
REPAIRING HISTORIC FLAGSTONE SIDEWALKS

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Denver Homeowner, Masonry Expert

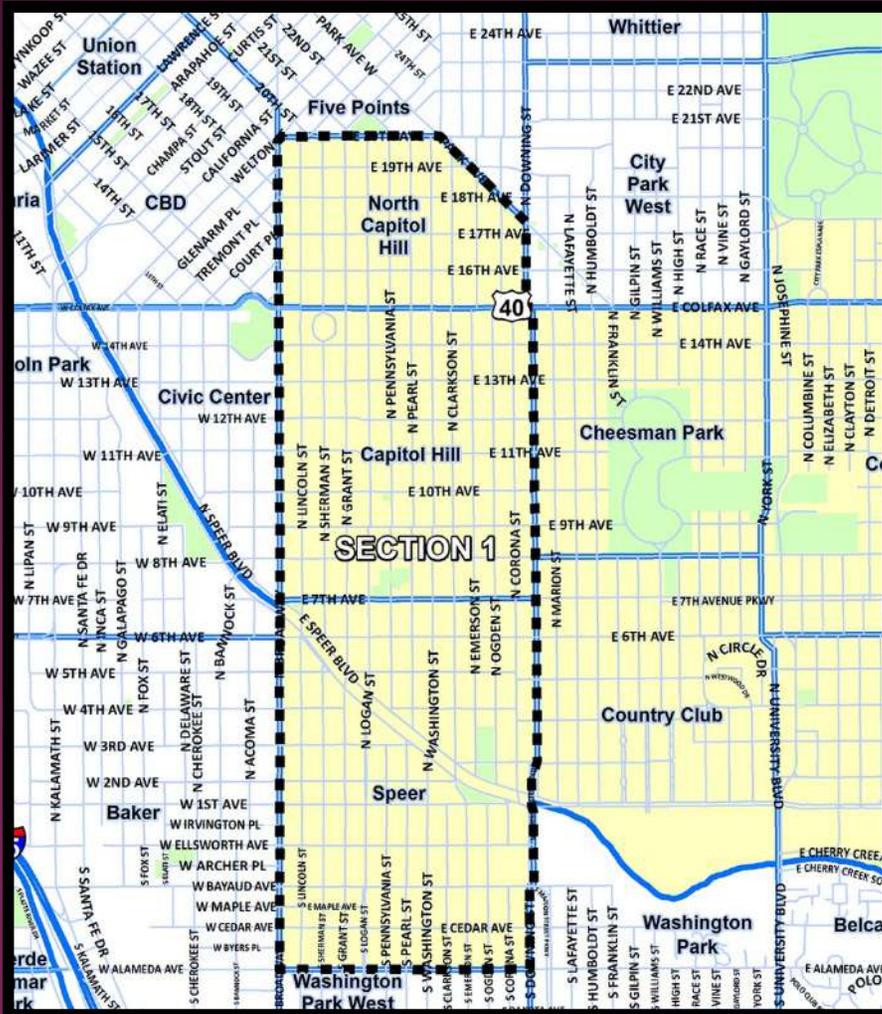
The City of Denver Requires Homeowners to Repair Broken and Heaved Sidewalks



If a portion of the sidewalk is shattered or if it is heaved and offset by more than $\frac{3}{4}$ " , the homeowner must replace or re-level it.

The City's Plan

www.denvergov.org/sidewalkrepair

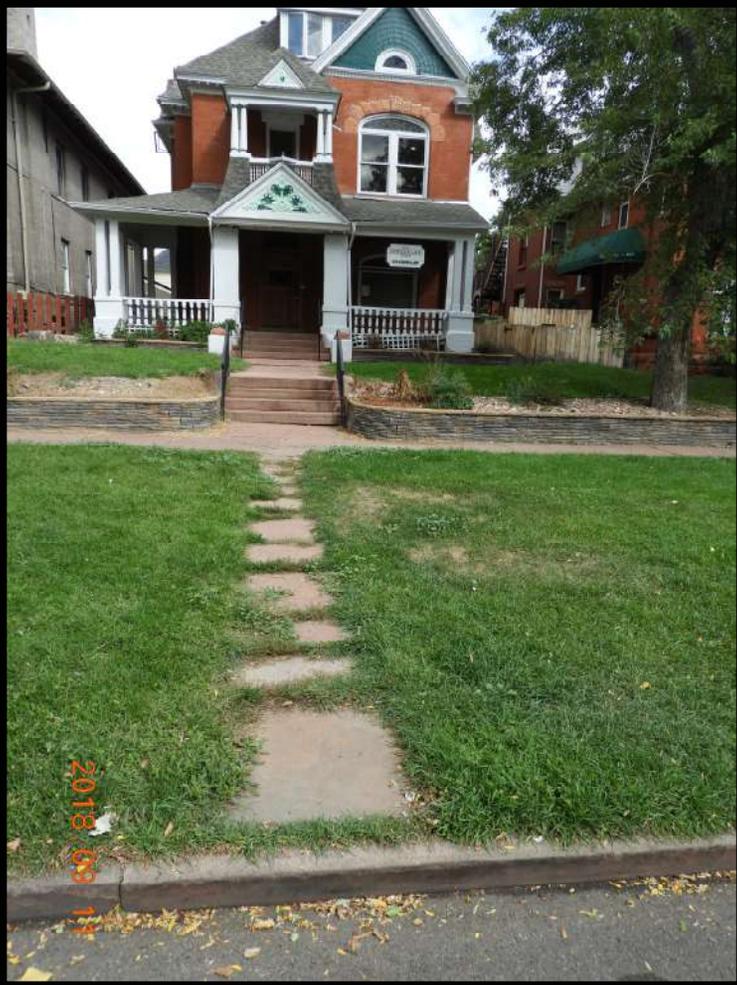


The city is starting their inspections in central Denver where there are lots of pedestrians. This is also an area with lots of bus lines.

It is also one of the oldest sections of the city and it has a lot of historic flagstone sidewalks.

The City's Plan

www.denvergov.org/sidewalkrepair

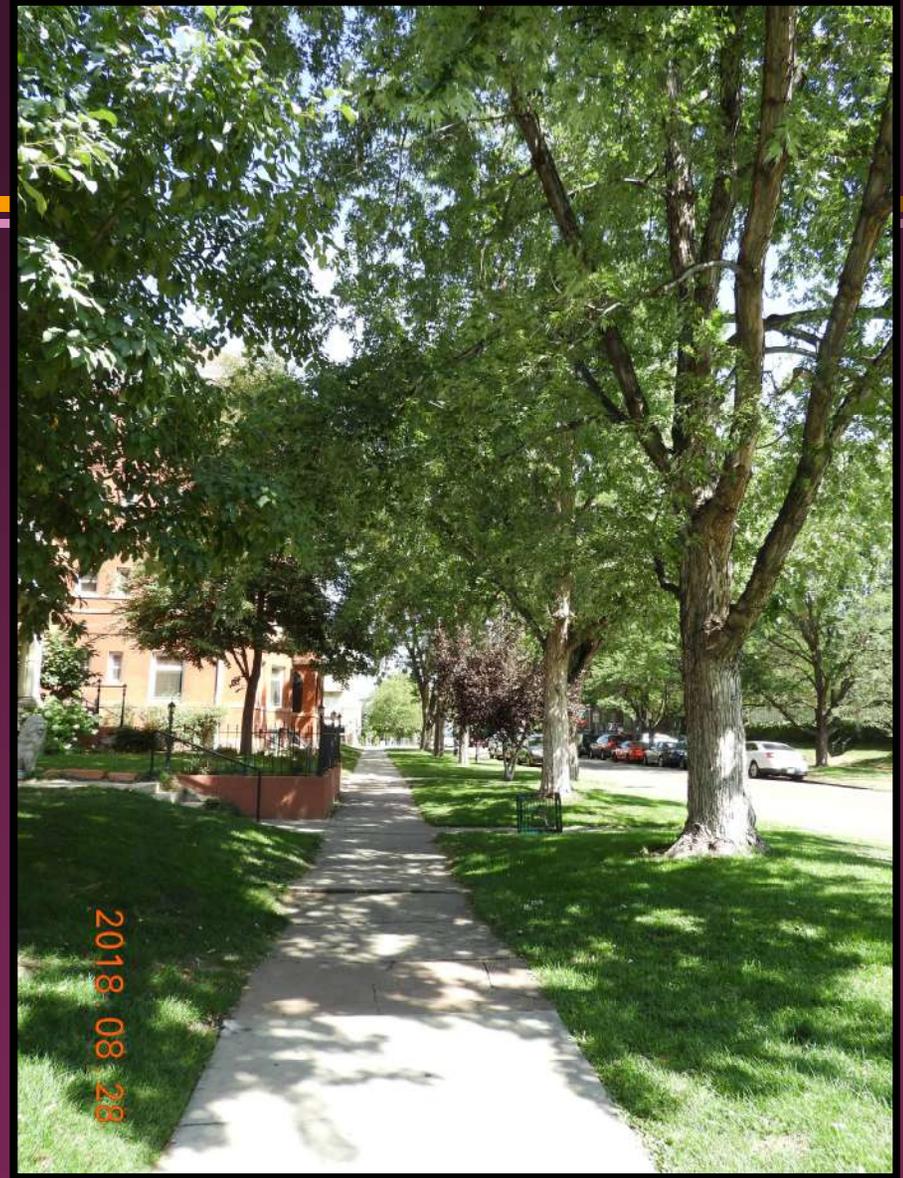


The city has stated that it will only inspect the main public sidewalk. They will not judge the walk leading to the curb or the walk leading up to the house.

The homeowner can repair these walks if they choose to but it is not required by the city.

The city relies heavily on poured concrete to repair the sidewalks but they said they would raise or re-level a stone slab if it is in good condition.

Tree Roots Heave Stone



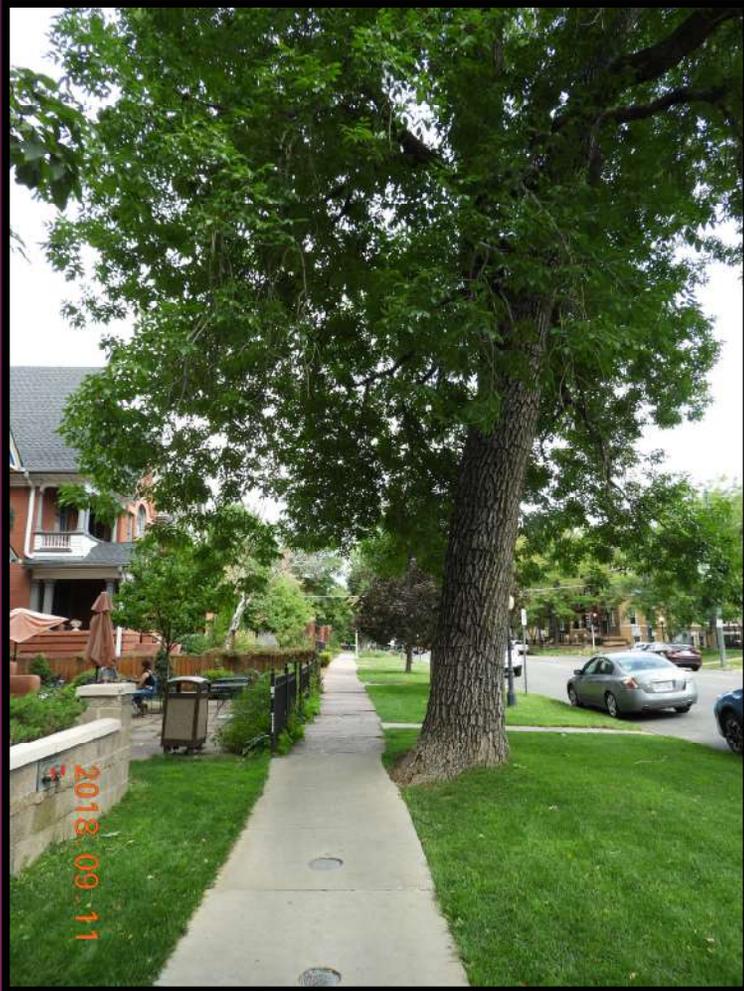
Tree roots are the #1 cause of uneven or raised sidewalks.

My Compromise with the City Forester



I wanted to cut out the root that was heaving my sidewalk. The Forester convinced me to build a shallow ramp to bridge over the root. This approach eliminated the tripping hazard but still allowed the tree root to thrive.

Advice from the City Forester



Advice about tree roots is affected by:

- The species of the tree

- The size of the tree

- The age and health of the tree

- The proximity to the sidewalk

Contact forestry@denvergov.org

720-913-0651

Warning from the City Forester



The City of Denver thinks of street trees as a public amenity. Shade from these trees keeps us all cool and adds to the beauty of the city.

If you damage or cut down a street tree without permission from the Forester, you can be fined the full value of the tree. This could be thousands of dollars!

The city has an online inventory of the size and species of every street tree in the city at www.beasmartash.org.

Mud-Jacking or Foam-Jacking

Foam Jackers drill holes through the stone and lift the stone with hydraulic pressure from the foam they inject underneath the slab.



Mud-Jacking or Foam-Jacking

Crete Jack

Andrew Feigenbaum

303-883-3322

www.cretejack.com

Foam-jacking technicians drill 5/8" diameter holes through the flagstone and inject 2-part polyurethane foam underneath the slab. You can walk on the stone immediately after they finish their work. They fill the holes with colored mortar when they are done.

Foam-jackers cannot work when the ground temperature is below 40 degrees.

They charge a minimum fee of \$700 to come to your house. This will cover lifting several stones.

Lifting Stone Slabs and Adjusting Soil

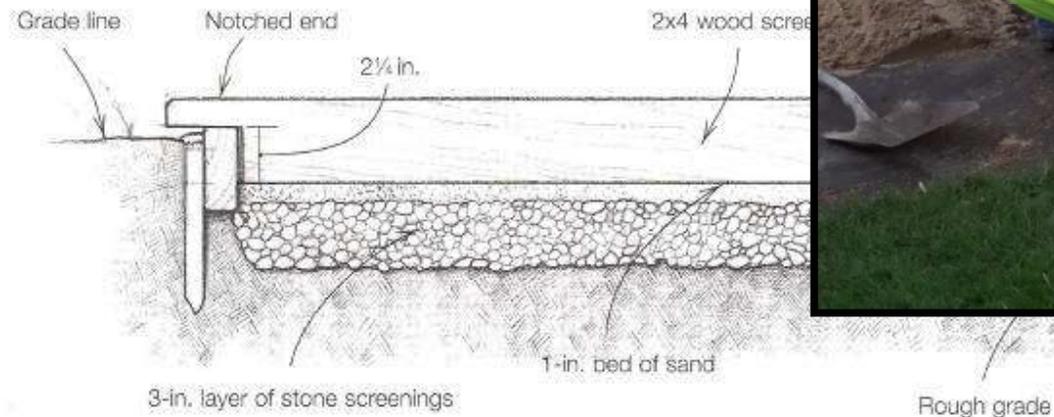


Lifting Slabs and Adjusting the Soil

Dig 3"-4" out from under the slab.
Compact the soil in the pit.
Add crushed rock and tamp it.
Cover with landscape fabric.
Add 2" of sand and tamp it.
Reset the slab.



Wood Screenshot in Place



Lifting Slabs and Adjusting the Soil

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Singing Hills Landscape

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These folks lift smaller slabs by hand but they use a forklift to move large slabs. Once the soil is exposed, they dig out about 4" of soil. They compact the soil and add 2" of crushed stone (road base) followed by filter fabric and another 2" of sand. Then they reset the slab.

They charge a \$250-\$350 to reset each stone slab.

Grind Down the Edge of Raised Slabs

While grinding the protruding edge of a slab works to eliminate the tripping hazard, this method is not appropriate for flagstone. Concrete and granite are homogenous materials. Grinding them down does not expose the slabs to premature failure.

Flagstone is a sedimentary stone. It has natural layers. Some of the layers are weaker than others. Grinding it down can cause the stone to delaminate.



If You Need to Replace a Slab



The historic flagstones in Denver sidewalks were quarried near Rocky Mountain National Park. There are several quarries that sell this kind of stone:

Lyons Sandstone
High Plains Stone Company
Loukonen Bros Stone
Foothills Stone Supply
Camp Stone Co. Inc.
The Gallegos Corporation

Good Neighbors Save Money Together!



Joining together with your neighbors when you order stone will save you money. The delivery charge is a significant portion of the cost of new stone slabs.

Can You Fix It Yourself?

- If the slab of flagstone is less than 3' x 4'.
- If you have several strong and willing friends with basic tools.



Sometimes You Should Hire Professionals

- If you have large slabs (bigger than 3' x 4')
- If you have to replace slabs
- If the thought of doing this work frightens you
I suggest that you hire a professional.
Go to www.walkdenver.org to find a list of contractors.
- Although the city website warns you that you should check to verify that your contractor is licensed with the city, NONE of the stone contractors or mud-jackers on the city's list (or my list) appear to have a license with the city.
- I do not know if this a problem with the city's data base or with the contractor's paperwork.



Do You Need a Permit?

If you need to block pedestrian traffic, you need to get a permit from Public Works.

You can file for this permit in person at 2000 West 3rd Avenue or you can file online. There is no fee for a homeowner to file for a permit. It costs a contractor \$50. File early. It takes a *minimum* of 5 working days to process your application.

Public Works will drop off 4 signs on the day before construction starts. Two signs should be set up at the ends of the block. Two signs should block traffic immediately next to your construction zone.



For more information, contact:

The City and County of Denver

Department of Public Works

www.denvergov.org/sidewalkrepair

303-446-3469

Walk Denver

www.walkdenver.org

Historic Denver

www.historicdenver.org