



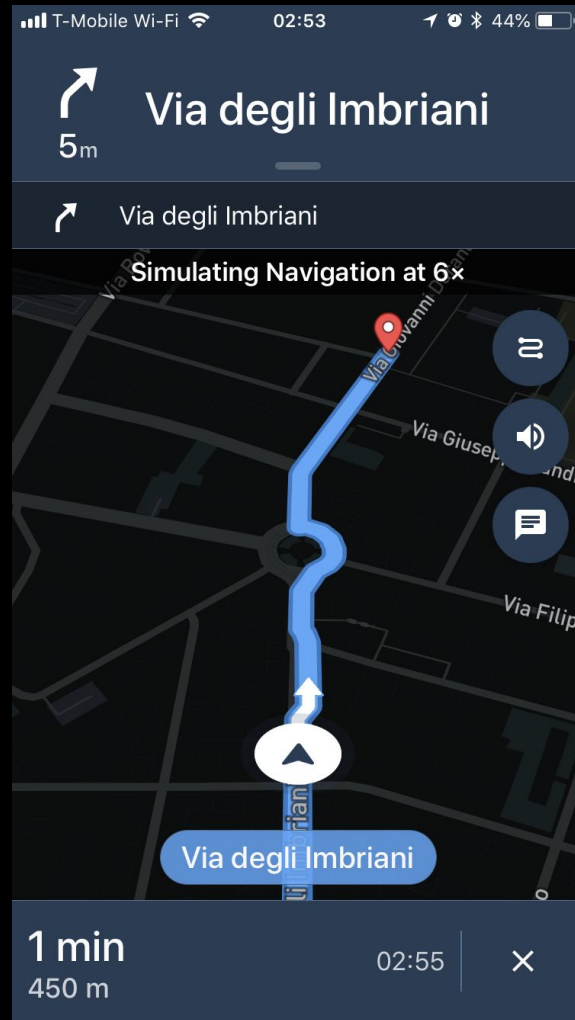
# Navigation Mapping Workshop

State of the Map 2018

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Mapbox

# Before we begin


- You can use either iD or JOSM to make edits to OSM
- This is not a general introduction to mapping
- Mainstream tagging – not proposing/promoting obscure tags today



# How do I get there?

45.4801, 9.2172

45.4780, 9.2270

Bicycle (GraphHopper) 







[Go](#)

[Reverse Directions](#)

## Directions

Distance: 994m. Time: 0:04.

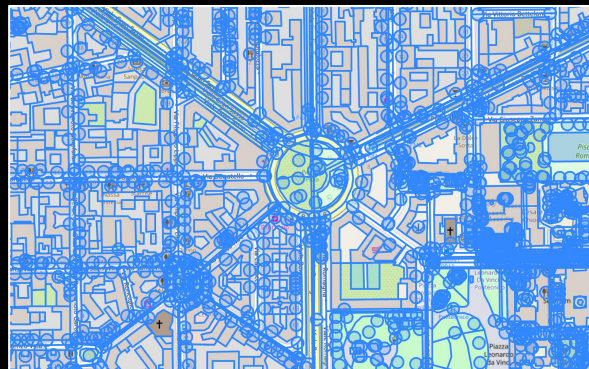
Ascend: 3m. Descend: 9m.

-  1. Continue onto Viale Abruzzi 20m
-  2. Turn right onto Via Donatello 400m
-  3. At roundabout, take exit 4 onto Via Benedetto Spinoza 300m
-  4. Keep left onto Piazza Leonardo da Vinci 90m
-  5. Turn right 170m
-  6. Arrive at destination

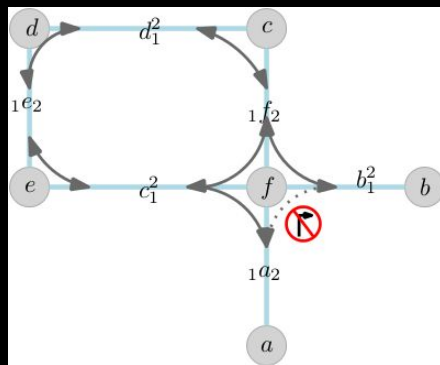
Directions courtesy of [Graphhopper](#)

# Armchair to cupholder

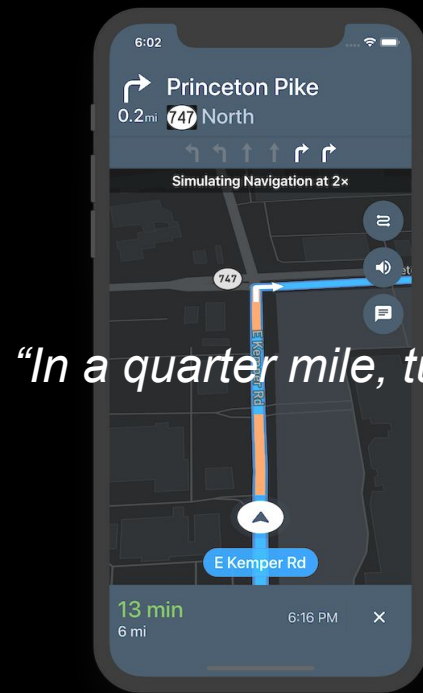
Data



Router



UI

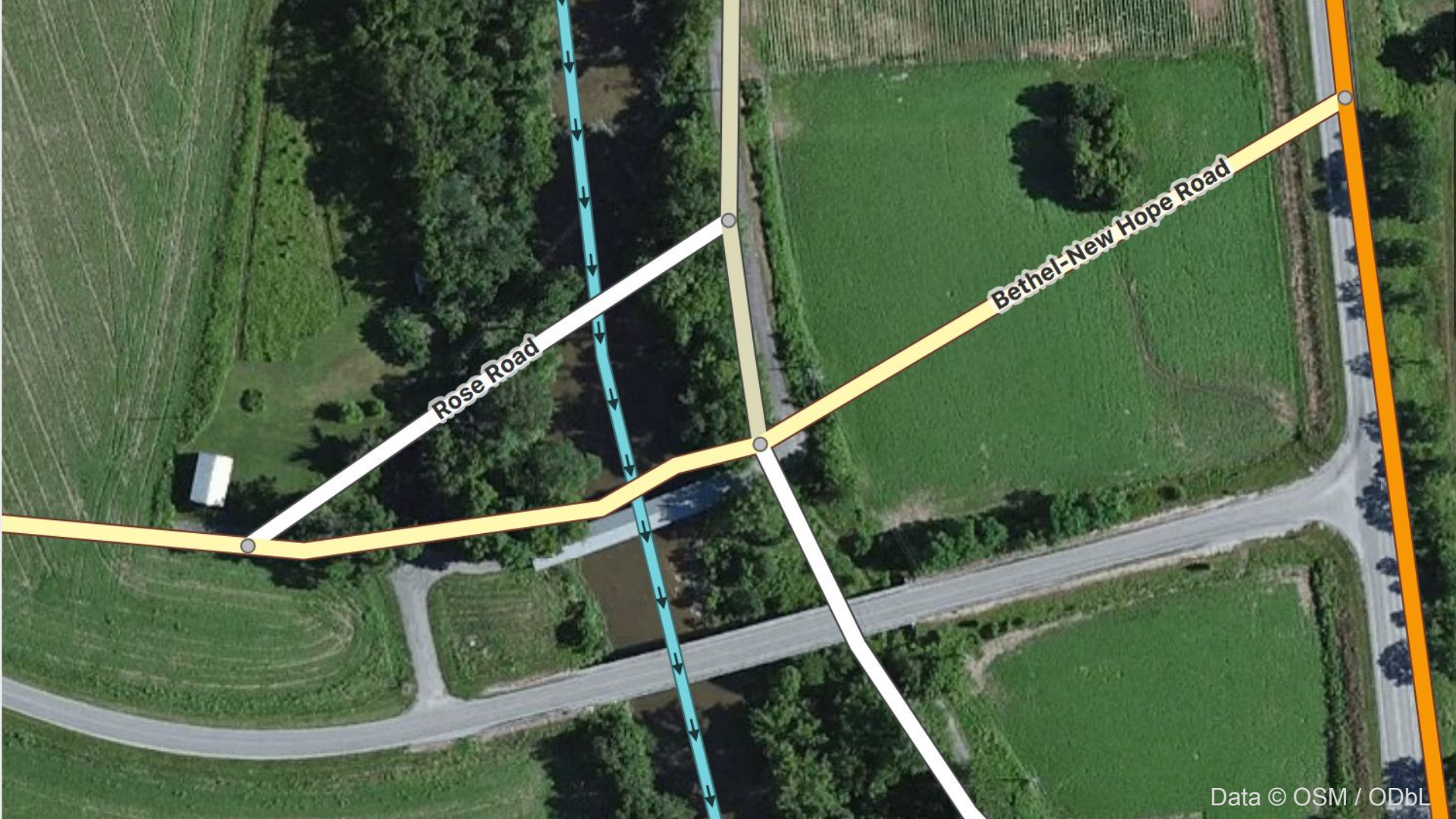


Don't tag for the  
renderer

# Don't tag for the renderer

(Tag for the renderer *and* the router!)





Rose Road

Bethel-New Hope Road







Simpsons Trace

Simpson



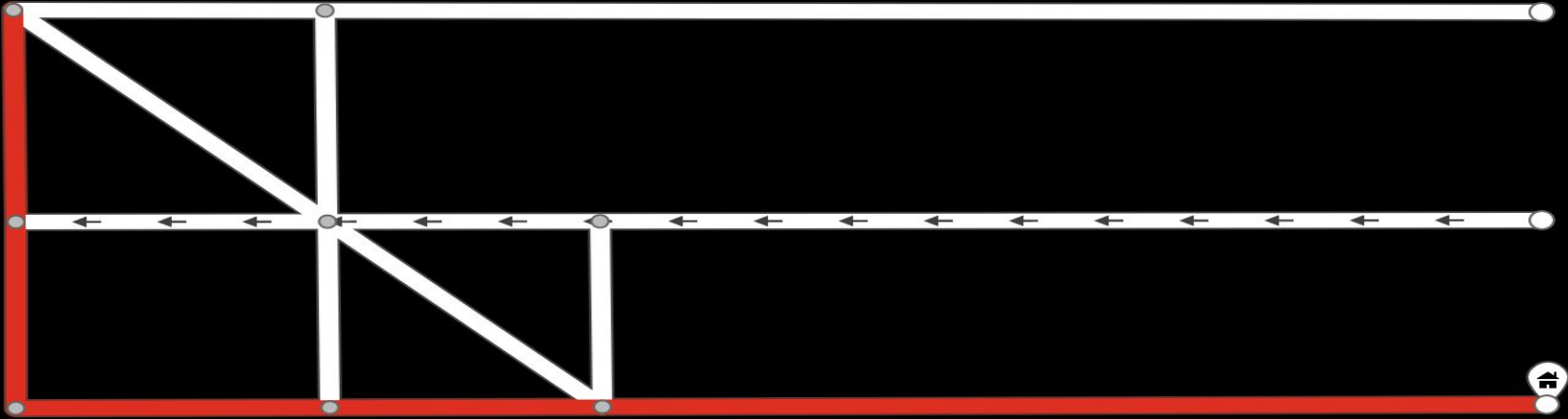


Simpsons Trace

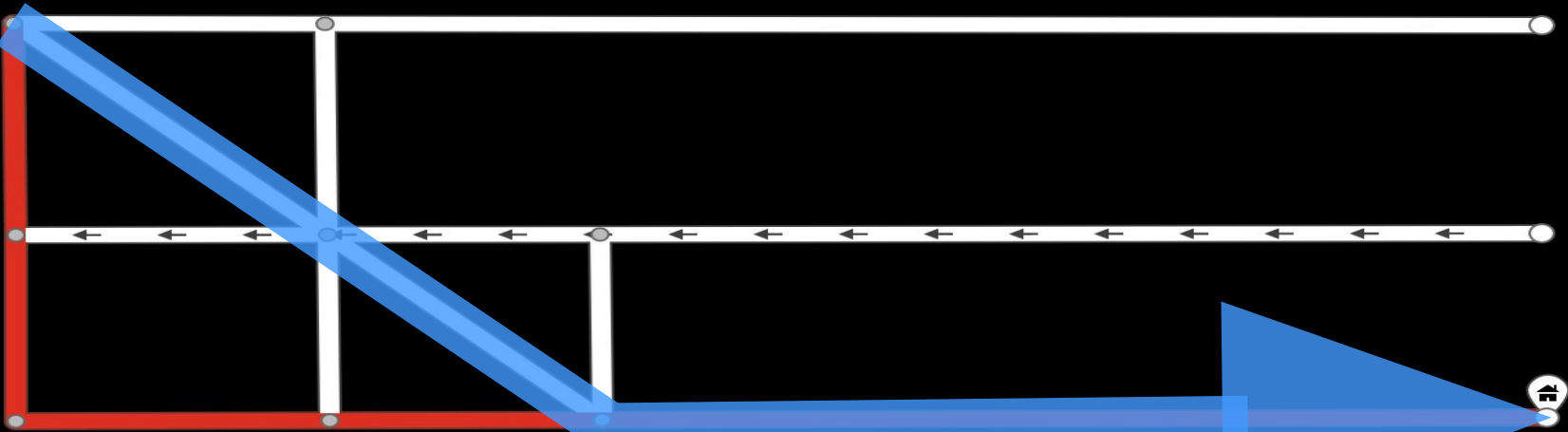
Simpsons Trace

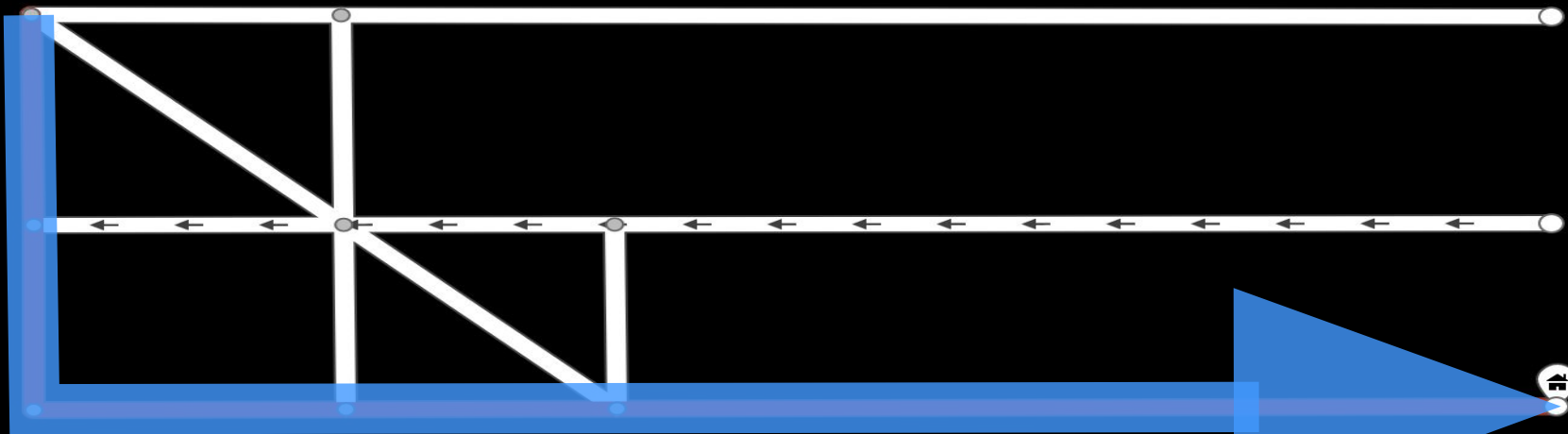
Columb

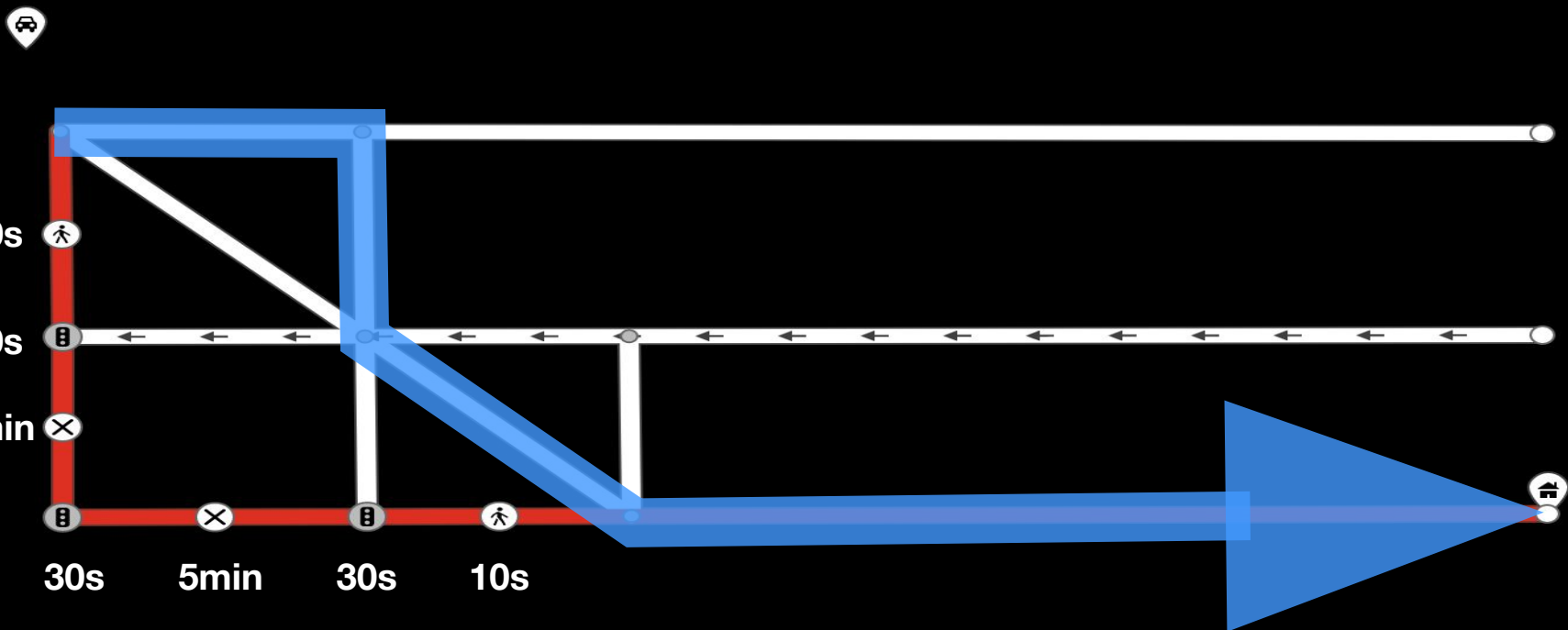
Thinking like a router

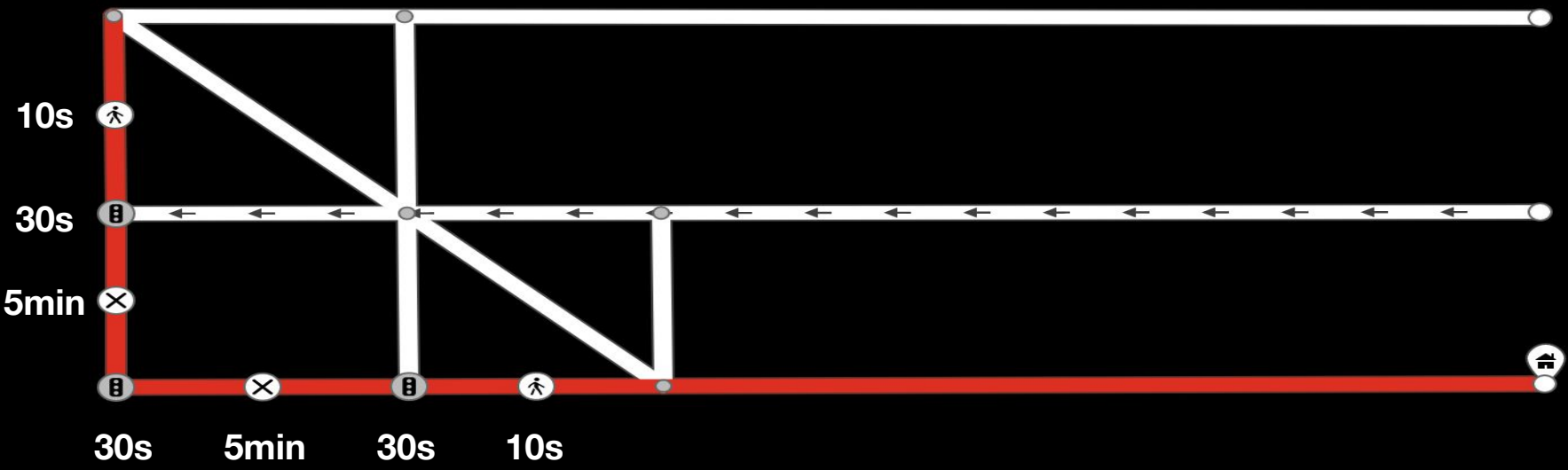












10s

30s

5min

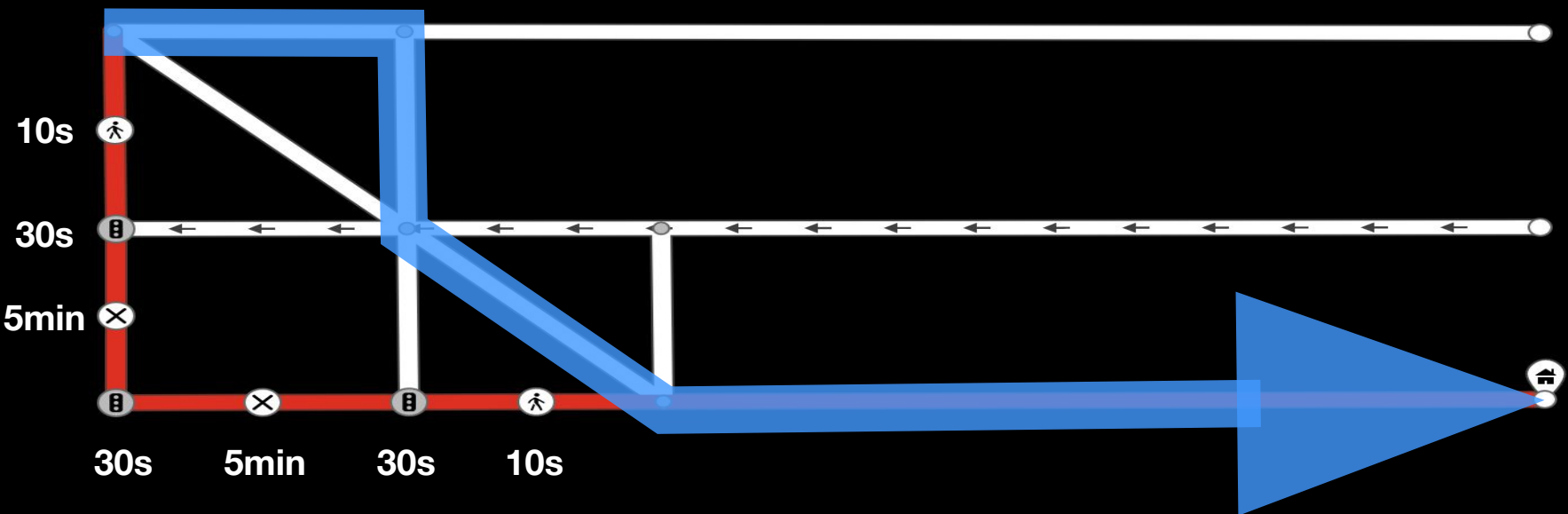
30s

5min

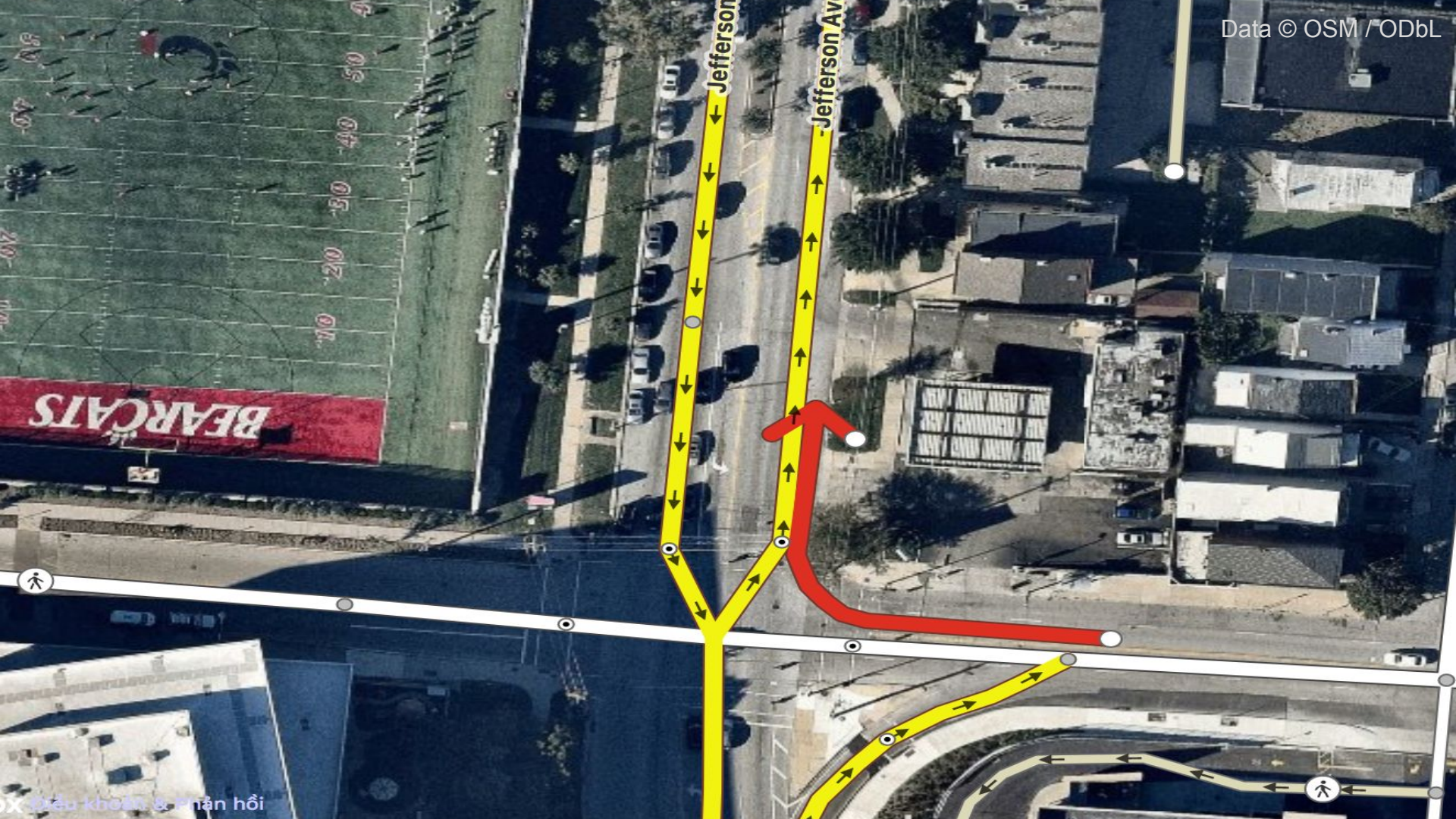
30s

10s



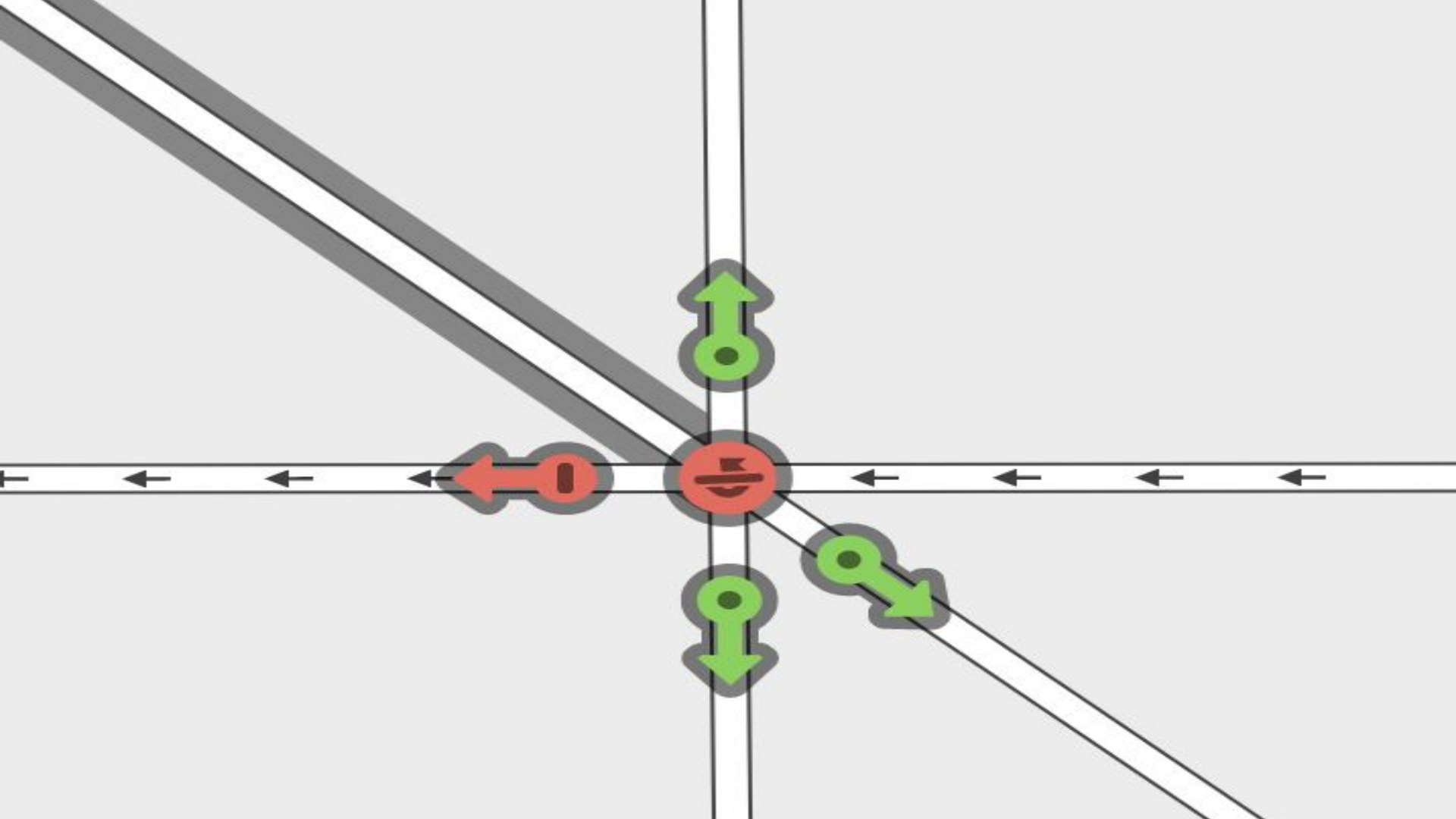




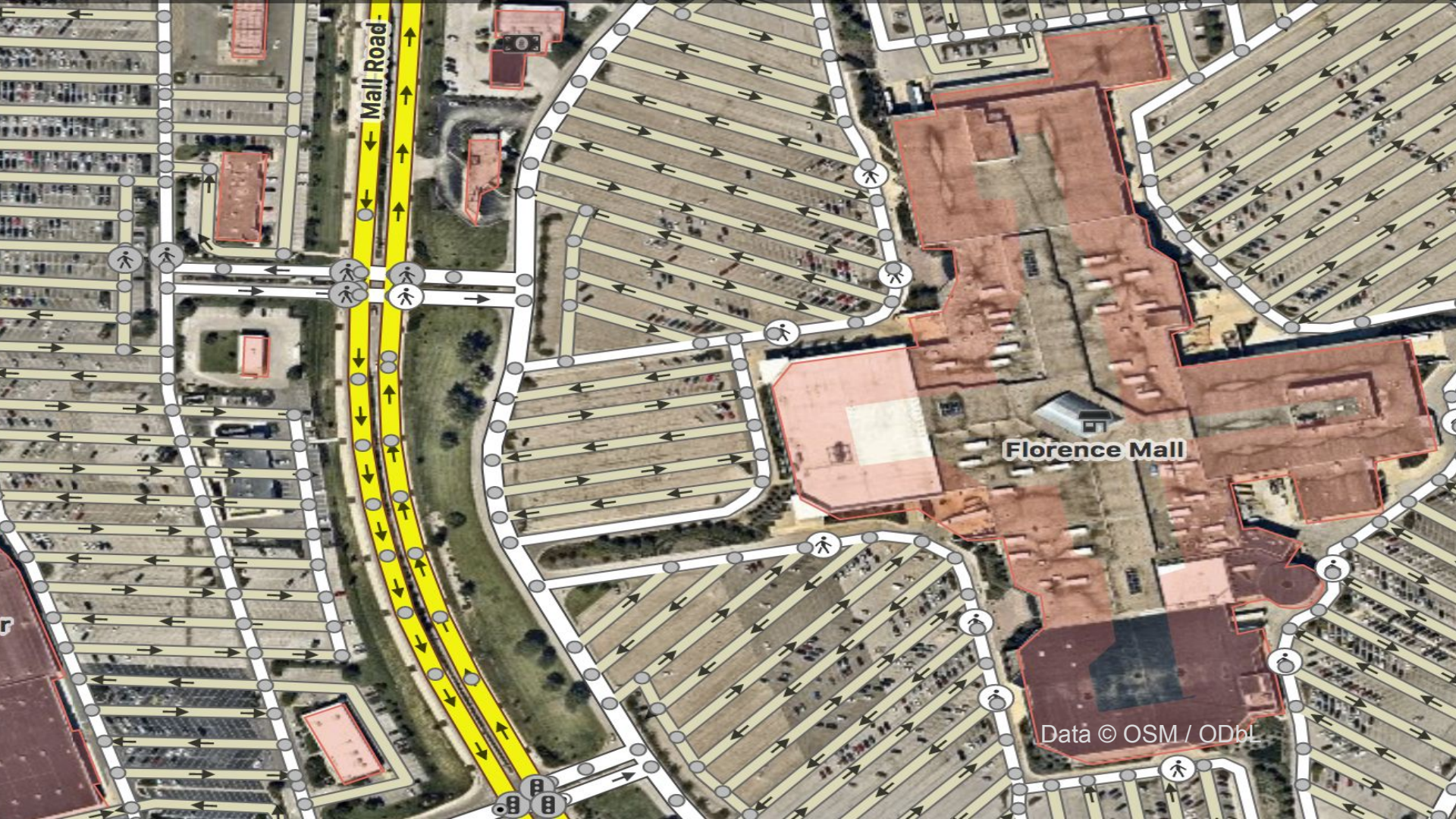


BEARCATS

# Restrictions
























Mall Road

Florence Mall

Data © OSM / ODbL



- [ice skates=\\*](#)
-  [horse=\\*](#) (horse riders)
- [vehicle=\\*](#) (category: any vehicle)
  - **Non-motorized vehicle**
    - **Single-tracked**
      -  [bicycle=\\*](#) (cyclists)
    - **Double-tracked**
      -  [carriage=\\*](#) (horse(s) and carriage)
      -  [trailer=\\*](#) (needs to be towed by another vehicle which has its own restrictions)
        -  [caravan=\\*](#) (a  [travel trailer](#), also known as caravan)
  - [motor vehicle=\\*](#) (category: any motorized vehicle)
    - **Single-tracked**
      -  [motorcycle=\\*](#) (a 2-wheeled motor vehicle, allowed to drive on motorways)
      - [moped=\\*](#) (motorized bicycles with a speed restriction; e.g., at most a 50 cc engine or max. speed of about 45 km/h)
      -  [mofa=\\*](#) ("low performance moped", usually with a maximum design speed of 25 km/h)
    -  **Double-tracked** (category: motor vehicles with more than 2 wheels/more than 1 track)
      -  [motorcar=\\*](#) describes all double tracked motor vehicles, including automobiles / (passenger) cars. Motorcar=no means 'no entry for any power driven vehicle except two-wheeled motor cycles without side-car'
      -  [motorhome=\\*](#) (a  [motorhome](#))
      - [tourist bus=\\*](#) describes a bus that is not acting as a public transport bus service, usually for long-distance travel but not always
      -  [coach=\\*](#) a bus for long-distance travel, not part of a public transport bus service
      - [goods=\\*](#) (light commercial vehicles; e.g., goods vehicles with a maximum allowed mass of up to 3.5 tonnes)
      -  [hgv=\\*](#) (heavy goods vehicle; e.g., goods vehicles with a maximum allowed mass over 3.5 tonnes)
        -  [hgv articulated=\\*](#) articulated heavy goods vehicle
      -  [agricultural=\\*](#) (agricultural motor vehicles; e.g., tractors) that have additional restrictions; e.g., a 25 km/h speed limit)
      - [atv=\\*](#) a.k.a. *Quad (bike)* (Restricted to or permissive for vehicles 50 in, 1.27 m, or less in width) still in [proposal stage](#). You may want to use [maxwidth=1.27](#) instead.
      - [snowmobile=\\*](#)
  - **By use**
    - [psv=\\*](#) (public service vehicle)
      -  [bus=\\*](#) (a heavy bus acting as a public service vehicle)
      - [minibus=\\*](#) (a light bus acting as a public service vehicle)





*Demo*

# Highway exits and destination signs



© Scott Nazelrod / CC BY-SA



© Michael Rivera / CC BY-SA

*Demo*



Turns and lanes

# Turns

- For the router - **Turn Restrictions**
- For human friendly experience - **Turn Lanes**

# Turn Restrictions

Extremely important for navigation.

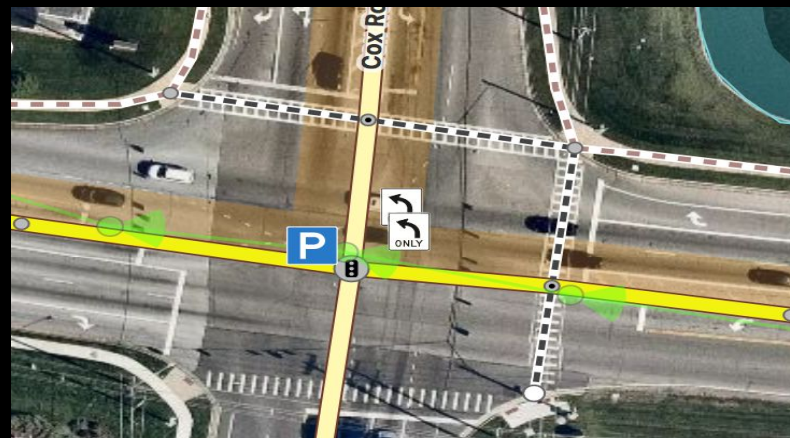
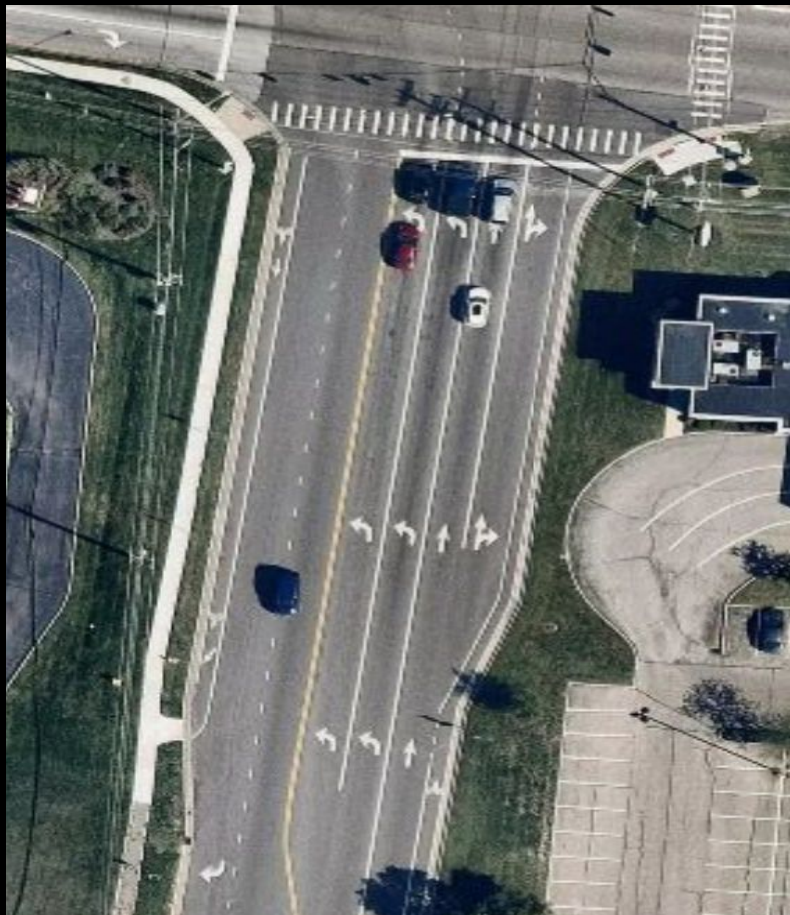
Coverage in OSM is scant.

They don't add much in terms of visual maps so they've been overlooked.

YOU can help!

# Turn Lanes

Important because they help the driver prepare for a large intersection by getting into the correct lane



*Demo*

# Lanes in the future

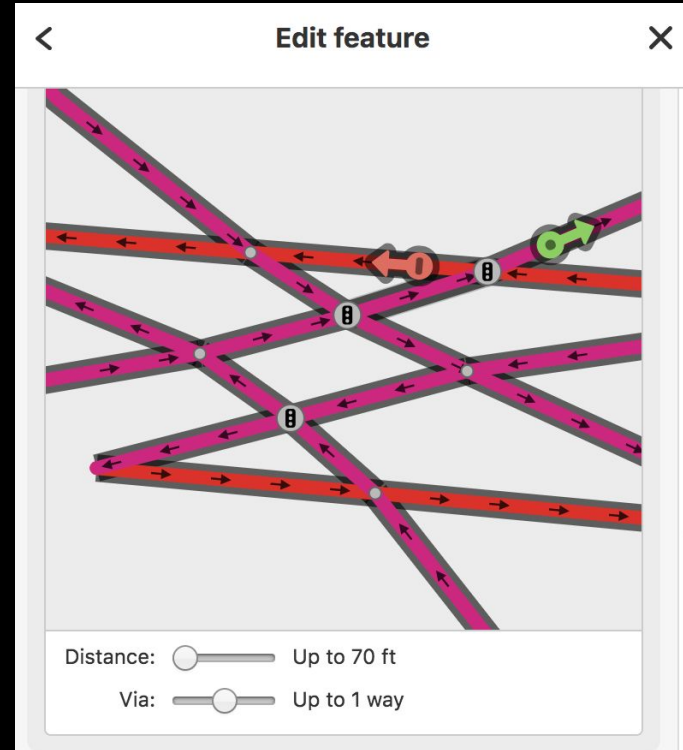
- change:lanes
- transit:lanes and transit relations
- Per-lane entrance and exit destinations



# Intersections

# Intersection Mapping

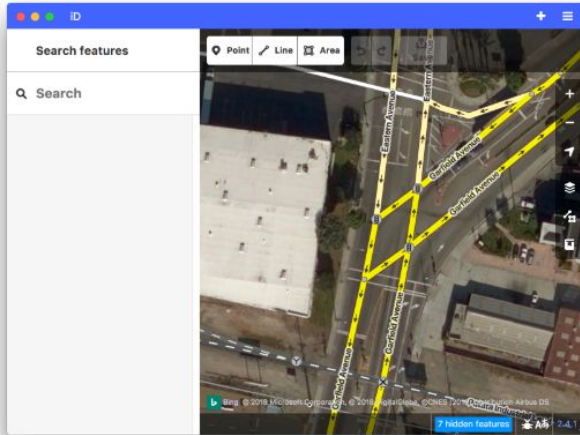
1. Make sure all the possible paths through the intersection are mapped, but no more.



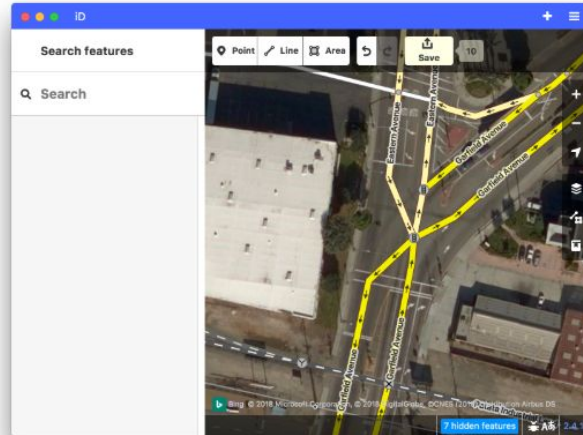
# Intersection Mapping

## 2. Avoid contorting through roads.

✓ Recommended



✗ Not recommended



# Intersection Mapping

3. Make sure to tag turn lanes throughout the intersection.

# Look here for more details

<https://www.mapbox.com/mapping/mapping-for-navigation/modeling-intersections-for-map-navigation/>

# Complex Intersections

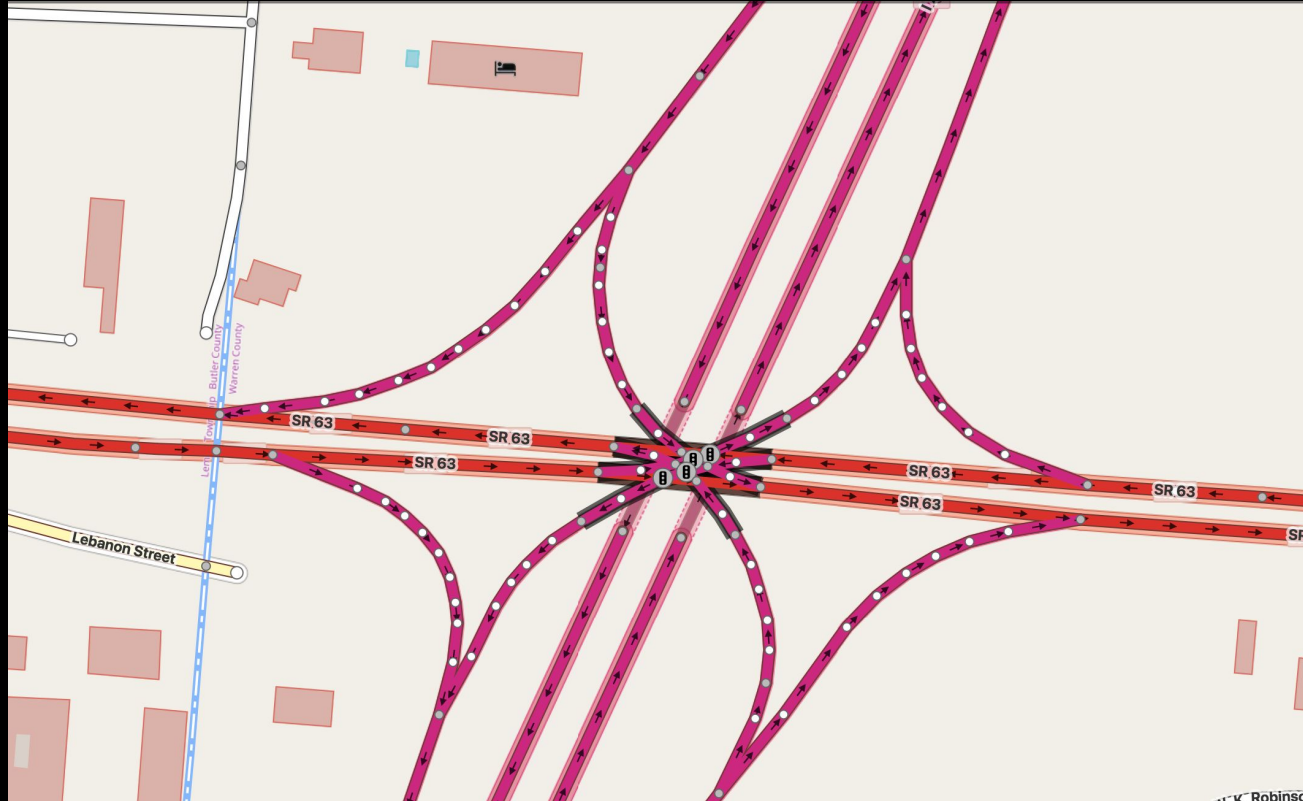
Complex intersections are designed to allow large volumes of traffic move through limited space safely and efficiently.

Examples:

- Single-point urban interchange (SPUIs)
- Continuous Flow Intersection (CFI)
- Diverging Diamond Interchange (DDI)
- Superstreet
- Turbo Roundabout



# SPUIs



# Starting points

- Make your hometown navigable!
- Add turn lanes and exit destinations from satellite and street-level imagery – search for:  
Cleveland, Ohio, USA; Istanbul, Turkey; Mansfield, Ohio, USA; Milan, Italy; Stockholm, Sweden; Torino, Italy; Upsalla, Sweden; your hometown!
- <https://www.mapbox.com/mapping/mapping-for-navigation/>