



CITY OF KIRKLAND

Department of Public Works

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www.kirkland.wa.gov

MEMORANDUM

To: Kurt Triplett, City Manager

From: David Snider, P.E., Capital Projects Manager
Ray Steiger, P.E., Public Works Director

Date: September 6, 2012

Subject: Annual Sidewalk Maintenance Program

RECOMMENDATION:

It is recommended that City Council receive the following overview of the City's Annual Sidewalk Maintenance Program.

BACKGROUND DISCUSSION:

At their meeting of August 7, 2012, City Council heard from residents and the Property Manager for the 5th Street Condominiums located at the intersection of 5th Street and 6th Avenue. The information presented dealt with the condition of the concrete sidewalk adjacent to their condominium property and referenced their objections to the recent maintenance performed by City crews.

The speakers requested that the City remove and replace the sidewalks as was being done in other locations, specifically Kirkland Avenue. City Council asked staff to report back on the speaker's concerns and the City's overall process for sidewalk repair. Those issues are addressed in this memo.

There are a number of things that cause damage to the 233 miles of sidewalks throughout the City (Attachments A, B and C). The primary cause for uplift, cracking, and sidewalk panel "offset" is from tree roots pushing up on the concrete and causing positional changes between adjacent sidewalk panels. Other causes for damage come from heavy vehicles driving on sidewalks, occasional improper installations and the heaving or consolidation of soils due to groundwater or leaking yard drain lines, all of which can result in differential settlement. The highest contributors to existing sidewalk damage throughout the City, however, are tree roots.

Kirkland Municipal Code

The Kirkland Municipal Code (KMC), in Sections 19.20.020 and 19.20.030 holds the adjacent property owners



responsible for sidewalk maintenance. *KMC Section 19.20.020 – Abutting Property Owner to Maintain Sidewalk in Safe Condition* states the following:

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).

Further, KMC Section 19.20.030 -- *Expense of Maintenance and Repair to be Borne by Abutting Property and Owner Thereof* reads as follows:

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)

Despite these requirements, the City has implemented two programs to address sidewalk maintenance on a holistic basis through different funding sources -- the Street Operating Fund and the Capital Improvement Program (CIP). The Street Operating Fund has been the longer standing means by which most repairs are performed. In response to the magnitude of sidewalk defects throughout the City, the City Council established the *Annual Sidewalk Maintenance Program* in 2006 to fund larger-scale sidewalk replacement CIP projects. The current annual amount of funding dedicated to sidewalk replacement is \$200,000.

Depending on the nature and severity of the sidewalk damage, different methods of maintenance repairs are employed. Because current City policy is to protect trees, major emphasis is placed on maintaining sidewalks in ways that, to the largest extent possible, do no harm to trees. This often includes root pruning under the direction of a certified arborist to preserve the tree root structure, protect the tree and prolong the life expectancy of the replaced walking surface.

Maintenance strategies that are routinely employed include: mechanical grinding of offsets between 1/2 and 1-inch, the use of asphalt (Easy Street® or other similar patching products) to “wedge” offsets greater than 1-inch, or removing concrete panels and replacing them with either asphalt or more concrete, as appropriate, to reestablish the walking surface.



Grinding



Asphalt Wedge



Before (Tree Root Damage)



After (w/Rubber Sidewalk Panels)

In 2006, Public Works added another tool for sidewalk maintenance with the use of rubber sidewalk panels. This work was first performed in the Lakeview Neighborhood and six years later the results have been favorable.



Prior to 2006, larger scale sidewalk maintenance was included as a part of the Annual Street Preservation Program. At that time, approximately \$200,000 of Street Preservation money was being spent annually on repairing damaged sidewalks immediately adjacent to the pavement repair. This reduced the amount of street pavement preservation that the City was able to accomplish. As a result, based on staff's recommendation, City Council determined that such repairs were more appropriately funded as a separate annual maintenance project in the CIP and established the Annual Program.

Street Operating Fund

In 2004, a walking survey was performed on all pre-annexation Kirkland sidewalks. This was the third such inventory performed; two prior surveys were completed in 1991 and 1995. The 2004 survey, however, was the first one that had the advantage of the City's GIS capabilities. That survey inventoried, documented, and mapped all cracks and offsets by using symbols, marks, and notations (Attachment B and C). Using the results of the survey, the City's Street Division crews have systematically repaired all identified offsets and patched all major cracks spending approximately 1,500 hours of time between 2004 and August 31, 2012. In total, street crews repaired approximately 1,100 lineal feet of offsets at a cost of approximately \$160,000 in labor, equipment, and materials. Since the beginning of 2012 the crews have logged nearly 160 hours with the grinding machine in response to reports of sidewalk offsets.

As part of the Street Division's annual work plan, City crews also walk the Central Business District twice a year – once in the spring and again in the fall prior to the holiday season to make sure the downtown area is as free of potential trip hazards as possible.

Since annexation of the JFK neighborhoods, the Street Division, in cooperation with the City's GIS staff, has now completed data collection for all sidewalks in the new neighborhoods. The accompanying "Draft" maps identifying defects (Attachment C) are currently being finalized and repair strategies are being implemented.

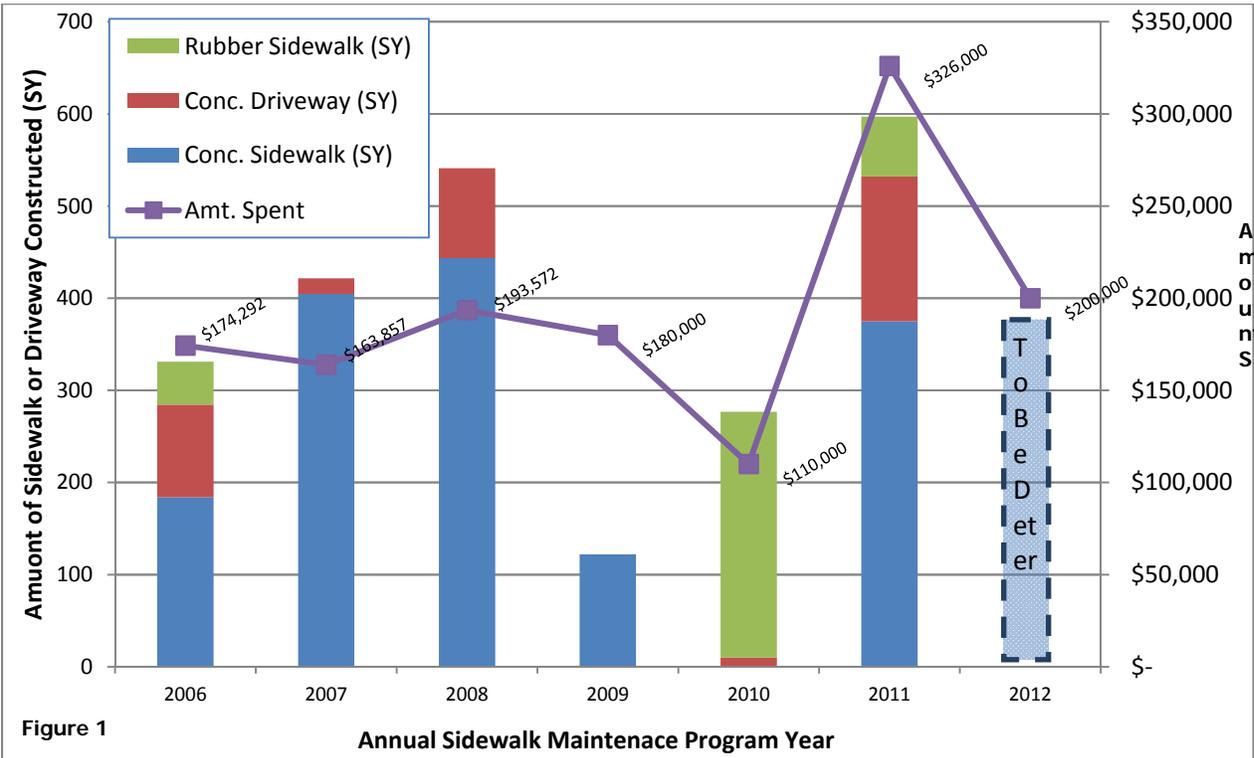
Capital Improvement Program

Between 2006 and 2012, the *Annual Sidewalk Maintenance Program* has provided for the removal and replacement of approximately 1,900 square yards of sidewalk and driveway apron (Figure 1). For 2009 and 2010, a portion of the Annual Program was used to replace damaged sections of sidewalk along the high pedestrian activity area of Park Lane using more than 260 square yards of product called Terrewalk®. This product is a second generation rubber sidewalk material that is made of recycled rubber and plastic. It was promoted as being more durable, attractive, and economical than the first generation.

The repairs to Park Lane fit into the long term vision for this busy corridor which ultimately will provide for the reconstruction of the entire corridor between Lake Street and the new Transit Center at 3rd Street. The Park Lane repairs addressed an immediate need to minimize trip hazards in an area of heavy foot traffic as staff sought ways to develop the best long-term funding solution for dealing with the existing mature trees that now line Park Lane, and implementing the ultimate vision for the corridor. As funding becomes available for the long-term solution, the Terrewalk® panels will be removed and re-used elsewhere in the City.



Since its inception in 2006, the *Annual Sidewalk Maintenance Program* has replaced approximately 1,900 square yards (the equivalent of 3,400 lineal feet of 5-foot sidewalk) of sidewalk at an average cost of \$191,000 per year.



Prioritization

Kirkland’s success at being a walkable community does have its drawbacks. Due to the extensive sidewalk network throughout the City, limited funding, and a continually degrading sidewalk infrastructure, a systematic approach to prioritizing repairs is imperative. Beyond observations by staff and the public, an additional approach is employed to target specific project priorities. During the development of the City’s [Active Transportation Plan](#) (ATP) in 2009, an analysis was made of likely traffic pedestrian generators. Schools, transit routes, parks and commercial areas were deemed to be those facilities most likely to experience high pedestrian use and, from the ATP, staff uses the pedestrian access scores shown on *Map 15* (Attachment D) to ascertain areas of focus for repairs. In addition, as indicated in Table 10

from the ATP, various destinations have relative weighting (priority). The Table distinguishes how walking facilities are prioritized in relation to their proximity to destinations; facilities near schools for example, receive a higher relative priority if 1/8 mile or closer (1.25) than those between 1/4 mile and 1/8 mile (1.00).

Table 10 Relative weighting between and within destination types.

<i>Destination</i>	<i>Relative weighting within destination by type</i>				<i>Total % weighting for destination</i>
<i>Schools</i>	<i>One school</i>		<i>Shared campus</i>		30%
	<i>1/8 mile or closer</i>	<i>between 1/4 and 1/8mile</i>	<i>1/8 mile or closer</i>	<i>between 1/4 and 1/8mile</i>	
	1.25	1.00	1.30	1.10	
<i>Transit</i>	<i>Peak hour</i>		<i>All-day</i>		20%
	<i>1/8 mile or closer</i>	<i>Between 1/4 and 1/8mile</i>	<i>1/8 mile or closer</i>	<i>Between 1/4 and 1/8mile</i>	
	0.95	0.75	1.25	1.00	
<i>Parks and Commercial areas (counted separately)</i>	<i>1/8 mile or closer</i>	<i>Between 1/4 and 1/8mile</i>	<i>Not used, only one type</i>		Parks 30%
	1.25	1.00			Commercial areas 20%

(Source: 2009 Active Transportation Plan)

On average, the City receives two to three claims per year for “trip and fall” accidents that are attributed to sidewalks. These claims are not paid by WCIA (the City’s insurance pool), unless there has been “prior notice”. Prior notice would entail a previous complaint received by the City, either oral or written, regarding the same location. On average, WCIA pays one claim per year (Attachment E).

According to WCIA, from a risk management perspective, it is desirable to conduct periodic sidewalk surveys. Once a sidewalk defect has been identified, either by notification or observation, the City is “aware” of a potential risk and must take reasonable action to resolve that defect. In response to this recommendation, along with periodic citywide inventories, the City’s Street Division regularly walks the Central Downtown core twice per year specifically measuring and documenting all sidewalk defects. This is followed up by an immediate and

appropriate remedial action. This is a policy that Public Works has adhered to for many years and typically involves grinding, patching, or recommendation for full repair with the CIP program.

5th Street Condominiums

The 5th Street Condominiums were built in 1996. The developer for the complex, as part of the building permit requirements, also constructed the right-of-way improvements that front the property on two sides (5th Street and 6th Avenue) which included the concrete sidewalks and street trees. For this complex, the developer installed all of the concrete sidewalk and seven Red Maple trees in tree wells with tree grates, all per City standards at the time.

In the approximately 16 years since completion of the condominium project, the street trees have matured significantly. During that time, roots have begun to lift the adjacent sidewalk panels to the point that they have required city staff to either grind or patch them in order to remove potential trip hazards. This scenario is not unique to the 5th Street Condominiums project and can be seen throughout the City.

Consistent with the process outlined previously in this memo, Street Division staff has repaired the sidewalks adjacent to the 5th Street Condominiums using a combination of off-set grinding and the use of Easy Street[®] to provide a wedge between concrete panels.

During their presentation to City Council, the representatives from the 5th Street Condominiums called for the City to perform repair work similar to that which is underway along Kirkland Way, between Kirkland Avenue and 6th Street South. Those repairs are being done as a part of the *Annual Sidewalk Maintenance Program* as it has worked its way up the priority list.

As is the case at the 5th Street Condominiums, the sidewalks along Kirkland Way have received on-going maintenance repairs consisting of concrete grinding and the application of Easy Street[®] panel off-set wedges for over 15 years, and now the existing street trees have reached a size that the need for



complete new sidewalks out-weighs the retention of the existing mature trees. In the case of the Kirkland Way Sidewalk Maintenance Project, one adjacent property owner is providing their own replacement trees while the CIP project will provide other new trees.

Applying the Sidewalk Maintenance Checklist Candidate Form (Attachment F), used to help prioritize repairs, the sidewalks at the corner of 5th Street and 6th Avenue, in particular that walk along 5th Street, do rank well as a likely candidate for the Annual Program. The area has a high Pedestrian Access Score and, in addition to the demonstrated physical need, the immediately adjacent residents are supportive of the work to the extent that the replacement of mature trees with smaller caliper (and better suited) ones will be acceptable.



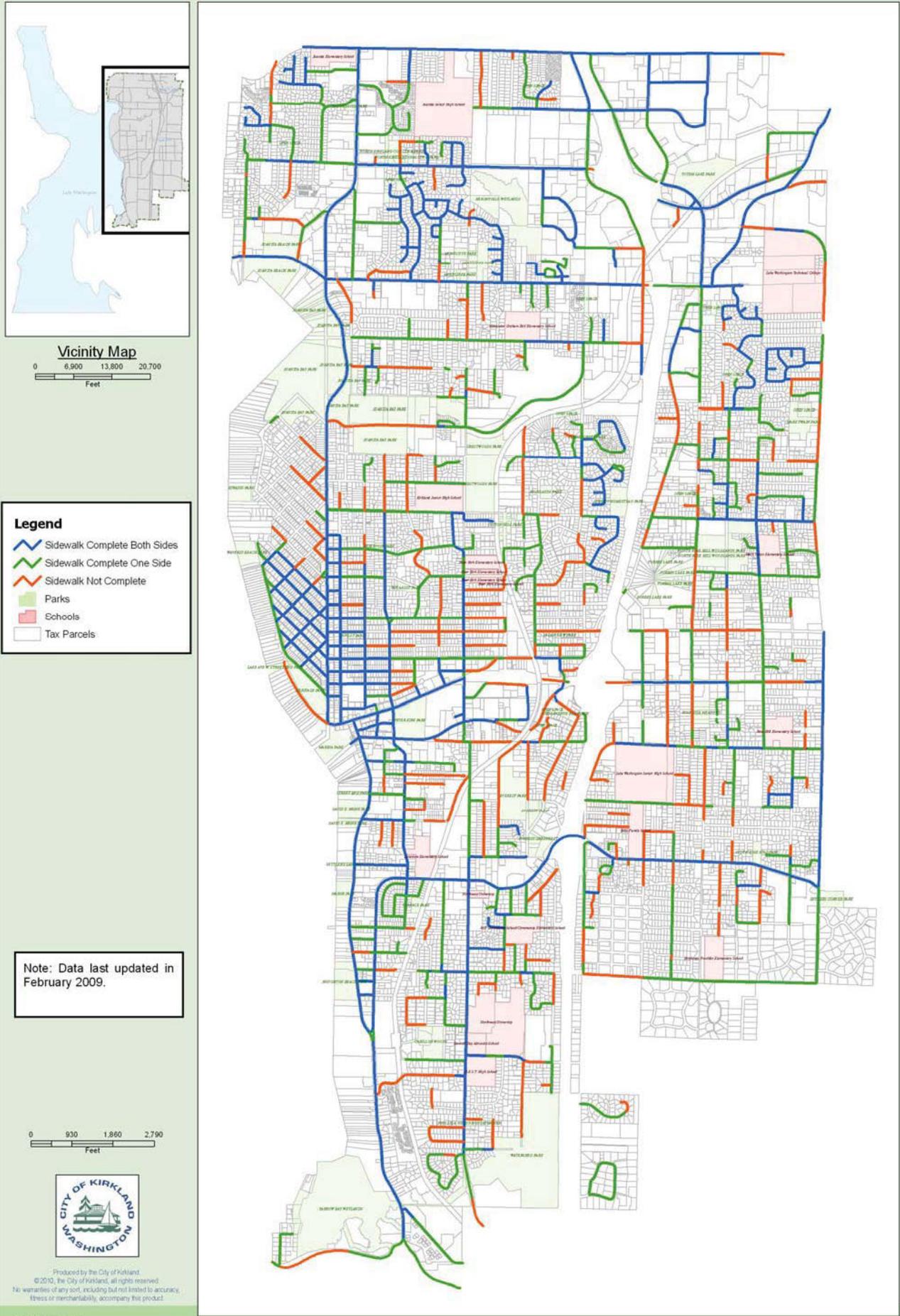
Staff will work with the residents and property manager of the 5th Street Condominiums to determine options available. If sidewalk alignment can be modified to save the existing trees, it will be done. If, as a last resort, the street trees must be removed, they will be replaced. Staff recommends including the 5th Street sidewalk, near the intersection with 6th Avenue, in the next Annual Program project.

Summary

The City utilizes an ongoing sidewalk maintenance program with two primary means to address issues: the Street Operating Fund and the Capital Improvement Program. The number of sidewalks in the City's inventory, along with the expanding number of trees (and roots), require the need to systematically and responsively prioritize maintenance within the available resources. A focus on those areas with highest use will continue to receive higher attention, and is consistent with the City's Active Transportation Plan. As is evidenced by the low number of complaints and claims received, when compared to the significant pedestrian traffic experienced, the City's maintenance efforts are addressing the most acute issues.

- Attachment A: Pre-Annexation Sidewalk Network
- Attachment B: Pre-Annexation Sidewalk Defect Inventory
- Attachment C: Sidewalk Conditions New Neighborhoods (Draft)
- Attachment D: Pre-Annexation Pedestrian Access Scores
- Attachment E: Pre-Annexation Claim History
- Attachment F: Checklist Candidate Form

City of Kirkland Pre-Annexation Sidewalk Network



City of Kirkland Pre-Annexation 2004 Sidewalk Defect Inventory



Vicinity Map
0 6,900 13,800 20,700
Feet

Legend

2004 Sidewalk Survey

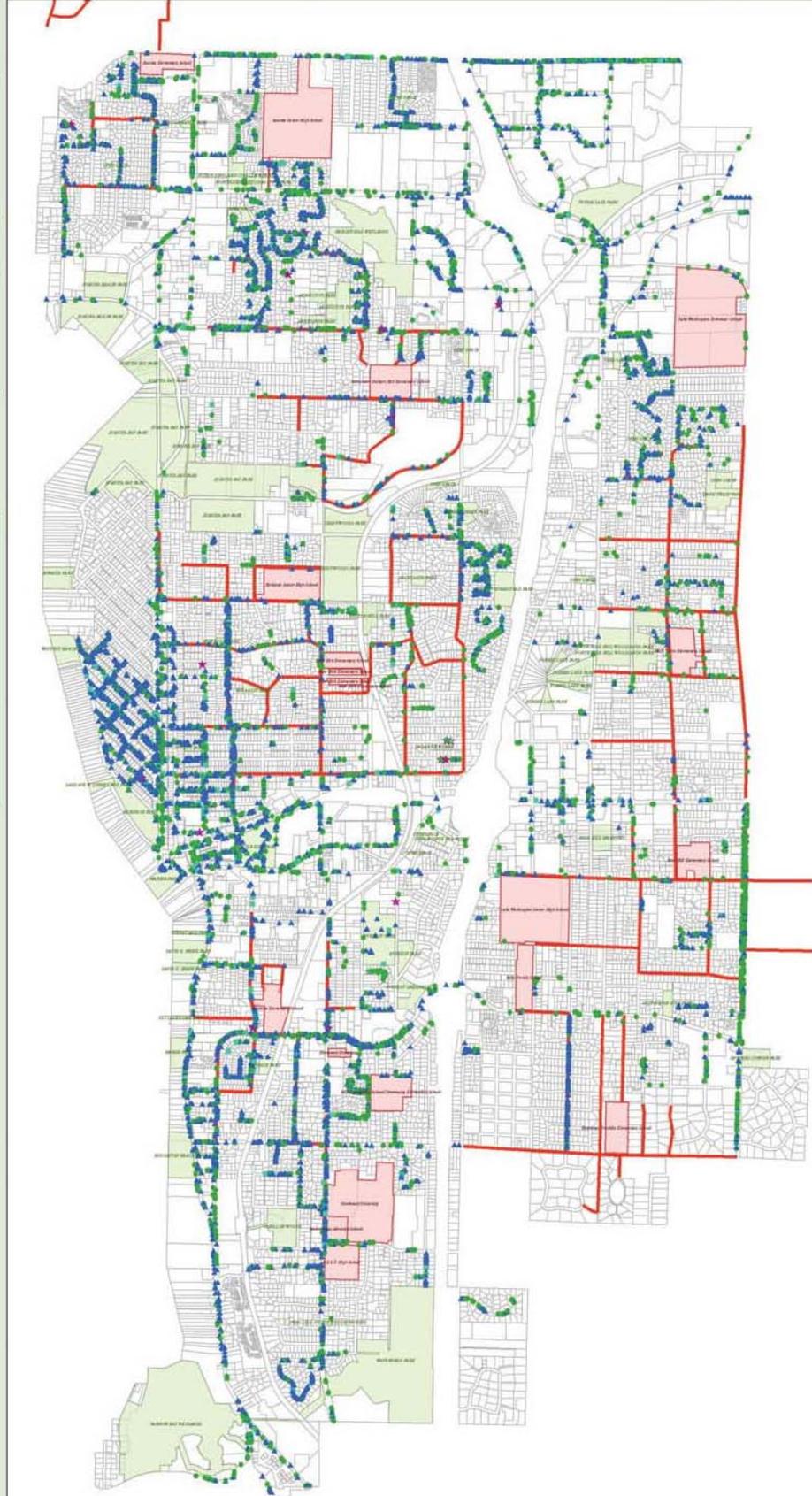
- ▲ Crack
- Mixed Defect
- Offset
- ★ Obstacle
- Parks
- Schools
- School Walk Routes
- Tax Parcels

Note: Sidewalk Defects noted are based on a survey performed in 2004.

0 7,400 14,800 22,200
Feet



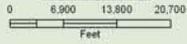
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City of Kirkland Pre-Annexation Pedestrian Access Scores



Vicinity Map

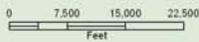


Legend
Pedestrian Access Scores
(from 2009 Active Transportation Plan)

Areas least likely to have pedestrians

Areas most likely to have pedestrians

Tax Parcels

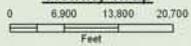


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City of Kirkland Pre-Annexation Claim History



Vicinity Map



Legend

Trip/Fall Claims
Trip & Fall Claims Since 2005

- Not Settled
- Denied
- Paid

2004 Sidewalk Survey

- Crack
- Mixed Defect
- Offset
- Obstacle

Pedestrian Access Scores
(from 2009 Active Transportation Plan.)

Areas least likely to have pedestrians

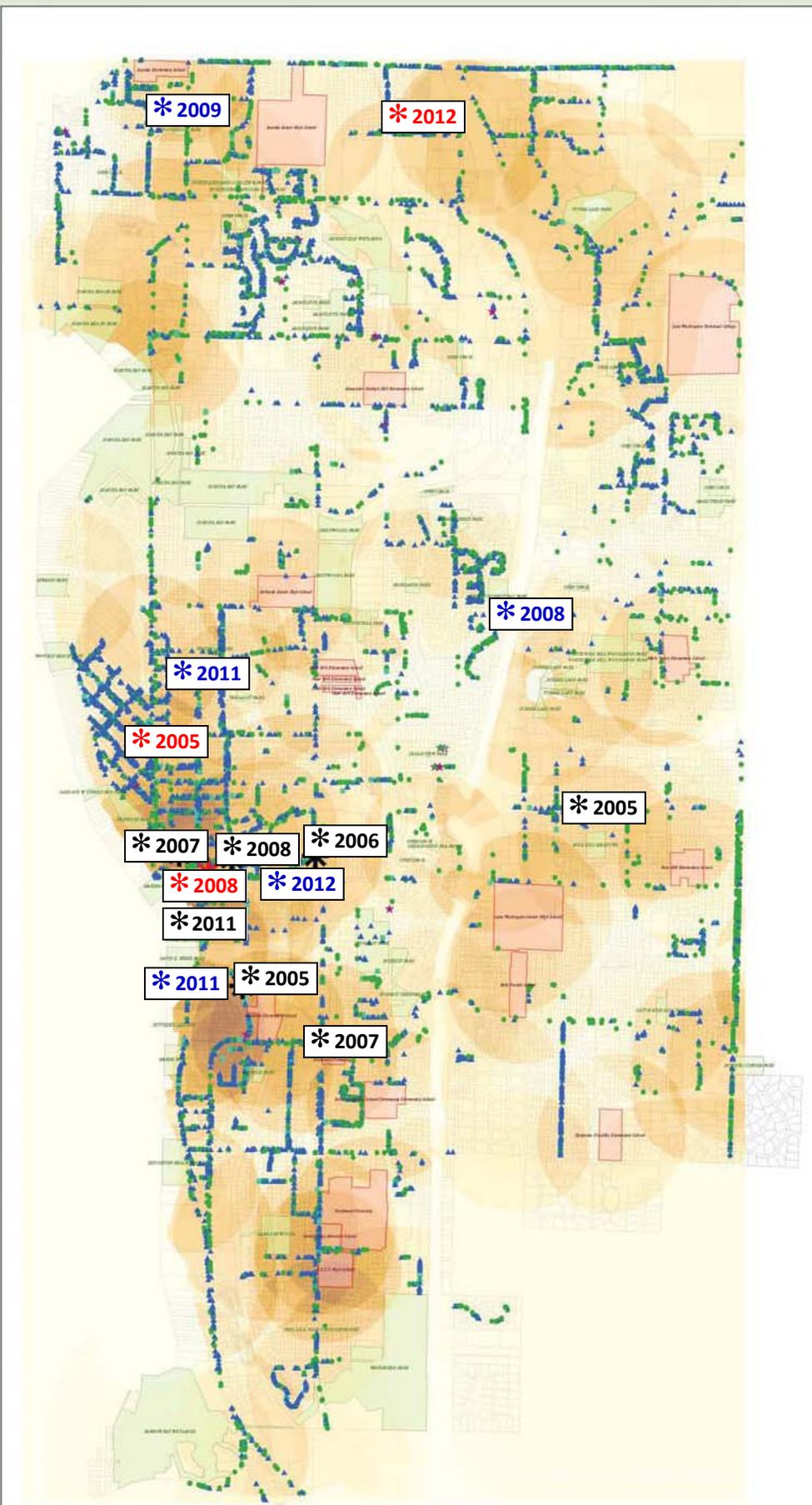
Areas most likely to have pedestrians

- Parks
- Schools
- Tax Parcels

Note: Sidewalk Defects noted are based on a survey performed in 2004.



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Sidewalk Maintenance Candidate Form

Neighborhood (circle): Bridle Trails Everest Evergreen Hill Finn Hill Highlands
 Central Houghton Lakeview Market Moss Bay Norkirk
 North Juanita North Rose Hill South Juanita South Rose Hill Totem Lake

LOCATION DESCRIPTION (ADDRESS, INTX.)

EXISTING CONDITIONS

Curb Type: C&G Vertical Extruded Other _____ **Material:** Concrete HMA

Driveway(s): No Yes # _____ **ADA Ramp(s):** No Yes # _____

Planter Strip: No Yes _____ FT **Tree Canopy/Root Intrusion:** No Yes # _____

Other (description): (ex: irrigation, utility conflict, overhead power, rockery, grade issues, etc.)

REMOVAL

Curb: L _____ **Type:** C&G Vertical Extruded Other _____ **Material:** Concrete HMA

 L _____ **Type:** C&G Vertical Extruded Other _____ **Material:** Concrete HMA

HMA: L _____ W _____ SY _____

 L _____ W _____ SY _____

Sidewalk: L _____ W _____ SY _____ **Material:** Concrete HMA Other _____

 L _____ W _____ SY _____ **Material:** Concrete HMA Other _____

Root Trim & Barrier:

REPLACEMENT

Curb: L _____ **Type:** C&G Vertical Extruded Other _____ **Material:** Concrete HMA

 L _____ **Type:** C&G Vertical Extruded Other _____ **Material:** Concrete HMA

HMA: L _____ W _____ SY _____

 L _____ W _____ SY _____

Sidewalk: L _____ W _____ SY _____ **Material:** Concrete HMA Other _____

 L _____ W _____ SY _____ **Material:** Concrete HMA Other _____

Driveway: L _____ W _____ SY _____ **Material:** Concrete HMA Other _____

 L _____ W _____ SY _____ **Material:** Concrete HMA Other _____

ADA Ramp(s): CK-R.25 _____ CK-R.25A (alt. in-walk) _____ Other _____

Utility Adjustment (#/type): # _____ / _____ # _____ / _____ # _____ / _____

Other (description): (ex: irrigation, utility conflict, overhead power, rockery, grade issues, painted curb, etc.)

Date: _____

Staff: _____