Session 1: Thursday, September 14th 4:15-5:15pm

Location: Ambassador II

Session Title: Can Leaflet Meet Your Online Mapping Needs?

Organizer: Brian Herron, Jeremy Pyne

Primary Notetaker: Maia Woluchem

Attendees: Nate Ron-Ferguson, John Killeen, Randy Morris, Bernita Smith, Anthony Galvan, Andrew Bowen, John Cruz, Merissa Piazza, Jessie Partridge, Laure McKieran, Mike Schramm, Seema Iyer, John Killeen

Bernita - Atlanta, Neighborhood Nexus. We’re using Weave and ESRI products but looking at Leaflet because our clients want something more simple.

Anthony - We use Leaflet for project specific things and also are also developing for an indicators project. We’ve got a GIS department at the university.

Andrew - ArcGIS online isn’t great, so we’re looking things that are easier and more intuitive.

Merissa - Don’t know anything about Leaflet. I’m a SAS programmer. Students look to map but we don’t have a GIS license so I’m looking into this.

Jessie - We’re going through a transition period. Trying to find our toolbox for our web presence. We use a bunch of different things and I don’t know that we’ll choose one but we just made the move to get a Carto enterprise account. I’m here for inspiration.

Laura - Same as Jessie. We’re not wedded to any tool but just looking to see if it’s a good fit.

Mike - We use ESRI products, but I’m interested to learn about Leaflet as an alternative to GIS online because it’s not great. Here to learn.

Seema - Wee have projects where we get the data ready to post in multiple steps. I want to know if Leaflet can help me eliminate that step. If we want to engage people with crowd-sourced info, three versions isn’t helpful.

Brian - The goal is to introduce Leaflet, let you know what it takes to use it and how we use it.

Jeremy - Some history of how we got here - Brian started with us in January. And part of his work was taking the different mapping platforms and converting them all over into Leaflet. A big reason is because of new staffing it was hard to teach everyone everything. So to go through that, in 2006 we started our first interactive mapping platform Pushpin. PolicyMap uses it right now. It was owned by a third company so any data that we were using had to be sent to that company. It was duplication of data, which was a problem. And since it was third party, there were costs involved. We were starting to look to whether we could get it in-house. So we got Oracle. Now we have 73 million records that read into that. We switched over to Weave when that was first coming out. So we built our first in-house platform using Weave. But we were having problems with performance. We couldn’t do blocks for large areas. So we were using Pushpin and couldn’t make that version into Weave. So this year we had already been doing a lot of small projects with Leaflet but now we started using it more intentionally. When we first started looking at Leaflet, it didn’t have the things that we needed to make that conversion happen. In the past year, we started seeing a lot of improvements to it. That’s what this past 8-9 months have been. Taking the large projects and moving them over. And then also we had developers working on Weave. We’re not trying to do that again. So there are three sites we’ll look at - Community Profiles 2.0, also have a project for the Grand Valley Charter Schools office. We re-did that site as well. And then there was the Michigan Foreclosure Taskforce. So I think now we can go look at what we have. We can show what we’ve learned with Leaflet. There’s still lots that we don’t know but there’s things that Leaflet does that we didn’t realize until we dove in.

Brian - Leaflet is an open-source JavaScript library for interactive maps. So you will need to go with a developer. So you need the geo-data housed somewhere, whether there’s an API or what have you. There are key benefits:

* Load time for maps is quick
* Really flexible
* Support is great - code is up on Github. There’s good community.

Key drawbacks:

* Scaleability is hard. Small geographies are hard. It’s a lot for the thing to process. You can combat that by changing the zoom level. If you hit a certain threshold.

Merissa - Is the data stored on your website? Or it is in on the cloud?

Brian - The data is in a database. We have a Java webservice level.

Anthony - You can load the .json with the page, and if you load it all up front, you can just load it on the page and it’s really fast. But the other thing you can do if you have a cost issue and as long as the data you’re working with can be open, then if you use something like Carto.com. You can hit that with an API, you can just sit it there. You can do that even with your free Carto account. And then you don’t even have to use their platform.

Brian - So the skillset needed - this isn’t an easy one. You need a developer or you need to know Javascript yourself.

John - Is it easy to feed those shapes into leaflet?

Bernita - How hard was it to move from Weave to Leaflet?

Brian - When they hired me I didn’t know Weave or Leaflet. It took 2 months of actual man-hours to go into it. I didn’t think it was that hard to learn Leaflet but it was hard to learn Weave. But if you have a developer, they can learn.

Jessie - How many -- we have hundreds of maps and we wouldn’t want to cover all of them but what kind of scale are we talking? We have users who make their own Weave maps through our data. We wouldn’t transfer all of that. We have 101 cities and towns and we have community profiles for each of those.

Bernita - We have 5,000 indicators.

Jeremy - We have like 6-7,000 indicators that we track. We might have used Weave a little differently - we were trying to recreate an old site.

Brian - So one of the benefits is flexibility. You can sample their open-source for free. OpenStreetMap is the most popular one. They mention on their Github page which ones require an account (leaflet-extras.github.io/)

Here we use a CartoDB.PositronNoLabels template - we put our indicators and streets and labels on top of it for Community Profiles 2.0. (weave.cridata.org/communityprofiles)

<< Demo >>

* We have done multiple indicators. We use graduated symbols where you can select any of our indicators where you can do shading on top.
* We’ve also built the neighborhood score tools where it’ll build an index for neighborhoods. Every neighborhood gets a score. (How does that tool account for margins of error?) It doesn’t.
* You can adjust your indicators to create an index with greater sensitivity.
* All the indicators you use will be considered in the pop-up.
* We can share the code for all of this - our Github repositories are private but we can certainly pass it on.
* We can also create a standard geography through “Leaflet Draw”. We set the types of radii that it will allow in our code.
* The streets are on top of the shading, so we can sandwich the shading layer between the streets layer and the base.
* It’s very fast for us to update now because as soon as the data updates to our database, the maps will all update automatically.

John K. - The Census API is really easy and very slick. At the state level is it pretty quick. It handles it really smooth and fast but it wasn’t running off the web, but in RStudio.

Jessie – Do you do much customization of indicators?

John K. - Not too much. You could do it! Take, for example, rent-burdened households. You couldn’t do the same work from the API. A quick note - what isn’t there is a really nice formatted leaflet map with some basic legend and documentation there.

Brian - “Leaflet Image” is a plug-in which you can use to do that as a .png. You can build custom controls where you can bring the legend into the map. For the PDFs we can do the same with the image.

Bernita - When you use the Census API, does it read right into your maps?

John - Yes. If you’re around in the morning tomorrow I can show you.

Brian - the next site is our school site ([www.mi-school.net/charterschoolsoffice/](http://www.mi-school.net/charterschoolsoffice/))

* This site uses clusters, and it will now break the clusters out into the schools themselves
* This has a cool function now. If you have two schools that are on the same spot, this will now split them out into two. It’s also improved the speed of the site quite a bit due to this clustering.

Jessie - I want to comment on your point (Seema) with duplicated data. We use Carto and maybe PostGres to help deduplicate. Our database manager doesn’t want only one copy of the data because she wants a sandbox that she has the opportunity to break. So she can update the data on our internal database and then push it to an external PostGres database.

Jeremy - We have test versions of all of these things.

Brian - One last thing is to filter the points.

Brian - The last is the foreclosure site (cridata.org/michiganforeclosuretaskforce/)

* The “fulscreen” plug-in is a great tool as well. We’ve had this data for 8 years. We decided we wanted to animate that.
* Originally it was very jerky, but now it’s more fluid.

Seema - How do we create a project where we can hire somebody like you guys? I heard that developers don’t want to work alone. We have 3.5 FTEs.

Jessie - We had a developer and a half. We try to hire a third but it’s hard because we can’t pay what developers want.

Seema - We tried to do the freelance job. They never finished the job so it was disastrous.

Merissa - We started reaching out to the Computer Science department. They do our website, if you’re at a university. It’s helpful. We have English majors too because we write reports.

Michael - One of the things we’ve found - we get cheap students but because we have Eamon. It’s really easy for him to utilize the students where I don’t speak the same language.

Andrew - You don’t have to start from square one. I work with a developer who built the Quality of Life platform. He’d value it at $80k. The platform he developed is also open source though. Somebody can take the project we used and source it. John literally copied it 2 years ago, and will copy the new version. You don’t have to develop something from the ground up, but there are open source projects. Somebody can pull it and redeploy it.

Anthony - We started with ProvPlan site. We use students but I can interact with them because I know some Python, I know Stata, and I can say “if this were written in a language that I know then I would do this, that and the other”. But I sent them to the ProvPlan Dataspark site, and said just go look at their site. This is what we’re looking for. We didn’t take up forking anybody’s site but he knew what we were looking for. I think there are a lot of good examples that you can hand to somebody who knows Javascript. I like Leaflet.js. If you can point them in the right direction, they can get there. And then the other great thing is that the interaction - the buttons, the legends, it no longer has anything to do with Leaflet.

Follow up question:

- If NNIP sites use Leaflet, what plugins do your sites use and what do your packages use?