OpenUGRC: Leveraging OpenStreetMap for Statewide Data

Erik Neemann

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Overview

- Intro - Utah Open Source Places
- Motivation & Uses
- More Info & Data Quirks
- How it's Built
- How to Participate

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Intro - Utah Open Source Places

- New addition to UGRC's Statewide Geographic Information Datasource (SGID)
- Represents places of interest in Utah as point data
  - Tailored toward businesses and community locations
  - Intended to minimize overlap with GNIS Place Names
- Curated from OpenStreetMap (OSM) data
  - Currently contains over 23,800 features
- Updated frequently (every other week)
- Continually growing…over 400 features added since the initial data build in early March
- As a derivative product, Open Source Places carries the OSM data license: Open Database License (ODbL) v1.0

© OpenStreetMap contributors

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UGRC's creation of the Utah Open Source Places dataset does not imply endorsement by, or affiliation with, the OpenStreetMap Foundation

What's in there?

- Almost anything you'll find in OSM data
  - businesses
  - schools
  - viewpoints
  - parks
  - restaurants
  - banks
  - car dealerships
  - shops
  - churches
  - hotels
  - campgrounds
  - attractions

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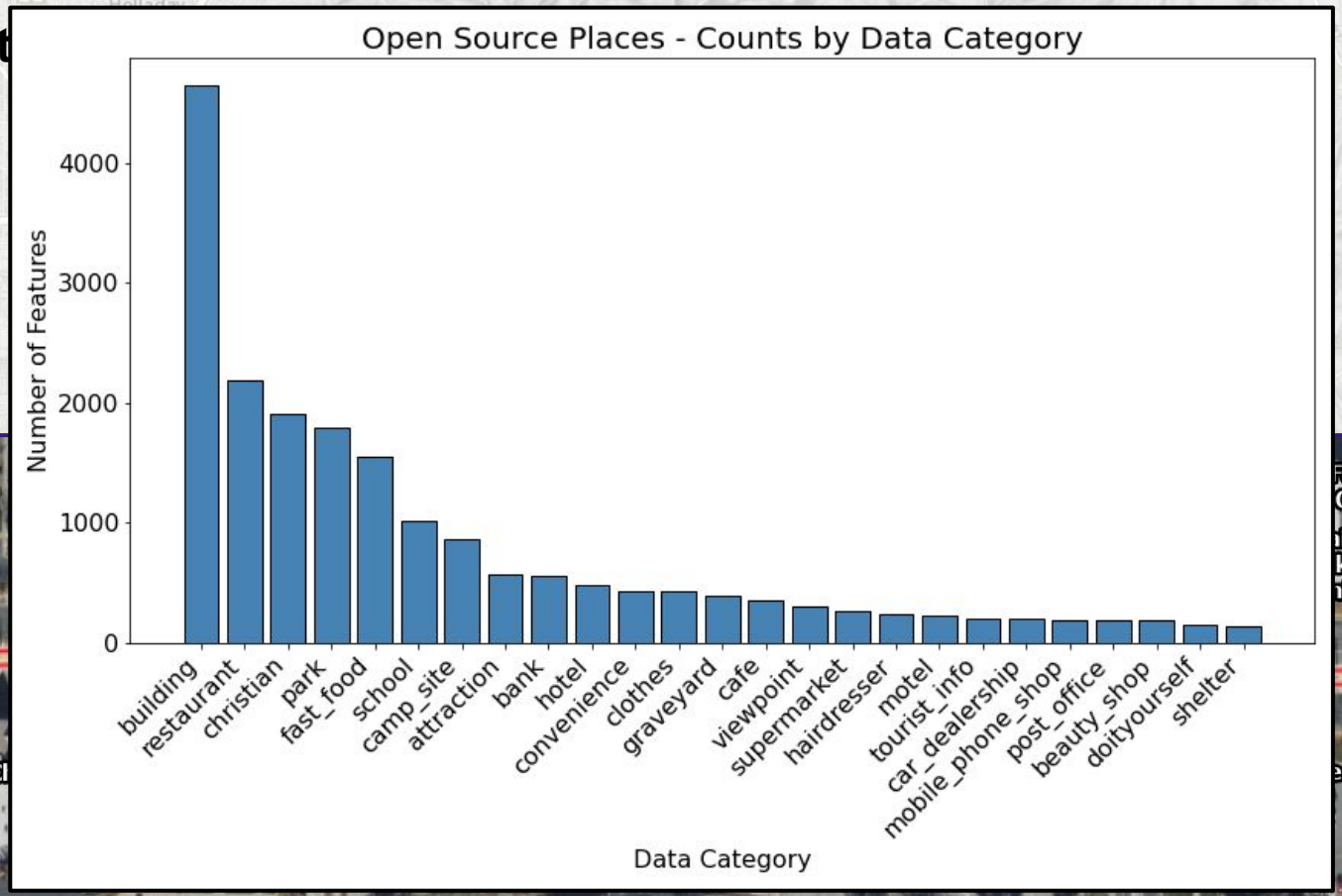
What's in there?

- **Almost**
  -
  -
  -
  -



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  -
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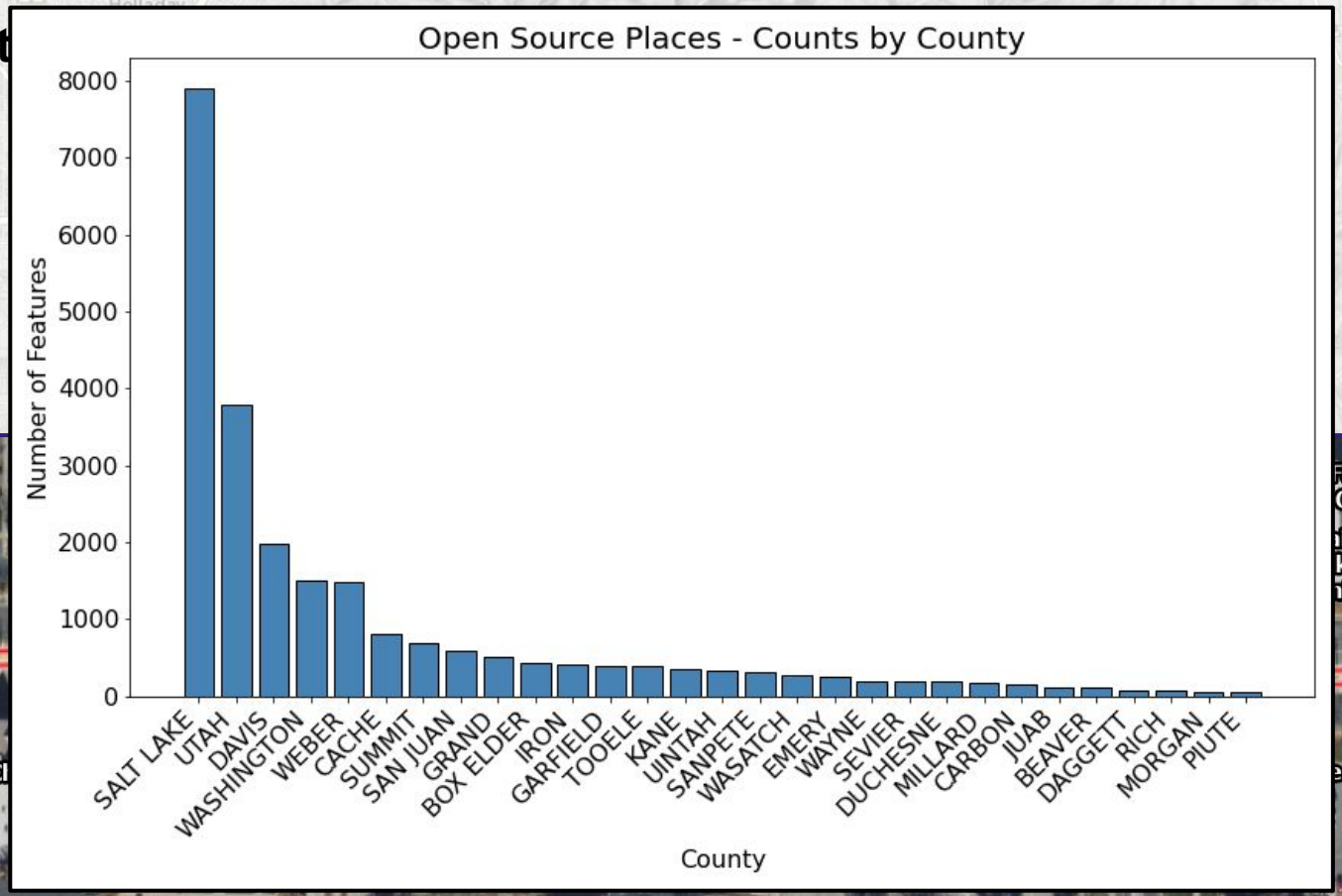

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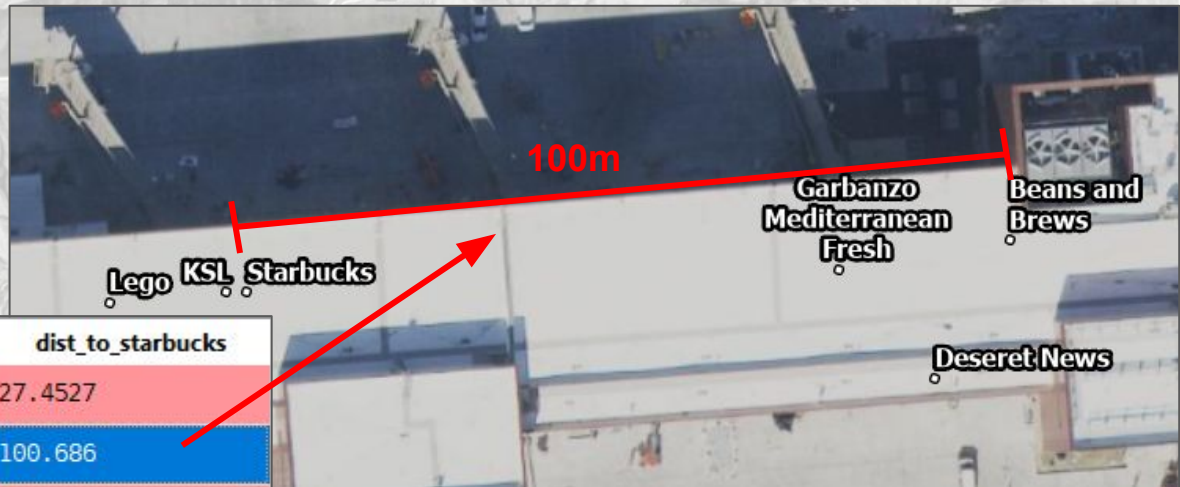
Motivation

- Original idea born out of the need for a statewide "common places" layer that could be used by 911 dispatchers to help locate callers
  - Quickly realized there were many other uses for the data
  - And more reasons to create the data
- Make OSM data more accessible
- Encourage growth of OSM data in Utah
  - Anyone can create an account, add, edit, improve OSM data
- Build upon OSM data with info from UGRC's SGID
- Allow users to directly contribute to a UGRC data layer

How can the data be used?

- Numerous potential uses for government agencies, citizens, researchers
- Analyses of business types or specific businesses
  - What cities have the highest fast food/population ratio?
  - How many Beans & Brews are within a half mile radius of Starbucks?
- Place locations can help 911 call-takers & emergency responders/managers
- Analysis of 'community locations' (tobacco regulation laws)
- Quality control other datasets for missing/closed locations
  - schools
  - fire stations
  - liquor stores
  - cemeteries, etc., etc.



osm_id	shape	name	dist_to_starbucks
2403976399	POINT (426496.6941…	Beans & Brews Coffee House	27.4527
8072353912	POINT (416551.4011…	Beans and Brews	100.686

Other info

- **Similarities to other SGID layers**
  - May include places present in other SGID datasets (parks, school, libraries, fire stations, etc.)
  - Available in variety of ways and formats
    - ArcGIS Online, OpenData, OpenSGID, web services, downloads, etc.
- **Differences from other SGID layers**
  - Not authoritative data
  - Different license (ODbL 1.0 instead of our usual CC BY 4.0)
  - Any user can contribute!
- **Main OSM data attributes:**

osm_id	category	name	amenity	cuisine	tourism	shop
3998254042	cafe	La Barba Coffee	cafe	<Null>	<Null>	<Null>
3998254041	jeweller	Morgan Jewelers	<Null>	<Null>	<Null>	jewelry
2328421314	museum	Discovery Gateway Children's Museum	<Null>	<Null>	museum	<Null>
145043325	park	Olympic Legacy Plaza	<Null>	<Null>	<Null>	<Null>
2327662158	restaurant	Flemming's Prime Steakhouse	restaurant	steak_house	<Null>	<Null>
23335190	stadium	vivint arena	<Null>	<Null>	<Null>	<Null>

Data quirks

- Expect some typos, missing locations, closed locations, naming differences, etc.
  - Be creative with definition queries:

    `name like '%eans%rews%'`
- Several locations simply have a category of 'building'
  - Good candidate for OSM edits!
- Often a European 'flavour' to OSM data
  - centre (instead of center, ex: sports_centre, garden_centre)
  - theatre (instead of theater)
  - caravan_site (instead of rv_park or trailer_park)
  - chemist (instead of pharmacy)
  - tyre_shop (instead of tire_shop)
- Up to two addresses are provided
  - `osm_addr` - address straight from OSM data (25.8%)
  - `ugrc_addr` - nearest address point (within 25m) from statewide database (59.4%)

name	
Beans & Brews Coffee House	⭐preferred
Beans and Brews	
Beans & Brews Coffee House	
Beans & Brews Coffee House	
Beans & Brews Coffee House	
Beans & Brews Coffee House	
Beans & Brews Coffeehouse	

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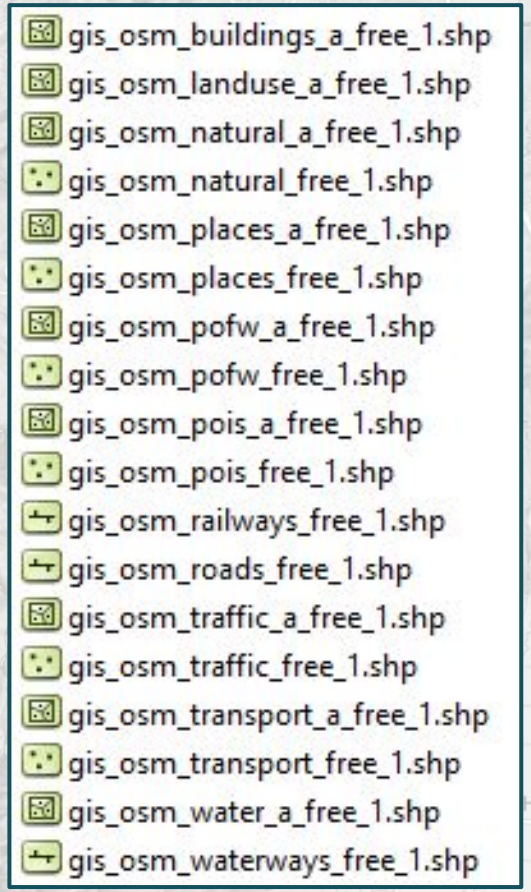
How's it built? - Python script details

- Nightly OSM archive downloaded from Geofabrik (18 shapefiles)
- Several datasets combined into a single point layer
  - Specific 'categories' and data attributes are selected
  - Must have information in 'name' field
  - Polygons converted to internal centroids
  - Spatial filtering (3 or 10 meters) helps prevent duplicates
- Attributes are added from SGID polygons
  - `county`, `city`, `zip`, (census) `block_id`
- Nearby addresses are added from SGID address pts
- Additional attributes are joined from full OSM data
  - Pulled via Overpass API query into pandas dataframe
  - Joined using the 'osm_id'
    - `amenity`, `cuisine`, `tourism`, `shop`
    - `website`, `phone`, `open_hours`



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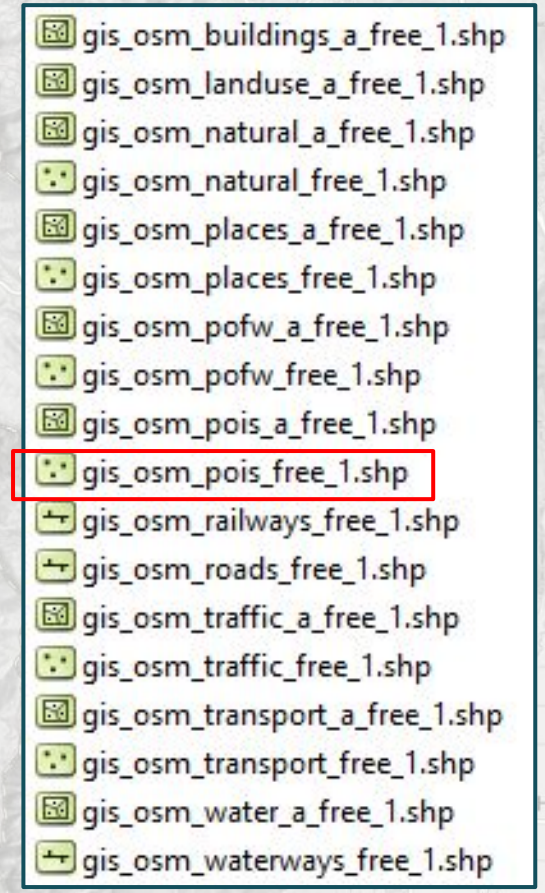

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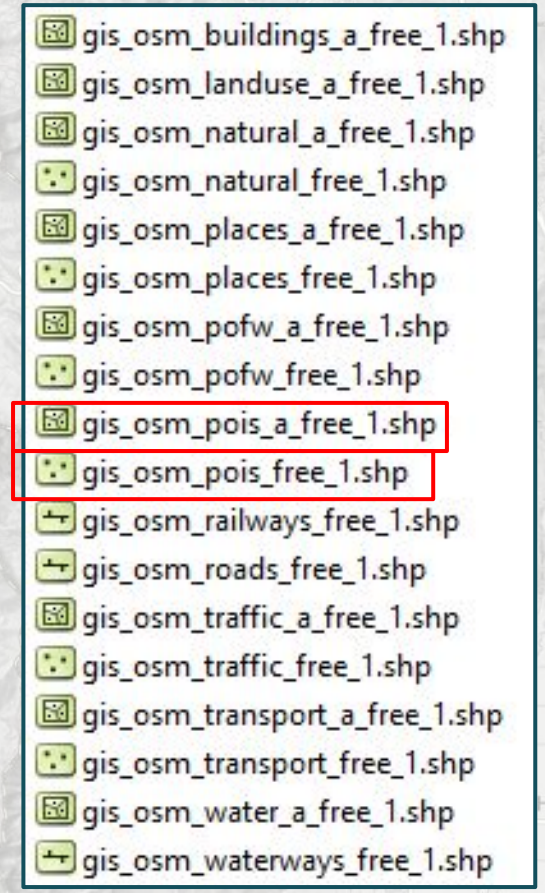

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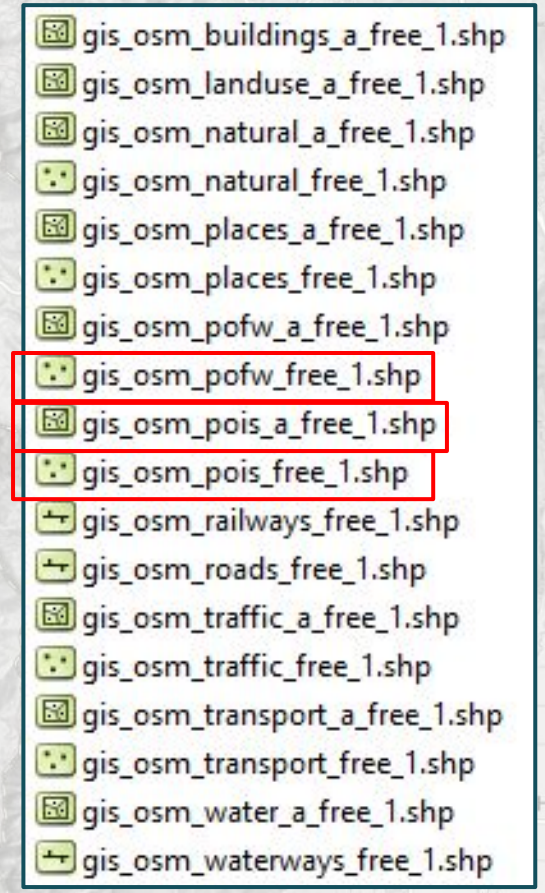

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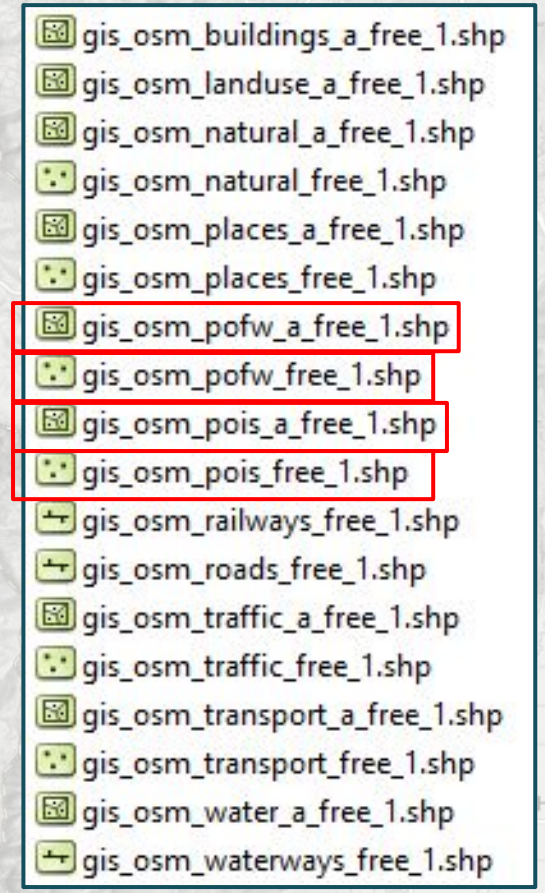

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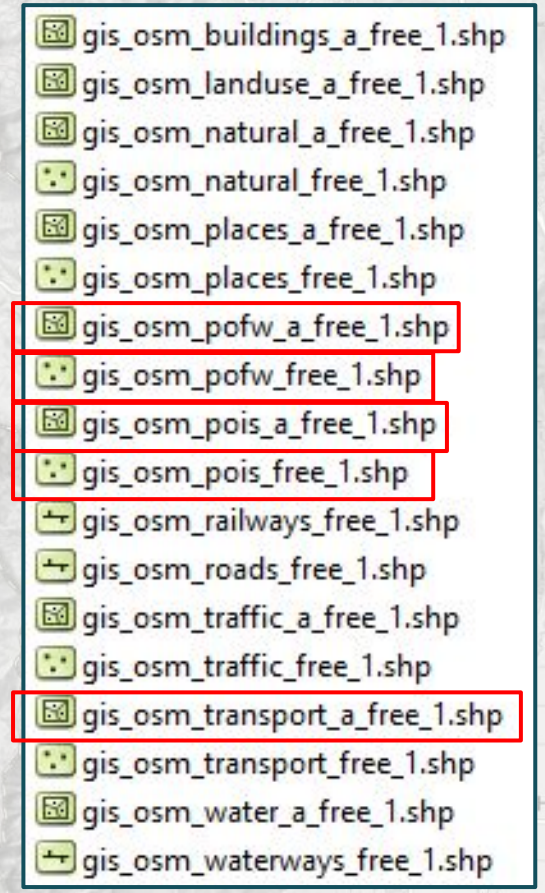

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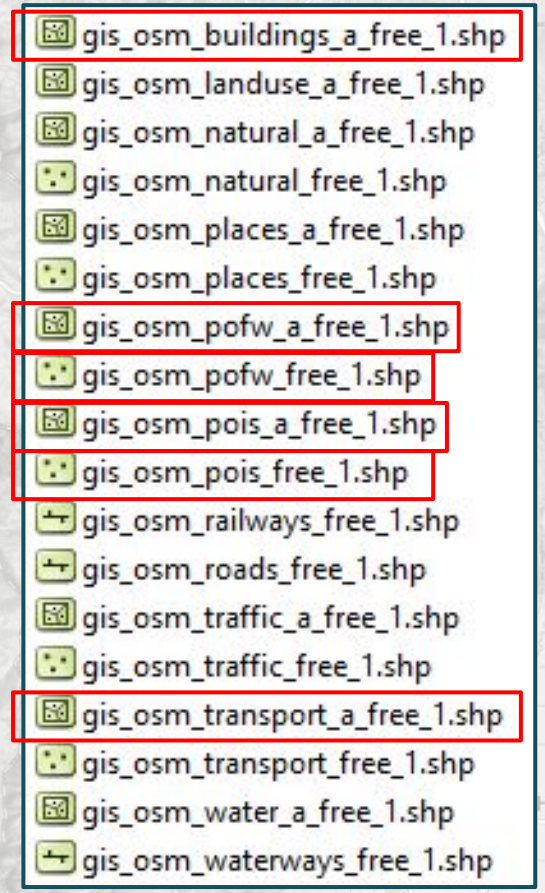

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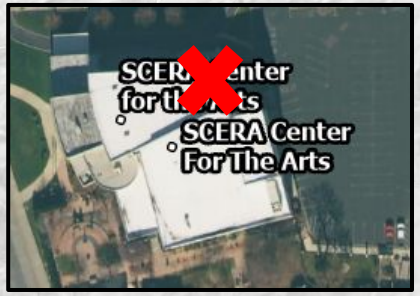
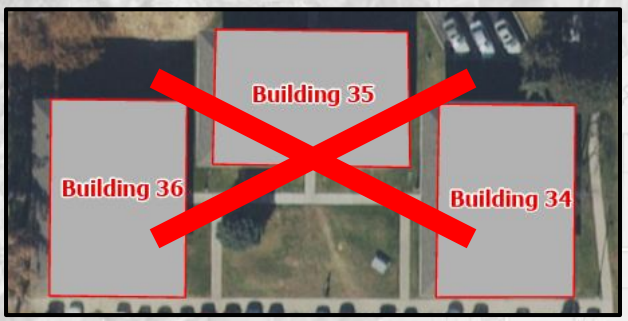
Python script - data cleanup

- Additional deduplication based on `name` and `block_id`
  - `block_id` field used like a spatial index
  - `name` and `block_id` combined into a single, lower-case string
  - Second or more occurrences of combined string are deleted from final data
  - Prevents two features with same name from existing in the same census block
- Removal of short or numeric-dominated 'names'
  - 'building' is stripped out of the `name` field
  - Feature is deleted if:
    - `len(name) < 3`
    - `name` is >50% numeric characters
  - Prevents apartment buildings (without context) or homes from appearing
    - 3A
    - 1228
    - Building 2
    - 675B





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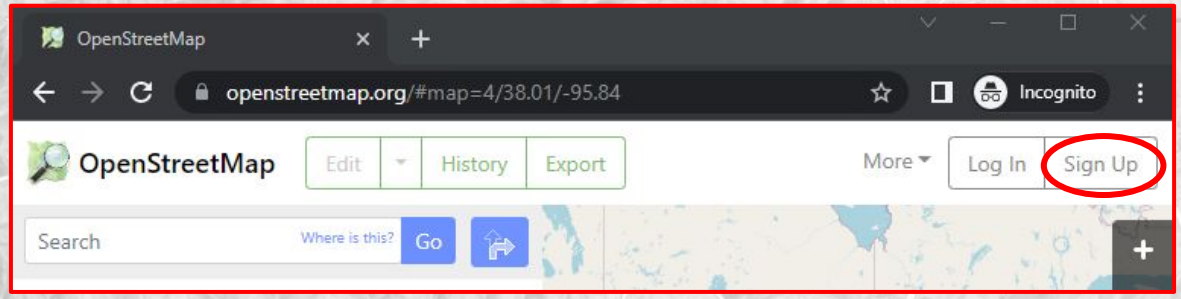
How to participate?

- 1) Create an OSM account
- 2) Log in and make edits



Data Editors

- Web-based iD editor
- Desktop and Mobile (Android and iOS)
  - JOSM, Vespucci, GoMap!!

OSM Community

- OSM Calendar shows upcoming events: https://osmcal.org/?in=United%20States
- Slack community: https://slack.openstreetmap.us/
  - Specifically, the `#local-utah` channel

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- 2

Data

- W
- D

OSM

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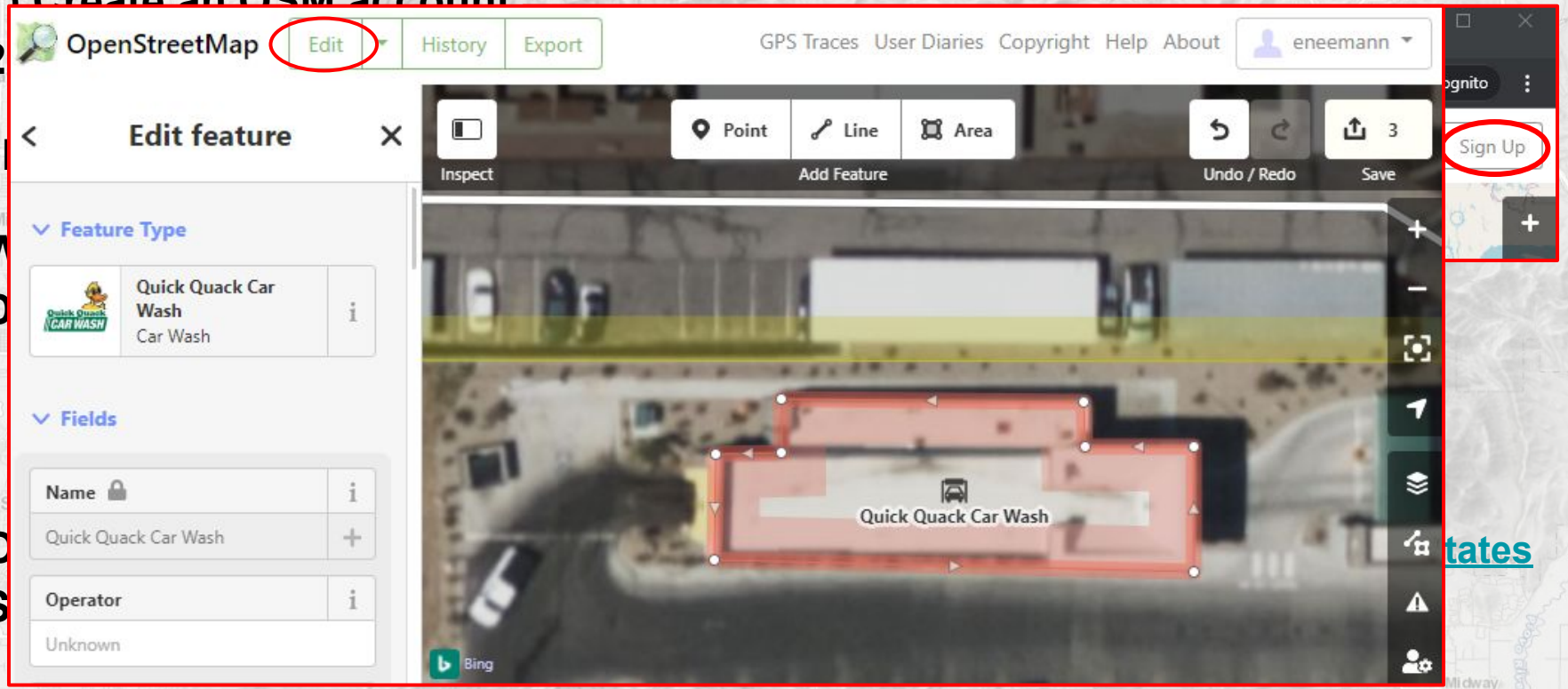

tates

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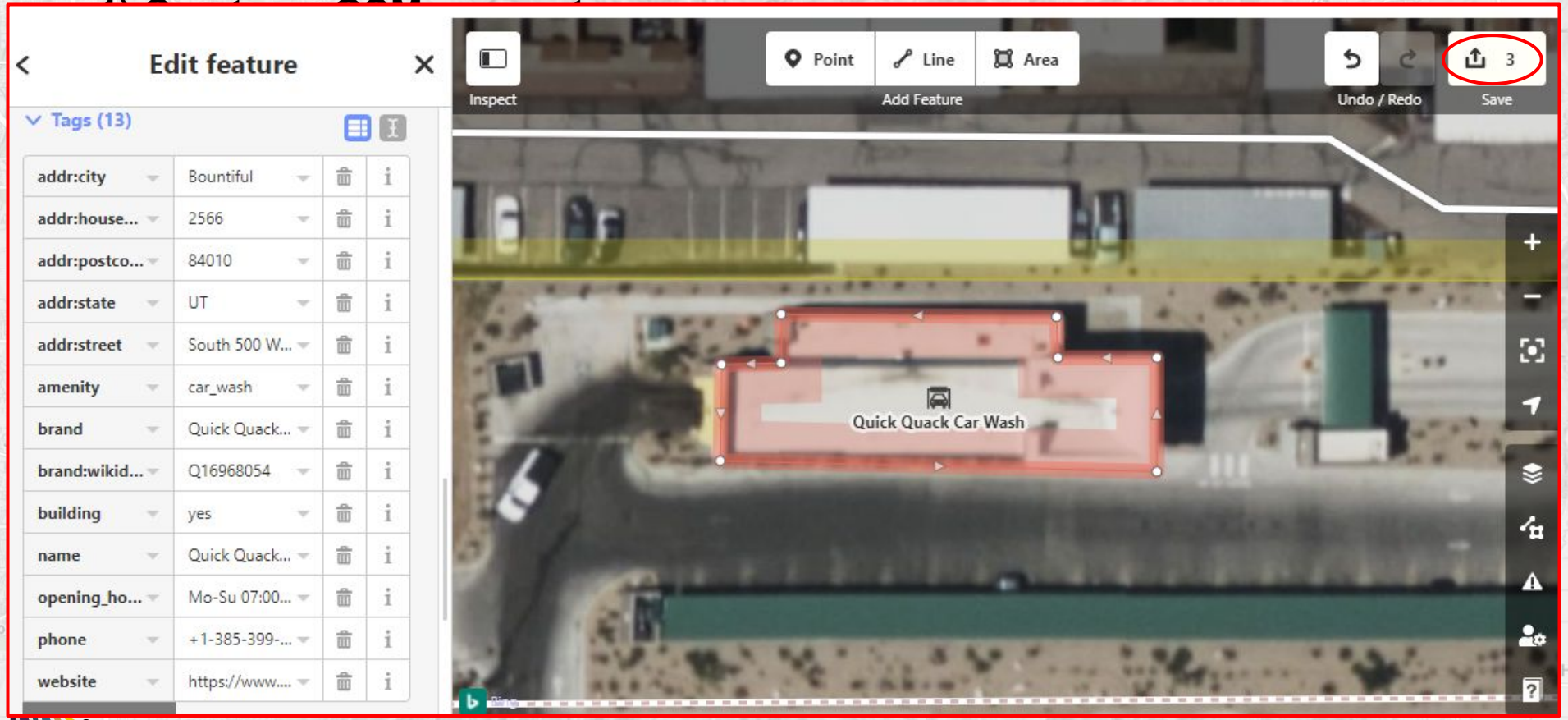

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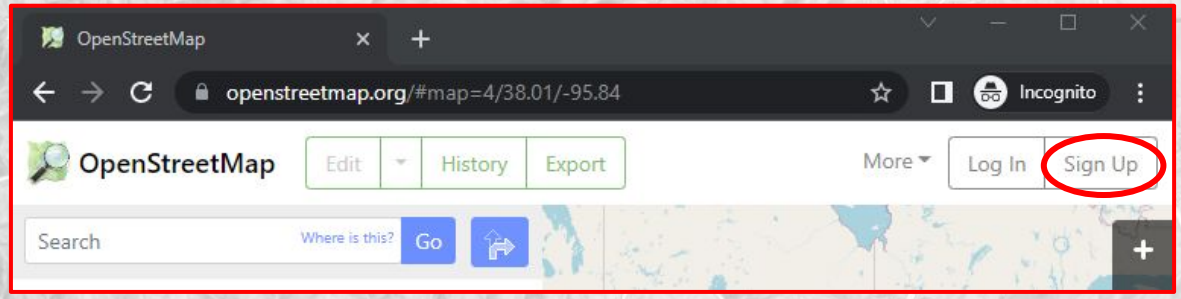

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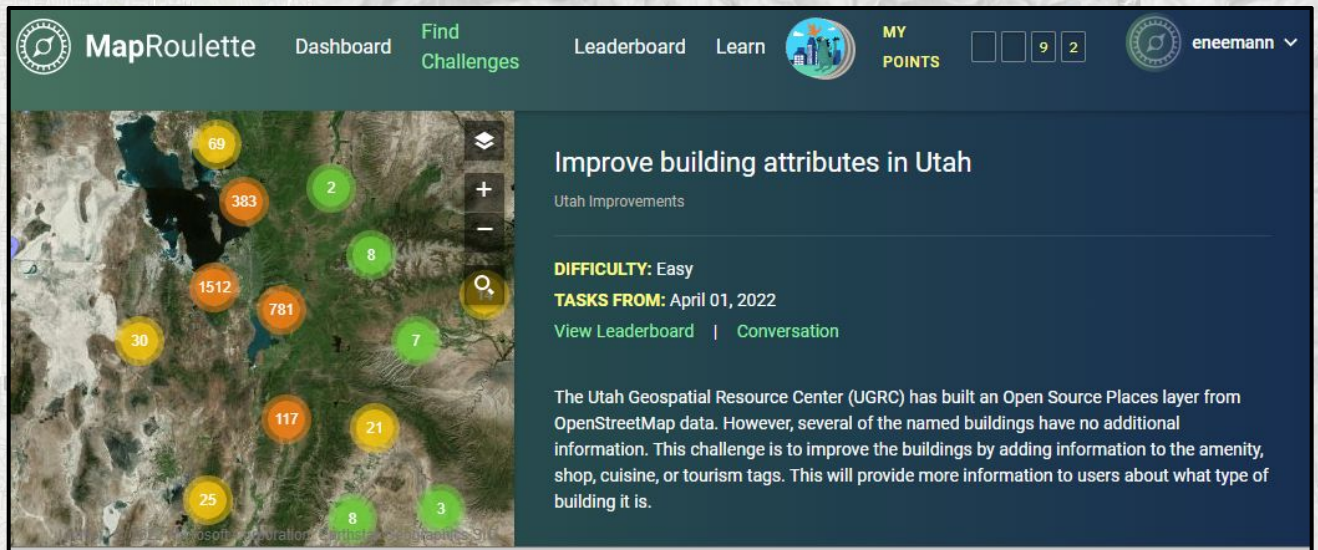
How to participate? - Map Roulette!

- Tool that serves random micro-tasks for OSM data improvements
- Challenges are created by users with specific tasks
- Other users can participate and improve the data
- Help 'Improve building attributes in Utah'!
  - https://maproulette.org/browse/challenges/26977
  - Add informational tags (`amenity`, `shop`, `cuisine`, `tourism`) or specify building type



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MapRoulette Dashboard Find Challenges Leaderboard Learn MY POINTS 97 eneemann

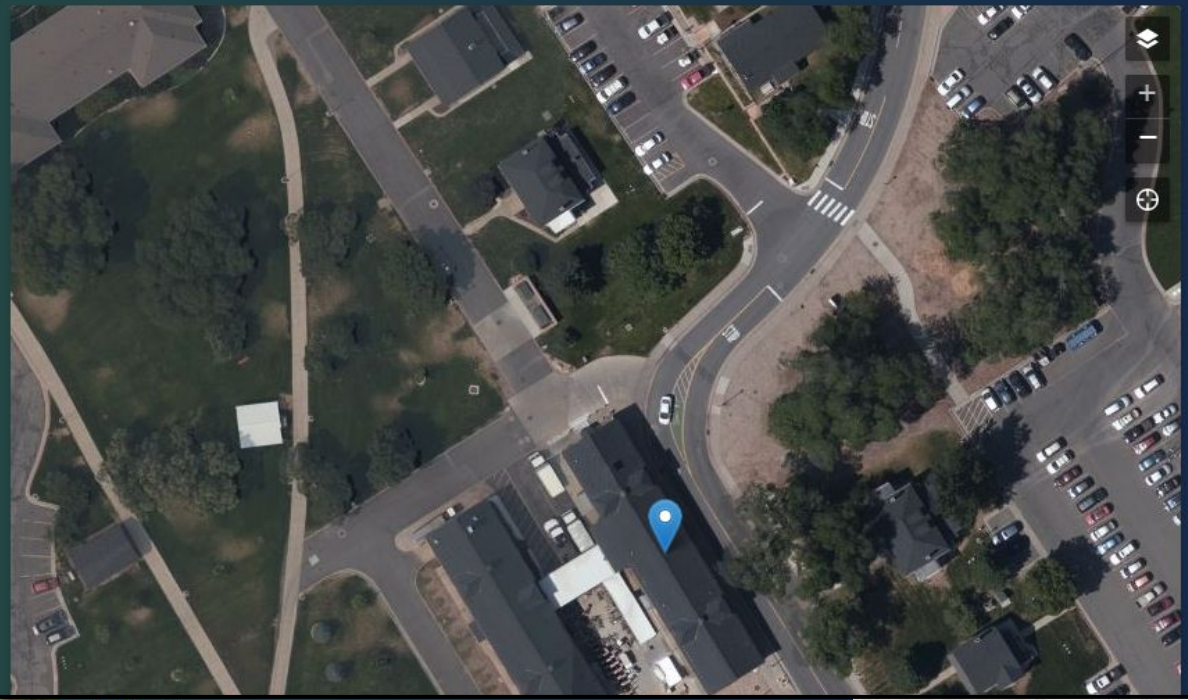
Improve building attributes in Utah

Utah Improvements

INSTRUCTIONS

tags, as necessary. Use the Wiki pages to guide your tag updates:

- https://wiki.openstreetmap.org/wiki/Key:building
- https://wiki.openstreetmap.org/wiki/Key:amenity
- https://wiki.openstreetmap.org/wiki/Key:shop
- https://wiki.openstreetmap.org/wiki/Key:cuisine
- https://wiki.openstreetmap.org/wiki/Key:tourism



COMPLETION

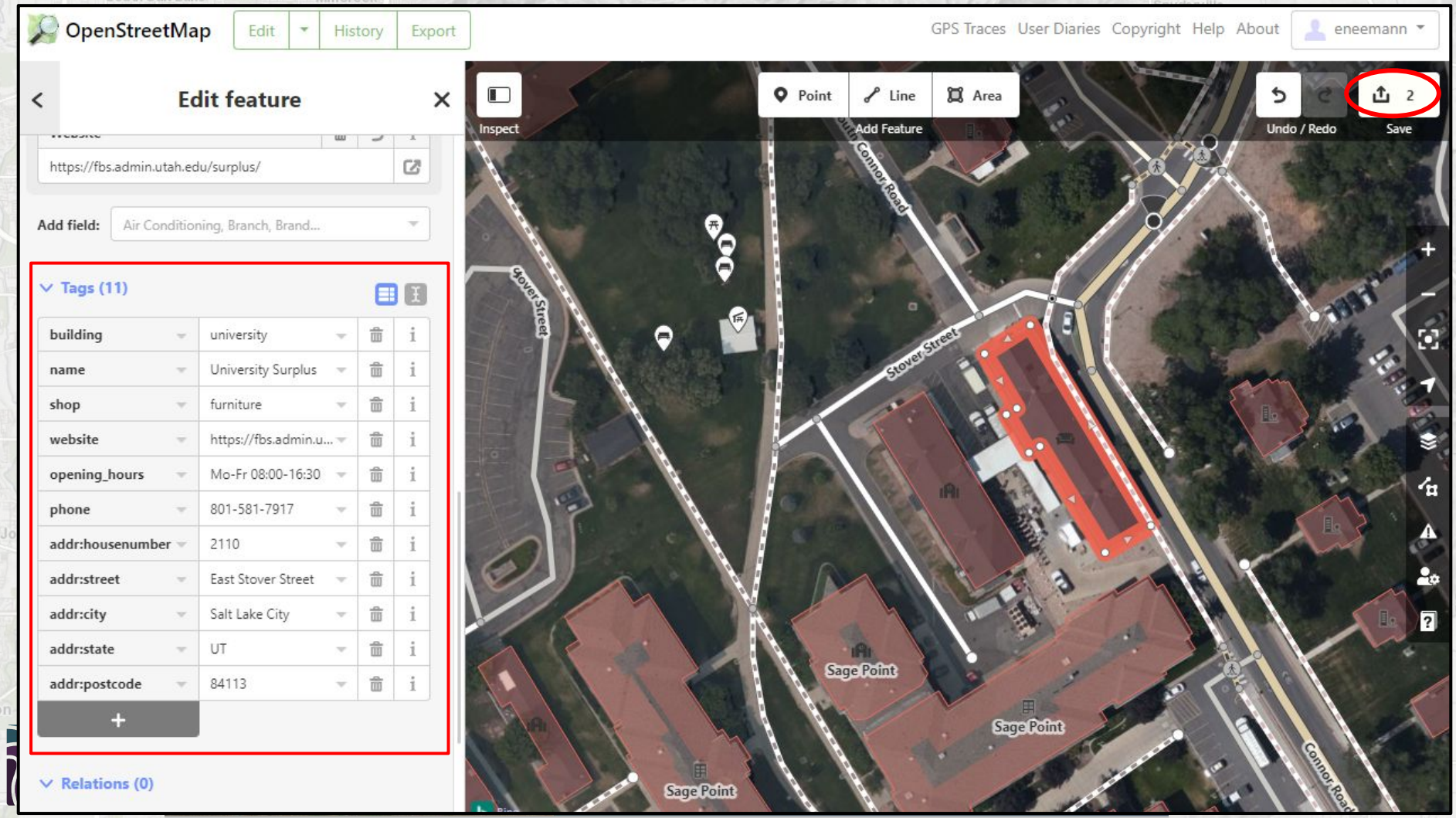
Add MR Tags

Current Editor: **Edit in iD (web editor)**

Edit | Not an Issue

Skip | Other...

building it is.


OpenStreetMap
Edit
History
Export
GPS Traces
User Diaries
Copyright
Help
About
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Edit feature
https://fbs.admin.utah.edu/surplus/
Add field:
Air Conditioning, Branch, Brand...
Tags (11)
building
university
name
University Surplus
shop
furniture
website
https://fbs.admin.u...
opening_hours
Mo-Fr 08:00-16:30
phone
801-581-7917
addr:housenumber
2110
addr:street
East Stover Street
addr:city
Salt Lake City
addr:state
UT
addr:postcode
84113
Relations (0)
Inspect
Point
Line
Area
Add Feature
Undo / Redo
2
Save
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Sage Point
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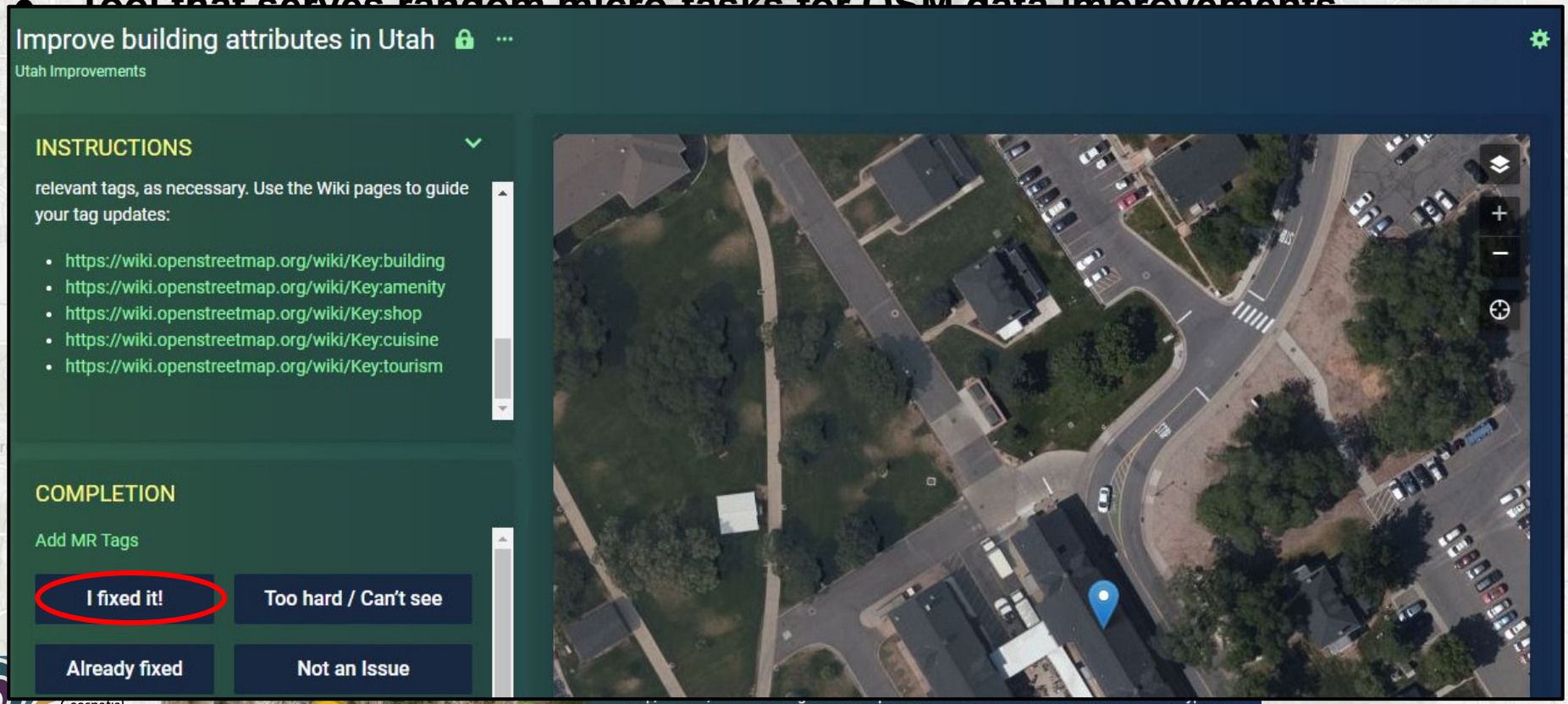

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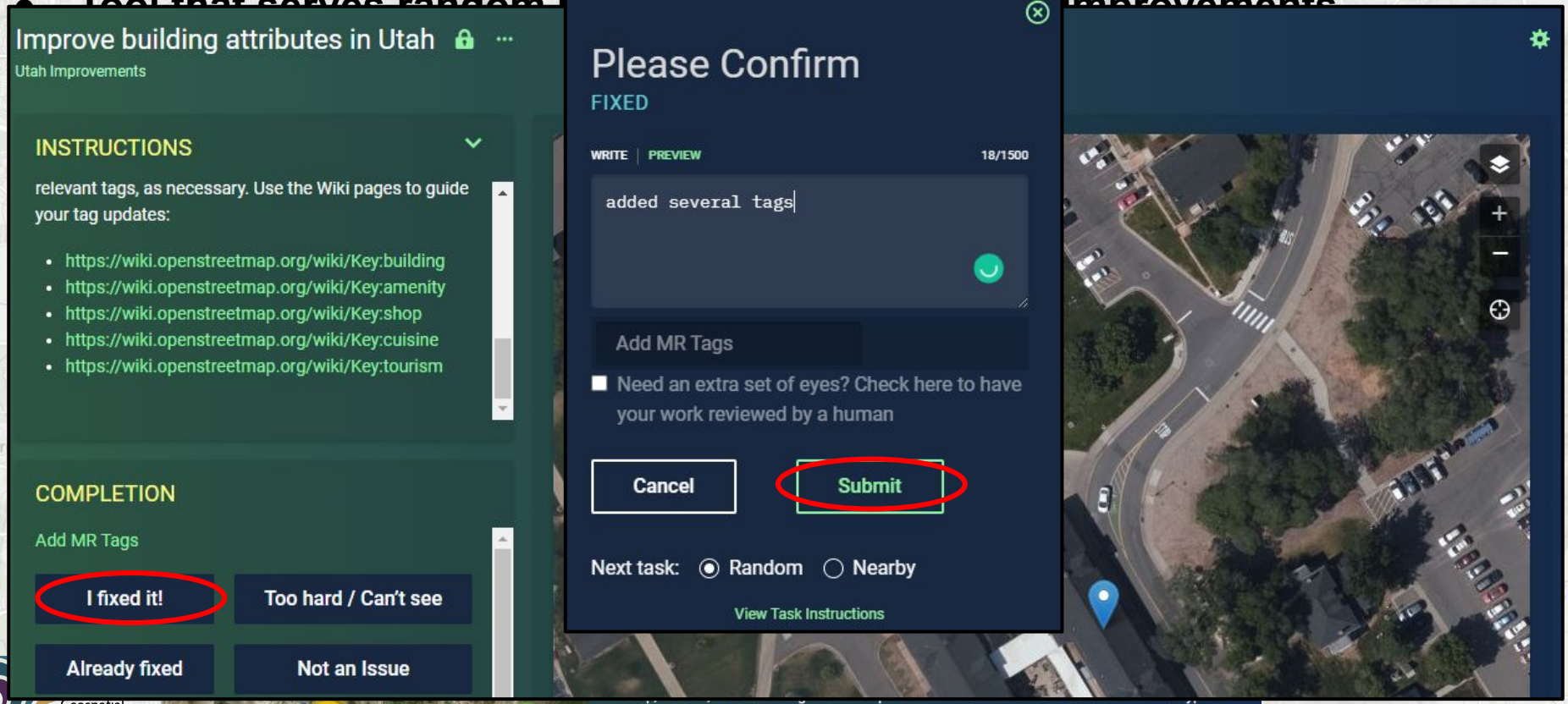
How to participate? - Map Roulette!

- Tool that serves random [illegible] improvements



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Final words

- Explore the data!
- Participate!
  - Create an OSM account
  - Make edits and updates to improve the OSM data
    - It will appear in UGRC's data within ~2 weeks
- Try the MapRoulette challenge!
- Have fun!

[Data Page]

[Blog Post]

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Questions?

Erik Neemann

email: eneemann@utah.gov

twitter: @Erik_UGRC

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