

Working with Your Data in



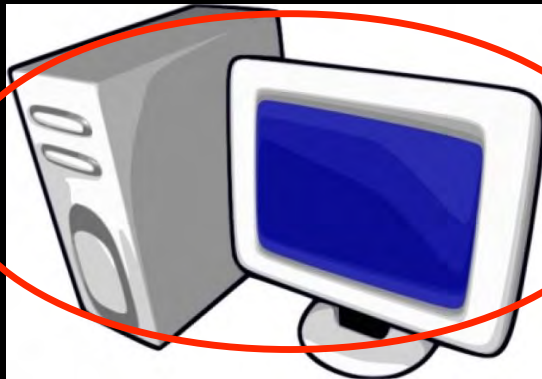
Kurt Menke, GISP, Bird's Eye View



The Mapping Workflow



Tablet/Smart Phone
with apps

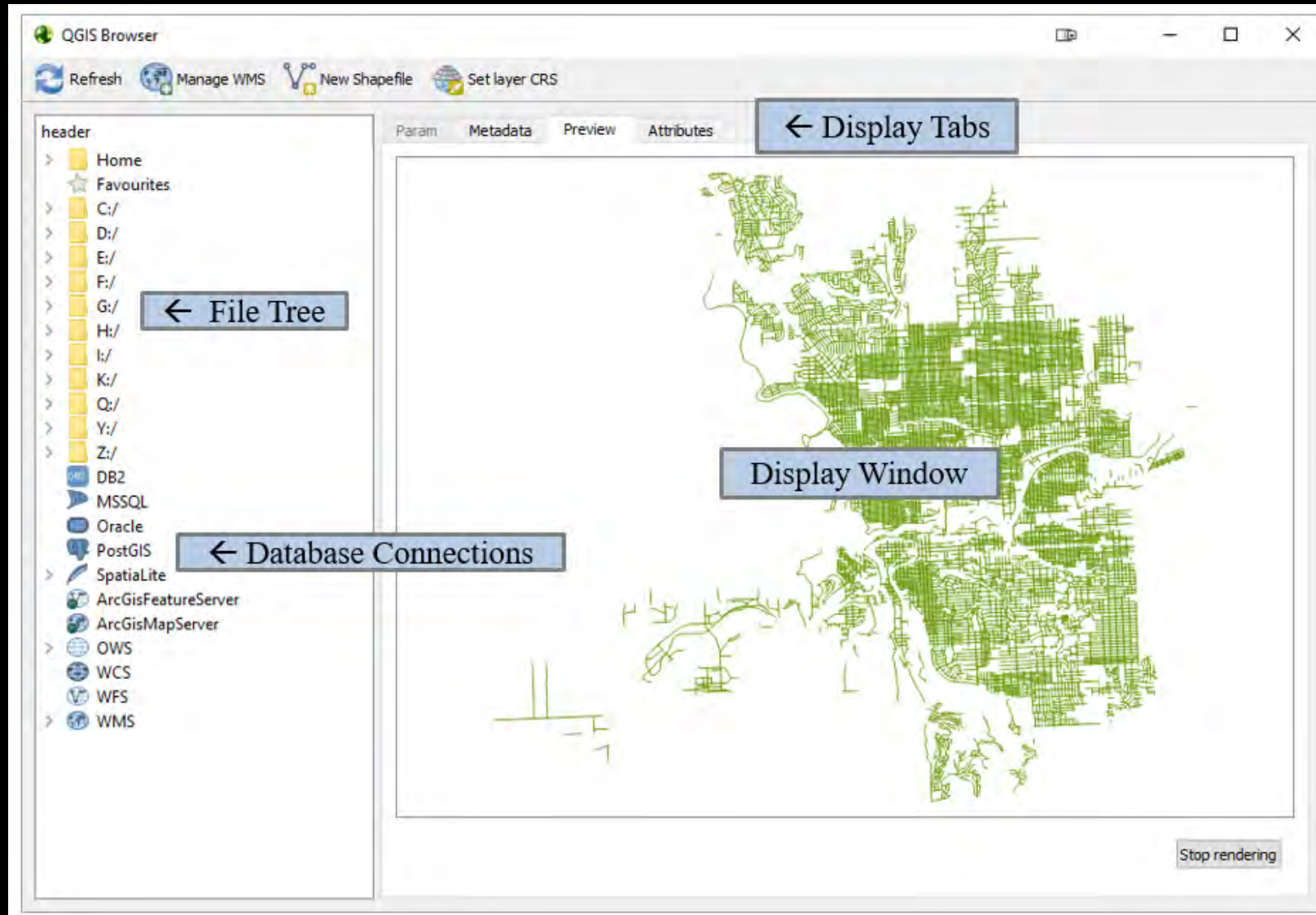


Computer → GIS

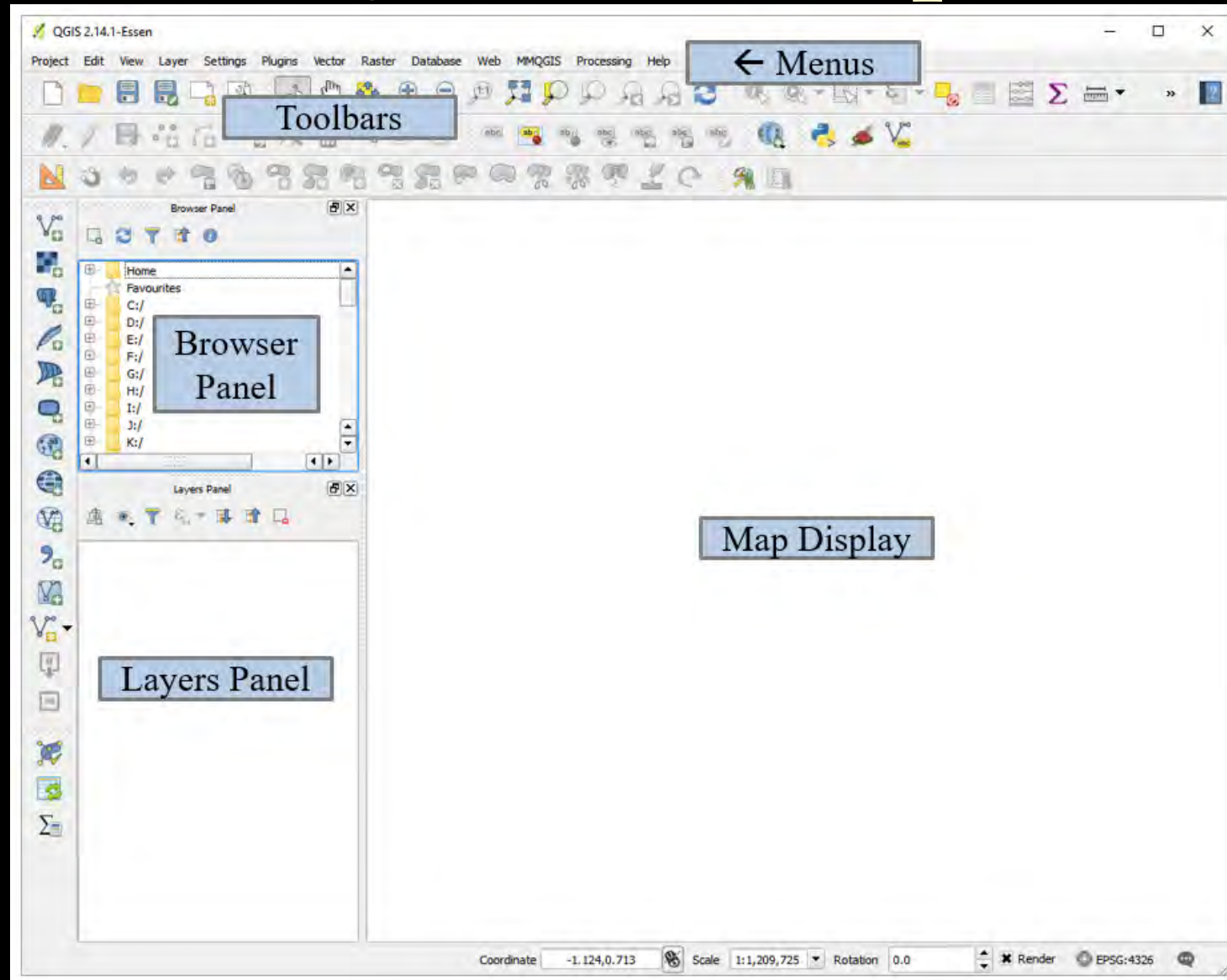


Internet Mapping

QGIS Browser

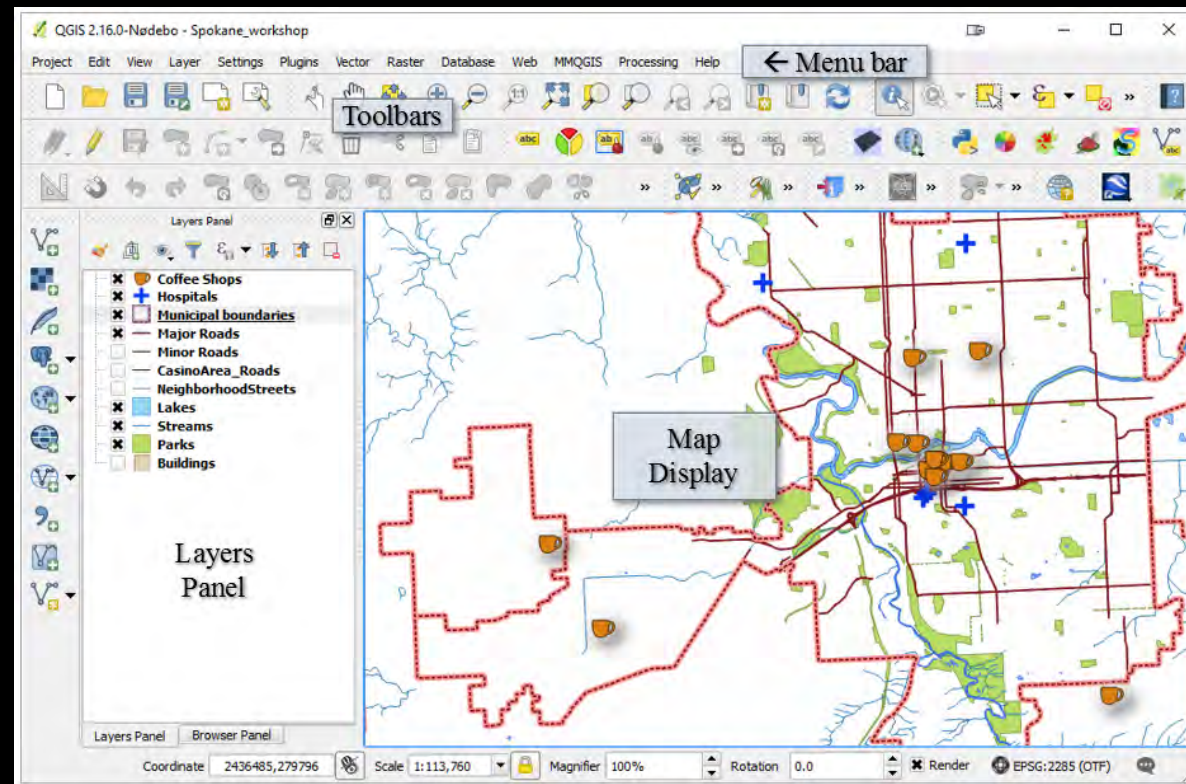


QGIS Desktop

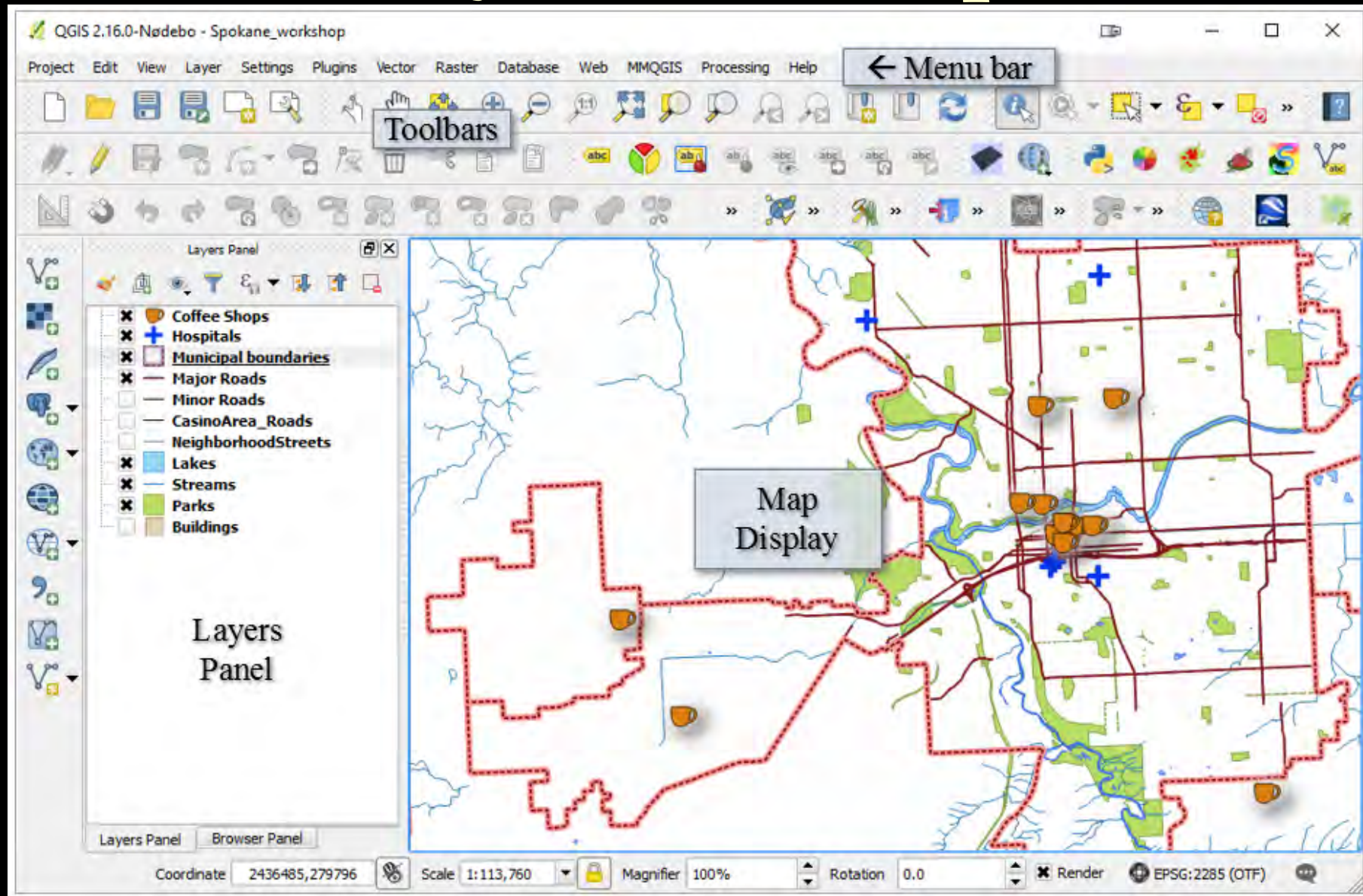


Open Map Document

- Open QGIS Desktop.
- Click on the Project menu and choose Open
- Navigate to the QGIS folder and open the **Spokane_workshop.qgs** file.

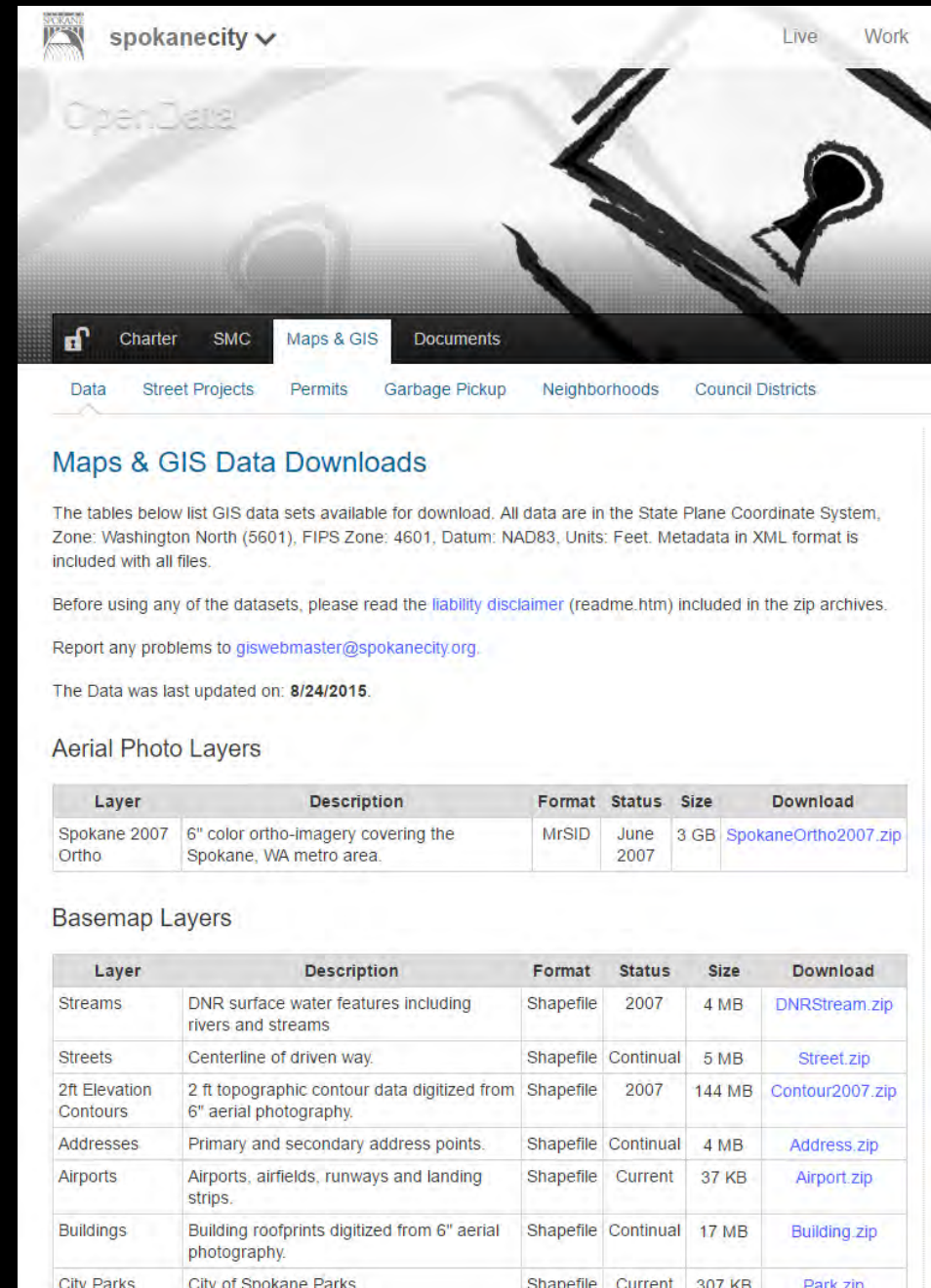


QGIS Desktop



The Data

<https://my.spokanecity.org/opendata/gis/data/>



The screenshot shows the Spokane City Open Data website. The header includes the Spokane City logo, a dropdown menu for 'spokanecity', and links for 'Live' and 'Work'. The main navigation bar contains 'Charter', 'SMC', 'Maps & GIS', and 'Documents'. Below this, a secondary navigation bar lists 'Data', 'Street Projects', 'Permits', 'Garbage Pickup', 'Neighborhoods', and 'Council Districts'. The main content area is titled 'Maps & GIS Data Downloads' and contains a paragraph explaining that the data is in the State Plane Coordinate System, Zone: Washington North (5601), FIPS Zone: 4601, Datum: NAD83, Units: Feet. It also includes a liability disclaimer link and a contact email for reporting problems. The data was last updated on 8/24/2015.

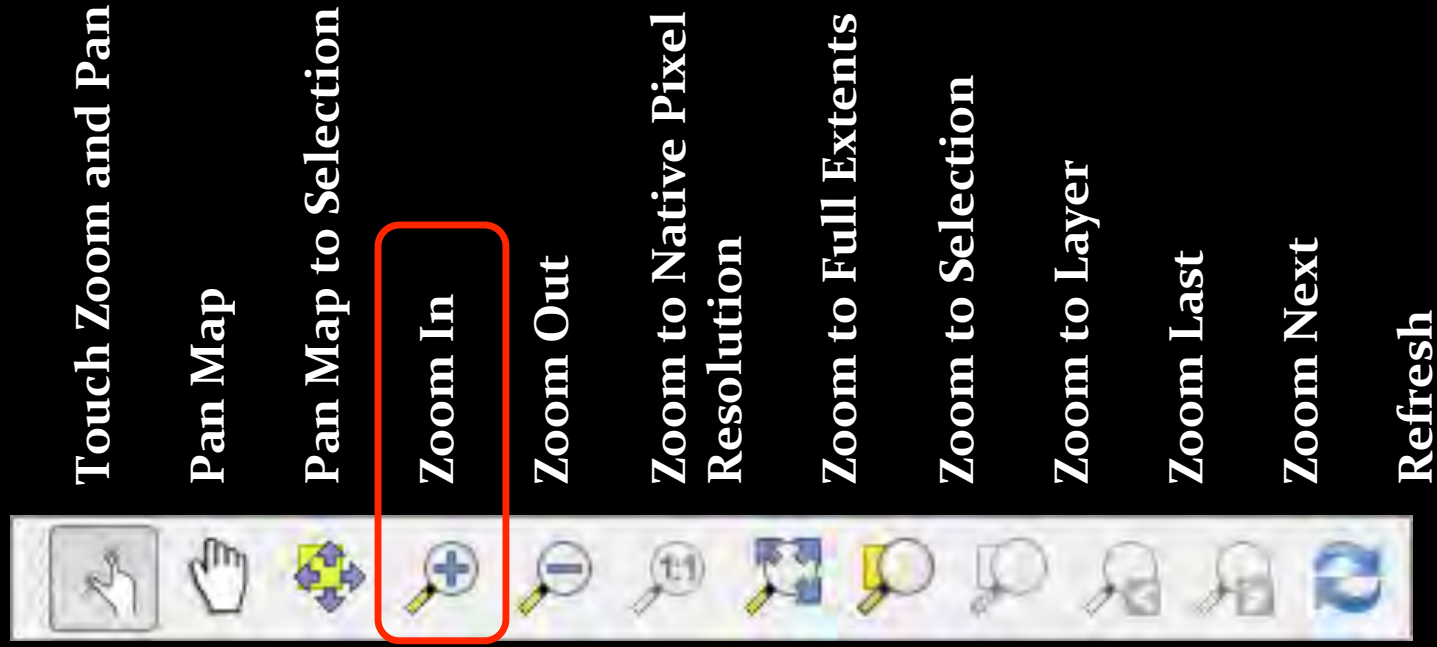
Aerial Photo Layers

Layer	Description	Format	Status	Size	Download
Spokane 2007 Ortho	6" color ortho-imagery covering the Spokane, WA metro area.	MrsID	June 2007	3 GB	SpokaneOrtho2007.zip

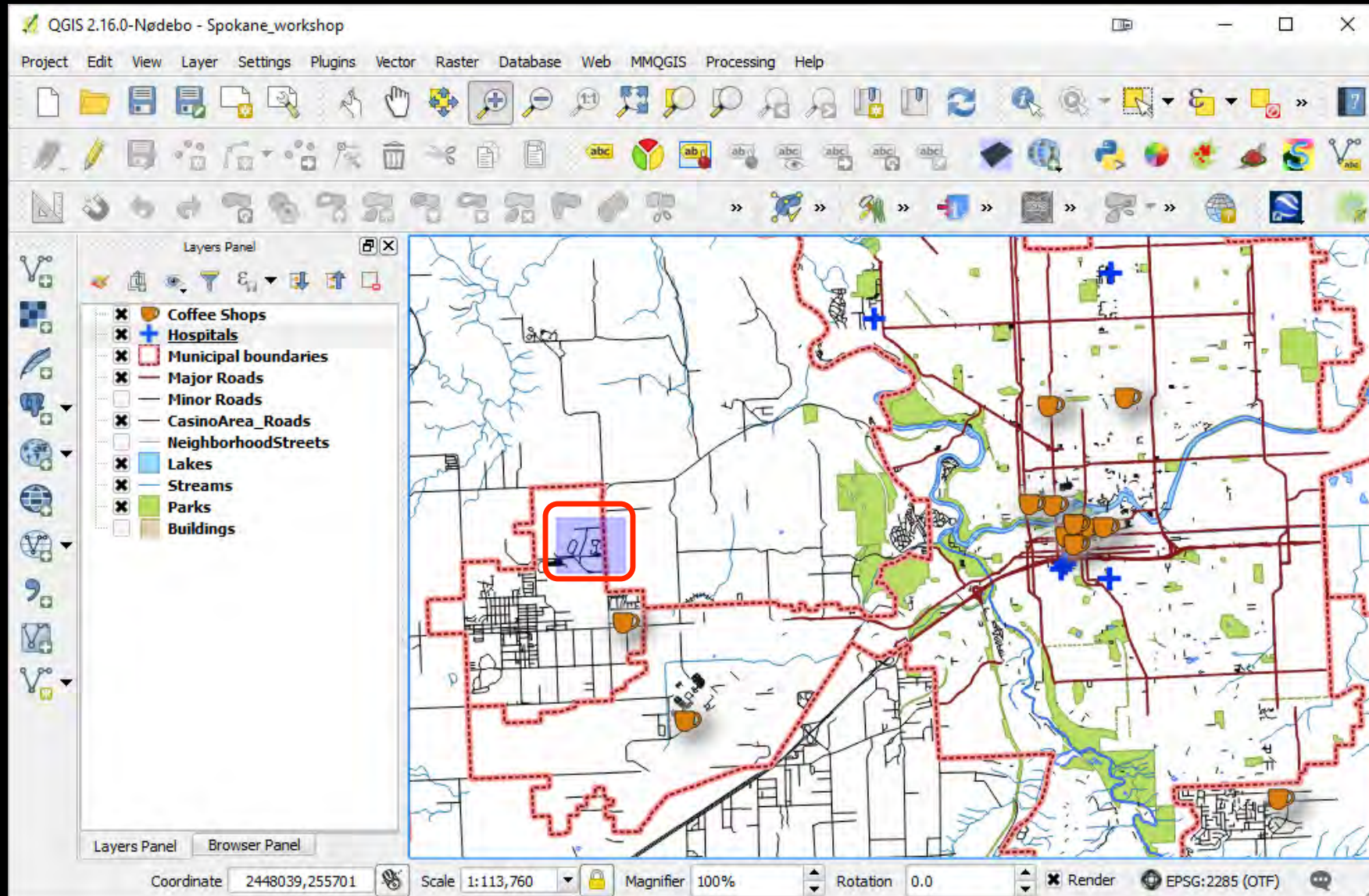
Basemap Layers

Layer	Description	Format	Status	Size	Download
Streams	DNR surface water features including rivers and streams	Shapefile	2007	4 MB	DNRStream.zip
Streets	Centerline of driven way.	Shapefile	Continual	5 MB	Street.zip
2ft Elevation Contours	2 ft topographic contour data digitized from 6" aerial photography.	Shapefile	2007	144 MB	Contour2007.zip
Addresses	Primary and secondary address points.	Shapefile	Continual	4 MB	Address.zip
Airports	Airports, airfields, runways and landing strips.	Shapefile	Current	37 KB	Airport.zip
Buildings	Building roofprints digitized from 6" aerial photography.	Shapefile	Continual	17 MB	Building.zip
City Parks	City of Spokane Parks	Shapefile	Current	307 KB	Park.zip

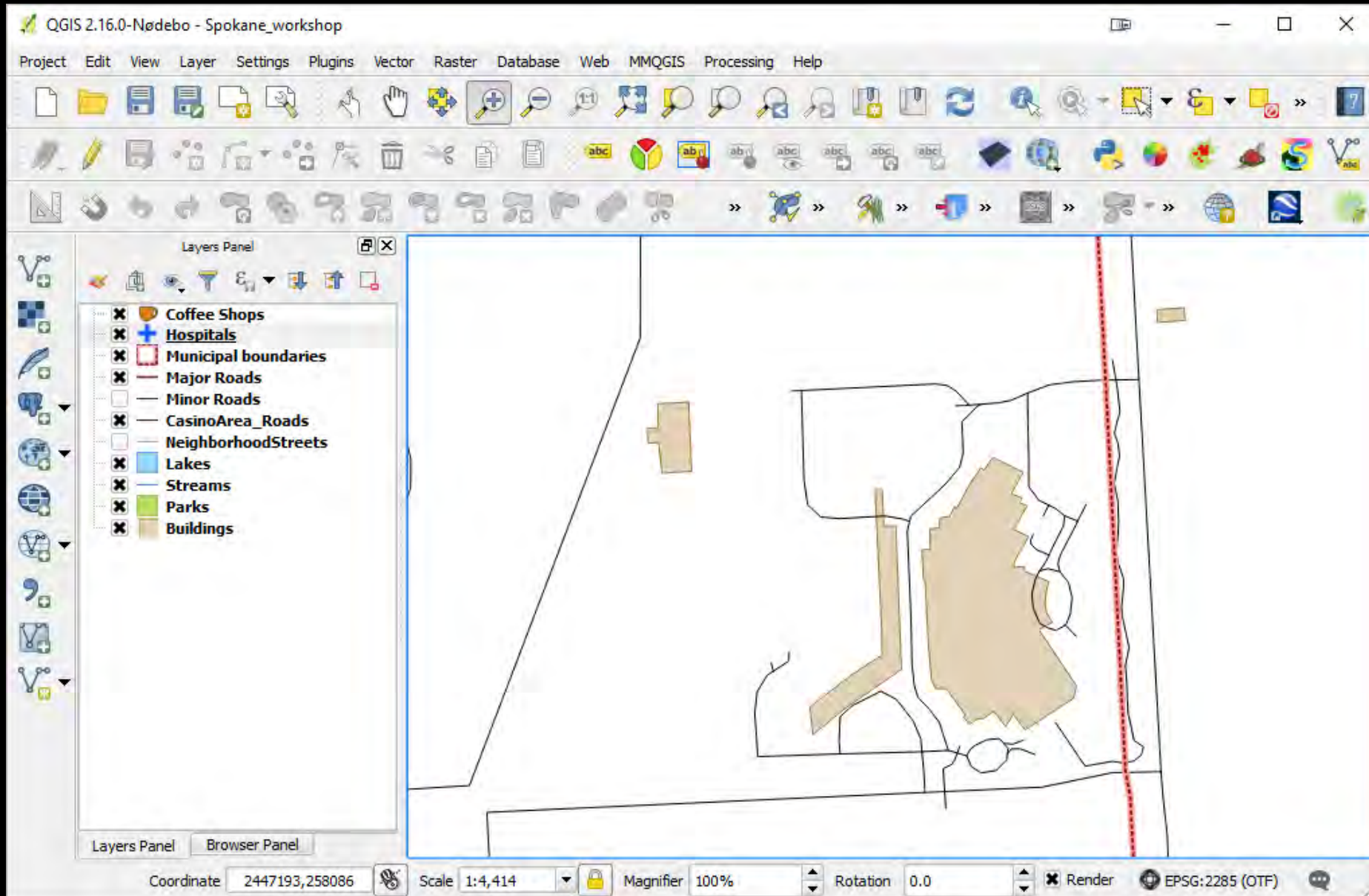
Map Navigation Controls



Turn on *CasinoArea_Roads* & Zoom In

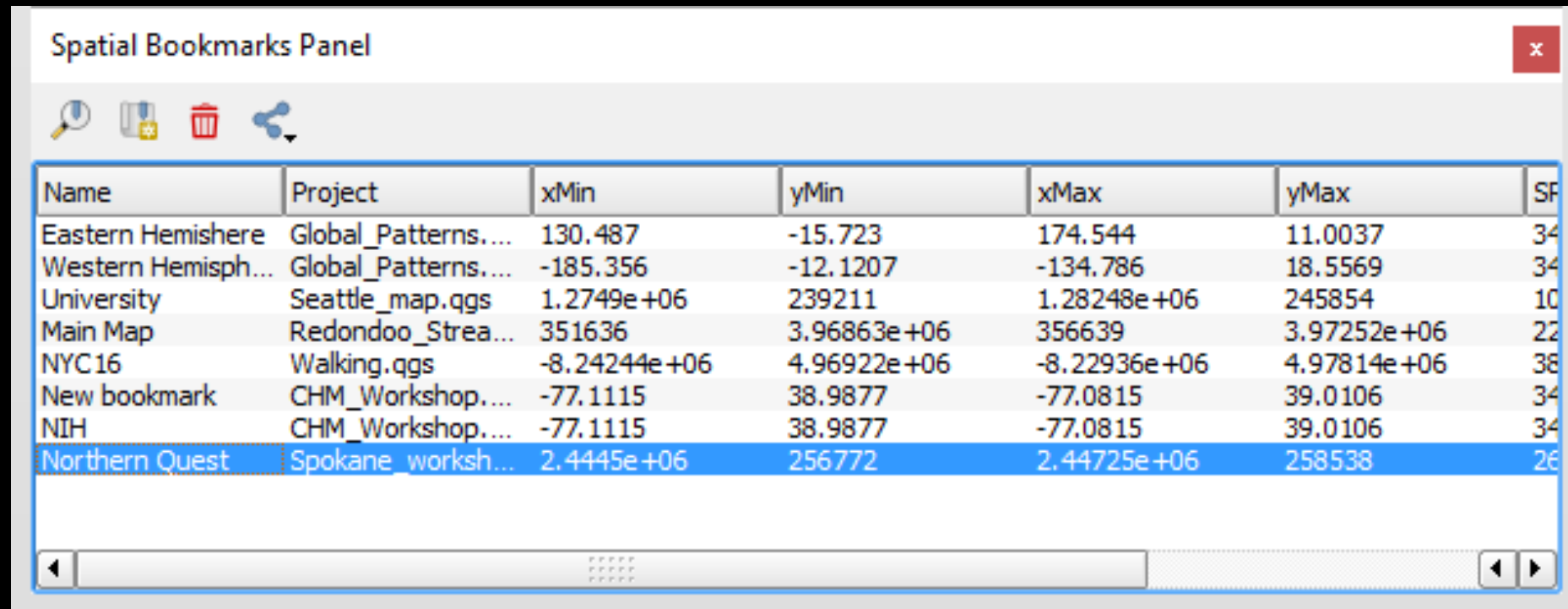


Turn on Buildings



Map Bookmarks

- View → New Bookmark



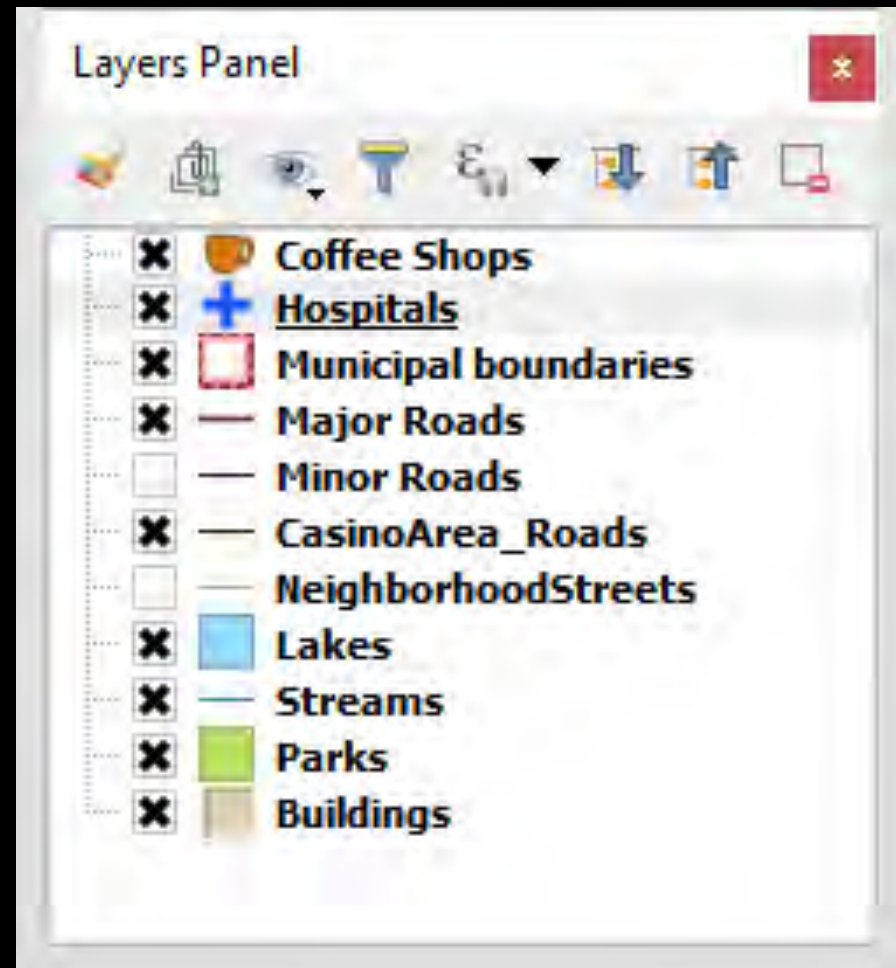
Spatial Bookmarks Panel

Icons: Search, Add, Delete, Share

Name	Project	xMin	yMin	xMax	yMax	SF
Eastern Hemishere	Global_Patterns...	130.487	-15.723	174.544	11.0037	34
Western Hemisph...	Global_Patterns...	-185.356	-12.1207	-134.786	18.5569	34
University	Seattle_map.qgs	1.2749e+06	239211	1.28248e+06	245854	10
Main Map	Redondoo_Strea...	351636	3.96863e+06	356639	3.97252e+06	22
NYC16	Walking.qgs	-8.24244e+06	4.96922e+06	-8.22936e+06	4.97814e+06	38
New bookmark	CHM_Workshop...	-77.1115	38.9877	-77.0815	39.0106	34
NIH	CHM_Workshop...	-77.1115	38.9877	-77.0815	39.0106	34
Northern Quest	Spokane_worksh...	2.4445e+06	256772	2.44725e+06	258538	26

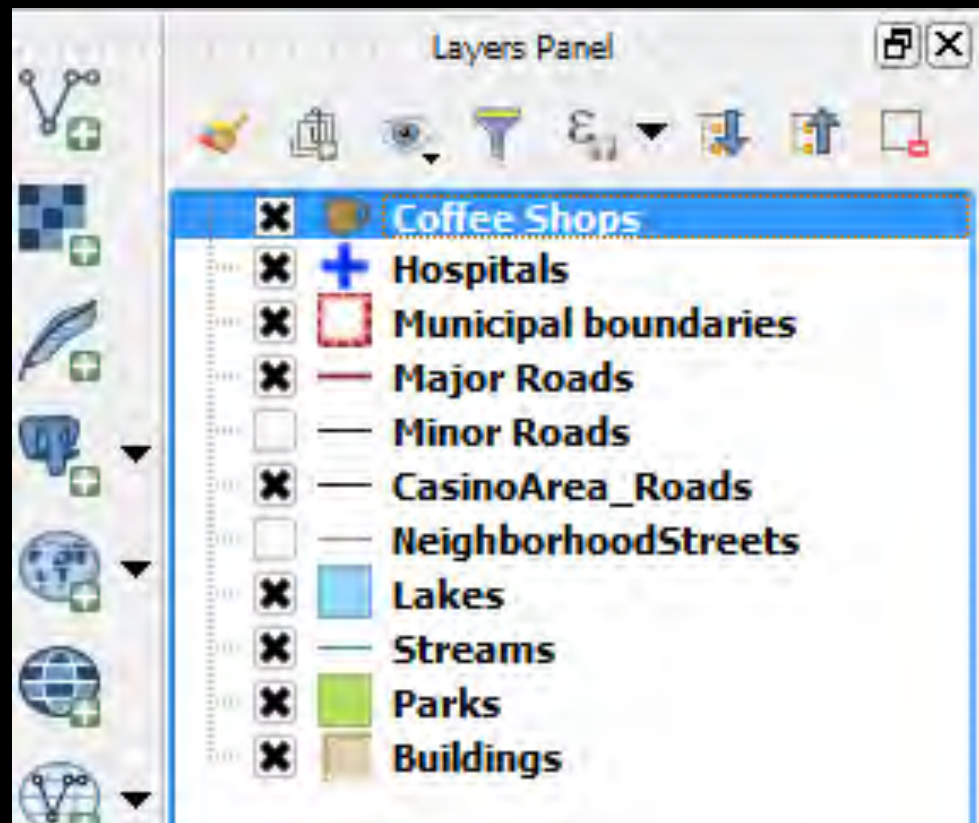
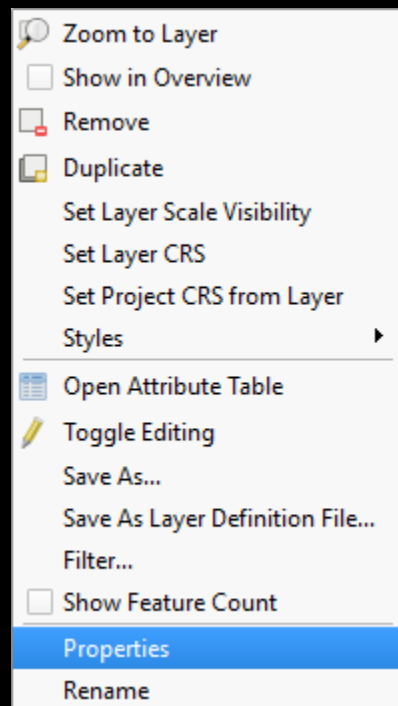
Layers Panel

- Layer Drawing Order
- Turning Layers On/Off
- Symbols



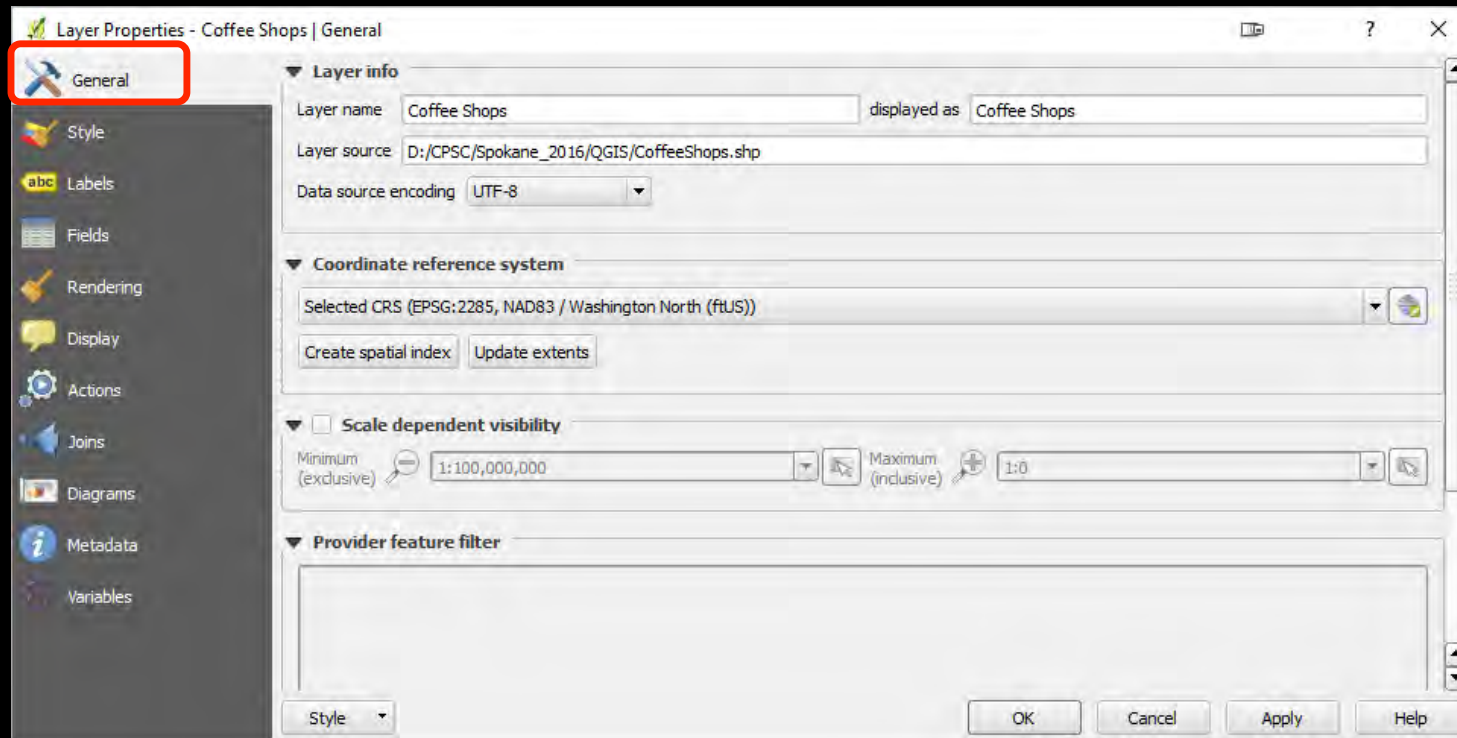
Layers Panel

- Layer Drawing Order
- Turning Layers On/Off
- Symbols
- Right-click context menu



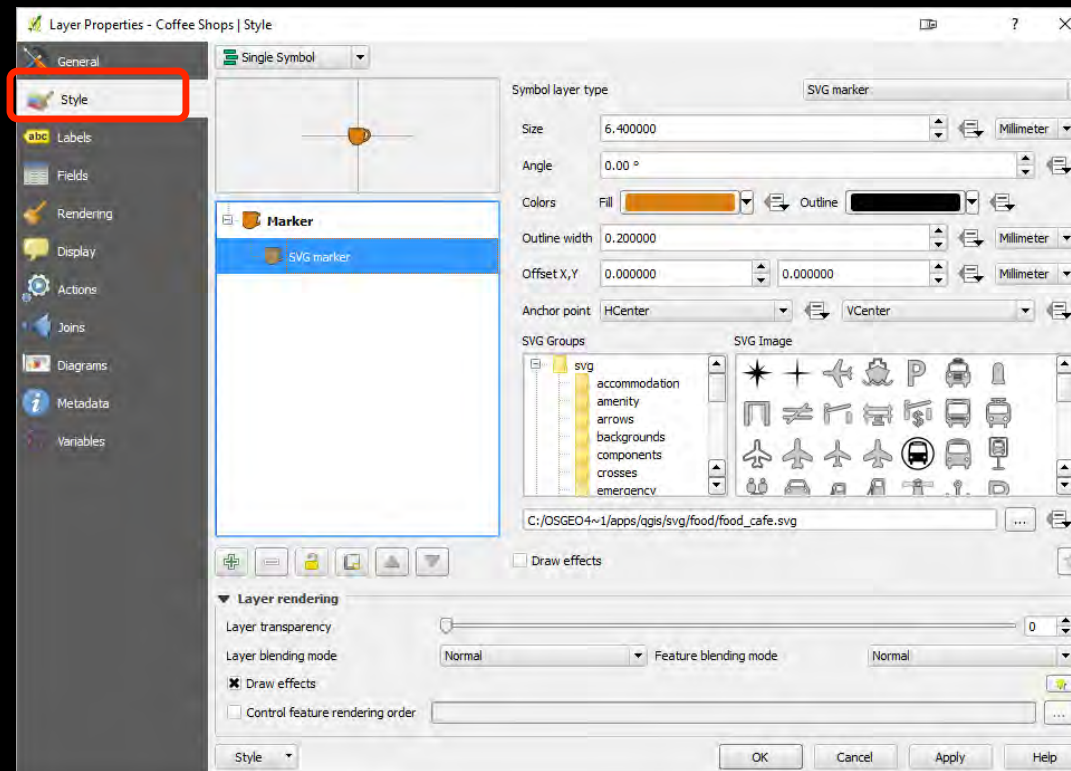
Layer Properties

- General Tab – basic info about the layer
- Style Tab – change the colors and symbols
- Labels Tab – label features



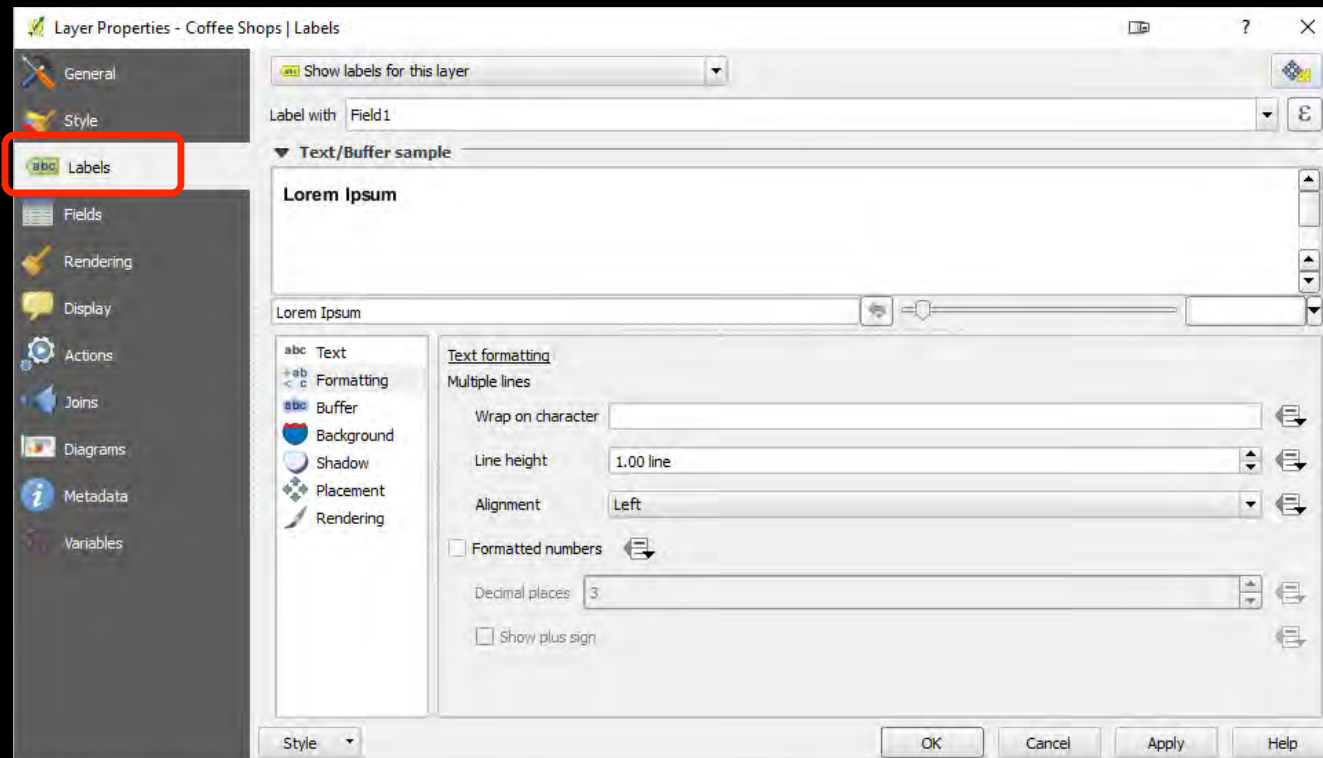
Layer Properties

- General Tab – basic info about the layer
- **Style Tab – change the colors and symbols**
- Labels Tab – label features



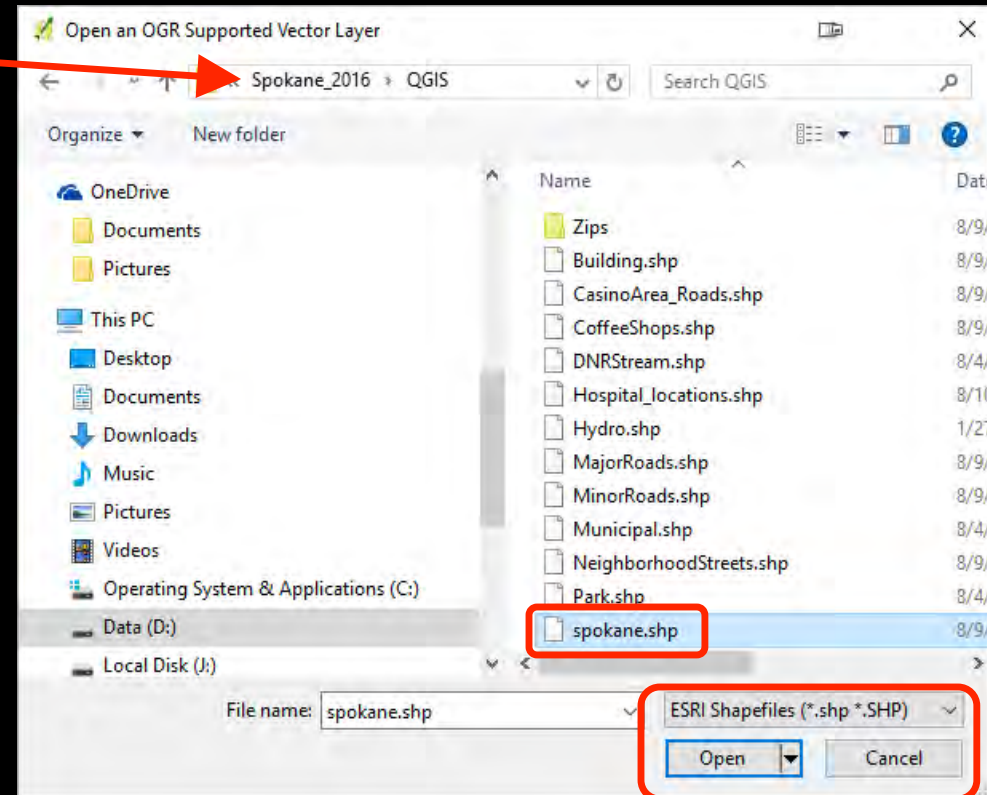
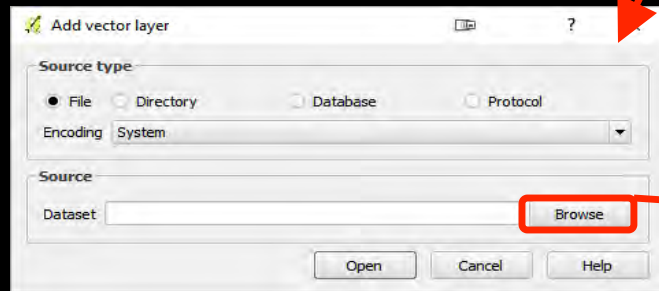
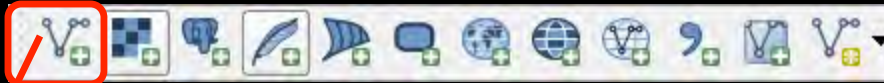
Layer Properties

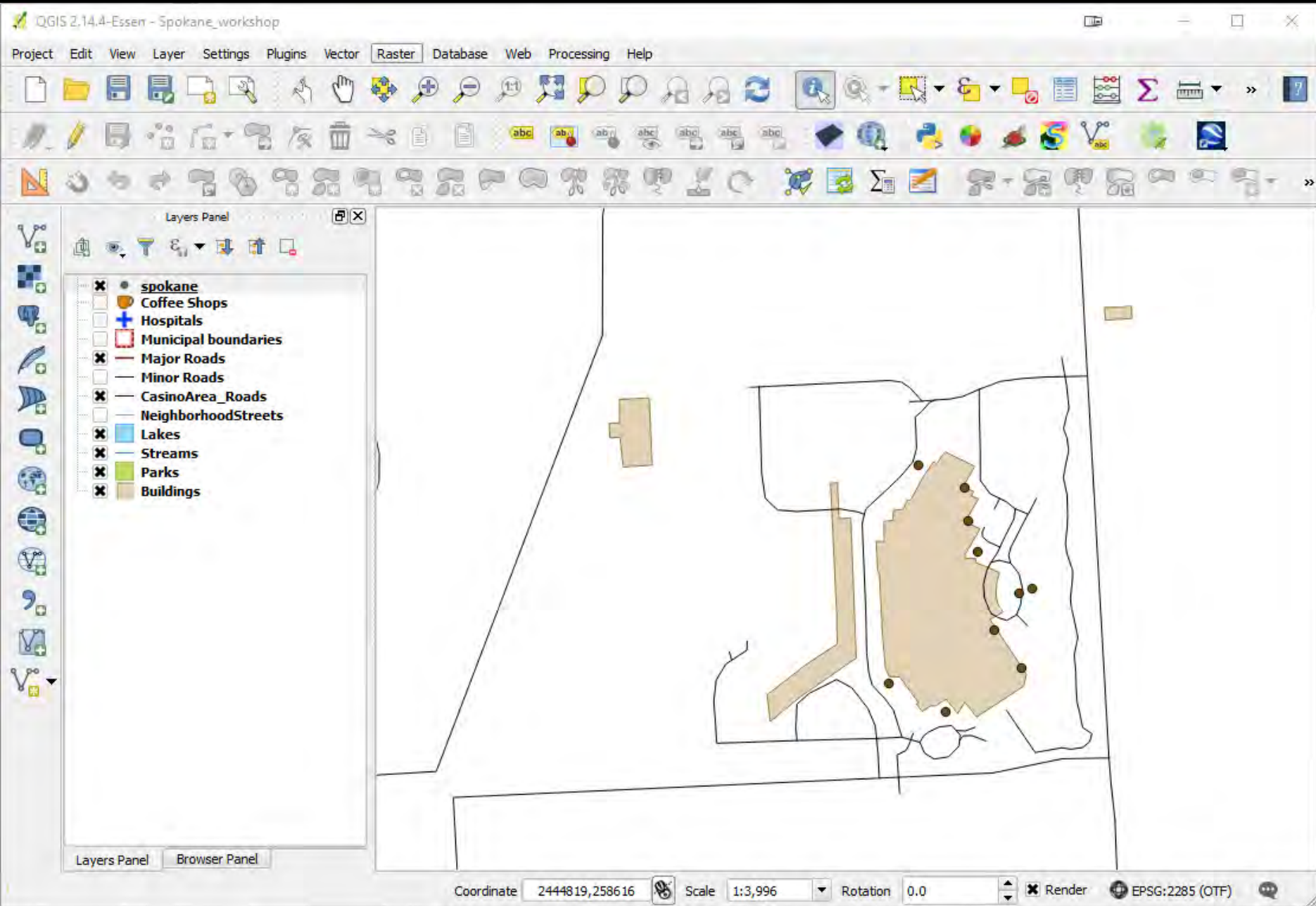
- General Tab – basic info about the layer
- Style Tab – change the colors and symbols
- Labels Tab – label features



Adding Data

- Add Vector Layer





Attribute Tables

- Zoom to Layer
- Show in Overview
- Remove
- Duplicate
 - Set Layer Scale Visibility
 - Set Layer CRS
 - Set Project CRS from Layer
 - Styles ▶
- Open Attribute Table**
- Toggle Editing
 - Save As...
 - Save As Layer Definition File...
 - Filter...
- Show Feature Count
- Properties
- Rename

honolulu :: Features total: 10, filtered: 10, selected: 0

	latitude	longitude	infrastruc	capacity	num_bikes	sign	tree	photo	photo_capt	photo_url	date
0	21.33293800	-157.89889800	Tree	NULL	NULL	NULL	Monkeypod	084111e7-92ad-...	NULL	https://web.fulcr...	2016-08-16
1	21.33297300	-157.89864100	Tree	NULL	NULL	NULL	Monkeypod	8c16cb0b-641c-4...	NULL	https://web.fulcr...	2016-08-16
2	21.33285400	-157.89900000	Sign	NULL	NULL	No parking	NULL	52ce3a0e-0bd6-...	NULL	https://web.fulcr...	2016-08-16
3	21.33264400	-157.89925800	Sign	NULL	NULL	No parking	NULL	55f8a734-8599-...	NULL	https://web.fulcr...	2016-08-16
4	21.33318800	-157.89879100	Fire hydrant	NULL	NULL	NULL	NULL	6d150616-cc04-...	NULL	https://web.fulcr...	2016-08-16
5	21.33252400	-157.89955800	Fire hydrant	NULL	NULL	NULL	NULL	11b56e99-3300-...	NULL	https://web.fulcr...	2016-08-16
6	21.33369800	-157.89881200	Bench	NULL	NULL	NULL	NULL	293e5b0f-7e89-...	NULL	https://web.fulcr...	2016-08-16
7	21.33393300	-157.89922500	Bike Rack	6	0	NULL	NULL	11948be4-174c-...	NULL	https://web.fulcr...	2016-08-16
8	21.33405300	-157.90137600	Bench	NULL	NULL	NULL	NULL	08247eba-d75f-...	NULL	https://web.fulcr...	2016-08-16
9	21.33293300	-157.90162900	Bike Rack	8	1	NULL	NULL	148cc1f0-e549-4...	NULL	https://web.fulcr...	2016-08-16

Show All Features

Using Identify



QGIS 2.14.4-Essen - Spokane_workshop

Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help

Identify Results

Feature	Value
spokane	
fulcrum_id	80cb303b-3074-45e0-be5d-393651e53205
(Derived)	
(clicked coordinate X)	2446106
(clicked coordinate Y)	257863
X	2446086
Y	257869
feature id	9
(Actions)	
fulcrum_id	View feature form 80cb303b-3074-45e0-be5d-393651e53205
created_at	2016-08-09 23:05:14 UTC
updated_at	2016-08-09 23:05:14 UTC
created_by	kurt@birdseyeviewgis.com
updated_by	kurt@birdseyeviewgis.com
system_cre	2016-08-09 23:05:13 UTC
system_upd	2016-08-09 23:05:13 UTC
version	1
status	NULL
project	NULL
assigned_t	NULL
latitude	47.66000100
longitude	-117.56300200
infrastruc	Sign
capacity	NULL
num_bikes	NULL
sign	One way
tree	NULL
photo	6ce87284-d12c-4af4-a0ea-cdc65962cddb
photo_capt	NULL
photo_url	https://web.fulcrumapp.com/photos/view?photos=6...
date	2016-08-09
gps_alitu	NULL
gps_horizo	NULL

Mode: Current layer Auto open form

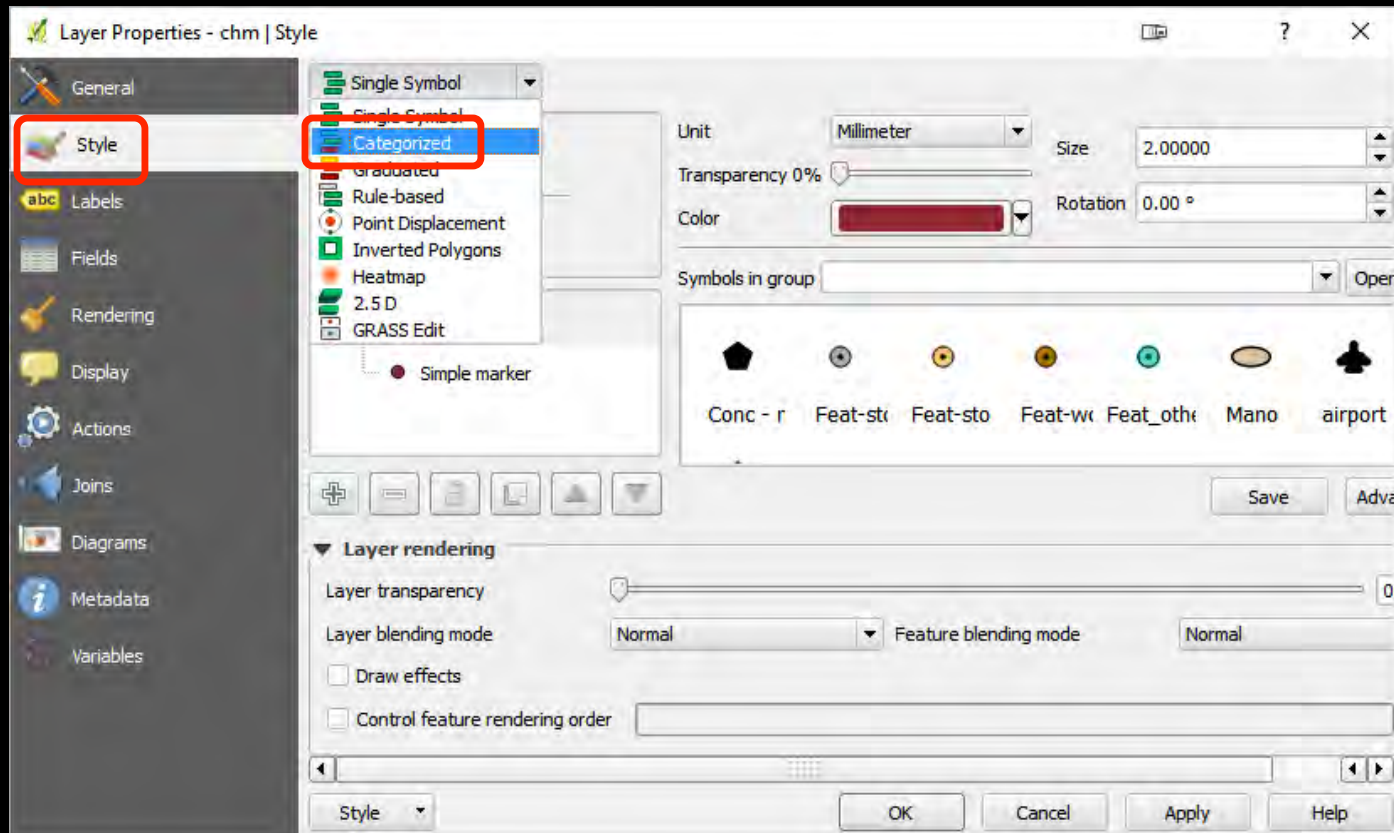
Layers Panel Br View: Tree Help

Rotation 0.0 Render EPSG:2285 (OTF)

A map view in QGIS showing a brown building footprint. A red dot is placed on the top-left corner of the building, indicating the location of the feature identified in the table. The map also shows surrounding streets and other building footprints.

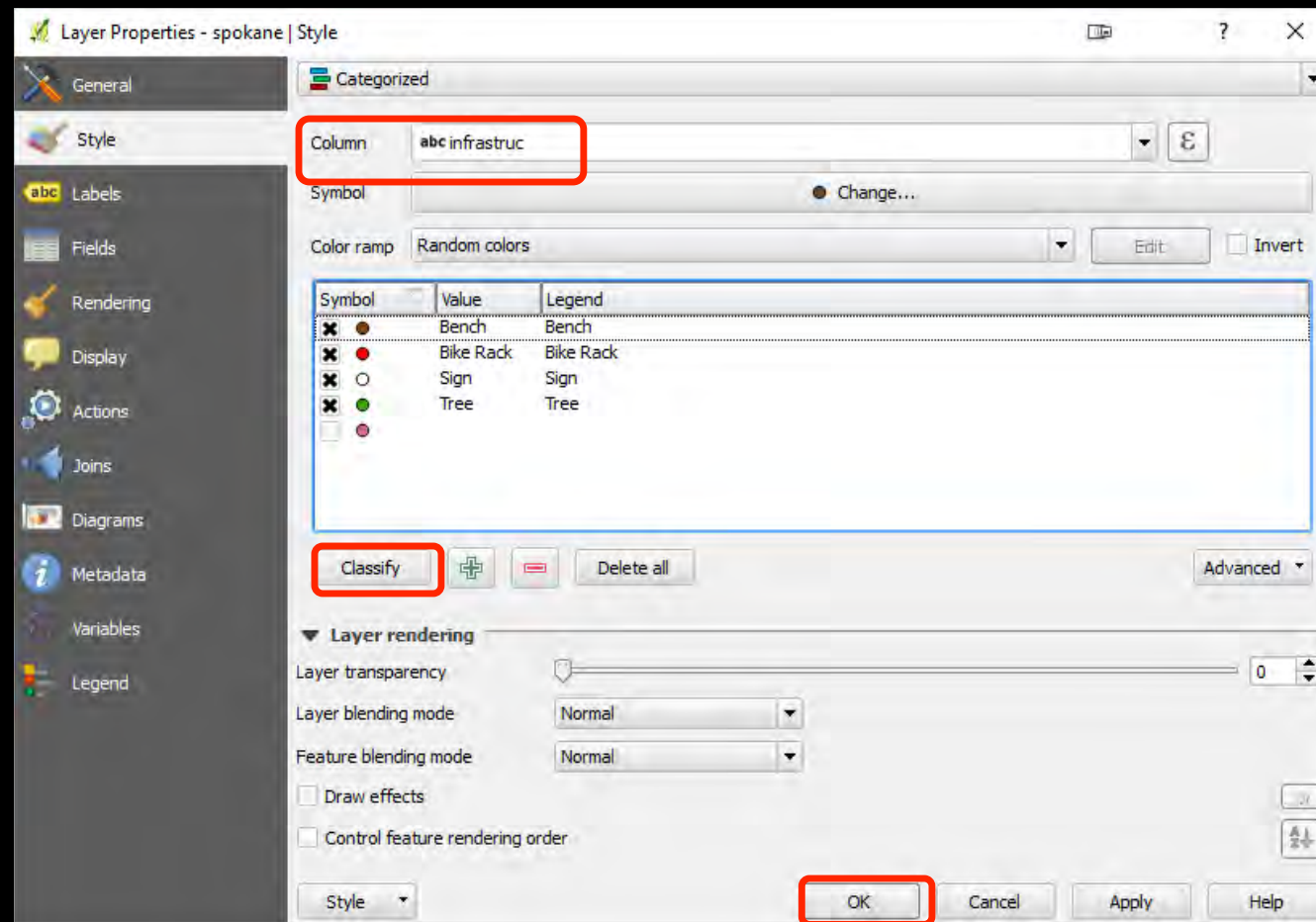
Styling Data

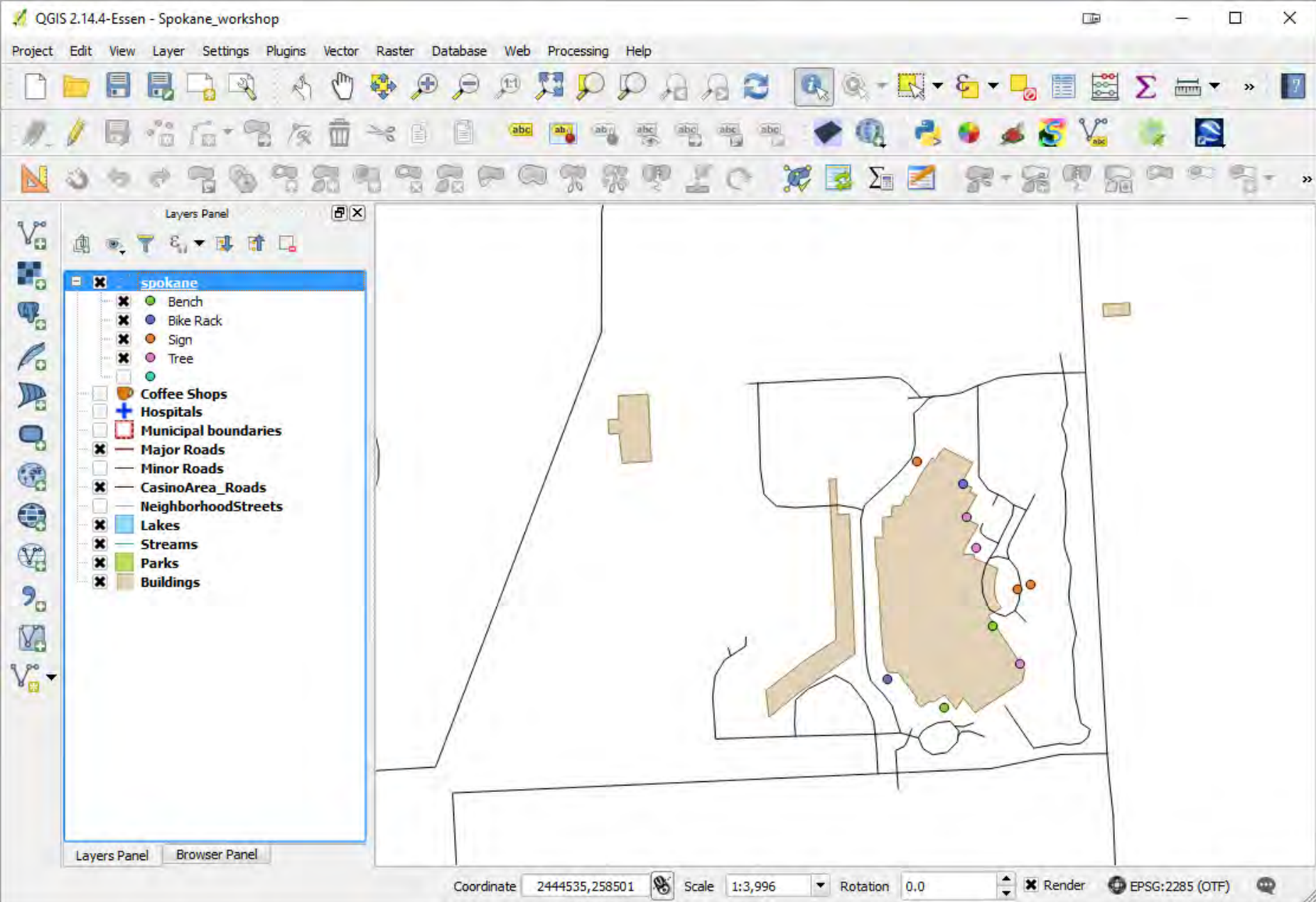
- Layer Properties → Style tab → Categorized



Styling Data

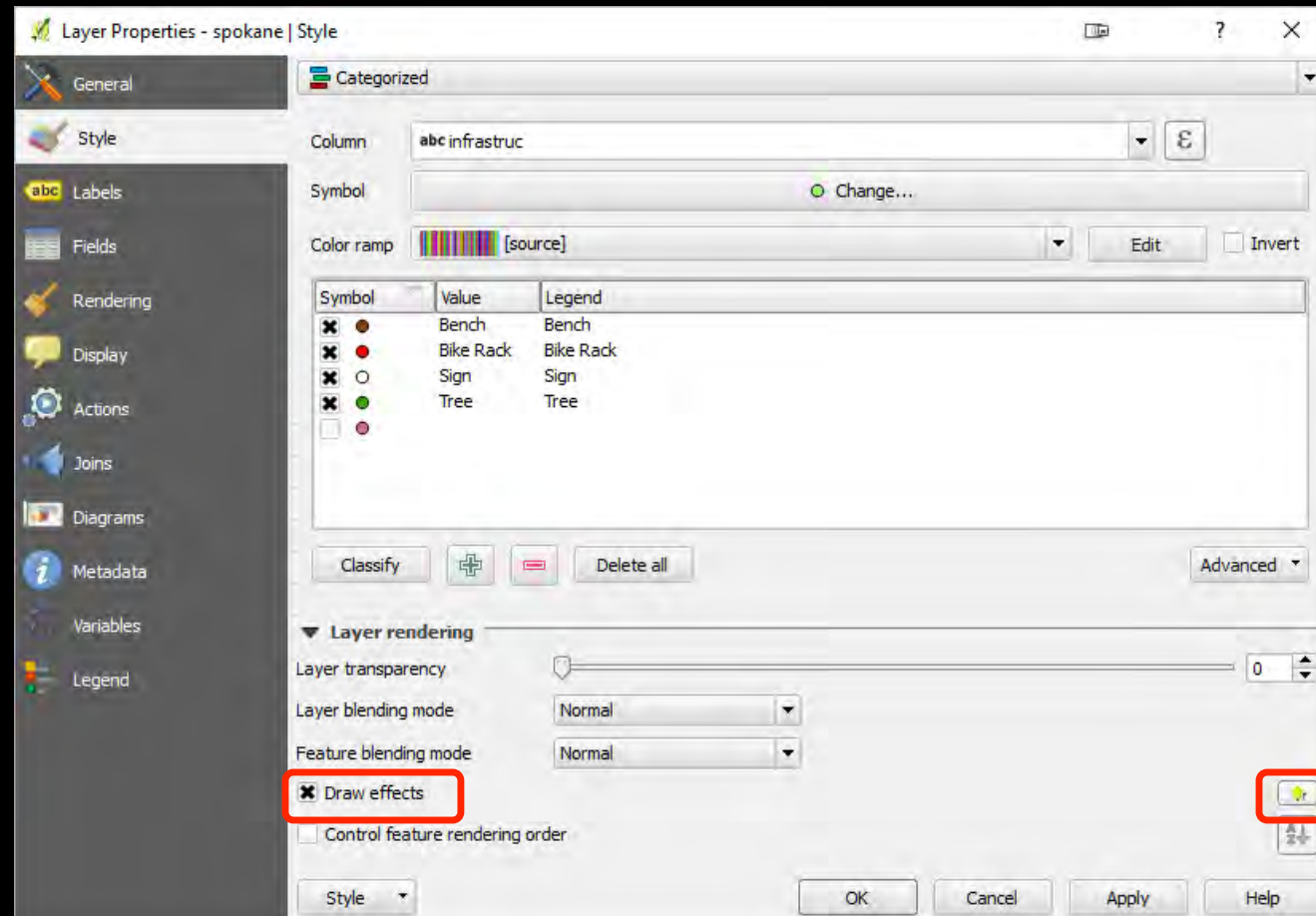
- Column → *infrastruc*
- Classify



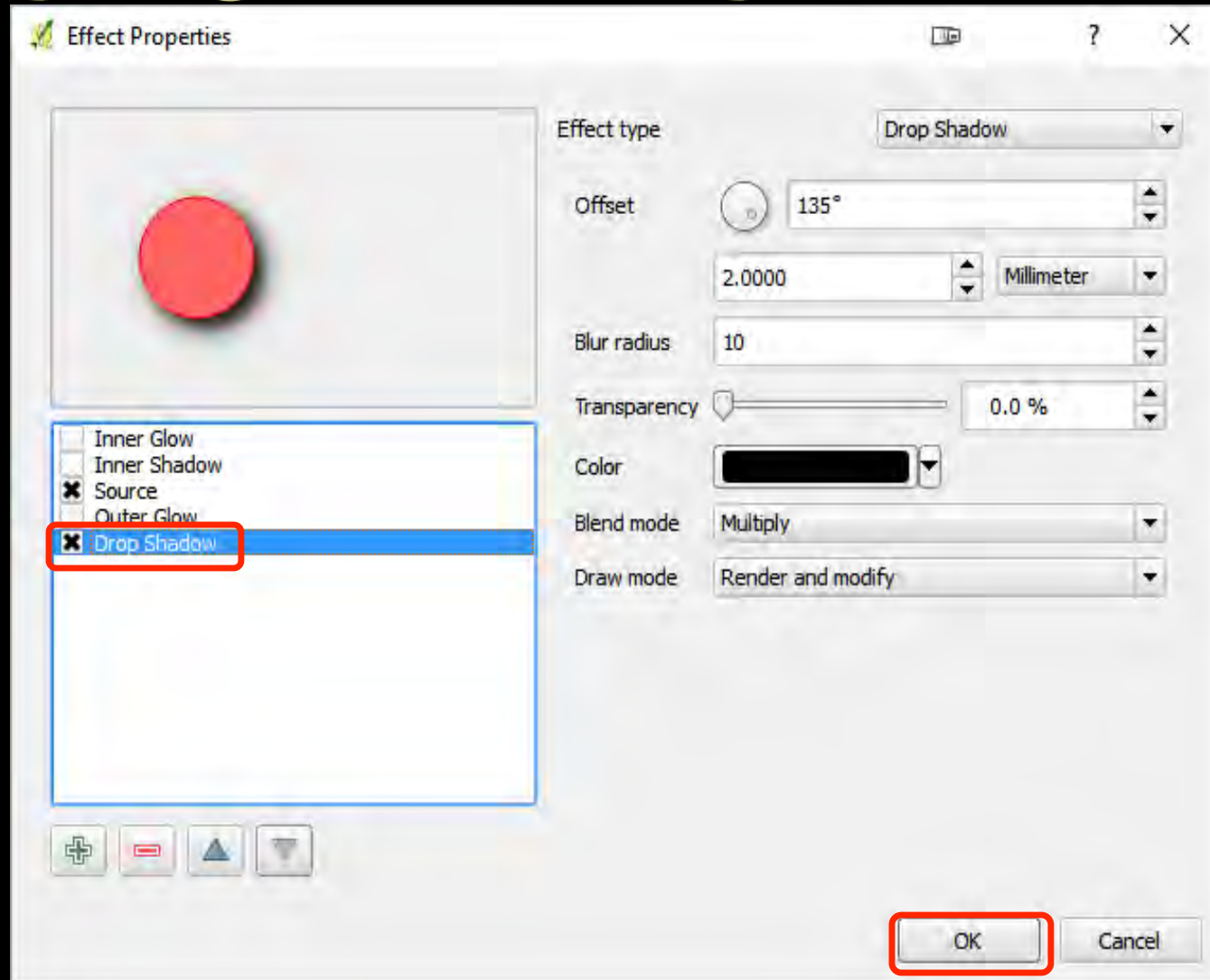


Styling Data – Layer Effects

- Draw effects



Styling Data – Layer Effects





Layers Panel

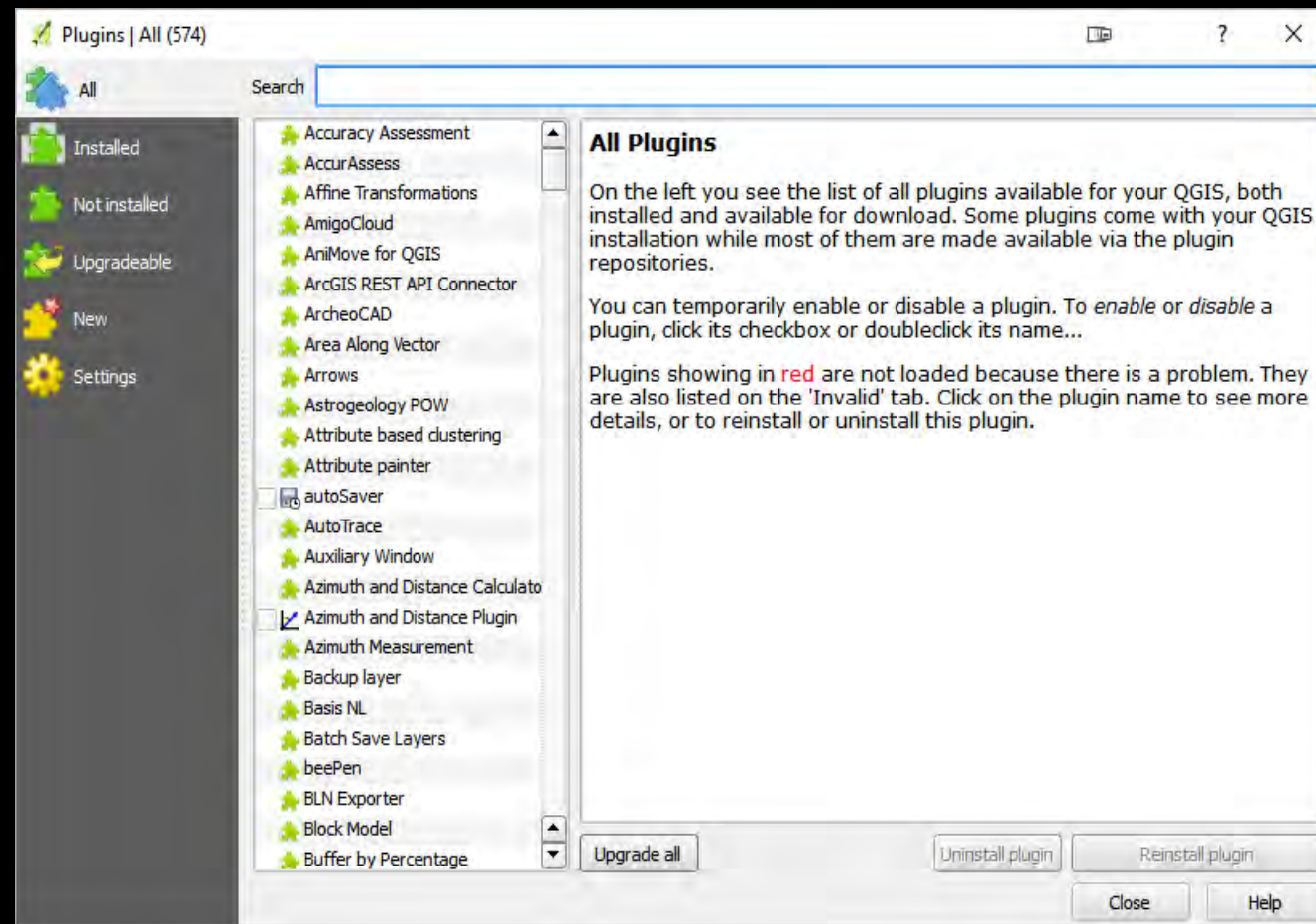
- spokane**
 - Bench
 - Bike Rack
 - Sign
 - Tree
 - Coffee Shops
 - Hospitals
 - Municipal boundaries
 - Major Roads
 - Minor Roads
 - CasinoArea_Roads
 - NeighborhoodStreets
 - Lakes
 - Streams
 - Parks
 - Buildings

Layers Panel | Browser Panel



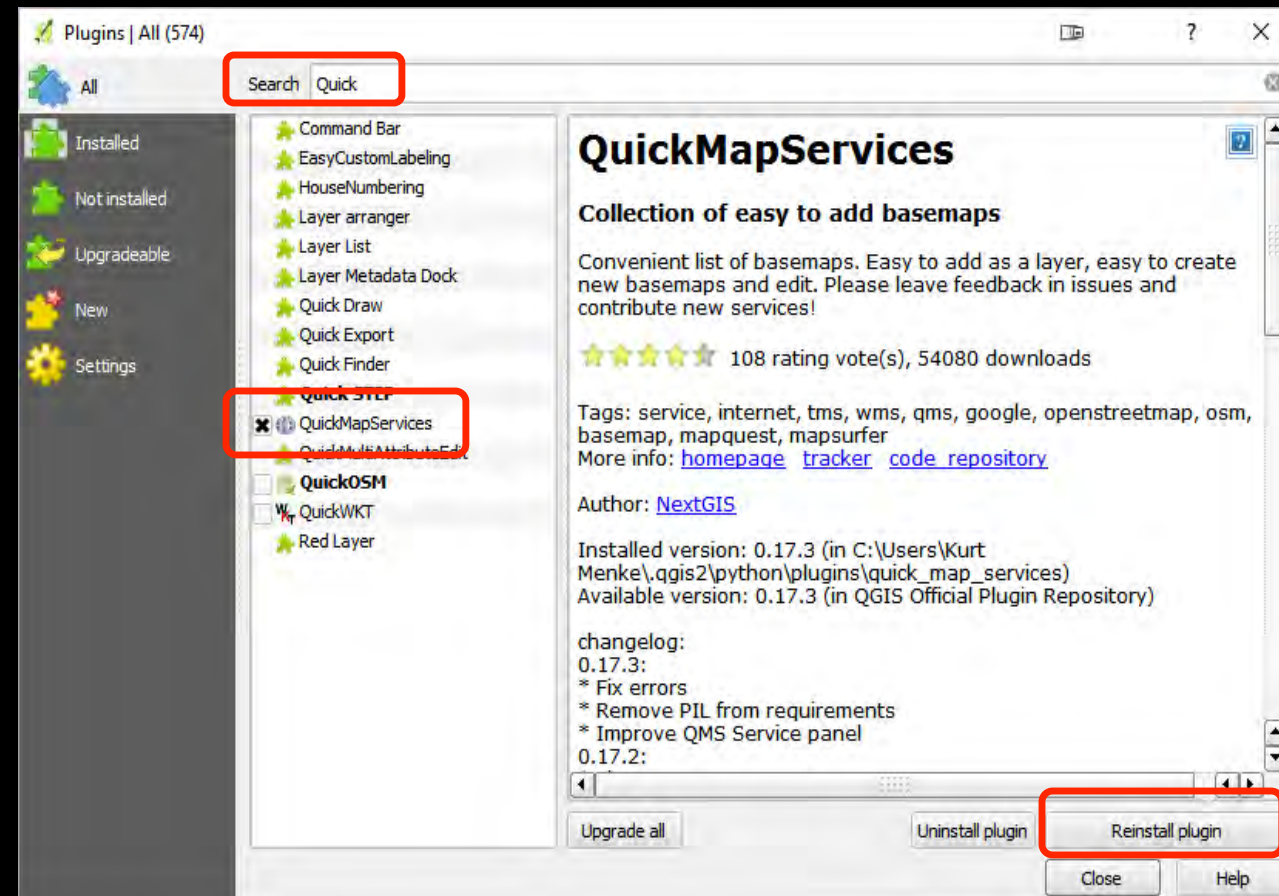
Using a Plugin – Adding Basemap

- Plugins → Manage Plugins



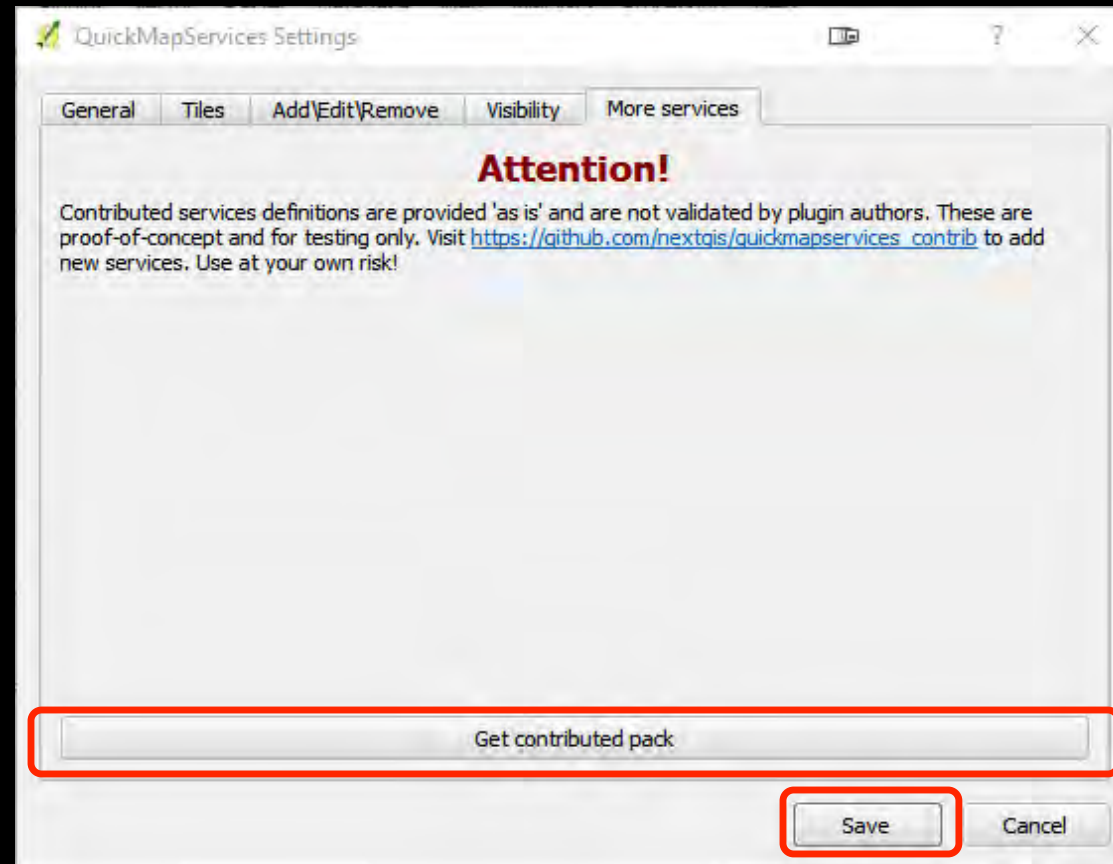
Using a Plugin – Adding Basemap

- Search → Quick

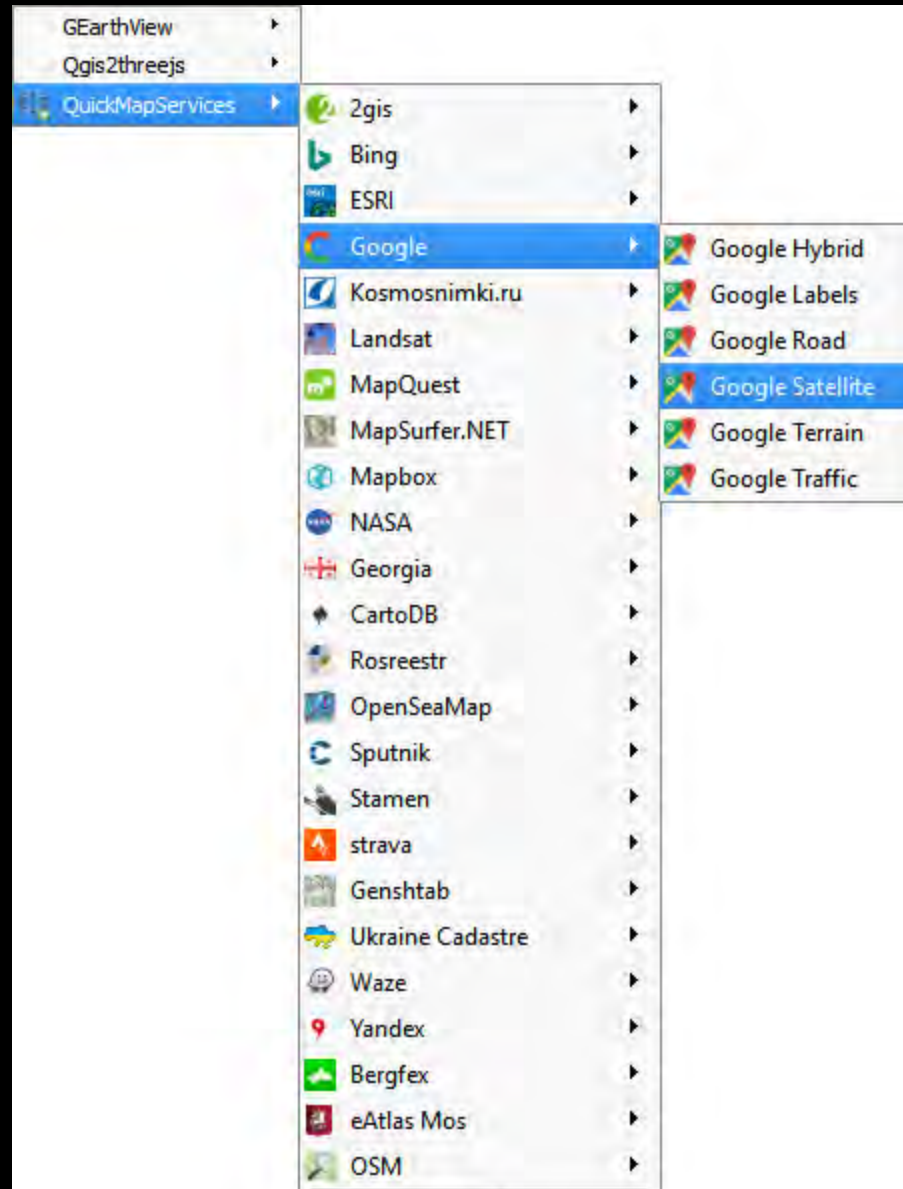


Using a Plugin – Adding Basemap

- Web → QuickMapServices → Settings



Using a Plugin – Adding Basemap





Layers Panel

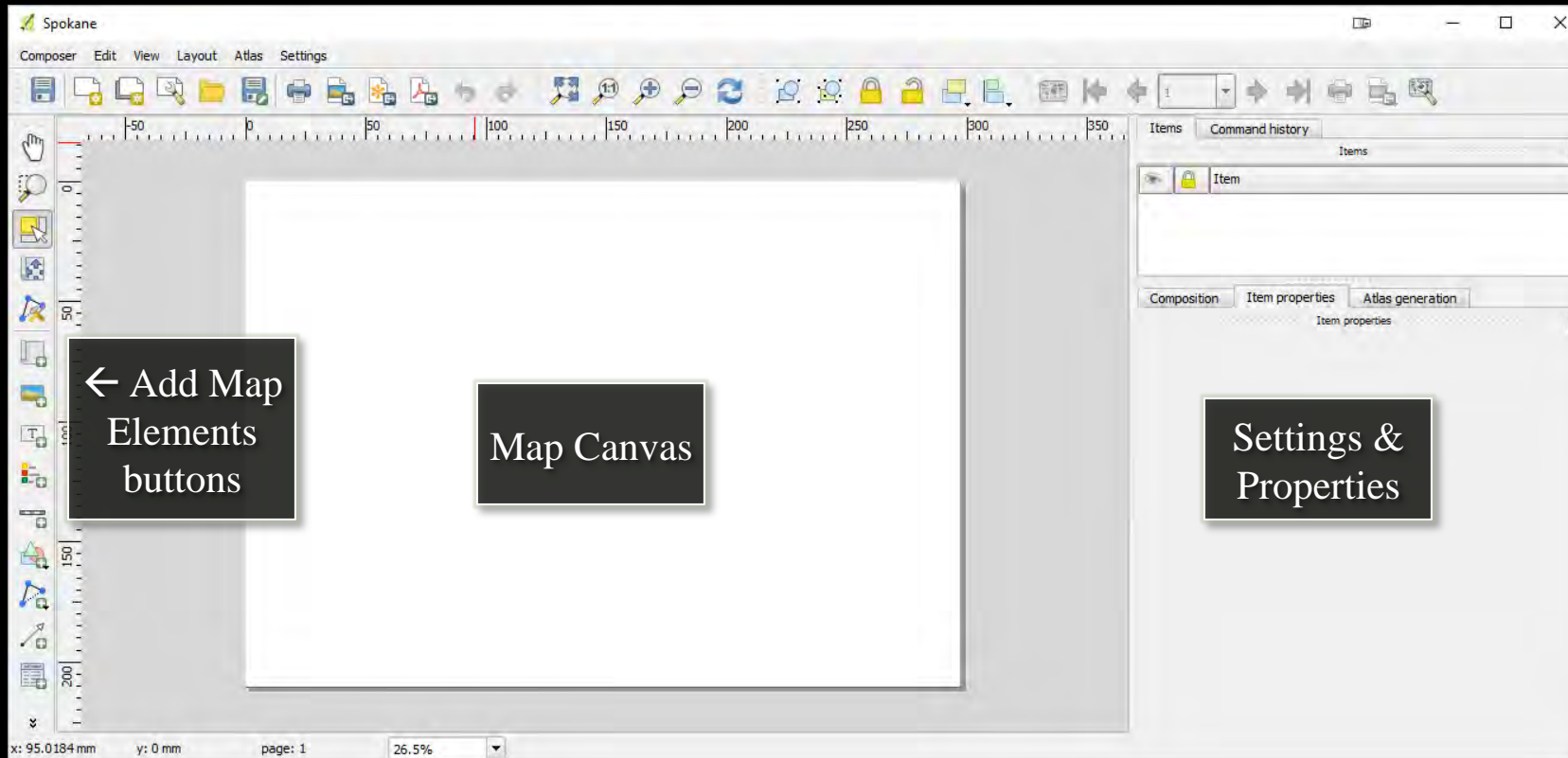
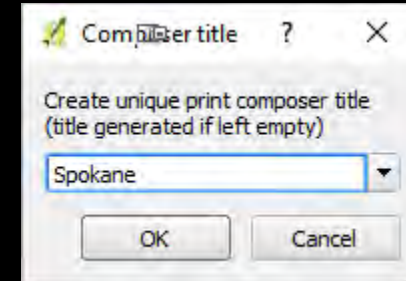
- spokane
 - Bench
 - Bike Rack
 - Sign
 - Tree
 - ☐
 - Coffee Shops
 - + Hospitals
 - Municipal boundaries
 - Major Roads
 - Minor Roads
 - CasinoArea_Roads
 - NeighborhoodStreets
 - Lakes
 - Streams
 - Parks
 - Buildings
 - Google Satellite

Layers Panel | Browser Panel



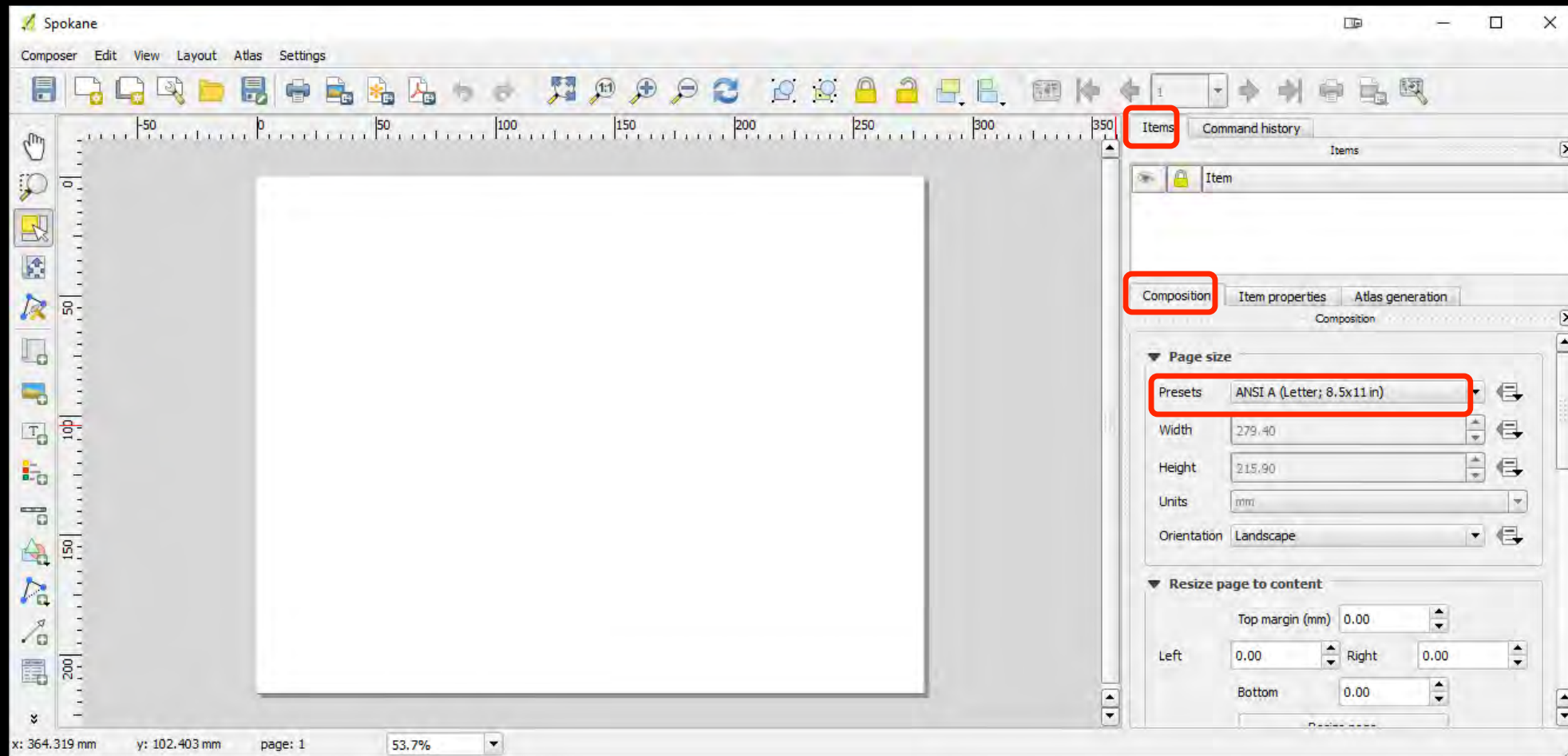
Making a Map

- Project → New Print Composer



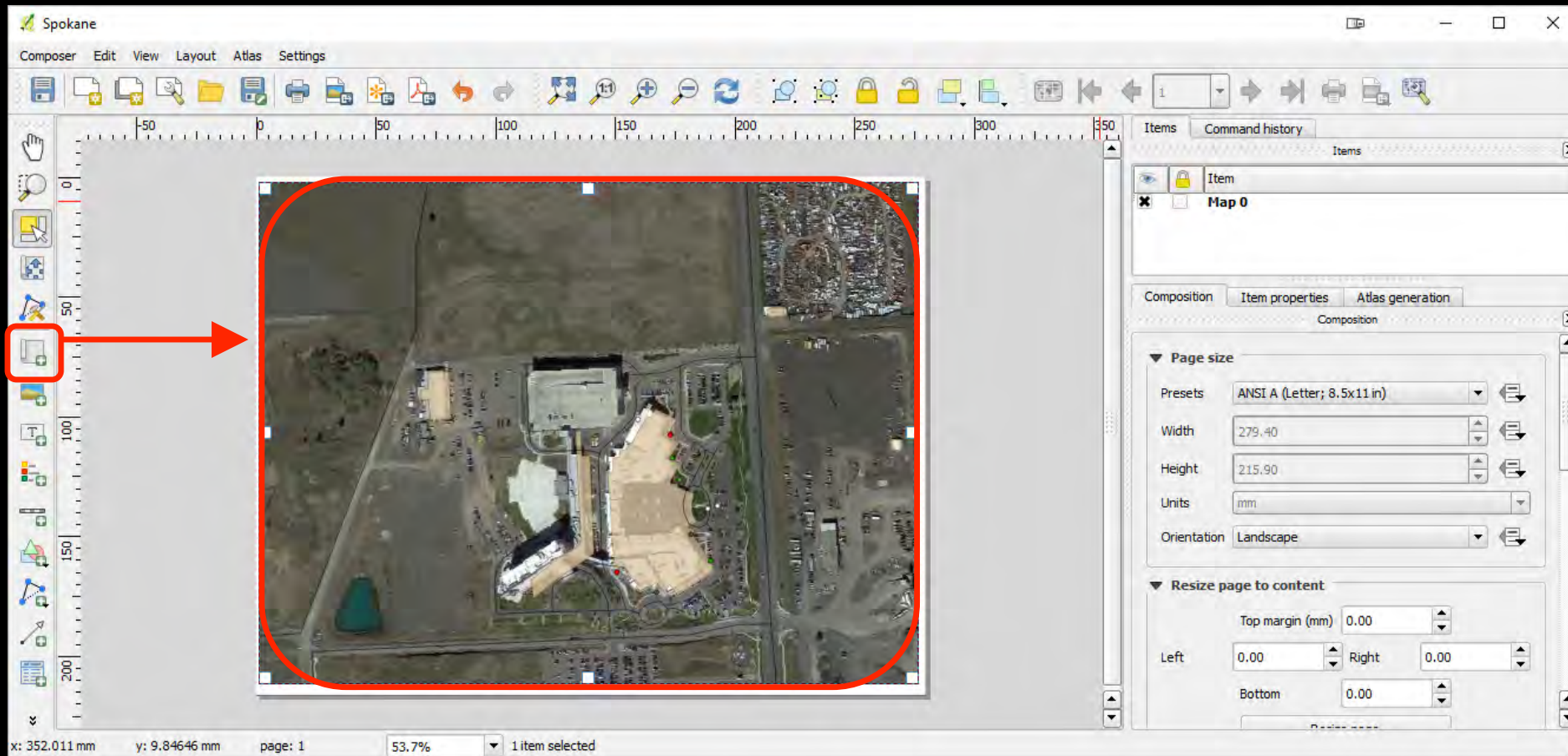
Print Composer

- Set Paper Size
 - Items tab → Composition tab → Page size → Letter



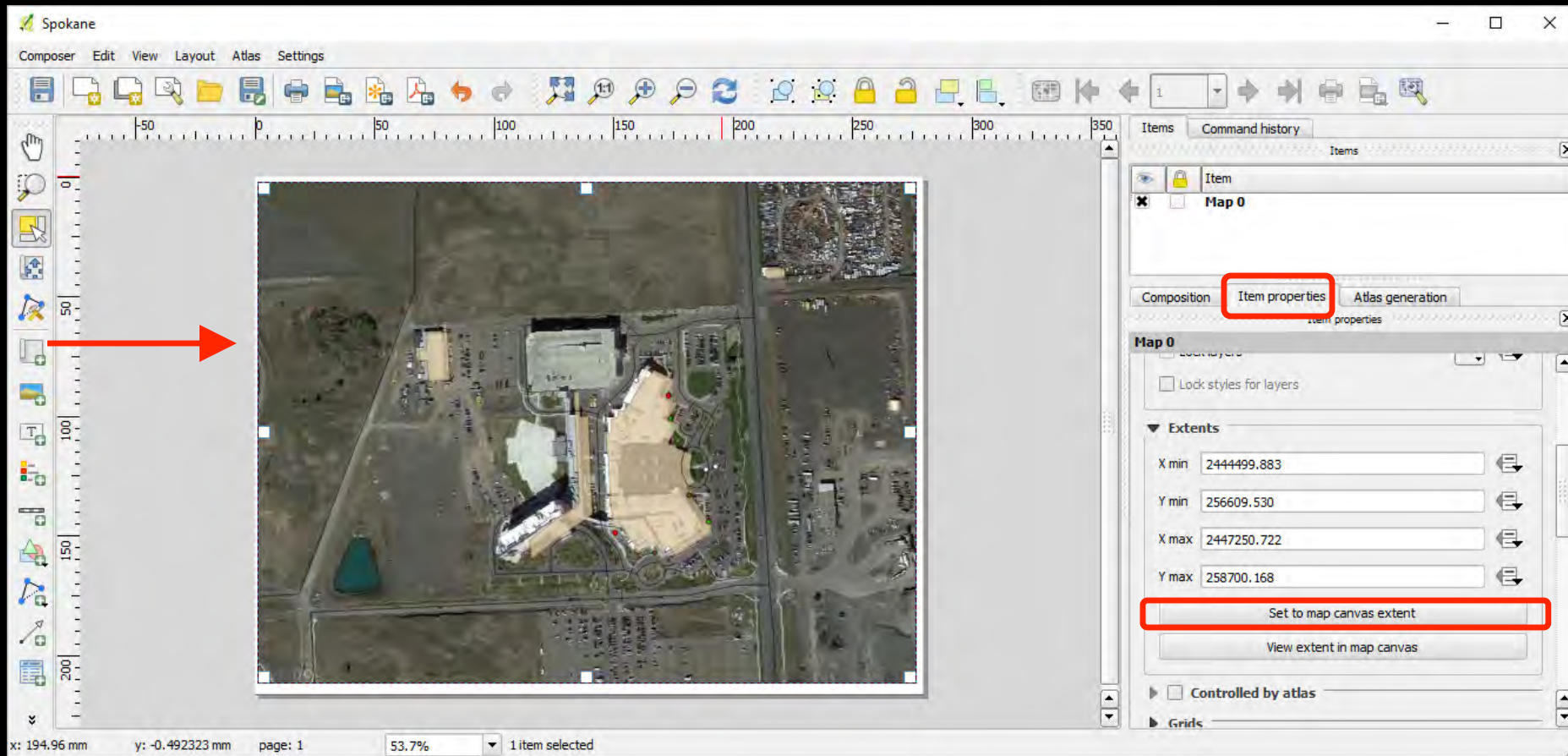
Add Map to Composition

- **Add Map** button → drag a box onto map canvas



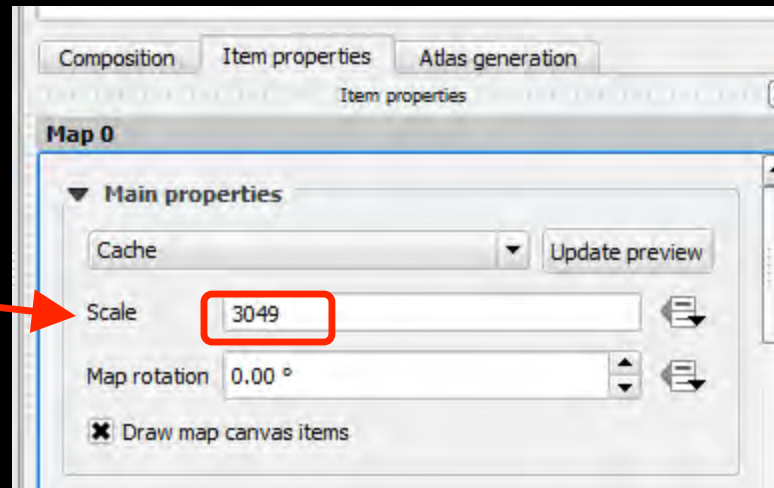
Getting the Map Extent Correct

- Item Properties → Set to map canvas extent



Getting the Map Extent Correct

- Set the map **Scale**
 - A bigger number will zoom out
 - A smaller number will zoom in



Fine Tuning the Map Extent

- Move item content button

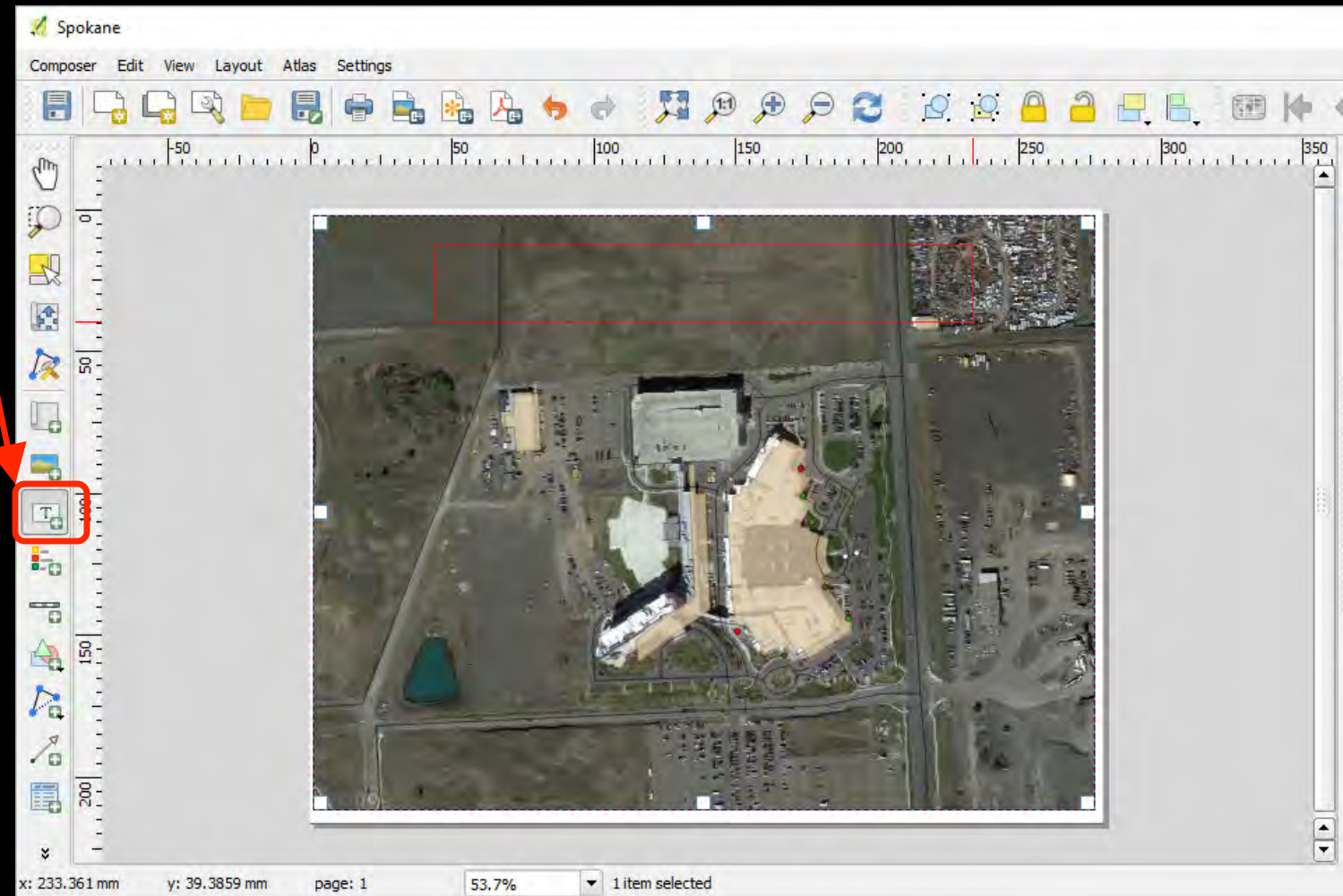


- Pans the map
- Let's you center the map image on the canvas



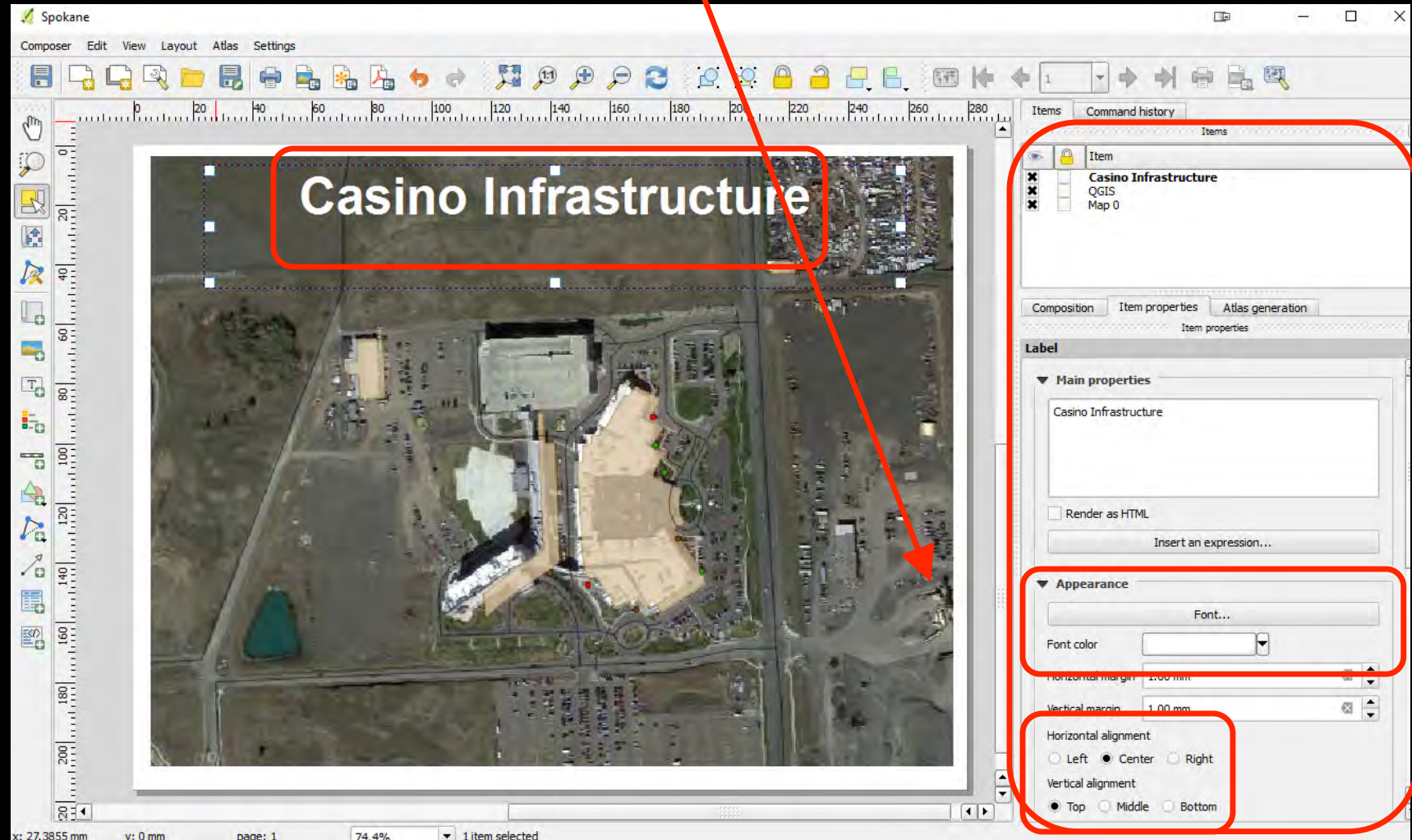
Adding a Title

- Add new label button



Type in the Title

- Click the **Font** button to adjust font
- Use **Font Color** to set text color
- Use **Alignment** buttons to align title



Add Legend

- Add Legend button

The image shows a GIS application interface. On the left is a vertical toolbar with various icons; the 'Add Legend' icon (a legend symbol) is highlighted with a red box. A red arrow points from this icon to a legend box overlaid on a satellite map titled 'Casino Infrastructure'. The legend box lists various features with corresponding symbols: Bench, Bike Rack, Sign, Tree, Coffee Shops, Hospitals, Municipal boundaries, Major Roads, Minor Roads, CasinoArea_Roads, NeighborhoodStreets, Lakes, Streams, Parks, Buildings, and Google Satellite. To the right of the map is a configuration panel for the legend. The 'Legend items' section is highlighted with a red box and contains a tree view of the legend items, including 'spokane' and its sub-items: Bench, Bike Rack, Sign, Tree, Coffee Shops, Hospitals, Municipal boundaries, Major Roads, Minor Roads, CasinoArea_Roads, NeighborhoodStreets, Lakes, and Streams. Below the tree view are navigation and control icons, and a checkbox for 'Only show items inside current atlas feature'.

Edit Legend

- Uncheck **Auto update** & edit

The screenshot displays a GIS application interface. On the left, a vertical toolbar contains various editing and navigation tools. The main map area shows an aerial view of a casino complex with overlaid infrastructure layers. A legend window is open over the map, listing the following items:

- spokane
 - Bench
 - Bike Rack
 - Sign
 - Tree
- Coffee Shops
- Hospitals
- Municipal boundaries
- Major Roads
- Minor Roads
- CasinoArea_Roads
- NeighborhoodStreets
- Lakes
- Streams
- Parks
- Buildings
- Google Satellite

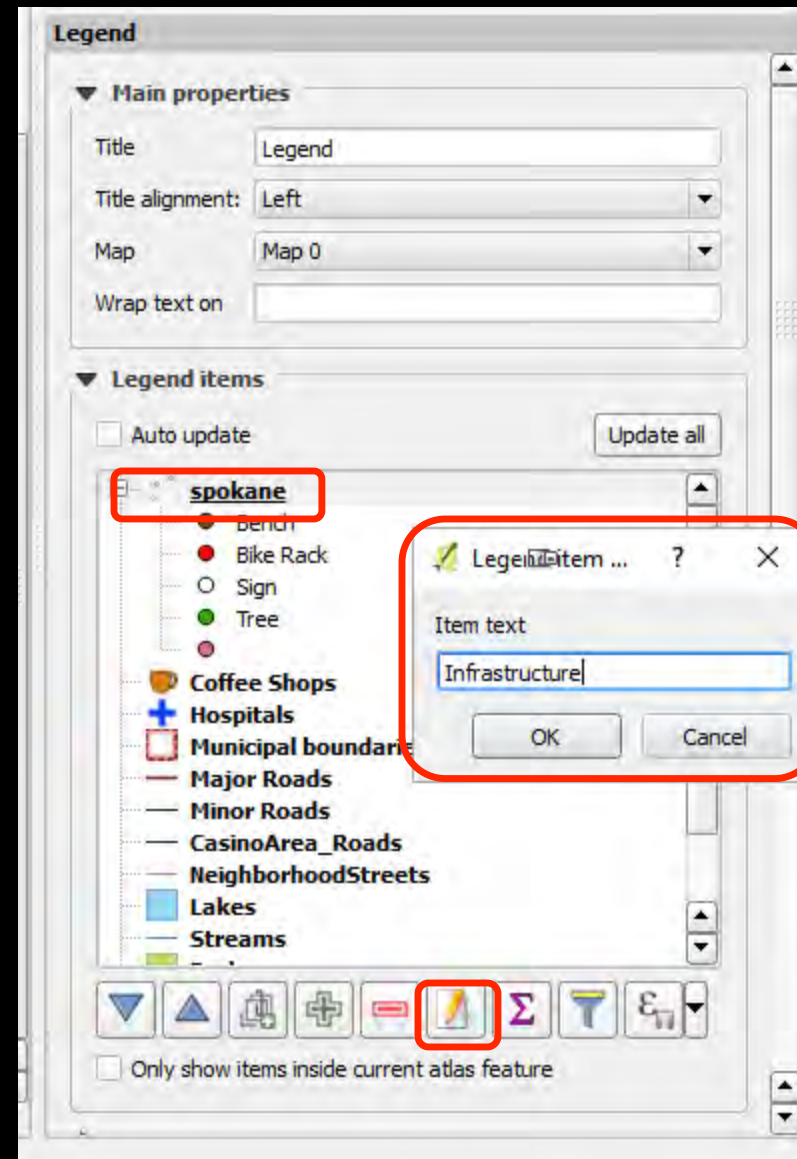
The legend window has a title bar that says "Legend". To the right of the map, the "Item properties" panel is visible, showing the legend's configuration:

- Composition: Item properties
- Atlas generation: Item properties
- Legend
 - Main properties
 - Title: Legend
 - Title alignment: Left
 - Map: Map 0
 - Wrap text on: [empty]
 - Legend items
 - Auto update
 - Update all

At the bottom of the Item properties panel, there is a toolbar with several icons, including a downward arrow, an upward arrow, a plus sign, a minus sign, a refresh icon, a search icon, and a filter icon. Below this toolbar, the text "Only show items inside current atlas feature" is displayed.

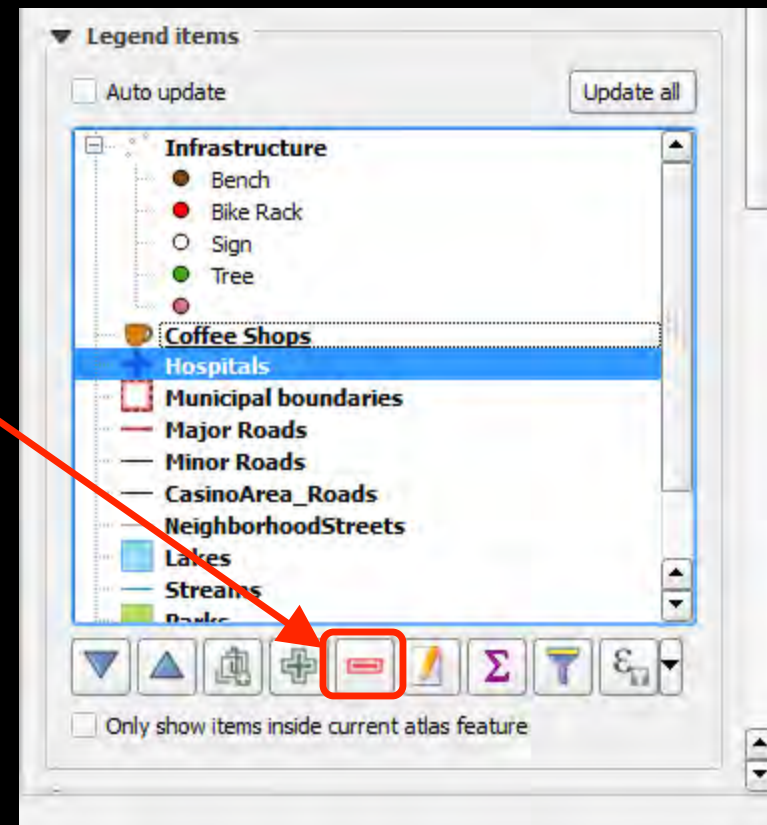
Edit Layer Names

- Select the layer
- Click the **Edit** button



Remove Unnecessary Layers

- Select the layer
- Click the **Remove** button



Casino Infrastructure



- Legend**
- Infrastructure
- Bench
 - Bike Rack
 - Sign
 - Tree
 - Roads
 - Buildings

Adding a Scale Bar

- Use the **Add scalebar** button
- Adjust style & units in **Item properties**

Casino Infrastructure

Legend

- Bench
- Bike Rack
- Sign
- Tree
- Roads
- Buildings

Scalebar

Composition Item properties Atlas generation

Item properties

▼ Main properties

Map Map 0

Style Line Ticks Middle

▼ Units

Scalebar units Feet

Label unit multiplier 1.000000

Label for units ft

▼ Segments

Segments left 1 right 1

● Fixed width 100.000000 units

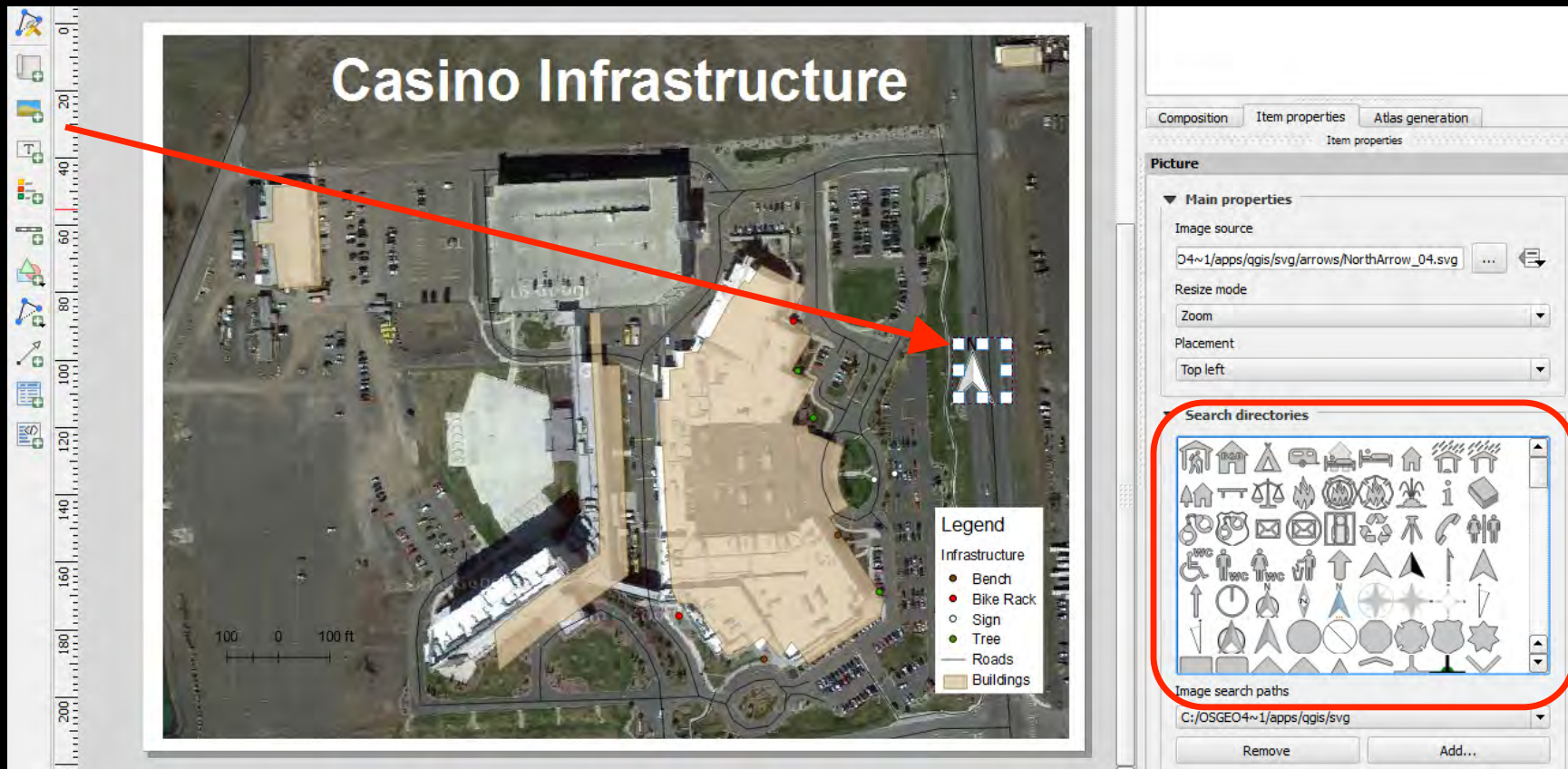
○ Fit segment width min 50 mm max 150 mm

Height 3 mm

▶ Display

Adding a North Arrow

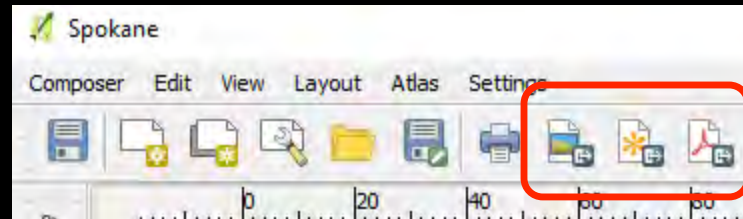
- Use the **Add image** button 
- **Item properties** → **Search directories** & choose arrow



The screenshot displays the QGIS software interface. On the left, a vertical toolbar contains various icons, with a red arrow pointing from the 'Add image' icon to the map. The map area shows an aerial view of a casino complex with the title 'Casino Infrastructure'. A legend in the bottom right corner lists infrastructure elements: Bench (red dot), Bike Rack (red circle), Sign (white circle), Tree (green circle), Roads (grey line), and Buildings (tan polygon). A white north arrow icon is placed on the map. On the right, the 'Item properties' panel is open, showing the 'Picture' tab. The 'Main properties' section includes 'Image source' (C:\OSGEO4~1\apps\qgis\svg\arrows\NorthArrow_04.svg), 'Resize mode' (Zoom), and 'Placement' (Top left). The 'Search directories' section is highlighted with a red rounded rectangle and contains a grid of various icons, including several north arrow symbols. Below this, the 'Image search paths' field shows the directory C:\OSGEO4~1\apps\qgis\svg.

Exporting Map

- Export as Image, SVG or PDF



Casino Infrastructure



Challenge Exercise

- Make a map of Coffee Shops to Try

The End!

John Scott

Center for Public Service Communications

jcscott@cpsc.com

Kurt Menke, GISP

Bird's Eye View

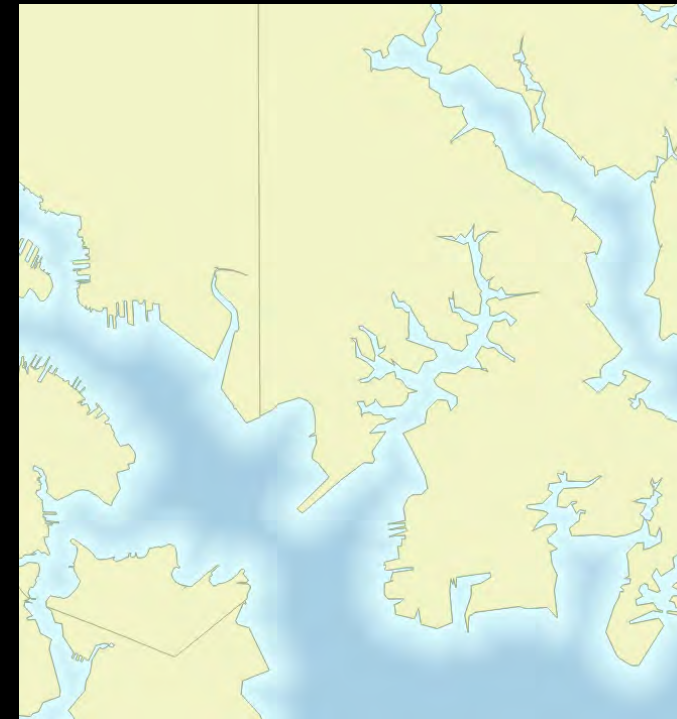
www.BirdsEyeViewGIS.com

kurt@birdseyeviewgis.com

~ Unique to QGIS ~

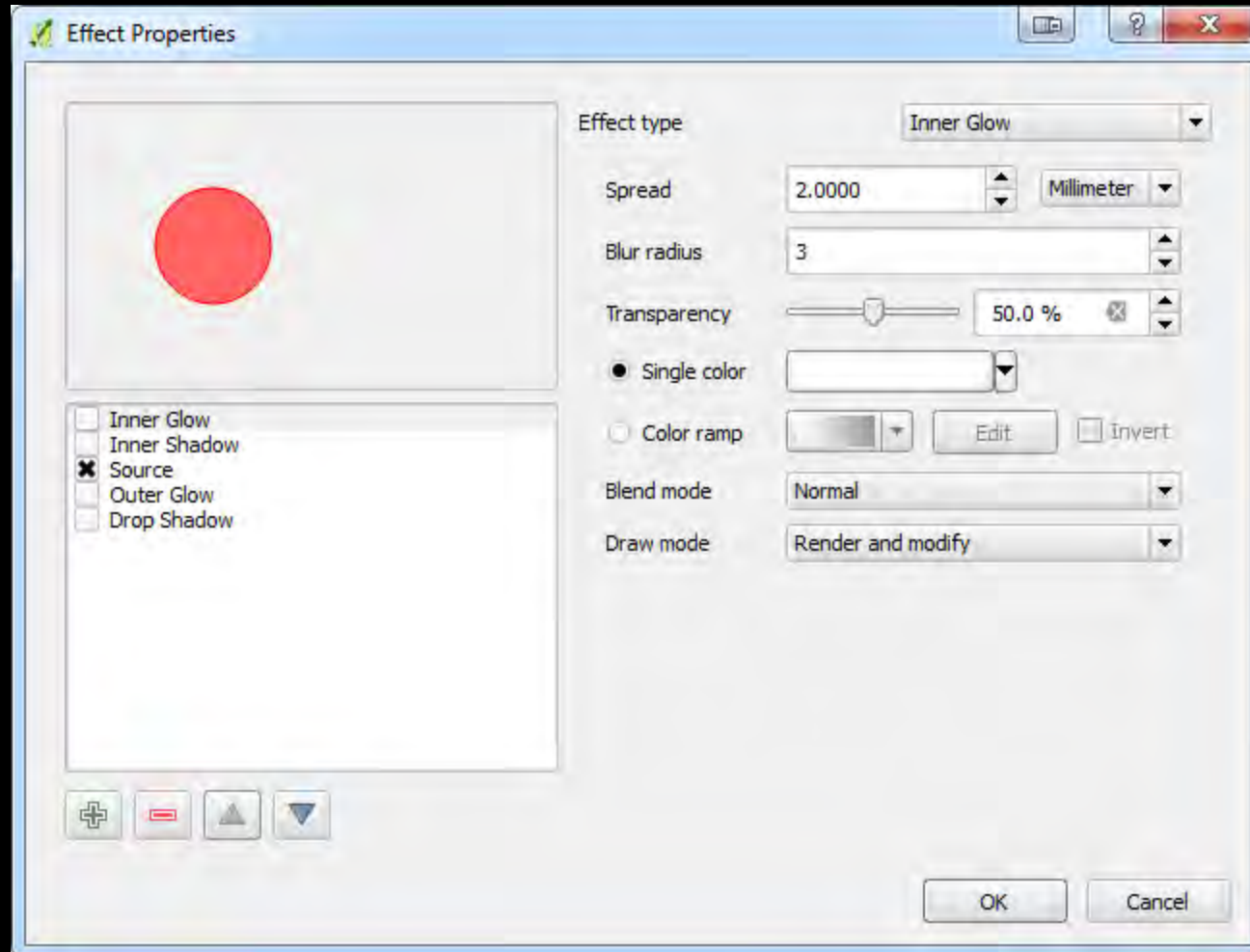


Inverted Polygon Shapeburst Fills



~ Unique to QGIS ~

Live Layer Effects



~ Unique to QGIS ~

Live Layer Effects

