

Applied Computing Assignment #2: Local history through fire insurance maps

It is due: in three steps.

1. Map divisions due Friday 1/25 (tomorrow!) by 5pm. Only one person in group must submit: but all students must join a group by Monday 1/28. Not graded.
2. Shapefiles **Over Blackboard**, Friday February 1 (next week) by 5:00pm. Points (as described in syllabus)
 - 1.
3. Reflections **over Blackboard**, Friday February 1 (next week) by 5:00pm. Points (as described in syllabus)
 - 1.

In this assignment we will explore using georectified maps in QGIS to create new vector mapping data. In our in-class lab and in your subsequent homework assignment, you will find the following articles by Jim Clifford, Josh MacFadyen, and Daniel Macfarlane useful if you get stuck on a particular step:

1. [Installing QGIS 2.0 and Adding Layers](#)
2. [Creating New Vector Layers in QGIS 2.0](#)

While these are all useful techniques for historians seeking to understand the contours of the past's landscapes, they are also used every day by geographers in consultation with businesses, government agencies, or municipalities. If, for instance, you want to install a new water pipeline in your town, you may not have digital data about where older public works were installed; a historical survey map might need to be georectified in order to help you plan.

The work you do for this assignment will pay dividends later in the semester as well; we'll be using the data you generate as a group for our web design project in a few weeks. So please take your time and turn in quality work.

To complete the assignment, you will:

1. Choose a plate from the [spreadsheet with fire insurance map plates](#), add your name to form a group up to the max size.
2. AS A GROUP: Create a geopackage polygon layer that clearly delineates the areas that each person in your group will be working with. Follow the rules in 'step by step instructions,' except that you need create only a single layer: email (the husky e-mail of the person who'll do it). Try to split it up into roughly equally-sized segments so that you each get between 20 and 40 buildings. If there are more buildings than people in your group, add some layers for students who aren't there--'unclaimed 1', 'unclaimed 2', etc. Put those as names on the spreadsheet.
 - Change the 'recommended max' column for your group to the number of segments that you've drawn. Have one of your group upload geopackage file to Blackboard; all you must join the appropriate group on blackboard.

3. AS AN INDIVIDUAL: Download the shapefile assignment from Blackboard. Create a new geopackage polygon layer to store your digitized buildings. Use the create polygon tool to trace the building outlines using your historical map as reference. See detailed instructions below.
4. When you are happy with your polygon, upload the geopackage to the assignment file on Blackboard. Do not include the full georectified image, which will be huge!
5. Write a reflection (about 500 words) on the specific section of the map that **you** digitized.

If you missed class on Thursday

You **must** join a group with an open slot on blackboard **AND** claim an associated region on google sheets. E-mail your adopted group on blackboard to confirm that the slot you've claimed is open, and download their shapefile to ensure that there's actually an open position.

Step-by-step instructions

1. Create a new layer in QGIS. Use the new GeoPackage format, which is a new versatile open exchange format for geodata that comes as a single file. You can find it in Layer > Create Layer or in the layer tool palette.
2. Specify the filename (this can be anything), projection (for our example, you **must** use WGS 84, the default geodesic datum in lat / long), and geometry type (you should use Polygon).
3. In this dialog, you can also specify attribute fields for your layer. For the fire insurance maps, we will add the fields owner (text), street (text), number (text), material (text), label (text), comment (text). All of these must be type Text (String).¹

Field spec:

- owner: The lot owner, written on the map. 'unknown' if unclear.
 - street: The name of the street. Use abbreviations followed by periods: Huntington Ave., Parker St., etc.
 - number: The street number of the building. This is **not** the lot number, which is generally bigger; the street number will be on the side of the building which faces the street. 'unknown' if blank.
 - material: The construction material, inferred from the filled-in color. Unless you have strong reason to use another, must be one of: 'wood' (usually yellow), 'brick' (usually red), 'stone' (usually grey), or 'metal' (rare, but blue). See a sample legend at the [Mass flickr page](#). Choose the dominant color and note others in 'comment.' for an example. You may need to find the index page for your particular atlas.
 - label: Additional text *on the map* describing the building. E.g., near Madison Square is a building owned by "City of Boston" whose label is "Sherwin School"
 - comment: Anything you feel the need to add. Eg, 'brick wall'.
4. Ensure that the layer is editable. For this you must switch to edit mode (the yellow pencil symbol in the palette, or Toggle Editing in the Layer menu. **Only when you turn off editing again will your edits will be saved.**

¹(why shouldn't street numbers be numbers? Think about where fictional Benedict Cumberbatches have lived. Sherlock Holmes lives at 221B Baker St; Dr. Strange lives at 177A Bleecker St. Maybe someone will have a street address with ½ in it.

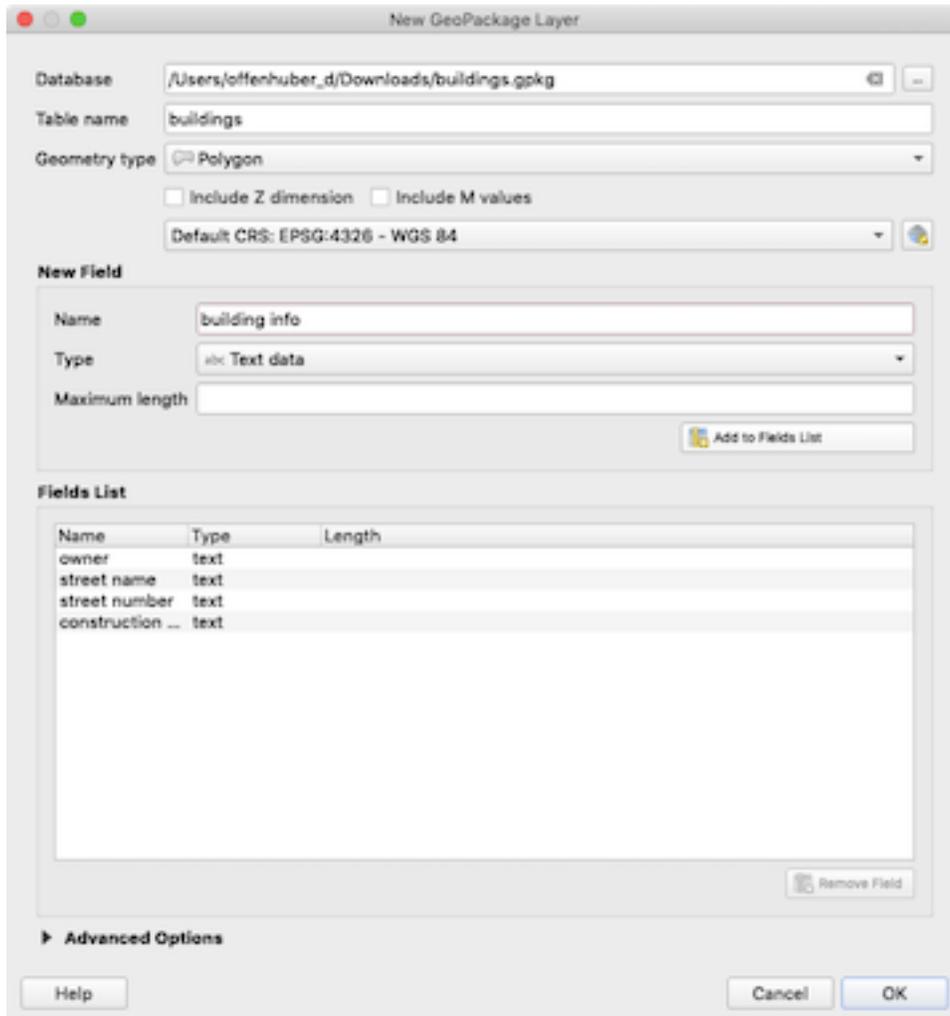


Figure 1: add fields

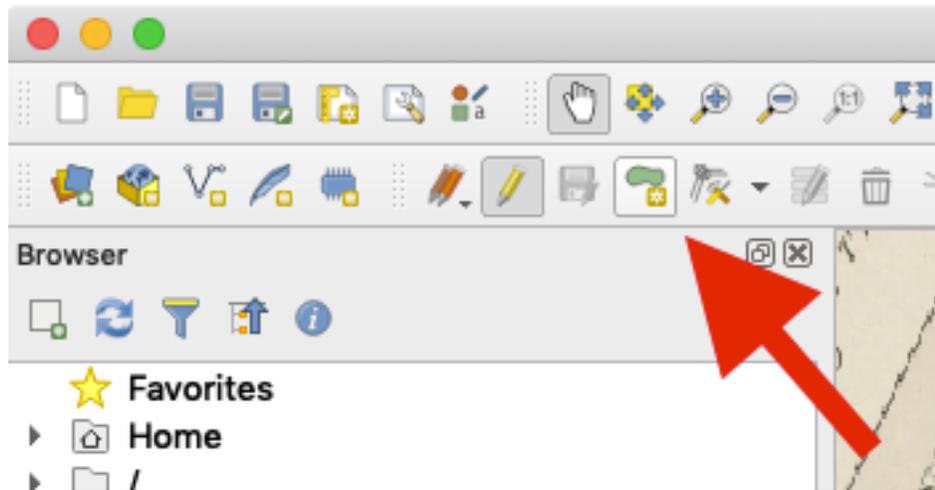


Figure 2: New Polygon

5. Make sure you are in EPSG:4326 coordinates in the lower right corner.
6. Seriously, make sure. And double check by looking at the coordinates that change as you move the mouse. If they don't read as latitude and longitude (starting with -71 point something, then 42 point something) you are about to waste the rest of your time.
7. Add a polygons to the layer. You can do this by pressing (Edit > Add Polygon Feature, or by just pressing the 'new polygon' button).
8. Start tracing the outline of your first building by adding the control points of your polygon . When you are finished, press the right mouse button. Now another dialog box with your attribute fields will appear, where you can enter attribute data for the building. You can edit your attributes also later via the attribute table, but only after switching edit mode on. **Comment field.** Please fill the comment field if there's something interesting, a question, etc.
9. Continue through all the buildings in your area. (If you have grossly too many—more than 50—buildings in your region, before you give up, create a new building polygon that covers every building in your area and set its comment to 'undigitized'; this serves as your announcement that you've done your best, and leaves us traces so we know what isn't being digitized.
10. Save your work—save layer edits, not just saving the QGIS package.
11. Finally, edit the attribute table to add some *general* attributes that will be the same for every building. Rather than type these in every time, it's easier to simply bulk-edit them at the end. One is `email` (text); another is `year` (int), which you can just pull from the spreadsheet; and finally, `url` should give the url for your map at the Boston Public Library, so it can be sourced to its origin. **email means your husky.neu.edu address**; it is **absolutely vital** to include this, because we'll be merging these files together before grading. I generally add these by the following procedure.
12. opening the attribute table for the layer (by right-clicking on it)

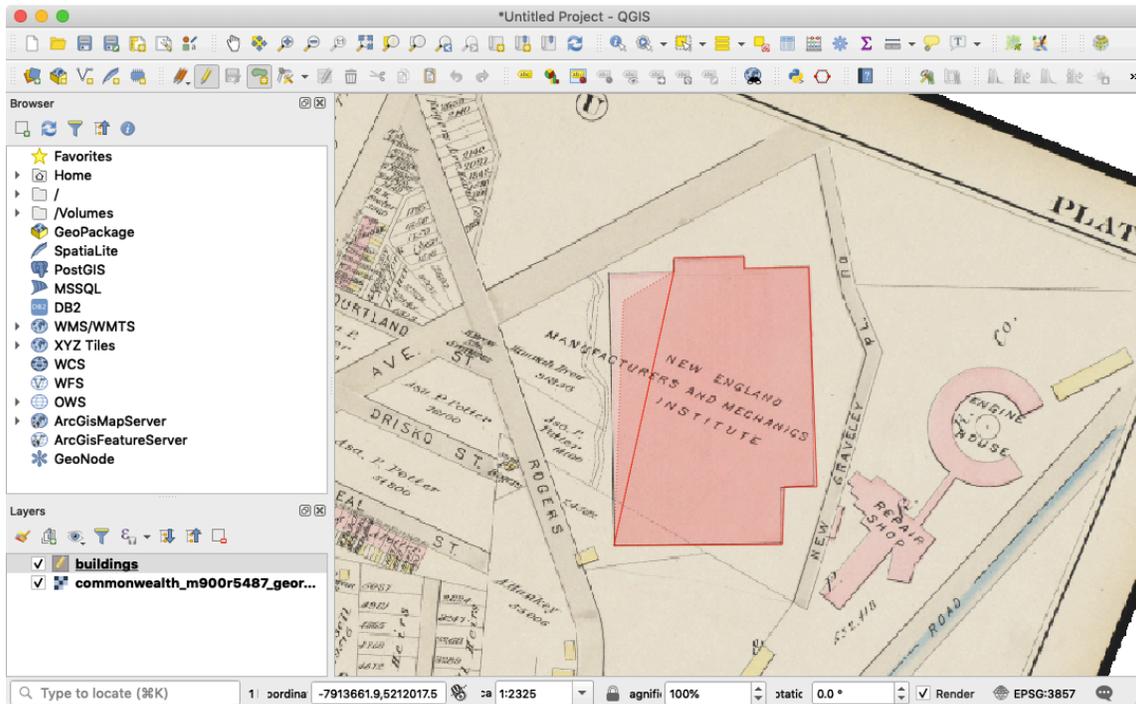


Figure 3: digitizing

13. Adding the new field by pressing the 'new field' icon on the screen.
14. Clicking "multi-edit mode" in the upper left panel
15. Editing the new field to read.
16. Save again
17. Make sure your attribute table has all the columns you need. 'email, year, url,
18. upload as a file to Blackboard.

Reflection portion.

In about 500 words, answer the first question below, and whatever elements of the final three you find the strongest ground to address.

1. What has changed about this area? What is the same? You can compare it to one of the vector layers: you can also compare to contemporary City of Boston shapefiles of [every lot with its owner](https://data.boston.gov/dataset/parcels-20181) (<https://data.boston.gov/dataset/parcels-20181>) and [every building](#). And you can also walk there and see if you see signs of the old map. Or you can start trying to search in something like Google Books or the proquest historical Boston Globe archive for traces.
2. Is the map 'objectively' true? Or are there signs of simplifications, or distortions around the data it claims to display?
3. Are there especially interesting features, whether odd buildings worth noting or cartographic decisions you don't understand? (Feel free to ask an open-ended question, if necessary).
4. Are there connections to make to various readings—Rawson's description of Boston suburbs types, etc.

Upload to Blackboard. It is probably easiest to simply paste the response in, but you may upload a PDF if necessary (say, you want to include an image snapshot to illustrate a question).

Grading Criteria

Shapefile component

1. Does the shapefile exactly match the specification above?
2. Are the buildings accurately traced?
3. Have comments been made on especially notable features?
4. Does it use fields consistently? (Not switching between 'Northampton St.' and 'Northampton Street').

Reflection component

1. Does it engage substantively with the historical fire insurance data for your section?
2. Does it engage substantively with some contemporary map about your section?
3. Does it engage productively with critical questions about the cartographic representation?

Late assignments

Assignments handed in late will lose a third of a letter grade for each 24-hour period by which they exceed the deadline.