

PROPOSAL FOR 2016 SIDEWALK INSPECTION AND REPAIR PILOT TO BE USED TO EVALUATE FUTURE PROGRAM NEEDS

OBJECTIVE

To establish a 2016 sidewalk inspection, repair and replacement program to be used as a pilot for establishing future sidewalk maintenance level-of-service and funding requirements.

BACKGROUND

- The 2016 General Obligation Bond Debt (G.O. Debt) was increased by \$355,000 via budget amendment to accommodate funding of a total of \$380,000 in sidewalk repairs and replacements through G.O. Debt in the 2016 Capital Improvement Plan to replace the existing system of maintaining sidewalks in the right-of-way via Repair Orders issued to abutting property owners.
 - The \$355,000 increase was arbitrarily chosen to fund a pilot program encompassing sidewalk inspections, repairs and replacements to be used to develop a long-term sidewalk maintenance program and funding strategy.
- To minimize tort liability, the city was inspecting sidewalks in the right-of-way on a five to seven years cycle using an inspection criteria designed to be more lenient than most other municipalities in the state (Attachment 1).
 - This process generated an average 2,000 Sidewalk Orders annually, costing abutting property owners an estimated \$600,000 in repair/replacement costs and an additional \$135,000 in fees, contract mark-ups and interest.
 - Typically one-half of property owners receiving a Sidewalk Order repaired or replaced sidewalks on their own, the other half had sidewalks replaced via city contract.

DISCUSSION

- The objectives of our sidewalk maintenance program should be to keep facilities accessible and safe for users, to extend the service lives of our sidewalks through routine and preventative maintenance efforts, and limit the city's exposure to liability.
 - 28 Consolidated Federal Regulations Section 35.133 requires public agencies to maintain walkways in an accessible condition for persons with disabilities.
 - The Federal Highway Administration's (FHWA) *Guide for Maintaining Pedestrian Facilities for Enhanced Safety* recommends an inspection/maintenance program include "spot" inspections to address hazards identified by the public or staff, and "zone" inspections segmenting the city into 3 to 10 zones for periodic inspections/maintenance.
- Management of sidewalk assets has been accomplished "one square at a time" through issuance of Repair Orders to abutting property owners.
 - Abutting property owners made most of the city's sidewalk management decisions based on minimizing their costs or avoiding the inconveniences of performing repairs and/or replacements themselves.
 - Repairs were only executed by owners, and often times only to the extent necessary to bring the sidewalk into compliance with the existing inspection criteria.
- The city has not contracted for sidewalk repairs in the past, or replaced sidewalks as a portion of street reconstruction and paving projects. One to two years of experience managing a comprehensive sidewalk maintenance program will most likely be required to gain enough experience and data to adequately structure a long-term sidewalk asset management program.

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DISCUSSION (continued)

- The city has entered into a sole-source contract with Safe Step Inc. of Hortonville, Wisconsin to perform sidewalk inspections and saw-cutting of vertical displacements between sidewalk squares, where appropriate.
- Safe Step performed inspections along high-usage pedestrian corridors for a total of 3.1 miles of sidewalk on June 10 and 13 of 2016. The data collected by these inspections was used to generate an estimated average repair/replacement cost of \$150 per defective square and \$10,000 per sidewalk mile (data presented as Attachment 2).

RECOMMENDATIONS

- Revise the sidewalk inspection criteria to conform to FHWA and U.S. Assess Board recommendations and guidelines (revisions detailed in Attachment 3).
- Establish a 2016 pilot management program that prioritizes annual inspections and repairs/replacements in the following order:
 1. Locations of resident/staff submitted complaints (estimated 100 locations, estimated \$15,000 in repair/replacement costs)
 2. Sidewalk repairs and replacements as a portion of street reconstruction contracts (estimated cost of \$55,000)
 3. Priority locations: Downtown, Uptown, West Racine, Lakefront and vicinity of the Zoo for an estimated total of 80 blocks, or 14 miles of sidewalk (estimated cost of \$140,000)
 4. Pedestrian Corridors along BUS routes for an estimated total of 90 miles of sidewalk (17 miles of sidewalk will most probably be completed with the estimated \$170,000 in remaining funds)
 5. Locations within one or two blocks of a school for an estimated total of 200 blocks or 34 miles of sidewalk (funds will most probably not be available for these locations in 2016)
 6. Locations within one block of a park for an estimate 90 blocks, or 16 miles of sidewalk (funds will most probably not be available for these locations in 2016)
 7. Sidewalks abutting church properties for an estimated 100 blocks, or 18 miles of sidewalk (funds will most probably not be available for these locations in 2016)
- The ultimate 2016 program coverage area to be determined by the available budget and adherence to defect criteria. A running estimate of sidewalk repair and replacement costs will be maintained as the inspections are performed. Inspections will be stopped when available funds are estimated to be fully committed.
- Perform concrete saw-cutting of vertical displacements between sidewalk squares where appropriate via Safe Step contract.
- Perform sidewalk mud-jacking repairs and replacements via open-bid contract(s) using scope(s) of work developed by Safe Step inspections.
- Use the experience and data garnered from the development and execution of the 2016 program to draft options and recommendations for the 2017 Sidewalk Maintenance Program to be presented to the Common Council as a portion of the 2017 budgeting process.

Department of Public Works

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CRITERIA FOR INSPECTION OF SIDEWALKS IN THE RIGHT-OF-WAY

To ensure the good repair of public sidewalks and maintain them free of physical defects and other conditions that may create hazards to pedestrians, the following criteria shall be used when inspecting concrete sidewalks located in the right-of-way:

Concrete defect criteria and possible repair methods:

1. A difference in elevation greater than 1/2 inch at the joint between adjacent sidewalk squares.
 - Possible repairs: mud jacking; and saw-cutting/shaving the vertical edge to create a smooth transition between squares (for displacements of 1-1/2 inches or less).
2. A pitch along the width of the sidewalk greater than 5/8 inch per foot (5% slope).
 - Possible repair: mud jacking
3. A pitch along the length of the sidewalk exceeding the street grade by 5/8 inch per foot (5% difference in slope).
 - Possible repair: mud jacking
4. Ponding of water covering 1/2 or more of the width, or 2 feet or more along the length of a sidewalk as evidenced by silting, collection of debris or water stains.
 - Possible repairs: mud jacking
5. Cracks, gaps between squares and/or deterioration exceeding 3/4 inch in width.
 - No possible repair, sidewalk square replacement required
6. A difference in elevation greater than 1/2 inch within a sidewalk section separated by a crack.
 - No possible repair, sidewalk square replacement required
7. Loose, chipped or spalled concrete, which has resulted in surface irregularities greater than 2 inches wide and 1/2 inch deep relative to the sidewalk surface, and that creates a safety hazard.
 - No possible repair, sidewalk square replacement required

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Underground vault covers and frames, ground level surface accesses, drainage grates, window well grates and similar fixtures: (Note: all repairs of these items are the responsibility of the abutting property owner and the Commissioner of Public Works shall issue the abutting property owner a Repair Order to correct the deficiencies.)

1. Which are cracked or broken in any manner, fixture replacement is required.
2. Which are rusted through in any place, fixture replacement is required.
3. Where any part of the surface of such fixtures is more than ½ inch higher or lower than the adjacent sidewalk. Adjustment of the fixture may be acceptable.

Street	Miles	Occurrences	Demolish and Replacement		D&R Cost	Shaving	Cost	Cost / Sample	Avg / Mile
			D&R occurrences	D&R Sq Ft					
Douglas Ave	2	137	33	2406	\$13,233	3895	\$8,764	\$21,997	\$10,998
La Salle St	0.5	28	6	263	\$1,447	684	\$1,539	\$2,986	\$5,971
Taylor	0.6	39	8	520	\$2,860	1002	\$2,255	\$5,115	\$8,524
Totals	3.1	204	47	3189	\$17,540	5581	\$12,557		

Summary Data

Total Est. \$30,097
 Avg occ/mile 65.81
 Avg cost/mile \$9,709

ATTACHMENT 2 PAGE 1 OF 1



Racine, Wisconsin

CRITERIA FOR INSPECTION, REPLACEMENT AND REPAIR OF PUBLIC SIDEWALK

An order to repair or replace sidewalk square(s), driveway approach and/or carriage walk (a concrete path in the parkway between the sidewalk and the curb) has been issued to you, the property owner of record, for concrete abutting your property with defects that exceed the limits shown below. All defects can be corrected through replacement of the entire sidewalk square or driveway approach, but in some cases repairs to the existing concrete may be sufficient to correct the defect(s). Not all defects are correctable by repair, and all repairs require prior approval from the Engineering Department. **To determine if a defect can be repaired, and to obtain prior approval if appropriate, contact the Engineering Department at (262) 636-9191 to arrange a consultation with an inspector.** Possible repairs for the various defects are listed under each defect type. A defective carriage walk only needs to be removed (with restoration of the parkway), replacement is optional. A sidewalk permit is required for all removals, replacements and repairs.

The Forestry Division, telephone number (262) 636-9131, is responsible for directing corrective action to resolve conflicts between sidewalks and street tree roots. Healthy trees will not be removed for any reason. The enclosed *Tree Root and Sidewalk Conflicts* informational sheet provides guidance on tree root pruning and possible sidewalk modifications to accommodate street trees during sidewalk replacements.

Defect criteria and possible repair methods:

1. A difference in elevation greater than 1 inch at the joint between adjacent sidewalk squares.
 - Possible repairs: mud jacking; and grinding/milling the vertical edge to create a smooth transition between squares
2. A pitch along the width of the sidewalk greater than 1 inch per foot.
 - Possible repair: mud jacking
3. A pitch along the length of the sidewalk exceeding the street grade by 1 inch per foot.
 - Possible repair: mud jacking
4. Cracks and/or deterioration exceeding the following limits:
 - a) A crack greater than $\frac{3}{4}$ inch wide.
 - Possible repair: filling with a concrete or epoxy material approved by the Commissioner of Public Works.

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- b) A difference in elevation greater than $\frac{1}{2}$ inch, within a sidewalk section, separated by a diagonal crack or a crack along the length of the sidewalk, or 1 inch where separated by a crack across the width of the sidewalk.
 - No possible repair, sidewalk square replacement required
 - c) Loose, chipped or spalled concrete, which has resulted in surface irregularities greater than $\frac{1}{2}$ inch deep relative to the sidewalk surface.
 - Possible repair: filling with a concrete or epoxy material approved by the Commissioner of Public Works.
 - d) A sidewalk square with a crack across the width of the sidewalk within 1 foot of a sidewalk square having any of the above defects.
 - Possible repair: filling with a concrete or epoxy material approved by the Commissioner of Public Works.
5. Underground vault covers and frames, ground level surface accesses, drainage grates, window well grates and similar fixtures:
- a) Which are cracked or broken in any manner. Fixture replacement required.
 - b) Which are rusted through in any place. Fixture replacement required.
 - c) Where any part of the surface of such fixtures is more than $\frac{1}{2}$ inch higher or lower than the adjacent sidewalk. Adjustment of the fixture may be acceptable.

Sidewalk replacements shall be performed per the *2012 Revised Specifications for Street Restoration*, available on the Engineering Department webpage at:

<http://www.cityofracine.org/City/Departments/PublicWorks/Dynamic.aspx?id=1239>

These criteria are in addition to the construction requirements set forth by the City of Racine Common Council in Racine Municipal Code sections 81-121 through 81-139.