



Pedestrian Facility Maintenance

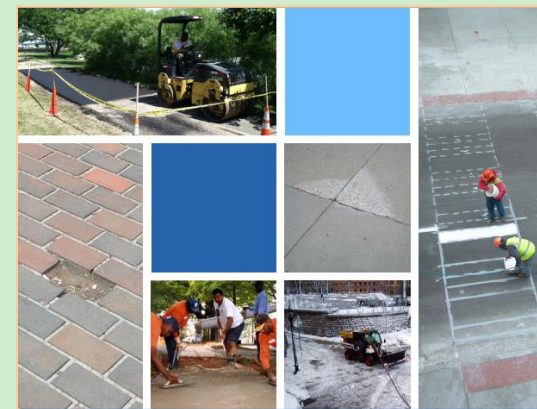
Presented by:

Tom Huber, Toole Design Group

Dan Bauer, City of Minneapolis

Aaron Lavine, City of Ithaca

December 6, 2013

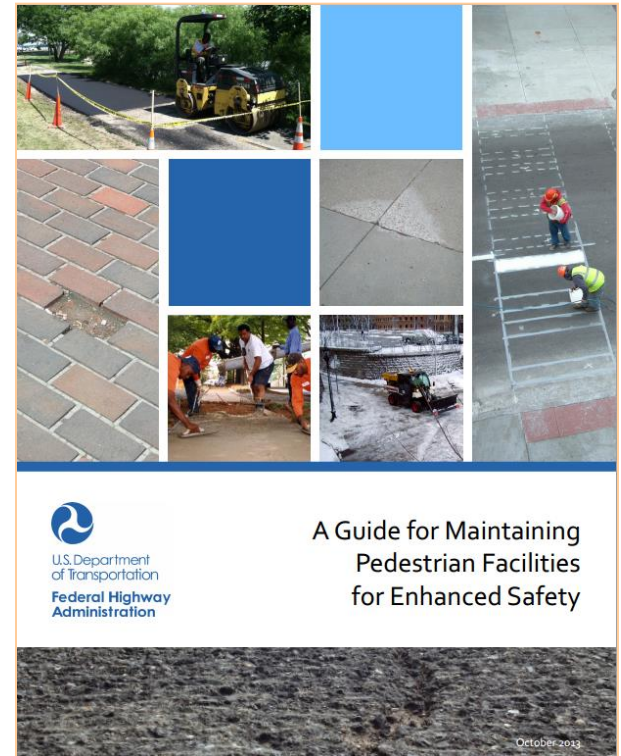


Today's presentation

- ⇒ Introduction and housekeeping
- ⇒ *Audio issues? Dial into the phone line instead of using "mic & speakers"*
- ⇒ PBIC Trainings
<http://www.walkinginfo.org/training>
- ⇒ Registration and Archives at
<http://www.walkinginfo.org/webinars>
- ⇒ Questions at the end
- ⇒ Follow-up E-mail with certificate of attendance for 1.5 hours of instruction

A Guide for Maintaining Pedestrian Facilities for Enhanced Safety

- ⇒ New guide from FHWA, released in Nov 2013
- ⇒ Identifies best practices and barriers for sidewalk and path maintenance
- ⇒ Examples of programs from jurisdictions across the US
- ⇒ Research report reviews literature and programs from 50 municipal and state agencies
- ⇒ Available under the Resources section at:



http://safety.fhwa.dot.gov/ped_bike/tools_solve/

Guide for Maintaining Pedestrian Facilities for Enhanced Safety

PBIC Webinar – December 3, 2013

Panel Members

- Dan Bauer, City of Minneapolis
- Paula Reeves, Washington State DOT
- Sean Harbaugh, Columbia Association, Columbia, MD
- Donna Gardino, Fairbanks MPO
- Yon Lambert, City of Alexandria, VA
- Melissa Anderson, U.S. Access Board
- Tom Fisher, City of Tucson,
- Marni Ratzel, City of Boulder, CO.
- Arthur Ross, City of Madison
- Mary Anne Koos, Florida DOT
- Kevin Farrington, City of Plattsburgh, New York
- Mike O'Meara, WisDOT

Webinar Objectives

- Learn of the content of the new pedestrian facilities maintenance guide from the Federal Highway Administration (FHWA) – *Guide for Maintaining Pedestrian Facilities to Enhance Safety*
- Learn of the research findings of FHWA project
- Learn of the basic elements of a well-rounded pedestrian facilities maintenance program
- Learn of common and successful approaches to sidewalk and path maintenance in the U.S.

Who is This Webinar For?

- Planners
- Engineers
- Managers of sidewalk systems and other pedestrian facilities

My Maintenance Experience

- Bicycle and pedestrian coordinator – fielded questions on sidewalk and path maintenance for 20 years
- Summarized sidewalk maintenance practices in the U.S. for APBP
- Project Manager for development for FHWA’s “Report and Guide under contract with work preformed by VHB and Toole Design Group
- Part-time maintenance provider – more on that later

My Involvement - Continued



Live on a corner lot

Pedestrian Facilities Included

- Sidewalks
- Shared Use Paths
- Crosswalks
- Signals
- Other – curb ramps and signage



What is Pedestrian Maintenance?

Structural Maintenance

- Simple Repairs
- Replacement of short sidewalk and path segments
- Crosswalk markings and signal maintenance
- Guide did not address new sidewalk construction



What is Pedestrian Maintenance?

Day to Day Maintenance

- Snow and ice removal
- Sweeping
- Vegetation removal and trimming

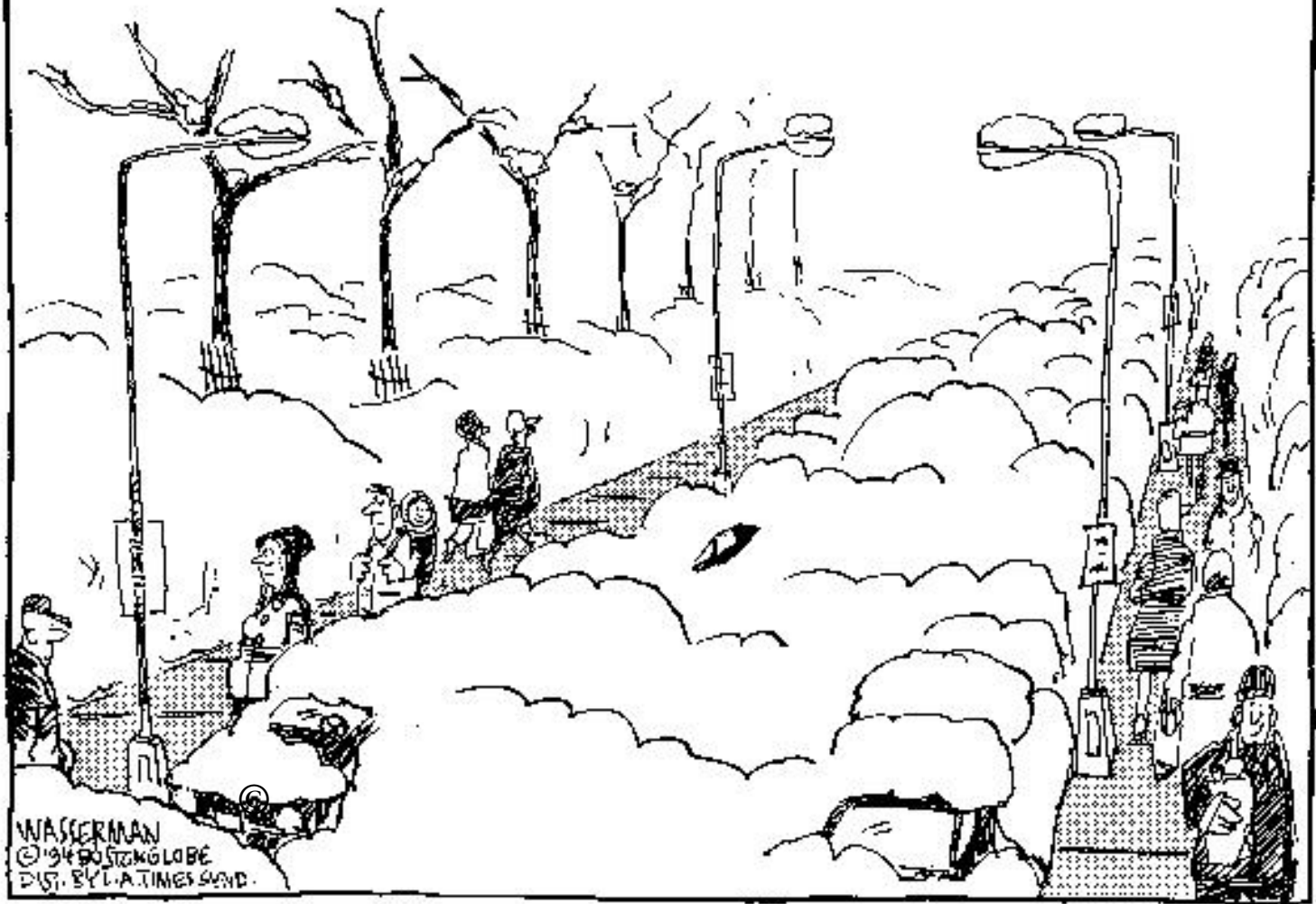


Maintenance

(the forgotten stepchild?)

- All forms of maintenance are important, but not exciting to discuss or research
- No ribbon cuttings, no awards for good work
- Pedestrian facility maintenance is no exception

IF PEDESTRIANS HAD CLOUT...



Dan Wasserman, The Boston Globe

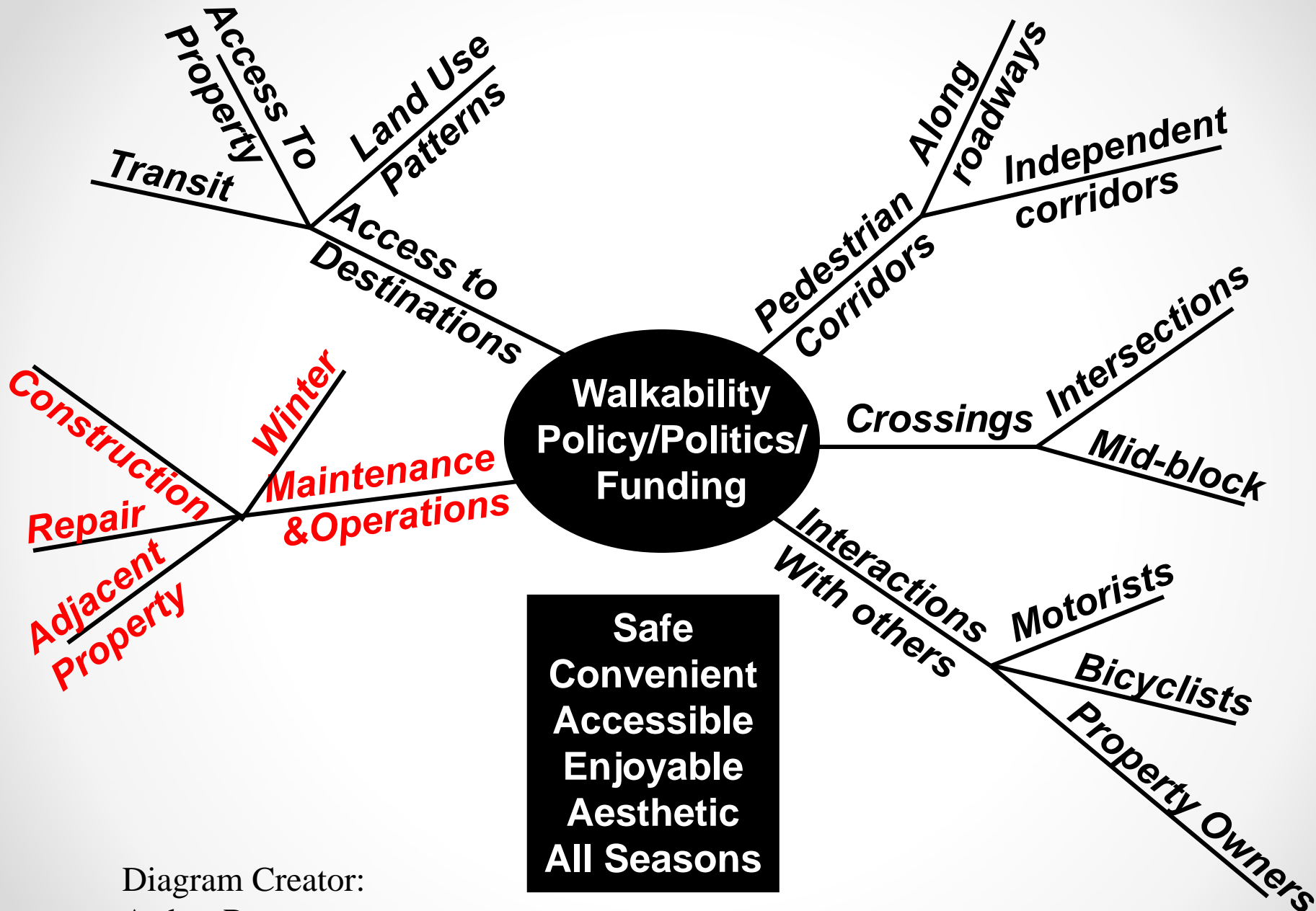


Diagram Creator:
Arthur Ross

Why is Maintenance Important

- **Safety – prevents falls and people needing to walk in the streets (FHWA Funding is from Safety Program)**
- Access – allows continuous and dependable travel for all people during all seasons
- Maximizing Investment – making usable what you have
- Liability – need to provide reasonably accessible facilities to avoid claims

Research Report

- Purpose was to establish the state of the practice
- Had discussions with 50 agencies
- Profiled programs of more than 50 additional agencies without discussions
- Learned a great deal, but not statistically valid
- Wide range of practices
- Consistency within states, but not between

Research Report

For sidewalk repairs and replacement – vast majority of agencies are involved in these ways:

- Make simple repairs as reported and needed
- For sidewalk replacements:
 1. Done completely by the agency
 2. Option given to property owner – themselves or agency
 3. Done by property owner – inspected/monitored by agency
- When done by agency, most commonly property owners are at least partially responsible for cost
- Small percentage of agencies who were not assuming any responsibility for repair or replacement

Research Report

Interesting Findings:

- A sizable number of communities would respond to complaints and mishaps, but not proactive
- These agencies often moved quickly and used their own crews often replacing sidewalk pieces
- Larger percentage making temporary repair and going through a more formal process for replacement
- Replacement program on a cycle is common

Research Report Finding

“Even though more communities have ordinances that place the responsibility for sidewalk maintenance on the adjacent property owner, shared and unclear responsibility, weak enforcement mechanisms, high costs and liability concerns lead to many jurisdictions to perform sidewalk repairs and replacement.”



Research Report

Findings for Other Types of Pedestrian Facilities:

- Paths were almost universally considered an agency responsibility for structural and day to day maintenance
- Less than majority maintaining paths in winter, but several agencies indicated they just made switch



Research Report

Other Findings for Other Pedestrian Facilities:

- Markings for crosswalks – thermoplastics and paints, but few innovations
- Signals – communities were almost universally satisfied with their pedestrian signals and responsive to problems



Research Report

For Day to Day Maintenance three possibilities:

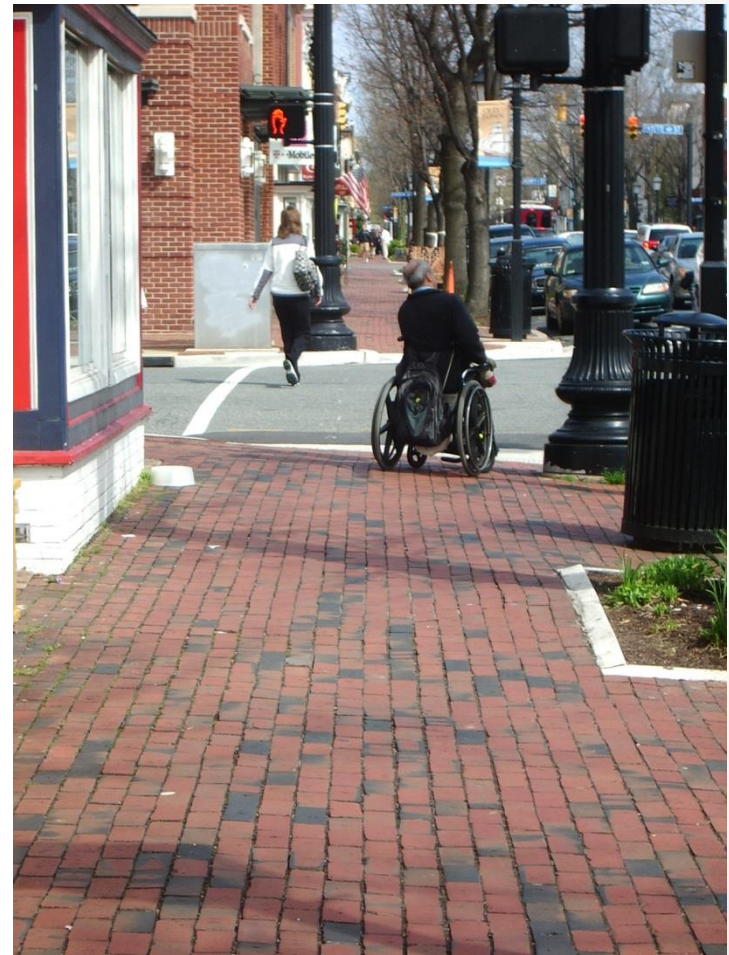
- Agencies will take full responsibility
- Agencies ultimately responsible, but will task adjacent property owners
- Agencies not responsible and see it only as a property owner responsibility

Guide – Contents by Chapter

- The Case for Pedestrian Facility Maintenance
- Common Maintenance Issues
- Inspection, Accessibility, Compliance, Plans and Policies
- Maintenance Measures
- Construction Techniques to Lessen Maintenance for Sidewalks and Paths
- Funding

The Case for Pedestrian Facility Maintenance

- Panel: Most communities know how to maintain, but not a priority
- We know maintenance is important, but what are the arguments in favor
- Case made for maintenance based on safety, mobility, asset management, liability



Common Maintenance Issues - Structural

- Identification of forces impacting sidewalks and paths
- Discussion of structural problems resulting from those forces and trees
- Results are heaving, sinking, cracking, other surfacing problems

Common Maintenance Issues – Day to Day

- Snow and ice issue - its slippery!
- Vegetation – year-round problem for some communities
- Extreme heat – buckling at corners in crosswalks, tire tracking over markings

Inspection, Accessibility, Compliance, Plans and Policies

- Included criteria and relationship to ADA
- Provided common inspection practices: spot, zone, community-wide
- Compliance and enforcement
- Policies and plans at the basis for a sound program

Inspection

- Types of inspection – spot, zone, and community-wide
- More and more innovation related to inspection – mobile devices, GPS, GIS, and photo documentation
- Criteria used is critical



Program Effectiveness – Sidewalk

Replacement

- Compliance is only a problem when adjacent property owners brought into the equation
- Effective programs in place that rely on assessments
- Ineffective programs that have given up on assessments
- Effective programs that have moved away from assessments

Accessibility

- Cited and summarized “ADA Draft Guidelines for the Public Right of Way”
- Cannot become compliant through maintenance
- Repairs will remove tripping hazards taking care of the displacement, but not the cross-slope
- Have to consider the scope of the repair and the limited nature of maintenance
- Consider maintenance as an opportunity of making your sidewalk/ramp/path system more accessible



Compliance

- Compliance – want compliance without enforcement
- Mostly a winter maintenance issue, but also a vegetation removal issue
- Timing is important
- Ramp up costs for successive violations
- Fines are main tool
- Must have a alternative program in place for assisting people



Maintenance Measures

Sidewalk Repair: short term fixes often to counter tripping and other hazards.

- Wedging
- Patching
- Grinding
- Horizontal Cutting
- Mud-jacking

Methods

Wedging – at ramp grades

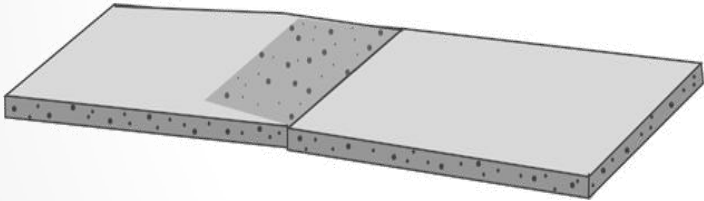
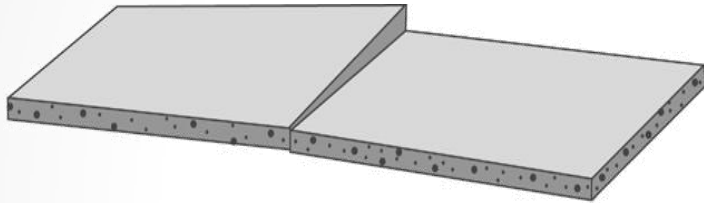


Patching

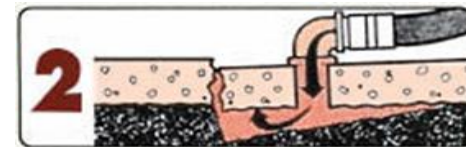


Methods

Grinding and Horizontal Cutting



Mud-Jacking



Pros and Cons – Sidewalk Repair

Pros

- Quick solutions that may prevent mishaps in the short term.
- Relatively inexpensive.
- If done quickly, indication of a responsive government

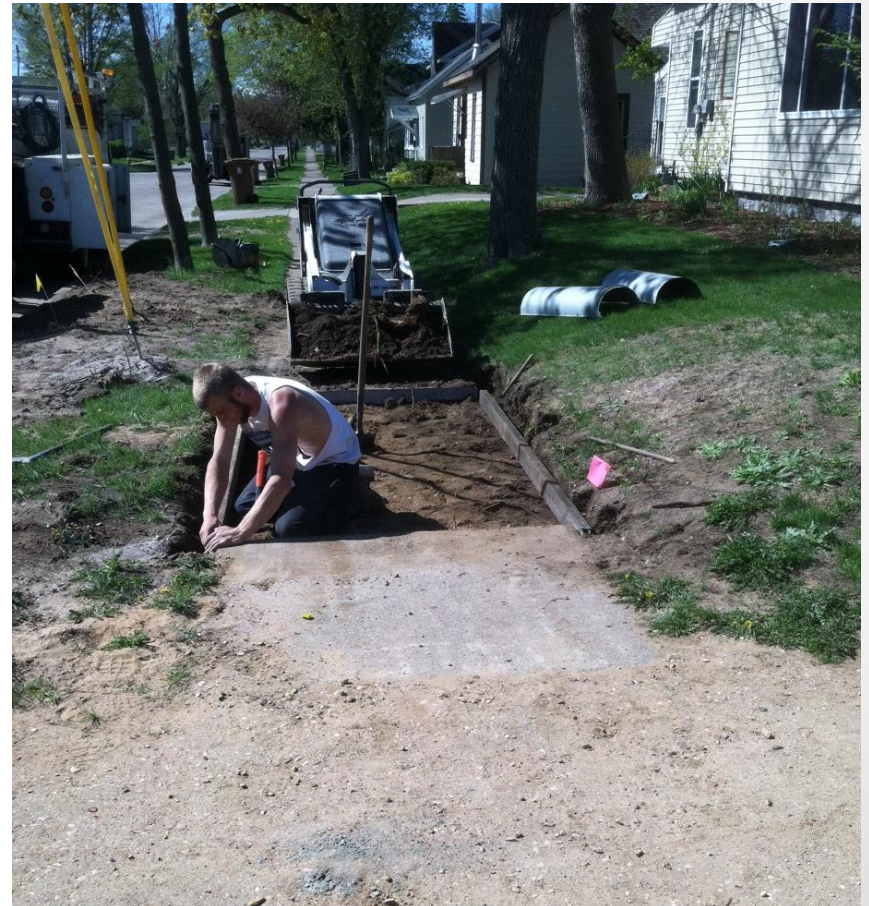
Cons

- Does not solve the problem beyond the short-term
- Often is not ADA compliant

Sidewalk Replacement

Purpose: used as both a short-term and long-term fix.

- Involves the entire replacement of sidewalk sections or panels that are hazardous and/or deteriorating
- This can be maintenance, but longer stretches of replacement goes beyond maintenance



Sidewalk Replacement – Pros and Cons

Pros:

- Long term fix, permanent solution
- Can be done the right way with good design and construction management
- Often can be made totally accessible

Cons:

- Relatively expensive
- Often involves property owner assessments
- Can be political

Path Maintenance

- Most trails are asphalt
- More likely to receive complaints from bicyclists
- Must be concerned with same triggers for maintenance as sidewalks
- Additionally, longitudinal cracks have special hazard for wheeled pedestrian and bicyclists and must be careful of the filler used



Crosswalk Maintenance Recommendations

- Thermoplastic preferred for its durability, but not always the best cost option
- Consider wheel travel for placement of ladder crosswalks
- Have to consider existing marking materials when applying new – paint over paint is okay, but not tape over tape
- Use most durable marking with new and reconstruction projects
- Inlay tapes hold up much better on snow plowed streets



Pedestrian Signals

Recommendations

- LEDs should be used – transition has happened
- Quick response
- For inspection, these are conditions that should be monitored:
 1. Cracked or broken pushbutton hardware
 2. Pedestrian signal heads or push buttons that are turned askew
 3. LEDs in pedestrian signal heads that are fading in conspicuity
 4. Vegetation obscuring pushbuttons or pedestrian signal heads
- Inspection processes provide a perfect opportunity to check button mounting locations and how current accessibility standards are being maintained.

Basic Elements of a Program

- Sidewalk Repair
- Sidewalk Replacement
- Sidewalk Design with a eye on maintenance
- Path Repair and Replacement
- Crosswalk marking maintenance
- Pedestrian Signal maintenance



Recommended Maintenance Repair Practices – A Model

- Quick Response to most safety problems
- Circulating sidewalk replacement program
- Funding – different approaches working, but move to more equitable way
- Coordination – streamline and funnel through one unit
- Documentation – document problems and how they have been resolved
- Inspection and Inventory – be proactive, do more than spot inspect
- Plans and Policies – communities should have a set of policies or plans in place addressing maintenance

Construction Techniques to Lessen Maintenance for Sidewalks and Paths

Design of sidewalks and surfacing type can help moderate future costs of maintenance.

- Durability of materials – concrete vs. asphalt vs. cost
- Surfacing types – pavement vs. pavers or bricks
- Underlayment and depth of materials – compacted base material is very important to longevity
- Types of detectable warning fields – initial costs versus likelihood of replacement



Construction Techniques - Trees

Trees are one of the main reasons for sidewalk replacement. Consider this about trees and new sidewalks:

- Tree placement – the farther away the better
- Tree species – avoid trees with large trunk flares and surface roots



Construction Techniques - Trees

- Work with an arborist
- Any replacement program has to be very careful with root trimming – a sidewalk replacement has to be sustainable



Funding

- Funding for maintenance is limited to local funding
- More of an issue with sidewalk replacement
- Difficult to rely on property owner assessments, especially for 100% of the cost.
- More communities considering moving away from assessments
- Included examples of several communities with new funding schemes

Funding

- Equity issues with special assessments
- Maintenance often most necessary in older neighborhoods and occupied by lower income residents
- If streets are maintained using general revenues, shouldn't sidewalks also
- But if an agency moves from special assessments, can there be a commensurate level of sidewalk work?
- If its not broke.....



Part-time Maintenance Provider

- Saw this on Monday morning and reported it.
- Moved it from middle of path and tried to scoop up glass
- Was removed by Tuesday night.
- Was thrown from bridge (not in view) and did not fall off of the rack of a bicycle

More Work Needed

- Impacts of laws and legal precedents - Mostly state laws, but also local ordinances.
- More on trees. Types of trees, placement of trees, proper treatment of tree roots, etc.. A “sidewalk tree guide”.

Links to Documents

Link to Guide:

http://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa13037/fhwasa13037.pdf

Link to Research Report:

http://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa13037/research_report/researchrpt.pdf

Minneapolis Sidewalk Maintenance Program

- Policy
- Inspection Criteria
- Inspection Process
- Ten Year Cycle
- Sidewalk Repair Options
- Reporting Issues – Structural and Snow/Ice
- Communication with Public



Policy

- Minneapolis requires that property owners build and maintain the public sidewalks along city streets
- Public sidewalks provide safe passage for pedestrians, including wheel-chair and other disabled users.
- City assesses costs to property owners - the City charges each property owner the cost of replacement

Inspection Criteria - General

- Damage that could cause pedestrians to fall
- Damage that could impede wheel-chair users and other disabled pedestrians
- Common defects like breaks, unevenness, and projecting or settled sections

Inspection Criteria - Specific

- Broken – ½ inch separation, multiple break
- Uneven – Projecting trip-able edges
- Settled – Below top of curb
- Other – Pitting (1/4" deep or more than 20% of surface), rotten joints (1"), clay cracking

Inspection Process

- Reported problems and 10 year cycle
- For report a problem - A site inspection is performed
- Often an asphalt patch is ordered.
- The temporary and permanent repairs are scheduled weather/season permitting.



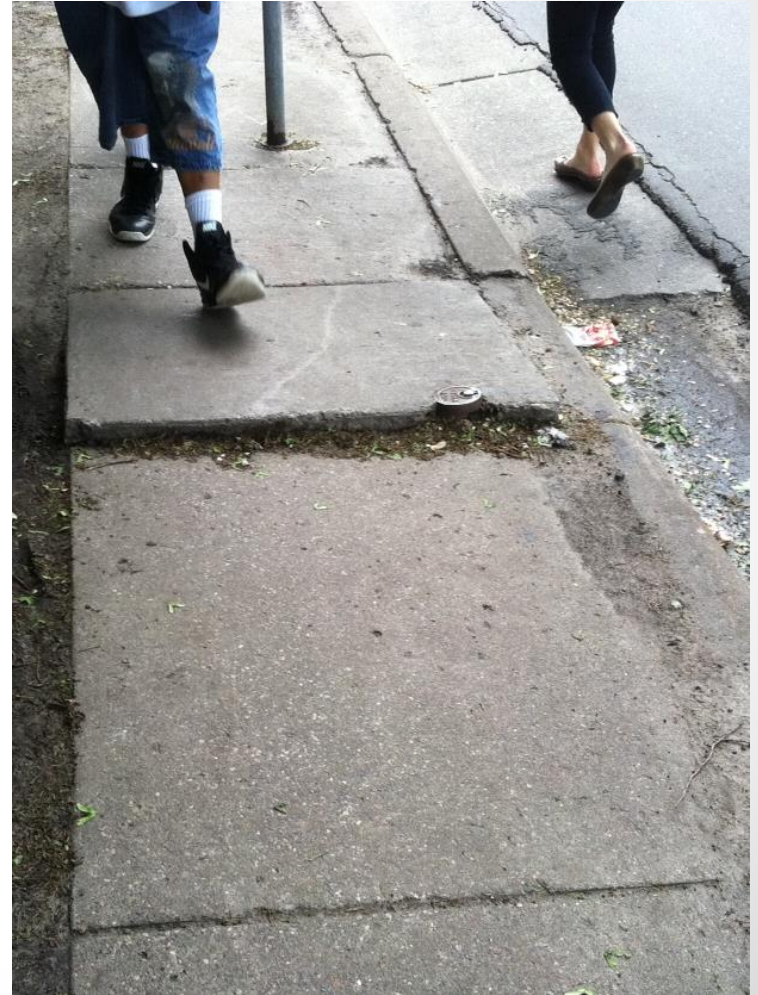
Inspection - Ten Year Cycle

- The Sidewalk Inspections Office of Public Works inspects all city sidewalks on approximately a 10 year cycle.
- Neighborhood areas selected for that year's sidewalk repair work.
- Sidewalk inspectors examine every section of public sidewalk to determine replacement.

Sidewalk Repair Options

Two options for property owners:

- Hire a properly bonded private sidewalk contractor to do the required repairs
- Allow a city-hired contractor to repair the sidewalk, and have the City bill you for the cost of replacement
- The City is typically able to secure a lower price because of the volume of work (economies of scale)



Reporting Issues

- Website
- Also report a problem with snow and ice



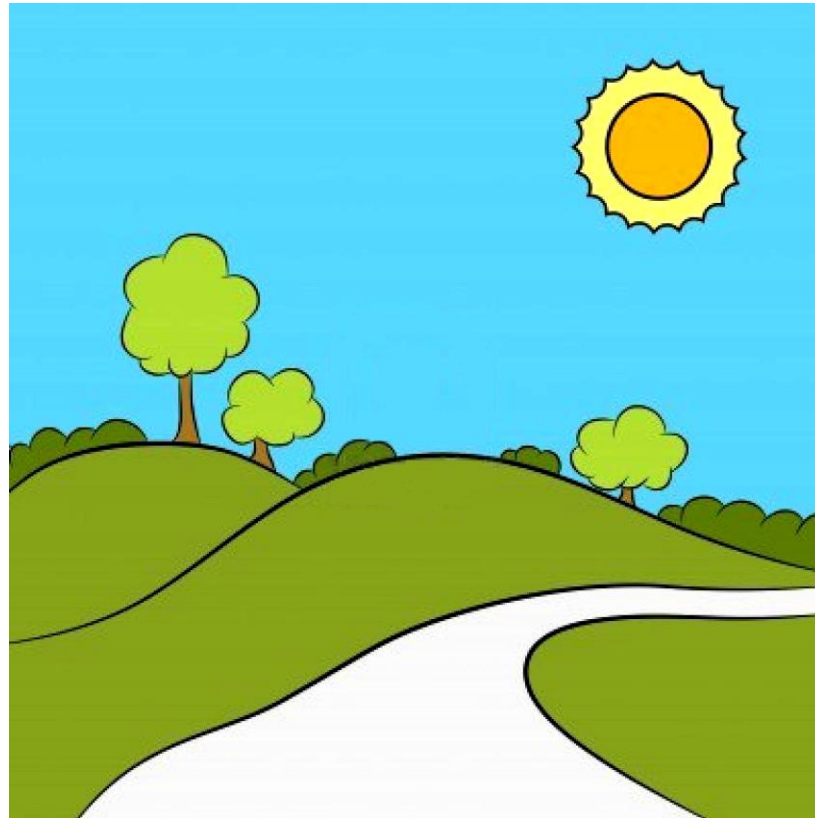
Assessment

- Temporary patches not assessed
- When sidewalk replaced by city, the city will bill or assess the property owner. Designed to simplify the hiring and payment of contractors for residents.
- The property owner can "finance" the cost of the work as an assessment on their property taxes

Communication with Public

- Website
- Neighborhood outreach

City of Ithaca Sidewalk Local Law



Sidewalk Policy History

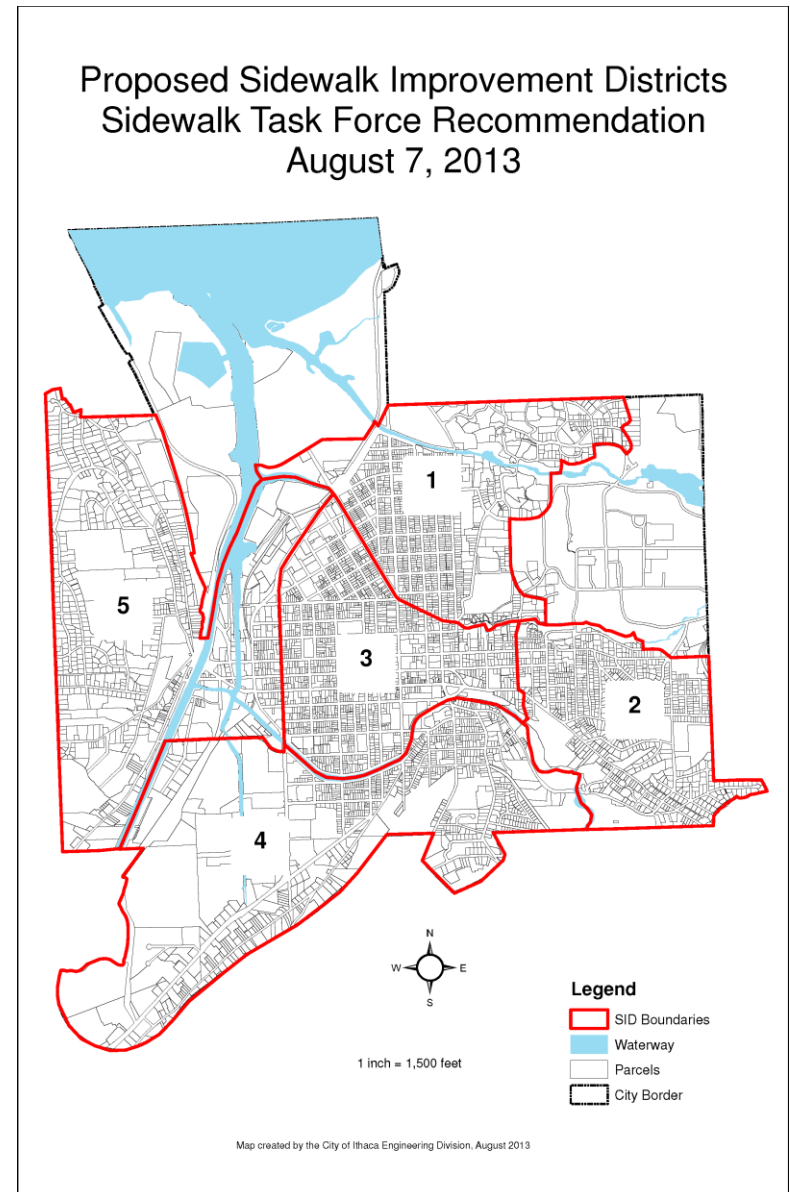
- The City's current sidewalk maintenance plan suffers from delays while unfairly burdening individual property owners.
- As a result, our City builds less new sidewalk and repairs less old sidewalk.
- To solve this problem, the Mayor formed the Sidewalk Task Force to create a new policy for the City's sidewalks.

Objectives for a New System

- Make sidewalk costs fair and predictable for property owners
- Better, faster sidewalk repairs
- Continue to include tax-exempt property owners in sidewalk financing
- Treat sidewalks as a shared resource and build more sidewalks!

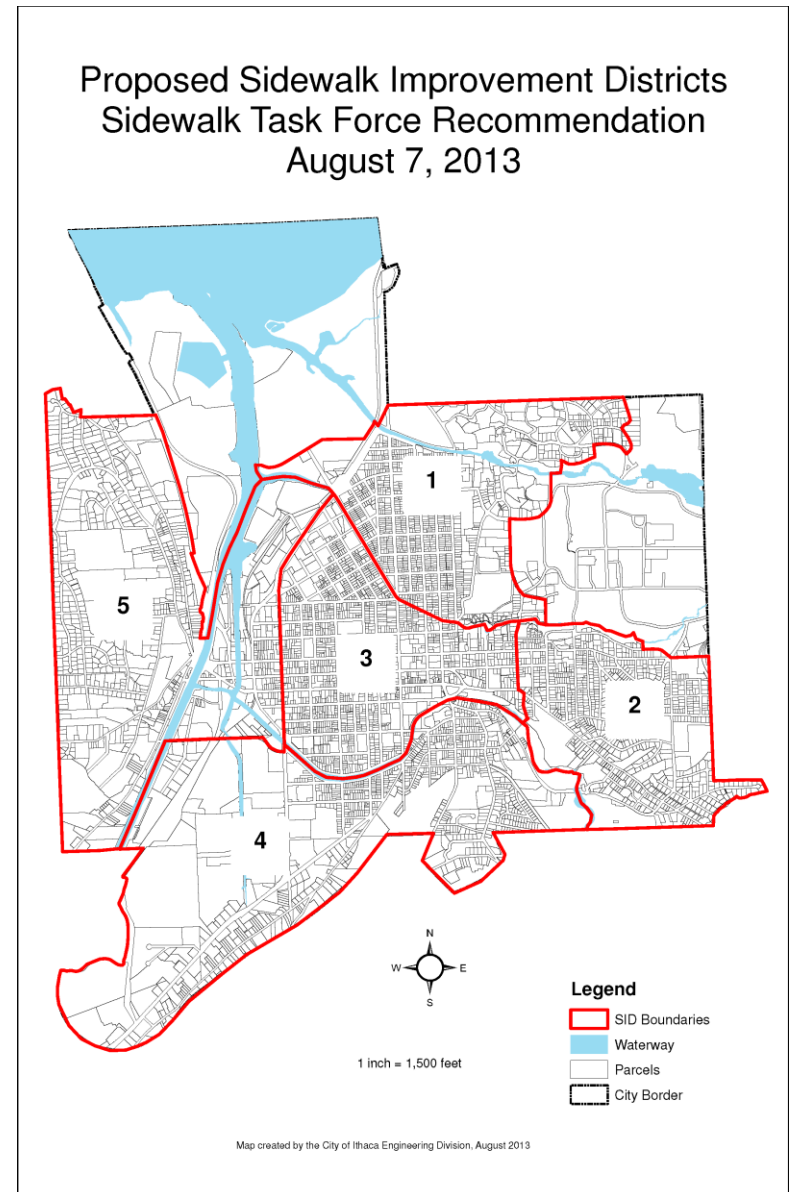
Sidewalk Improvement Districts

- The Task Force's proposal creates five Sidewalk Improvement Districts.
- The districts distribute costs for sidewalk maintenance throughout the City of Ithaca.
- Cornell's main campus is excluded, making the University responsible for its own sidewalks.



Sidewalk Improvement Districts

- Each lot will be subject to annual assessment.
- The money raised in each district will only be used to improve sidewalks in that district.
- This plan makes each property owner responsible for a fair share of the cost of nearby sidewalk work.



Sidewalk Assessments

- The Task Force has proposed a formula to calculate each lot's assessment.
- If approved by the Common Council, the assessments will be liens on the property and will be collected with City property taxes.
- Even tax-exempt properties will be included in the sidewalk assessment.

Assessment Formula

- One- and two-family homes are classified as “Low-Foot-Traffic Lots.”
- Low-Foot-Traffic Lots pay an Annual Maintenance Fee of \$70, and nothing more.
- All other lots pay a base Annual Maintenance Fee of \$140 plus:
 - A Square Footage Fee of \$0.015 per square foot of buildings on the lot.
 - A Frontage Fee of \$30 for each 50 feet of lot frontage on the street

Assessment Comparison

- Single Family Home

» Total: \$70



- \$70 Maintenance Fee
- No Frontage Fee
- No Square Foot Fee

- 312 College Avenue

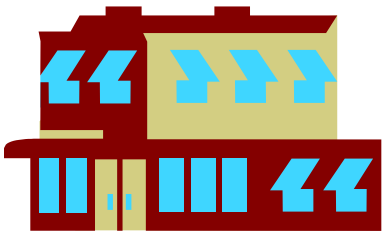
» Estimated
Total:
\$1915.88



- \$140 Maintenance Fee
- \$90 Frontage Fee
- \$1685.88 Square Foot Fee

Assessment Comparison

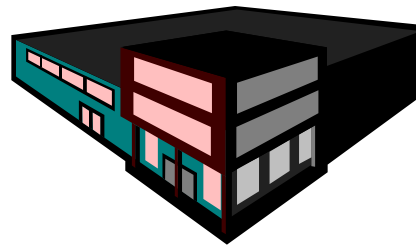
- Small Business



» Total: \$185

- \$140 Maintenance Fee
- \$30 Frontage Fee
- \$15 Square Foot Fee (at 1000 sq. ft.)

- Wal-Mart



» Estimated Total: \$3283.27

- \$140 Maintenance Fee
- \$930 Estimated Frontage Fee
- \$2213.27 Square Foot Fee

Funds Raised

- The proposed plan will raise an estimated \$700,000 each year (before credits for past work).
- While each district contributes a different amount, that district's funds will only be spent for improvements within that district.
- The money raised should cover all sidewalk work done in Ithaca each year.

Credit for Past Work

- If a lot's sidewalk has been constructed or repaired at the owner's expense in the past 20 years, the owner's assessment can be reduced.
- 1/20 of the cost of the past work may be discounted from the assessment for 20 years after the date of construction or repair.
- The Department of Public Works will review these applications for reduction, and owners can appeal decisions to the Board of Public Works.

Exceptions

- Driveway cuts and aprons will not be funded by assessments and are the property owner's sole expense.
- The City can still require that sidewalk construction or repair be paid for by the property owner as part of the site plan review process.
 - This work cannot be used as a credit to reduce future assessments.

Community Input

- The Board of Public Works recommends a budget and schedule for sidewalk work to the Council for approval.
- BPW is open to public suggestions for sidewalk repair and construction throughout the year.
- BPW will meet during the winter and spring to discuss sidewalks specifically.
- Common Council members are also a point of contact for sidewalk discussion.
- Public comment is particularly welcome at August 7 Common Council meeting & August 12 GPA Committee Meeting, both at 6pm.

Thank you!

⇒ Archive at

http://www.walkinginfo.org/training/pbic/pedfocus_webinar_12-06-2013.cfm/

- Downloadable/streaming recording and presentation slides

⇒ Questions?

- webinars@hsrc.unc.edu