

DIY Mapping for Librarians

Atlantic Provinces Library Association
Pre-Conference Workshop
May 14, 2013

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Agenda

- Introduction to OpenStreetMap
- Editing OpenStreetMap with web tools
- Editing OpenStreetMap with JOSM
- Making Indoor Maps with JOSM
- From OpenStreetMap to Google Earth

OpenStreetMap

- Like Wikipedia, but for a map of the world.
- “Open” means both the underlying data is available, and that anyone can contribute.
- Often this results in more current maps of better quality and coverage than commercial mapping companies.
- Rich set of map-making tools.



OpenStreetMap

The Free Wiki World Map

Search

examples: 'Alkmaar', 'Regent Street, Cambridge', 'CB2 5AQ', or 'post offices near Lünen' [more examples...](#) [Where am I?](#)

OpenStreetMap is a free worldwide map, created by people like you.

The data is free to [download](#) and [use](#) under its [open license](#). [Create a user account](#) to improve the map.

Help

- [Help Centre](#)
- [Documentation](#)
- [Copyright & License](#)

Community

- [Community Blogs](#)
- [Foundation](#)
- [User Diaries](#)

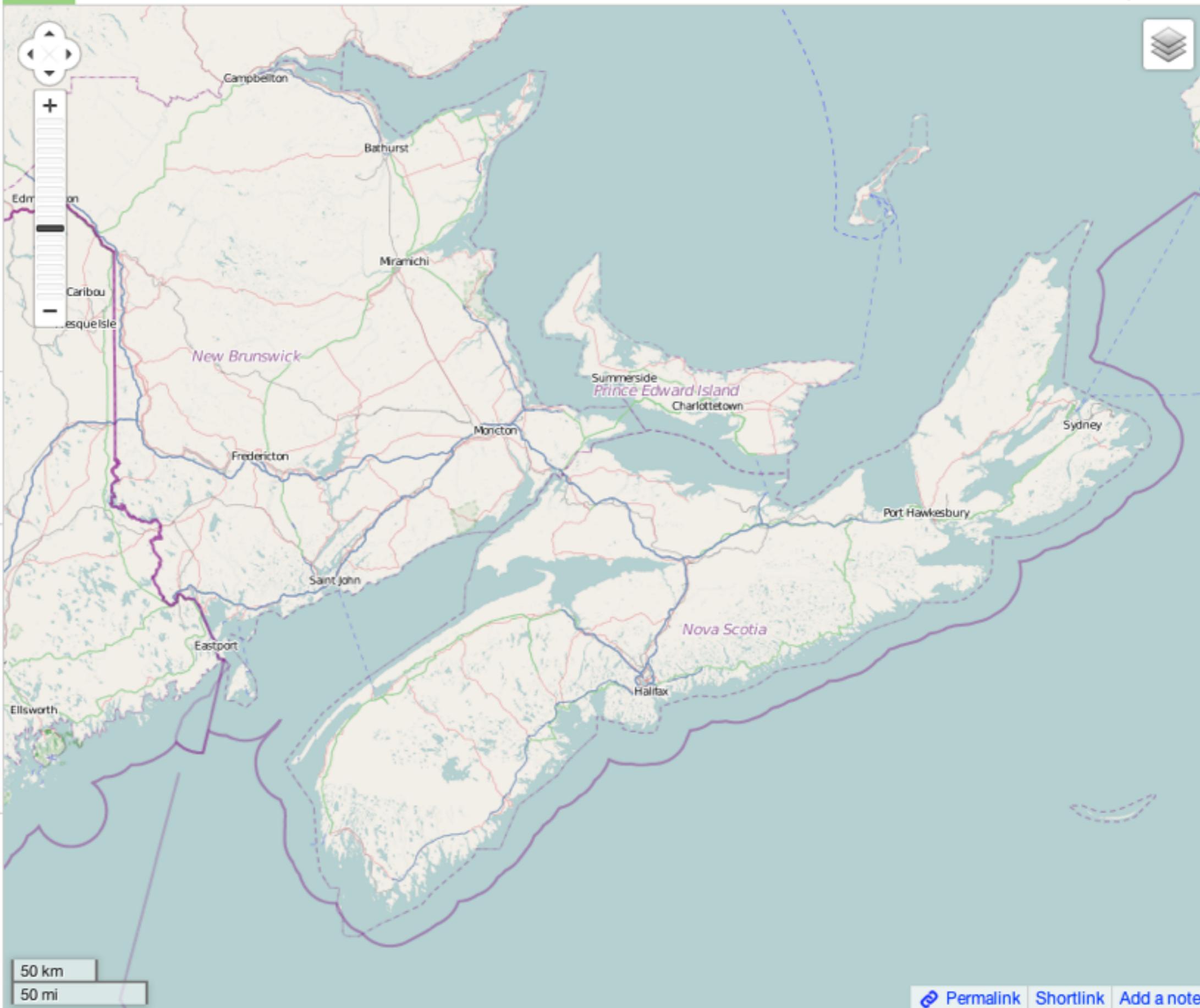
GPS Traces

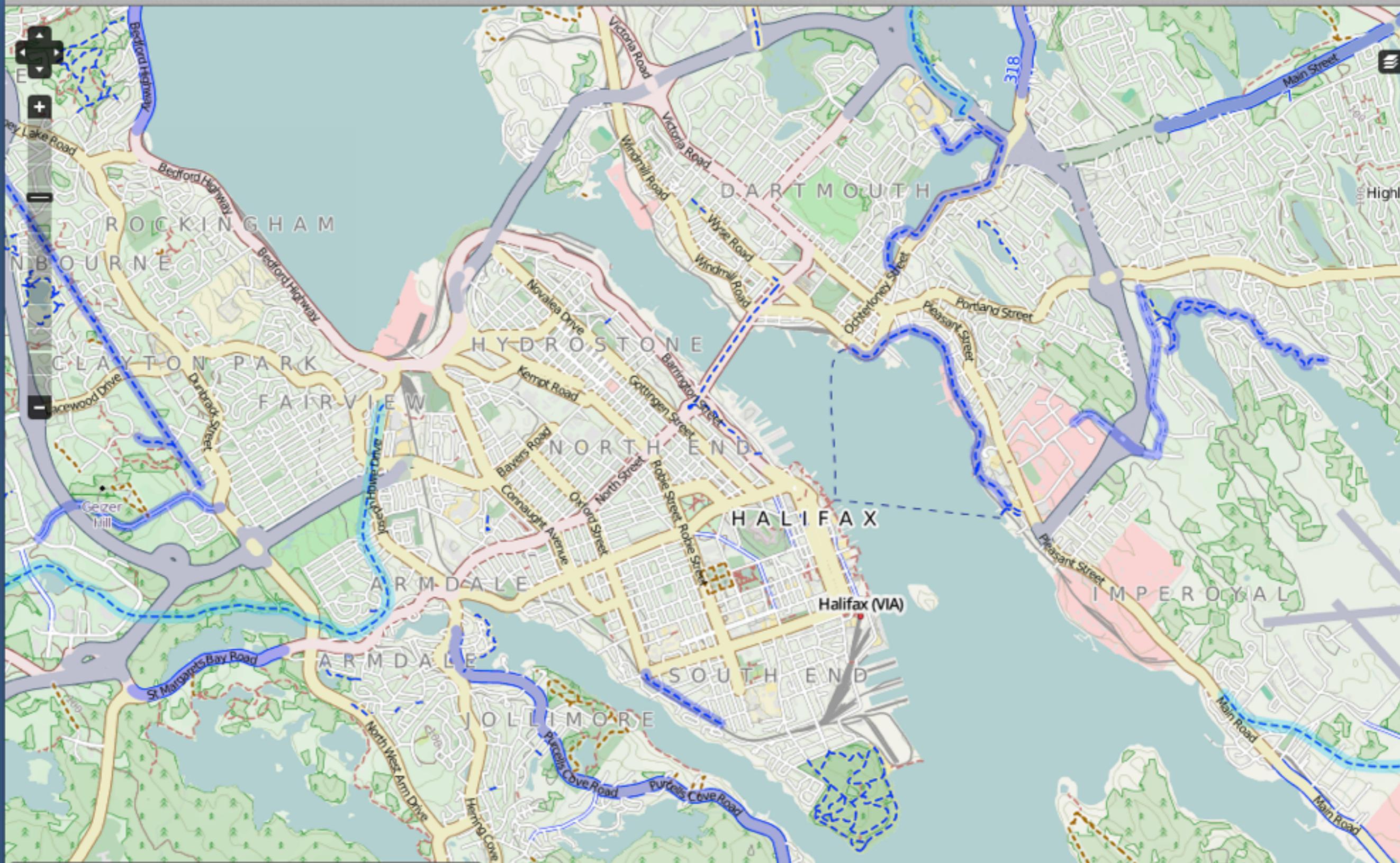
Map Key

[♥ Make a Donation](#)

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View Edit History Export





Jump to:
[Share your current view of the map! \(Permalink\)](#)
[Edit OpenStreetMap data here](#)
All maps © [OpenCycleMap](#), map data © [OpenStreetMap \(ODbL\)](#).

OpenCycleMap.org - the [OpenStreetMap](#) Cycle Map
[Key and More Info](#) | [Donate](#) | [Shop](#) | [GPS](#)
Created by [Andy Allan](#) and [Dave Stubbs](#)
[Developer Information](#)

ISLAND TRAILS



Confederation Trail



Major Woodland Trails



Other Hiking / Biking Trails



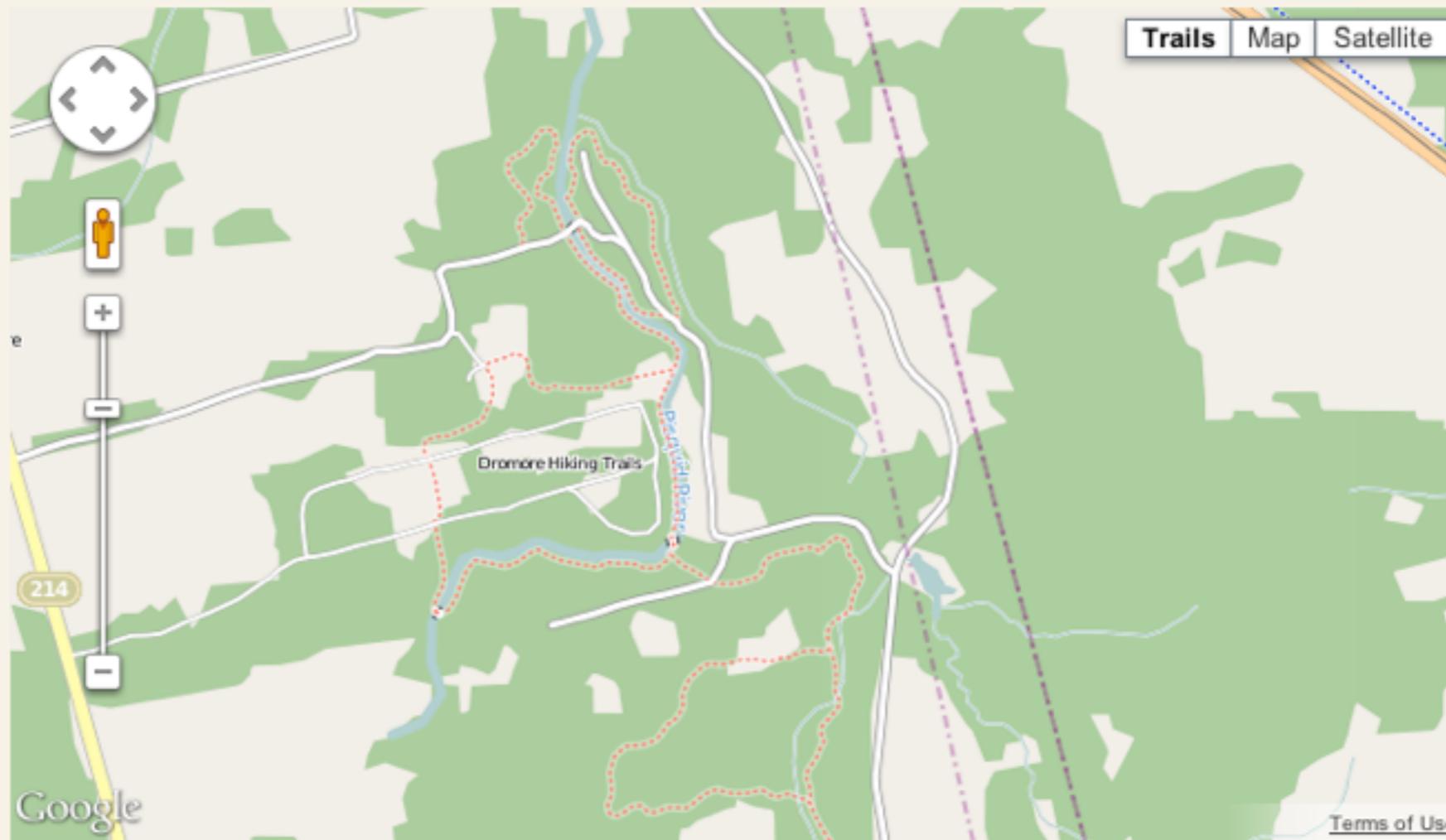
Parks Canada Trails



Heritage Roads



Good Citizen Checklist



Dromore Woodland Trails

Please click on the individual trail links below to learn more.

[A. SOUTH LOOP >](#)

[D. SOUTH CONNECTOR >](#)

[B. CENTRE LOOP >](#)

[E. CENTRE CONNECTOR >](#)

en



Start: University Avenue, Charlottetown

End: Euston Street, Charlottetown

Show Show Reverse

Reset Car (fastest)

Route Description

(Belvedere Avenue - University Avenue)

Distance: 2.45 km

Duration: 3 min

[Generate Link]

[GPX File]

- Head south 20 m
- Turn left 41 m
- Continue 11 m
- Continue 0.20 km
- Turn sharp right onto University of PEI Ring Road 0.13 km
- Enter roundabout and leave at first exit onto Belvedere Avenue 0.30 km
- Turn left onto University Avenue 1.73 km
- Turn left onto Euston Street 13 m
- You have reached your destination



Routing by Project OSRM - Geocoder by Nominatim - OSRM hosting by KIT

300 m



OpenStreetMap
The Free Wiki World Map

Search

examples: 'Alkmaar', 'Regent Street, Cambridge', 'CB2 5AQ', or 'post offices near Lünen' [more examples...](#) [Where am I?](#)

Help

- [Help Centre](#)
- [Documentation](#)
- [Copyright & License](#)

Community

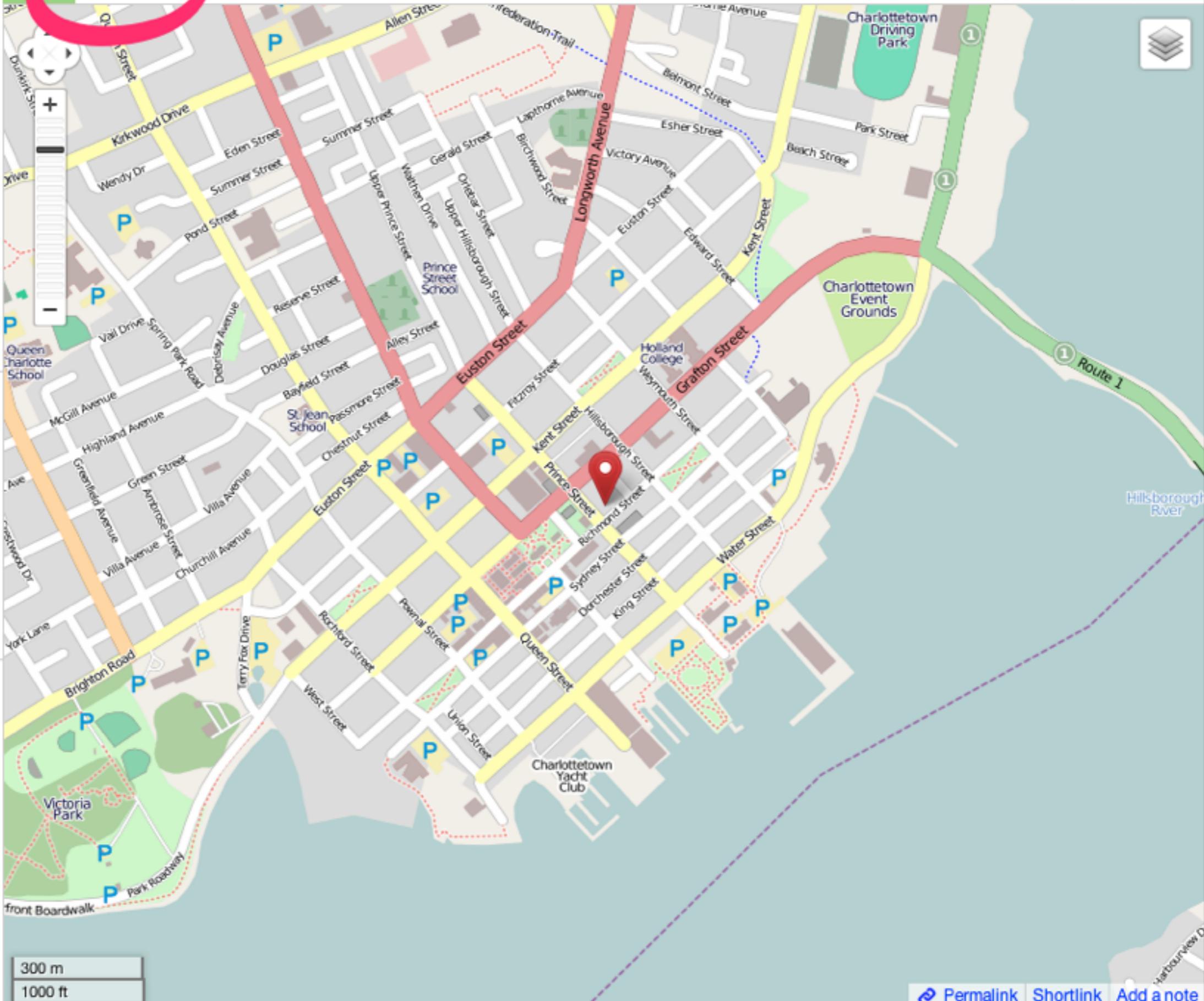
- [Community Blogs](#)
- [Foundation](#)
- [User Diaries](#)

GPS Traces

Map Key

♥ [Make a Donation](#)

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300 m
1000 ft

[Permalink](#) [Shortlink](#) [Add a note](#)

OpenStreetMap Concepts

- **Point** (a single point on the map)
- **Line** (road, path, etc.)
- **Area** (building, park, farm, etc.)
- **Lines** and **Areas** are also know as **ways** in OpenStreetMap parlance.

Editing OpenStreetMap

- Sign up for a free account and login.
- Find an area you'd like to map.
- Click **Edit | Edit with iD**
- Click on a feature to edit or,
- Add a point, line or area.
- Add metadata.
- **Save** (and add a comment about what you did)

Editing OpenStreetMap

- Sign up for a free account and login.
- Find an area you'd like to map.
- Click **Edit | Edit with Potlatch 2**
- Click on a feature to edit or,
- Starting drawing points or ways.
- Add metadata.
- **Save** (and add a comment about what you did)

Go Edit Something

Editing with JOSM

- JOSM is a “power editor” for OpenStreetMap.
- Runs as a standalone application on your computer, not in a web browser.
- Much more power; much more complexity.
- The best tool for creating detailed indoor maps.

JOSM Basics

- Drag map with the right mouse button down.
- Zoom in and out with mouse wheel.
- Use the [OpenStreetMap wiki](#) as a reference for metadata.
- Use [OpenStreetMap](#) itself as a guide: look at what others have done and follow suit.

JOSM Basics

- Click to start drawing a way or a point.
- ESC to stop drawing **or** double-click to close the way into an area.
- Use the “little cross marks” to add points to a way.

Select an Area on Startup

Java OpenStreetMap Editor

Tools Presets Imagery Windows PicLayer Audio Help

JOSM - Java OpenStreetMap Editor

- 2013-05-06 ([5932](#))
 - integrate restart plugin into core
 - right click menu "undo, cut, copy, paste, delete, select all" for each text component
 - improve performance of [purge command](#)
- 2013-04-08 ([5836](#))
 - major rework of context menus
 - add "clear buffer" button to remove incorrect buffer from "paste tag from text" action
 - remove support for the (deprecat
- 2013-03-07 ([5759](#))
 - Ctrl-Shift-V now can paste tags
 - multiple MapCSS rendering impro
 - allow dragging nodes in [Extrude](#)
 - context menus in Add/Edit prop
 - basic date-filtering of GPS traces
 - remote control: allow deleting tag
 - lots of minor enhancements and

● You are using version '5939' of JOSM

● [More news](#)

● Help [translating](#) JOSM into your lang

Getting Started

- Download some existing data from C
- Your username and password are ser

Getting Help

- Online help: [Help](#) on the [Help](#) menu
- Join the [forum](#) or the [Newbies mailing](#)

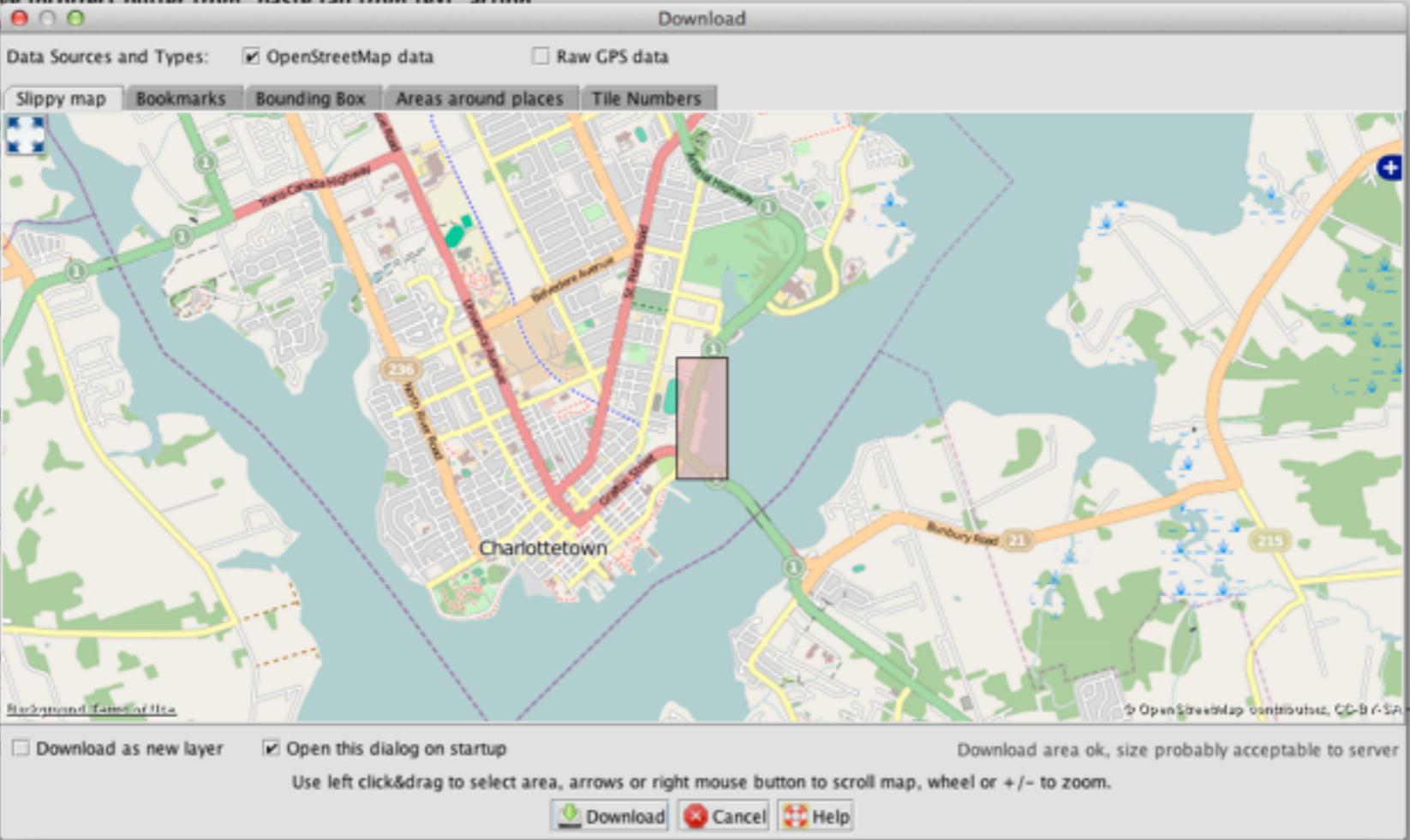
Remember the golden rules of OpenStreetM

- Don't copy from other maps
- Have fun!

Download

Data Sources and Types: OpenStreetMap data Raw GPS data

Slippy map Bookmarks Bounding Box Areas around places Tile Numbers

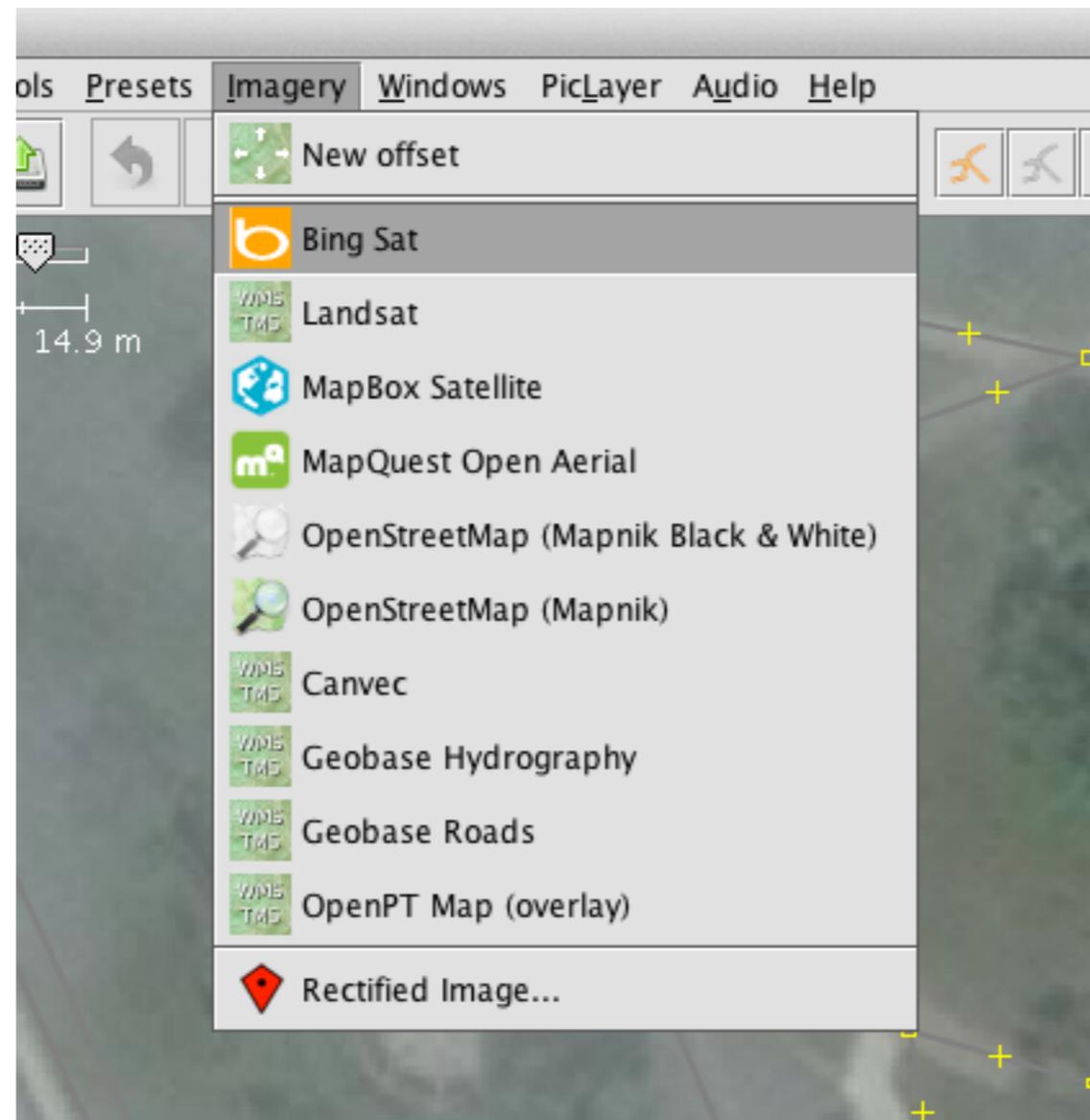


Charlottetown

Download area ok, size probably acceptable to server

Use left click&drag to select area, arrows or right mouse button to scroll map, wheel or +/- to zoom.

Download Cancel Help



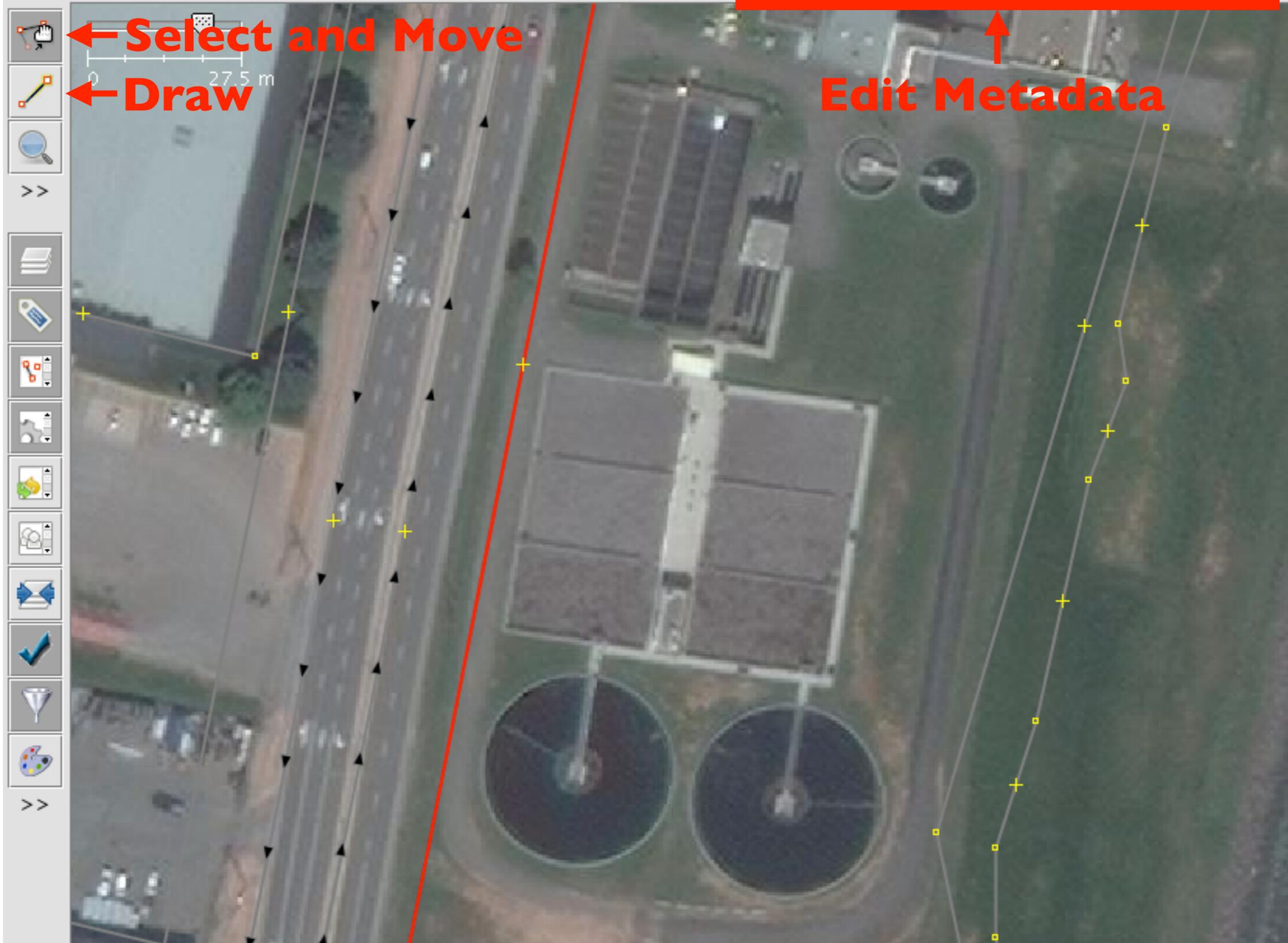
File Edit View Tools Presets Imagery Windows PicLayer Audio Help

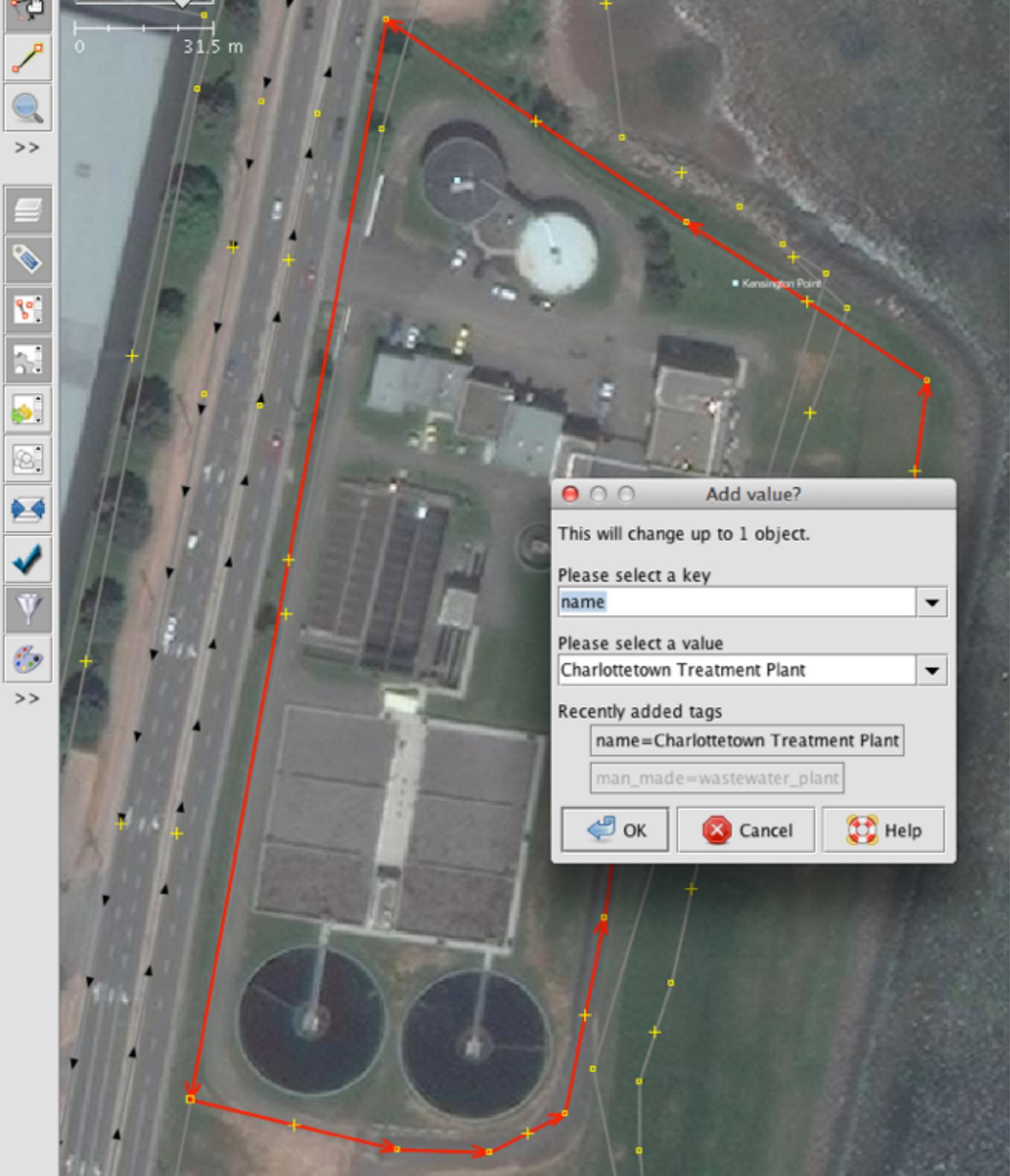


← **Select and Move**

← **Draw**

↑ **Edit Metadata**





Add value?

This will change up to 1 object.

Please select a key

Please select a value

Recently added tags

-
-

Data Layer 1

- Bing Sat

Properties: 1 / Memberships: 0

Man Made/Man Made/Wastewater Plant ...

Key	Value
man_made	wastewater_plant

Sel.: Rel.:0 / Ways:1 / Nodes:0

0 (11 nodes)

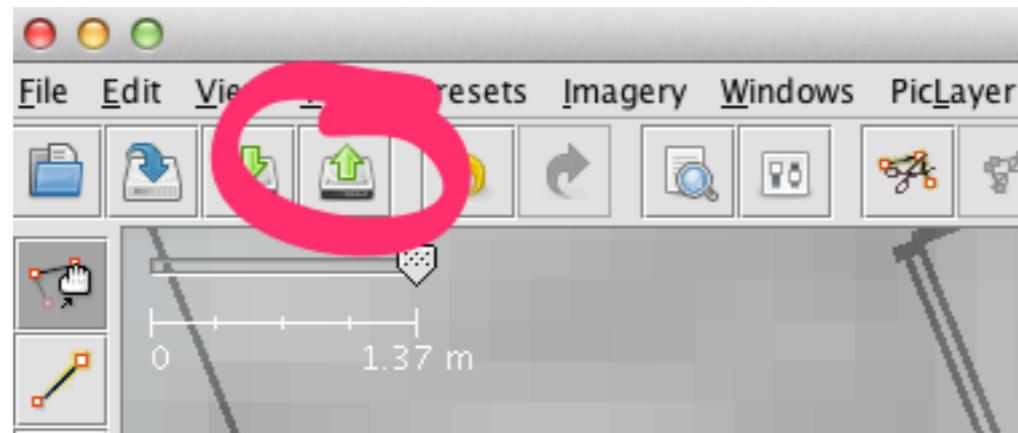
- Relations: 2
- route ("Trans-Canada Highway (PEI)", 133 members, incomplete)
 - route ("Trans-Canada Highway (Super)", 11 members, incomplete)

Filter Hidden:0 Disabled:0

E	H	Text	I	M
<input type="checkbox"/>	<input type="checkbox"/>	footway	<input checked="" type="checkbox"/>	R
<input type="checkbox"/>	<input checked="" type="checkbox"/>	room corridor shell relation	<input checked="" type="checkbox"/>	A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	child role:level_1	<input type="checkbox"/>	A
<input type="checkbox"/>	<input type="checkbox"/>	footway	<input type="checkbox"/>	A
<input type="checkbox"/>	<input type="checkbox"/>	child role:level_0	<input type="checkbox"/>	A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	childrole:level_1	<input type="checkbox"/>	A

When you're done...

- Click the “upload” icon to send your changes to OpenStreetMap.



- Pay attention to any warnings you receive.

Go Edit Something

OSM Indoor Maps

- The “next frontier” for OpenStreetMap.
- Standards and approaches are “in flux.”
- The tools for outdoor mapping, mainly JOSM, are well-suited to indoor mapping.
- Rendering indoor maps still in its infancy.
- The “PicLayer” plugin is your friend.



Plugins

Configure available plugins.

Plugins Plugin update policy

Search:

- osmarender: Version 29435 (local: unknown)
Launches FireFox to display the current visible screen as a nice SVG image.
- pbf: Version 29435 (local: unknown)
Import OSM data in PBF format [More info...](#)
- PDF pdfimport: Version 29435 (local: unknown)
Import PDF file and convert to ways. [More info...](#)
- EXIF photo_geotagging: Version 29435 (local: unknown)
Write exif position info to the image file header. Run this feature from the right click menu of the image layer. [More info...](#)
-  PicLayer: Version 29531 (local: 29531)
This plugin allows to display any picture as a background in the editor and align it with the map. [More info...](#)
- plastic_look: Version 29435 (local: 29435)
The great JGoodies Plastic Look and Feel. [More info...](#)
- poly: Version 29435 (local: unknown)
Read and write osmosis poly filter files [More info...](#)
- print: Version 29529 (local: 29529)
Adds map printing to JOSM
- proj4j: Version 29435 (local: unknown)
adds projections from Proj4J [More info...](#)
- public_transport: Version 29435 (local: unknown)
This plugin simplifies the mapping and editing of public transport routes. [More info...](#)
- reltoolbox: Version 29535 (local: unknown)
Relation and multipolygon creating and editing panel. [More info...](#)

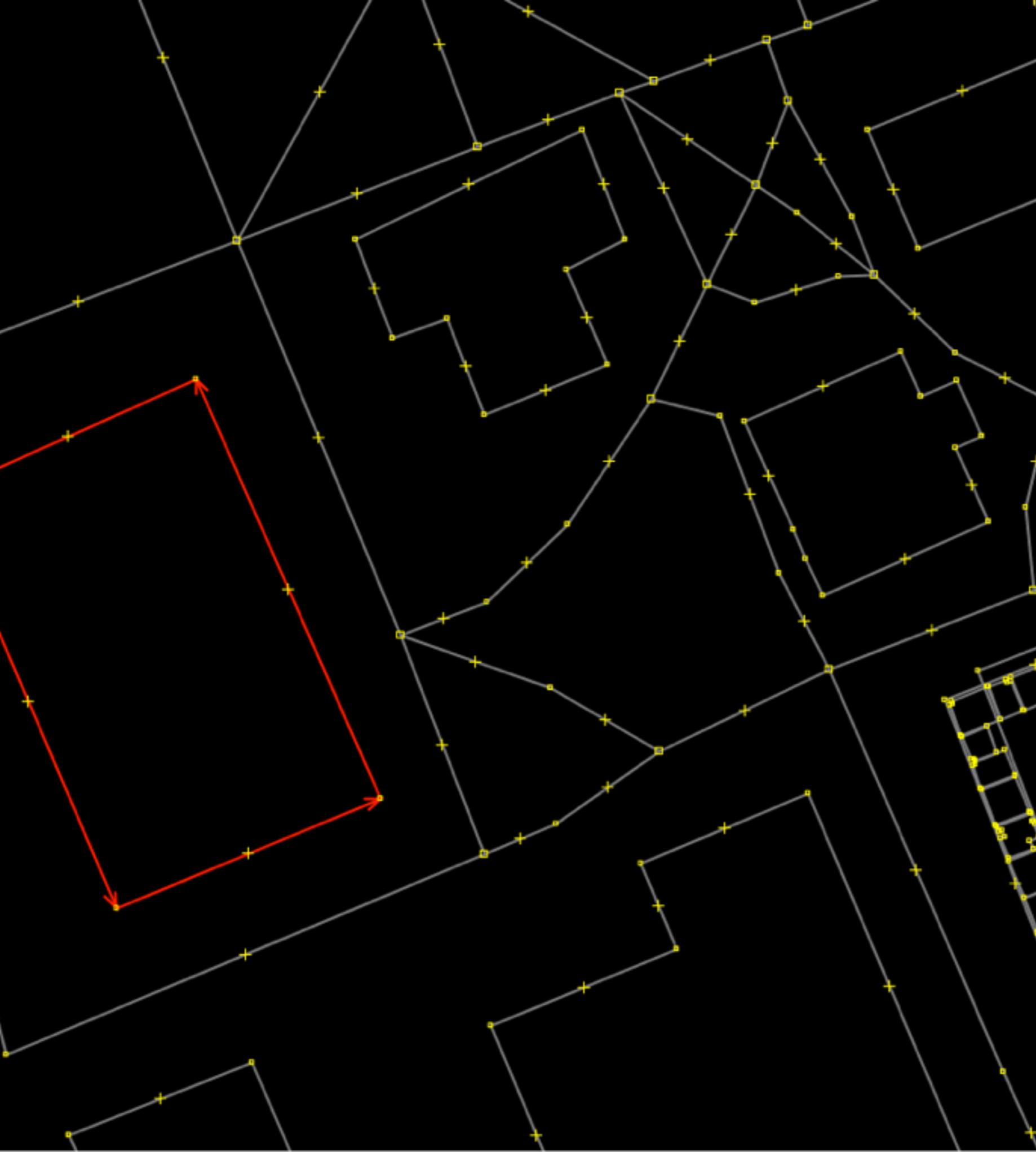
 Download list

 Update plugins

 Configure sites...

Expert mode

 OK  Cancel  Help



Properties: 3 / Memberships: 0

Man Made/Man Made/Building ...

Key	Value
building	yes
created_by	Potlatch 0.10f
name	Kelley Memorial Building

Sel.: Rel.:0 / Ways:1 / Nodes:0

Kelley Memorial Building (4 nodes)

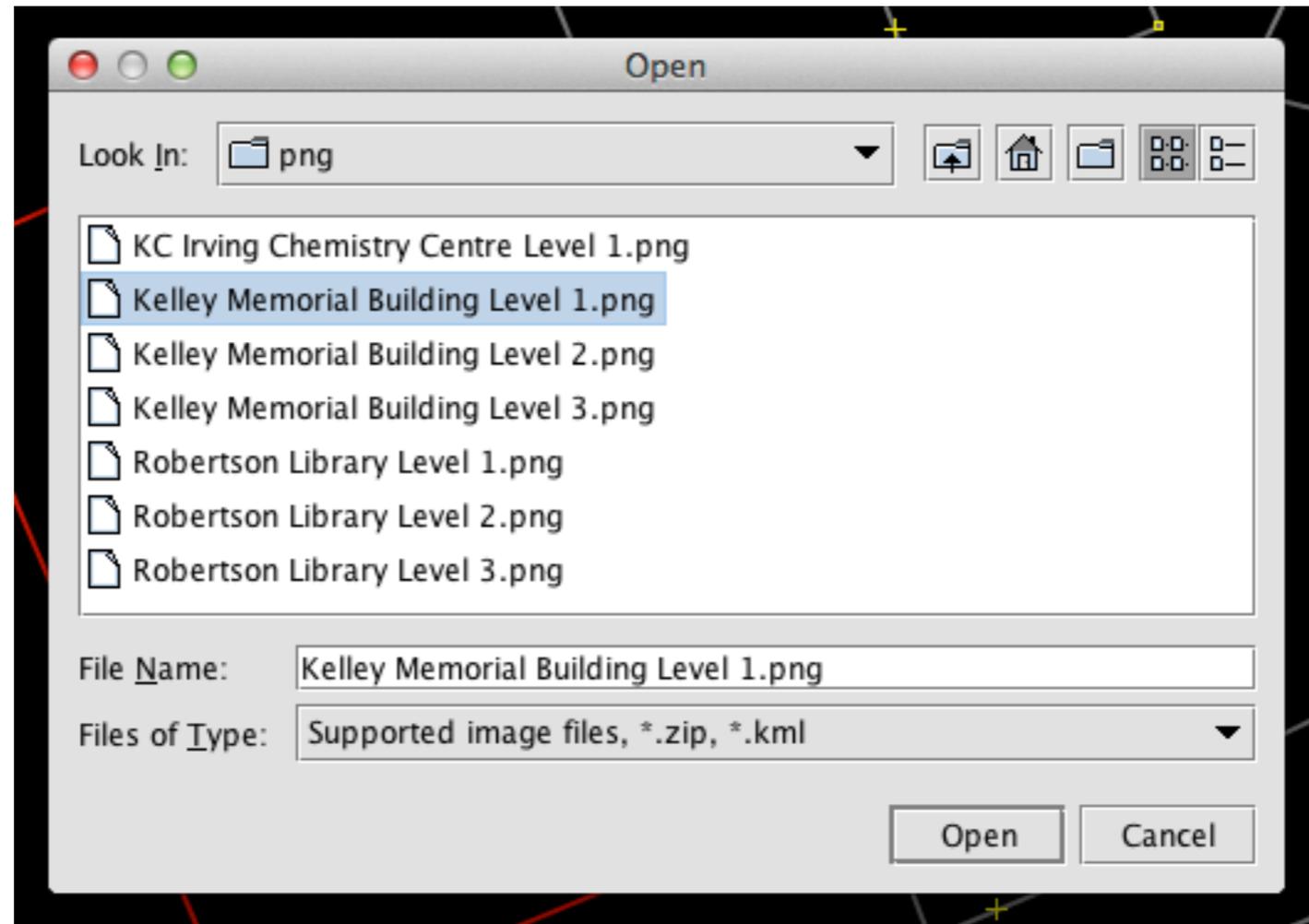
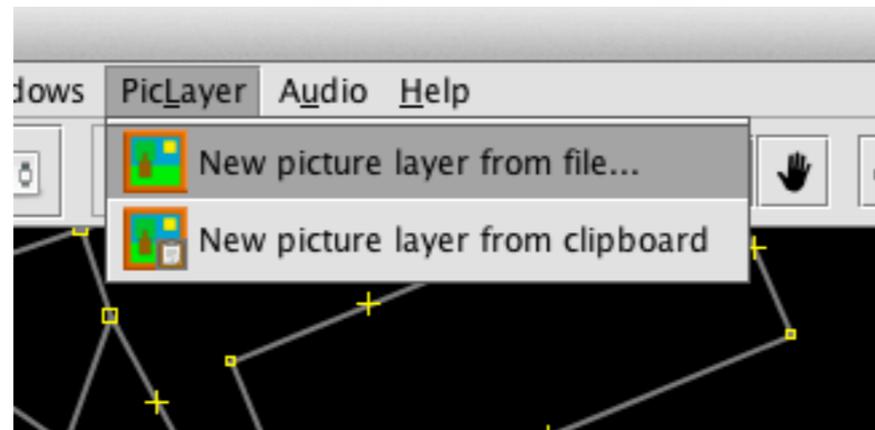
Relations: 6

- building ("Robertson Library", 3 members)
- level ("Basement", 21 members)
- level ("Main Level", 88 members)
- level ("Upper Level", 46 members)
- multipolygon ("residential", 5 members, incomplete)
- restriction ("no_left_turn", 3 members, incomplete)

Filter Hidden:0 Disabled:0

E	H	Text	I
<input type="checkbox"/>	<input type="checkbox"/>	footway	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	room corridor shell relation	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	child role:level_1	<input checked="" type="checkbox"/>



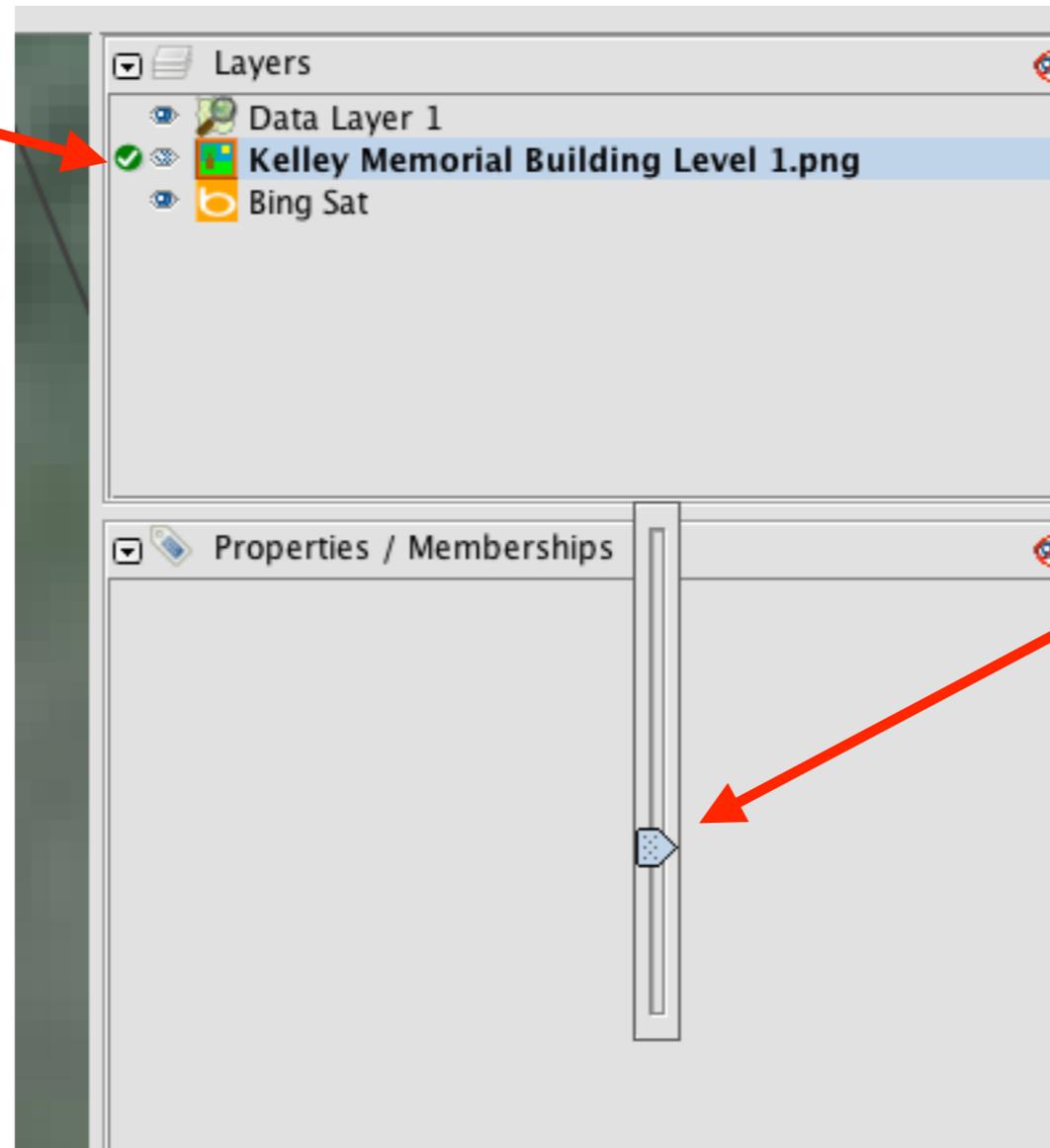




KELLEY MEMORIAL BUILDING
LEVEL 1

Adjust the Opacity

**Select the
PicLayer**



**Make it less
opaque**



KELLEY MEMORIAL BUILDING
LEVEL 1

PicLayer Tools Appear

Select the PicLayer

The screenshot displays a GIS application interface. The main map area shows a satellite view of a building complex with a semi-transparent floor plan overlaid. The floor plan is labeled "KELLEY MEMORIAL BUILDING LEVEL 1" and contains numerous room numbers such as 123, 124, 125, 126, 127, 128, 129, 131, 132, 133, 134, 135, 136, 137, 138, 138A, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, and 150. A red arrow points from the text "PicLayer Tools Appear" to a set of navigation and editing tools on the left side of the map. Another red arrow points from the text "Select the PicLayer" to the "Layers" panel on the right, where "Kelley Memorial Building Level 1.png" is selected.

Layers Panel:

- Data Layer 1
- Kelley Memorial Building Level 1.png**
- Bing Sat

Properties Panel:

Properties: 3 / Memberships: 0

Man Made/Man Made/Building ...

Key	Value
building	yes
created_by	Potlatch 0.10f
name	Kelley Memorial Bul

Relations Panel:

Relations: 6

- building ("Robertson Library", 3 members)
- level ("Basement", 21 members)
- level ("Main Level", 88 members)
- level ("Upper Level", 46 members)
- multipolygon ("residential", 5 members, incomplete)
- restriction ("no_left_turn", 3 members, incomplete)

Filter Panel:

Filter Hidden: 0 Disabled: 0

E	H	Text
<input type="checkbox"/>	<input type="checkbox"/>	footway
<input checked="" type="checkbox"/>	<input type="checkbox"/>	room:corridor shell:relation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	child role level_1
<input type="checkbox"/>	<input type="checkbox"/>	footway
<input type="checkbox"/>	<input type="checkbox"/>	child role level_0
<input checked="" type="checkbox"/>	<input type="checkbox"/>	child role level_-1

Click Green Arrow

Choose 3 points on PicLayer

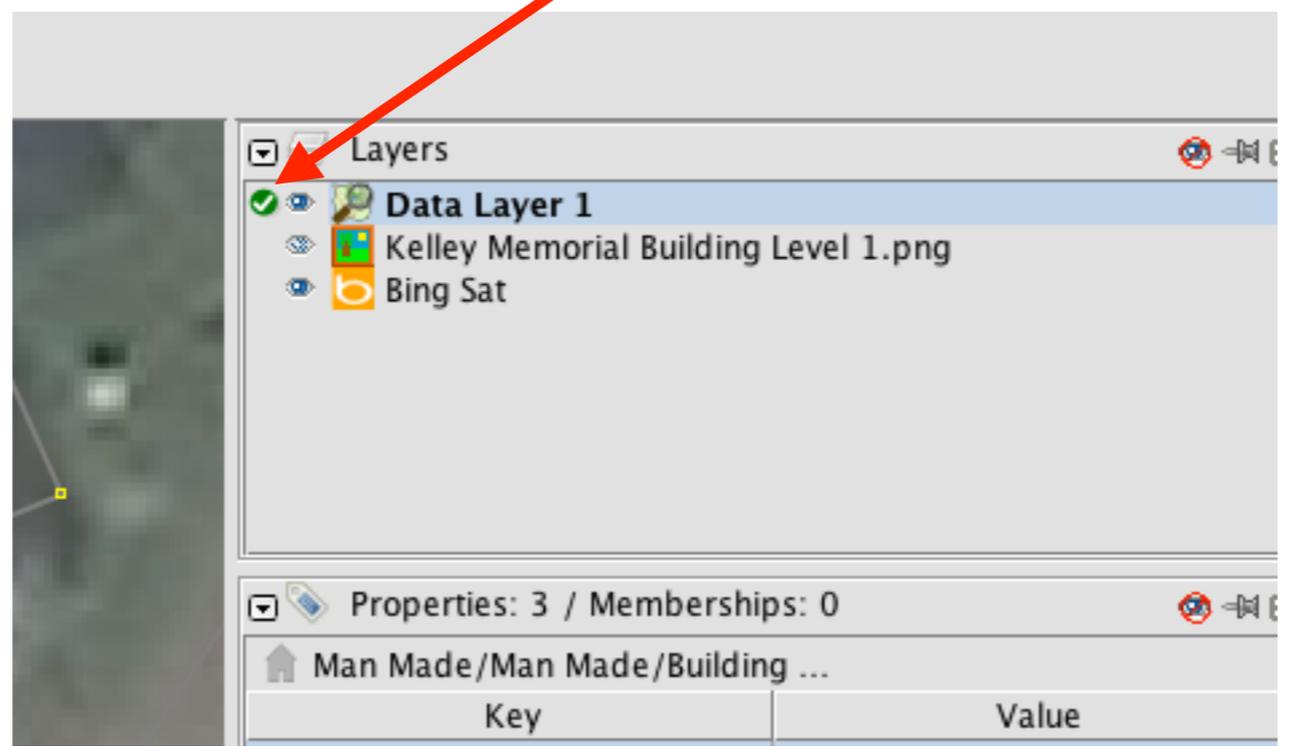


Click Red Arrow

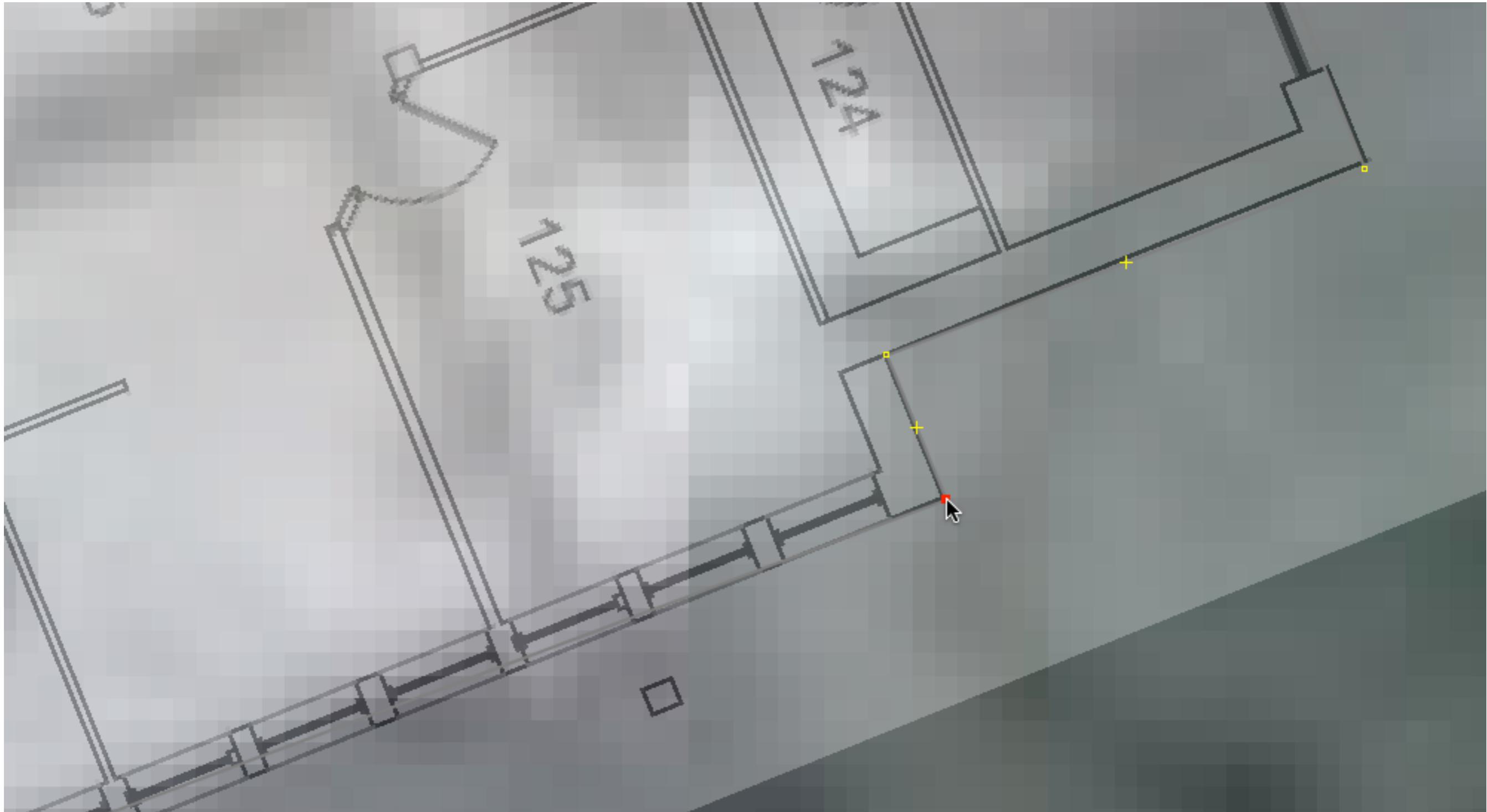
Drag 3 points to match building



Select the "Data Layer"



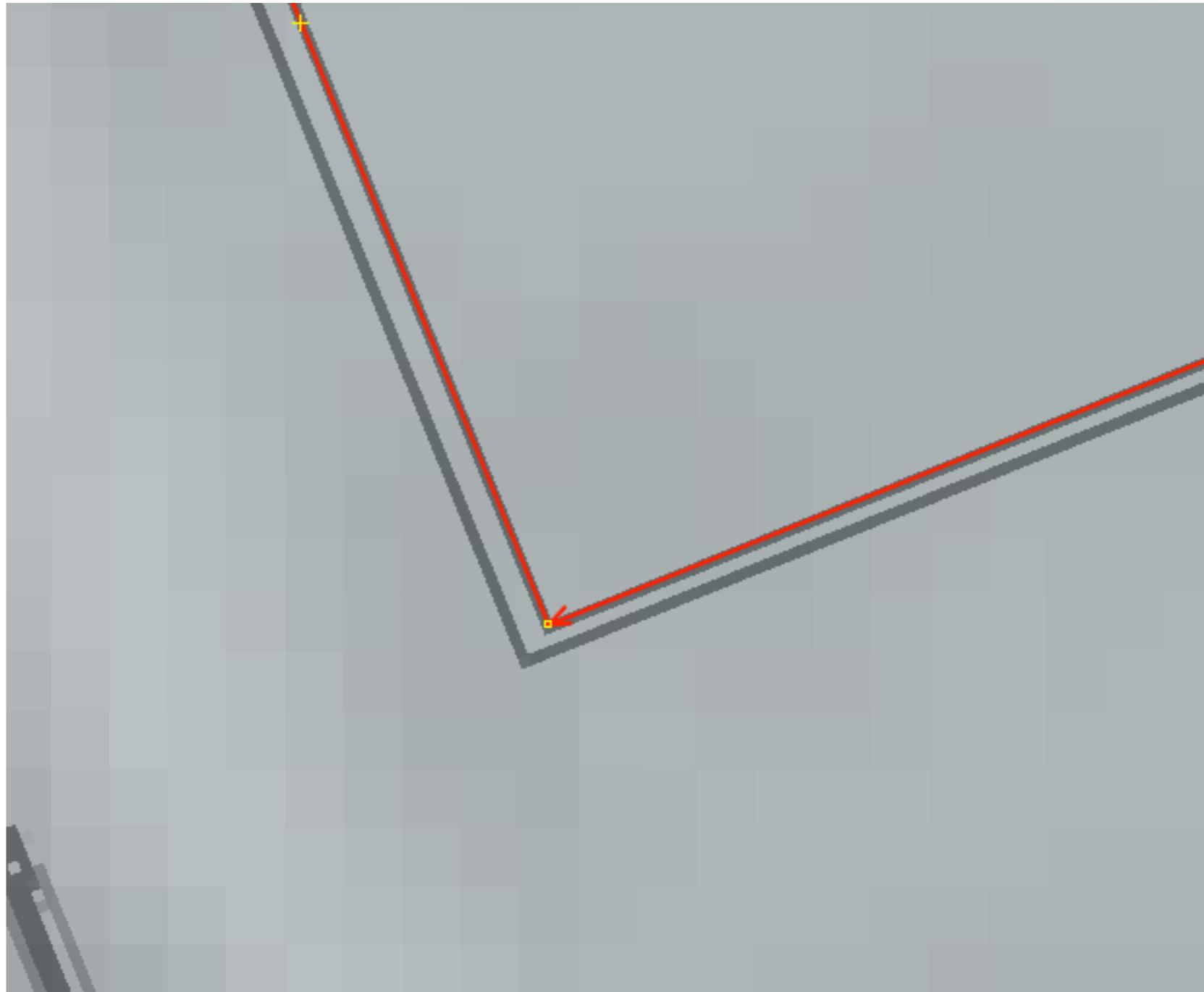
Edit the Building Shell



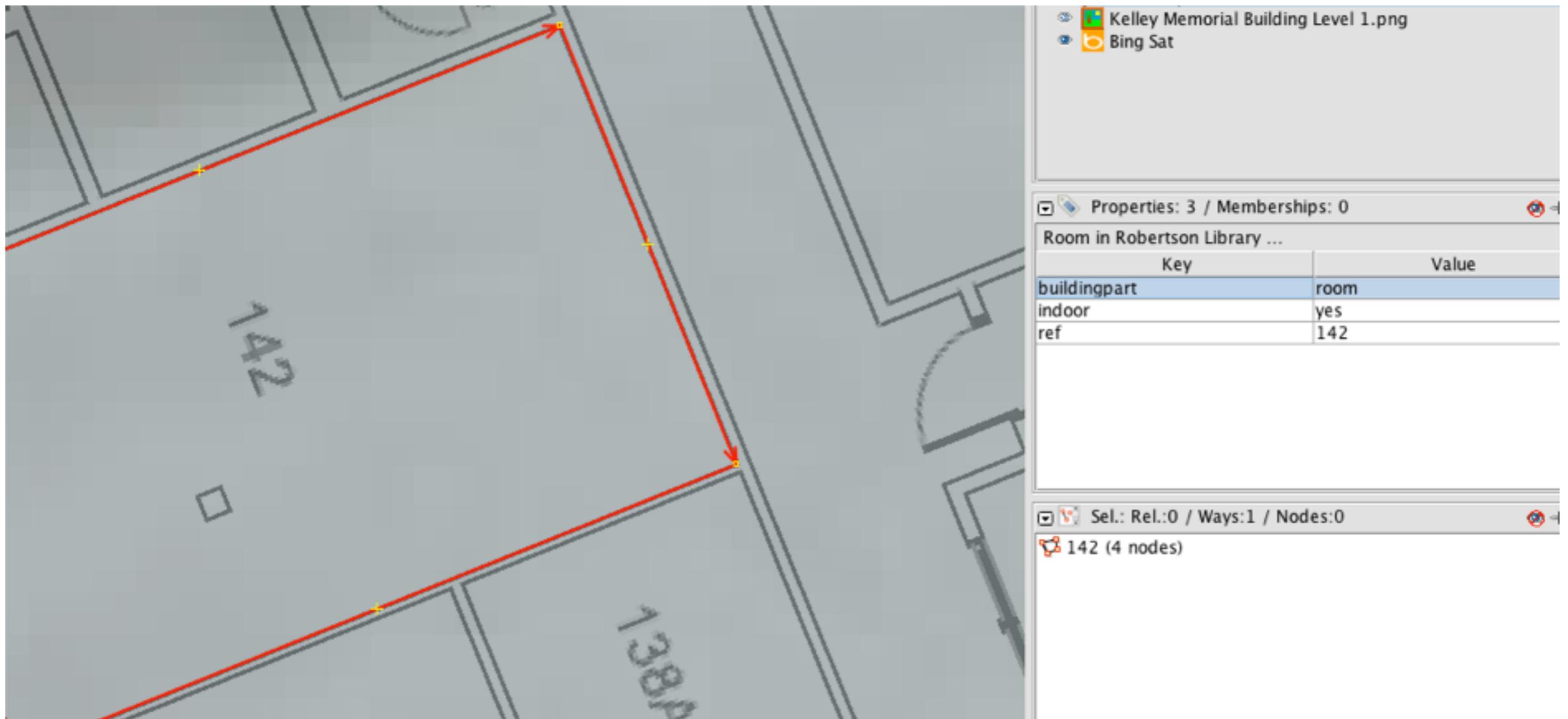
Draw a Room



Zoom in for Accuracy



Enter Metadata



The screenshot shows a GIS application interface. The main map area displays a floor plan of a building with a red polygon highlighting a specific room. The room is labeled with the number '142'. The right sidebar contains the following information:

- Layers: Kelley Memorial Building Level 1.png, Bing Sat
- Properties: 3 / Memberships: 0
- Room in Robertson Library ...
- Table with 2 columns: Key, Value
- Selected object: 142 (4 nodes)

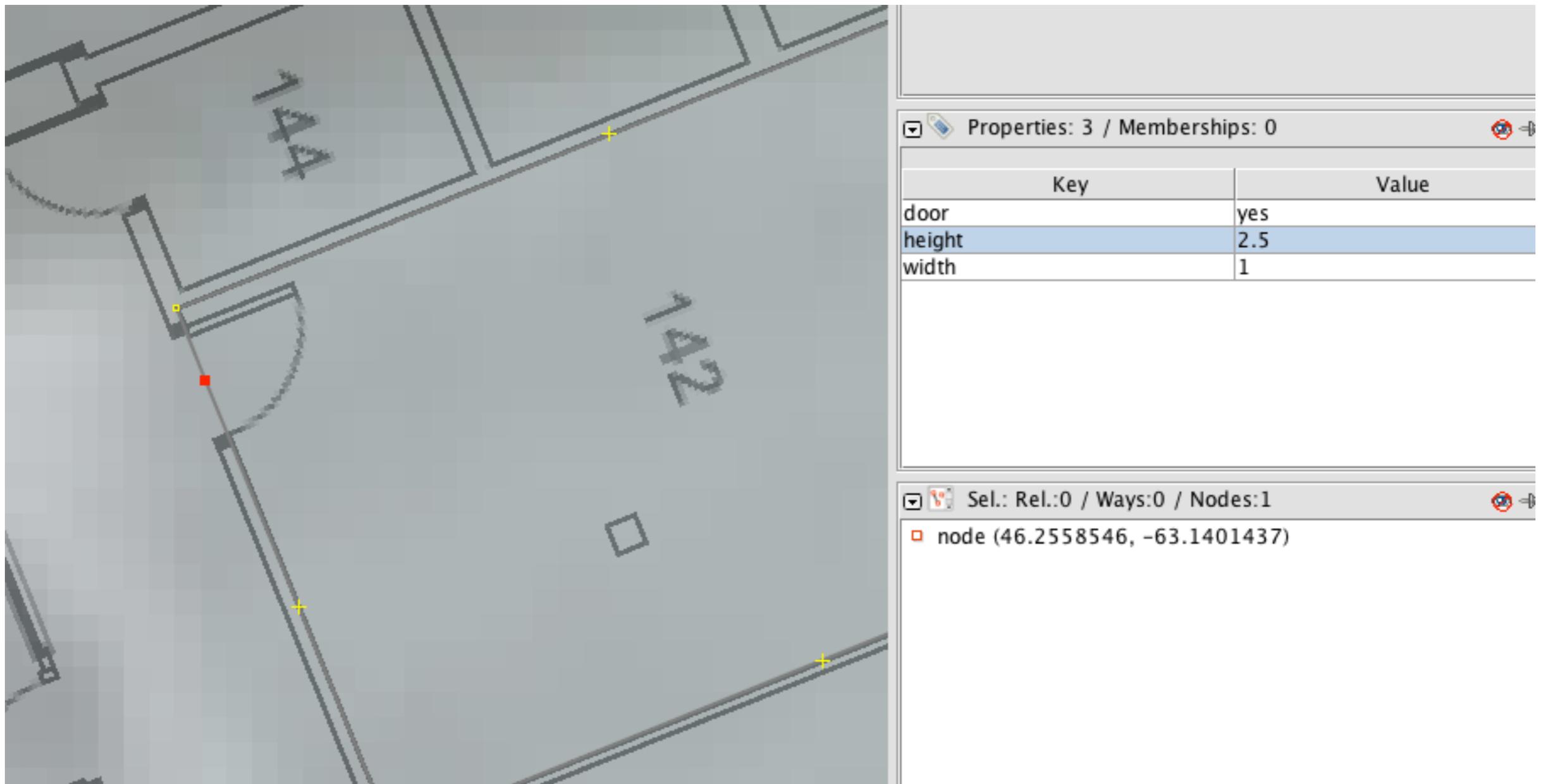
Key	Value
buildingpart	room
indoor	yes
ref	142

Room Metadata

- **buildingpart** → **room**
- **indoor** → **yes**
- **ref** → **[room #]**
- **name** → **[name of the room]**
- **height** → **[height of room in m]**

Draw a Door

(a single point on the room's way)

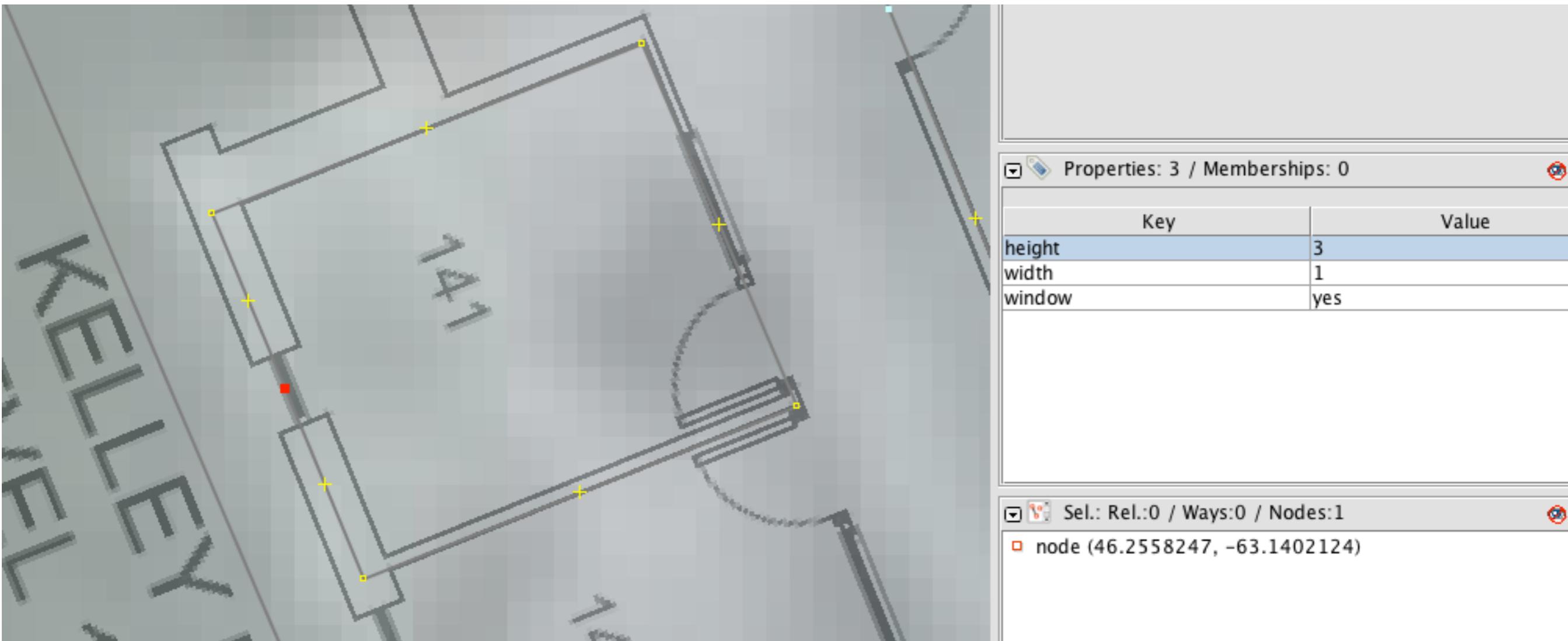


Door Metadata

- **door** → [yes | manual | automatic]
- **height** → [height of door in m]
- **width** → [width of door in m]

Draw a Window

(a single point on the room's way)



Window Metadata

- **window** → **yes**
- **height** → **[height of window in m]**
- **width** → **[width of window in m]**

Go Edit Something

What's Next?

- Assemble all the rooms, windows and doors on a level into a level “relation”.
- Assemble all the level relations into a “building” relation.



Tags and Members Parent Relations Child Relations

Tags

	Key	Value
+	level	-1
🗄️	ref	Basement
	type	level

Members

	Role	Refers to	
🗄️	buildingpart	105 (23 nodes)	<input type="checkbox"/>
🗄️	buildingpart	Basement (14 nodes)	<input type="checkbox"/>
🗄️	buildingpart	110 (6 nodes)	<input type="checkbox"/>
🗄️	buildingpart	106 (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	104B (8 nodes)	<input type="checkbox"/>
🗄️	buildingpart	116 (6 nodes)	<input type="checkbox"/>
🗄️	buildingpart	104A (6 nodes)	<input type="checkbox"/>
🗄️	buildingpart	115 (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	113 (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	104 (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	114 (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	Exam Room (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	100 (6 nodes)	<input type="checkbox"/>
🗄️	buildingpart	103 (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	111 (35 nodes)	<input type="checkbox"/>
🗄️	buildingpart	Sound Room (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	107 (10 nodes)	<input type="checkbox"/>
🗄️	buildingpart	108 (6 nodes)	<input type="checkbox"/>
🗄️	buildingpart	102 (8 nodes)	<input type="checkbox"/>
🗄️	buildingpart	109 (4 nodes)	<input type="checkbox"/>
🗄️	buildingpart	112 (4 nodes)	<input type="checkbox"/>

Selection

	Selection
🗄️	level ("Basement", 21 members)

Apply Role:



Tags and Members Parent Relations Child Relations

Tags

Facilities/Culture/Library ...
Man Made/Man Made/Building ...

Key	Value
amenity	library
building	yes
building:architect	Leslie R. Fairn & Assocs. Ltd.
building:buildyear	1975
building:cladding	brick
building:levels	3
building:max_level	1
building:min_level	-1
name	Robertson Library

Members

Role	Refers to
level_1	level ("Upper Level", 46 members)
level_-1	level ("Basement", 21 members)
level_0	level ("Main Level", 88 members)

Selection

Selection
level ("Basement", 21 members)
level ("Main Level", 88 members)
level ("Upper Level", 46 members)

Apply Role:

indoorOSM

Level Selector

2
1
0
-1

Legend

- room
- corridor
- stairs
- elevator
- escalator
- obstacles
- door

Start: Level 1 Room 101

Target: Level -1 Room Fachschaft

Compute Route Clear Route

Show partial routes for each level?

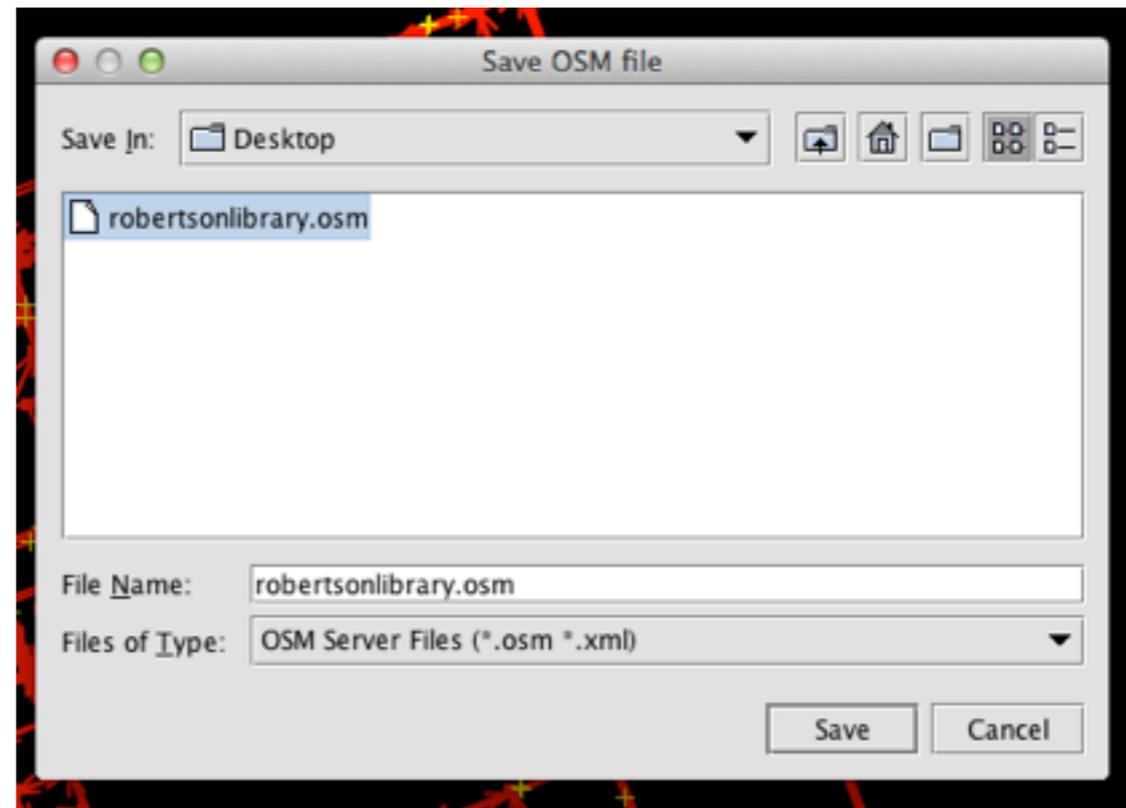
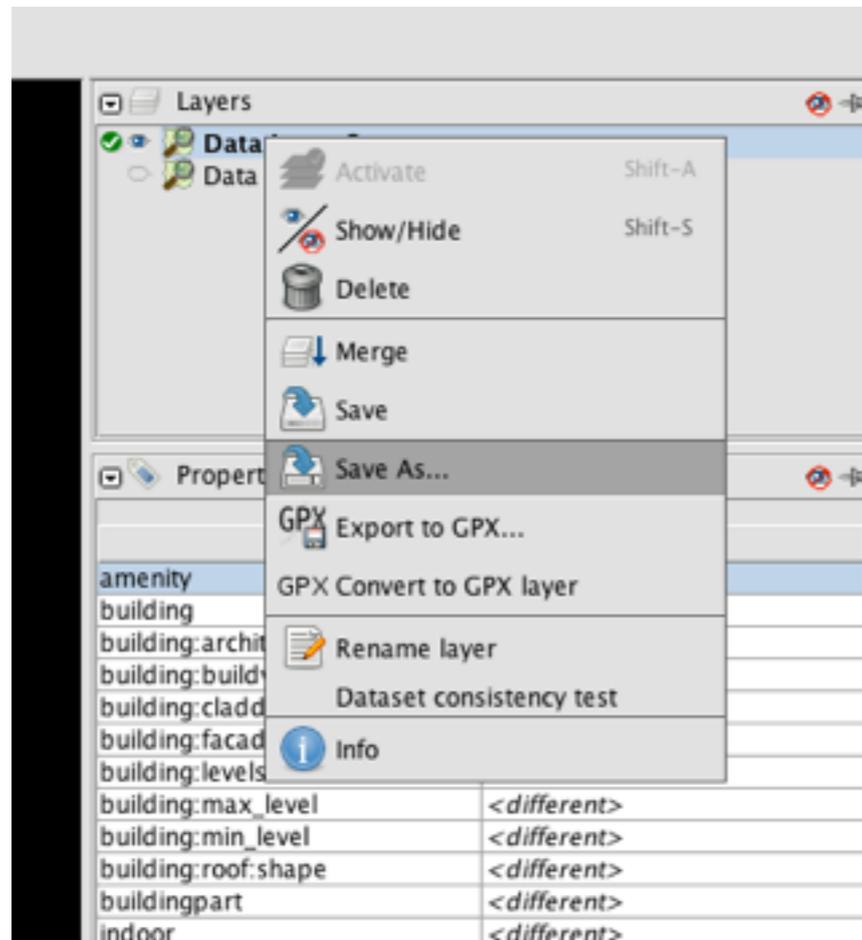
Copyright © 2011 - Map data CC-BY-SA by OpenStreetMap

<http://indoorosm.uni-hd.de>

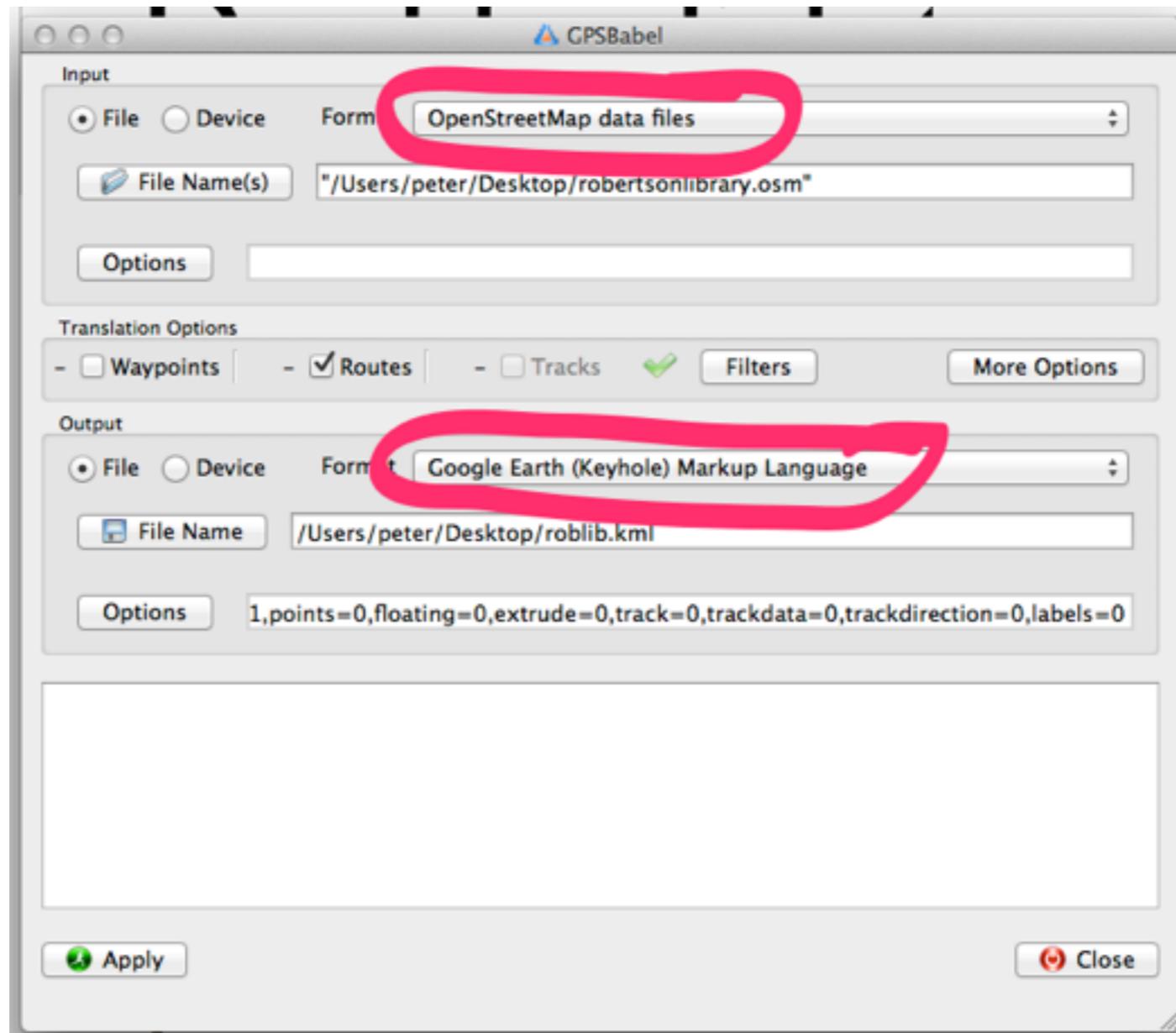
From OpenStreetMap to Google Earth

- Select the object(s) you want to export.
- **Edit | Copy**
- **File | New Layer**
- Select the new layer.
- **Edit | Paste**

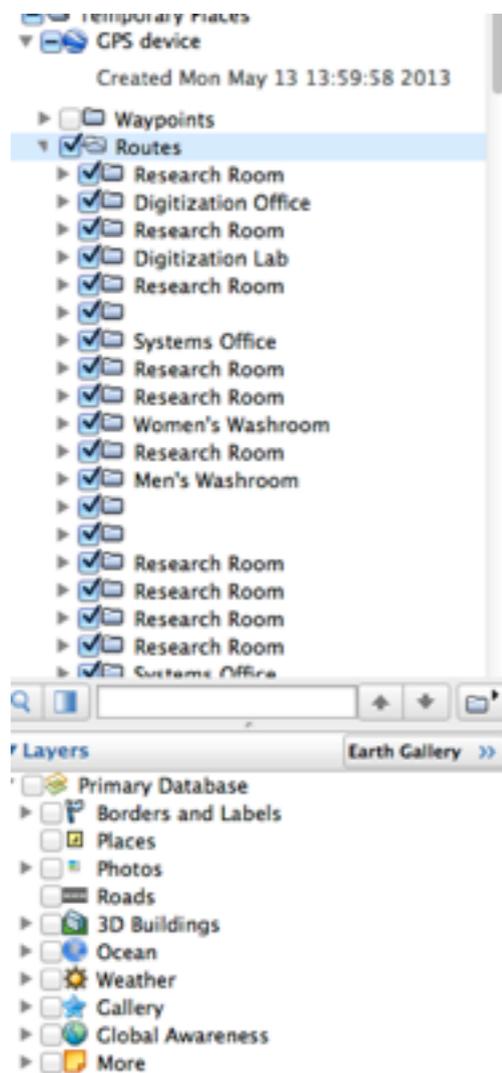
Save the Layer as a .osm file



Convert the .osm file with GPSTBabel

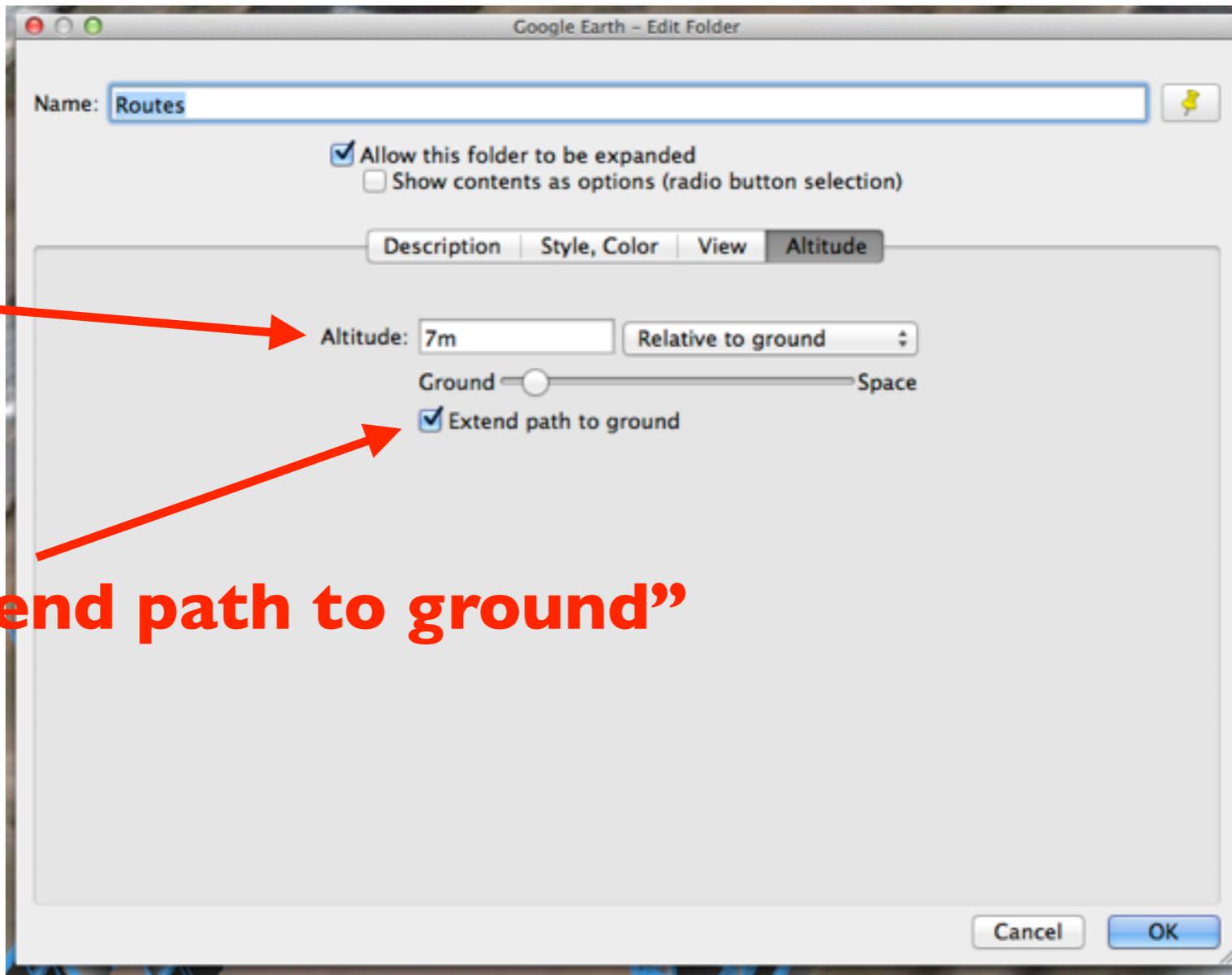


Load the .kml file into Google Earth

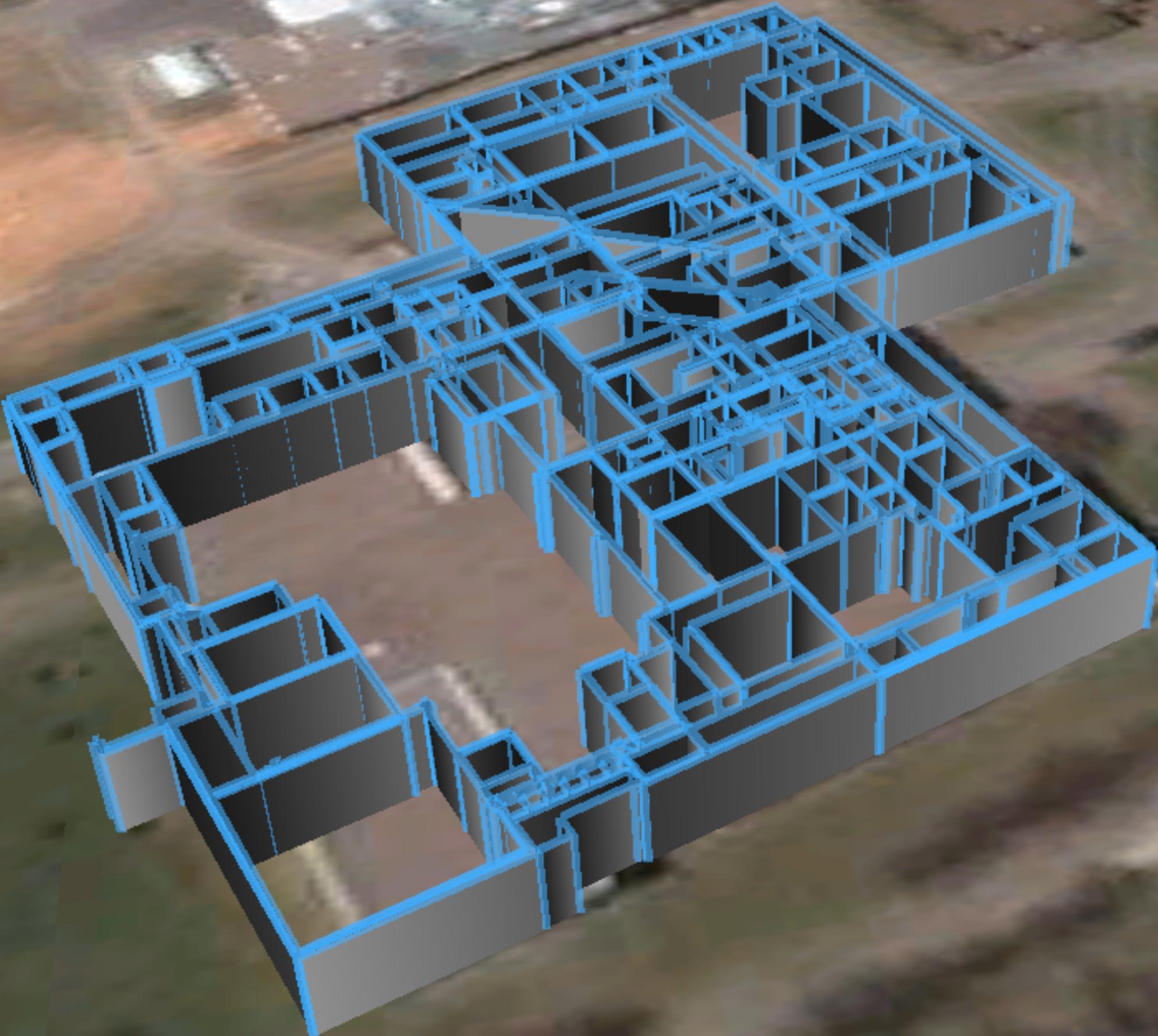


Edit the Routes

**Edit the
Altitude**



Check "Extend path to ground"



Google Sketchup

- Install the OpenStreetMap Plugin
- Import the .osm file you exported from JOSM

