Assignment 1: Introduction to QGIS

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1. Intro-fossgis-umass

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1.2. Module Licensing Information

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2. Assignment 1: Intro to QGIS

2.1. Intro to Quantum GIS Lab

Objectives

The purpose of this excercise is to get initial skills with QGIS. We will create a document containing a locus map and a site map for the Town of Hadley, MA. [http://www.hadleyma.org/]This excercise implies that you have covered the material in the section entitled QGIS Overview [http://linuxlab.sbs.umass.edu/introFossgisUmass/index.php?title=QGIS_overview].

Assignment

Let's suppose you are doing a development-related project for the Town of Hadley, MA. You are asked to create a .pdf document (created from an OpenOffice, MSWord or other file) containing a locus map and a map of the town with the following layers: land use, roads and orthophoto. Also, you are to address the following questions:

1. How many land parcels are in the land use layer for the Town of Hadley? (*Hint*: use the attribute table.)

2. How many polygons are in the *Towns* layer?

3. What are the approximate dimensions of the Town? (horizontal and vertical?). Be sure you specify units of measure.(*Hint*: use a measurement tool.)

4. As you can see, the majority towns in Massachussetts have linear boundaries. How would you exlain the "S-shaped" boundary on the left side of Hadley's polygon? (*Hint*: use the orthophoto.)

5. What are the neighboring towns (to Hadley)? Please write them down. (*Hint*: use the info tool and towns layer.)

Follow the guidelines below to complete this lab assignment.

Guidelines

1. Download data for this lab. [Click here to download [http://linuxlab.sbs.umass.edu/beginning-fossgis-umass/datasets/lab_intro/IntroLabHadley.zip]] Extract data into your working directory (see this section for details [http://linuxlab.sbs.umass.edu/intro-fossgis-umass/index.php?title=Assignment:_Intro_to_QGIS&printable=yes#Getting_data]).

2. Create a locus map (Figure 1)

Figure 1: a Locus Map
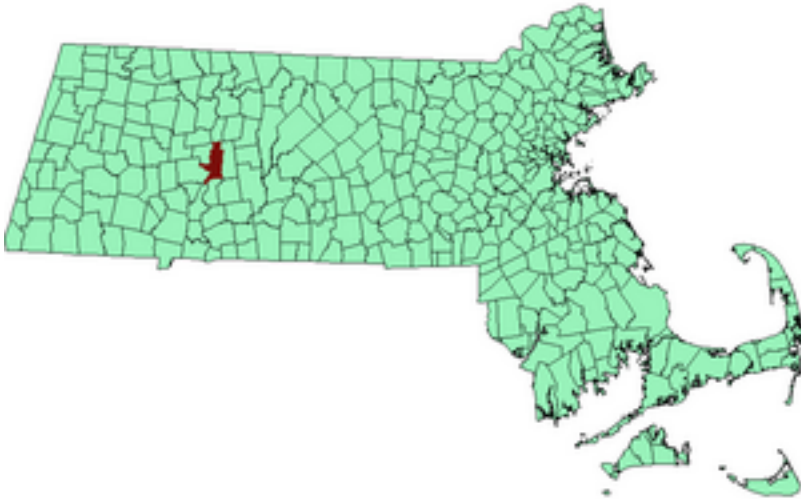
a. Add a towns layer to the project (*TOWNS_POLY.shp*).

b. Change color of this layer to light green.

c. Rename this layer as **Towns** in *TOC*.

d. Add a landuse layer to the project (*lus117.shp*).

e. Change the polygons color to the dark brown (or any color which differs from light green).

f. Rename this layer to **Landuse.**

g. Be sure that **landuse** layer is on the top of towns layer.

h. Zoom in/out to the full extent of towns layer.

i. Save this locus map as image. Save the image with name locusmap.jpg or locusmap.png.
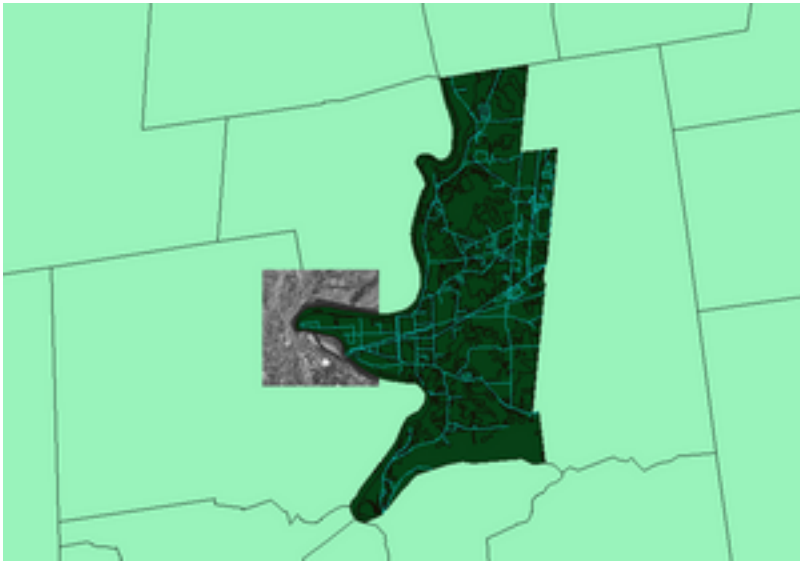
3. Create a project site map.

Figure 2:Hadley Map

a. Zoom in so that you can see the landuse layer and surrounding towns.

b. Add an orthophoto to the project *(2_109898.tif)*. Arrange it between towns layer and landuse layer (Fig.3).
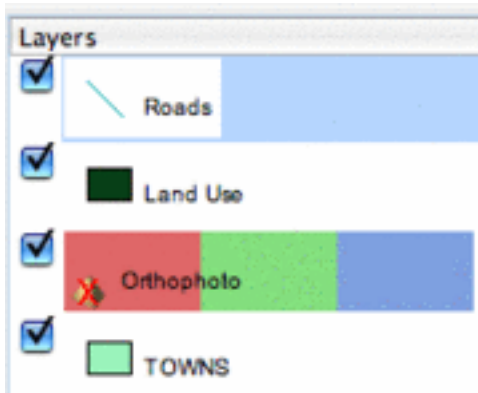
c. Rename added layer as "**Orthophoto.**"

Figure 3:Setting layer names in *TOC*

d. Add a ro?d layer *(rd5k117.shp)*.

e. Rename this layer as "**Roads.**"

f. Change default road color to red.
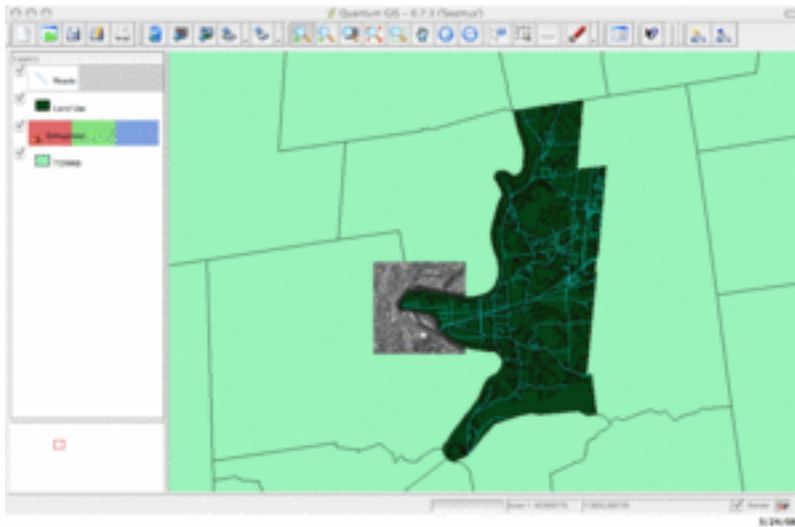
g. You will have something similar to Fig. 4.

Figure 4: Final result

h. Save this map as image. Save the image as sitemap.jpg or sitemap.png.

i. **Save the PROJECT** in your home directory. So you can use it later. This is a good habit to **SAVE** your work periodically!

4. Create a document with a locus map and a site map.

a. Open your word editor (OpenOffice, MSWord, etc).

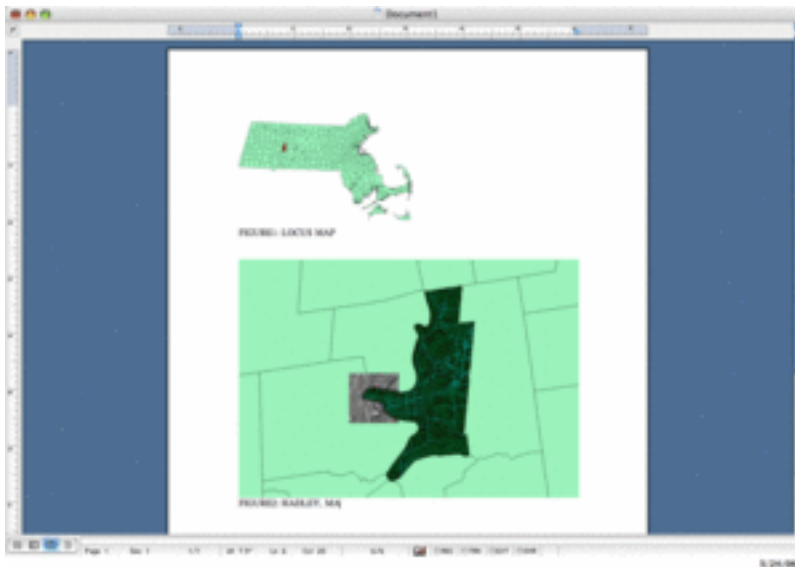b. Insert images into word document (Figure 5).

Figure 5: a document with inserted

images

c. Save this document in your home directory.

Finishing the work

1. Continue to work with the document.

2. Write down your name, class info and date.

3. Using **QGIS**, please answer the questions [from Assignment section].

    a. How many land parcels are in land use layer for the town of Hadley? (*Hint*: use attr. table)

    b. How many polygons are in *Towns* layer?

    c. What are aproximate dimensions of the Town? (horizontal and vertical?). Be sure you specify units of measure.(*Hint*: use a measure tool).

    d. As you can see, the majority towns in Massachussetts have linear boundaries. How could you exlain "S-shape" of the left side of town polygon (for Hadley)? (*Hint*: use orthophoto).

    e. What are neighboring towns of Hadley? Please write them down. (*Hint*: use info tool and towns layer).

4. Save this document.

5. Be sure that you fill in "properties"/"metadata" for this file.

6. Submit your work to TA or Instructor.

Getting data

- We will use the following datasets for this lab: a) vector towns boundary for MA, b) vector l?nduse data for town of Hadley, MA [http://www.hadleyma.org/], c) road layer and d) 2m resolution orthophoto.

- Please download the lab dataset to a temporary folder on your computer [Click here to download [http://linuxlab.sbs.umass.edu/beginning-fossgis-umass/datasets/lab_intro/IntroLabHadley.zip]].

- Unzip data to your working directory. You should see the following files appear:

    - **Orthophoto**

        - 2_109898.aux

        - 2_109898.tfw

        - 2_109898.tif

    - **Landuse**

        - lus117.dbf

        - lus117.prj

        - lus117.sbn

        - lus117.sbx

- lus117.shp

- lus117.shp.xml

- lus117.shx

- **Roads**

  - rd5k117.dbf

  - rd5k117.shp

  - rd5k117.shx

- **Towns**

  - TOWNS_POLY.dbf

  - TOWNS_POLY.prj

  - TOWNS_POLY.sbn

  - TOWNS_POLY.sbx

  - TOWNS_POLY.shp

  - TOWNS_POLY.shx

  - TOWNS_POLY_AREACODE.dbf

2.2. Assignment Deliverables

Please email a .pdf of the assignment to your instructor. The file can be created through Open Office, Microsoft Word, etc. If you do not have a .pdf creator, you can download a print to .pdf program, such as PDFCreator [http://sourceforge.net/projects/pdfcreator/].

2.3. External Links

- MassGIS: http://www.mass.gov/mgis/

- Municipal website of the Town of Hadley http://www.hadleyma.org/