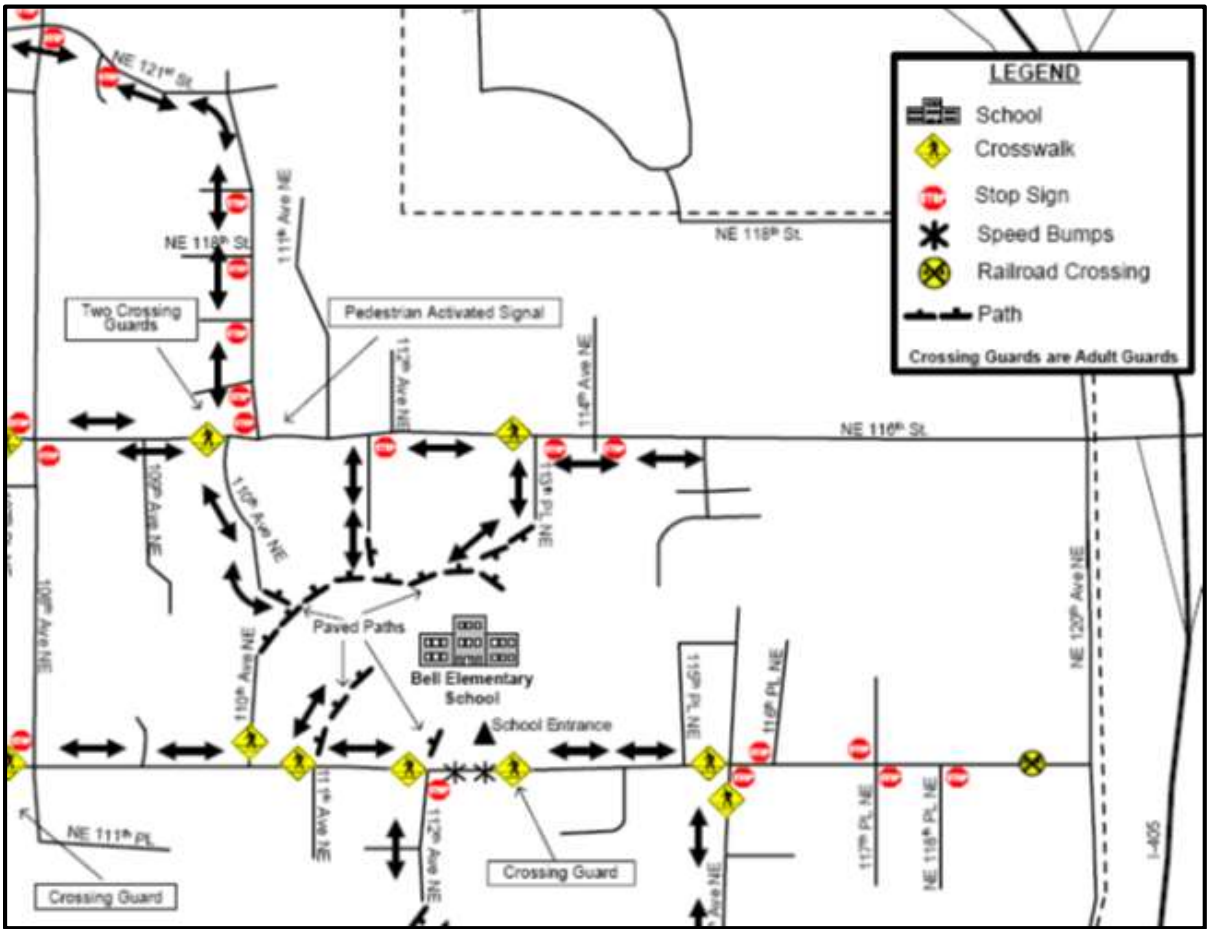
Policy T-7.5 Work closely with the Lake Washington School District to encourage more children to walk and bike to school.

Reducing the number of students who are driven or who drive to school is a multifaceted task. **The Lake Washington School District** (LWSD) is a necessary partner in this effort. Close communications between LWSD and Kirkland staff should be pursued. Contacts at individual schools are usually highly effective and should also be pursued.

Action T-7.5.1: Schedule regular reviews of school walk routes with School District personnel.

Action T-7.5.2: Advance Kirkland's transportation goals by maintaining relationships with schools and the school district.

A section of the School Walk Route to A. G. Bell School.



Policy T-7.6 Coordinate multi-modal transportation systems with neighboring jurisdictions.

Kirkland has strong ties with neighboring jurisdictions. These ties should be reinforced and used to make sure that projects like bike share, wayfinding, traffic signal operation, pavement marking, traffic impacts of new developments and other transportation projects are carefully coordinated so that transportation users can move seamlessly across jurisdiction borders.

Policy T-7.7 Partner with the private sector and other "new" partners.

Kirkland should look for partners outside governmental agencies. Identifying and connecting with other partners could help fund or deliver a range of projects and services including bike share, transit alternatives, traffic data, parking solutions, and a range of improvements on the Cross Kirkland Corridor.

CHAPTER 9. TRANSPORTATION MEASUREMENT

Goal T-8 Measure and report on progress toward achieving goals and actions.

Background

For several years the transportation Commission and City Council have contemplated a revised concurrency system that relieves some of the deficiencies of the existing system. The new system is multi-modal and meets the interest of many stakeholders to be easier to understand.

"Level of service" is a term for the performance of the transportation system. One of the required parts of the Transportation Element of the Comprehensive Plan is a level of service for each mode. The underlying philosophy for Kirkland's level of service is that an acceptable level of service is, by definition, the level of service resulting from the completed 20 year transportation network and the fulfillment of the Land Use Plan. The reason for this is that the projects selected for the transportation network derive from the goals and policies of the plan –including financial constraints, and were chosen because of the performance they provide as a group given the number of trips forecast for the future.

Mode split is another factor considered in the Transportation Element of the Comprehensive Plan. Mode split refers to the fraction of trips using various modes; auto, bike, walking transit. Mode split percentages for the Totem Lake Urban Center from the Growth and Transportation Efficiency Center should be used.

Successful implementation of Kirkland's transportation goals and policies are aided by a clear plan of action. This should take the form of a distillation of the actions of the Transportation Master Plan over the short term presented in a form that is easy to understand and accessible for a range of stakeholders.

Other information about the transportation system beyond the actions should also be summarized in a way that is easy for people to understand and that has clear and regular reporting methods so that progress toward a handful of measures is simple to track over time. This could include crash rates, delay at intersections. Progress toward the goals of this plan should be reported annually.

The Pavement Condition dashboard (below) is an example of a convenient reporting methodology.

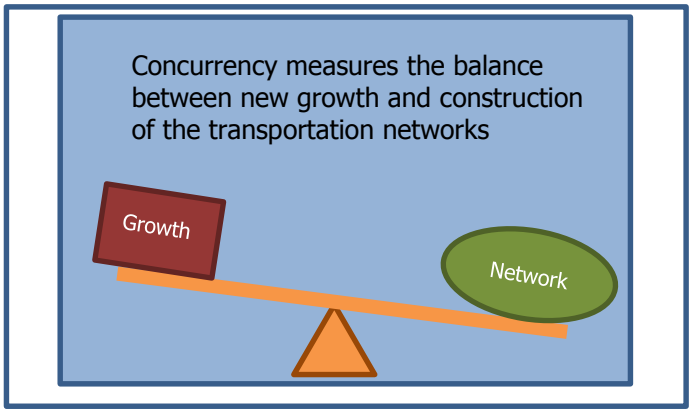
Policies

Policy T-8.1 Use a multi-modal plan based concurrency method to monitor the rate at which land use development and the transportation system are constructed.

The main function of concurrency is to make sure that the impacts of land use growth are balanced with transportation projects and programs. If growth is far out pacing the rate at which transportation improvements are constructed, then permits for new developments can by halted. Such a halting represents a failure of the system. Ideally concurrency is managed so that development continues.

Concurrency should be no more complicated than is necessary and should consider transit, bicycling and walking along with auto travel. Concurrency should principally monitor the approved land use and transportation plans and ensure that they are being completed in relative balance. It should help achieve land use and transportation goals, not be an impediment to achieving those goals.

Action T-8.1.1 Develop and implement a multi-modal concurrency system.



Why change Concurrency?

The new system better fits the multimodal nature of Kirkland's transportation plan and removes complications from the system.

Current system:

- Focuses on Signalized Intersections only projects at these intersections provide capacity that counts toward concurrency
- Complicated calculations
- Hard to understand the number of trips left in the system

New system:

- Multi modal; all kinds of projects are considered to provide mobility.
- Once the system is set up, it is fairly easy to implement and monitor. Results can be interpreted by all participants.

Concurrency is implemented through an ordinance that is approved by the City Council.

How much is too much?

Concurrency measures the number of trips that are added from new growth and compares that to the fraction of the transportation network that is completed. New growth "uses" trips and new projects "supply" trips in the form of capacity. Particular projects supply capacity in proportion to their cost as a fraction of the 20 year network plan.

As shown above, concurrency is designed to monitor the relationship of new growth and the construction of the transportation network. For this to work properly, the future land use and future network have to be accepted before concurrency is put into place. Concurrency is not designed to determine good growth from bad growth or to determine the projects that are needed to mitigate a specific development.

Policy T-8.2 Establish acceptable level of service for all modes.

Reporting on level of completion

Level of completion standard has 3 possible values:

- *Behind schedule* – completion is 90% or less of target
- *On schedule* – completion is between 90% and 110% of target
- *Ahead of schedule* – completion is more than 110% of target

Example after five years (level of completion is reported annually):

After 5 years (25% of 20 years) the fraction of completion of each area is compared to 25% and a value is determined.

Item	% complete	% of target/ value
Maintain	25%	100%/on schedule
School Walk	20%	80%/behind schedule
Greenway	27%	108%/on schedule
Auto	28%	112%/Ahead of schedule

Under the Growth Management Act, Level of Service is a requirement of transportation elements in each city's Comprehensive Plan. Level of service serves as a useful evaluation tool. For example, it can be used as a prioritization factor for transportation projects.

In general, the level of completion is an outcome of choices made based on available funding and on the goals and polices of the Transportation Master Plan. This is in contrast to being chosen for purely subjective reasons. For example a set of auto projects could have been developed around a relatively low level of delay. This would be a very expensive set of projects that would have resulted in the types of road widening that is not in keeping with the Plan vision. Rather than using performance as an input, it is an outcome. Considering level of service as an outcome rather than an input is consistent with the manner in which it is treated by the City of Kirkland since the early 1990s.

Level of service standards for each mode primarily address completeness of various aspects of the transportation network, in order to complement the concurrency system and to directly measure something for which the city has control. Therefore, we are using the term level of completion in place of level of service when referring to the actual measure. Because the Growth Management Act requires we use the term Level of Service, that's the term used for the overall approach.

The level of completion choices made for each mode are aligned with the proposed 20 year network project list as shown in the table below.

Time is the basis for evaluating of the level of completion. Level of completion measures the rate of project completion over the course of the 20 year period. For example, after 5 years (one quarter or 25% of the 20 year period), the target is for at least one quarter or 25% of each type of project to be completed.

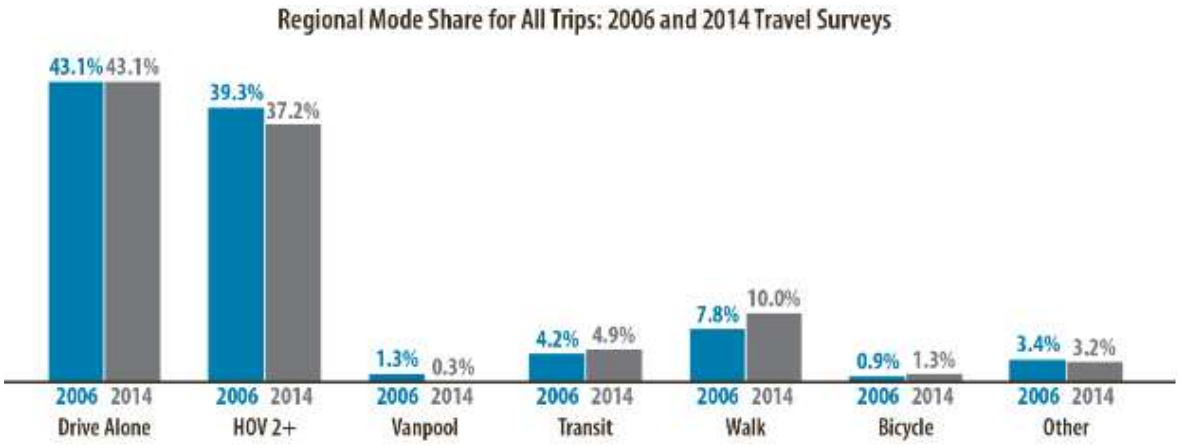
Level of completion is to be reported annually.

Level of Completion Area	What is to be completed with the 20 year plan
Maintain: Pavement condition	All collector and arterial streets have new surface.
Walk: School Walk Routes	Sidewalk on one side of school walk routes on collector and arterial streets.
Walk: 10 minute neighborhoods	Sidewalk on one side of collector and arterial streets in highest scoring 10 minute neighborhood routes.
Walk: Crosswalks	Upgrade 85 crosswalks on arterials that have limited improvements and 71 crosswalks with poor lighting.
Bike: On-street bike lanes	Improve the bike system to better than 5' wide unbuffered lanes.
Bike: Greenway network	Complete the greenway network[3]
Transit: Passenger environment	Improve lighting, shelters, etc. at 30 highest ridership locations.
Transit: Speed and reliability	Transit signal priority at 45 intersections[4] on high priority transit routes.
Auto: ITS	Improvements to ITS system[5] including connecting signals, parking technology, advance control methods and improved traveler information.
Auto: projects	Completion of roadway projects that support plan goals such as NE 132nd Street intersection and street projects 100th Avenue design and construction I-405 Interchange design/development Juanita Drive Auto improvements

Action T-8.2.1: Report on Level of service annually.

Policy T-8.3 Adopt a Mode split goal for the Totem Lake Urban Center

Mode spilt is the term used to describe how trips are allocated amongst various types of transportation, or modes. The illustration below shows mode split based on a region wide survey by the Puget Sound Regional Council.



Source: Puget Sound Regional Council

[3] Excludes two bridges over I-405
[4] Placeholder improvements pending completion of transit plan
[5] Improvements beyond work currently funded

Mode Split Goals are required to be adopted for the Totem Lake Urban Center. These goals are shown below:

Totem Lake Mode Split Goals Peak Hour, All Trip Types

Mode	Fraction of Trips
Drive Alone	45%
HOV 2+, vanpool, Transit	46
Walk and Bike	9%

The goals were arrived at by using the Bellevue-Kirkland-Redmond (BKR) transportation model, but, the BKR model does not fully recognize the reduction in vehicle trips that occur in and around mixed-use developments, like Downtown Kirkland today and what is envisioned for the Totem Lake neighborhood. To better reflect the kind of travel that would occur in a more walkable, mixed-use environment, an innovative trip generation method that recognizes the relationship between travel and the built environment. This method supplements the BKR model by recognizing how built environment variables (known as the Ds) including density, diversity of land uses, destinations (accessibility), development scale, pedestrian and bicycle facility design, distance to transit services, and demographics affect travel. In short, places with higher densities, a rich variety of land uses close to one another, and high quality pedestrian, bicycle, and transit environments have lower vehicle trip generation rates. People have more choices in terms of both the travel mode as well as how far they must travel to reach various destinations.

These mode split targets should be coordinated with the city's CTR and TMP Plan (see Policy T-3.4)

Policy T-8.4 Ensure implementation of the Goals and Policies in the Transportation Element and monitor progress toward those goals.

An Action Plan should include enough information so that people who are not familiar with the Transportation Master Plan can readily understand the key points of the Plan and the actions necessary to accomplish its goals. The Action Plan should include a time component for completing each action. It may also be helpful to set objectives that further break down each action.

A "transportation report card" with a relatively few select measures, including a safety section, that address the key elements of the Plan, presented in a manner that is easily understood by the public, should be developed. These measures should be coordinated with the Action Plan, tracked by the Transportation Commission and City Council and be widely distributed. Reports should be timed to help inform decisions needed to prepare the transportation Capital Improvement Plan.

(For related information, see Implementation section of Comprehensive Plan)

Action T-8.4.1: Prepare and maintain a succinct short term Action Plan, including a timeline that describes actions necessary to fulfill the goals and policies of this element.

Action T-8.4.2: Deliver annual transportation report cards.

APPENDIX A GOALS, POLICIES AND ACTIONS

TABLE OF GOALS, POLICIES AND ACTIONS		
Goal	Policy	Action
Goal T-0. By 2035 eliminate all transportation related fatal and serious injury crashes in Kirkland.	Policy T-0.1 Develop a vision zero safety plan that is multi-disciplinary and focuses on innovative approaches to safety.	
Goal T-1. Complete a safe network of sidewalks, trails and improved crossings where walking is comfortable and the first choice for many trips.	Policy T-1.0. Improve the safety of walking in Kirkland.	Action T-1.0.1 Develop a program to count pedestrian volume in a manner that is meaningful for measuring safety trends. Action T-1.0.2 Integrate efforts between the Public Works and Police Departments to ensure timely reporting and accurate cataloging of crash data. Action T-1.0.3 Revise Kirkland's pedestrian safety program using a vision zero style program.
	Policy T-1.1. Identify and remove barriers to walking	Action T-1.1.1 Update the ATP to cover all of Kirkland's neighborhoods and to further guide implementation of the policies in this plan. Action T-1.1.2 Reduce sidewalk blockages by reviewing, revising and enacting regulations or other measures. Action T-1.1.3 Finalize an **Americans with Disability Act** (ADA) Transition Plan for transportation facilities. Fund improvements that come from the plan in a manner that allows for completion of an accessible network in a timely manner. Action T-1.1.4 Engage Washington State Department of Transportation in discussions in order to advance improvement of existing interchanges with the intention of securing funding to design and construct new interchanges

		at NE 124th Street, NE 85th Street and NE 70th Street. (See policy T-7.3). Action: T-1.1.5 In order to provide the best possible designs, Review and revise pre-approved plans and other design guidelines that affect pedestrians. Adopt street design guidelines in keeping with guidance published by the **National Association of City Transportation Officials** (NACTO) and the **American Association of State Highway and Transportation Officials** (AASHTO).
	Policy T-1.2. Make getting around Kirkland on foot intuitive.	Action T-1.2.1: Develop and implement a pedestrian-scaled wayfinding system available in multiple formats and across multiple platforms. This will involve identifying destinations, choosing routes, designing and installing infrastructure. Action T-1.2.2: Regularly update Kirkland's walking map, ideally every 5 years or less.
	Policy T-1.3. Prioritize, design and construct pedestrian facilities in a manner that supports the pedestrian goal and other goals in the Plan	Action T-1.3.1: Develop a sidewalk prioritization method for the Capital Improvement Program. Action T-1.3.2: Review and revise design requirements for sidewalks
	Policy T-1.4. Develop world-class walking facilities along the Cross Kirkland Corridor with ample connections to the rest of Kirkland. Consider creating a plan for a Promenade along portions of the shore of Lake Washington.	Action T-1.4.1: Construct the CKC according to the Master Plan vision Action T-1.4.2: Consider developing a Master Plan for a lake front Promenade
	Policy T-1.6. Make it safe and easy for children to walk to school and other destinations	Action T-1.6.1: Plan and prioritize school walk route projects

		Action T-1.6.2: Increase the number of children who walk to school by helping school communities develop and implement programs. Action T-1.6.3: Help youth to be able to walk to activities by connecting places such as parks and practice fields with safe walkways.
	Policy T-1.7. Improve street crossings	Action T-1.7.1: Continue to support the Pedestrian Flag program; measure and improve its performance. Action: T-1.7.2: Develop a prioritization method for crosswalk improvements Action: T-1.7.3: Adopt traffic signal operational procedures that include practices such as advance pedestrian phases, generous walk intervals and protected left turn phasing.
Goal T-2 Interconnect bicycle facilities that are safe, nearby, easy to use and popular with people of all ages and abilities.	Policy T-2.1. Make bicycling safer	Action T-2.1.1: Use a vision zero template to revise and implement Kirkland's bicycle safety program. Action T-2.1.2: Develop a program to gather bicycle volume at key points in the City in a manner that is meaningful for measuring safety and ridership trends. Reporting from bicycle detectors can be one means of obtaining this information. Such capabilities are part of Intelligent Transportation Systems. Data should be collected in a way that allows comparison with data from other cities in our region. Action T-2.1.3: Integrate efforts between the Public Works and Police Departments to ensure timely reporting and accurate cataloging of crash data.

	Policy T-2.2. Create new and improve existing on-street bike facilities.	Action T-2.2.1: Recognize the National Association of City Transportation Officials and the American Association of State Highway and Transportation Officials bicycle design guidelines and adopt them into pre-approved plans used by the City of Kirkland. Action T-2.2.2: Guide implementation of the policies in this plan and development of a set of standards for improving the bicycle network by updating the Active Transportation Plan. Action T-2.2.3: Study and implement improvements to the system of on-street bicycle lanes. Action T-2.2.4: Develop a prioritization system for on-street bicycle improvements.
	Policy T-2.3. Build a network of greenways	Action T-2.3.1: Develop standards for Greenways in Kirkland. Action T-2.3.2: Prioritize and construct greenway projects.
	Policy T-2.4. Implement elements and programs that make cycling easier	Action T-2.4.1: Provide high quality bicycle parking convenient to all business districts. Action T-2.4.2: Create a strategy to increase the supply of public bicycle parking in Kirkland. Adopt clear guidelines that encourage business and property owners to provide bicycle parking on private property. Action T-2.4.3: Work with Pronto! to create regulations that facilitate bike share such as making stations easy to site/support start up with funding. Action T-2.4.4: Adopt maintenance policies that

		emphasize high-use cycling routes.
	Policy T-2.5. Make it easy to navigate the bicycle network.	Action T-2.5.1: Work with surrounding jurisdictions to establish a set of destinations and routes for wayfinding. These may include techniques that allow information to be obtained across a wide range of platforms. Action T-2.5.2: Site and install wayfinding signs and/or other systems. Action T-2.5.3: Develop mapping as appropriate, possibly in combination with transit mapping.
	Policy T-2.6. Make the Cross Kirkland Corridor an integral part of the bicycle network and connect it to the region.	Action T-2.6.1: Construct the CKC with the Master Plan vision Action T-2.6.2: Develop bicycle connections to the CKC
Goal T-3 Support and promote a transit system that is recognized as a high value option for many trips.	Policy T-3.1. Plan and construct an environment supportive of frequent and reliable transit service in Kirkland.	Action T-3.1.1: Create Transit Plan for Kirkland that details how to achieve the policies of this goal.
	Policy T-3.2. Support safe and comfortable passenger facilities.	Action T-3.2.1: Develop standards for improvements at transit stops Action T-3.2.2: Develop a prioritization system for improvements at transit stops Action T-3.2.3: Working with transit providers, fund and construct improvements at transit stops Action T-3.2.4: Manage the effects of parking from transit users in an appropriate manner.
	Policy T-3.3. Integrate transit facilities with pedestrian and bicycle networks.	Action T-3.3.1: Coordinate prioritization and construction of pedestrian and bicycle facilities with transit.
	Policy T-3.4. Support Transportation Demand Management in Kirkland particularly at the work sites of large employers and other	Action T-3.4.1: Create targeted programs that monitor and encourage increases in non-SOV travel rates.

	locations as appropriate in order to meet adopted goals for non-drive alone trips .	Action T-3.4.2: Review codes and policies to ensure they support innovative ridesharing Action T-3.4.3: Maintain the City's CTR and GTEC plans to comply with state and regional requirements and guidelines and to support the goals of the Transportation Master Plan.
	Policy T-3.5. Require new developments to establish appropriate Transportation Demand Management Plans.	Action T-3.5.1: Codify requirements for the types of developments that are subject to Transportation Management Plans and the elements that make up such plans.
	Policy T-3.6. Pursue transit on the Cross Kirkland Corridor	Action T-3.6.1: Implement transit on the CKC in keeping with the CKC Master Plan.
	Policy T-3.7. Work with Sound Transit to incorporate investments in Kirkland. (see coordination policy T-7.1)	
	Policy T-3.8. Partner with transit providers to coordinate land use and transit service (see Partner policy T-7.2)	
Goal T-4 Provide for efficient and safe vehicular circulation recognizing congestion is present during parts of most days.	Policy T-4.1. Make strategic investments in intersections and street capacity to support existing and proposed land use.	Action T-4.1.1: Using the priorities in this plan, prioritize and construct intersection and roadway projects. Action T-4.1.2: Review and update as necessary, street network concepts for Totem Lake that focus on efficiency as well as expansion.
	Policy T-4.2 Use Intelligent Transportation Systems (ITS) to support optimization of roadway network operations.	Action T-4.2.1: Complete construction of and make operational ITS phases that have already been funded for construction. Action T-4.2.2: Update the City's ITS Plan on a regular basis. Action T-4.2.3: Prioritize and Construct ITS projects.
	Policy T-4.3. Position Kirkland to respond to technological innovations, such as electric	Action T-4.3.1: Work with regional groups such as PSRC to identify trends in vehicle

	vehicles and autonomous vehicles.	innovation and seek opportunities to implement them in Kirkland. (See Partnership Policy T-7.4)
	Policy T-4.4. Take an active approach to managing on-street and off-street parking.	Action T-4.4.1: Review and update parking codes to ensure they require appropriate amounts of supply. Action T-4.4.2: Develop strategies for parking issues and regularly monitor parking occupancy and other factors by periodically undertaking parking studies. Action T-4.4.3: Prioritize and construct/implement projects and policies that improve the parking experience in Kirkland.
	Policy T-4.5. Work with the Washington State Department of Transportation and the State Legislature to improve the way I-405 and SR 520 meet Kirkland's transportation interests. (see Partnership Policy T-7.3)	
	Policy T-4.6. Reduce crash rates for motor vehicles.	Action T-4.6.1: As described in other policies, monitor and evaluate crash data in a comprehensive way. Use a zero fatality/zero serious injury safety approach for revising and implementing Kirkland's auto safety program. Action T-4.6.2: Prioritize and construct projects that improve safety.
	Policy T-4.7. Mitigate negative impacts of motor vehicles on neighborhood streets	Action T-4.7.1: Help citizens solve neighborhood traffic concerns by maintaining a program focused on addressing such concerns.
Goal T-5 Create a transportation system that is united with Kirkland's land use plan.	Policy T-5.1. Focus on transportation system developments that expand and improve walkable neighborhoods.	Action T-5.1.1: As described in connection with Goals T-1 through T-4, ensure that walkable neighborhoods are considered in the planning of

		transportation projects and programs.
	Policy T-5.2. Design Streets in a manner that supports the land use plan and that supports the other goals and policies of the transportation plan	Action T-5.2.1: Review design standards and adopt guidelines that are in keeping with policies in this plan and that consider the best design practices in the industry.
	Policy T-5.2. Create a transportation network that supports economic development goals.	Action T-5.2.1: As described in connection with Goals T-1 through T-4, ensure that economic development goals are considered in the planning of transportation projects and programs.
	Policy T-5.3. Develop transportation improvements tailored to commercial land use districts such as Totem Lake, Downtown and neighborhood business areas.	
	Policy T-5.4. Require new development to mitigate site specific and system wide transportation impacts.	Action T-5.4.1: Review, streamline and codify as reasonable, components of transportation-related development review. Action T-5.4.3: Participate in the maintenance and improvements of the BKR model.
	Policy T-5.5. Create a system of streets and trails that form an interconnected network.	Action T-5.5.1: Develop a plan for connections between street ends and complete those connections.
Goal T-6 As the transportation system is planned, designed, built, maintained and operated, provide mobility for all using reasonably assured revenue sources while minimizing environmental impacts.	Policy T-6.1. Balance overall public capital expenditures and revenues for transportation.	Action T-6.1.1: Revise the Impact Fee policy to support the goals of the Transportation Master Plan.
	Policy T-6.2. Place highest priority for funding on maintenance and operation of existing infrastructure rather than on construction of new facilities. Identify and perform maintenance to maximize the useful lifetime of the	Action T-6.2.1: Identify and sustain reasonable maintenance funding levels for a complete set of transportation assets. Action T-6.2.2: Develop and maintain inventories of assets that require maintenance such

	transportation network at optimum lifecycle cost.	as pavement markings, traffic signals, sidewalks, etc. Action T-6.2.3: Develop lifecycle costs for capital and maintenance projects.
	Policy T-6.3. Support modes that are energy efficient and that improve system performance	Action T-6.3.1: Work with regional groups such as PSRC and King County Climate Change Collaborative to identify trends in vehicle innovation and seek opportunities to implement them in Kirkland. (See Partnership Policy T-7.4)
	Policy T-6.4. Minimize the environmental impacts of transportation facilities, especially the contribution of transportation to air and water pollution. Comply with Federal and State air and water quality requirements.	Action T-6.4.1: Coordinate transportation improvements and programs with goals from the Environment Chapter of the Comprehensive Plan to meet the City's greenhouse gas targets.
	Policy T-6.5. Safeguard the transportation system against disaster	Action T-6.5.1: Develop and keep current strategies for preventing and recovering from disasters that impact the Transportation System.
	Policy T-6.6. Create an equitable system that provides mobility for all users.	Action T-6.6.1: Periodically review existing procedures and if needed, adopt new procedures to ensure accessibility to the transportation system.
	Policy T-6.7. Implement transportation programs and projects in ways that prevent or minimize impacts to low-income, minority and special needs populations.	Action T-6.7.1: Ensure inclusion of vulnerable populations and ensure that impacts to these populations are not disproportionate by periodically reviewing existing procedures and when needed, adopting new procedures.
	Policy T-6.8. Actively pursue grant funding and innovative funding sources	Action T-6.8.1: Ensure that all applicable grant opportunities are reviewed and competitive grant applications are submitted by periodically reviewing grant application procedures.

Goal T-7 Coordinate with a broad range of groups; public and private, to help meet Kirkland's transportation Goals.	Policy T-7.1. Play a major role in development of Sound Transit facilities in Kirkland	Action T-7.1.1: Advocate for increases in meaningful Sound Transit services in Kirkland, with a connection to Totem Lake as a first priority.
		Action T-7.2.1: Actively pursue agreements with transit providers to deliver a network of high quality transit service that supports Kirkland's land use and transportation plans.
	Policy T-7.3. Work with Washington State Department of Transportation and the Washington State Legislature to achieve mutually beneficial decisions on freeway interchanges and other facilities.	Action T-7.3.1: Foster a strong working relationship with WSDOT leadership Action T-7.3.2: Advance Kirkland's transportation interests with actions on legislative agendas Action T-7.3.3: Fund initial studies in order to make it easier to secure funding for construction projects. Action T-7.3.4: Periodically review and update, when needed, functional classifications.
	Policy T-7.4. Participate in and provide leadership for regional transportation decision making.	Action T-7.4.1: Develop a clear plan for being a part of groups to allow for the efficient representation and support of Kirkland's transportation interests.
	Policy T-7.5. Work closely with the Lake Washington School District to encourage more children to walk and bike to school.	Action T-7.5.1: Schedule regular reviews of school walk routes with School District personnel. Action T-7.5.2: Advance Kirkland's transportation goals by maintaining relationships with schools and the school district.
	Policy T-7.6. Coordinate multi-modal transportation systems with neighboring jurisdictions.	
	Policy T-7.7. Partner with the private sector and other "new" partners.	

Goal T-8 Measure and report on progress toward achieving goals and actions.	Policy T-8.1. Use a multi-modal plan based concurrency method to monitor the rate at which land use development and the transportation system are constructed.	Action T-8.1.1: Develop and implement a multi-modal concurrency system.
	Policy T-8.2. Establish acceptable level of service for all modes.	Action T-8.2.1: Report on Level of service annually.
	Policy T-8.3. Adopt a Mode split goal for the Totem Lake Urban Center	
	Policy T-8.4. Ensure implementation of the Goals and Policies in the Transportation Element and monitor progress toward those goals.	Action T-8.4.1: Prepare and maintain a succinct short term Action Plan, including a timeline that describes actions necessary to fulfill the goals and policies of this element. Action T-8.4.2: Deliver annual transportation report cards.