

CITY OF KIRKLAND

ACTIVE TRANSPORTATION PLAN

November 7, 2008
Transportation Commission Discussion Draft



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**A PLAN FOR NON-
MOTORIZED
TRANSPORTATION**

<http://janetsartstudio.blogspot.com/2008/09/urban-bicycle-abstract-painting.html>

Cover credits

Modern style set Civic colors

PREFACE

ACKNOWLEDGEMENTS

City Council

Transportation Commission

Safe school walk route committee

John Moffit, Washington Traffic Safety Commission

PW staff

EXECUTIVE SUMMARY

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SECTION 1: INTRODUCTION

VISION STATEMENT

The City of Kirkland is committed to improving the ease and safety with which people can bicycle and walk. At the policy level, this commitment is reflected in our first-in-Washington-State complete streets ordinance and in the policies of our Comprehensive Plan. In a more practical sense, it is reflected in Kirkland's innovative Pedestrian Flag program and at in-pavement light installations at crosswalks. The Senior Stepper program encourages scores of older Kirklanders to walk for recreation and transportation. Crosswalk stings are an example of the Police Department's commitment to enforcing laws that protect pedestrians. Kirkland's lakefront is known regionally as a perfect place to stroll or cycle.

As more people realize the health benefits of incorporating regular exercise into their everyday lives, walking and bicycling are increasing. Sensitivity to the negative effects of reliance on petroleum based transportation is also increasing the number of those choosing to walk and bike. Transit usage is increasing sharply in Kirkland and every transit trip begins and ends with a walking trip. With bicycle racks on every bus more people are discovering the freedom provided by combining a bicycle trip with a transit trip.

Despite being recognized as a regional and national leader in active transportation, there is still much to be done to improve both cycling and walking. Primarily, there are key missing links in both the sidewalk and on-street bike networks. In addition there are important programmatic needs such as improved bicycle parking and wayfinding. Too many sidewalks are obstructed with tree branches and too many pedestrians do not feel comfortable crossing our streets.

As Kirkland's land use plans become reality, there is less room for cars. Constructing wider streets to better accommodate cars is expensive and make neighborhoods less livable. This means that walking and biking will become more important forms of transportation and the facilities needed to accommodate them will also grow in importance.

BACKGROUND/HISTORY

When Kirkland's first non-motorized Plan was developed in 1996, it was a ground breaking document. It answered the need for a comprehensive approach to active transportation for the first time and was widely commented on by the community at large. The plan was updated in 2001 largely keeping the 1996 structure but updating goals, project lists and maps.

In 2000 Council authorized a sidewalk bond exploratory committee. Although it was ultimately decided not to pursue securing voter approval for a bond, the process resulted in identification of key school walk route projects which have subsequently been completed.

Plan Vision:

Kirkland is a community where active transportation is valued. It is convenient and safe to walk and bike in Kirkland.

At City Council direction, in 2003 The Transportation Commission undertook a review of all marked, uncontrolled¹ crosswalks in Kirkland. This analysis resulted in a series of recommendations, most of which have been completed.

Each year sidewalk is completed by City funded projects from the Capital Improvement Program. This includes not only specific sidewalk projects but also ADA compliant ramps built as a part of street overlays, crosswalk improvements and sidewalk constructed as a part of larger roadway projects.



Figure 1 Kirkland's ped flag program is successful

Private developments are required to build frontage improvements that include sidewalk.

Bicycle lanes are also created by construction of public and privately funded projects. Most of Kirkland's bicycle facilities have been created by restriping existing roadways to more equitably allocate space between cars and bicycles.

Bicycle parking is provided by new developments that require more than six car parking stalls.

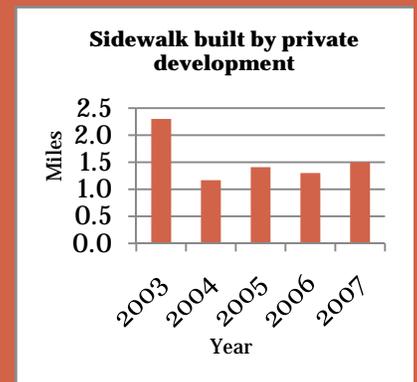
The City of Kirkland has worked with various groups to promote the interests of pedestrians and cyclists. The Washington Traffic Safety Commission has supported Kirkland's pedestrian safety efforts. The Commission funding for the in-pavement lights and grants from the WTSC have supported the pedestrian flag program and police emphasis on crosswalk enforcement. PTSA groups have donated many hours working with City staff to improve conditions for children who walk to school. The Cascade bicycle club was an inspiring force behind adoption of Kirkland's complete street ordinance.

The ability to safely and easily walk and bike in Kirkland is an important issue for its citizens. When citizens are asked what their most important concerns are, pedestrian safety is often at or near the top of the list.

Spending on sidewalks

For the period 1997-2007, almost \$900,000 per year was spent in the Capital Improvement Program on construction of sidewalks, crosswalk improvements, sidewalk maintenance and wheelchair ramps. This doesn't include improvements that were part of larger roadway projects or routine maintenance.

Over the last 5 years, private development has built 7.4 miles of sidewalk



¹ Uncontrolled crosswalks are those where vehicles are not required to stop unless pedestrians are present.

PURPOSE

A non-motorized transportation plan is required by the City's Comprehensive Plan and the Comprehensive Plan describes its basic purposes. They are: examining existing facilities, establishing criteria for prioritizing improvements and setting design standards.

This plan covers the current boundaries of the City of Kirkland. It focuses mainly on transportation by foot or by bicycle and there is also a section covering equestrian issues.

Guidance from the Comprehensive Plan Policy T-2.5: Maintain a detailed Nonmotorized Transportation Plan (NMTP).

The NMTP is a functional plan that provides a detailed examination of the existing pedestrian, bicycle, and equestrian systems, criteria for prioritizing improvement, and suggested improvements. The NMTP designates specific City rights-of-way and corridors for improved pedestrian, bicycle and equestrian circulation, and sets design standards for nonmotorized facilities

GOALS

More specific information about the goals and timelines for meeting them are located in Section 9. Meeting these goals will require continued funding to plan, design, construct, operate and maintain facilities for cyclists and pedestrians. It will also require programs to improve enforcement, education and encouragement.

GENERAL GOALS

- A. Improve and expand facilities for cyclists and pedestrians.
- B. Increase the daily number of bicycle and pedestrian trips.
- C. Reduce rates² for crashes involving pedestrians and cyclists.

Many cities including Portland, WA and Vancouver, BC have shown that progress toward these goals can be accomplished simultaneously. Therefore, the specific goals below are not easily categorized as those that *either* improve facilities *or* increase safety *or* increase the number of users. Many of them will do help meet two or three of the general goals.

SPECIFIC GOALS

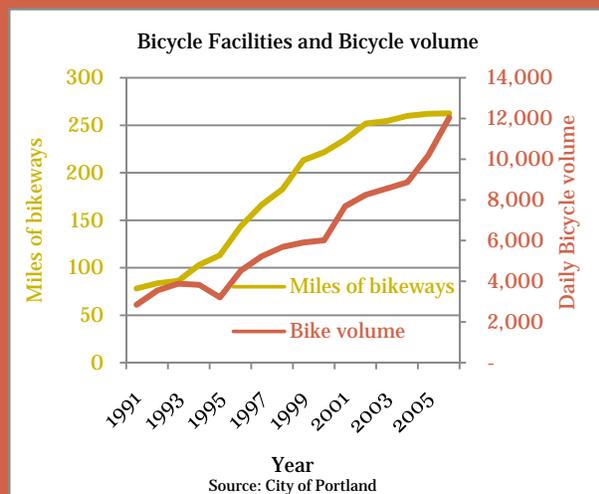
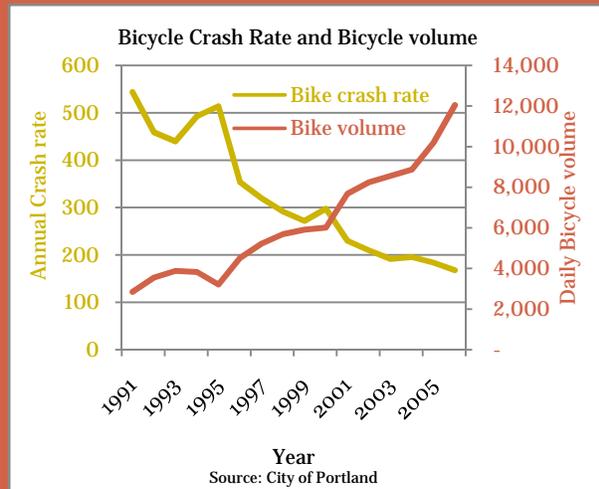
General

- Goal G1. Open a section of Cross-Kirkland Trail on the eastside rail corridor
- Goal G2. Establish an annual count program at key locations to measure bicycle and pedestrian volumes.
- Goal G3. Update CIP project prioritization
- Goal G4. Improve safety at the intersection of Juanita Drive/NE 116th Street/98th Avenue NE
- Goal G5. Report annually to the Transportation Commission and the City Council on progress toward these goals
- Goal G6. Reduce rates for crashes involving pedestrians and cyclists by 10%.

1. ² Rate is defined as the number of crashes divided by volume.

Portland, OR experience

In Portland, the number of crashes per cyclist has decreased while the number of cyclists has increased. The increase in cyclists is paralleled by an increase in bicycle facilities. Portland officials explain this as a “positive feedback loop”: as more facilities are built, more cyclists ride, as more cyclists ride, drivers become more aware of cyclists and safety increases. As safety increases, more cyclists feel safe and the number of riders increases again. With more riders there is increased justification for more facilities. This theory makes sense because the two main reasons people choose not to bicycle are safety and convenience.



The two charts above quantify what’s been happening in Portland. Bicycle volume is measured across four main bicycle bridges over the Willamette River. Crash rate represents an indexing of annual reported crashes to daily bicycle trips across the four main bicycle bridges.

Pedestrian Related Goals

- Goal P1. Placeholder for elementary school walk routes completion
- Goal P2. Placeholder for Completion of sidewalk on both sides of arterials
- Goal P3. Review safety at uncontrolled crosswalks and develop a plan for implementing recommendations.
- Goal P4. Implement programs specifically targeted at reducing pedestrian crashes at signalized intersections
- Goal P5. Placeholder Goal for improving pedestrian lighting
- Goal P6. Continue to monitor Take it to Make it pedestrian flag usage
- Goal P7. Reduce the number of sidewalk obstructions due to brush, debris and waste/recycling containers.
- Goal P8. Develop an ADA compliance plan
- Goal P9. Develop an autumn time change safety plan for pedestrians

Cyclist Related Goals

- Goal C1. Plan and install a bicycle wayfinding system.
- Goal C2. Develop standards for bicycle parking to be incorporated in the pre-approved plans
- Goal C3. Placeholder goal for amount of new bicycle parking in downtown
- Goal C4. Add pavement markings at signalized intersections to indicate where cyclists should stop in order to activate the signal
- Goal C5. Use restriping where possible to add bicycle lanes or increase space available for cyclists.
- Goal C6. Reduce the amount of debris in on-street bicycle lanes.



STATISTICAL PROFILE ON KIRKLAND

City Information, 425.587.3000

DEMOGRAPHICS			
2000 Census Population			
Current Population in 2005	45,740	<p>The City of Kirkland has a total land area of 7,000 gross acres and 5,200 net acres.</p> <p>The city incorporated in 1905. Kirkland absorbed Houghton in 1968 and annexed Juanita and Rose Hill in 1988.</p> <p>In 2004, Kirkland's population ranks 8th in size in King County and 18th in Washington.</p> <p>Sources: ARCH City of Kirkland Community Profile, 2004 City of Kirkland Finance Department City of Kirkland Planning Department Municipal Research Services Center Puget Sound Regional Council Rentonmarket.com/select/comparisons.htm Seattle-Everett Real Estate Reports Suburban Cities Association of King County Washington State Employment Security Department</p>	
Population, 2000 Census	45,090		
Estimated Population 2022	56,507		
Population Growth, 1980-1990	113%		
Population Growth, 1990-2000	12%		
2000 Census Age Structure			
17 and under	18.5%		
18 to 64	71.3%		
65 and over	10.2%		
Median Age			
32			
2000 Census Race and Ethnic Categories			
Non-Hispanic White	85.3%		
Black or African American	1.6%		
Asian and Pacific Islander	8.0%		
Native American and other	0.5%		
Hispanic or Latino*	4.1%		
Other/Two or more ethnicities	1.7%		
EMPLOYMENT			
2004 Major Businesses and Employers			
Evergreen Hosp.	2188	<p>2000 Census People Working/Living in Kirkland</p> <p>6,211 or 23.0%</p> <p>2003 Total Workforce</p> <p>30,865</p> <p>Construction and Resources</p> <p>2,316/7.5%</p> <p>Education</p> <p>1,314/1.9%</p> <p>Finance/Insurance/Real Estate</p> <p>2,156/7.0%</p> <p>Government</p> <p>3,267/10.6%</p> <p>Manufacturing</p> <p>1,902/6.2%</p> <p>Retail</p> <p>4,164/13.5%</p> <p>Services</p> <p>13,656/44.2%</p> <p>Wholesale Trade/Transportation/Communications/Utilities</p> <p>2,090/6.8%</p>	
Lake Washington School District	617		
City of Kirkland	428	<p>Employment Target</p> <p>Additional jobs by 2022</p> <p>8,880</p> <p>Total jobs by 2022</p> <p>41,184</p> <p>2000 Number of Business Units .. 2,208</p> <p>Services</p> <p>981</p> <p>Retail Trade</p> <p>342</p> <p>Finance, Insurance & Real Estate</p> <p>237</p> <p>Wholesale Trade</p> <p>233</p> <p>Construction</p> <p>208</p> <p>Manufacturing</p> <p>79</p> <p>Transportation, Communication, Utilities</p> <p>46</p> <p>Other (includes Agriculture, Fishing, etc)</p> <p>46</p> <p>Government and Education</p> <p>35</p> <p>Agricultural Production</p> <p>1</p>	
Kenworth Truck Co. (PACCAR)	397		
Costco Wholesale	380		
Univar	301		
Lake Washington Technical College	200		
Fred Meyer #391	188		
IBM Corporation	175		
Lake Vue Gardens	170		
HOUSING			
2000 Census Housing Unit Count			
22,577			
Single Family	11,314	<p>INCOME</p> <p>1990 Census Median Income (adjusted for inflation)</p> <p>\$51,636</p> <p>2000 Census Median Income</p> <p>\$60,332</p> <p>1990 Census Person at Poverty Level</p> <p>2,220/5.7%</p> <p>2000 Census Persons at Poverty Level</p> <p>2,337/5.3%</p> <p>2003 Average Single-Family Home Price</p> <p>\$363,935</p> <p>2003 Average Apartment Rent</p> <p>\$1,142</p>	
Multifamily	11,263		
Households, 2000 Census	20,736		
Average Household Size, 2000 Census	2.13		
Household Growth Target Range 1992-2012	5,328 - 6,346		
Housing Unit Growth Target Total			
26,800			
2001-2022 Additional Units	5,480		
Housing Capacity	27,974		
DEVELOPMENT ACTIVITY			
2004 Total New Residential Permits Issued			
447			
**Single-family	170	<p>2003 Land Use Inventory Acreage by Use (no: including right-of-way)</p> <p>Single-family</p> <p>3,018</p> <p>Industrial</p> <p>150</p> <p>Multi-family</p> <p>708</p> <p>Utilities</p> <p>91</p> <p>Commercial</p> <p>399</p> <p>Institutions</p> <p>540</p> <p>Office</p> <p>358</p> <p>Parks</p> <p>424</p> <p>Yacant</p> <p>281</p>	
ADUs	4		
Multi-family	31		
Residential Units Demolished	102		
2004 Total Building Permit Valuation ..			
\$181,702,628			

Figure 2 Demographic Profile of Kirkland

SECTION 2: CURRENT CONDITIONS

GENERAL

From the perspective of a cyclist or pedestrian, Kirkland is a relatively easy place in which to travel. Although I-405 forms a barrier to mobility cutting the city from north to south, there are three bridges that are not open to vehicular traffic and six other street crossings where pedestrians and cyclists are adjacent to relatively high volume high speed general purpose traffic. The Eastside Rail Corridor also bisects the City from north to south and holds the potential of being an outstanding off road trail for non-motorized uses. Outside of I-405 and a handful of other multilane arterials, Kirkland's transportation system consists of two and three lane streets with speed limits of 35 MPH or less.

Because there are only a few multilane high speed arterials bicycling is relatively easy and pleasant on the vast majority of Kirkland's streets. However, there are still some key links that need improvement and there are other segments that only heartiest of cyclists would use.

The Lakefront, downtown Kirkland, and the bridge across Juanita Bay are all examples of wonderful places to walk in Kirkland. Most local streets are welcoming to pedestrians, but there are a number of streets where traffic volumes and or speeds are moderate to high and sidewalk is missing, narrow or uncomfortably close to traffic. Sometimes crossing streets is difficult because of rude drivers or because of the need for lighting or other measures.

PEDESTRIANS

CROSSWALKS

Traffic Signals



Figure 3 Countdown signal heads show the time remaining in the flashing don't walk phase Source: walkinginfo.org

All traffic signals in the City of Kirkland have crosswalks and pedestrian signals. Only one signal incorporates countdown pedestrian signal heads and pushbuttons that give visual and audible feedback are replacing those that do not. All new signals use countdown signal heads.

Pedestrian signals that make an audible tone during the walk phase are installed at about 10% of traffic signals. City of Kirkland policy is to install such signals wherever they are requested.

Walk and Don't walk intervals are being changed to meet new standards that require longer timing.

In Pavement lights

In-pavement flashing lights were first installed in the City of Kirkland at two crosswalks in 1995. Because of their popularity and effectiveness, the number of installations has grown to xx locations. Unfortunately, maintaining in-pavement lights has proven to be difficult. When older style units fail, it is sometimes impossible to fix them without replacing the entire installation. At a cost of \$20,000 to \$30,000 per crosswalk this is an expensive proposition. Instead of replacing in-pavement lights some locations have been replaced with overhead flashers or other treatments. With proper installation, newer model in-pavement lights are reasonably durable.

Pedestrian Flags

Pedestrian flags started in Kirkland in 1997. This program was suggested to City staff by a citizen who had seen a similar program in Japan. Like in-pavement lights, pedestrian flags have grown from a program with only a few locations to a major program with over 70 locations. In the downtown area, City staff maintains the flags. In other areas of the city, flag locations are maintained by volunteers. City staff ensures that the volunteers have the necessary flags and the volunteers then make sure that the holders are filled with flags. Recent research shows that pedestrian flags are an effective at increasing pedestrian safety at crosswalks, especially when considered in the context of other possible treatments.

In 2007 work began to examine and redesign Kirkland's pedestrian flag program. Funded by a grant from the WSDOT, The aim of the work was to increase usage of pedestrian flags . A 67% increase was seen in flag usage as a result of the changes.

Map 1 Locations of in-pavement lights and pedestrian flags

LIGHTING

Adequate lighting is a critical part of providing a safe crossing. In 2007, the City of Kirkland undertook a review of lighting at each uncontrolled crosswalk on Kirkland's arterial streets. A transportation consulting firm was hired to evaluate each crosswalk during hours of darkness and evaluate the adequacy of lighting on a 1-10 scale. Staff examined the poorest rated crosswalks and made immediate improvements such as trimming trees and other obstacles that blocked light from the crosswalk. At other locations it was relatively easy to install additional lighting. There was no easy remedy at some locations and those have become candidates for funding through the Capital Improvement Program and pedestrian safety grants. **NEED MORE DETAILS HERE**

Take it to Make it

These examples illustrate how the pedestrian flag program has been changed to overcome barriers to usage.

Barrier: flags not available existing holder is only capable of holding 8 flags **Strategy:** Redesign holder use bucket style holders which hold up to 20 flags



Barrier: Pedestrians feel safe without flags **Strategy:** Place messaging on bucket, develop slogan which conveys need to use flags



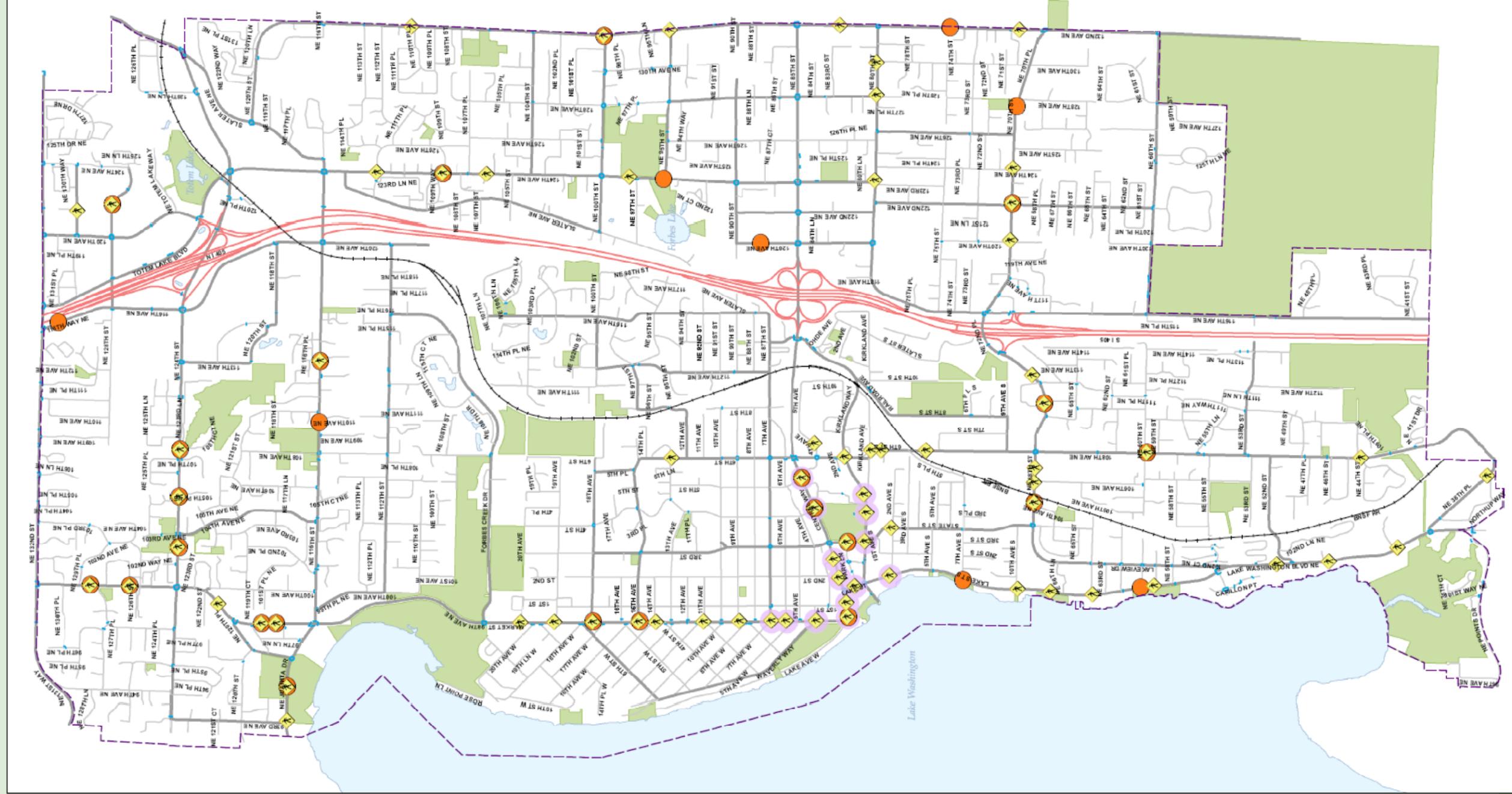
Barrier: Pedestrians don't know what flags are for. **Strategy:** Redesign flag from orange to yellow to make use clear and to match standard warning sign.



Barrier: Flags are not a norm; people feel odd using them. **Strategy:** Promote use by partnering with merchants and other means such as distributing coasters to bars and restaurants.



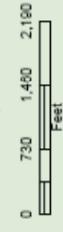
Pedestrian Flag / In-Pavement Light Locations



Vicinity Map
 0 9,300 18,600 27,900
 Feet

Map Legend

- Pedestrian Flags - 72 Count
- In-Pavement Flashers - 30 Count
- Take It To Make It Flags - 14 Count
- Crosswalks - 596 Count
- Parks
- Lakes
- Kirkland City Limits



Public Works Department



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SAFETY EVALUATION

In 2003, the Transportation Commission oversaw an evaluation of uncontrolled crosswalks in Kirkland. A ranking system was used to give each crosswalk a ranking based on the volume, speed of traffic and the number of lanes to be crossed. This ranking system was developed for the Federal Highway Administration and divides crosswalks into three categories:

- N = A marked crosswalk alone is not adequate for the location
- P = A marked crosswalk alone is possibly an adequate treatment
- C = The crosswalk is a candidate for a marked crosswalk alone.

Over 120 crosswalks in Kirkland were evaluated. The Commission gave special attention to those crosswalks that had an “N” ranking along with those that had more than 3 accidents in the past 10 years and at least 1 accident in the past 5 years. More information on this work is contained in Appendix C

SIDEWALKS

As noted in Table 1, about 60% of streets in Kirkland have sidewalks on at least one side. All new development projects, including single family homes, must construct sidewalks where it is missing along the public street frontage of their property. The major exception is for dead-end streets of less than 300 feet. Sidewalk is not required on these short cul-du-sacs.

Most existing walkways are 5’ wide concrete sidewalk. In designated areas sidewalk is wider and in a few places it is more narrow. There are also sections of asphalt path that is separate from the roadway and a small amount of gravel path. Because of their maintenance costs, gravel paths are usually interim treatments. In some other areas, pedestrians informally share wide paved shoulders with cyclists. The former highway bridge at Juanita Bay is the city’s longest section of formal shared use facility.

Map 2 Location of existing walkways

Map 3 a general street Map showing freeway, arterials and collectors. Crossings of arterials.

Map 4 Map showing terrain through topo or other method

Table 1 Miles of sidewalk by functional classification and type of completion

General condition	Specific condition: presence by side of street	Local Street	Collector	Minor Arterial	Principal arterial	TOTAL
Sidewalk not complete either side	No sidewalk	31.7	3.1	1.0	0.9	36.7
	Some/none	12.2	2.2	0.8	0.4	15.6
	some/some	6.8	2.2	0.6	0.7	10.4
Sidewalk complete on one or both sides	complete/none	15.1	6.9	1.5	1.9	25.4
	complete/some	7.0	5.8	1.8	0.8	15.4
	complete/complete	18.5	6.4	8.4	11.7	45.0
TOTAL		91.4	26.6	14.1	16.4	

NEED NOTE ON ROAD SEGMENT VERSUS COMPLETE STREET

Figure 4 Sidewalk completion by type of roadway

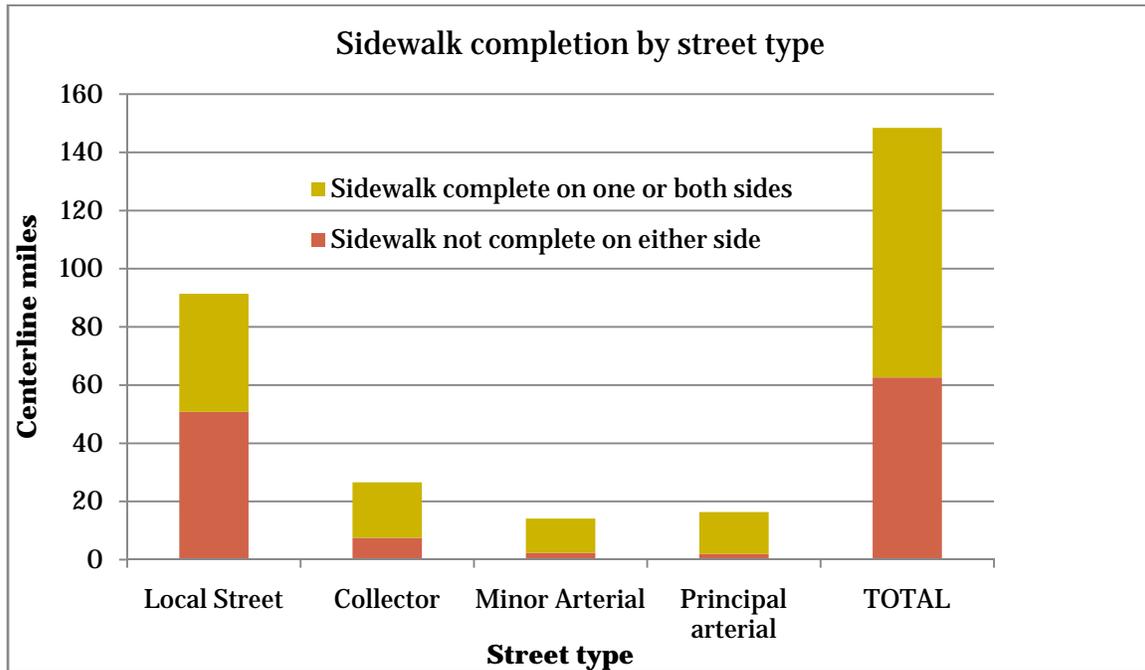
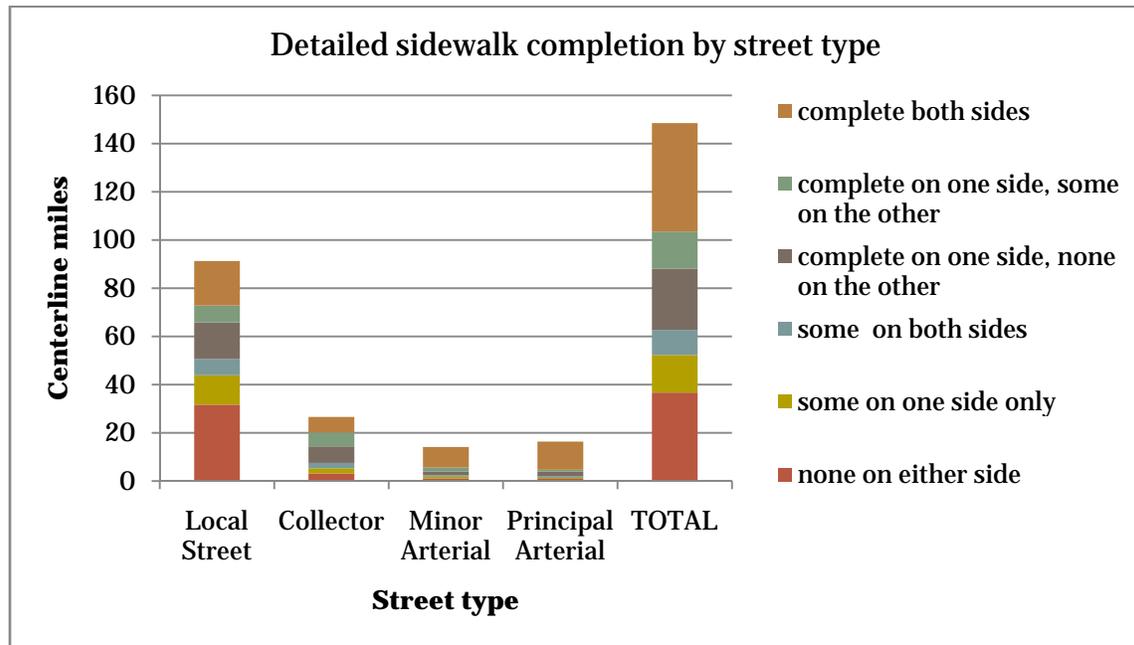


Figure 5 Detailed sidewalk completion by street type

BARRIERS

I-405 presents a major barrier to pedestrians, but it is less of a barrier than it once was. The cloverleaf interchange at NE 85th Street, built in the nineteen sixties has no accommodations for pedestrians. The rebuilt interchange at NE 116th Street, the first phase of which was built in 2006, will incorporate generous facilities for allowing pedestrians to safely cross under I-405. Modern design for pedestrians is also built into the direct access ramp at 128th Street. The three pedestrian bridges across I-405 corridor also help to mitigate the barrier that I-405 presents to pedestrian travel. A large concrete bridge carries the Eastside Rail Corridor over Kirkland Way near Railroad Avenue. This structure was built in the early 20th century and is a barrier to easy passage for pedestrians and cyclists because of its narrow portal.

CYCLING

INTERSECTIONS

Often, bicycle lanes end as they approach signalized intersections. Most often this is because extra auto lanes are present at the signal and roadway space is not allocated to bicycles. There are some locations where restriping could eliminate or minimize these discontinuities across intersections. On the other hand, some experts believe that striping bicycle lanes through intersections, causing cyclists to pass on the right of cars, makes them susceptible to “right hook” accidents where right turning cars strike cyclists in bicycle lanes.

Cyclists feel that it is difficult to activate traffic signals. Most traffic signals in Kirkland use inductive loops buried in the pavement to detect vehicles and bicycles. When the traffic signal senses the presence of a vehicle, it responds with the appropriate signal display. The problem comes when cyclists don't know where to stop in order to be sensed by the signal. The City of

Kirkland does not currently mark loops so that cyclists know where to stop at traffic signals. This topic is addressed more fully in Section 6.

POSSIBLY ADD Side bar on how loops work or on video detection

ON-STREET BIKE LANES

As shown in Map 5, on street bicycle facilities in the City of Kirkland provide reasonable coverage on the main north-south corridors with fewer complete east-west corridors. Almost all bike lanes are at least 5' in width. The vast bulk of any city's streets have low car volumes traveling at relatively low volume speeds and therefore bicycle lanes are not needed on most streets. This is true of Kirkland as well.

Pavement condition is important to cyclists for both safety and comfort. Pavement condition is measured on a scale between 1 and 100 called PCI. Kirkland's current overall PCI is 65. Arterials are 55, with collectors are at 69. NEED SOME CONTEXT RELATIVE TO OTHER CITIES

SIGNING AND WAYFINDING

Kirkland does not have a standard application of bike lane signs. Proposed changes to the standards for highway and street signing do away with requirements for signs that indicate the presence of on street bike lanes. Kirkland does not currently have bicycle specific wayfinding signs. Like most of the communities on the Lake Washington Loop route, Kirkland has not signed this regional bike route.

POSSIBLE Side bar history of bike lane signs. Lake Washington loop.

Map 5 Existing on-street bike lanes



Map 6 Average daily traffic volume on major streets

BARRIERS

A major regional barrier to bicycle travel is the prohibition of bicycles on the SR 520 bridge. Construction of such facilities has always been a part of the bridge replacement program, but replacement is not scheduled until at least 2016.

The discussion of I-405 as a barrier to pedestrian travel page 11 is also applicable to bicycle travel. Newer facilities; NE 128th Street, NE 116th Street (when completed), and NE 100th Street all have good bicycling facilities while the older interchanges at NE 70th Street, NE 85th Street and NE 124th Street have poor or no facilities for cyclists. This is a function of the standards that were in use when the facilities were constructed. As borne out by the survey of cyclists, the most difficult streets to bike on Kirkland are Central Way between 6th Street and 132nd Avenue NE, NE 124th Street between 100th Avenue NE and 132nd Avenue NE and, to a lesser degree, 100th Avenue between NE 116th Street and NE 132nd Street. The last of these was noted on the Cascade bicycle club's *Left by the Side of the Road* project as a key regional missing link because of the connections it makes to other regional facilities.

PARKING

Section 105.32 of the Kirkland zoning code requires all new development except single family and duplex developments with 6 or more parking stalls to have bicycle parking. Bicycle parking must be well lit visible sheltered area within 50 feet of the building entrances. One bicycle parking stall shall be provided for each 12 automobile parking stalls, but this can be modified based on the nature of the project. Kirkland does not currently have standards for the design of racks.

Map 7 Bicycle racks in downtown Kirkland. Black triangles show locations of racks, circles are 300' in radius.

Map 7 shows the existing public racks in downtown Kirkland as black triangles. The grey buffers of 300' are intended to indicate the area of coverage assuming that the maximum distance a user would walk and correspond to a walk of about two minutes. Although some areas are covered by multiple racks, other areas are not covered at all. The eastern part of downtown is better covered than is the western part. This corresponds to the newer development and public facilities that have been developed there.

SAFETY

PEDESTRIAN SAFETY

The City of Kirkland maintains a database for crashes involving pedestrians. Figure 5 shows that The annual number of pedestrian crashes has remained relatively steady over the past XX years. This is despite increases in the number of people walking. It is difficult to draw specific conclusions about why the number of accidents per unit of exposure has decreased. It is probably due to a number of factors including engineering, education and enforcement efforts. It is also likely that as the number of pedestrians increases drivers become more aware of them. Years like 2003 where there are a very small number of accidents or like 2002 where there are a particularly large number of accidents are not attributable to any particular factor. They are seen as normal fluctuation around the average.

Pedestrian accident facts 1997-2007

37% of pedestrian accidents happen during the months of November, December and January

About one-fourth of all accidents happen when pavement is wet and about one third happen after dark.

A little more than a quarter of pedestrian accidents happen during the PM drive time; between 4:00 and 7:00.

Just over half the accidents happen at intersections, and half involve turning vehicles.

97% of accidents involving pedestrians result in some injury and 1/3 of them are incapacitating injuries. That rate increases to 50% incapacitation for those over 55.

Males and females are equally likely to be involved in pedestrian accidents.

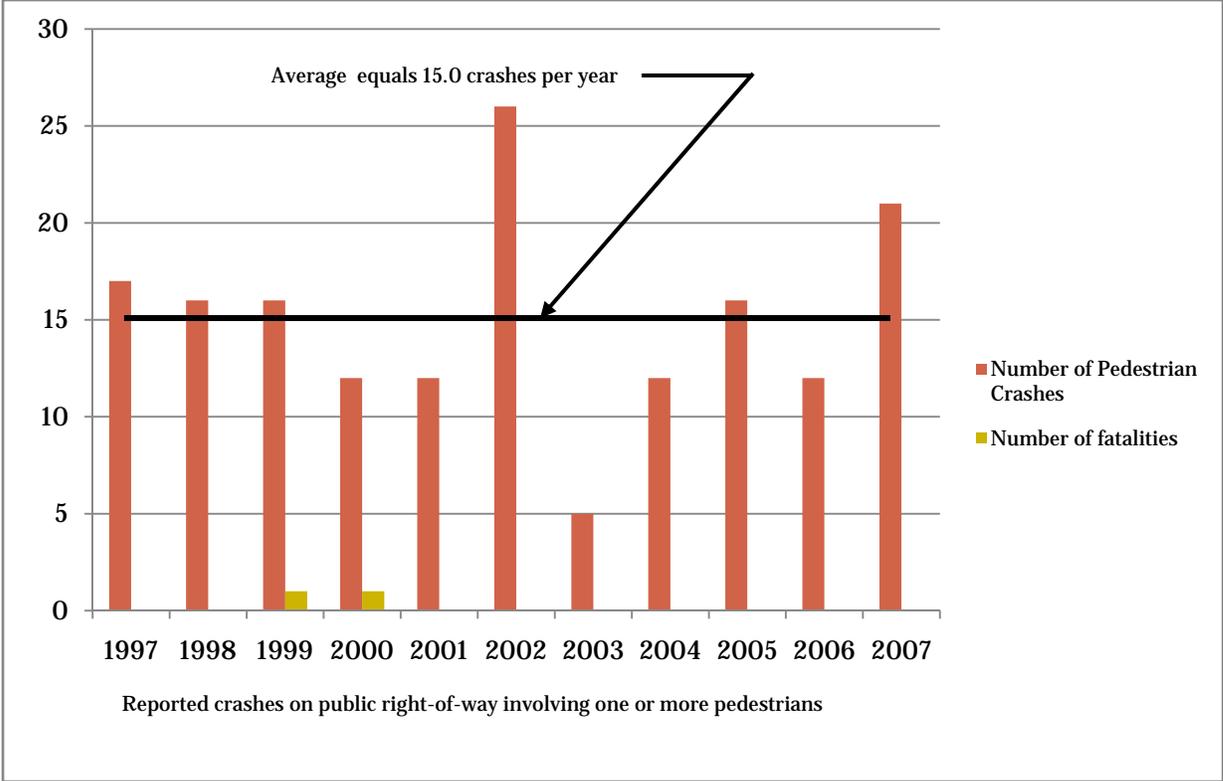


Figure 6 Annual number of pedestrian crashes fatal and non-fatal 1997-2007

Because there is little documentation about the amount of pedestrian activity in other cities, it is difficult to compare Kirkland’s accident experience with that of other cities.

Map 8
crash
2003-2007



Pedestrian
Locations

CYCLIST SAFETY

The City of Kirkland maintains a database for crashes involving bicycles. Figure 7 shows that The annual number of bicycle crashes has remained relatively steady over the past 11 years. Although each of the past 6 years has been at or above average, the number of accidents is so small that it is hard to call it a trend. Most years are within three accidents of the average, with the two outlier years averaging to almost exactly the 11 year average. Reliable estimates of the rate at which cycling miles are increasing or decreasing is not available. Therefore the rate of cycling crashes is unknown. It is unlikely that the number of miles cycled is decreasing indicating the number of crashes per mile cycled is probably decreasing.

NEED MORE ANALYSIS HERE

Bicycle accident facts 1997-2007

59% of bicycle accidents happen during the five months from May to September.

About three-fourth of all bicycle accidents happen on dry pavement during daylight

Almost half of bicycle accidents happen during the PM drive time; between 4:00 and 7:00.

Just over half the accidents involve motorists that failed to yield.

84% of accidents involving bicycles result in some injury and 18% of them are incapacitating injuries.

Males are more than four times more likely (81% to 19%) than females to be involved in pedestrian accidents.

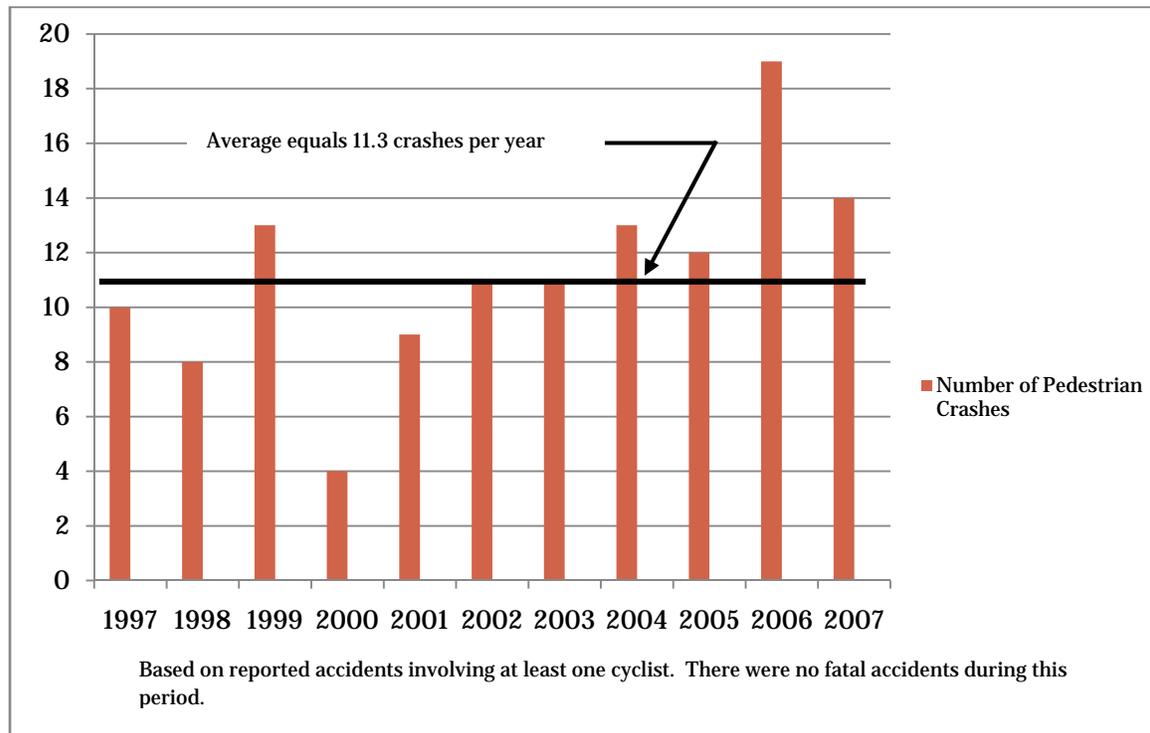


Figure 7 Annual number of bicycle crashes 1997-2007



Bike Crashes

Legend

Year of Crash (total number)

- 2003 (11)
- 2004 (13)
- 2005 (12)
- 2006 (14)
- 2007 (14)



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TRANSIT

Both transit agencies that serve Kirkland; Sound Transit and King County Metro have bicycle racks on every coach in their fleet. Most racks hold two bicycles, but racks that hold three bicycles are under development. Sidewalk exists on both sides of most streets on which transit runs in Kirkland.

Of the approximately 322 bus stops in Kirkland, 9% have shelters and 88% are accessible for handicapped lifts. King County Metro runs a bicycle locker program that includes facilities at Kingsgate, and South Kirkland Park & Rides as well as the transit center in downtown Kirkland. Bike racks are also available at South Kirkland Park & Ride and the downtown transit center.

SCHOOL WALK ROUTES

Kirkland has 7 public elementary schools within its borders. The Lake Washington School District is responsible for producing a safe school walk route map for each school. Each map describes in detail where students the preferred walk routes within approximately a mile of each school. The school district considers the presence of sidewalk when it determines the routes. For example if there is sidewalk on only one side of a street, that side is designated as the walk route. If there is sidewalk on both sides of a street, then both sides are designated as the walk route.

In further support of the City's commitment to providing projects along School Walk Routes (SWR), in October of 2000 the Council created a School Walk Route Committee including residents, parents, the School District and others. In May of 2002 after numerous meetings, discussions, open houses and interaction with the various schools, the Council approved their recommendations. These recommendations included:

- Build \$1 M worth of "priority" SWR projects as identified by each school
- Rank other identified SWR's using the CIP process using the rating process
- Explore possibility of a Sidewalk Bond ballot measure to provide funding for sidewalks
- "Call" concomitant agreements that would fund sidewalks through private funding. (see Page xx for more information about concomitant agreements.)

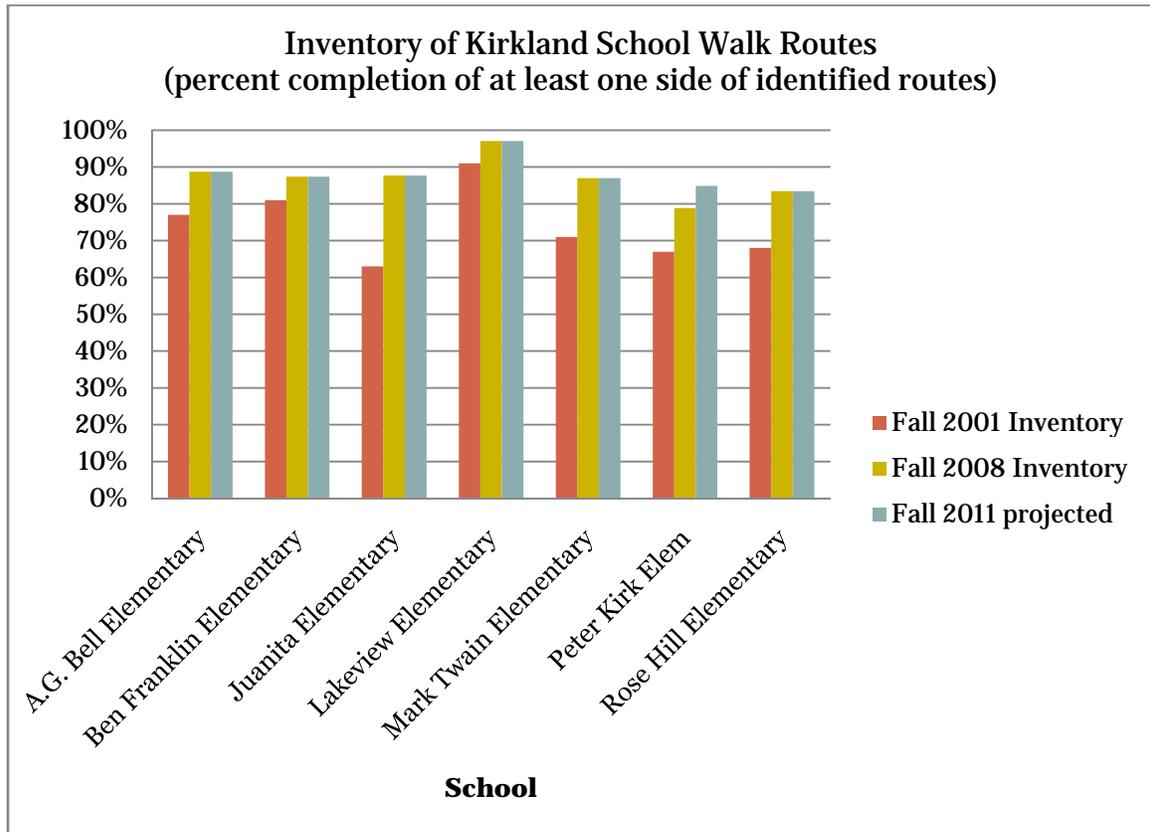
The priority SWR projects were completed at all seven elementary schools by the Fall of 2002, and other routes continue to be evaluated in the CIP process using the Transportation Project Evaluation criteria. After further study, Sidewalk Bond was not undertaken, and the concomitant process was modified. Including the priority improvements that were undertaken in 2002, approximately \$2.2 M has been invested in improvements along school walk routes over the last few years. Between the time that the inventory of school walk routes that was done in preparation for the School Walk Route Advisory committee in 2001 and today, significant progress is being made in completing the walk routes around schools as shown in Figure

Map of a sample school walk route

As a result of concerted efforts to improve school walk routes, the number of routes that have sidewalk on at least one side of the street has increased to a minimum of 80%.

Figure showing increase in school walk routes.

Figure 8 Completion of school walk routes between 2001 and 2008 Projects funded on the current CIP are also shown.



Map of school walk routes in Kirkland

MAINTENANCE

PEDESTRIAN FACILITIES

According to the Kirkland Municipal Code, sidewalk maintenance is the responsibility of the adjacent property owner. Nevertheless, the Public Works Department has several programs to address sidewalk maintenance.

Concrete sidewalks are constructed by forming separate panels of sidewalk each about 10' long. When the sidewalk is new, all the panels are at the same level, creating a smooth walkway. Tripping hazards are caused when these sidewalk panels shift relative to each other by ½" or more. An inventory of all the walkways in Kirkland was conducted in 2004. This survey indentified a number of offsets which have been corrected. When new problems are reported to the City several methods are used to remove the offset. The most common treatment is to grind a portion of the higher panel, but sometimes the entire lower panel is raised or material is placed on top of the lower panel to bring it up to the level of the higher panel.

Tree roots pushing on sidewalk panels is the cause of most of the offsets in the sidewalk system. Improper installation or damage by heavy vehicles can also cause offsets but this is rare. City policy is to protect the trees versus the sidewalk in other words, trees are not removed because their roots are damaging sidewalks. There are several strategies that are used to accomplish this. Rubber sidewalk has been used as a pilot project; the rubber sidewalk is able to flex and maintain a smooth surface even when roots push on it. Asphalt is more flexible than concrete and can also be used in areas where tree roots are damaging standard sidewalk. Simply moving the sidewalk so that it avoids trees is also sometimes possible.

In some cases, sidewalk panels themselves crack or otherwise deteriorate. In these cases, asphalt sections are sometimes used as an interim replacement for the damaged concrete. Concrete is restored as a component of the pavement maintenance program when the street pavement is overlaid. The Capital Improvement Program also includes \$200,000 per year to make repairs to sidewalks.

What does the Kirkland Municipal Code say?

Although the law holds adjacent property owners responsible for the cost of sidewalk maintenance, the City has several programs that help property owners maintain sidewalk. Here are the applicable section of the KMC:

19.20.020 Abutting property owner to maintain sidewalk in safe condition.

It shall be the responsibility of the owner of property abutting upon a public sidewalk to maintain the sidewalk at all times in a safe condition, free of any and all obstructions or defects, including but not limited to ice and snow. (Ord. 2654 § 1 (part), 1982)

19.20.030 Expense of maintenance and repair to be borne by abutting property and owner thereof.

The burden and expense of maintaining sidewalks along the side of any street or other public place shall devolve upon and be borne by the owner of the property directly abutting thereon. The abutting property owner shall also be responsible for performing and paying for sidewalk repairs to the extent the need for repairs is caused by the actions or omissions of the abutting property owner. (Ord. 4123 § 1, 2008; Ord. 2654 § 1 (part), 1982)

Although they have a lower initial cost, the shorter life and therefore higher maintenance cost of asphalt paths give them a higher lifecycle cost than concrete sidewalks. Gravel paths have an even greater maintenance cost and are used only as a short term solution; typically where concrete or asphalt is to be installed soon or where special users such as horses need a softer surface.

The most common sidewalk maintenance complaints are about obstructions in the walkway. This is usually landscaping, brambles, or tree branches that reach across the sidewalk. Because it is the responsibility of the adjacent property owners to maintain a clear sidewalk when the city receives a complaint that sidewalk is obstructed several steps go into resolution of the complaint. First the complaint is checked to see if it is a safety hazard that warrants immediate action. If it is, City staff removes the obstruction. If it is not an immediate hazard, a letter describing the problem is sent to the adjacent property owner. The letter explains that the property owner has two to three weeks to remove the obstruction. If the work is not done, a 2nd letter is sent reminding the resident of their responsibility, setting a shorter time line, and stating that if not done, it will be removed by the City. About 75% of the complaints are taken care of by property owners within the allotted time.

There are about 180 pathways and small connectors that are the maintenance responsibility of the City. These are the kind of facilities that make connections between cul-du-sacs for example. These are maintained semi annually or on a complaint basis depending on the amount of staff available.

BICYCLE FACILITIES

Keeping bicycle lanes free of obstructions free of debris is a major maintenance concern of cyclists. On average, every street in the city is swept 11 times a year. The downtown area is swept 100 times a year. Downtown sweeping frequency increases in the summer when activity is highest and in the autumn when leaf debris can clog storm drains.

Although there is no special program to specifically sweep bicycle lanes, there is an active program that responds to specific complaints. Spot sweeping is performed on bicycle lanes whenever a focused complaint is received. Many requests of this type are handled each year.

Being detected at traffic signals is also a major concern for cyclists. Traffic signals in Kirkland should be able to detect bicycles. City technicians can respond and work with cyclists at any location where a problem is reported.

Small bumps and holes in the pavement that car traffic doesn't notice can be a problem for cyclists. As with sweeping and traffic signal detection, pavement irregularities are also handled as they are reported.

SECTION 3 ON-LINE SURVEY RESULTS

In the summer of 2007, on-line surveys were conducted as a part of the development of this plan. The survey was not intended to be a statistically valid. Instead, it was to take the place of the normal open house where only a small number of participants might be able to take part. Two surveys were available, one for pedestrians and one for cyclists. Respondents indicated their top three attributes for prioritizing construction of new facilities. They were also asked how often they biked and walked by purpose. By asking questions about the best and worst places to walk and bike information about preferences and needs for improvement were obtained. This information is described below. More details about the survey are located in Appendix A.

ADD Sidebar : survey information

PEDESTRIAN SURVEY

In the pedestrian survey respondents were asked:

How often do you walk/run in Kirkland? For each purpose below indicate the frequency that BEST describes how often you walk. Here are some examples: if you do an activity on weekdays only, choose daily. If you do an activity 3 times a month, choose monthly. If you do an activity once or twice a week, choose weekly.

Respondents were asked to select *daily, weekly, monthly* or *never* for each of the following walking trip types:

- all the way to school
- all the way to work
- to run errands like shopping, etc.
- to the bus stop for work or school
- for exercise/fitness/pleasure
- other

Results for this question are shown in Figure 2. Among those who responded to the survey, Exercise/fitness/pleasure is by far the most common trip type. Note that walking to perform errands is also an important trip type for survey respondents.

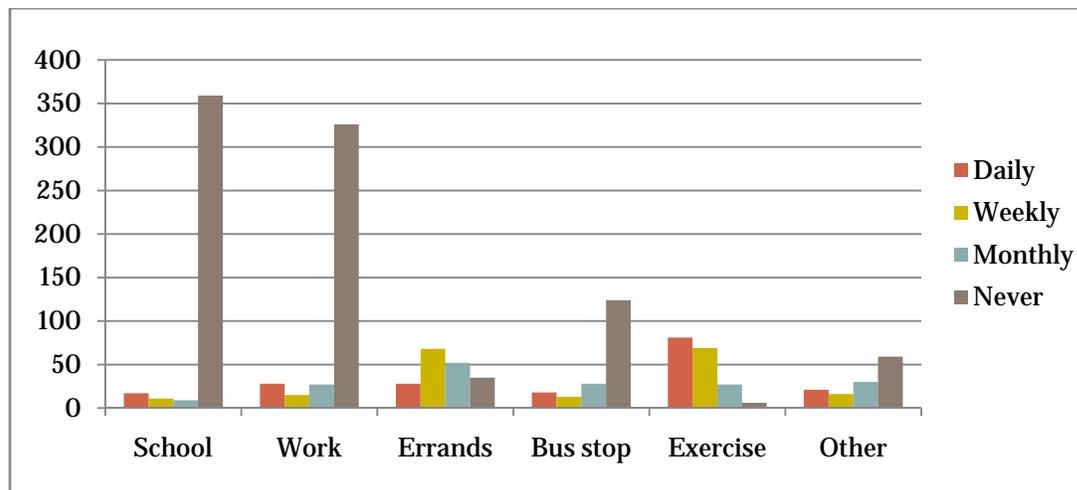


Figure 9 Frequency of walking trip by purpose as reported by survey respondents

Those responding to the walking survey were also asked:

What factors should be used to prioritize construction of pedestrian improvement projects? Indicate how highly each factor should rank when determining funding priorities

A list of possible choices was shown in a drop down menu for each of the first, second and third highest priorities. The choices for priorities were explained in the survey as:

- **Safety** - Address locations where accidents have occurred. This includes street lighting improvements.
- **Complete missing pieces** - Create longer continuous walkways
- **Most users** - Build facilities that will serve the most users
- **Connections** - Facilitate pedestrian travel to shopping, restaurants and other services
- **Equity** - Spend similarly in various neighborhoods
- **Transit** - Increase easy walking access to Metro bus stops
- **Schools** - Build projects near schools and that access school bus stops
- **Maintenance** - Maintain existing pedestrian facilities

Figure 3 shows that by far safety is the most important criteria by which projects should be ranked. Respondents also felt strongly about constructing projects that fill in gaps in the sidewalk, and the criteria with the highest number of votes for the third priority was projects that serve the most users.

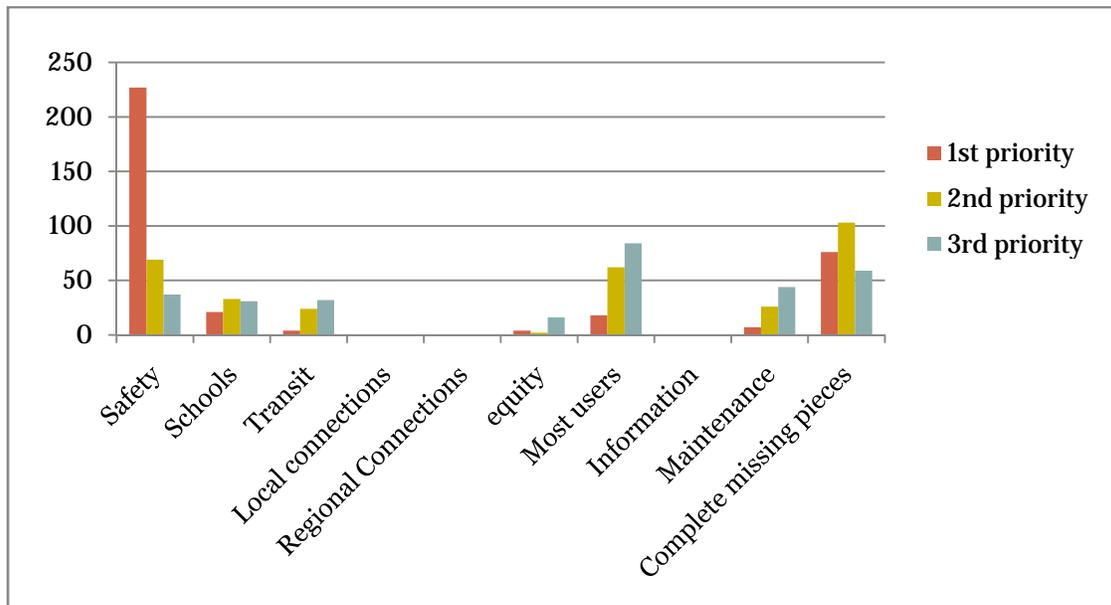


Figure 10 Priorities for selecting criteria by which pedestrian improvement construction projects should be evaluated

For the optional question

Where are the most problematic locations for walking in Kirkland? Be as specific as possible.

Figure 4 shows the major categories respondents chose to answer this question. These responses when looked at in combination with responses to the question:

Tell us more about anything that would make walking in Kirkland easier for you.

Subjects could include:

- *Any walking/running issues you've always wanted to comment about.*
- *Questions or comments about walking facilities or programs.*
- *Things that you've seen elsewhere that you would like to see in Kirkland.*

Show that general concerns about sidewalks and crosswalks in a variety of areas are of most concern to pedestrians. In general there was a strong desire for more sidewalks in all areas of the city. Other areas where there were a group of similar concerns included:

- The intersection of NE 116th Street/Juanita Drive and 98th Avenue NE
- Crossings of I-405 on NE 85th Street and NE 124th Street.
- Clearing of obstructions such as trees and leaves on sidewalks
- Policy for requiring construction of sidewalk along street frontages of new homes.

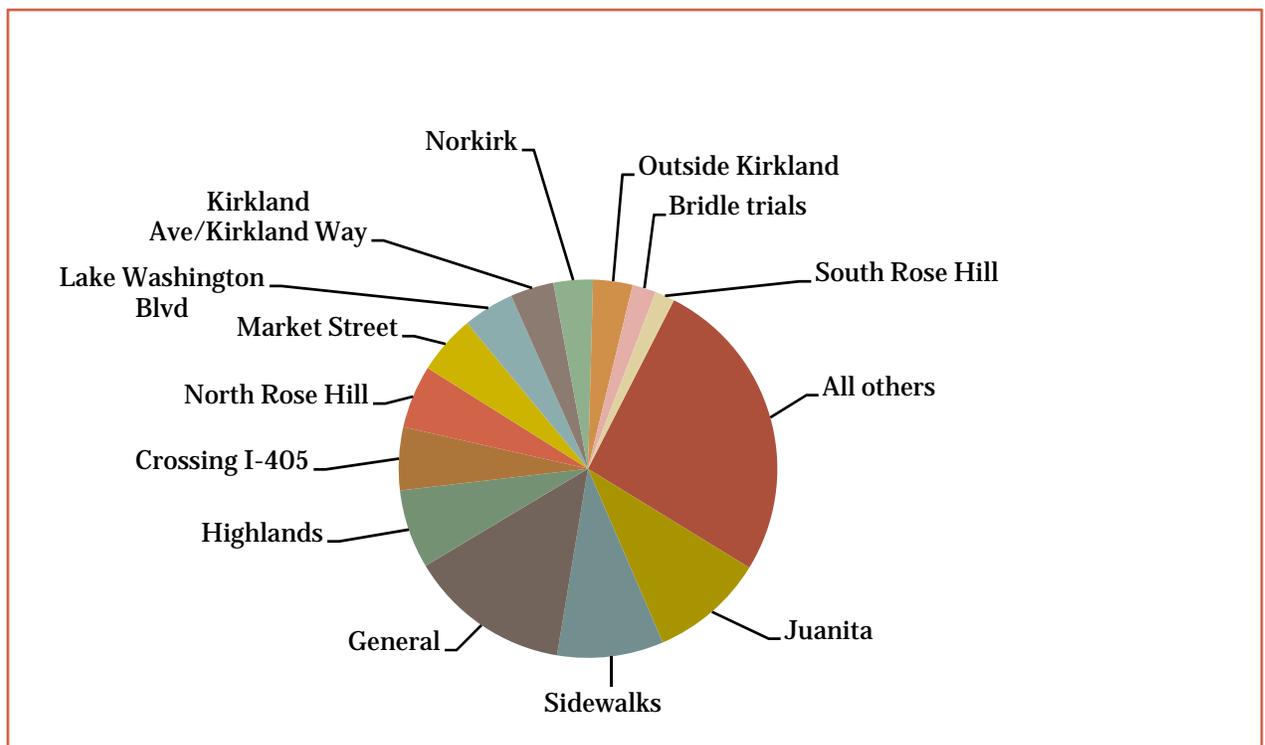


Figure 11 Responses to the question: Where are the most problematic locations for walking in Kirkland? Sorted by major category

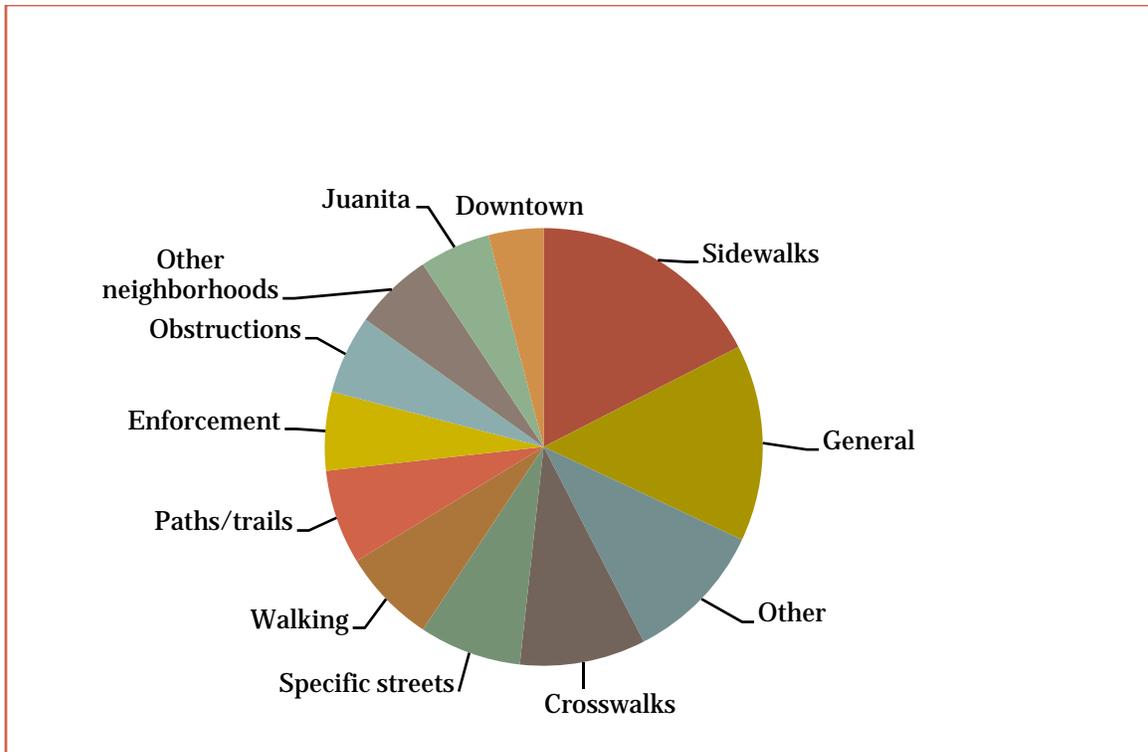


Figure 12 Responses to the question: Tell us more about anything that would make walking in Kirkland easier

Responses to the question:

Where is an excellent location for walking in Kirkland? Be as specific as possible

Were the clearest of any of the questions asked. Combining the number of responses choosing the Lakefront, downtown and Parks accounts for over 60% of the total responses.

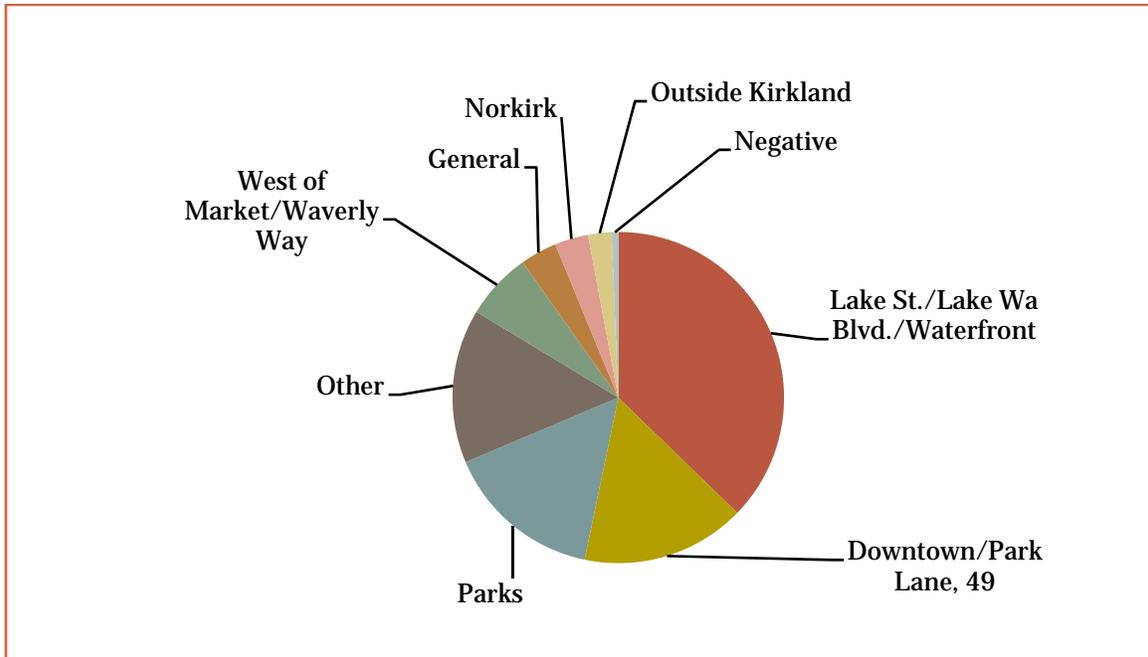


Figure 13 Responses to the question: Where is an excellent location for walking in Kirkland? Grouped by location.

As mentioned earlier, the on-line survey was not intended to be a statistically valid but to serve as option to an open house with the hope that access would be greater. As can be seen in Figure 7, about twice as many woman responded to the pedestrian survey as did men. Statistically valid surveys show that nationally, woman and men make walking trips at about the same rate. Relative to national statistics³, respondents to the survey fall disproportionately in the 30-49 year old age group. Nationally, about the same amount of walking takes place among all ages from 16 to 64.

The results of the survey shaped the prioritization system for sidewalk construction projects as well as the programmatic elements of the plan. Prioritization is discussed further in section XX.

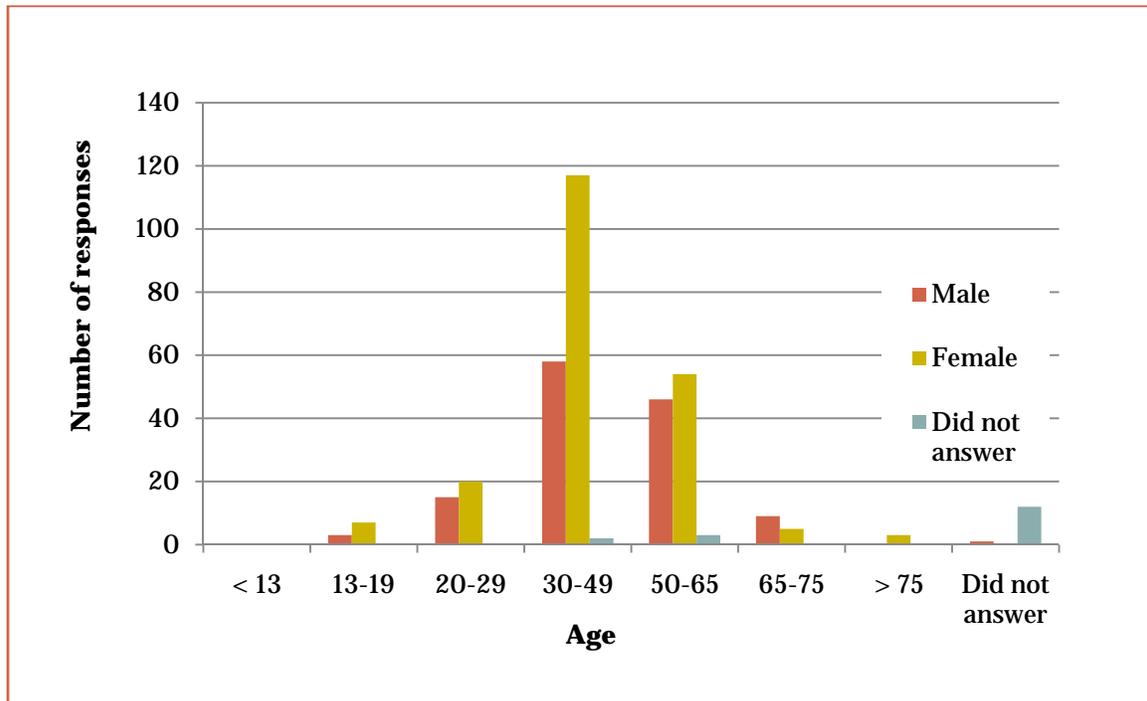


Figure 14 Age and gender of respondents to the pedestrian survey

BICYCLIST SURVEY RESULTS

In the bicycle survey respondents were asked:

How often do you bicycle in Kirkland? For each purpose below indicate the frequency that BEST describes how often you bicycle. Here are some examples: if you do an activity on weekdays only, choose daily. If you do an activity 3 times a month, choose monthly. If you do an activity once or twice a week, choose weekly.

Respondents were asked to select *daily*, *weekly*, *monthly* or *never* for each of the following walking trip types:

³ National survey of Bicyclist and Pedestrian Attitudes and Behavior, Volume 1 Summary Report, August 2008, National Highway Traffic Safety Administration.

- all the way to school
- all the way to work
- to run errands like shopping, etc.
- to the bus stop for work or school
- for exercise/fitness/pleasure
- Mountain bike/off road
- other

Results for this question are shown in Figure 8. Respondents indicated that exercise, errands and work are the most important trip types. This suggests a need for both local access for errands and regional access for longer work and exercise trips.

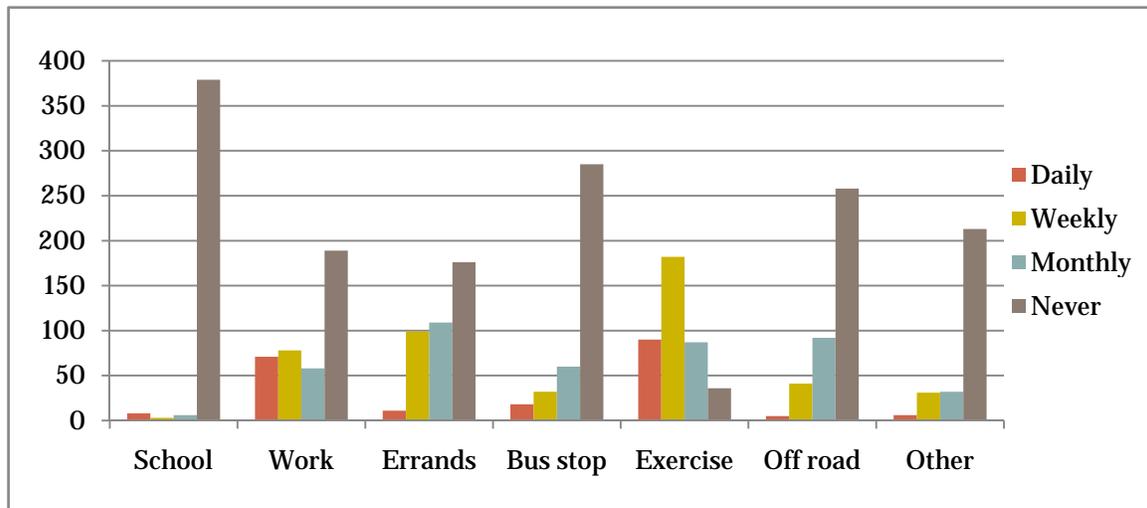


Figure 15 Frequency of bicycling trip by purpose as reported by survey respondents

Those responding to the bicycle survey were also asked:

*What factors should be used to prioritize construction of bicycle improvement projects?
Indicate how highly each factor should rank when determining funding priorities*

A list of possible choices was shown in a drop down menu for each of the first, second and third highest priorities. The choices for priorities were explained in the survey as:

- **Safety** - Address locations where accidents have occurred. This includes projects that improve lighting.
- **Regional Connections** - Projects that connect to regional trails/other cities
- **Most users** - Build facilities that will serve the most users
- **Local Connections** - Connect to shopping, restaurants, other services
- **Equity** - Spend similarly in various neighborhoods
- **Transit** - Increase easy bike access to Metro bus stops
- **Schools** - Build projects near schools and that access school bus stops
- **Information** - Mark bike routes and add other information like distances to key destinations
- **Maintenance** - Maintain existing bicycle facilities

Figure 9 shows that, by far, safety is the most important criteria by which projects should be ranked. Respondents also felt strongly about completing connections, with regional connections more important than local connections. Judging from the responses to the question about things

that can be done to make biking easier (see below) maintenance concerns center on sweeping bike lanes and making sure that bicycles can activate traffic signals.

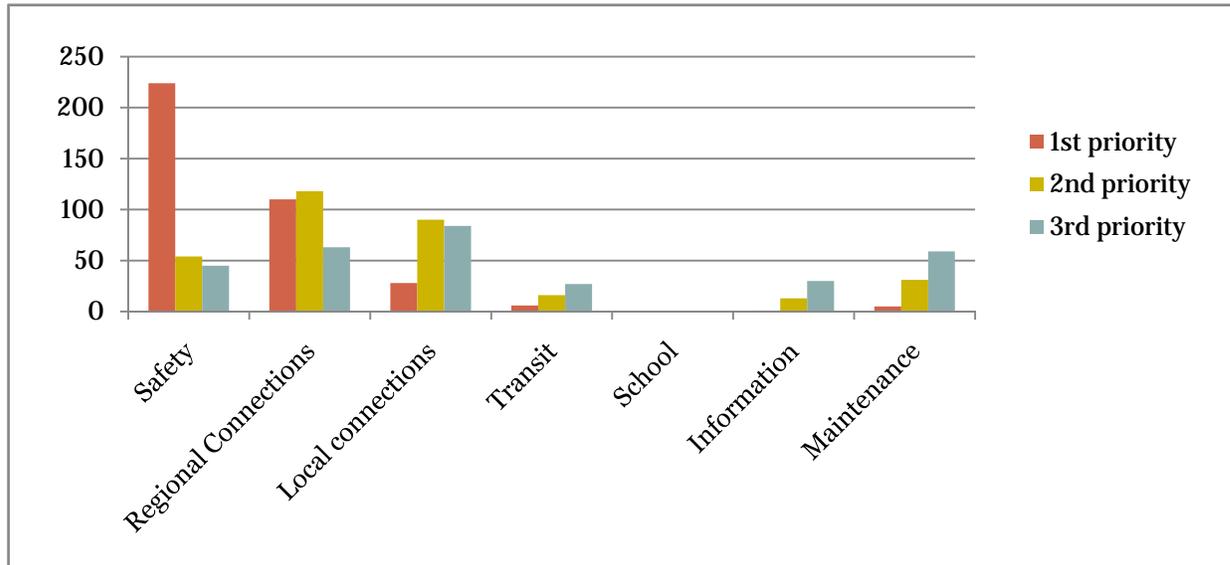


Figure 16 Priorities for selecting criteria by which pedestrian improvement construction projects should be evaluated

Figure 10 shows the major categories respondents chose to answer the optional question:

Where are the most problematic locations for biking in Kirkland? Be as specific as possible.

The high volume, higher speed, multilane streets NE 85th Street, NE 124th Street (along with their crossings of I-405) and the section of 100th Avenue NE north of NE 124th Street were, not surprisingly, all cited as locations where cycling is difficult. Lake Street between downtown and NE 60th Street was also mentioned fairly frequently, but bike lanes were striped on this section in the fall of 2008.

As illustrated in Figure 11, when cyclists responded to the question:

Tell us more about anything that would make biking in Kirkland easier for you. Subjects could include:

- *Any bicycling issues you've always wanted to comment about.*
- *Questions or comments about bicycle facilities or programs.*
- *Things that you've seen elsewhere that you would like to see in Kirkland.*

The single largest response was for additional bike parking, particularly in downtown Kirkland. There was also support for more bike lanes and for paths that are separated from traffic. The two main maintenance items were additional sweeping of bike lanes and marking traffic signals to be more easily activated by cyclists. Traffic speed and volume represents a small fraction of the problem areas, but when combined with the responses to problem locations, its clearer that traffic speed and volume are major contributors to cyclist dissatisfaction. Comment on design?

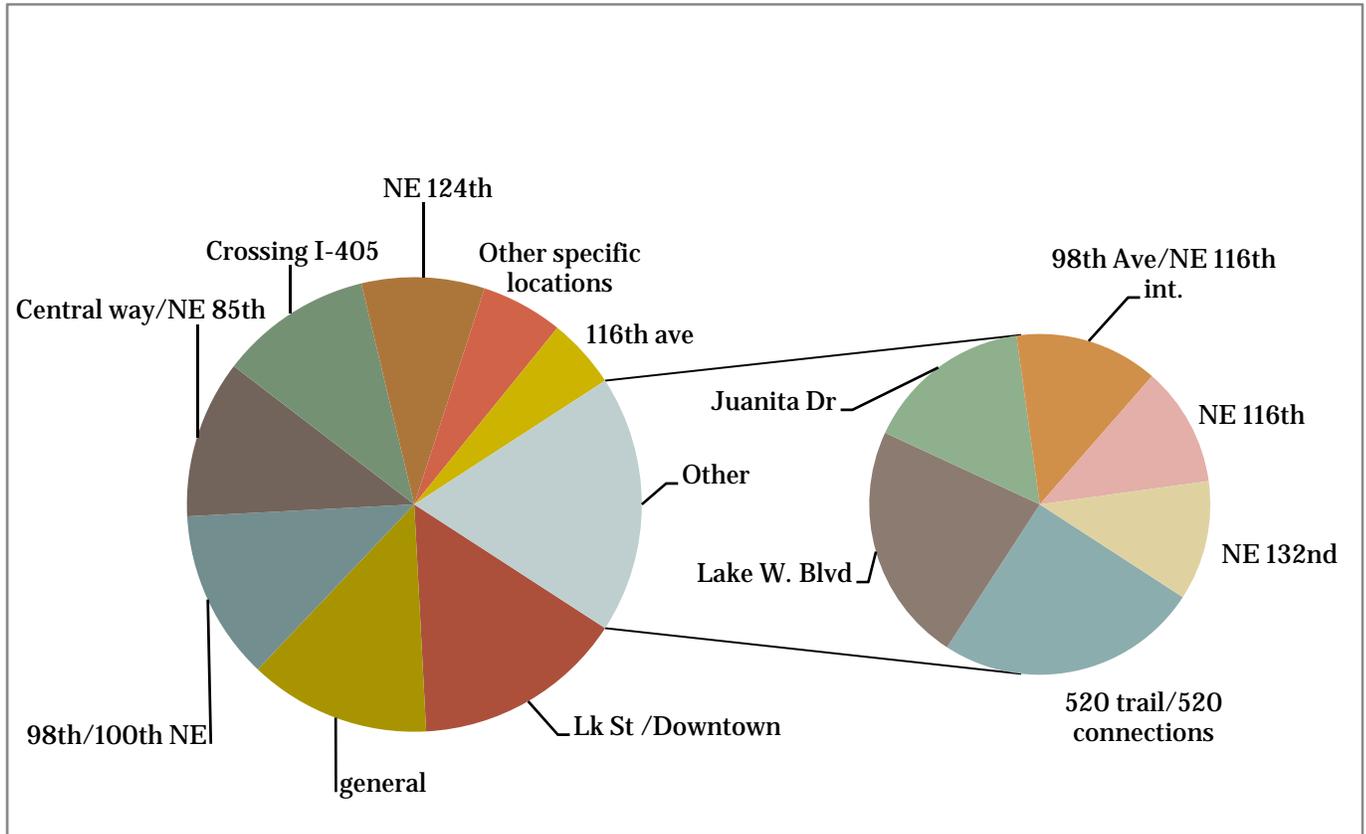


Figure 17 Responses to the question: Where are the most problematic locations for biking in Kirkland? Sorted by major category

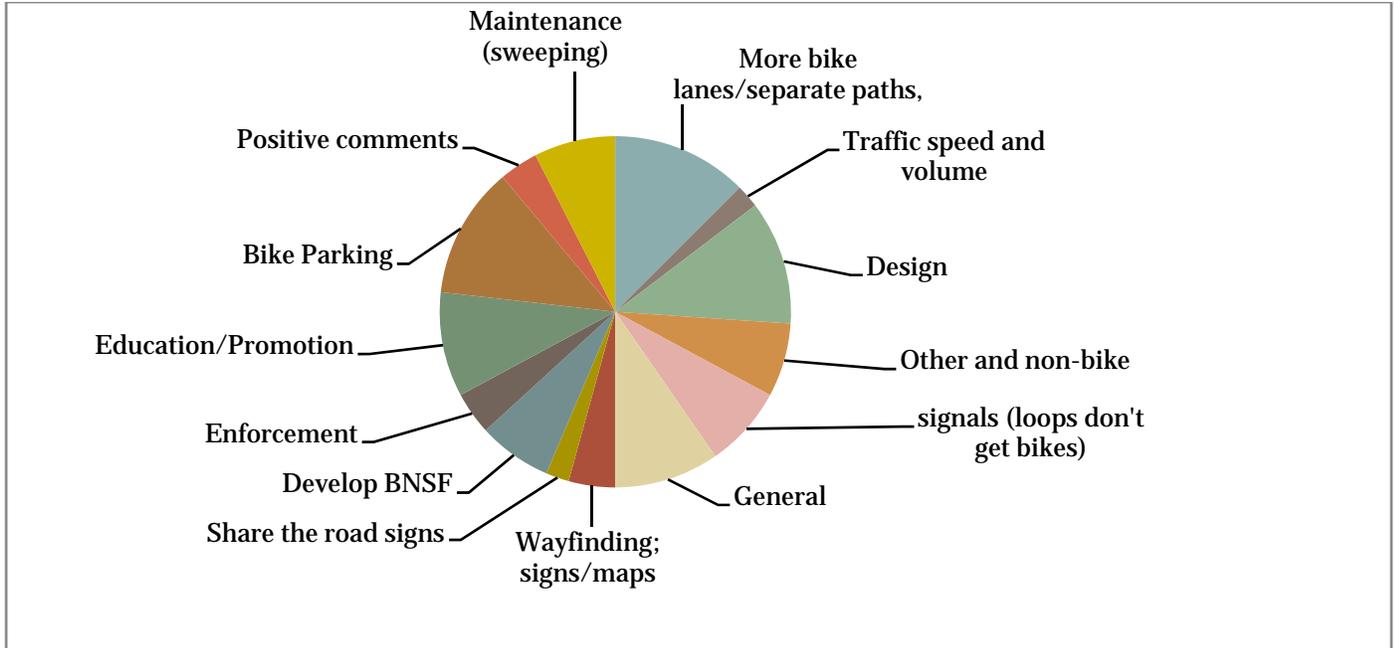


Figure 18 Responses to the question: Tell us more about anything that would make biking in Kirkland easier sorted by group

Figure 18 shows that responses to the question:

Where is an excellent location for walking in Kirkland? Be as specific as possible

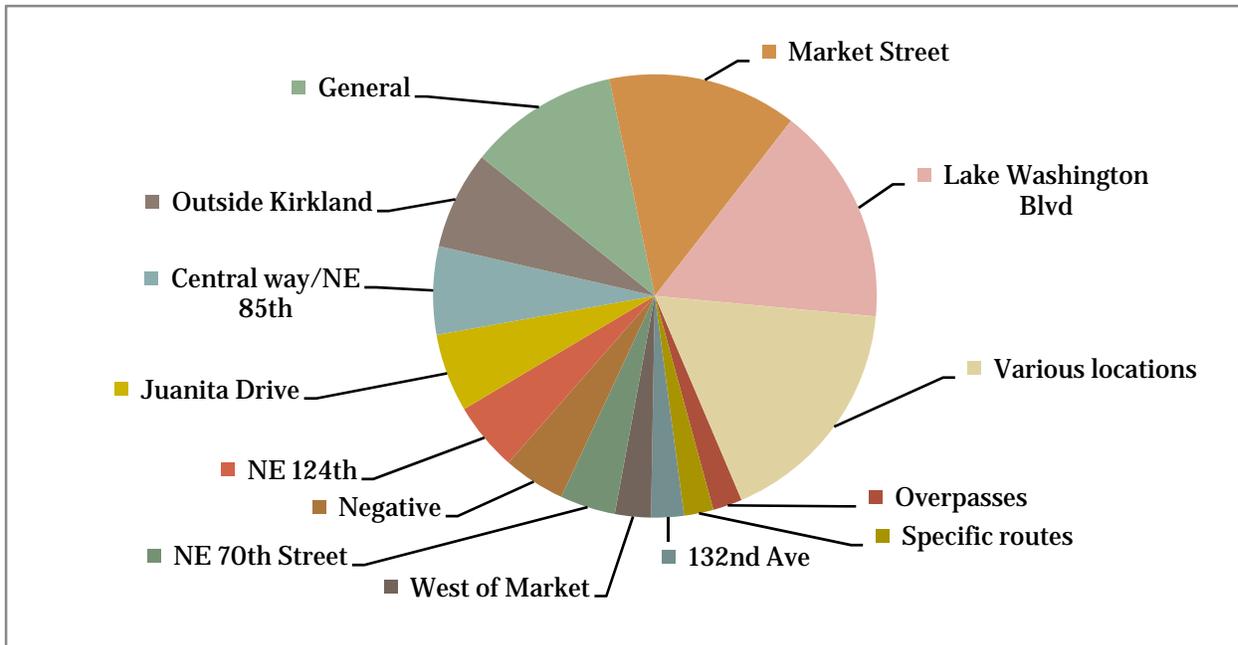


Figure 19 Responses to the question: Where is an excellent location for biking in Kirkland? Grouped by location.

Confirmed the popularity of the Lake Washington Blvd./Market Street/Juanita Drive portion of the Lake Washington Loop Route. Other responses were divided among a number of locations.

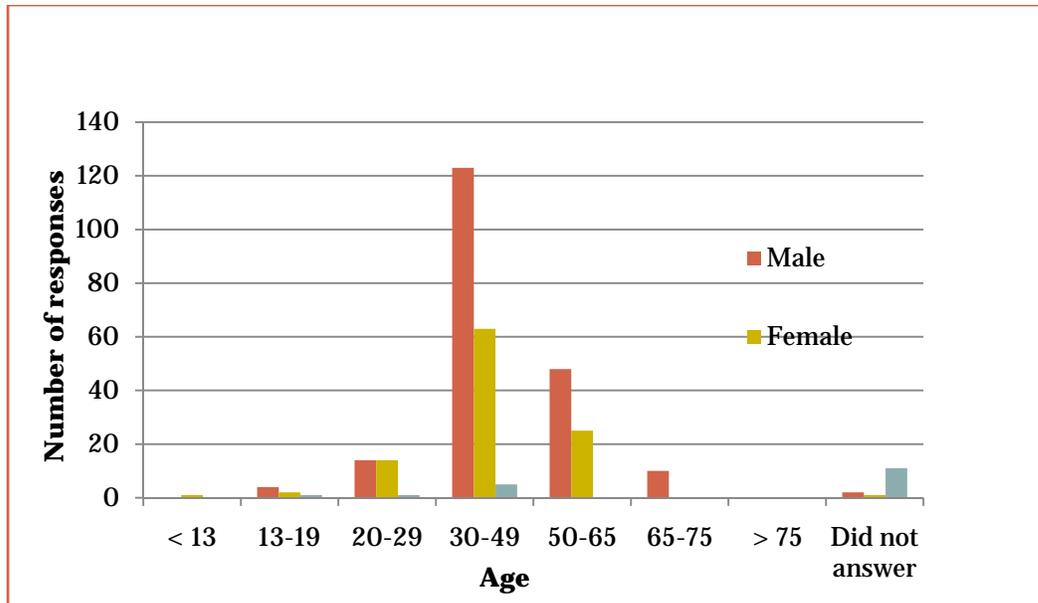


Figure 20 Age and gender of respondents to the bicycle survey

According to one statistically valid national survey, males make about 68% of all bicycle trips and females make about 32% of all trips. Figure 14 shows a similar difference between male and female respondents to the bicycle survey.

The prioritization of bicycle improvements is discussed further in section XX. It reflects the information gathered from the survey for both network improvements and programmatic elements.

SECTION 4: EXISTING PLANS AND PROGRAMS

2001 NON MOTORIZED PLAN

System maps are at the heart of both the 2001 Non-Motorized Plan and its 1995 predecessor. These maps designated priority one and priority two classifications for both bicycle and pedestrian facilities. In both plans, the priority one facilities were to be “given priority when selecting projects to construct” and the priority two facilities were to be “given priority during project selection, but to a lesser degree than Priority One Corridors”. These priority routes were used to help rank CIP projects for funding and were used in development review to decide where bicycle facilities should be installed by new construction.

The 1995 plan used a measure of miles of facility per population to evaluate performance of the non-motorized system. The 2001 update replaced this with two new measures. The first was a measure of the number of miles of complete facilities within the priority system. Note that this is not a measure of all the sidewalks that have been constructed, only those on priority routes. The second was a measure of completeness, as measured by priority corridors that were complete along their entire length. Goal 9 of the plan laid out four policies that had specific targets. These targets and current progress toward the targets are shown in the table below.

From the 2001 Non-motorized Transportation Plan

“Priority One Corridors represent significant north-south and east west routes, both existing and potential. The spacing between Priority One Corridors is approximately 1/2-mile in the pedestrian system and approximately one mile in the bicycle system.”

“Priority two corridors represent the next level of importance in non-motorized transportation connectivity. These corridors are approximately 1/4 mile apart in the pedestrian system and 1/2 mile apart in the bicycle system.”

Table 2 Goals from the 2001 Non-motorized Transportation Plan and progress toward them

<i>2001 Plan Policy</i>		<i>2000 status</i>	<i>2007 goal</i>	<i>2007 actual</i>	<i>2012 goal</i>
9.1 Pedestrian System mileage		102.1	105.2		131.0
9.2 Bicycle System mileage		41.0	41.5		50.7
9.3 Complete Pedestrian corridors	East-west	2	6		n/a
	North-South	2	4		n/a
9.4 Complete bicycle corridors	East-west	1	4		n/a
	North-South	0	2		n/a

COMPREHENSIVE PLAN

The Comprehensive Plan is the City of Kirkland's guiding document for deciding how the city should change. The Comprehensive Plan establishes a vision, goals and policies, and implementation strategies for managing growth within the City's Planning Area over 20 years. All regulations pertaining to development (such as the Zoning Code, Subdivision Ordinance, and Shoreline Master Program) are consistent with the Comprehensive Plan. There are 17 framework goals that provide the basic structure of the document. The Transportation Element of the Plan focuses on how the transportation system should be developed. Specifically, the Plan's framework goal 12:

FG-12 Provide accessibility to pedestrians, bicyclists, and alternative mode users within and between neighborhoods, public spaces, and business districts and to regional facilities.

Within the Transportation Element there are several goals corresponding to the larger framework goal. The goal that most applicable to the non-motorized plan is Goal T-2:

Goal T-2: Develop a system of pedestrian and bicycle routes that forms an interconnected network between local and regional destinations.

Each goal has underlying policies that are designed to support meeting the goal. Goal T-2's policies are as follows:

Policy T-2.1: Promote pedestrian and bicycle networks that safely access commercial areas, schools, transit routes, parks, and other destinations within Kirkland and connect to adjacent communities, regional destinations, and routes.

Policy T-2.2: Promote a comprehensive and interconnected network of pedestrian and bike routes within neighborhoods.

Policy T-2.3: Increase the safety of the non-motorized transportation system by removing hazards and obstructions and through proper design, construction, and maintenance, including retrofitting of existing facilities where needed.

Policy T-2.4: Design streets with features that encourage walking and bicycling.

Policy T-2.5: Maintain a detailed Non-motorized Transportation Plan (NMTP).

These policies have been taken into account as the existing pedestrian and bicycle networks have been developed and as this plan was prepared.

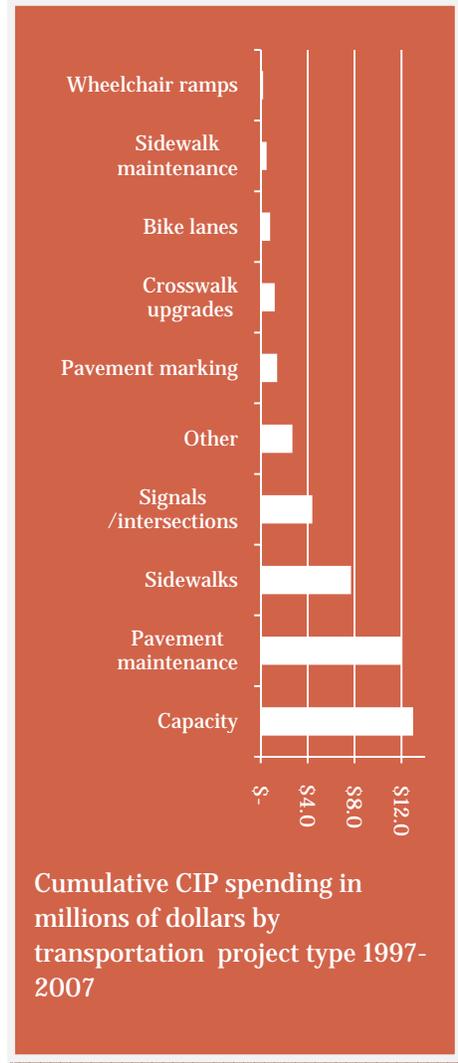
The Comprehensive Plan contains a separate plan for each neighborhood. Each neighborhood plan identifies bicycle and pedestrian routes in that neighborhood. **ADD MORE COMMENTARY ON THIS SUBJECT**

CAPITAL IMPROVEMENT PLAN

GENERAL

Kirkland’s Capital Improvement Program (CIP) is updated and approved by City Council every two years. It contains a list of projects that the City plans to construct over a six year period. Bicycle and sidewalk projects that involve a construction cost of more than \$50,000 are funded through the CIP.

Need a clear description of each project spending area and how it’s prioritized.



PROJECT RANKING

Transportation projects can be divided into capacity projects; those projects that are intended to provide capacity for automobiles in order to meet specific concurrency⁴ targets, maintenance projects such as pavement overlay and non-motorized projects. Non-motorized projects are prioritized for funding using the Transportation Project Evaluation. In 1995, the Council adopted a set of criteria which were developed by a citizen advisory committee for evaluating and prioritizing transportation projects. The Transportation Project Evaluation, criteria also known

⁴ Concurrency is a system by which is intended to insure that auto capacity is built at a rate commensurate with the rate at which auto trips are added because of new development.

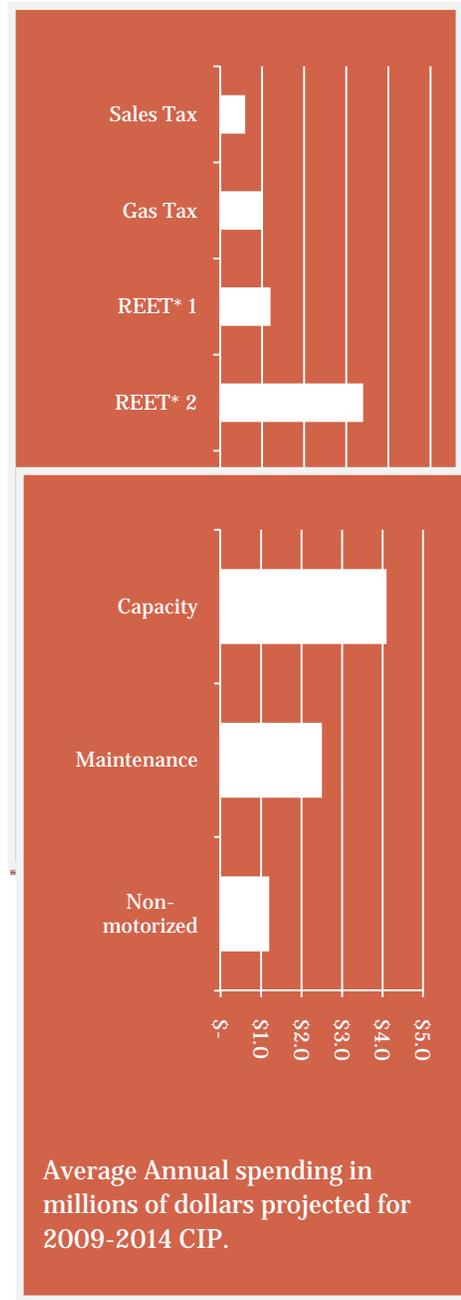
as the ad-hoc criteria (because the committee that formed them was nicknamed the Ad-hoc Committee) were then used in the City's Capital Improvement Program for two years to prioritize all of the proposed transportation projects. After two full CIP prioritization processes, the Council reconvened the original committee to ascertain whether or not the resulting CIP projects reflected the desired outcome of the committee. After looking at the projects that were being funded in the CIP, the committee concluded that the projects did not provide enough recognition for a school walk routes. As a result, the committee recommended, and the Council approved, a modification to the criteria in May of 1998; the revised criteria give additional points to sidewalk project proposals on identified school walk routes.

These modifications were included in the Transportation Project Evaluation process and are used by staff to rate non-motorized projects for placement on the priority list and ultimately in the CIP. In addition, the Transportation Project Evaluation was included in the City of Kirkland's Non-Motorized Plan adopted in 2001 by the City Council.

The system uses six factors to rank projects. Each project could receive a total of 100 points:

- **Fiscal – (20 points possible)** What is the City's ability to leverage funding with other sources? Can grants be secured to extend the City's "purchasing" power?
- **Plan Consistency – (10 points possible)** How does the project compare with existing neighborhood or regional plans?
- **Neighborhood Integrity – (15 points possible)** What are the impacts that this project will have on the neighborhood that it is proposed for?
- **Transportation Connections – (15 points possible)** Will the proposed project fit into the network of the transportation system on a local/regional level? Are there nearby attractions that be served by this proposed project?
- **Multimodal – (20 points possible)** How does this project encourage alternate (non single occupancy vehicle) forms of transportation?
- **Safety – (20 points possible)** What are the existing conditions as compared to the improvements proposed by the project?

Inputs for project scoring include whether or not the proposed project is on a priority 1 or priority 2 route as described in the 2001 non-motorized plan. This factor enters into the scoring of both the Plan Consistency and Transportation Connections categories. As discussed in Section 4 since this Plan removes the priority network and evaluates the pedestrian accessibility each street.



OTHER PROJECTS



In addition to projects specifically targeted for pedestrian or bicycle improvements, elements of benefit to pedestrians and cyclists are constructed through other roadway projects. For example, a street reconstruction project like the one that added a center turn lane on Slater Avenue north of NE 116th Street included bike lanes, sidewalks, planter strips, lighting and medians.

Figure 21 Slater Avenue north of NE 116th Street

Whenever a street is scheduled for a pavement overlay, the adjacent sidewalk is evaluated. Sidewalk that needs replacement is replaced and accessible sidewalk ramps are installed. (will have some numbers here) This work is funded from the pavement maintenance budget.

Table 3 Sidewalk and ramps constructed by Pavement Overlay program

<i>YEAR</i>	<i>Feet of sidewalk (assumes 5' sidewalk)</i>	<i>Number of accessible ramps</i>
2006	2266	47
2007	516	43
2008	461	27

If there is an in-pavement light installation at a crosswalk where pavement is being overlaid, the maintenance program removes and reinstalls the lights after the pavement is repaired.

NEED FIGURE DESCRIBING FUNDING BREAKDOWN BETWEEN Markings, crosswalk, sidewalk maintenance, capacity, non-motorized

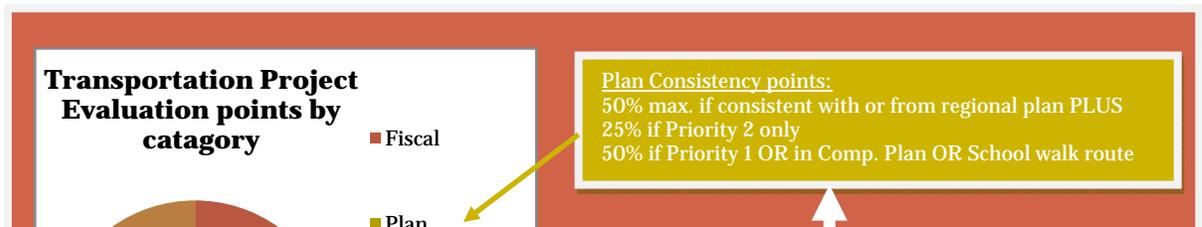


Figure 22 Transportation project ranking and the non-motorized plan

CIP funding supports a crosswalk improvement program. Recently, funding has been \$70,000 every two years. This funding has been used to improve install in-pavement flashers and overhead signing at uncontrolled crosswalks.

DEVELOPMENT GUIDELINES

Kirkland's Zoning Code and Pre-approved Plans work together to describe when and where and how non-motorized facilities are constructed in Kirkland. The Zoning Code describes *what* improvements must be made and the Pre-Approved Plans describe *how* improvements are to be made. Other sections of the zoning code specify other aspects of street design, for example districts where sidewalk width or planter strip width is required to be greater than usual.

Table 4 A quick guide to street elements

Item	Size	Required
Sidewalks	5' on most streets, 8' or 10' in business districts as identified in the zoning code. 7' on NE 85th Street	Always except on short dead end streets and equestrian zones. Can sometimes be waived by residents on local streets.
Planter strip between curb and sidewalk	4.5' with 5' sidewalks, no planter strips on wider sidewalks. .	Always, but planter strip requirement can be waived or modified if terrain is too steep.
Bike lanes	5' wide minimum with curb and gutter, 4' minimum with no curb.	Formerly on 2001 non-motorized transportation plan priority routes, now on bike network when auto volume over 5000 vehicles per day.
Parking	6' wide minimum, 7' typical	Case by case. Usually allowed both sides of street
Auto travel lanes	10' wide minimum, 11' typical.	Case by case depending on volume and street function.

There are 3 cases where sidewalks are not required. The most common case is on dead-end streets less than 300' long. Another case is on local streets in the equestrian overlay area near Bridle Trails State Park. Beginning in 2005, residents could vote to wave the sidewalk requirement on their street. This is the third case where sidewalk may not be required City approval is required to enter into the voting process. Streets that make key pedestrian connections or that have the potential for a substantial pedestrian trips or that are school walk routes are not eligible for the waiver process. Obtaining a waiver requires approval by a 70% majority of the property owners on the street. This process is detailed in policy R-14 of the Pre-approved plans.

Table 5 Common local Street widths

Common local street widths		
Curb face to curb face width	Parking allowed	Common application
20'	Yes, one side only	Shorter, low volume
24	Yes, two sides	Standard
28	Yes, two sides	Higher volume, multi-family applications

Chapter 110 of the Kirkland Zoning Code *Required Public Improvements* contains standards for how streets and sidewalks are to be developed. Chapter 110 describes street cross-sections and when facilities such as sidewalks and bike lanes are to be constructed within the right-of-way.

Local streets are 20', 24' or 28' wide. The width and cross-section elements on arterials and collectors are determined by the Public Works Director. For some streets; NE 132nd Street, NE 85th Street, 120th Avenue NE, 124th Avenue NE and 132nd Avenue NE, cross-sections are established in the Pre-Approved Plans.

Other sections of the zoning code specify other aspects of street design, for example districts where sidewalk width or planter strip width is required to be greater than usual.

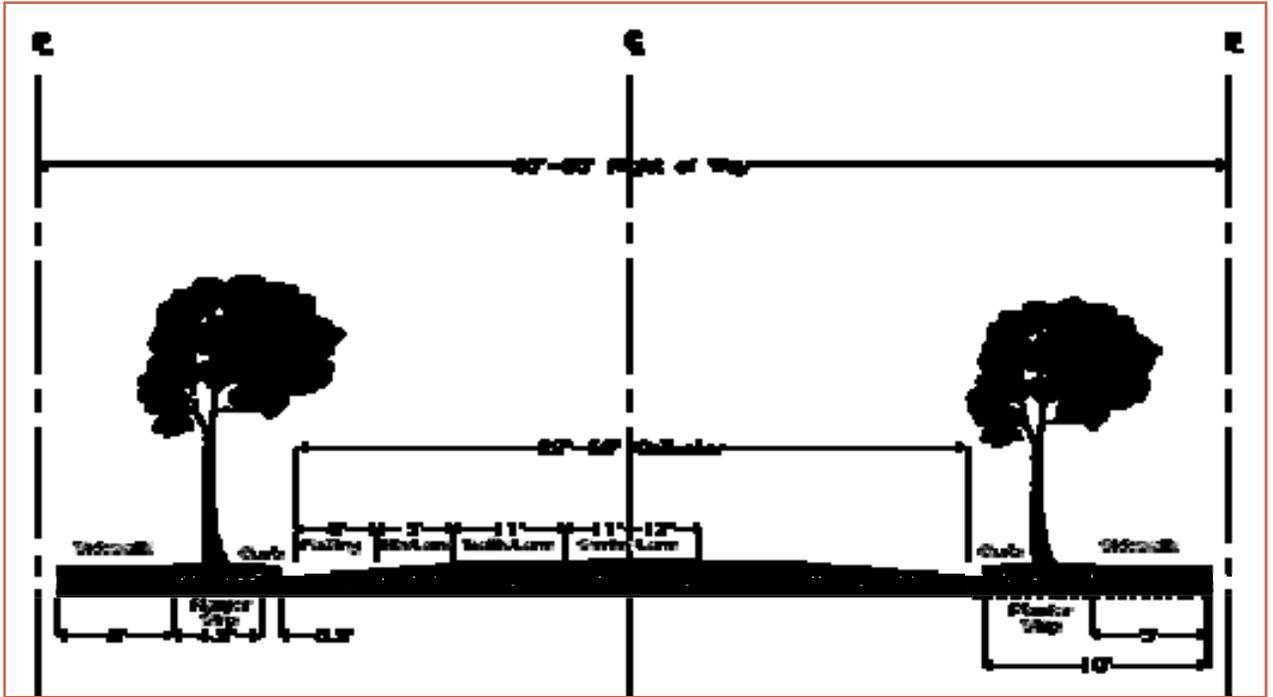
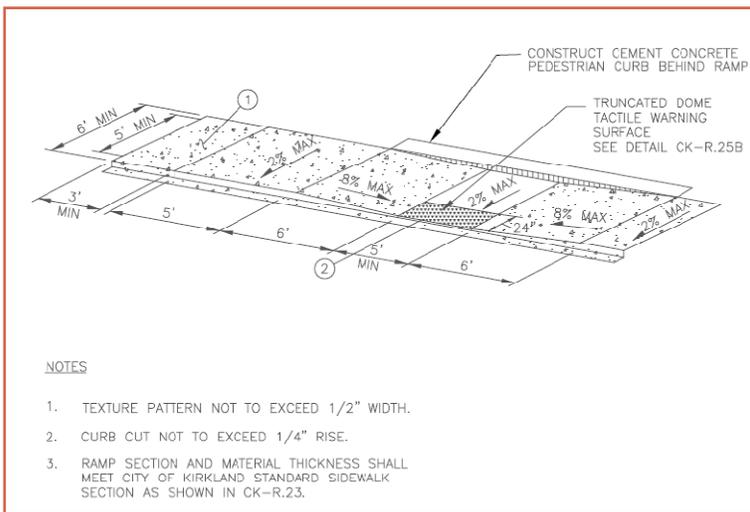


Figure 23 Example of an illustration from Chapter 110 of the Kirkland zoning code

The City of Kirkland’s Pre-Approved Plans illustrate details of construction projects that are



common to many projects.

They exist to assure consistency across projects and to make plan preparation easier. The Pre-Approved Plans describe specifications for the placement and construction of items such as, driveway ramps in sidewalks, Street tree wells, curbs and gutters and street lights. The Pre-Approved plans also contain policies on such items as driveway locations, signing, paving and right-of-way widths. The City’s Public

Figure 24 Sample drawing from pre-approved plans showing how to construct a mid block sidewalk ramp

Works Department administers the Pre-Approved Plans.

STREET DESIGN GUIDELINES

Design Guidelines for Pedestrian Oriented Business Districts sets forth a series of design guidelines, adopted by Section 3.30 of the Kirkland Municipal Code, that are used by the City in the design review process. For Board Design Review (BDR), the Design Review Board uses these guidelines in association with the Design Regulations of the Kirkland Zoning Code. Figure 17 is a page from the Design Guidelines that illustrates its contents.

CROSSWALK REVIEW

As a result of the 2003 study of crosswalk safety the following principles were developed for establishment of crosswalks.

1. The North Carolina ranking system is valid. Therefore, all other things being equal, crosswalks are improved in the order: N then P then C. Within a particular category, crosswalks are ranked for improvement by traffic volume, then by number of lanes and then by speed limit. No ped crossings are placed on routes with vehicular volumes of greater than 30,000 without a signal.
2. Crosswalks that have any pedestrian accidents in the past 5 years and 3 or more accidents in the past 10 years are an accident problem and rate higher for removal or for improvement.
3. All other things being equal, crosswalks that make connections to routes on the pedestrian network as described in the Non-Motorized Plan should be considered for improvement first.
4. School crosswalks are only on accepted school walk routes. SN, SP and SC crosswalks are treated as non-school N, P and C crosswalks respectively. Favor improvements on school routes.
5. Improved Crosswalk spacing on arterials of 1200' or less is desirable and a general minimum is 400'.
6. Lighting at crosswalks should be analyzed and a plan for improvement should be developed independent of other improvements.
7. Basic improvements beyond lighting are applied in the order 1) islands 2) flashing crosswalks 3) overhead signs 4) signals (half, full, etc).
8. All N rated crosswalks should have at least an island. If an island is not feasible, the crosswalks should be seriously considered for removal. Only if removal is not feasible should improvements other than an island be considered first.
9. Removal is an option if technical and non-technical factors are met.

Deserted islands?

Beginning in about 1985, builders of individual single family homes were not required to construct sidewalk along the frontage of their property. Instead, they signed a promise to fund future construction of the missing sections of sidewalk, called a concomitant agreement. This avoided construction of short "islands" of sidewalk. At the same time, the property owner was responsible for the cost of their sidewalk if the City "called" the concomitant within 15 years of its signing.

In 2000 as the concomitants began to reach their 15 year life, concomitant holders were given the choice to either build the sidewalk or sign a new 15 year agreement. The holders of concomitants felt this was unfair and the City Council agreed. While the issue was being studied, neither concomitant agreements or new sidewalk was required.

After studying the issue, City Council decided to do away with new concomitants and require builders of individual single family homes to build the sidewalk when the home is built. This new policy took effect in January of 2005.

10. Warrants for Pedestrian signals are driven by gaps, not necessarily by the MUTCD volume warrants.

PEDESTRIAN AND CYCLIST COUNTS

In late September and early October of 2008, the Washington State Department of Transportation contracted with the Cascade Bicycle Club to count the number of pedestrians and cyclists throughout Washington. The Washington Department of Transportation (WSDOT) Bicycle and Pedestrian Documentation Project is a statewide effort sponsored by WSDOT, conducted in conjunction with the National Bicycle and Pedestrian Documentation Project. Six locations in Kirkland were included in the survey, which was performed by volunteers. This data should be replicated and improved upon in future years.

Site	date	Cyclists heading					Pedestrians heading				
		North	South	East	West	Total	North	South	East	West	Total
AM											
1	9/30	5	12	8	0	26	6	20	33	33	92
2	No Data										
3	9/30	2	7	0	0	12	0	1	0	0	1
4	10/1	0	0	10	8	22	0	0	17	14	31
5	9/30	0	0	11	7	23	0	0	20	4	24
6	10/2	0	0	8	4	18	0	0	5	17	22
PM											
1	10/2	7	4	0	2	14	26	14	9	21	70
2	10/2	36	21	0	0	59	58	55	0	0	113
3	No Data										
4	10/1	0	0	5	5	14	0	0	16	6	22
5	No Data										
6	10/2	1	5	3	5	20	6	3	5	9	23

Site 1 100th Avenue NE South of NE 132nd Street

Site 2 Market Street north of Central Way

Site 3 116th Avenue NE north of Kirkland/Bellevue city limit (south of NE 41st street)

Site 4 NE 70th Street west of 122nd Avenue NE

Site 5 NE 100th Street on pedestrian/bike bridge over I-405

Site 6 NE 116th Street west of 124th Avenue NE

AM count periods 7:00-9:00, PM count period 4:00-6:00. PM at Site 6, 5:30-6:30

Kirkland Design Guidelines

The drawing below illustrates many of the design Guidelines described in this appendix

- 1 Pedestrian plazas and places for vendors encouraged through several regulations.
- 2 Buildings on corner lots may be required to incorporate an architectural or pedestrian-oriented feature at the corner. Many options are possible including plazas, artwork, turrets, curved corners, etc.

Special architectural requirements placed on use of concrete block and metal siding.

- 3 "Architectural scale" requirements direct large buildings to fit more comfortably with neighboring development. This example employs building setbacks, decks, curved surfaces, and recessed entries to reduce appearance of building mass.

- 4 Parking garages on pedestrian-oriented streets or through-block sidewalks may incorporate pedestrian-oriented uses or pedestrian-oriented space into front facades.

Street trees required along certain streets.

- 5 Human scale features such as balconies or decks, bay windows, covered entries, gable or hipped rooflines, multiple paned windows, or pedestrian-oriented space may be required.
- 6 More flexible method of measuring building height on slopes.
- 7 New policies regarding tree protection and enhancement of wooded slopes. Standards for size, quantity, quality, and maintenance of landscape plant materials are set by the Zoning Code.

- 8 Standards for size, quantity, quality, and maintenance of landscape plant materials are set by the Zoning Code.

- 9 Standards are set for pathway width, pavement, lighting, and site features on required major pathways and public properties.

- 10 A building cornerstone or plaque may be required.

- 11 Covering up existing masonry or details with synthetic materials is restricted.

- 12 Ground story facades of buildings on pedestrian-oriented streets or adjacent to parks may be required to feature display windows, artwork, or pedestrian-oriented space.

- 13 Pedestrian weather protection required on pedestrian-oriented streets.

- 14 Architectural detail elements such as decorative or special windows, doors, railings, grillwork, lighting, trellises, pavements, materials, or artwork to add visual interest may be required.

Size of parking lots abutting pedestrian-oriented streets may be restricted.

- 15 Quantity and locations of driveways are regulated.

- 16 Visible service areas and loading docks must be screened.

- 17 Provision for pedestrian circulation is required in large parking lots.

- 18 Blank walls near streets or adjacent to through-block sidewalks must be treated with landscaping, artwork, or other treatment.

- 19 Screening of parking lots near streets is required.

- 20 Standards for curbs, signing, lighting, and equipment are set for parking lots.

- 21 Internal landscaping is required on large parking lots visible from the street, through-block sidewalk, or a park.

Locating parking lots in less visible areas is encouraged through several regulations.

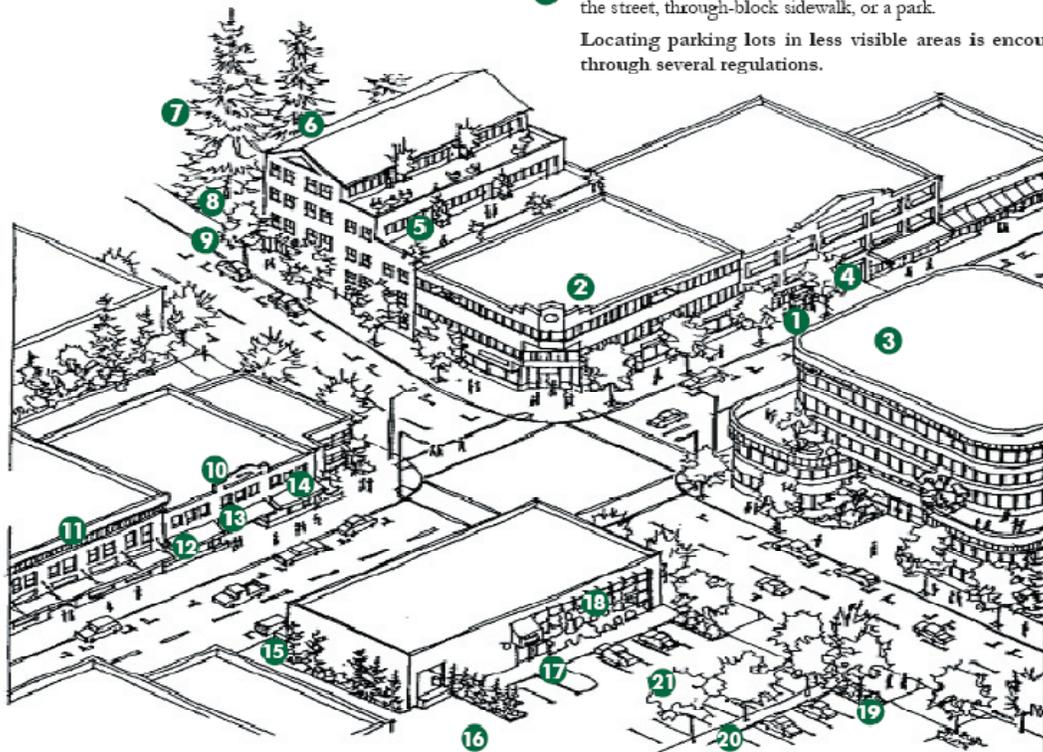


Figure 25 Page 2 of the Design Guidelines for Pedestrian oriented business districts

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION PLAN

The Washington State Department of Transportation recently completed an update to the state Bicycle Facilities and Pedestrian Walkways Plan. State law (RCW 47.06.100) calls for the Washington State Bicycle Facilities and Pedestrian Walkways Plan to include strategies for: - Improving connections, -Increasing coordination, and -Reducing traffic congestion. It also calls for an assessment of statewide bicycle and pedestrian transportation needs.

Because I-405 is the only route in Kirkland which is maintained by the State, the major impact of state projects in Kirkland is at interchanges with I-405. These interchanges are important because they are some of the most difficult locations for biking and walking in Kirkland. Funding for these projects is not driven by needs for pedestrian and bicycle facilities, but updated bicycle and pedestrian facilities are included when they are built. There is currently a funded plan to complete the reconstruction of the NE 116th interchange and to add a new interchange at NE 132nd Street. Both of these project will improve facilities for walking and biking in the vicinity of the interchange.

OTHER PROGRAMS AND POLICIES

Need write-ups for the following

POLICE DEPARTMENT PEDESTRIAN STINGS

7 HILLS OF KIRKLAND

WALK YOUR CHILD TO SCHOOL WEEK

PARTICIPATION IN BIKE TO WORK MONTH

PEDESTRIAN WAYFINDING ARROWS

ACTIVE LIVING TASK FORCE

SENIOR STEPPERS

CTR PROGRAMS

TRAFFIC CALMING AND BICYCLES

COMPLETE STREETS ORDINANCE

At the prompting of the Cascade Bicycle Club, the City of Kirkland enacted Washington’s first Complete Streets ordinance in September 2006. Council asked the Transportation Commission to develop and ordinance for their consideration and after a brief period of working with the bicycle club an ordinance satisfactory to all was

Section 19.08.055 of the Kirkland Municipal Code is Kirkland’s “complete streets” ordinance.

(1) Bicycle and pedestrian ways shall be accommodated in the planning, development and construction of transportation facilities, including the incorporation of such ways into transportation plans and programs.

(2) Notwithstanding that provision of subsection (1) of this section, bicycle and pedestrian ways are not required to be established:

(a) Where their establishment would be contrary to public safety;

(b) When the cost would be excessively disproportionate to the need or probable use;

(c) Where there is no identified need;

(d) Where the establishment would violate comprehensive plan policies; or

(e) In instances where a documented exception is granted by the public works director. (Ord. 4061 § 1, 2006)

proposed by the Commission and passed enthusiastically by council. Passage of the ordinance did not result in major changes in the way projects were designed and constructed because Kirkland has been using a complete streets approach for a number of years. However, codification of this commitment is helpful to see that facilities for all users is further institutionalized.

STAFFING

Staff Kirkland Walks Team

The Transportation Commission

INTERAGENCY PARTNERSHIPS

Working with Bellevue and Redmond, Bothell and King County

SECTION 5: NETWORKS AND PRIORITIZATION

PEDESTRIAN FACILITIES

EVALUATING LOCATIONS FOR NEW PROJECTS

As described in section 4, since 1998 the City of Kirkland has used the Transportation Project Evaluation criteria to prioritize projects for funding. This plan does not suggest immediate replacement of the criteria but it makes certain changes to the way that the City’s non-motorized plan interacts with the ranking system.

Comprehensive Plan Policy T-2.1:
Promote pedestrian and bicycle networks that safely access commercial areas, schools, transit routes, parks, and other destinations within Kirkland and connect to adjacent communities, regional destinations, and routes.

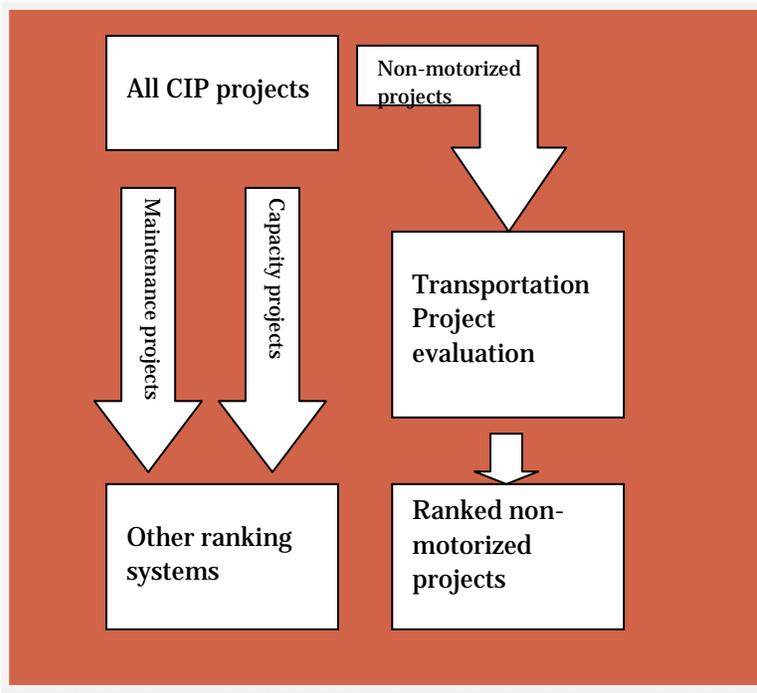


Figure 26 Different types of CIP projects have different ranking systems.

Previous plans contained networks of priority 1 and

priority 2 routes. This plan does not include priority routes. Instead, it evaluates each link in the system based on its existing facilities and its proximity to parks, commercial areas and bus routes. Sidewalks adjacent to busy streets and links that are on school walk routes (surrogate measures for safety) get higher priority. This weighting reflects the responses to the pedestrian survey; suggesting a high priority for safety and most users. Errands, exercise and transit are typical uses for those who answered the survey.

In order to combine the factors in the paragraph above into a ranking system the city was divided into a grid of 25’ squares. Then, points were assigned to each square based on how near various features were. Each square was assigned points based on the number and proximity of features attractive to pedestrians as shown in the tables below.

Table 6 Pedestrian access score: Parks and Commercial areas

Feature	Points
Developed Park or Commercial area	1 point for each feature within 1/4 mile, 1.25 points for each feature within 1/8 mile.

Table 7 Pedestrian access score: Bus Routes

Type of route and frequency	Points for each route based on distance from route	
	Within 1/4 mile	Within 1/8 mile
Peak hour only	0.50	0.63
Daily, less than every 30 min.	0.75	0.94
Daily, every 30 min.	1.00	1.25
Daily more than every 30 min.	1.25	1.56

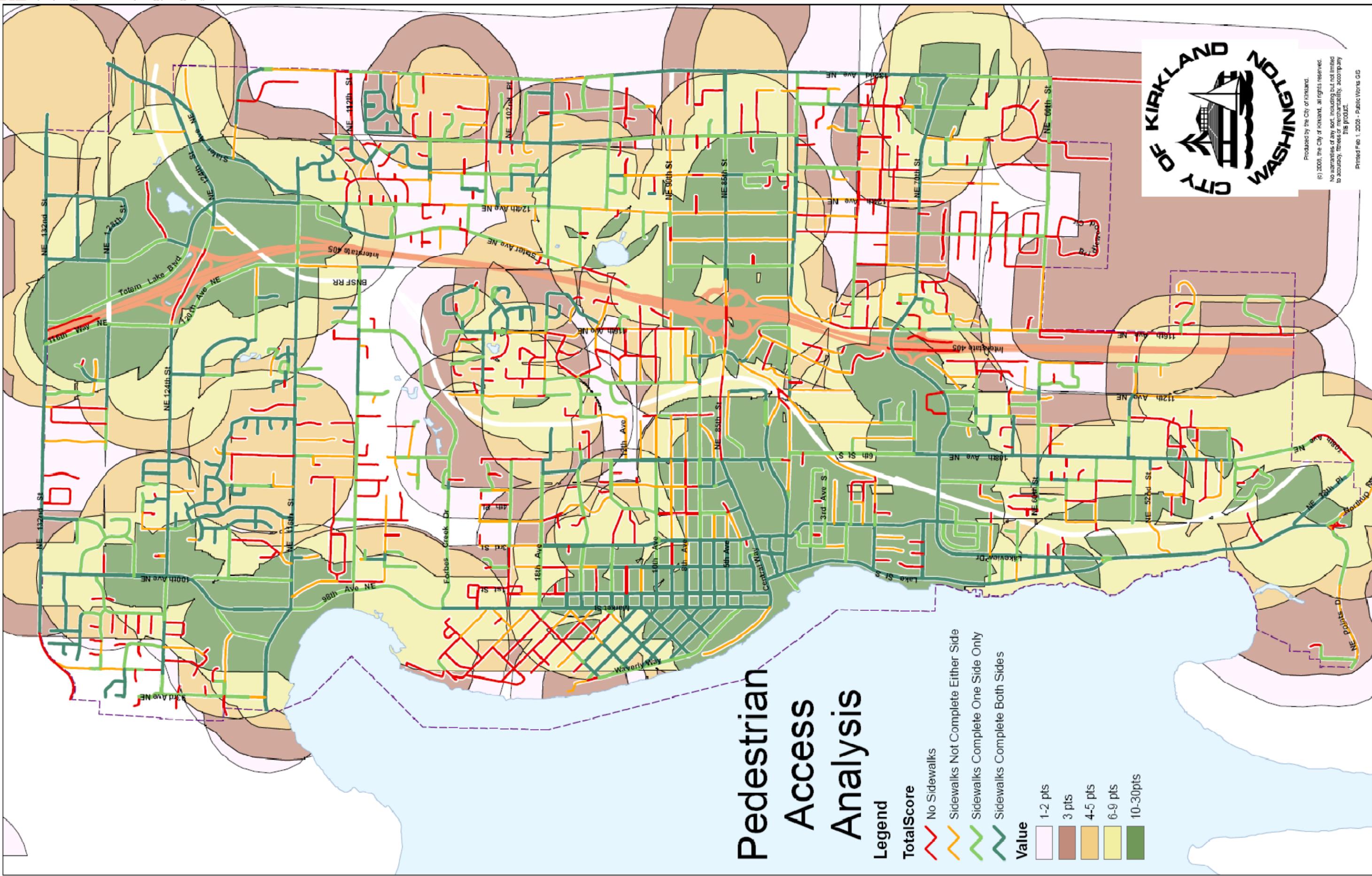
Once scored, the results were adjusted so that each feature had about the same effect on the overall score⁵, and then the results were mapped as shown in the background of Figure 1 below. Green areas have the highest score, white areas have the lowest score. Higher scores mean the area has a higher density of destinations that should be easy to get to by walking.

The next step was to add the school walk route, main street and completion factors. Each link in the roadway system was given a score based on the pedestrian access ranking described above⁶. Points were added if the link was an arterial or collector and points were added if it was on a school walk route. Points were also added depending on how complete the sidewalks were. Links that had complete sidewalks on both sides were not considered. Table 8 describes how the points were assigned:

Describe how links are determined

⁵ For example, considering all the squares in the city, the range of bus route scores is about 0-20 while the range of scores for parks is only 0-5. Therefore, before the adjusting, bus routes would have about 4 times the value of parks. To correct this, the park score could be multiplied by 4 before being added to the bus score. This is the type of adjustment that was done to make all three factors; parks, buses and commercial areas roughly equal in weight.

⁶ Each link passes through multiple 25' grid squares. The value of the highest scoring grid square was assigned to the link.



Pedestrian Access Analysis

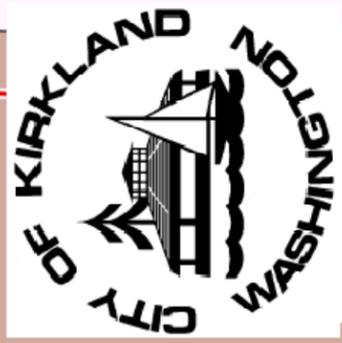
Legend

TotalScore

-  No Sidewalks
-  Sidewalks Not Complete Either Side
-  Sidewalks Complete One Side Only
-  Sidewalks Complete Both Sides

Value

-  1-2 pts
-  3 pts
-  4-5 pts
-  6-9 pts
-  10-30pts



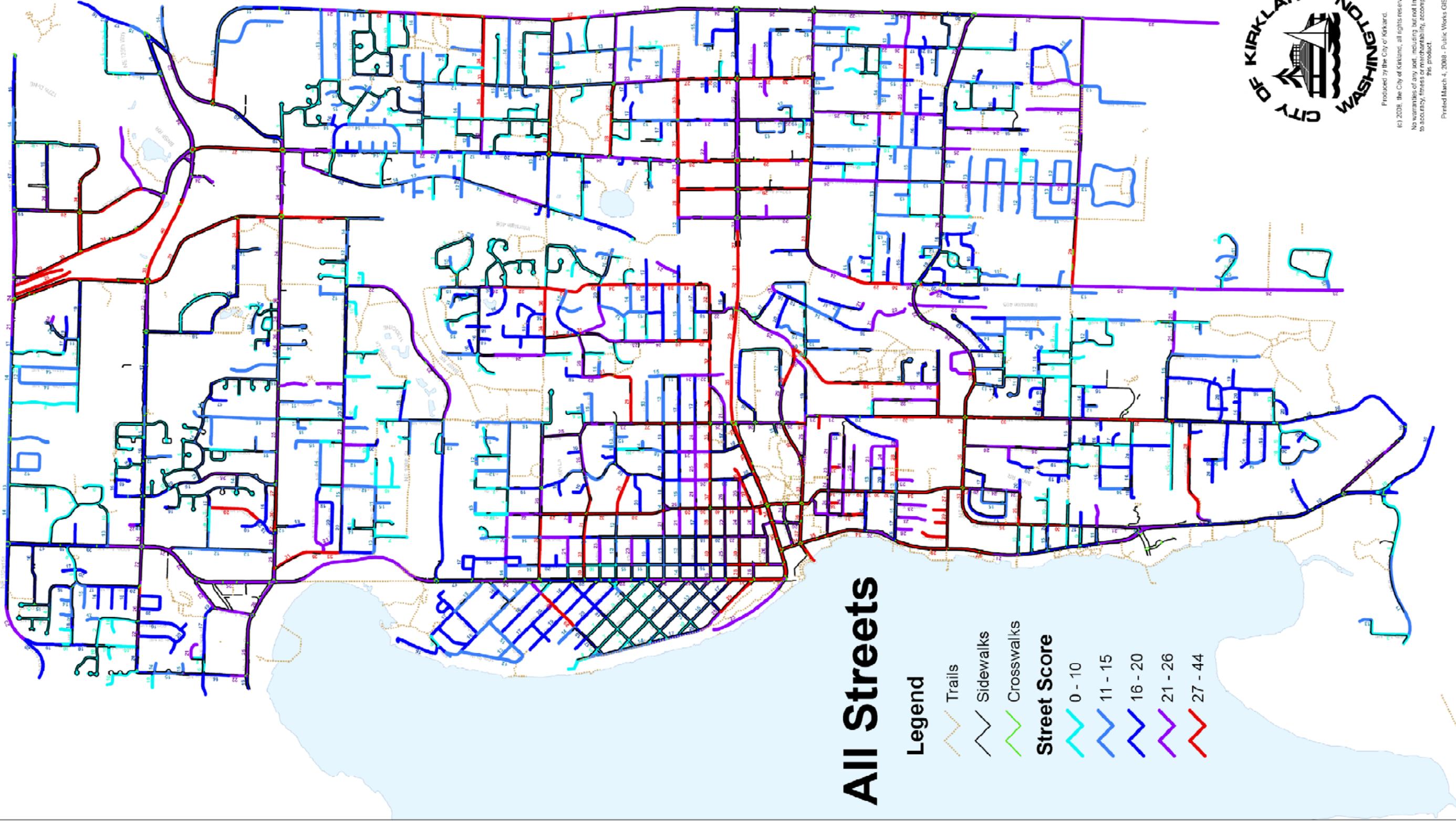
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Map 9 Basic pedestrian access score**Table 8 Points assigned for school walk routes and sidewalk completion**

<i>Feature</i>		<i>Points added to the pedestrian access score</i>
<i>Collector or Arterial Street or School walk route</i>		If yes add 10 points
Completeness	Some sidewalk but neither side complete	10 points
	No sidewalk either side	6 points
	Sidewalk complete on one side.	0 points

Again, points were assigned so that the base pedestrian access score, the arterial score, the school walk route score and the completeness score had roughly similar impacts on the total link scores. This resulted in a map where each segment (without complete sidewalks on both sides) had a score.



All Streets

Legend

-  Trails
-  Sidewalks
-  Crosswalks

Street Score

-  0 - 10
-  11 - 15
-  16 - 20
-  21 - 26
-  27 - 44



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Map 10 Street scores

A major update to the transportation project evaluation process is not being proposed at this time. This is because 1) it would require a whole public process of its own, 2) it should be done in the context of preparation of the CIP 3) the existing system has been accepted and is working well. It is a recommendation of the plan that the evaluation process be reviewed in the future simply because it was developed over 10 years ago and some of the content needs updating. Because the transportation evaluation process system uses presence on a priority route as an input, and because this plan does not specify priority routes, a substitute for measure is required. The pedestrian accessibility score is the substitute value for the priority route. While the priority routes gave a yes or no answer; a project was on a route or it was not, the accessibility score allows a spectrum of values. Table x relates the accessibility score to the percentage of possible points to be awarded from the Transportation project evaluation process. The conversion table was developed by looking at the percentile values for the accessibility scores for the population of links where sidewalk was not present on at least one side.

Table 9 Conversion factors for Transportation Project Evaluation Process

<i>Accessibility score</i>		<i>% of points</i>
<i>At least</i>	<i>but less than</i>	
-	9	0
9	11	10
11	12	20
12	13.5	30
13.5	15	40
15	16	50
16	17	60
17	19	70
19	22	80
22	27	90
27	-	100

PEDESTRIAN PROJECTS

Using the pedestrian access score, this plan suggests several projects for evaluation for funding in future CIP plans. These projects were developed by looking at high scoring individual links and combining adjacent links that had high walking accessibility scores. Links with a walking accessibility score greater than 25 were selected because they represented a small group of the highest scoring links. Links from this group that were adjacent were combined into separate groups.

Groups with a length greater than 1000' became candidate projects. Groups and individual links less than 1000' long were included if they were on collector or arterial streets.

Group	Name	From	To	Description	wt ave score	Comment/Next Steps All these projects add sidewalk unless otherwise noted
1	Railroad	North end of 8th Street	Kirkland Way	Sidewalk west side	28.35	Add sidewalk west side
2	122 Avenue NE	NE 85th Street	NE 90th Street		29.00	
3	NE 90th	120th Avenue	128th Avenue	12300 block is completed, east of 124th existing sidewalk is on the south side, west of 124th on the north side.	31.33	12300 block is completed, east of 124th existing sidewalk is on the south side, west of 124th on the north side. Also unfunded CIP NM-0026
4	NE 85th	6th Street	120th Avenue		31.71	Not for further consideration at this time. Requires rebuild of NE 85th Street/I-405 interchange and bridge over BNSF
5	NE 73rd	126th Avenue	130th Avenue	Funded	26.00	Funded CIP project under construction
6	NE 60th	116th Avenue	Existing walkway	Existing sidewalk is on the north side	29.00	Existing sidewalk is on the north side Possible King County transfer station project for path or maybe sidewalk
7	NE 52nd	102nd Lane	west of RR	Existing path on complete segment	28.00	Similar to NM-0007, existing complete path.
8	NE 124th@I405	116th Avenue	West bound to northbound on ramp	Small walkway funded via WSDOT project	38.60	Small walkway on north side funded through WSDOT nickel project construction planned for 2010

Group	Name	From	To	Description	wt ave score	Comment/Next Steps All these projects add sidewalk unless otherwise noted
9	NE 104th	126th Avenue	132nd Avenue	Some sidewalk exists on N. side	32.50	Some sidewalk exists on north side. Similar to unfunded CIP NM-0061
10	Kirkland Way	2nd Avenue	South east of Ohde Ave	Some sidewalk on southwest side	26.75	Some sidewalk existing on southwest side. Similar to unfunded CIP TR-0067
11	NE 100th	112th Avenue	116th Avenue	Funded	35.06	Funded NM-0034 construction ???
12	6th St. W	Market Street	13th Avnue W	no existing sidewalk	28.72	
13	126th Ave SRH	Ne 70th Street	NE 73rd Street	Most existing sidewalk is on the east side	26.27	
14	124th Ave	NE 90th Street	NE 95th Street		25.22	
15	122nd Ave	NE 80th Street	NE 85th Street		29.00	
16	120th Ave SJ	North of NE 112th Street	South of NE 116th Street		30.00	
17	116th Ave BTrl	City limits	NE 60th Street	Also a bicycle project	25.60	Also a bicycle project. Design is funded. CIP project NM-0001
18	116th Ave Hilnd	North of 7th Avenue	NE 94th Street	Paved path planned	36.54	paved path planned connects to # 29
19	116th Ave SRH	North of NE 70th Street	South of NE 80th Street		26.59	
20	12th Avenue	6th Street	110th Avenue NE		29.82	Funded for construction in 2012
21	100th Ave SJ	NE 112th Street	NE 116th Street		31.00	Funded through grant and neighborhood connection construction 2009
22	112th Hilnd	7th Avenue	About NE 88th Street		35.00	Existing conditions are paved path

Group	Name	From	To	Description	wt ave score	Comment/Next Steps All these projects add sidewalk unless otherwise noted
23	132nd Ave	Various	Various	small segments. Some don't score above 25	24.46	Small segments that together connect 132nd Ave. Some are low scoring
24	6th St turnoff	Kirkland Ave	6th Street		26.00	Short piece in 6th Street "S" curves
25	97th Ave	Juanita Drive	NE 119th Way		35.00	When last piece of Juanita Village project is complete sidewalk will be built on the east side. That may begin construction next year
26	NE 118th St.	118th Avenue NE	120th Avenue NE		34.00	In non-residential area
27	NE 120th	Slater Ave	Technical college property		28.00	Difficult project due to steep slopes
28	124th Ave	NE 80th Street	NE 85th Street	sidewalk		Funded project - Rose hill Business district Sidewalks Construction 2010
29	116th Avenue highlands	NE 94th Street	Existing sidewalk N of NE 100th			Funded project NM-0044 Construction 2009

Selected Sidewalk Projects

Legend

BNSF Crossing Type

- ◆ At Grade
- ▲ Over Street
- ▼ Under Street

Existing Trails

Existing Sidewalks

Sidewalk Projects

Street Score

21-26

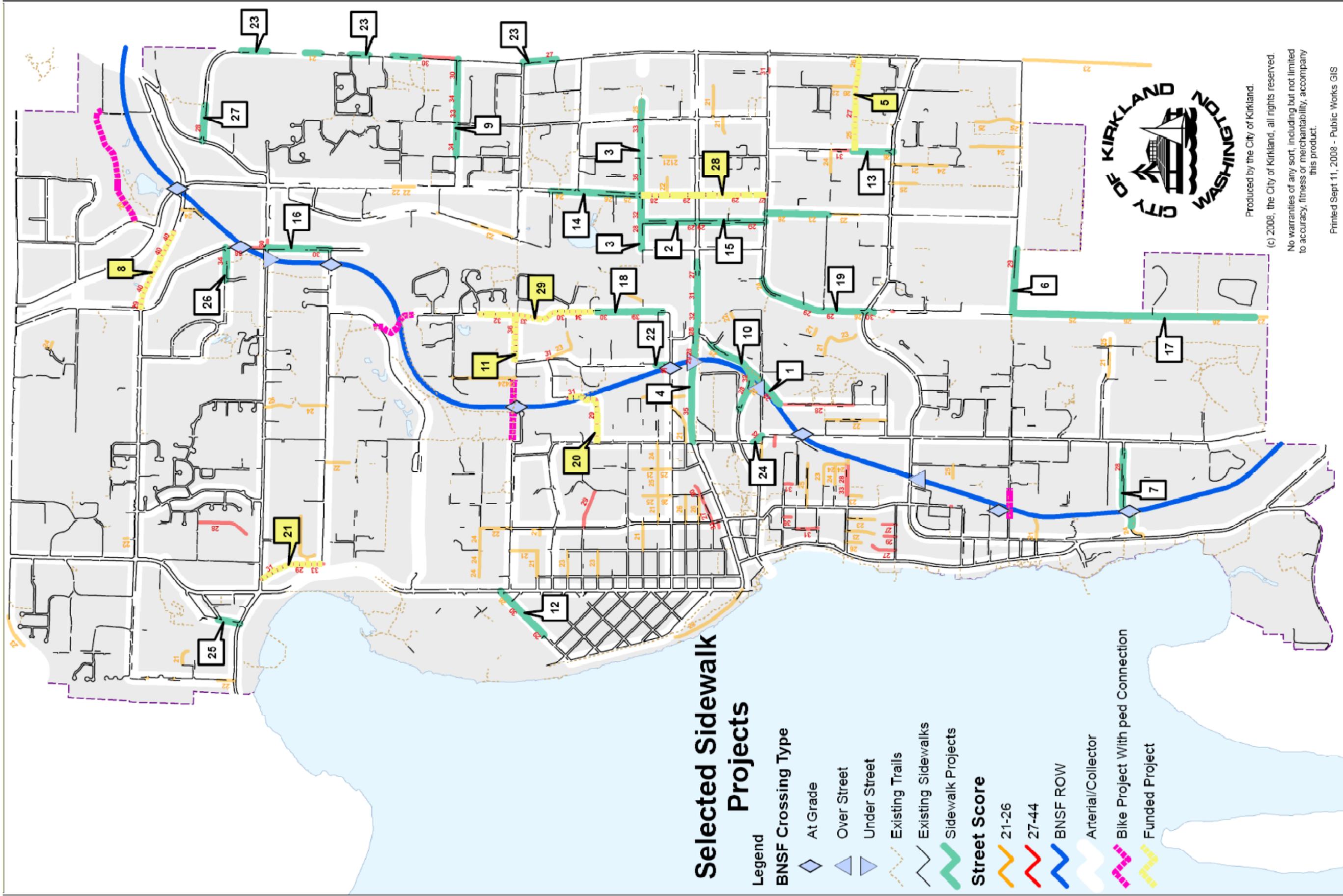
27-44

BNSF ROW

Arterial/Collector

Bike Project With ped Connection

Funded Project



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FACILITIES FOR CYCLISTS

DEFINING A NETWORK

This plan is formulated on the idea that a basic bicycle network will be established followed by an evaluation of places that need improvement and prioritization of the projects that are necessary to make those improvements.

The first step is to determine a bicycle facility network that will guide where investments are made in the medium term (0-10 years). All streets must have appropriate accommodation for cyclists, but not necessarily bicycle lanes. Most of the miles of streets in are low volume and do not need special facilities to safely carry cyclists. The bicycle network described here is limited to collectors and arterials that have volumes over 3000 ADT.

Respondents to the bicycle survey indicated that cyclists are interested in regional destinations/relatively longer routes. Therefore, a starting point for developing a bicycle network is to start with the endpoints of Kirkland roads and identify the places they lead to. This is shown in the table below. The routes in the right hand side of the table should be on the bicycle network.

<i>Connecting Route leaving Kirkland</i>	<i>Route destinations</i>
Juanita Drive	Kenmore/B. G. Trail
124th Ave NE, BNSF row	Woodinville
Lake Washington Blvd	Bellevue
100th Ave NE	Bothell/Samm Rvr Trail
NE 132nd St, NE 124th St.	Sammamish River Trail
116th Ave. NE	Bellevue SR 520 Trail
108th Ave NE,	Bellevue
132nd Ave NE Sbnd	Overlake/Bellevue/520 Trail
132nd Ave NE Nbnd	Woodinville
NE 100th Ave (via Willows Rd), NE 80th St. (via 140th Ave NE) NE 70th St.	Redmond
BNSF right of way	Woodinville/Bellevue

Table 10 Regional destinations that connect to streets in Kirkland

Some streets were specifically described as important by the survey respondents. These routes should also be on the bicycle network.

- LW Blvd/Lake St/Central Way/Market Street/Juanita Drive from S. city limits to west city limits.
- 100th Ave NE between NE 124th and NE 132nd St.
- NE 68th St/NE 70th St between west of the BNSF and 132nd Ave. This suggests adding Lakeview Dr. between NE 68th St. and Lake Washington Blvd. along with State Street between NE 68th St. and Central Way. Adding these last two pieces connects 68th/70th to something on the west end.
- 116th Avenue NE between S. Kirkland City limit and NE 80th St. This suggests adding another connection all the way to Totem Lake via 124th Ave. NE/Totem Lake Blvd./120th Ave NE. Adding 122nd NE between NE 80th and NE 60th Streets completes that N/S corridor.

- 108th Avenue/6th Street between S. city limits and Central Way

Kirkland has a existing bicycle facilities on an number of streets and those streets that must also be on the network

- 132nd Ave NE/NE 120th St. between south City Limits and Slater Ave.
- NE 132nd Street between east city limits and west city limits
- NE 80th St./I-405 overpass and portions of Kirkland Ave/Kirkland Way between 132nd Ave NE and Downtown
- NE 116th Street between 100th Ave NE and Slater Ave.
- NE 100th Street NE/18th Ave between 132nd Ave NE and Market St.
- 108th Avenue NE/6th Street from south city limits to Kirkland Way

The Eastside Rail Corridor and will eventually form the centerpiece of the off-street bicycle and pedestrian network in Kirkland.

- ERC right-of-way
- NE 60th St between 132nd Ave NE and Lake Washington Blvd
- 7th Ave, 6th St., between ERC and Central Way
- NE 112th St/Forbes Creek Dr. between ERC and Market St.
- 120th Ave NE/116th Ave NE between NE 112th St. and NE 132nd St. this suggests including NE 128th St between 116th Ave NE and 120th Ave NE.

Combining all the segments noted above result in the network shown on Map 9. In some cases the same segment has multiple projects. Usually this is the case when there is a simple project such as restriping and a more complicated and comprehensive project such as widening to provide bike lanes.

Map 11 Bicycle network

LOCATIONS THAT NEED IMPROVEMENT

Once the network was identified, the next step was to identify areas on the network that need improvements. In large part, this was done using information from the bicycle survey and public comment along with staff and Transportation Commission comments.

- Cross-Kirkland trail on the Eastside Rail Corridor right-of-way. Closer than ever but still unclear when a complete, fully functioning trail would be established
- 98th Ave NE /100th Ave NE between NE 116th and NE 132nd Sts. No bike facilities
- 116th Ave NE between NE 124th and NE 132nd Sts. Brand new but no bike facilities on street

NE 85th and NE 124th Streets

From a connectivity perspective, it would be ideal for both NE 85th and NE 124th Street to be part of the bicycle network. Although both were carefully considered for inclusion, neither NE 124 nor NE 85th Streets are part of the bicycle network. Reasons for this include:

- Auto volume of 30,000-40,000 vehicles per day with speed limits of 35 MPH combine to make both streets uncomfortable for most cyclists.
- Bicycle lanes cannot be placed through restriping, and given the speed and volume of auto traffic such lanes alone would be unlikely to make either street feel comfortable for cyclists.
- Interchanges at I-405 are barriers on both routes.
- There are no plans to develop NE 85th as a bicycle route in Redmond.
- NE 80th Street provides a reasonably close parallel route to NE 85th Street.

As a part of the 2008 resurfacing program, 10' wide inside travel lanes were striped on a section of NE 124th Street between NE 116th Avenue and about 108th Avenue. If this restriping is successful as judged by comments from the public and accident experience, other sections of both streets may be restriped to allow wider outside lanes. Wider outside lanes will provide some support to the experienced riders that tend to use both facilities.

- Connection across Cross-Kirkland trail between 18th Ave and NE 100th St. currently a dirt trail. This will come into play after trail is developed
- Kirkland Way between Railroad Avenue and 6th Street.
- NE 60th St. across Cross-Kirkland trail. Needed when the trail is completed
- 116th Ave NE between S. city limits and NE 70th St. Needs bike lanes to match Bellevue
- NE 70th St at I-405 interchange hard for bikes and cars to interact here
- Lake St. between 2nd Street S. and Central Way
- 6th St. S. between Kirkland Way and Central Way
- Central Way between Market St. and 6th Street
- Various signalized intersections where lanes are dropped such as: 98th Ave./NE 116th St, State St/NE 68th, Central/3rd, Central/6th

POTENTIAL PROJECTS

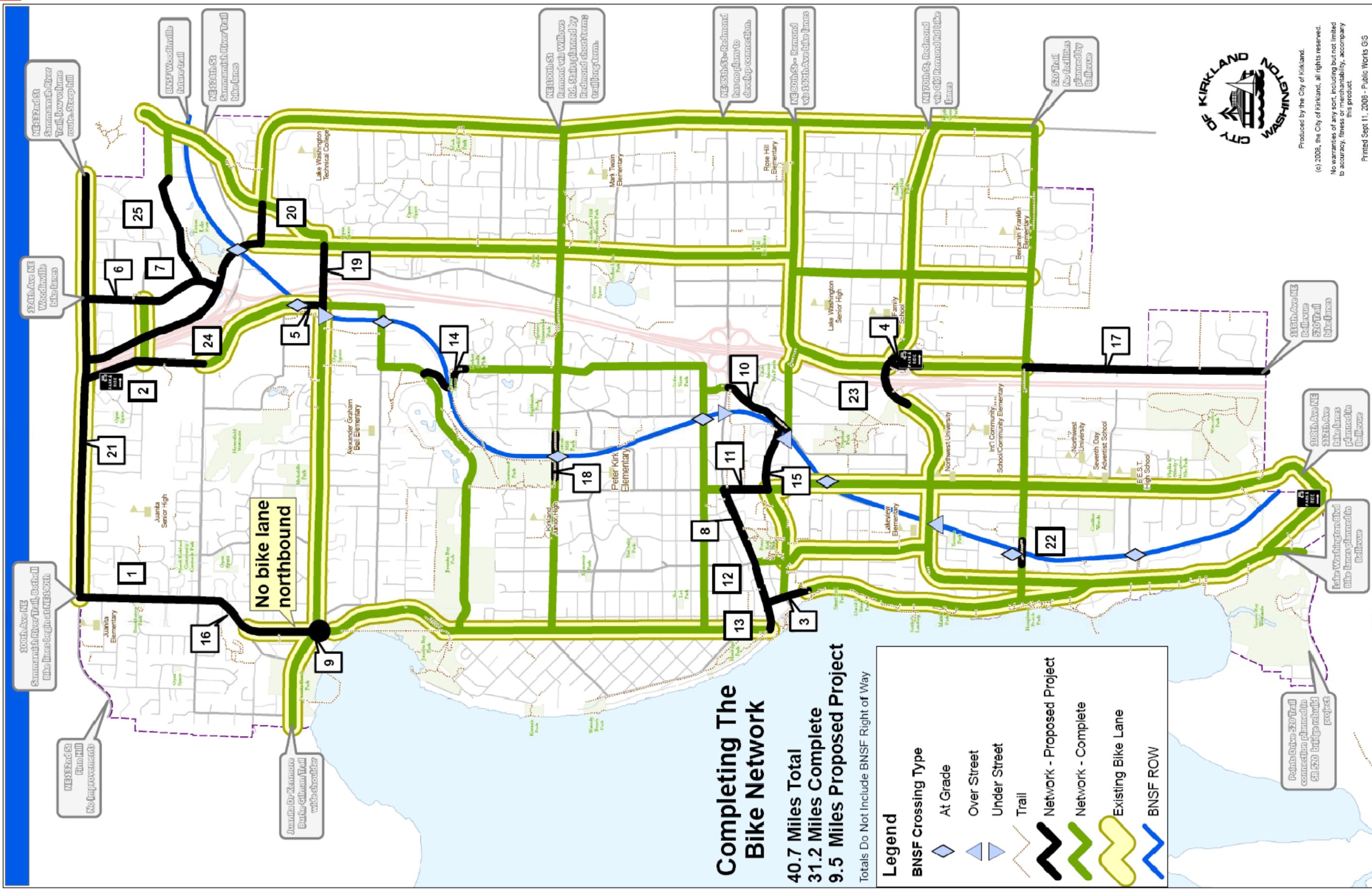
After defining the bicycle network and areas where improvements are needed, treatments for those areas were developed. These improvements are shown in Table 11 and on Map 10. In some cases, a segment has multiple treatments. For example one project might simply restripe wider outside lanes on a segment of roadway while another reconstructs that same section to provide enough width for full width bicycle lanes.

Table 11 Bicycle system improvements

Number	Street	From	to	project
1	100th Avenue NE	NE 124th Street	NE 132nd Street	Restripe to 5@10 + 2@5'
2	116th Ave/Way	NE 124th Street	NE 132nd Street	Restripe for NB climbing lane
3	116th Avenue NE	City limits	NE 60th Street	Construct bike lanes
3	Lake Street	2nd Street S	Central Way	Shared lane marking (sharrow)
4	116th Avenue NE	Houghton P&R S. entrance	NE 70th Street	Restripe bike lanes in both directions
5	120th Avenue NE	NE 116th Street	N. of BNSF	Complete Sbd lane
6	120th Avenue NE	NE 128th Street	NE 132nd Street	Add bike lanes
7	120th Avenue NE	Totem Lake Blvd	NE 128th Street	Add bike lanes
11	6th Street	Kirkland Avenue	Central Way	Add bike lanes
9	98th Avenue NE	Juanita Bay bridge	NE 116th Street	Widening/rebuilding Include a bike lane for NB left turn
9.1	98th Avenue NE	Juanita Bay bridge	NE 116th Street	Restripe for wider outside lanes can add some width, but need to be careful to keep left turn lane of adequate width.
10	Kirkland Way	Railroad Avenue	NE 85th Street	Widen for bike lanes
8	Central Way	4th Street	6th Street	Stripe wider outside lane
12	Central Way	Lake Street	4th Street	Eastbound; stripe bike lane Westbound; stripe wider outside lane
13	Central Way	Market Street	Lake Street	Shared lane marking (sharrow)
14	116th Avenue NE Highlands	North end of 116th Avenue	Forbes Creek Drive	Connect to and across BNSF right-of-way.
15	Kirkland Way	6th Street	Railroad Avenue	widen bins overpass is a major hindrance. This includes a piece of railroad aver
16	98th Avenue NE	NE 116th Street	NE 124th Street	Widening to include bike lanes.
16.1	98th Avenue NE	NE 116th Street	NE 124th Street	Restripe for wider outside lanes If project 1 completed, this could be sharrows especially Sbd between NE 124 and existing bike lanes at 120th PL

Table 11 continued

Number	Street	From	to	project
17	116th Avenue NE SRH/BT	City limits	NE 60th Street	Add bike lanes
18	NE 100th Street	6th Street	NE 100th Street	Construct trail to connect through park and across BNSF
19	NE 116th Street	120th Avenue NE	124th Avenue NE	Complete bike lanes
20	NE 120th Street	124th Ave NE	Slater Ave NE	Construct new road connection
21	NE 132nd Street	100th Avenue NE	132nd Avenue NE	Restripe for uniform width
22	NE 60th Street	BNSF	BNSF	Construct trail to connect
23	NE 70th Street	I-405 west ramps	116th Avenue NE	Rebuild interchange
24	Totem Lake Blvd	NE 124th Street	NE 132nd Street	Add bike lanes
24.1	Totem Lake Blvd	NE 124th Street	NE 132nd Street	Restripe
25	Totem Lake Way	east end	NE 126th Place	Construct trail to connect Totem Lake with 132nd Avenue



Completing The Bike Network

40.7 Miles Total
 31.2 Miles Complete
 9.5 Miles Proposed Project

Totals Do Not Include BNSF Right of Way

Legend

BNSF Crossing Type

- ◆ At Grade
- ◀ Over Street
- ▶ Under Street
- ⋈ Trail

Network - Proposed Project (thick black line)

Network - Complete (thick green line)

Existing Bike Lane (thick yellow line)

BNSF ROW (blue line)



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PRIORITIZATION

After projects have been identified, the next step is to prioritize those projects for completion. Because there are relatively few projects and because many of the projects can be accomplished through pavement marking, a complicated ranking system is not needed. Each project was given a qualitative ranking on each of six different factors:

- **Regional Value:** Is this improvement on a route that makes a regional connection?
- **Missing Segment:** Does this improvement allow adjacent complete segments to connect?
- **Survey ranking:** Did this improvement get much comment in the survey?
- **Safety Impact:** Does this improvement address a safety concern?
- **Cost:** What is the relative cost of the improvement?
- **Feasibility:** How feasible is this project's scope?

SUMMARY OF IMPROVEMENTS TO CYCLING FACILITIES

The projects described in the previous section fall into major two categories, those that can be accomplished by restriping and those that cannot. Within those that are not restriping projects, there are a set of projects associated with developing the Cross-Kirkland Trail on the Eastside Rail Corridor. The restriping projects tend to be lower cost, but in some cases do not provide the level of improvement that the far more expensive widening projects provide. The Cross-Kirkland trail projects will be most valuable as connections once the trail is completed.

Therefore, work should continue within the restriping program to complete the projects that require only restriping. Projects that are associated with the Cross-Kirkland trail should be pursued as a part of trail development. The remaining widening projects should be evaluated for funding from the CIP non-motorized construction budget

<i>Project number Decimals indicate options at same location</i>	<i>Street</i>	<i>From</i>	<i>To</i>	<i>Project</i>	<i>Regional Value</i>	<i>Missing segment</i>	<i>Survey More comments = higher score</i>	<i>Safety. Will this project help safety and how safe is the existing environment? Consider speed, volume, accident history</i>	<i>Cost: higher cost = fewer points</i>	<i>Feasibility striping =3, need r-o-w or expensive unfunded project = 1</i>	<i>TOTAL</i>	<i>Status/Notes/ Next steps In general, restriping projects depend on budget available. Some can likely be done in 2009.</i>
1	100th Avenue NE	NE 124th Street	NE 132nd Street	Restripe to 5@10 + 2@5'	3	3	3	3	3	3	18	Need coordination with KC Roads to go into KC and with PW grounds to narrow medians. If all goes well could restripe as soon as 2009.
13	Central Way	Market Street	Lake Street	Shared lane marking (sharrow)	3	3	3	3	3	3	18	Restriping as early as 2009, may be able to fit a bike lane in westbound
3	Lake Street	2nd Street S	Central Way	Shared lane marking (sharrow)	3	3	3	3	3	3	18	May also be able to extend bike lane farther north with restriping
16.1	98th Avenue NE	NE 116th Street	NE 124th Street	Restripe for wider outside lanes If project 1 completed, this could be sharrowes especially Sbnd between NE 124 and existing bike lanes at 120th PL	3	3	3	2	3	3	17	Lanes will only be slightly wider, restripe as early as 2009
17	116th Avenue NE SRH/BT	City limits	NE 60th Street	Add bike lanes	3	3	3	3	1	3	16	Design funded NM-0001
19	NE 116th Street	120th Avenue NE	124th Avenue NE	Complete bike lanes	3	3	2	2	3	3	16	Funded by WSDOT Kirkland nickel project for construction in 2010
4	116th Avenue NE	Houghton P&R S. entrance	NE 70th Street	Restripe bike lanes in both directions	3	2	3	3	2	2	15	Need WSDOT approval in the portion north of the south Park and Ride driveway We can do the part from the south driveway to 67th. Contact WSDOT to work on approvals.
9.1	98th Avenue NE	Juanita Bay bridge	NE 116th Street	Restripe for wider outside lanes can add some width, but need to be careful to keep left turn lane of adequate width.	2	2	3	2	3	3	15	Restriping can add some width, but minimal. Restripe as early as 2009
5	120th Avenue NE	NE 116th Street	N. of BNSF	Complete Sbnd lane	2	2	2	2	3	3	14	Could restripe as early as 2009

<i>Project number Decimals indicate options at same location</i>	<i>Street</i>	<i>From</i>	<i>To</i>	<i>Project</i>	<i>Regional Value</i>	<i>Missing segment</i>	<i>Survey More comments = higher score</i>	<i>Safety. Will this project help safety and how safe is the existing environment? Consider speed, volume, accident history</i>	<i>Cost: higher cost = fewer points</i>	<i>Feasibility striping =3, need r-o-w or expensive unfunded project = 1</i>	<i>TOTAL</i>	<i>Status/Notes/ Next steps In general, restriping projects depend on budget available. Some can likely be done in 2009.</i>
16	98th Avenue NE	NE 116th Street	NE 124th Street	Widening to include bike lanes.	3	3	3	3	1	1	14	Expensive, probably done in connection with redevelopment, need to scope and estimate project cost.
23	NE 70th Street	I-405 west ramps	116th Avenue NE	Rebuild interchange	3	3	3	3	1	1	14	unfunded WSDOT responsibility to rebuild interchange
3	116th Avenue NE	City limits	NE 60th Street	Construct bike lanes	3	2	3	2	1	2	13	Design funded NM-0001
12	Central Way	Lake Street	4th Street	Eastbound; stripe bike lane Westbound; stripe wider outside lane	1	1	3	2	3	3	13	Restripe as early as 2009
2	116th Ave/Way	NE 124th Street	NE 132nd Street	Restripe for NB climbing lane	1	2	1	3	3	2	12	Climbing lane is feasible, perhaps use shared lane markings on the downhill side. Could restripe as soon as 2009.
9	98th Avenue NE	Juanita Bay bridge	NE 116th Street	Widening/rebuilding Include a bike lane for NB left turn	2	2	3	2	1	2	12	Need to scope and estimate cost of a project
8	Central Way	4th Street	6th Street	Stripe wider outside lane	1	1	2	2	3	3	12	Parkplace could provide extra width for eastbound bike lane
18	NE 100th Street	6th Street	NE 100th Street	Construct trail to connect through park and across BNSF	3	3	2	1	1	2	12	Need to scope and estimate cost of a project
24.1	Totem Lake Blvd	NE 124th Street	NE 132nd Street	Restripe	2	1	1	2	3	3	12	Can't quite restripe for bike lanes to standard, but close. May have to settle for wide outside lanes. Consider climbing lane/shared lane marking combination.
21	NE 132nd Street	100th Avenue NE	132nd Avenue NE	Restripe for uniform width	2	1	1	2	3	2	11	Begin discussions with King County, possible restripe in 2009.
22	NE 60th Street	BNSF	BNSF	Construct trail to connect	2	3	1	1	2	2	11	About 100' of trail and rail crossing steep approach. Need to scope and estimate cost of a project.

<i>Project number Decimals indicate options at same location</i>	<i>Street</i>	<i>From</i>	<i>To</i>	<i>Project</i>	<i>Regional Value</i>	<i>Missing segment</i>	<i>Survey More comments = higher score</i>	<i>Safety. Will this project help safety and how safe is the existing environment? Consider speed, volume, accident history</i>	<i>Cost: higher cost = fewer points</i>	<i>Feasibility striping =3, need r-o-w or expensive unfunded project = 1</i>	<i>TOTAL</i>	<i>Status/Notes/ Next steps In general, restriping projects depend on budget available. Some can likely be done in 2009.</i>
6	120th Avenue NE	NE 128th Street	NE 132nd Street	Add bike lanes	1	1	1	2	3	2	10	Not in initial scope of CIP project, but probably can be added.
7	120th Avenue NE	Totem Lake Blvd	NE 128th Street	Add bike lanes	1	1	1	2	3	2	10	Not in initial scope of CIP project, but probably can be added.
15	Kirkland Way	6th Street	Railroad Avenue	widen bins overpass is a major hindrance. This includes a piece of railroad aver	2	2	2	2	1	1	10	From 6th to about 4th could be striped with bike lanes if parking was removed on one side. Investigate striping options. Also a pedestrian project.
20	NE 120th Street	124th Ave NE	Slater Ave NE	Construct new road connection	1	1	1	1	3	3	10	Funded CIP ST 0057 construction in 2012 project to construct new road with bike lanes
14	116th Avenue NE Highlands	North end of 116th Avenue	Forbes Creek Drive	Connect to and across BNSF right-of-way.	2	2	2	1	1	1	9	Scope and estimate cost of project, similar to connection at 111 Ave NE
11	6th Street	Kirkland Avenue	Central Way	Add bike lanes	2	2	1	1	1	2	9	Parkplace redevelopment would include bike lanes along west side.
10	Kirkland Way	Railroad Avenue	NE 85th Street	Widen for bike lanes	1	1	1	3	1	2	9	Scope and estimate cost of project
24	Totem Lake Blvd	NE 124th Street	NE 132nd Street	Add bike lanes	2	1	1	2	1	1	8	Scope and estimate cost of project
25	Totem Lake Way	east end	NE 126th Place	Construct trail to connect Totem Lake with 132nd Avenue	1	1	1	2	1	2	8	CIP project NM 0043 estimated cost \$4.3 million

CROSS KIRKLAND TRAIL

A multi use trail on the former Burlington Northern Santa Fe Railroad right-of-way is Kirkland's highest priority non-motorized transportation project. The right-of-way provides unprecedented opportunities for a number of reasons. Because it is designed for rail traffic it is practically flat. It cuts through the center of Kirkland on a diagonal, connecting Totem Lake, downtown and Houghton. Grade separation is already in place at I-405 and other key arterials but there is still adequate opportunity to connect to the street system through at-grade crossings. The trail can provide excellent regional connections to the north and south.

Efforts to develop the trail began in the mid 1990's but were stalled by the fact that the railroad was not willing to provide access to the right-of-way. As this plan is being prepared, the Port of Seattle is poised to obtain the right-of-way and sell a trail easement to King County. There are still questions about the future of passenger rail in the corridor and how some bridges will support a trail, but the promise of an outstanding trail is closer than ever to being realized.

NE 116TH STREET/JUANITA DRIVE/98TH AVENUE NE INTERSECTION

This intersection was one that was viewed a difficult by both pedestrians and cyclists who responded to the survey. It is heavily traveled by cyclists connecting between Juanita Drive and downtown Kirkland on the popular Lake Washington Loop route , it's in the center of the Juanita Business district and used to connect to both Juanita Bay Park and Juanita Beach Park. It is also heavily traveled by motorists. There was one pedestrian crash and no bicycle crashes in the period 2003 to 2007.

It is proposed that a Road Safety Audit (RSA) be conducted at this intersection. An RSA is a formal safety examination of an existing or future roadway that is conducted by a multidisciplinary (for example, traffic signal engineer, police officer, roadway designer, expert in disabled access, pedestrian safety expert, etc) team of people who don't work for the City and who were not involved with the development of the current configuration. The main objective of an RSA is to address the safe operation of roadways and crossings to ensure a high level of safety for all road users. RSAs are not intended to be a review of design standards or policies, but rather a review of site elements that, alone or combined, could contribute to safety concerns.⁷

⁷ Pedestrian Road Safety Audit Guidelines and Prompt lists. FHWA SA-07-007, USDOT FHWA July, 2007.

SECTION 6: PROGRAMMATIC ELEMENTS

PEDESTRIANS

ADA TRANSITION PLAN

Kirkland is steadily making walkways more accessible. Substandard facilities were identified in the 2004 sidewalk inventory and are gradually being replaced while new construction complies with current standards. Most cities have adopted ADA transition plans as required by Title II of the Americans with Disabilities Act. Title II mandates that public agencies such as the City of Kirkland operate each service with accessibility to those with disabilities.

Title II also dictates that a public entity must evaluate its facilities and public areas to determine whether or not they are in compliance with the nondiscrimination requirements of the ADA. The regulations detailing compliance requirements were issued in July 1991. The requirements include completing a self-evaluation to identify any areas not within compliance of the ADA standards. Next, a transition plan is to be prepared describing any necessary structural or physical changes needed to make all required areas accessible and compliant with ADA.

Although the City of Kirkland has conducted most of the steps necessary to complete a transition plan, a formal plan has not been completed. In order to comply with regulations such a plan should be prepared and adopted.

OBSTRUCTIONS

Despite the programs described in Section x, walkway obstructions due to brush, debris and recycling or waste containers are a common complaint among Kirkland's pedestrians. This Project would include some measure of the magnitude of the problem, review the processes that are in place to assure clear sidewalks and develop strategies to increase the amount of clear walkways.

Add paragraph here about construction zones

SAFETY AT INTERSECTIONS

Data shows that most pedestrian crashes happen at intersections. At signalized intersections, most accidents involve turning vehicles. Many of these crashes could be avoided if pedestrians looked more carefully for turning vehicles and if drivers were more aware of the presence of pedestrians. Increasing the prevalence of these behaviors is not likely to be accomplished through traditional engineering measures. Instead, campaigns directed at changing behavior are more appropriate. An example of this type of effort is the Take it to Make campaign that focused on getting pedestrians to use pedestrian flags. A similar program should be conducted to increase the number of pedestrians that look for turning vehicles. Emphasis should be placed on understanding why pedestrians don't look for turning vehicles and developing strategies to overcome those barriers. The Take it to Make it effort was grant funded and it is likely that a program of this type would also require grant funding.

CROSSWALK SAFETY REVIEW

All uncontrolled crosswalks were reviewed in 2003. This review is discussed in Section x. A ranking system that was new at the time was used to evaluate the risk of accidents at uncontrolled crosswalks. This evaluation was combined with actual accident data to develop a list of candidate improvements. Since 2003 two other evaluation criteria have been developed, the Pedestrian Intersection Safety Index⁸ and Guidelines for Pedestrian Crossing Treatments⁹

The intersection safety index is a method that allows a specific number reflecting the safety potential of any crossing at an intersection. The Guidelines for Pedestrian Crossing Treatments goes beyond the 2003 analysis to identify the type of treatment that is best suited for a particular crosswalk. Potential Treatments may range from a marked crosswalk only to a traffic signal.

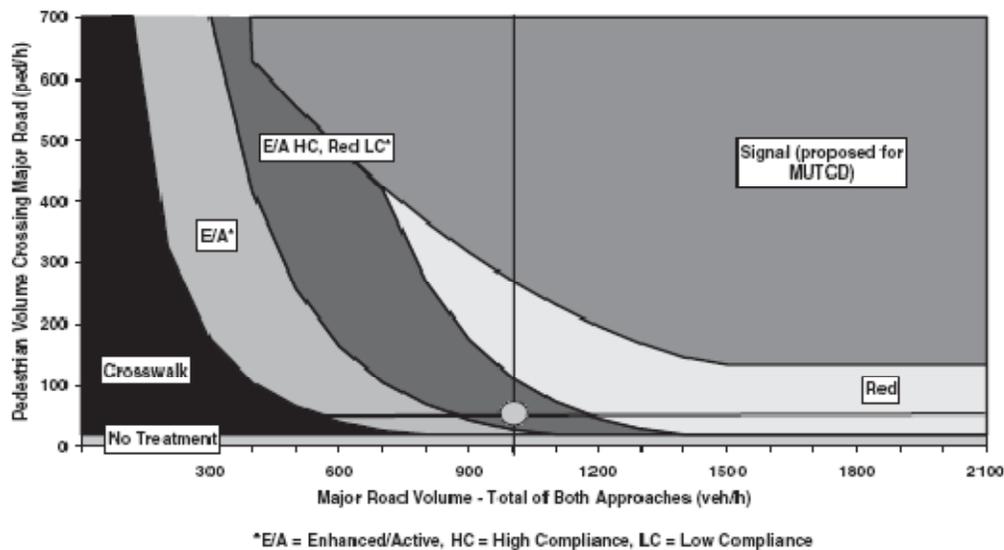


Figure 27 A sample chart from *Guidelines for Pedestrian Crossing Treatments* showing the relationship between street volume, pedestrian volume and treatment type.

BICYCLES

WAYFINDING SIGNS

Bicycle wayfinding signs are being installed by cities throughout the region. Wayfinding signs in Kirkland should be of the same style that is used by the City of Seattle, Bellevue and Redmond. There are two types of signs that will make up the signing system as shown in Figure X. On streets that are part of the bicycle network and on other streets that intersect with streets on the bicycle network, signs will be placed that show the distance and direction to key destinations. On regional routes or trails with designated names (like the Lake Washington Loop or the future Cross-Kirkland Trail) a second type of route specific sign will be used to identify the trail and on

⁸ Pedestrian and Bicyclist Intersection Safety Indices: User Guide, Publication No. FHWA-HRT-06-130, Federal Highway Administration, April 2007

⁹ National Cooperative Highway Research Project Report 562 Improving Pedestrian Safety at Unsignalized Crossings Transportation Research Board, 2006

other streets that intersect with the trail. On the order of 150 signs would be needed to sign the existing network. Each sign would cost approximately \$150 to manufacture and install for a total estimated project cost of \$22,500.



Figure 28 Two types of bicycle wayfinding signs used in other surrounding communities. The sign on the left is used at junctions on the bicycle network. The sign on the right is used on named routes, such as the Lake Washington Loop.

BICYCLE PARKING

Existing requirements for bicycle parking are discussed in section X. Based on the number of comments obtained in the bicycle survey and based on past comment received in the past, there is strong support for additional bicycle parking. Experts on bicycle parking agree that simple, inverted U shaped racks best meet the goals of effective bicycle parking; namely that the bicycle is supported in two places and that the racks are easy to use and secure. In Kirkland, these racks could be incorporated on wide sidewalks between street trees and street lights. Another option is to convert street space into areas for storing multiple racks. The following tasks should be completed to improve bicycle parking in Kirkland.

- Identify where bicycle parking should be added candidates include Downtown, Juanita, Totem Lake , and/or other commercial areas.
- Identify the amount of additional parking needed. This could be based on having parking available within a certain distance, on increasing the existing supply by a certain amount, on developing locations where parking can be easily located or on other factors
- Revise the zoning code to require bicycle parking as a part of right-of-way improvements
- Review existing zoning code requirements for
- Add specifications for bike rack design and installation to the Pre-Approved plans
- Create additional bicycle parking
- Explore requiring special events in Downtown to provide bicycle parking.

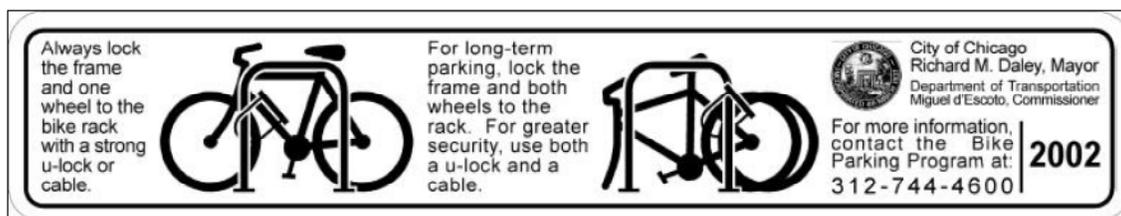
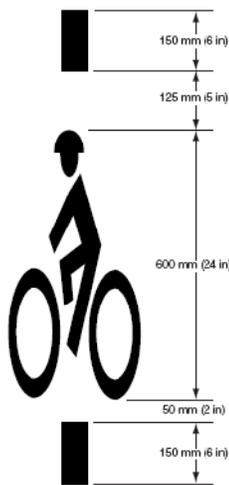


Figure 29 This sticker is on bicycle racks in the City of Chicago.

TRAFFIC SIGNALS



In Kirkland, most traffic signals are activated by loops buried in the pavement. The loops have an electric current passing through them making a circuit. When a vehicle passes over a loop the properties of the circuit change, the traffic signal equipment detects the change and the signal turns green for the direction where the vehicle is. Loops are most sensitive at their edges. Cars and trucks are large enough that they easily cover the loop and are therefore easy for the traffic signal equipment to detect them. Sometimes it's hard for bicyclists to get a signal to respond because they don't know where to stop in order to activate the loop.

In order to make it easier for cyclists to activate the signals, markings like the one shown in Figure xx will be placed to give cyclists a clear location of where to stop. About 275 markings will be needed and based on 2008 prices they will cost about

\$30 each for a total cost of \$8,250. This work could likely be accomplished through the City's pavement marking program.

STREET SWEEPING

Kirkland's existing sweeping program is described in Section X. During the survey period a number of respondents cited increased sweeping of bicycle lanes as a measure that would improve their bicycling experience. A main purpose of street sweeping is to keep debris from clogging the stormwater system. Therefore, it's important to sweep both minor and major streets frequently. Increasing the sweeping of bicycle lanes by decreasing sweeping of other streets is not realistic. In order to sweep bicycle lanes more often, more person-hours would have to be added to the sweeping program. Given budget constraints this is probably not realistic. The spot sweeping of bicycle lanes is relatively inexpensive because the sweeper is out almost every day and can make a pass on the way to or from another job.

Two ideas should be considered to reduce debris in the bicycle lanes. One is the wider promotion of the fact that cyclists can call to get spot sweeping done and the other is the reconsideration of spreading sand for snow and ice control.

SECTION 7: EQUESTRIAN SYSTEM

INTRODUCTION

EXISTING FACILITIES

PROPOSED FACILITIES

ACTION ITEMS

SECTION 8: IMPLEMENTATION

The following set of detailed goals are intended to guide and ensure implementation of the plan. In most cases, fairly specific outcomes and dates are set. In others, outcomes and dates are less specific because of the nature of the goal.

GENERAL

GOAL G1. OPEN A SECTION OF CROSS-KIRKLAND TRAIL ON THE EASTSIDE RAIL CORRIDOR

- A. Thoroughly understand the process which King County and Port of Seattle will use to develop the trail and proactively work to make Kirkland an area where the trail is first developed.
Timing: current through completion of plan for development of trail
- B. Pursue funding for connections to surface streets as shown in the bicycle facilities Map.
Timing: current through completion of funding

GOAL G2. ESTABLISH AN ANNUAL COUNT PROGRAM AT KEY LOCATIONS TO MEASURE BICYCLE AND PEDESTRIAN VOLUMES.

- A. Partner with WSDOT to continue the count program started in 2008. If the WSDOT program is not available, work with Cascade Bicycle Club to get volunteers to make counts at the 2008 locations.
Timing: By August 2009 for September/October counts
- B. Expand count locations to include crossings of I-405 and east-west screen lines¹⁰ at southern, central and northern locations.
Timing: Include all crossings of I-405 in fall 2009 counts, include one additional east-west screen line in subsequent years.

GOAL G3. CIP PROJECT PRIORITIZATION UPDATE

This is a placeholder for either a revision of existing process or a more major update

GOAL G4. IMPROVE SAFETY AT THE INTERSECTION OF JUANITA DRIVE/NE 116TH STREET/98TH AVENUE NE

- A. Conduct a Road Safety Audit at the intersection of NE 116th Street and 98th Avenue NE
Timing: Complete by December 2009

¹⁰ Screen lines are imaginary lines that “cut” across streets for counting purposes. An east-west screen line across the middle of Kirkland would include counts on all the major north/south streets at the same latitude. For example counts would be made at the 10000 block of 132nd, 124th, 116th Avenues along with the 1800 block of 6th Street, 3rd Street and Market Street.

- B. Compile the results of the audit, formulate recommendations for actions
Timing: Complete in time for development of 2010 CIP
- C. Complete actions/propose CIP projects as appropriate
Timing: Complete in time for 2010 CIP

GOAL G5. REPORT ANNUALLY TO THE TRANSPORTATION COMMISSION AND THE CITY COUNCIL ON PROGRESS TOWARD THESE GOALS

- A. Ensure that a report is on the Transportation Commission work plan each year
- B. Ensure that a report is on the agenda of joint meetings between the City Council and the Transportation Commission

GOAL G6. REDUCE RATES FOR CRASHES INVOLVING PEDESTRIANS AND CYCLISTS BY 10%.

Continue to monitor crash data and combine with count data. This goal requires completion of General goal 2.

Timing: Annual

PEDESTRIAN RELATED GOALS

GOAL P1. PLACEHOLDER FOR ELEMENTARY SCHOOL WALK ROUTES COMPLETION

Need to establish a goal for completion of school walk routes

GOAL P2. PLACEHOLDER FOR COMPLETION OF SIDEWALK ON BOTH SIDES OF ARTERIALS

Need to establish a goal for completion of sidewalk on arterials

GOAL P3. REVIEW SAFETY AT UNCONTROLLED CROSSWALKS AND DEVELOP A PLAN FOR IMPLEMENTING RECOMMENDATIONS.

- A. Building on the 2003 review, conduct a review of crosswalks using the Guidelines for Pedestrian Crossing Treatments.
Timing: Complete by June 2010
- B. Develop recommendations for consideration by the Transportation Commission and the City Council.
Timing: Complete by December 2010

GOAL P4. IMPLEMENT PROGRAMS SPECIFICALLY TARGETED AT REDUCING PEDESTRIAN CRASHES AT SIGNALIZED INTERSECTIONS

- A. Investigate the Pedestrian Intersection Safety Index as a means for evaluating the safety of crossings at signalized intersections.
Timing: Complete by June 2010
- B. Develop recommendations for consideration by the Transportation Commission and the City Council.
Timing: Complete by December 2010
- C. Pursue funding opportunities for Social Marketing campaigns to increase the number of pedestrians that look for turning vehicles at signalized intersections.
Timing: Apply for grant applications as available

GOAL P5. PLACEHOLDER GOAL FOR IMPROVING PEDESTRIAN LIGHTING

Need to establish goal for improving lighting at a certain number of crosswalks

GOAL P6. CONTINUE TO MONITOR TAKE IT TO MAKE IT PEDESTRIAN FLAG USAGE

- A. Continue the measurement of Pedestrian Flag usage in downtown each March/April.
- B. Compare measurements to target goal of 40% usage by March/April 2010

GOAL P7. REDUCE THE NUMBER OF SIDEWALK OBSTRUCTIONS DUE TO BRUSH, DEBRIS AND WASTE/RECYCLING CONTAINERS.

- A. Develop a measure of the number of obstructions.
Timing: Complete by December 2009
- B. Examine the process through which obstructions are identified and cleared.
Timing: Complete by June 2010
- C. Prepare a set of improvements to that process including a specific goal for reduction in obstructions for consideration by the Transportation Commission.
Timing: Complete by December 2010

GOAL P8. DEVELOP AN ADA COMPLIANCE PLAN

Prepare a plan for consideration by the Transportation Commission and adoption by the City Council.

Timing: Complete by December 2010

GOAL P9. DEVELOP AN AUTUMN TIME CHANGE SAFETY PLAN FOR PEDESTRIANS

- A. Based on crash data, develop recommendations for a comprehensive plan to reduce the number of crashes during the month of November. The plan should focus on elements of engineering, enforcement and education.
Timing: Complete in time for November, 2009
- B. Measure the effect of the plan
Timing: Annually

CYCLIST RELATED

GOAL C1. PLAN AND INSTALL A BICYCLE WAYFINDING SYSTEM.

- A. Prepare a plan for wayfinding signage and priorities for its implementation.
Timing: Complete by December 2009
- B. Pursue opportunities for regional cooperation and grant funding.
Timing: Continuous
- C. Complete installation of 50% of the signage
Timing: Complete by December 2011
- D. Complete installation of 100% of the signage
Timing: Complete by December 2013

GOAL C2. DEVELOP STANDARDS FOR BICYCLE PARKING TO BE INCORPORATED IN THE PRE-APPROVED PLANS

- A. Modify the pre-approved plans to include a standard for bicycle racks and their installation.
Timing: Complete in time for the January 2010 revision of the pre-approved plans
- B. Change the Zoning Code to require bicycle parking as a part of standard right-of-way improvements.
Timing: Complete by December 2010

GOAL C3. PLACEHOLDER GOAL FOR AMOUNT OF NEW BICYCLE PARKING IN DOWNTOWN

Need to establish goal for the amount of new bicycle parking to be installed downtown.

GOAL C4. ADD PAVEMENT MARKINGS AT SIGNALIZED INTERSECTIONS TO INDICATE WHERE CYCLISTS SHOULD STOP IN ORDER TO ACTIVATE THE SIGNAL

- A. Identify final locations where markings are needed
Timing: Complete in time for the 2010 pavement marking contract
- B. Modify pre-approved plans to include markings as part of standard installations at traffic signals.
Timing: Complete in time for the January 2010 revision of the pre-approved plans
- C. Install 50% of markings
Timing: Complete by fall 2011
- D. Install 100% of markings
Timing: Complete by fall 2012

GOAL C5. USE RESTRIPIING WHERE POSSIBLE TO ADD BICYCLE LANES OR INCREASE SPACE AVAILABLE FOR CYCLISTS.

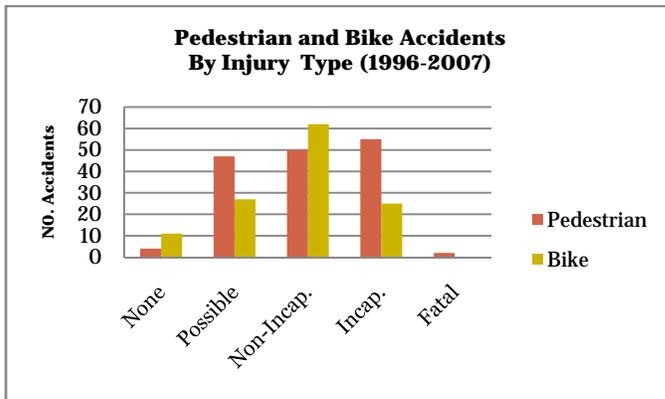
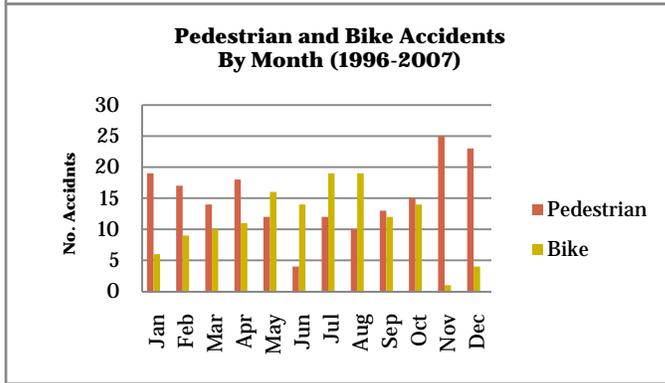
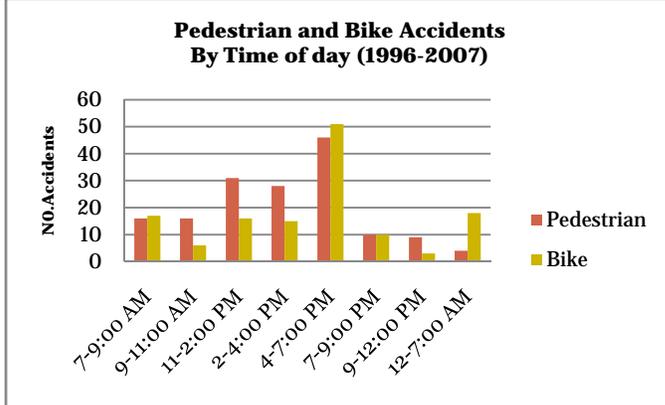
- A. Complete projects in Table XXX that can be accomplished through restriping
Timing: NEED TO COMPLETE THIS
- B. Consider changes to the Zoning Code and/or pre-approved plans to formalize use of 10' lanes on arterials.
Timing: Complete in time for the January 2011 revision of the pre-approved plans

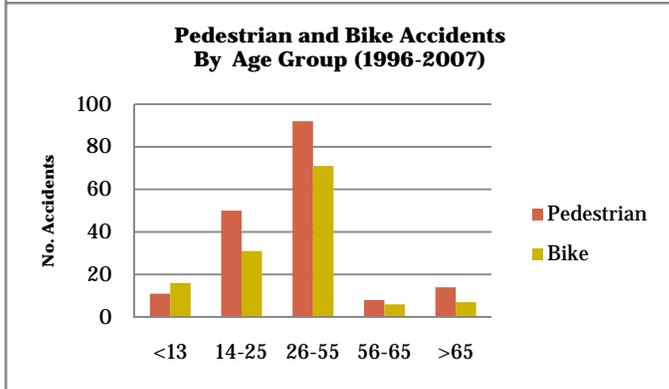
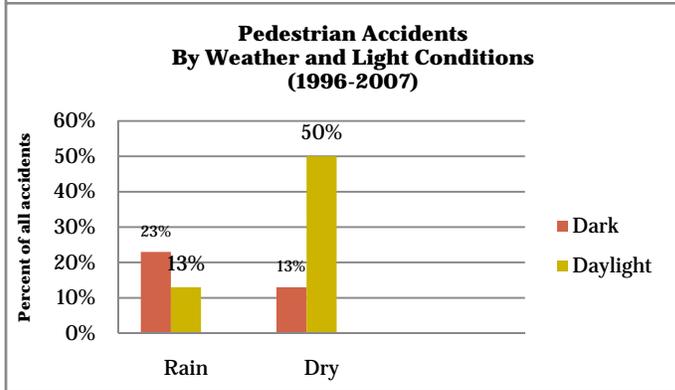
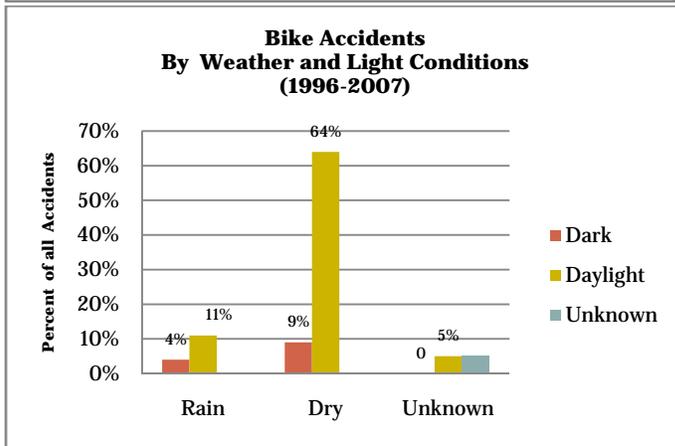
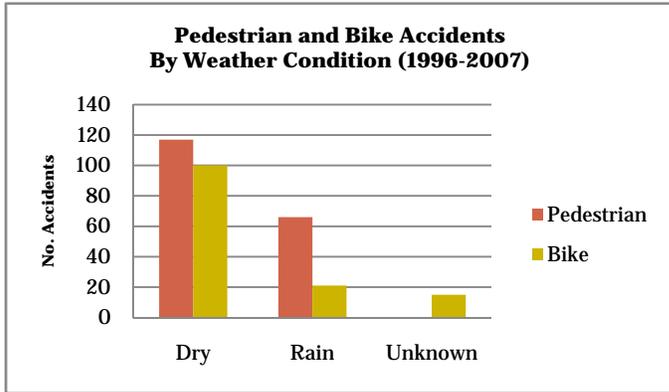
GOAL C6. REDUCE THE AMOUNT OF DEBRIS IN ON-STREET BICYCLE LANES.

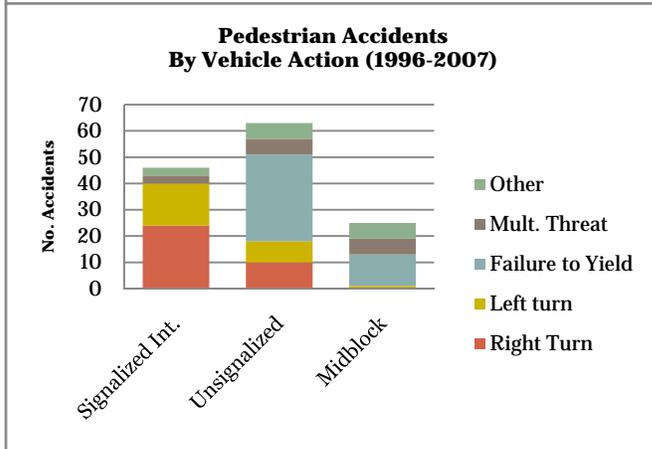
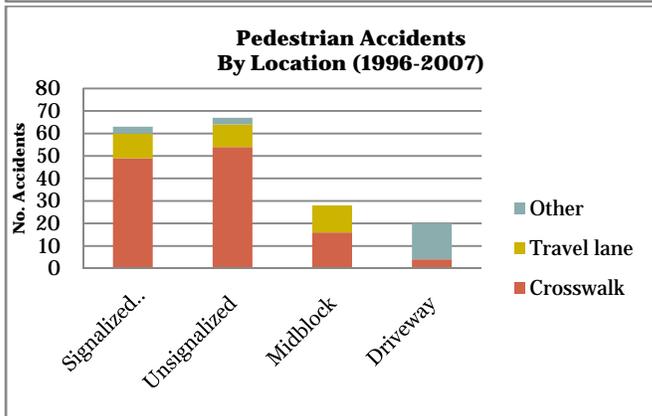
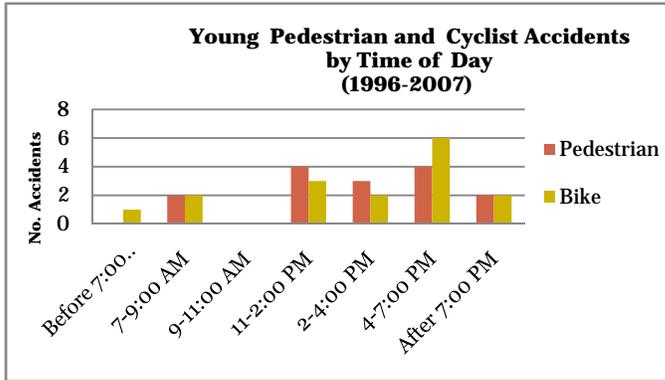
- A. Develop a measure for the amount of debris.
Timing: Complete by December 2009
- B. Review the sources of debris and their causes. Explore measures that can be used to reduce the amount of debris from these causes. Review best practices from other agencies.
Timing: Complete by June 2010
- C. Prepare a set of recommendations including a specific goal for reduction of debris for consideration by the Transportation Commission.
Timing: Complete by December 2010
- D. Measure progress toward the goal and report on progress.
Timing: Annually

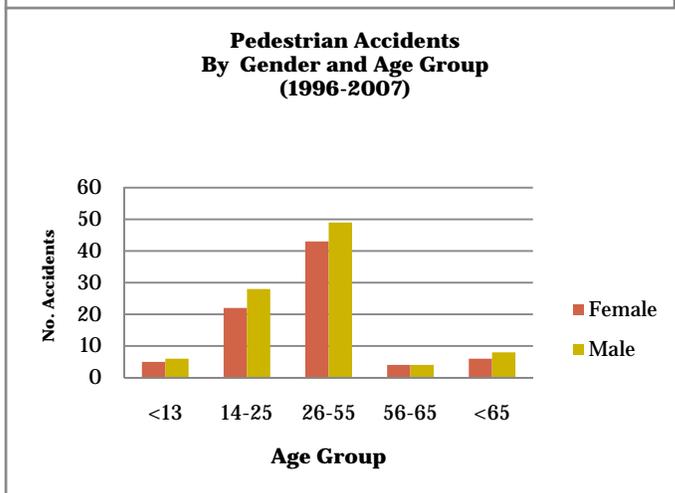
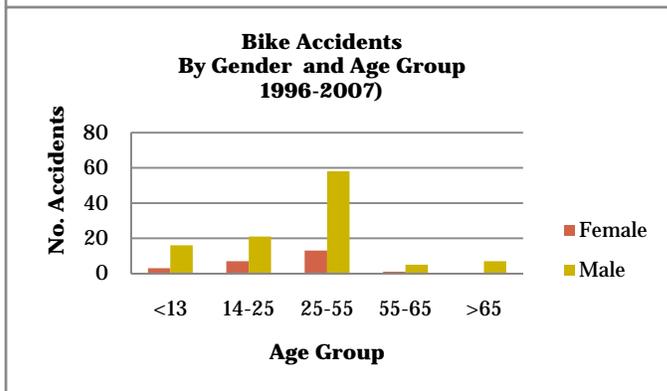
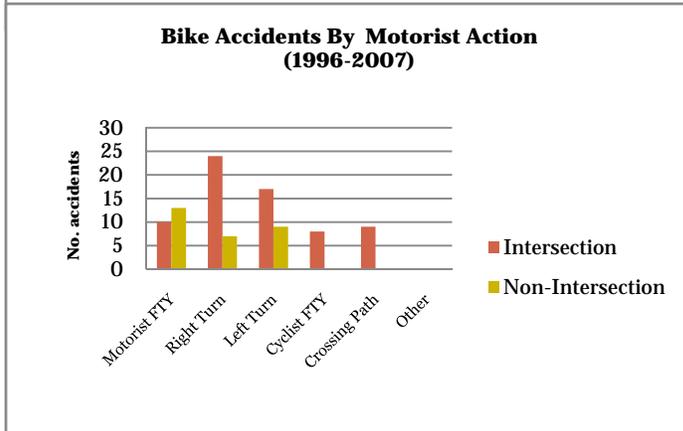
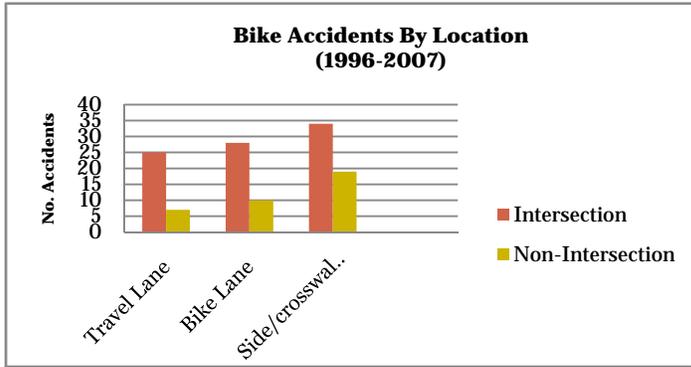
APPENDIX A ON-LINE SURVEY

APPENDIX B SAFETY









APPENDIX C CROSSWALK EVALUATION