Smart maps for small cities: 
Tools for your housing assessment

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"DATA IS THE NEW OIL."

From the beginning of recorded time until 2011, we created 5 exabytes of data. In 2011, the same amount was created every two days. By 2011, it’s expected that the time will be reduced to 10 minutes. Every two hours, we create enough Internet traffic to fill 7 billion DVDs. Side by side, that’s the total amount of traffic the height of Everest.

There are many ways in which information is shared on social media, but the majority of it is now shared via blogs. In 2013, the number of blogs on the web was just over 4 million.

As of August 2012, there were just over 133 million blogs on the web.

There are 80% of all humans now connected to the Internet. Out of 3 billion people, 2 billion are smartphone users. In 2015, 50% of all Internet searches will be made on mobile devices.

10% of all photos that are taken are sent every second.

60% of all humans (1 billion people) are active Internet users. In 2015, 30% of Internet traffic will be video streaming.

50% of all a year’s sales in the U.S. are made via access to smartphones.

These algorithms are used to make rapid decisions to buy or sell commodities. The new oil is called a nanosecond (0.000000001 seconds) trading. A nanosecond is a billionth of a second, which is how long it takes for a message to travel across a smartphone.

Data is more valuable than oil. In 2015, it is expected that the value of data is $5 trillion.

With new fiber-optic cables, the round-trip time between New York and London will be 6 milliseconds. This 6 milliseconds results from data that was sent across the Atlantic Ocean. The new cables will be an area of the ocean that are under 10 different countries than the current fastest cables. By taking a different route, the new cables are shorter, allowing the time it takes for messages to travel astonishingly.

How did we get here? The death of the Atlantic Ocean varies. The first waves led to the discovery of new oil in the United States. For the next 100 years, the United States was the world’s leading oil producer. The first waves led to the discovery of new oil in the United States. It allowed for the first waves to be discovered and the United States to become the world's leading oil producer.
Examination and Verification

The Mayor’s Office of Data Analytics (MODA) recently submitted a report on its examination and verification of three City agencies’ compliance with the Open Data Law. We encourage you to make use of these results and the dataset nomination process to help us publish more valuable datasets on the Open Data Portal.

Click here to view the NYC OpenData dashboard
2015 Yellow Taxi Trip Data

This dataset includes trip records from all trips completed in yellow taxis from in NYC from January to June in 2015. Records include fields capturing pick-up and drop-off dates/times, pick-up and drop-off locations, trip distances, itemized fares, rate types, payment types, and driver-reported passenger counts. The data used in the attached datasets were collected and provided to the NYC Taxi and Limousine Commission (TLC) by technology providers authorized under the Taxicab Passenger Enhancement...

Map of NYC, Plotted Using Locations Of All Yellow Taxi Pickups From January 2015 to June 2015

By Max Woolf — minimaxir.com
Made using R and ggplot2
Data via NYC TLC Trip Record Data 2015
Packaged EA Programs for Government

Local governments serving populations of 250,000 or less may be eligible for specially priced, non-negotiable programs.

There are two pre-packaged programs for government:

- **Small Municipal and County Government EA Program**
  - County, city, village, parish, township, and borough governments are eligible.

- **Small Public Safety Agencies EA Program**
  - Fire, law enforcement, corrections, probation, and emergency management departments are eligible.

### Pricing

Packaged Small Municipal and County Government EA Programs have an annual fixed price based on the population your government serves.

- **Program Level One**: for populations up to 25,000
- **Program Level Two**: for populations between 25,001 and 50,000
- **Program Level Three**: for populations between 50,001 and 100,000

The following benefits are included in the Small Municipal and County Government EA Program by population tier levels:

<table>
<thead>
<tr>
<th>Program Level</th>
<th>Virtual Campus (Dollars Per Year)</th>
<th>Technical Support Callers</th>
<th>User Conference Passes (per Year)</th>
<th>ArcGIS Online Annual Level</th>
<th>Portal for ArcGIS Annual Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>$5,000</td>
<td>2</td>
<td>2</td>
<td>Level 2</td>
<td>Level 2</td>
</tr>
<tr>
<td>Two</td>
<td>$7,500</td>
<td>3</td>
<td>3</td>
<td>Level 3</td>
<td>Level 3</td>
</tr>
<tr>
<td>Three</td>
<td>$10,000</td>
<td>4</td>
<td>4</td>
<td>Level 4</td>
<td>Level 4</td>
</tr>
<tr>
<td>Four</td>
<td>$10,000</td>
<td>4</td>
<td>4</td>
<td>Level 5</td>
<td>Level 5</td>
</tr>
<tr>
<td>Five</td>
<td>$10,000</td>
<td>4</td>
<td>4</td>
<td>Level 6</td>
<td>Level 6</td>
</tr>
<tr>
<td>Six</td>
<td>$10,000</td>
<td>5</td>
<td>5</td>
<td>Level 6</td>
<td>Level 6</td>
</tr>
</tbody>
</table>
Housing Assessment: Open Source Tools

Select Variables

Select housing issue:
- Minor: roof sway

Show vacant properties?
- Yes
- No

Base map
- Road map (CartoDB)

Housing Conditions in Millen, GA

<table>
<thead>
<tr>
<th># of property issues</th>
<th>Specific issues</th>
<th>Overall condition</th>
<th>Census Variables</th>
<th>Gridded heat maps</th>
</tr>
</thead>
</table>

Click on a point on the map to see the property information below.

Parcel ID: M13 094
Address (corrected): None
Property type: Mobile home (multiple parcels)
General Condition: Dilapidated

Photos
- Picture 1
- Picture 2
- Picture 3

Identified structural problems
- Minor-missing steps
- Minor-porch damage
- Major-missing tiles/shingles
- Major-foundation damage
- Major-broken windows/doors
- Major-damaged/missing siding
- Major-dry rot
- Major-steps/porch falling in
- Major-damaged skirting

Total minor problems: 2
Total major problems: 7
Total of all problems: 9

Other issues:
- Junk present in yard
Data collection

Data analysis
Process

• **Preparation**
  o People
  o Parcel data
  o Plan

• **Data Collection**
  o Electronic vs. paper forms
  o Tracking your progress

• **Analysis**
  o Web mapping application
People

Who needs to be at the table?

Overcoming community fears/suspicion

Balancing short term “bursts” with long term commitment
Preparation

Collecting parcel data
• Get a “shapefile” if possible
• Start with county tax assessor
• Parcel number, address
• Other information?
Plan

Develop geographic focus and time frame
Purchasing technology
Training staff/volunteers
Adding questions for the survey
Why an electronic survey?

• Reduces error
• Saves time
• Add pictures
• Makes mapping data easier
Home

Open Data Kit (ODK) is a free and open-source set of tools which help organizations author, field, and manage mobile data collection solutions. ODK provides an out-of-the-box solution for users to:

1. Build a data collection form or survey (XLSForm is recommended for larger forms);
2. Collect the data on a mobile device and send it to a server; and
3. Aggregate the collected data on a server and extract it in useful formats.

In addition to socio-economic and health surveys with GPS locations and images, ODK is being used to create decision support for clinicians and for building multimedia-rich nature mapping tools. See the list available tools, featured deployments, and implementation companies for more examples of what the ODK community is doing.

We welcome and encourage participation from the user community. ODK is supported by a growing community of developers, implementers and users as well as various companies. Core ODK development is supported by ongoing research at the University of Washington's Department of Computer Science & Engineering and through donations from users.

Below are two short videos explaining a bit about the project.
Features of ODK
- Works offline
- Preload parcel IDs
- Attach photos/video
- Captures GPS locations
- Best for Android devices

Sample form: https://enketo.ona.io/x/#YKh8
You are at the start of Millen Housing Survey (v6). Swipe the screen as shown below to go backward and forward.

backward to previous prompt

forward to next prompt
Search for a Parcel ID:
Search for a Parcel ID:

M21
M21 035
M21 038
M21 039
M21 041
M21 041A
M21 042
M21 043
M21 044
M21 045
M21 046
M21 048
M21 049
M21 050
M21 052
M21 054
M21 055
This property has a listed address of 835 HERNDON STREET. Is this correct? (If address is "NA", choose "No" and enter address manually.)

- Yes
- No
Optional: Attach a picture of the property (1 of 4).

Take Picture

Choose Image
ODK Collect 1.4.10 (1061)
Data collection made easier...

Fill Blank Form

Edit Saved Form

Send Finalized Form

Get Blank Form

Delete Saved Form
Tracking progress
Visualizing results

Shiny by RStudio

Here is a Shiny app

Leaflet is the leading open-source JavaScript library for mobile-friendly interactive maps. Weighing just about 33 KB of JS, it has all the mapping features most developers ever need.

Leaflet is designed with simplicity, performance and usability in mind. It works efficiently across all major desktop and mobile platforms, can be extended with lots of plugins, has a beautiful, easy to use and well-documented API and a simple, readable source code that is a joy to contribute to.
https://comapuga.shinyapps.io/millen_flexdash_v5/
What information do you want on the map?

Landlords
Census data
Crime
......?
Thank you!

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