



Pittsburgh Step Survey Field Guide



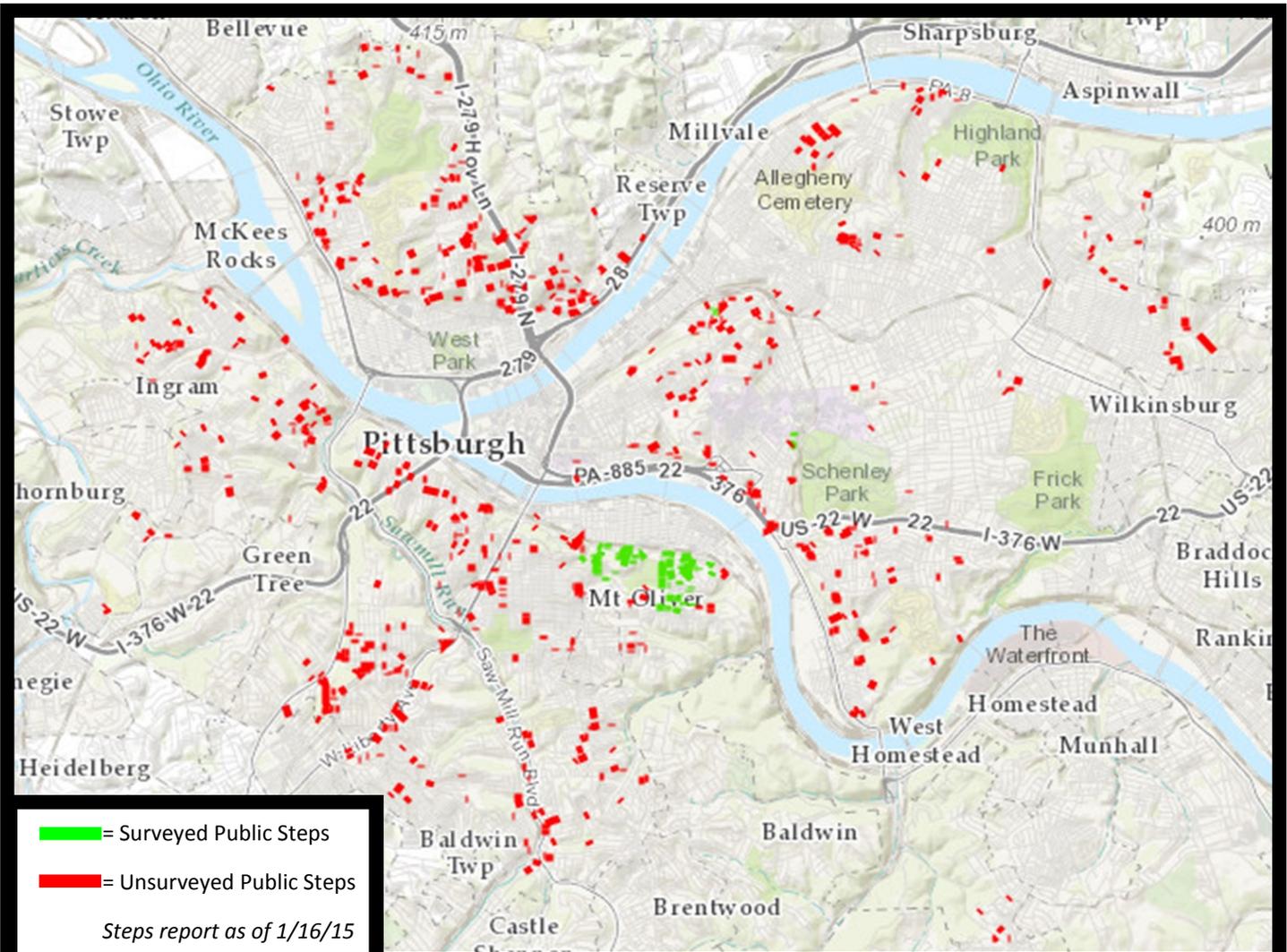
Bicycle/ Pedestrian Office

200 Ross Street-4th Floor

Pittsburgh, PA 15219

The Survey Process

The Pittsburgh Steps Survey will inspect all of the city's 700+ staircases. The Department of City Planning's GIS division has mapped out all of these staircases on a public ArcGIS database according to data collected by volunteer and author Bob Regan. Upon completion of the survey, the data collected on the steps, along with community input, will be channeled into a community engagement process for prioritization of step repair and maintenance.



The City of Pittsburgh has over 700 staircases which need to be cataloged. Above is a map of Pittsburgh's network of public stairs. Lines in green indicate a set of steps which has been surveyed. The lines in red indicate sets of steps which remain to be surveyed. Much work remains to be done, but with the help of volunteers, the survey process will be expedited.

Field Procedure

Step survey teams will consist of 3 members with a supervisor from the Department of City Planning, who will be on site to ensure consistent data collection, answer questions, or note any irregularities.

DO NOT CLIMB UNDER STAIRS OR PUT YOURSELF IN DANGER.

Team Member 1—Record the Condition of the Steps

- Once at the site of a staircase, record the Stair ID# and the general data (Top Street, Bottom Street, Staircase Type, and Material).
- Record the condition of the steps. Mark a tally for each instance of cracking, chipping, spalling, exposed rebar, loose step, opening of an expansion joint, and each case of a stained or rusted step. References pages 6 and 7 for information on treads.
- Inform the team member with the Ipad of any steps that need to be photographed.

Team Member 2—Record the Condition of the Rails

- Once at the site of a staircase, record the Stair ID#.
- Record the condition of the rails. Mark a percentage for the degree of rust, tally each rail that is bent or unstable, as well as record each instance of cracking (on rail, base, or joint), and each instance of a missing railing. Reference pages 8 and 9 for information on rails.
- Inform the team member with the Ipad of any rails that need to be photographed.

Team Member 3—Digital Recorder

- Create a digital record of the steps with an Ipad provided by the Department of City Planning. They will record data into the ArcGIS data set and take photos of the site
- After the manual handwritten entry, count and record the info into the Arc GIS application within the map entitled “steps data collection”.
- **Remember to select “finish” after compiling data**, or everything recorded up to that point could be erased. Also, only numbers can be entered in questions expecting number answers. Text answers can be numbers or text.
- **Take Photos:** Photos are geo-referenced and are an unbiased method of inventory. Take photos of the beginning and end of each staircase as well as extreme cases of damage and anything unique about the staircase. These characteristics could be good or bad. Scenic views, severe damage, flooding, extreme overgrowth, change in material, and/or like-new condition should be photographed.
- Turn in Manual entry forms to the City representative.

General Steps Information

Name: Some of Pittsburgh's steps are also legal streets, they are called paper streets. If there is a street sign with a steps symbol, mark down the name of this paper street.

Top Street: Street at top end of the steps

Bottom Street: Street at the bottom of the steps

of steps: total number of vertical risers (steps)

of landings: total number of flat surfaces after a riser that are longer than approximately 4 feet (steps consist of a riser and a tread of less than 4 feet). See Pictures 1,2, and 4.

Type: Piers or On-Grade. Most steps with very steep inclines are on piers; they are not level with the surrounding earth or pavement. On Grade steps are built into the hill side. See Pictures 3 and 4.

Material: Concrete, stone, wood, steel, brick, asphalt, or other. If made of multiple materials, select the type that occupies the majority of the staircase.

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General Steps Information



Picture 1: The flat surface of each step is over 4 feet, therefore each step also qualifies as a landing and should be counted as a step and as a landing.



Picture 2: This sidewalk with a railing begins with a single step. The bottom is considered a staircase with 1 step and 1 five foot landing.



Picture 3: This staircase is built on piers, elevated from the ground below.



Picture 4: This staircase is built on grade, laid directly into the contour of the ground.

Tread Condition

Tread Cracking: Each instance of cracking, in severe cases may be combined with TR Chipping and TR Spalling. See Picture 5.

Tread Chipping: Each instance in which a chunk or chip of concrete or other material is missing, note the difference from spalling. See Picture 6.

Tread Spalling: Each instance in which a layer(s) of surface material is removed, similar to chipping but over more expansive areas of the surface. See Picture 7.

Tread Rust/Staining: Each instance of discoloration from typical surface color, usually fairly obvious

Tread Exposed Rebar: Each instance of visible steel structure meant to be contained within the surface material, usually concrete. Exposed rebar comes hand in hand with chipping, spalling, cracking, and rust/staining. See picture 8.

Tread Loose Step: Each instance of a noticeably loose step; easily determined by walking on the steps

Tread Opening Exp. Joint: expansion joints are separations (“joints”) of surface material slabs usually found in concrete used to account for expansion due to temperature and freeze/thaw cycles. Loose expansion joints could be full of debris or vegetation or not be level with the adjacent surface.

Excessive Slope: Any staircase that has more than 10 stairs in one section without a landing, or a staircase in which the treads are noticeably shorter and risers higher than the average staircase, but the latter is a rare occurrence.

Risers Open or Closed: Open risers are where steps have no backing Current ADA compliance does not allow for open risers on staircases.

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Tread Condition



Picture 5: Cracking in the tread on two steps.



Picture 6: Two instances of chipping on the corners. Note the exposed rebar as well.



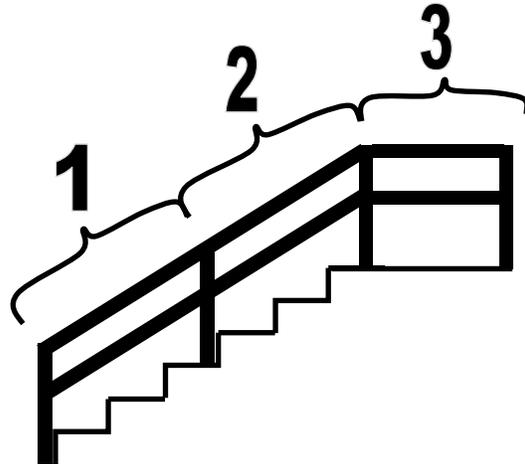
Picture 7: One instance of severe spalling, step is beginning to erode.



Picture 8: One instance of exposed rebar in the tread.

Rail Condition

R Total Sections: Total number of railing sections, defined as the area between two vertical supports. The diagram below shows how each section is counted. Remember to count both sides of the railing, in the example below two handrails would lead to 6 sections.



Rail Rusting : Where the paint has been chipped, spots of rusting, or unpainted rails occur. Severity of the rusting may vary from mild to extreme, mark a percentage for the degree of rusting.

Rail unstable: Each instance of railing-section instability, determined by physically leaning or pushing on the railing. Be careful when inspecting rail stability.

Rail Bent: A bend in the rail where the staircase continues straight. See Picture 10.

Rail Cracked: Rail broken before the joint.

Rail Cracked Base/Joint: Joints are where railing pieces are adjoined and a base is where a railing support is attached to earth or pavement. Remember to inspect each railing base as it is easy to miss bases in bad condition in overgrown areas. See Picture 11.

Rail Nonexistent: Each instance of railing missing where there should be a railing. Railings belong on all slopes, unless there is an entrance to a building or garage in which case there should be an appropriate gap. It is easy to pass by areas with missing railing sections without ever noticing there should be a railing there. See Picture 12.

Railing Continuity: Add a note and photo of any railing that is not continuously smooth. Many cases of older railing have brackets that join two sections of railing together at the support posts. Current ADA standards require smooth, continuous railing.

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Rail Condition



Picture 9: 100 % rusting. Note that not all rusting is this extreme.



Picture 10: Note the bend in the railing beside the pedestrian as well as successive bends up the hill.



Picture 11: Cracked rail joint. Remember to inspect the joint as well as the base for each section of railing.



Picture 12: Missing railing. All railings should have a proper baluster at their ends. In this photo, it appears the railing is missing several components.

Structural Support Condition

Inspecting the runners and supports of the steps. Not all structural supports can be examined. Exercise caution when inspecting the structural support and do not put yourself or others in danger. Do not trespass on private property to inspect the structural support.

Structural Support cracking: same criteria as TR Cracking, except for the support structure visible from side and/or internal/underneath angles. See picture 13.

Structural Support Chipping: Each instance in which a chunk or chip of concrete or other material is missing from the structural support. See picture 13.

Structural Support Spalling: Each instance in which a layer(s) of surface material is removed, similar to chipping but over more expansive areas of the surface. see picture 14.

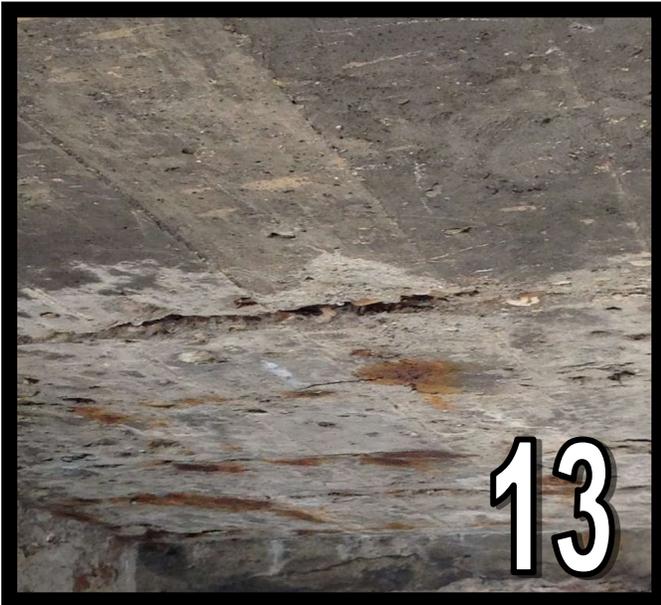
Structural Support Erosion Foundation: Each instance displacement of surface material, debris, or soil, usually caused by inadequate drainage and excessive slope.

Structural Support Deformed Bending: Structural components are deformed, collapsed or bent. See picture 15

Structural Support Exposed Rebar: Self-explanatory, usually refers to exposed support rebar or wooden staircases. See picture 16.

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Structural Support Condition



Picture 13: Underside of the staircase shows signs of wear. Rust staining, cracking, and chipping are all evident and suggest damage to the support structure.



Picture 14: While difficult to examine the structural support of many steps, spalling is evident in the rubble and debris.



Picture 15: This photo demonstrates a temporary repair to a deformed staircase. Note the deformed concrete behind the plywood.



Picture 16: Exposed rebar accompanies chipping.

Other Notes

Obstruction: Anything that would significantly hinder travel up or down a staircase such as excessive overgrowth, private property signage, etc. See Picture 17.

Runoff Deposit: The result of erosion, record each instance of sediment build-up, usually from flooding events. See picture 18.

Overgrowth: Percent overgrown: 0%,25%, 50%, 75%, 100% See Picture 19.

Lighting: Is there lighting present? How many instances of lighting failures? This will be difficult to assess during day light hours, but notes/photos are encouraged.

Utilities: Gas, Water, Electric, etc in the direct path way of the stairs. See Picture 20.

Other: Any miscellaneous notes. For example, you could record any difference in staircase location compared to the GIS generated map on ARCGIS, which is a frequent occurrence.
Completed: Select when the above is completed

Note: When in doubt, take a photo. Photos are geo-referenced and are an unbiased method of inventory. Take photos of the beginning and end of each staircase as well as extreme cases of damage and anything unique about the staircase. These characteristics could be good or bad. Scenic views, severe damage, flooding, extreme overgrowth, change in material, and/or like-new condition should be photographed.

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Other Notes



Picture 17: A fence obstructs the pedestrian path.



Picture 18: Sediment deposit. Look for deposit on depressed steps or on the side of the structural support.



Picture 19: Overgrowth at 100%. Any plant reaching within 6 inches of the railing is considered overgrowth. Estimate for an additional two months of growth. Mark how much of the staircase is covered in 25 percent increments.



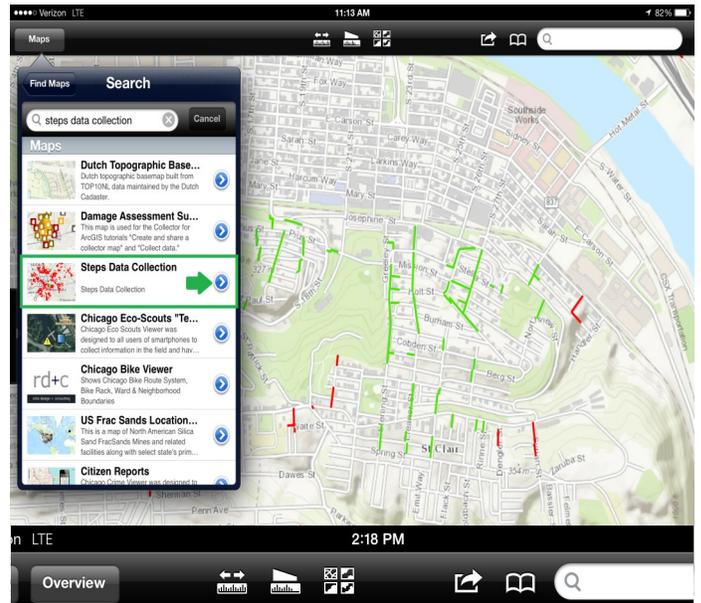
Picture 20: Access to a water line. Note any adjacent utilities such as gas, sewage, drainage, or anything in the direct path of the staircase.

Using Ipads for Fieldwork

The City of Pittsburgh Department of City Planning may provide a fieldwork team with an iPad. This device is useful for storing information directly onto the ArcGIS Data Map where it can be accessed by GIS technicians and planners. The Ipads can be used to locate and navigate to all of the staircases in the city, and are also useful for taking pictures of issues that require further examination or clarification.

To Access the Steps Data collection map:

1. Click on 'Maps' in the top left corner
2. Click on 'Find Maps' in the window that appears
3. Search Steps Data Collection
4. Select the map in the image below



Entering data into the form and taking pictures:

1. Click directly on the step set you want to record data
2. The window will pop up
3. To edit click the icon in the upper right hand corner of the window
4. Enter data into each section according to the manual entries
5. Only numbers can be entered in questions expecting number answers. Text answers can be numbers or text.
6. To add photos click on the attachment button on the bottom of the edit form.
7. Click "Add"
8. Click "Take Photo"
9. Select "use photo"
10. Remember to hit 'FINISH' in the upper right hand corner



Contacts

Need to get in touch with a field supervisor? Have questions about the data collection process? Reach one of the coordinators through their contact information below.

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