Using Crowdsourced Data and Open Source Tools in Government

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Office of Civic Innovation and Technology
Louisville, Kentucky, USA

NOCe - Adventures in Crowdsourcing
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Office of Civic Innovation and Technology

Mayor Greg Fischer
Created Innovation office in 2010

Sioban King
Innovation and Improvement Coordinator

Grace Simrall
Chief of Civic Innovation and Technology

Chris Seidt
IT Director

Michael Schnuerle
Data Officer

Ed Blayney
Civic Technology Manager

Ricky Santiago
Innovation Project Manager

TBD
Senior Data Analyst

web: OPI.LSVLL.io/innovation
Chief Data Officer Responsibilities

- Data management & analysis projects
- Manages city open data program
- Data Governance internal team:
  - 60+ cross-department data employees
  - Create and update data policies
  - Training, tools, collaboration, workshops on data lifecycle
  - Manage open data for their departments
  - Data Inventory, standards
  - Annual and integrated data privacy, ethics, bias, security training
- Collaborations on university, private company, non-profit, and government projects. Public hackathons.
City-wide Traffic Sensors: Crowdsourced
Waze App - iOS and Android

REPORT REAL-TIME TRAFFIC & ROAD CONDITIONS TO IMPROVE DRIVING FOR ALL

GET ALERTS BEFORE YOU APPROACH ACCIDENTS, HAZARDS, POLICE & MORE

SEND YOUR ETA TO UPDATE THOSE YOU’RE MEETING

50,000 active daily users in Louisville
The Waze Connected Citizens Program (CCP) is a free, two-way data exchange empowering municipal decisions to achieve concrete community impact. Launched in October 2014 with 10 city partners, the program has expanded to more than 63 partners including city, state and country government agencies, nonprofits and first responders.

**WAZE** provides real-time, anonymous, proprietary incident and slow-down information directly from the source: drivers themselves.

**PARTNERS** provide real-time and advance information on government-reported construction, crash and road closure data.

Waze.com/ccp
Waze sends us traffic jams, alerts, and user reports. You can see all of that combined on **Waze's Live Map**: www.waze.com/en-GB/livemap
What does it give us?

- Near real-time data feed for:
  - Jams/Congestion (**passively** collected for users)
  - Alerts (**actively** submitted by users)
  - Potholes
  - Roadkill
  - Cars stopped on road
  - Irregularities - speeds on slower roads

- Missing Signs
- Weather
- Accidents
Thunder Over Louisville

Fireworks show to kick off two weeks of Kentucky Derby festivities

of people leaving downtown after event

Post Event Analysis
Change in Jams after re-timing
Waze use is higher on faster roads vs 311 use on slower roads.

Pothole Reports - 311 vs Waze
911 Reports

Genesis PULSE MASSDOT

Real-time notifications of crashes and road closures

Ability to find crash scenes easier and faster

Best navigation to incidents using Waze SDK

Reducing response times
Traffic Use Cases

- Over a time period to do a traffic study on a corridor, instead of a paid study.
- Monitor changes to a corridor based on tweaks
- Hot spot analysis for how to focus their resources
- Detect faulty non-connected equipment (e.g. induction loops)
- Post event analysis to check effectiveness of road closures and routing to optimize future events.
Other Use Cases

● Real-time alerts and routing for emergency vehicles
● Real-time collision user reports
● Vision Zero analysis
● Citizen facing notifications in custom areas
WAZE WARP
Open Source
Using the CCP data is complicated.

Jurisdictions have spent hundreds of thousands of dollars on the infrastructure, databases, and reporting tools based off just the Waze data.
Waze WARP

Waze Analytics Relational-database Platform takes the Waze CCP data feed and processes it into a cloud database system for historic and real-time querying, analysis, API hooks, mapping.

Over 80 Govs on board and 15+ are using it for less than $200/m in cloud costs.

Paid by sponsors
Free On Demand Traffic Studies

Blog Post and Downloads: medium.com/louisville-metro-opi2/
Free On Demand Traffic Studies

Using WARP and Power BI, we can replicate $50,000 traffic studies, for free on and on-demand.

Power BI Tool Online: bit.ly/WazePowerBI
Predicting Congestion

pennmusa.github.io/MUSA_801.io/
Built on Waze WARP Platform

Since the Power BI tool connects to an uses the Waze WARP schema, you can use this free tool too for your area when you deploy WARP.

Instructions on the project page:

github.com/LouisvilleMetro/WazeCCPProcessor

Deployed in Anchorage in 30 mins on a plane!
Open Source Crowdsourcing
Open Government Coalition (OGC)

OGC is a network of government agencies working on open source cloud projects together.
Open Source Tools

We work collaboratively with residents, researchers, other cities and companies on Github. See the tools and projects we publish there, jump in and help out if you can.

- Louisville Metro - github.com/LouisvilleMetro
- Office of Civic Innovation - github.com/LouisvilleMetro-innovation
- DKAN Open Data Platform - github.com/GetDKAN/dkan
- Open Government Coalition - github.com/GovInTheOpen (Waze)
- Open Mobility Foundation - OpenMobilityFoundation.org (MDS)
Open Data Website - Metro

data.LouisvilleKY.gov

Open Source (free) DKAN software. Run by the city with departments in charge of their data.
OpenStreetMap

Crowdsourced Mapping Data

415,000 buildings. 398,000 addresses.
How Do We Do This?
Data Driven Culture in Louisville

Use data to drive decisions and see opportunities for improvement.

Mayor Greg Fischer at Code for America Summit
Importance of Innovation

Most gov employees focused on the daily work. Mayor’s culture encourages breakthrough and innovation work.

Civic Innovation department is run like a start-up: Connect the dots, partner, prove value, find future funding.

Values:
Data-driven compassion/
digital inclusion

Focus Areas:
1. Smart City/Smart Home
2. Tech Enabled Public Health
3. Social Innovation
4. Maker/Hacker Community
Innovation Grant Funds - Grand Total: $13,589,568


In-Kind Awards: $1,885,000

Equals 27 years of our entire operating expenses.
Data Governance Team

50+ people who manage data from every department.
What is the Data Governance Team?

Expand department’s existing data capacity.

Together build skills and efficiency, learn new tools, share data, network, and get rewarded.
What does Data Governance do?

- Training & Events
- Working Groups
- Data Inventory
- Business Intelligence
- Open Data
- Data Quality
- Data Standards
- Badges
- Write Policy

Data Gov Website
1. Data Inventory
2. Data Standards:
   a. Sex/Gender
   b. Street Addresses
   c. Date/Time
3. Data Warehouse + ETL
4. Open Data Policy
5. Data Automation
6. Data Quality
Contact Info:

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