2019-01-25 LSC Mapping Meeting Minutes

January 25, 2019 11:30 AM to 1:30 PM
New View Common House, 25 Half Moon Hill, Acton
Attendees: Jim Snyder-Grant, Joe Holmes, Jon Campbell, Bob Guba

The purpose on this meeting is bring Jon Campbell up to speed so he could replace Jim Snyder-Grant on the Acton Land Stewardship Committee mapping team.

Agenda for today:

- Introductions *Done*
- Consent to the agenda *Done*
- Show Jon what we are doing with maps, and see how he can fit in. *Joe explained about the following:*
    - Online maps *Done*
    - PDF/paper maps *Done*
    - Google drive data *Done*
    - Tool chain to make changes *Done*
    - Does Jon have different ideas and strengths?
    - Other?
- Get Jon access/accounts on:
    - The Google drive *Done*
    - Mapbox *Done*
    - Open street map *Done*
    - Git?
    - Other?
- Decide what to do next. *Done, see below, and the old meeting notes.*
- Decide when, who, and where we meet again. *Monday Feb 11, 11:30 25 Half Moon Hill*

Minutes of the meeting:

- Jim sent us a document by email describing how we make maps. Emailed on 1/25/2019, title "Acton Trails mapping - some background". *Since this was not sent to the LSC, this is not logged by the Acton IT Dept. So it is copied below.*
- Jim gave overview of Mapbox styling.
- Bob Guba pointed out various errors in our maps and website. The map errors were placed on our written backlog. The website errors were entered into the website guru's project database.
- Jon will work on lidar data, and generally looking at our maps and give impressions.

Looking forward to seeing you both at 25 Half Moon Hill today at 11:30.
I think I already sent directions: the key thing there is to park in the visitor spots or along the hill.
There were some very icy spots this morning: I hope they melt by 11:30. Be careful, in any case.
http://newview.org/directions.html

Here are some links that might be helpful for later.

Most of our data starts in Open Street Map: https://openstreetmap.org
Open Street Map is usable as-is for looking at maps. It can take various parameters for searching or zooming or going to a given lat and long. Here's an example that combines them all and zooms into Guggins Brook conservation land:
https://www.openstreetmap.org/search?query=Guggins%20Brook%20Conservation%20Land#map=16/42.4809/-71.4828

It's an open source mapping system, so anyone willing to create an account can add or change data. You will probably want to create an account.
There are a variety of editors available. Joe and I usually use the in-browser editor called iD:
https://wiki.openstreetmap.org/wiki/ID
You can bring in GPS data as a basis for editing.

The main way we format the data is via mapbox.com https://mapbox.com
This allows people who sign up to create maps that combine openstreetmap data and their own data, and format it very flexibly (changes at different zoom levels, for example. We can give you the sign-in information for that. (mapbox doesn't work well with multiple editors of the same data, so we use a single account).

You can see the basic formatted map we've created with mapbox by going to this URL:
https://api.mapbox.com/styles/v1/jimsg/civ17sdex00l02io48dp99x1m.html?fresh=true&title=true&access_token=pk.eyJ1Ijoiamltc2ciLCJhIjoiNDhhHdCZyJ9.ZV92MDJEE14leO3JMm89Yw#12.1/42.48802/-71.4257

To get this map to the public, we've created a website at http://actontrails.org/map
This site starts with creating a space for that map, and then adds code for additional UI options. Most of this is done with a combination of JavaScript, html, and CSS. We edit this code by keeping it under source control, and use git to manage the versions of the files.
git is described here: https://git-scm.com/ Our project is here:
https://github.com/jim-snyder-grant/Acton-Trail-Maps
You will want to create a github account to make changes to these files.
The code that directly deals with the maps is making calls into the mapbox client-side Javascript libraries. That API is described here:

https://docs.mapbox.com/mapbox-gl-js/api/

The open street map data, as imported into mapbox, is not enough for our purposes. We extract some data from openstreetmaps & manipulate it in various ways before uploading it to mapbox. There are some python programs for this. Have you used python before? For this project, we have been sticking to python 2. You will want to read up on setting up a python environment for your computer (I would include a link, but not sure if you are using Linux, Windows, Mac or something else).

We can go over what the python files do, but the basic summary is

● **osm2lsc.p**y brings the data down from mapbox, using an irritatingly difficult API called Overpass Turbo: https://overpass-turbo.eu/ is a place to try it out, and https://wiki.openstreetmap.org/wiki/Overpass_API/Overpass_QL describes the query language. The initial download is into open street map files, called .osm files. Then we convert into KML for easy display in Google maps or google earth or QGIS (open source GIS program). Finally we convert to .geoJSON format, because that's what mapbox consumes.
● **datasets.py** moves the data from local geoJSON files up to mapbox (or compares the local versions with the remote versions). Mapbox uses three imported concepts: **datasets** are location data for lines and areas, optionally with attributes. **tilesets** are datasets broken down into geographic tiles, optimized for calculations and displays. **Styles** are sets of rules for how to display the tiles.
● Every other .py file is for manipulating the data: splitting it up or combining it in various ways, and adding or subtracting attributes.

Our working documents are somewhat badly distributed over this sprawling set of Google Docs: https://drive.google.com/drive/folders/0BwFGittAPB9fN1RmNmJPU295M0U?usp=sharing you should now have access.

-Jim

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