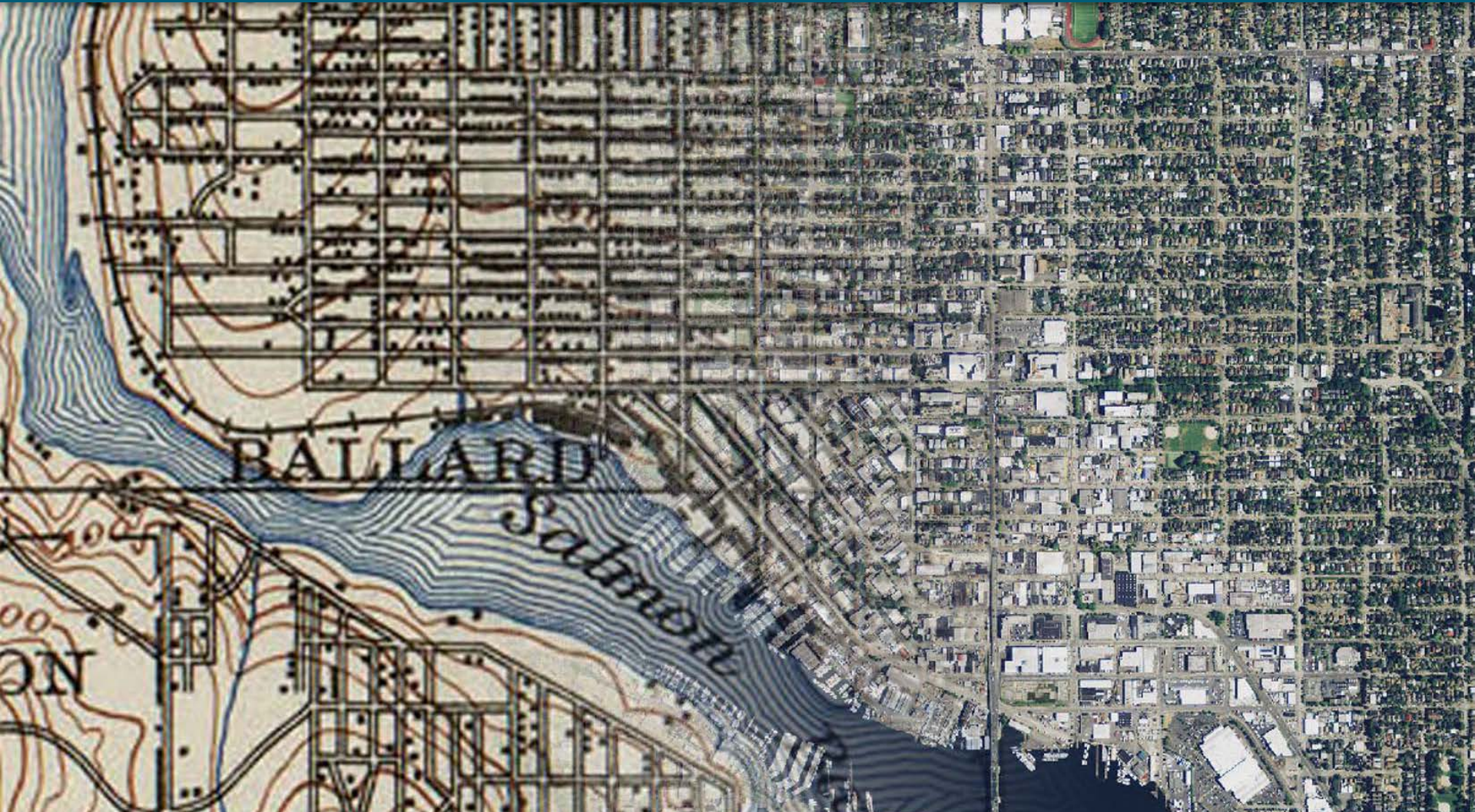


MAPPING HISTORIC BALLARD

With Crowd Sourced Mobile Data Collection



PRESENTED BY CORE GIS
MAY 24, 2016



Overview

- Where is Ballard?
- What is a survey of historical buildings?
- Why do this? Who paid for it? Who did the work?
- How was the work done?
- What do the results show, and how will they be used?
- What went well? What could have gone better?





The Ballard Neighborhood

Mapping Historic Ballard





EAT

the
Hi-Life

eat



Salmon Bay
School



BALLARD FIRST LUTHERAN CHURCH

1100
1st Ave
Ballard
Seattle, WA 98107
206.462.1000
www.bfchurch.org



Why do this?

- Ballard is considered one of Seattle's most popular neighborhoods
- New development threatens the area's historic physical fabric that interprets its history.
- We can't understand what we might be losing until we know what we have.
- Not much surveyed in Ballard outside of the historic commercial district
- Past surveys: 1997 and 1937 (as part of the WPA effort)
- Survey data can be used as a tool for urban planning, decision-making, and community building.



Or, more succinctly...







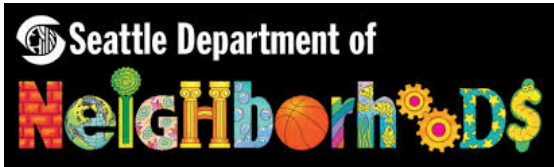


Who did the work?

- Impetus provided by Davidya Kasperzyk
- Executive committee of the Ballard Historical Society
- Two paid consultants (me and Connie Walker Gray from Confluence Environmental Company)
- Lots and lots of volunteers
 - Over 40 volunteers gathering data in the field
 - Over 25 volunteers conducting research and providing other support to the project
- We conducted two 2-hour long training sessions for volunteers gathering data in the field, and a separate training session for researchers, held at Seattle Public Library



Special Thanks to the Funders



Seattle Department of Neighborhoods
Seattle Neighborhood Matching Fund



Ballard Historical Society



Goals & Objectives

- Survey every building
- Gather multiple data fields on each building
- Use this data to identify 100 high-integrity historic structures that provide broad representation of the neighborhood:
 - Spatially
 - Temporally
 - Architecturally
- Get it done in two months



Survey Area

Mapping Historic Ballard

363 Blocks





Survey Area

Mapping Historic Ballard

363 Blocks
9,317 Parcels



Survey Area

Mapping Historic Ballard

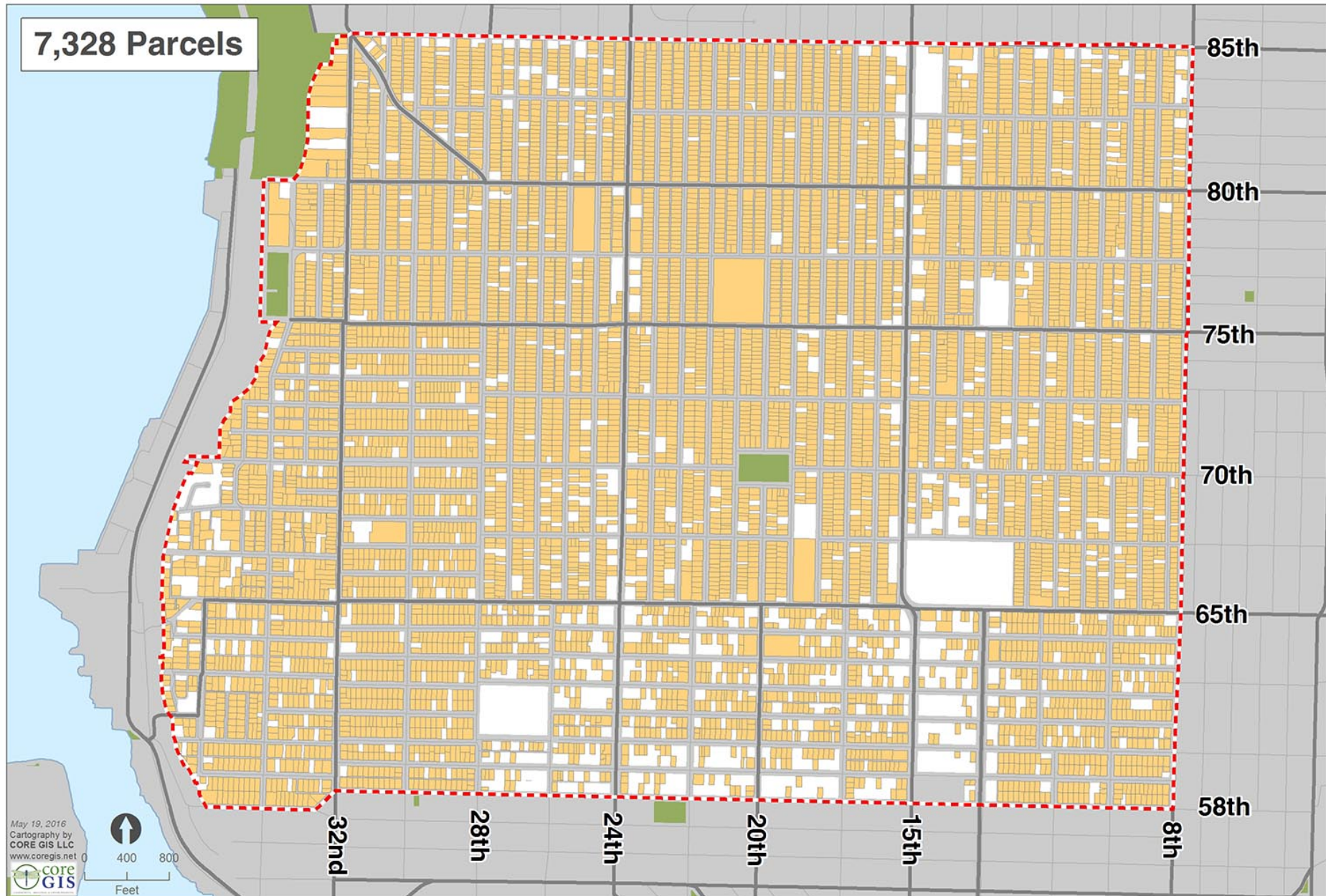
363 Blocks
9,317 Parcels
22,646 Buildings



Survey Parcels--Built 1965 or Earlier

Mapping Historic Ballard

7,328 Parcels



Sector Prioritization for Volunteer Data Gathering

Mapping Historic Ballard



Time Requirement

- Approximately 3-4 minutes per building
- ~450-500 hours
- We need help—time to crowd source!





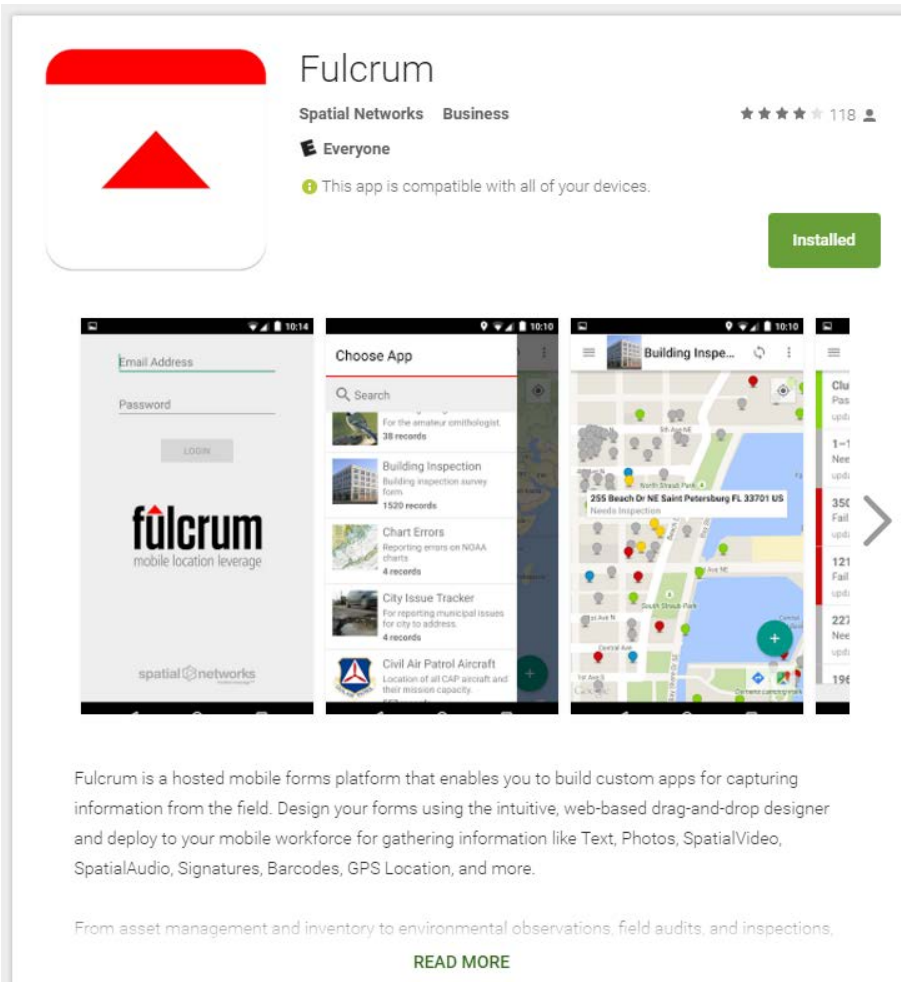
Mobile Data Collection

- ODK vs Fulcrum
- ODK is FOSS, but Android only
- Fulcrum is proprietary and paid, but works seamlessly with both iOS & Android
- And...



Download and Install Fulcrum

Android



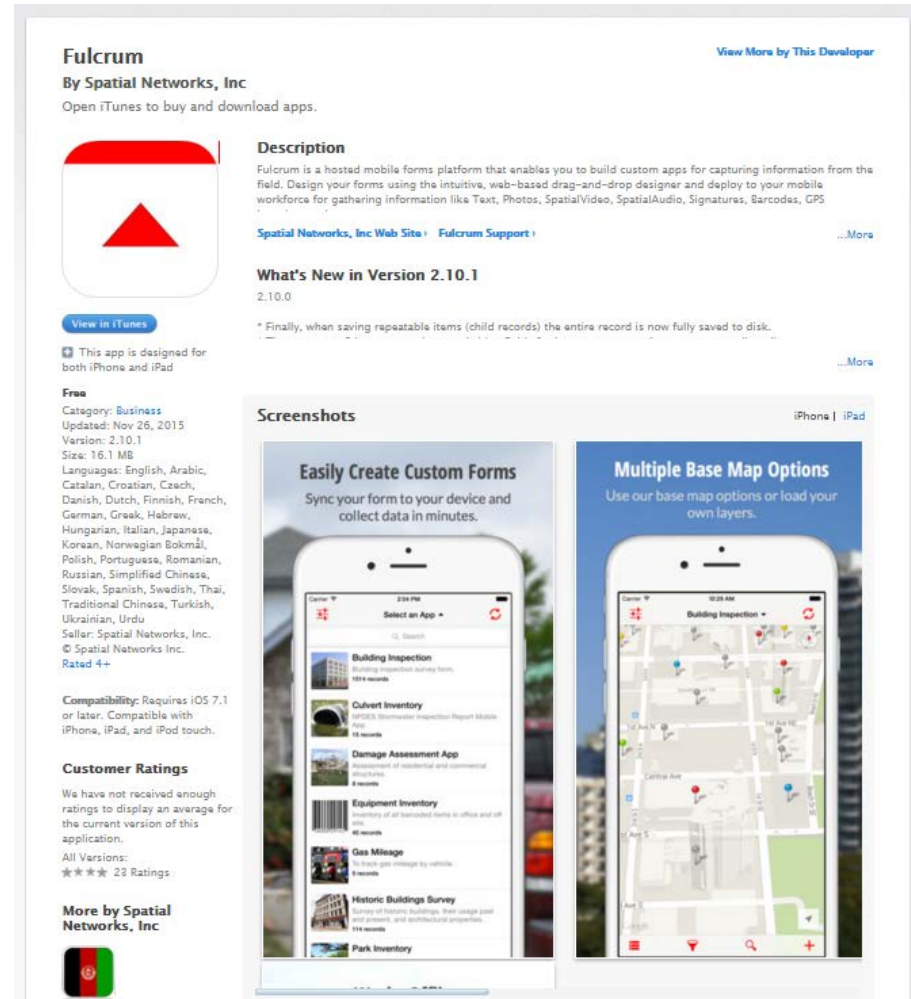
The Google Play Store listing for Fulcrum shows the app icon (a red triangle pointing up), the title 'Fulcrum', the developer 'Spatial Networks Business', and a rating of 4.5 stars from 118 reviews. It is marked as 'Everyone' and 'Compatible with all of your devices'. A green 'Installed' button is visible. Below the listing are four screenshots: a login screen with 'Email Address' and 'Password' fields, a 'Choose App' screen with a search bar and a list of apps (Building Inspection, Chart Errors, City Issue Tracker, Civil Air Patrol Aircraft), a map view showing a location in Saint Petersburg, FL, and a list of records on the right side of the map.

Fulcrum
Spatial Networks Business
★★★★★ 118
Everyone
This app is compatible with all of your devices.
Installed

Choose App
Search
For the amateur ornithologist
28 records
Building Inspection
Building inspection survey form
1520 records
Chart Errors
Reporting errors on NOAA charts
4 records
City Issue Tracker
For reporting municipal issues for city to address
4 records
Civil Air Patrol Aircraft
Location of all CAP aircraft and their mission capacity

Building Inspection
255 Beach Dr NE Saint Petersburg FL 33701 US
Needs Inspection
Map view showing location and records list:
Clu Pas updt
1-1 Nee updt
35C Fail updt
121 Fail updt
227 Nee updt
196

iOS



The App Store listing for Fulcrum shows the app icon, the title 'Fulcrum', the developer 'By Spatial Networks, Inc', and the text 'Open iTunes to buy and download apps.' Below the icon is a 'View in iTunes' button. The 'Description' section states that Fulcrum is a hosted mobile forms platform for building custom apps. The 'What's New in Version 2.10.1' section notes that the app is designed for both iPhone and iPad. The 'Screenshots' section shows two iPhone screens: one for 'Easily Create Custom Forms' and another for 'Multiple Base Map Options'. The bottom of the listing shows the 'More by Spatial Networks, Inc' section with a list of other apps.

Fulcrum
By Spatial Networks, Inc
Open iTunes to buy and download apps.
View in iTunes

Description
Fulcrum is a hosted mobile forms platform that enables you to build custom apps for capturing information from the field. Design your forms using the intuitive, web-based drag-and-drop designer and deploy to your mobile workforce for gathering information like Text, Photos, SpatialVideo, SpatialAudio, Signatures, Barcodes, GPS
Spatial Networks, Inc Web Site Fulcrum Support

What's New in Version 2.10.1
2.10.0
Finally, when saving repeatable items (child records) the entire record is now fully saved to disk.

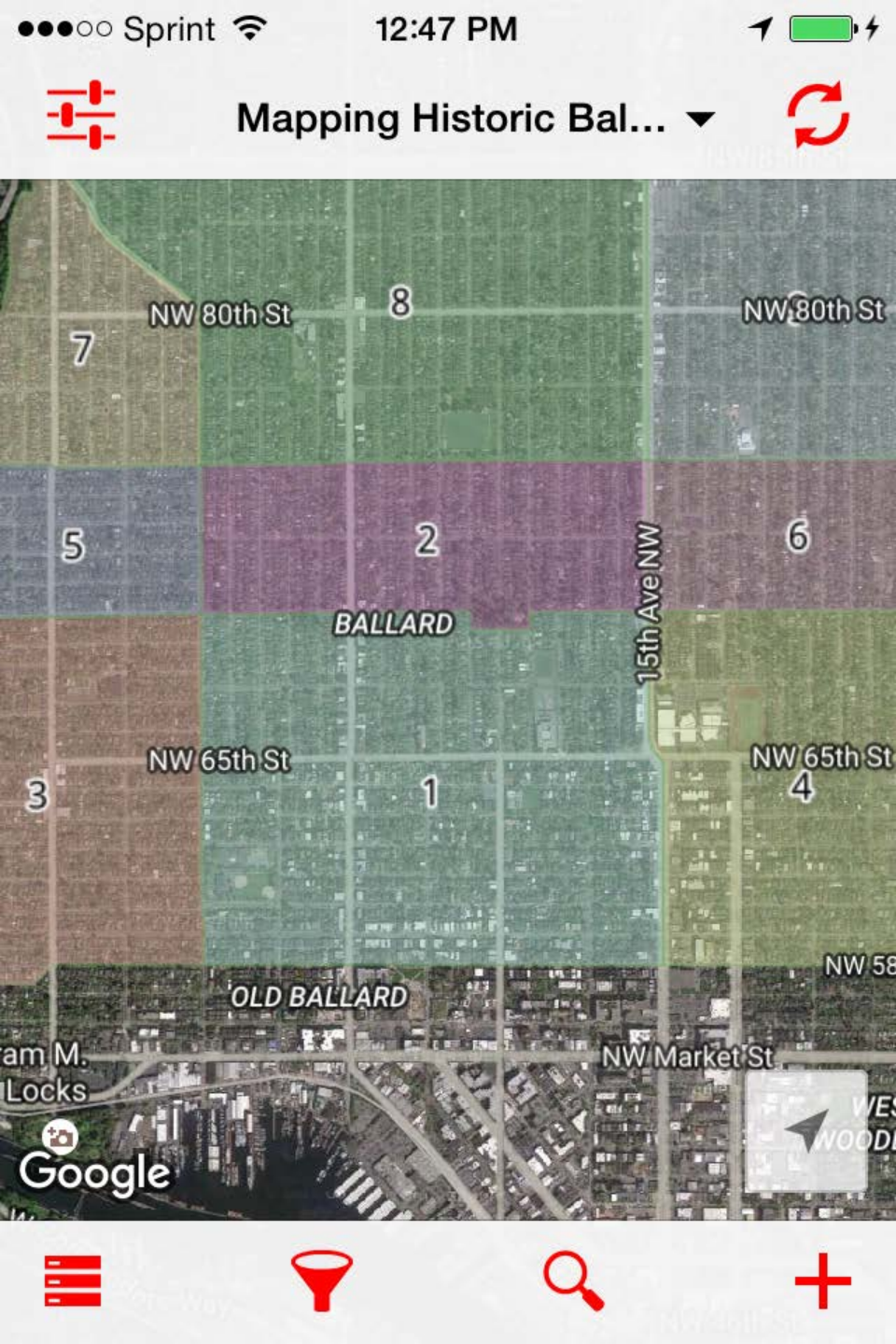
Screenshots
iPhone | iPad
Easily Create Custom Forms
Sync your form to your device and collect data in minutes.
Multiple Base Map Options
Use our base map options or load your own layers.

More by Spatial Networks, Inc
ACCHO Kabul, Afghanistan
Building Inspection
Culvert Inventory
Damage Assessment App
Equipment Inventory
Gas Mileage
Historic Buildings Survey
Park Inventory

Data Gathered in Fulcrum

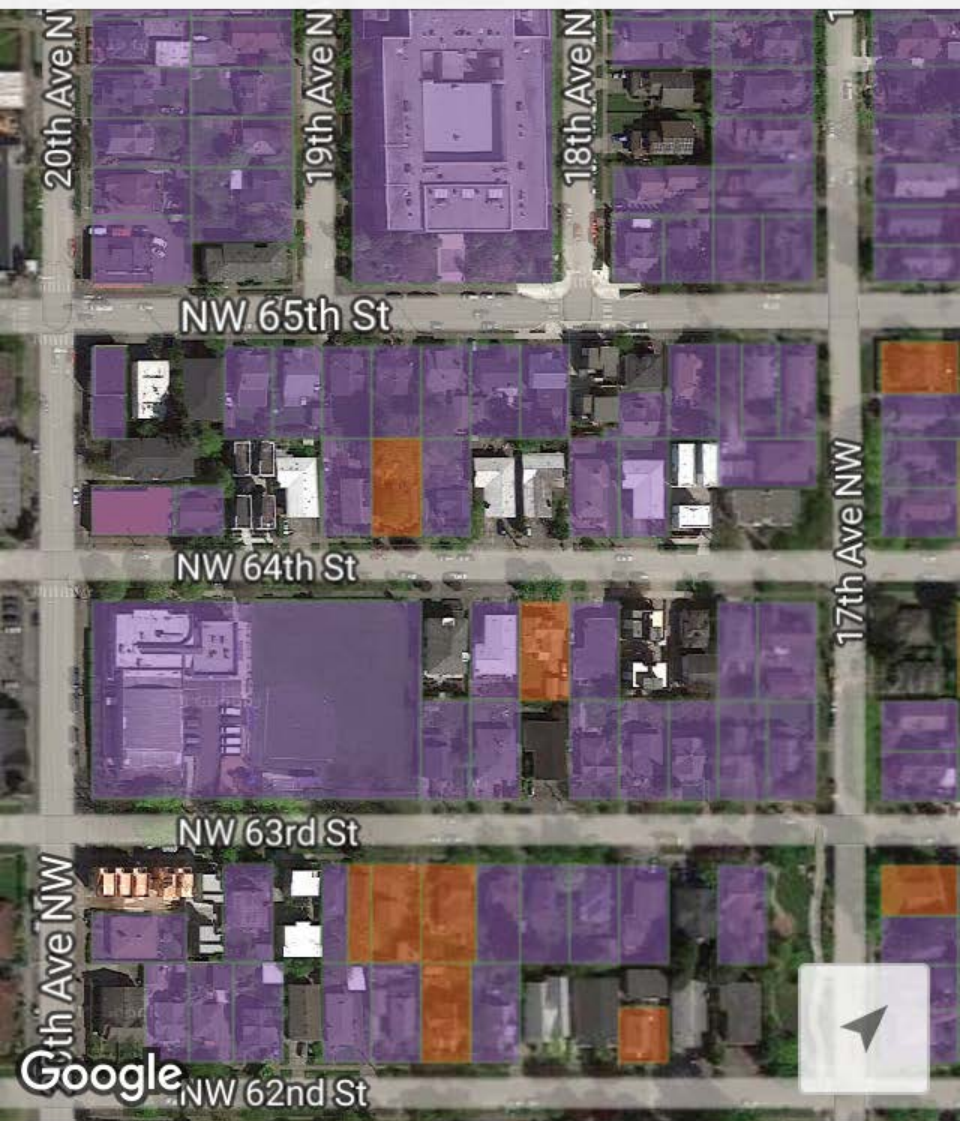
- Address
- 2 Photos
- Building Type
- Number of Stories
- Cladding
- Roof Type
- Roof Material
- Evaluation Category
- Part of a District/Cluster?
- Significant Trees



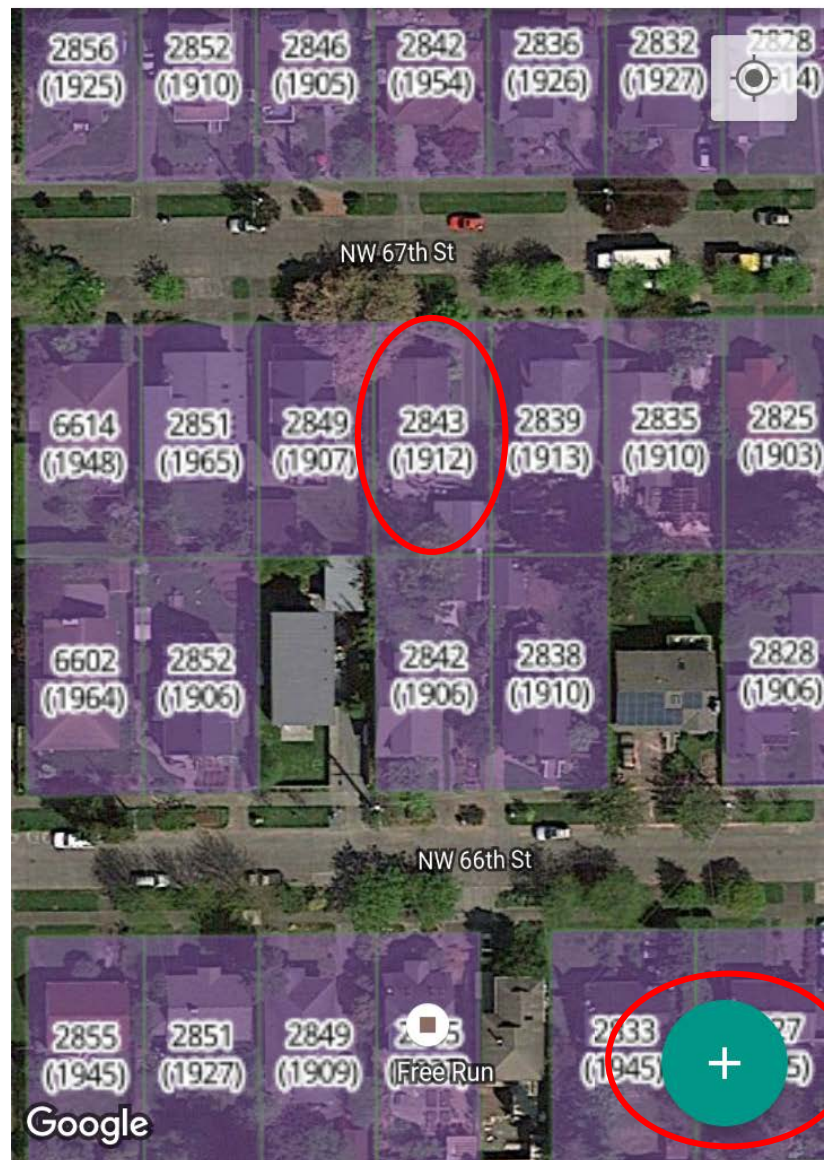




Mapping Historic Bal...



Mapping Historic Ba...



Google

Mapping Historic...



SURVEYED: COMPLETE

Address * i

2843 NW 67th St
Seattle Washington 98107
United States

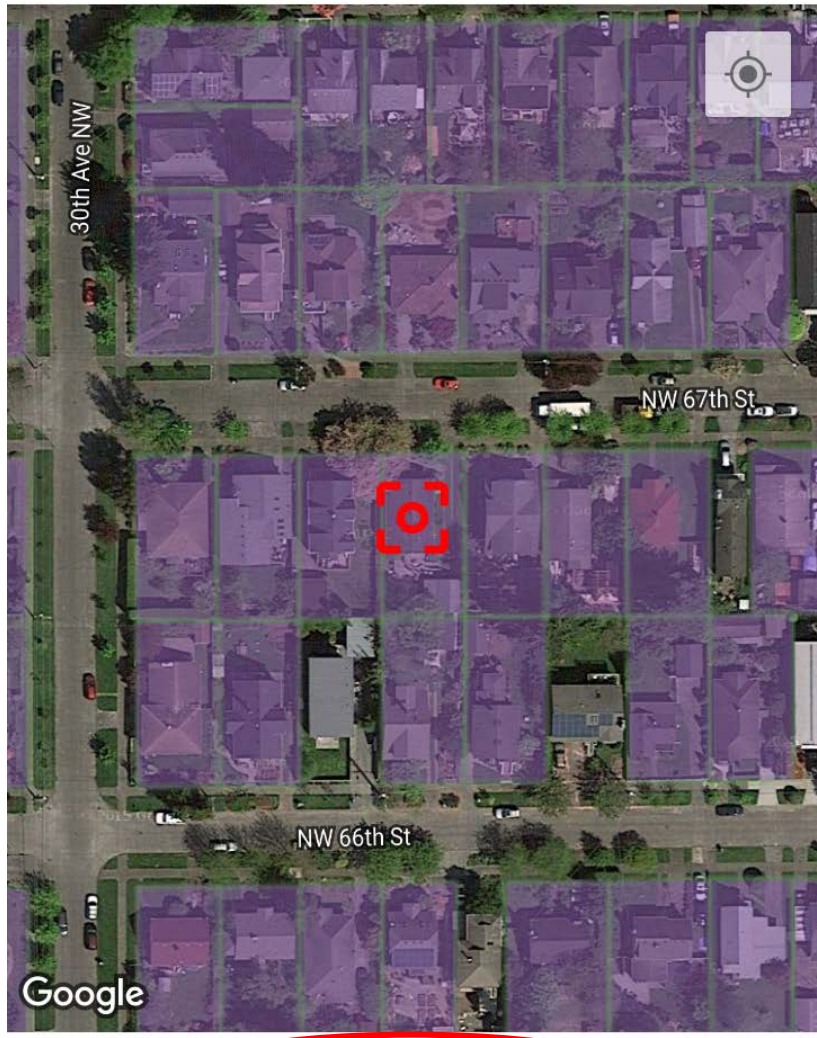
Photos * i



Building Type * i

Building Type Notes i

Set Record Location



47.677128, -122.394868

Cancel Mapping Historic Balla... Save

Surveyed: Complete

Address *

2843 NW 67th St
Seattle, WA 98107
US

Photos *



Building Type *

Building Type Notes

Mapping Historic... ✓ [Target icon] [Document icon]

SURVEYED: COMPLETE

Address *

2843 NW 67th St
Seattle Washington 98107
United States

Photos *

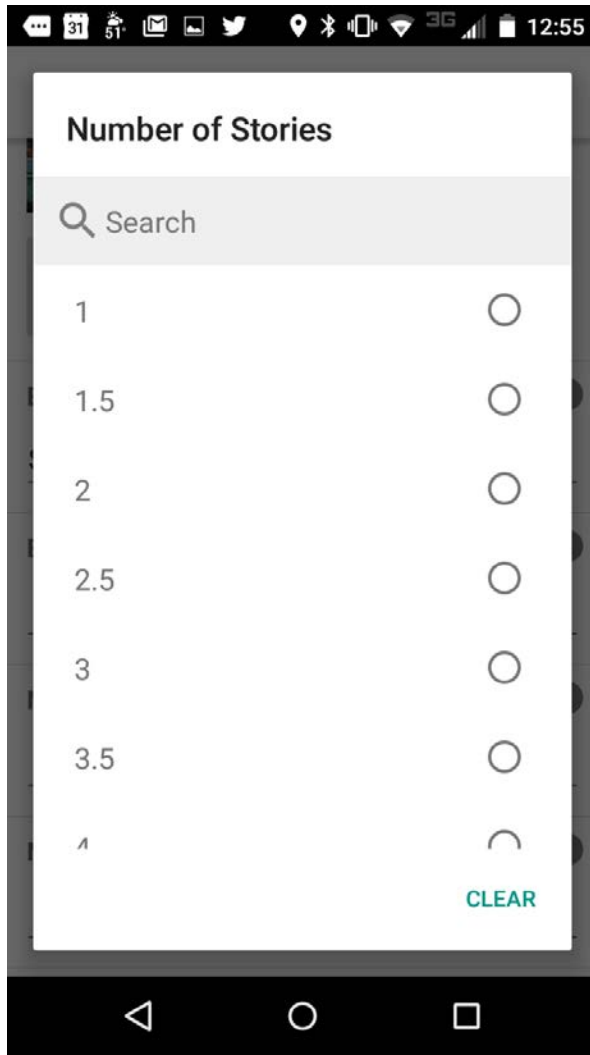


Building Type *

Building Type Notes

Single Choice vs Multiple Choice

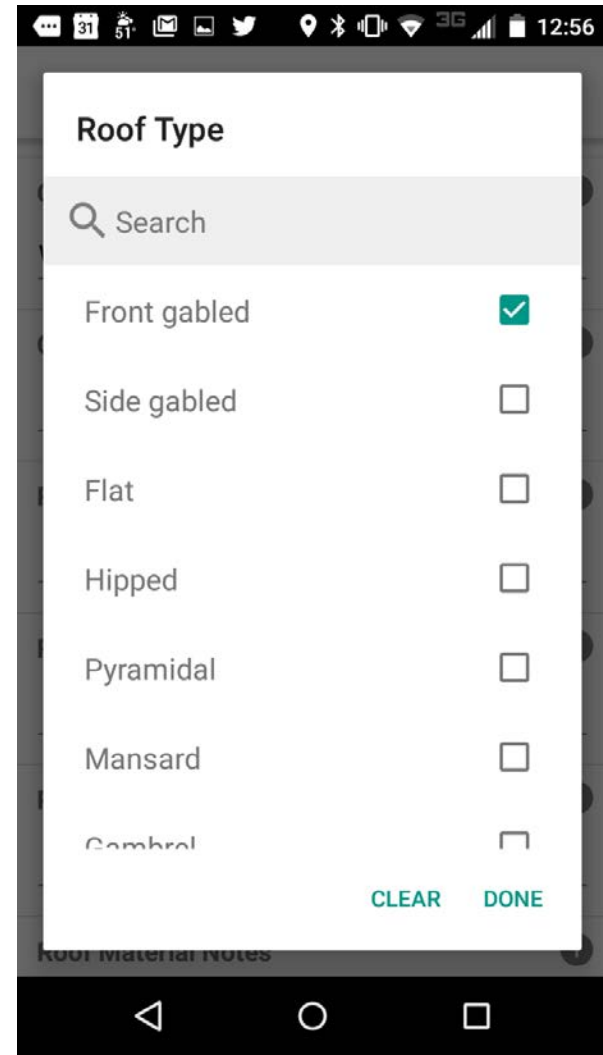
- Circles = Can Choose Only One



A mobile app interface for selecting the number of stories. The title is "Number of Stories". Below the title is a search bar with a magnifying glass icon and the text "Search". The list contains options: 1, 1.5, 2, 2.5, 3, 3.5, and 4. Each option has a radio button to its right. At the bottom right, there is a "CLEAR" button.

Number of Stories	Selection
1	<input type="radio"/>
1.5	<input type="radio"/>
2	<input type="radio"/>
2.5	<input type="radio"/>
3	<input type="radio"/>
3.5	<input type="radio"/>
4	<input type="radio"/>

- Squares = Can Choose More Than One



A mobile app interface for selecting the roof type. The title is "Roof Type". Below the title is a search bar with a magnifying glass icon and the text "Search". The list contains options: Front gabled, Side gabled, Flat, Hipped, Pyramidal, Mansard, and Gambrel. Each option has a checkbox to its right. The "Front gabled" option is selected, indicated by a green checkmark in the checkbox. At the bottom right, there are "CLEAR" and "DONE" buttons.

Roof Type	Selection
Front gabled	<input checked="" type="checkbox"/>
Side gabled	<input type="checkbox"/>
Flat	<input type="checkbox"/>
Hipped	<input type="checkbox"/>
Pyramidal	<input type="checkbox"/>
Mansard	<input type="checkbox"/>
Gambrel	<input type="checkbox"/>

Building Type

Choose the Building Type.

You can choose only one:

- Single Family
- Multi Family
- Commercial
- Church
- Civic
- Mixed Use
- Other
- Unable to Determine

A screenshot of a mobile application interface for selecting a building type. The screen is titled "Building Type" in a bold, black font. Below the title is a search bar with a magnifying glass icon and the word "Search". Below the search bar is a list of seven building types, each with a radio button to its right: "Single Family", "Multi Family", "Commercial", "Church", "Civic", "Mixed Use", and "Other". At the bottom right of the list is a teal-colored button labeled "CLEAR". The background of the app is dark grey, and the bottom of the screen shows the Android navigation bar with back, home, and recent apps icons. The top of the screen shows the status bar with various icons and the time 5:53.

Building Type	
Search	
Single Family	<input type="radio"/>
Multi Family	<input type="radio"/>
Commercial	<input type="radio"/>
Church	<input type="radio"/>
Civic	<input type="radio"/>
Mixed Use	<input type="radio"/>
Other	<input type="radio"/>
CLEAR	

Evaluation Criteria

Choose the Evaluation Category. You can choose only one:

1. Well preserved and appears to possess historic and/or architectural significance
2. Partially preserved and may possess limited historic and/or architectural significance
3. Altered and does not appear to possess historic and/or architectural significance
4. Unable to determine

Evaluation Category

Search

1. Well preserved and appears to possess historic and/or architectural significance ☐
2. Partially preserved and may possess limited historic and/or architectural significance ☐
3. Altered and does not appear to possess historic and/or architectural significance ☐
4. Unable to determine ☐

CLEAR

Unusual Cases

If you encounter a structure that has extremely unusual characteristics that cannot be captured using the single choice/multiple choice fields, you may enter text into the 'Notes' field that follows each category.

Please use the notes fields sparingly!

The screenshot shows a mobile application interface for data entry. At the top, there's a status bar with various icons and the time 3:18. Below it, the title 'Mapping Historic...' is displayed with a checkmark icon. The main content area is divided into sections. The first section is 'Single Family'. Below it is the 'Building Type Notes' section, which is highlighted with a red circle. The text 'You can type anything here...' is visible in this section. Below the notes section is the 'Number of Stories' field, which contains the value '1.5'. At the bottom, there is a keyboard with a 'Number of Stories Notes' section above it. The keyboard is in English and shows a standard QWERTY layout.





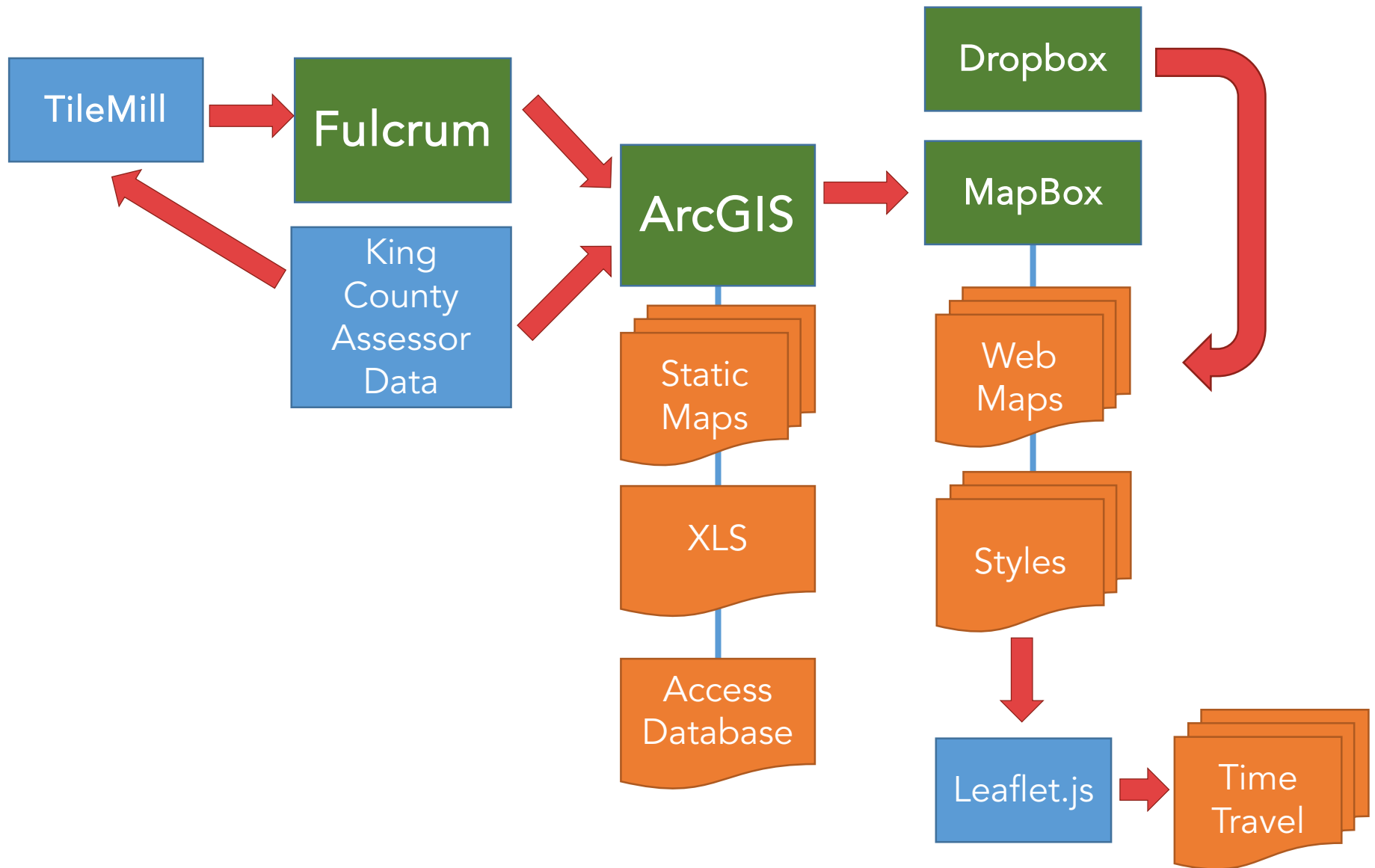


Monitoring Progress

- Weekly extracts
- Stats/maps distributed via email newsletters, social media
- Two in -person 'meet ups' with all volunteers, review results, give feedback, share strategies
- LOTS of tech support



All the Moving Pieces



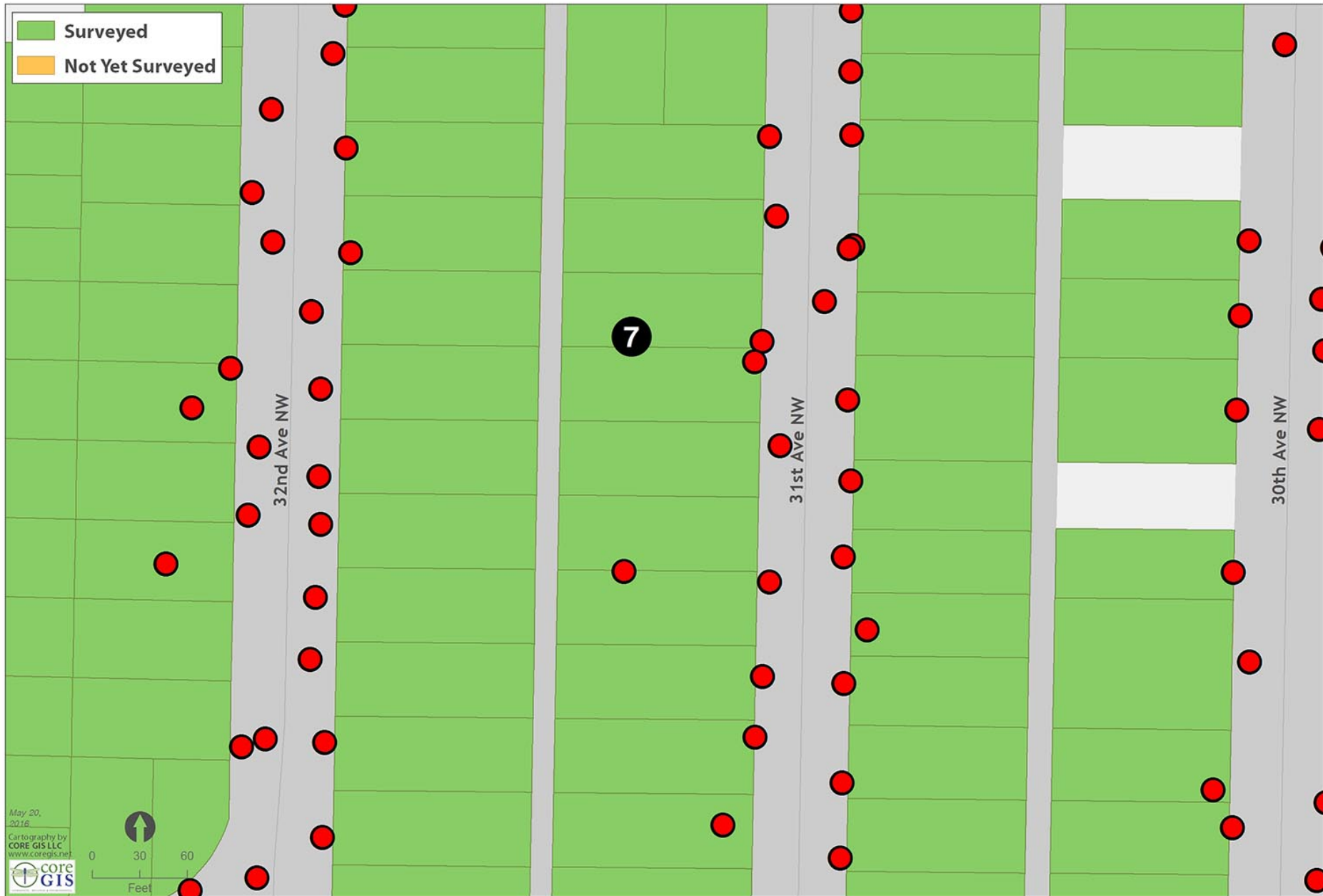
Processing Fulcrum--Good Registration

Mapping Historic Ballard



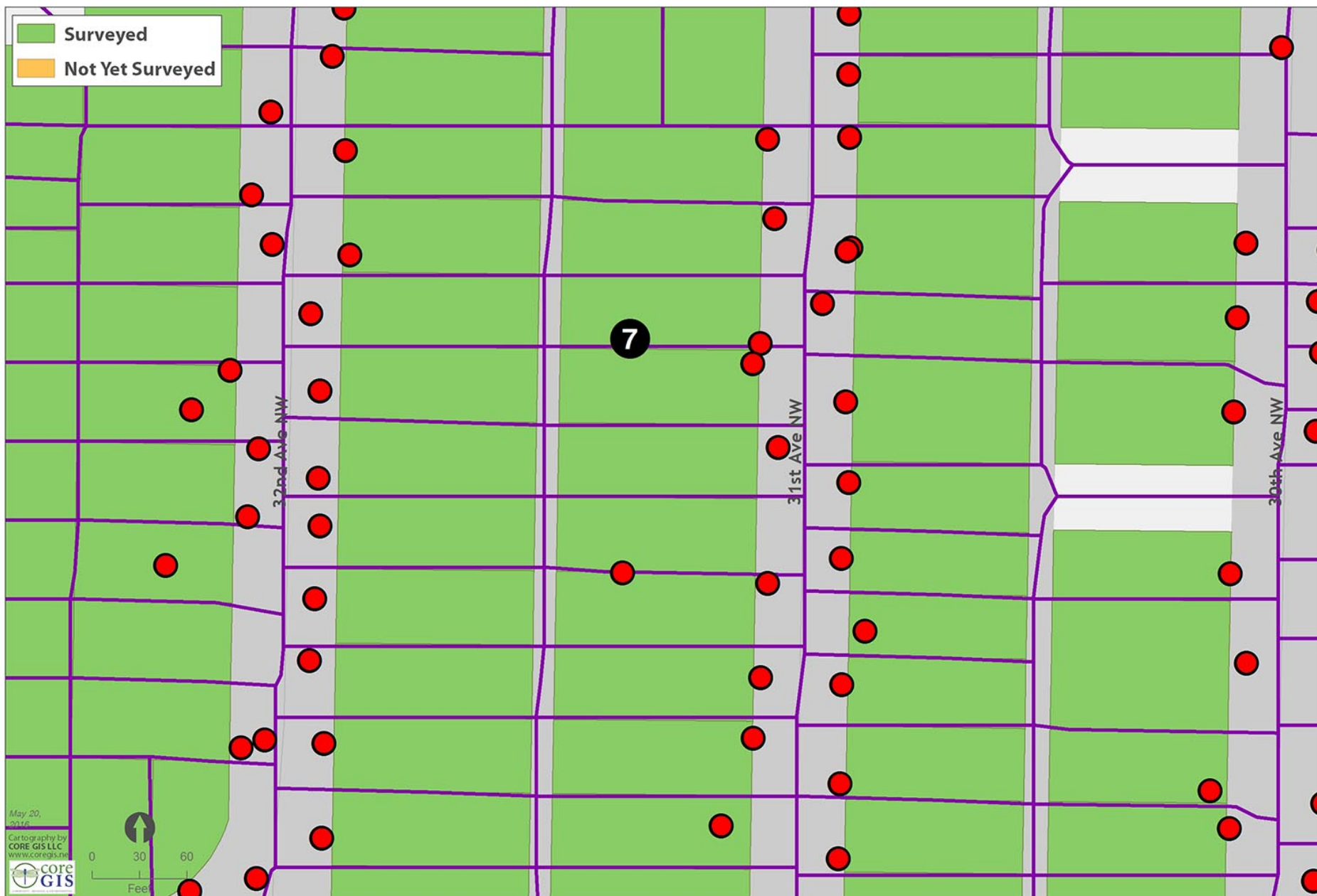
Processing Fulcrum--Bad Registration

Mapping Historic Ballard



Processing Fulcrum--Fixing Bad Registration

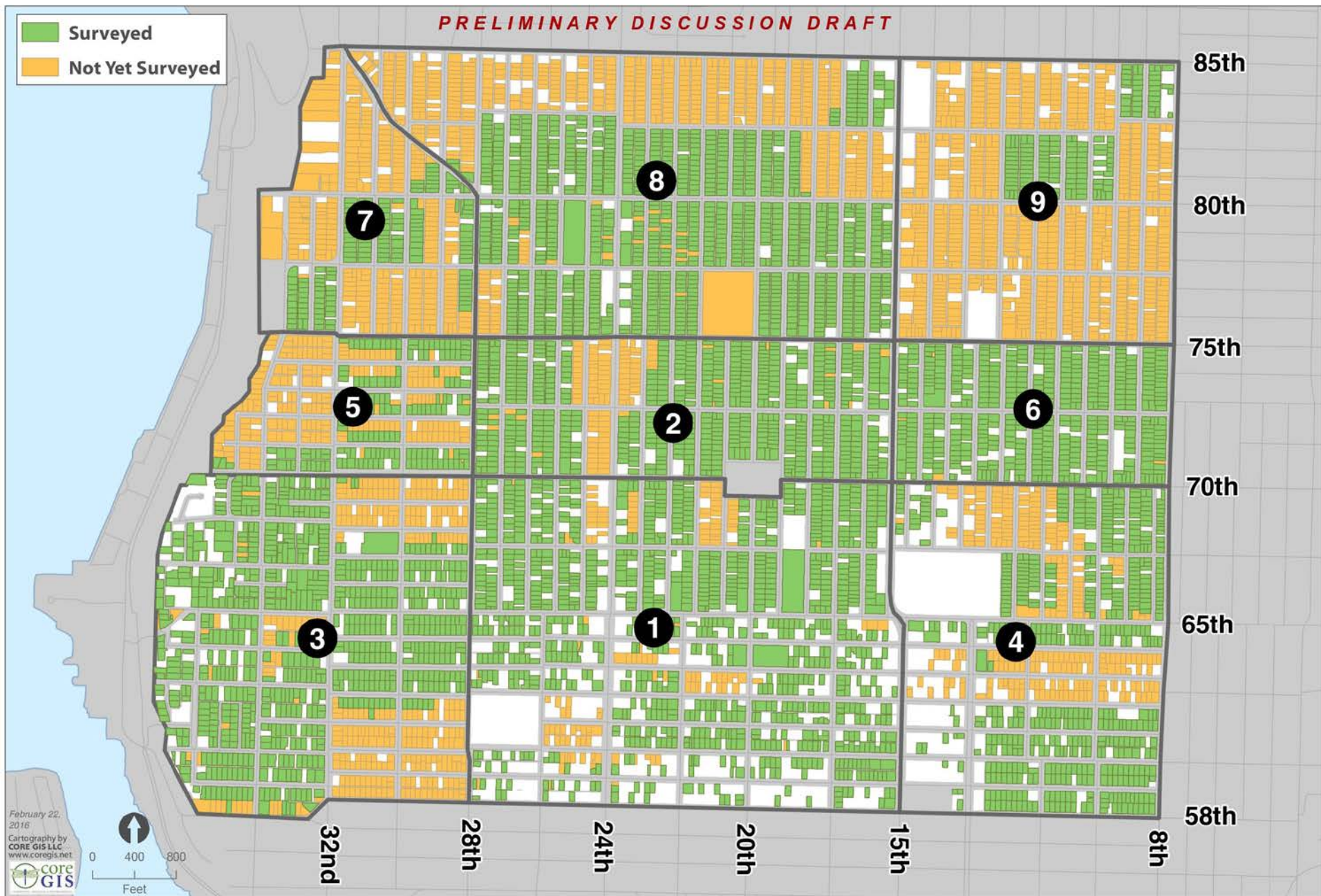
Mapping Historic Ballard



Survey Status

Mapping Historic Ballard

PRELIMINARY DISCUSSION DRAFT



Stats!

Sector	Total	Surveyed	Not Surveyed	Percent Complete
1	1,155	1,022	133	88%
2	718	610	108	85%
3	1,020	715	305	70%
4	787	526	261	67%
5	364	159	205	44%
6	477	473	4	99%
7	397	140	257	35%
8	1,560	1,009	551	65%
9	850	136	714	16%
Total	7,328	4,790	2,538	65%

Finalizing the Survey

- Volunteers are great!
- But life happens
- Sub-set of volunteers were necessary to do ‘mop-up’ work





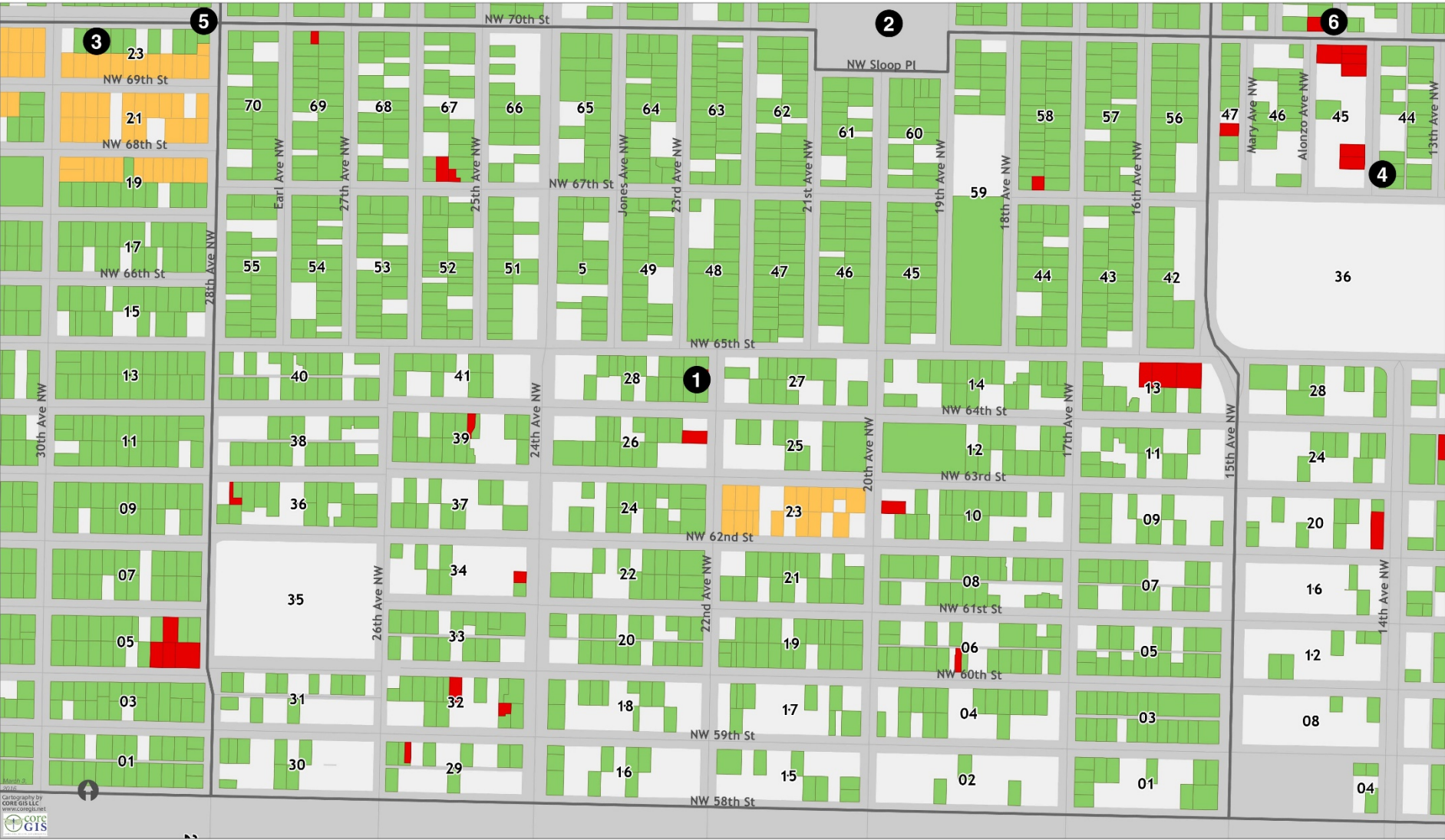
Survey Status Sector 1

Mapping Historic Ballard

Surveyed

Unsurveyed Blocks

Unsurveyed Buildings



Survey Completion

- By March 14, all buildings had been surveyed
- We had:
 - 7,328 records
 - 14,276 photos
- Time to start mapping!

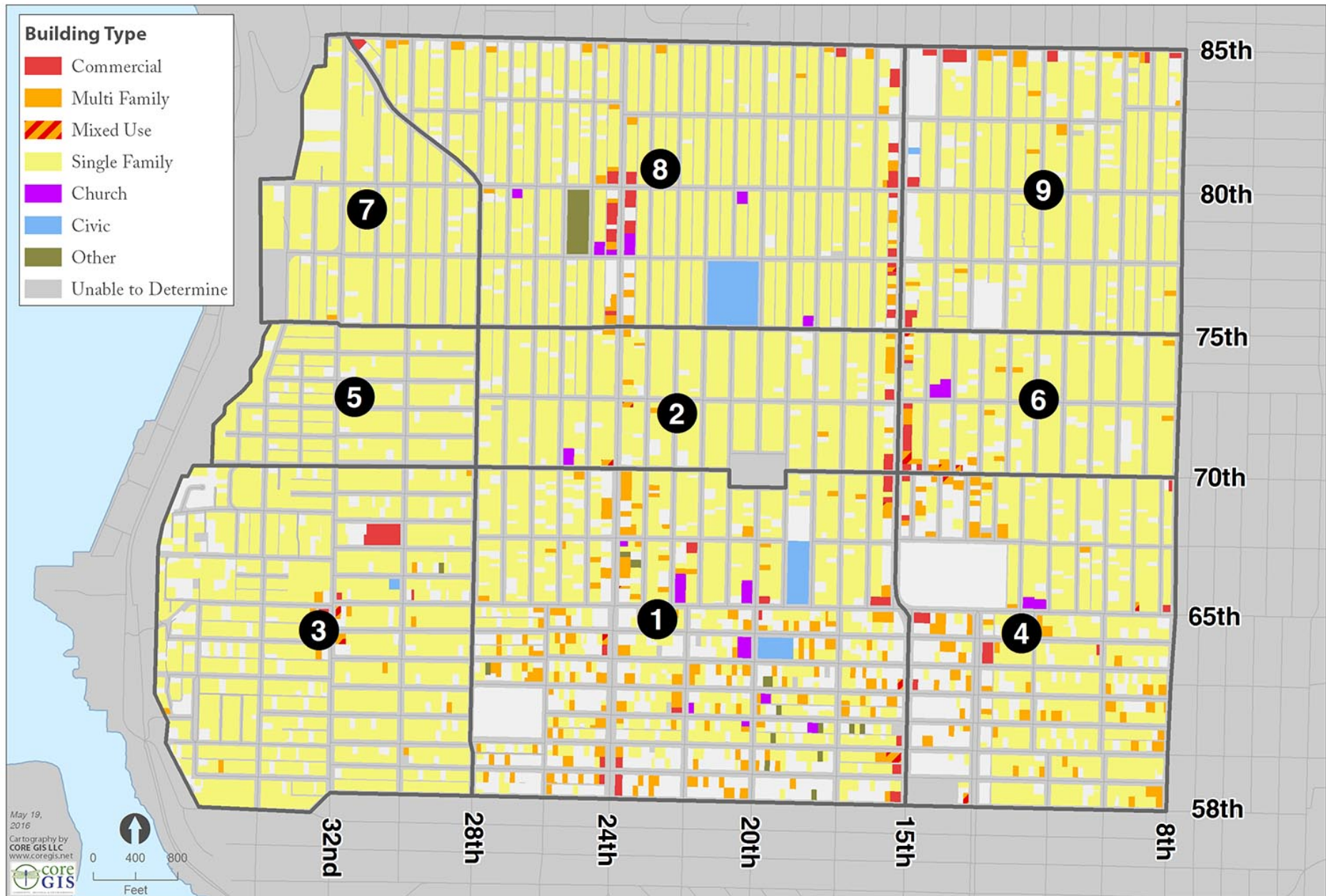


Building Type

Mapping Historic Ballard

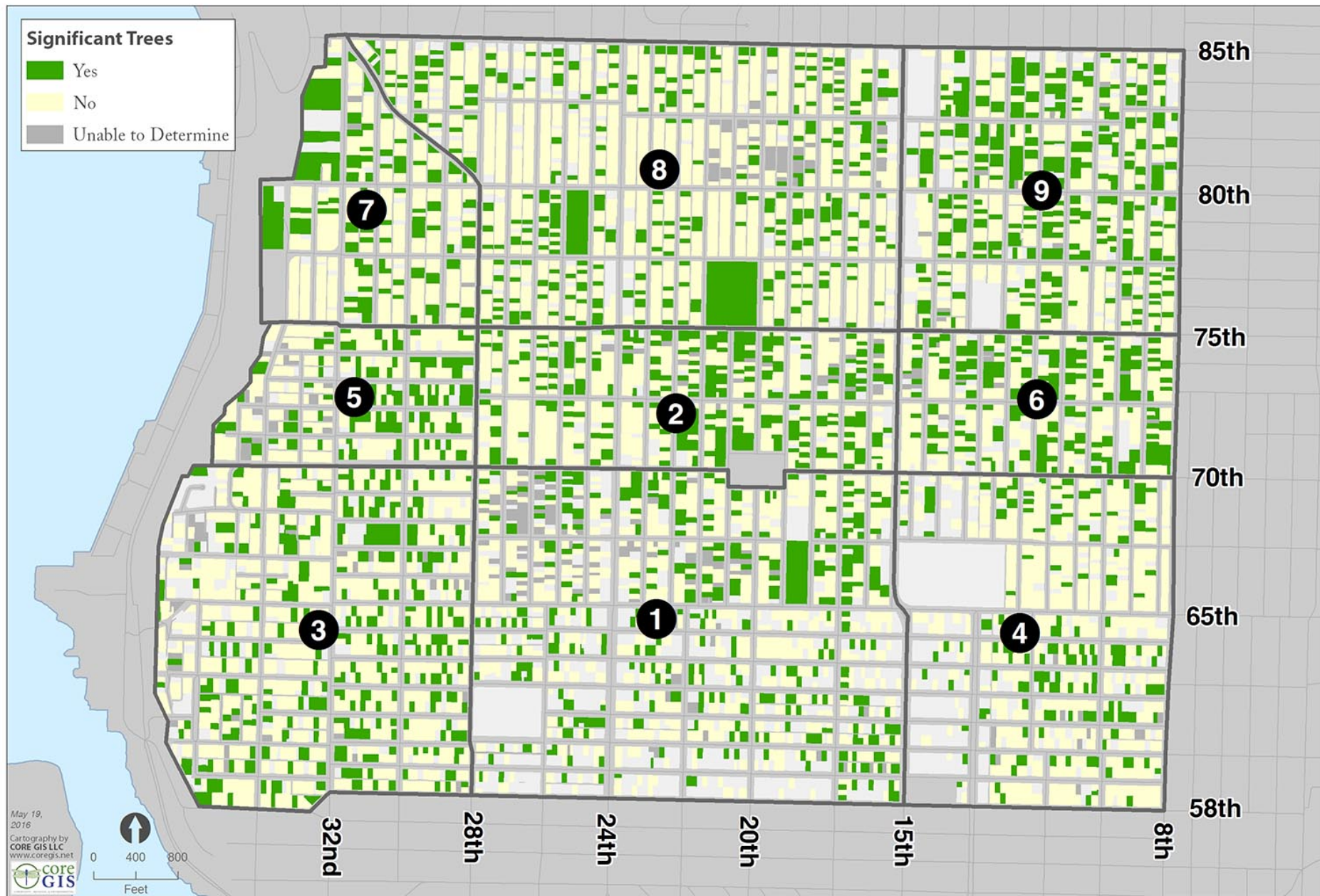
Building Type

- Commercial
- Multi Family
- Mixed Use
- Single Family
- Church
- Civic
- Other
- Unable to Determine



Significant Trees

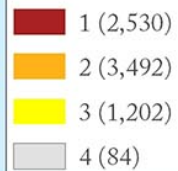
Mapping Historic Ballard



Parcels by Evaluation Category

Mapping Historic Ballard

Evaluation Category



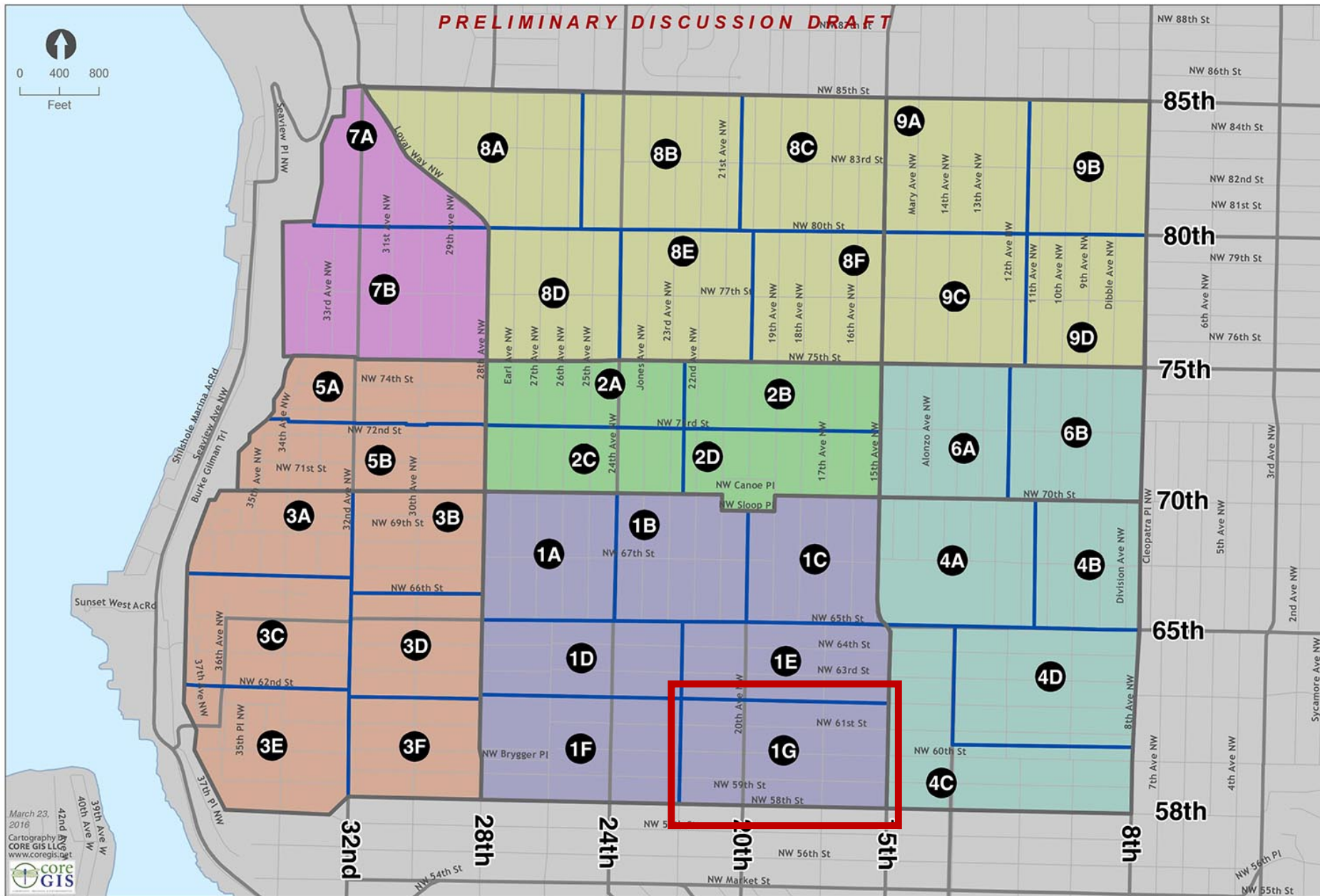
How to get to 100?

- Re-survey Category 1
- Split sectors into sub-sectors
- Sub-set of volunteers
- *Targeting 500*
- Filter the 500 to 100



Select Set Sub-Sectors

Mapping Historic Ballard





Select Set Evaluation, Sector 1G

Mapping Historic Ballard

Evaluation Category

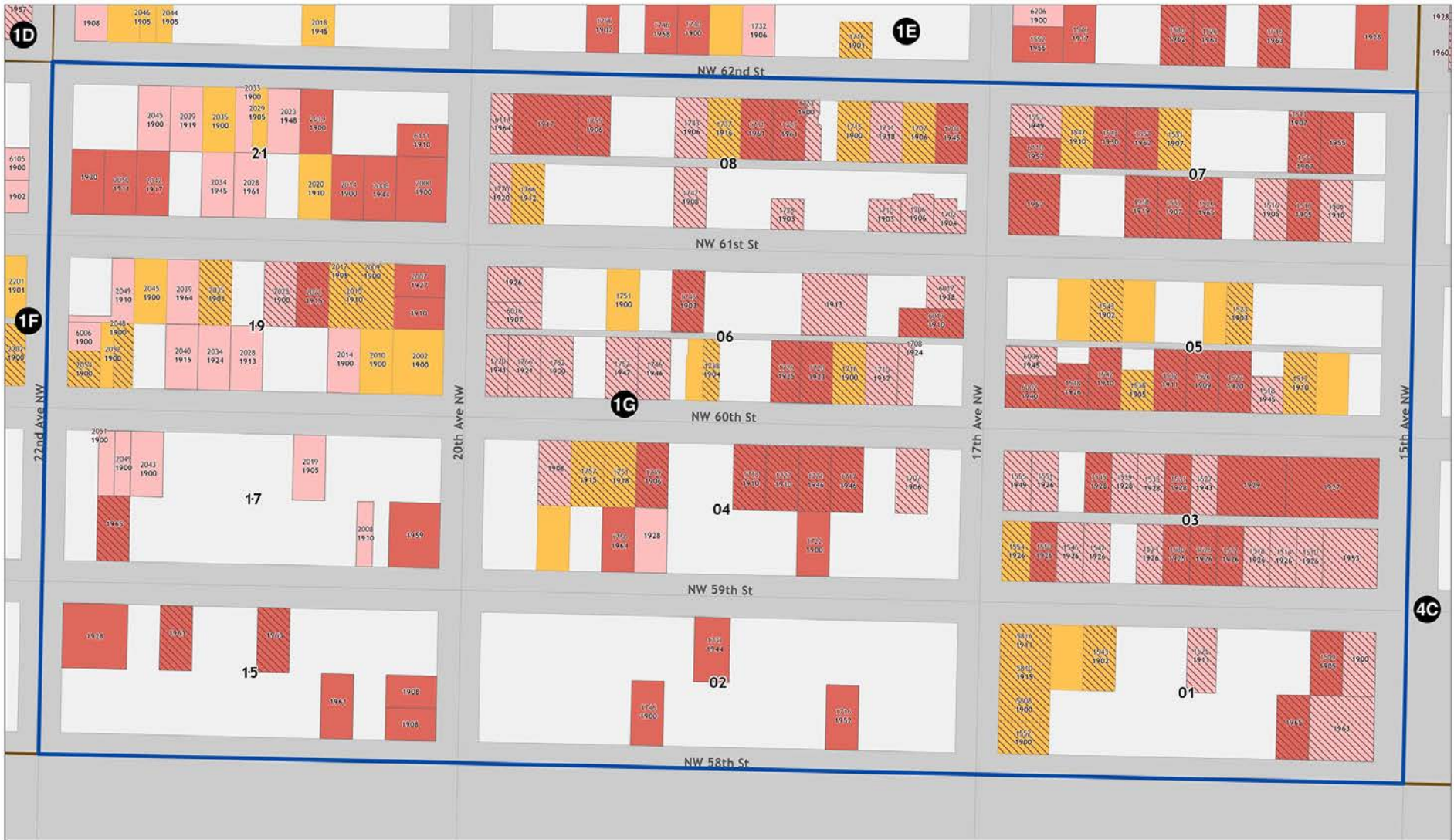
- 1 Solid red
- 2 Light pink
- Part of a District or Cluster Hatched pattern
- Surveyed in 1997 Yellow

1A = Sub-sector number

6505 = Building Number
1915 = Year Built



March 22, 2016
Cartography by
Core GIS
coregis.com



Slight Adjustment to App

31 49 [icons] 2:15

Mapping Historic... ✓ [icons]

SURVEYED: COMPLETE

Top 500? ⓘ

YES NO

Top 100? ⓘ

YES NO

Address ⓘ

6528 22nd Ave NW
Seattle WA 98117
US

Photos * ⓘ

[Photo thumbnails]

[Navigation bar: back, home, recent apps]



Survey Result is 829

- How to get down to 100?
- Create individual report for all 829
- And...

1725 NW 64TH ST 98107

Year: 1909

PIN: 2767601080

Sector: 1

Fulcrum Attributes

Top 500: yes

Top 100:

Building Type: Single Family

Number of Stories: 1.5

Cladding: Wood/horizontal

Roof Type: Hipped,Side gabled

Roof Material: Asphalt

Evaluation Category: 1

Significant Trees: No

Part of Cluster: No

Style:



Ballard Research

Physical Description





20th Ave. NW Historic Neighborhood District
(1890 - 1927)
An Original Ballard Neighborhood North of Market Street.
Ballard Churches marching up 20th Ave. NW with intact period
Fisherman Cottages, Farm and Victorian homes, and Apartment
Townhomes from Ballard's first growth era.



The Select Set

- 100 high-integrity historic structures that provide broad representation of the neighborhood:
 - Spatially
 - Temporally
 - Architecturally
- Finished with two categories:
 - Select 150
 - Vintage 500

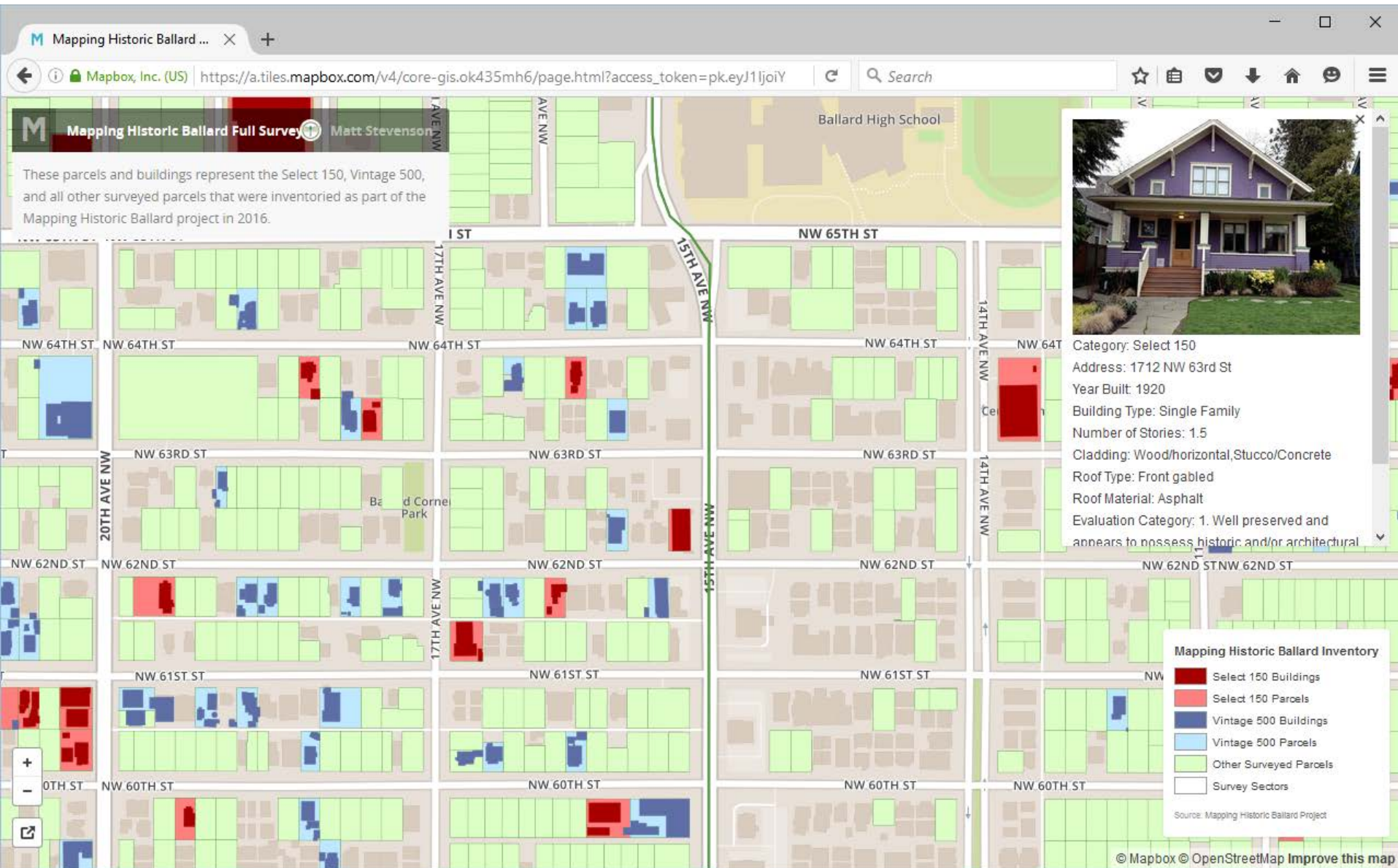


Select 150 & Vintage 500

Mapping Historic Ballard



Interactive Web Map



Swipe Maps

1904/2015:

coregis.net/assets/map_swipe_1904_2015_v1.html

1937/2015:

coregis.net/assets/map_swipe_1937_2015_v1.html

1965/2015

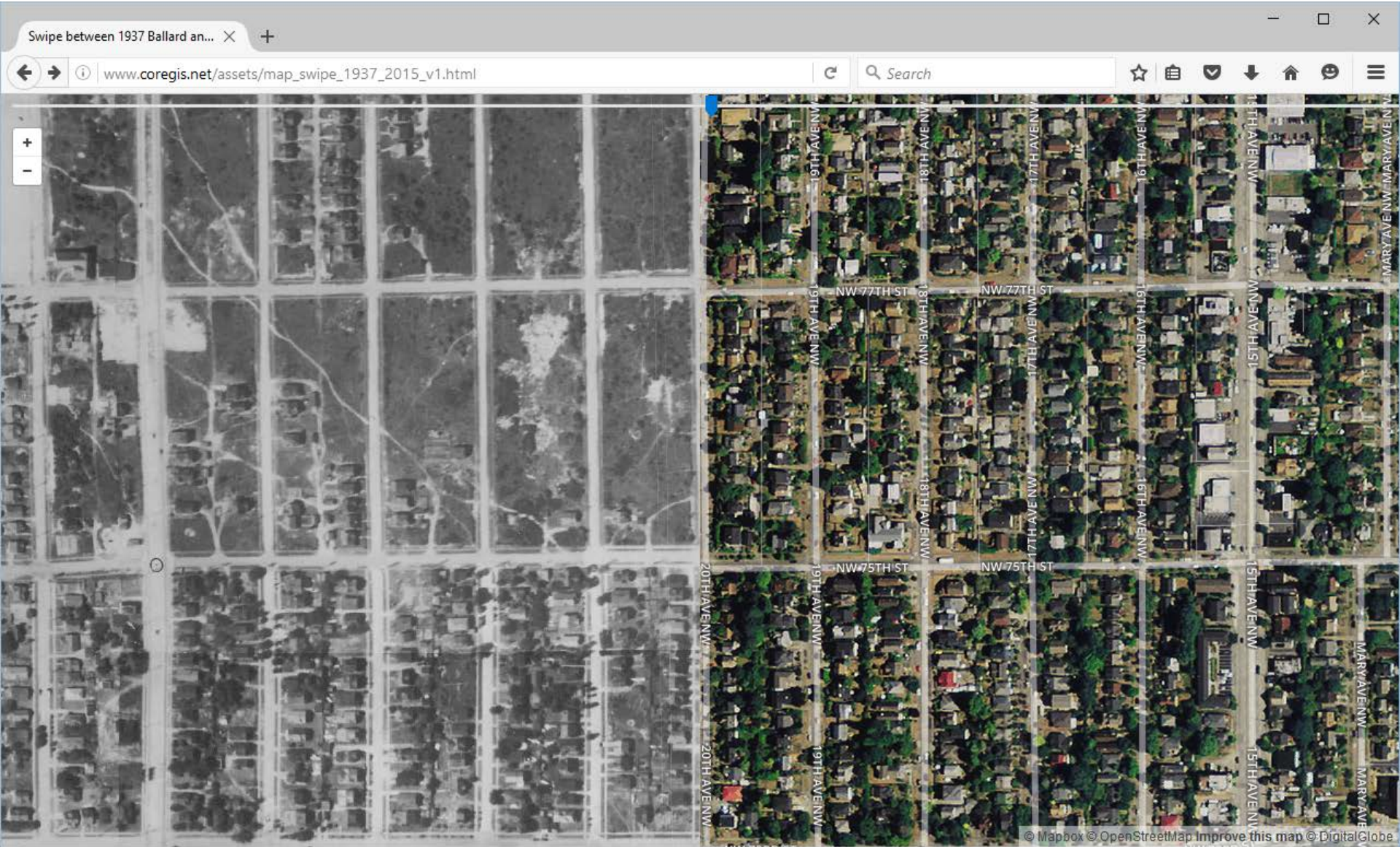
Possibly forthcoming

1996/2015:

coregis.net/assets/map_swipe_1996_2015_v1.html



Example from 1937/2015 Swipe Map



Lessons Learned

- Using engaged volunteers from the community was a great way to gather a lot of data in a short time
- There is a wide range of technical ability in the general population
- Volunteers don't always follow directions
- It took far more time than anticipated to train, support, trouble-shoot, and process the data
- Doing the survey 3x was also more time consuming than anticipated
- People really, really love Ballard!



Learn More

<http://ballardhistory.org/ballard-overview/>

<http://ballardhistory.org/ballard-inventory/>

<http://coregis.net/>

<http://contours-coregis.blogspot.com/>



**Thank
You!**

