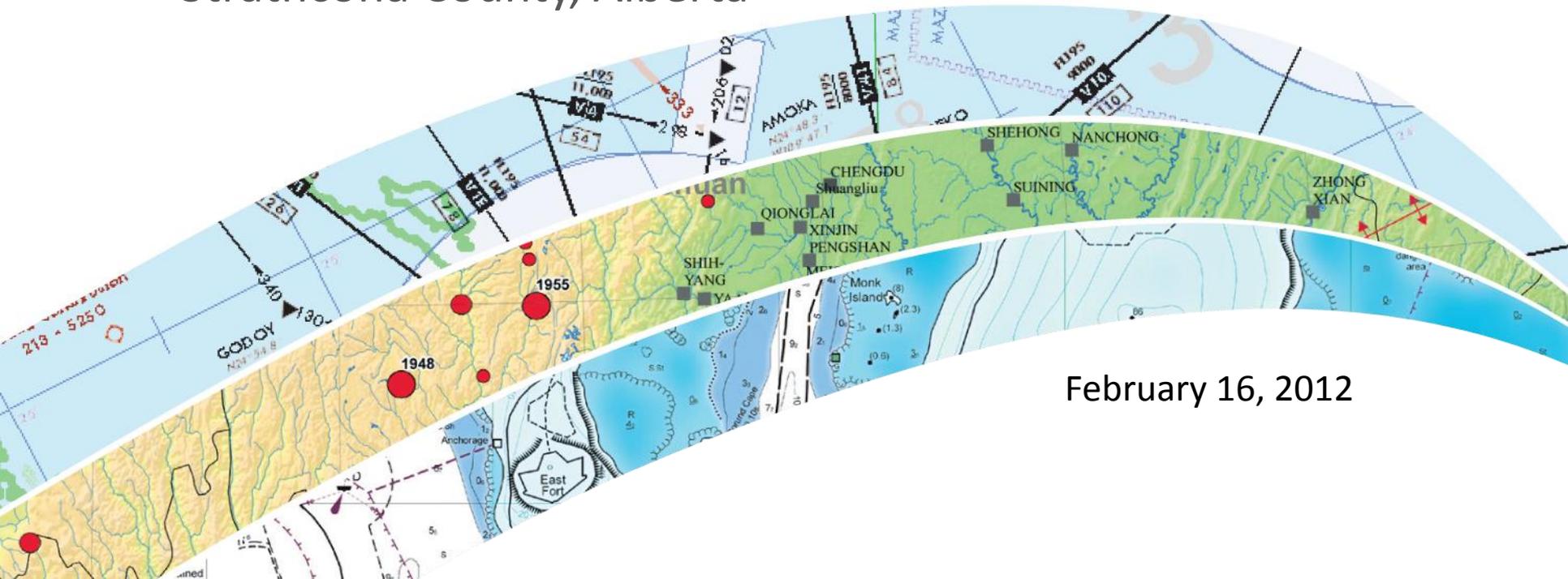


# Improve Operations with Volunteer Geographic Information (VGI)

Authors:

- **Karen Stewart**, Industry Manager, Public Works, Business Development, Esri Canada
- **Daren Sears**, Manager, GIS - Information Technology Services, Strathcona County, Alberta



February 16, 2012

# SOCIAL MEDIA

THE SECOND MOST COMMONLY USED SLIDE FOR EVERY SOCIAL MEDIA PRESENTATION YOU'VE EVER BEEN TO...



# IT'S NOT JUST ABOUT THE APPS ...

IT'S ABOUT WHAT THEY ENABLE...

INSTANTANEOUS SHARING OF INFORMATION,  
PERCEPTIONS... AND OPINIONS...

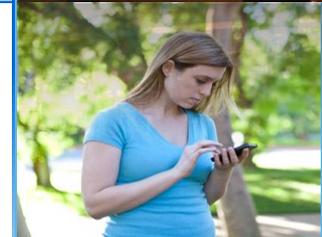
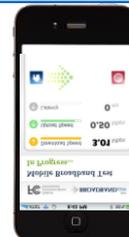
**Citizen  
Participation**



**Citizens  
Response**



**Citizen as a Sensor**



# FAILING INFRASTRUCTURE, IMPROVED LEVEL OF SERVICE, EMERGENCY OPERATIONS

PUBLIC ARE MORE AWARE ... WITNESSES... PARTICIPANTS...

## PEOPLE NO LONGER SIT BACK AND WAIT ... THEY PARTICIPATE ...

EMERGENCY? CALL 911 | Report a Crime | FAQs | Contact the VPD | Enter Search Term | SEARCH

THE VANCOUVER POLICE DEPARTMENT | *Beyond the Call*

VPD HOME  
ABOUT THE VPD  
COMMUNITY POLICING  
CRIME PREVENTION & SAFETY  
SERVICES, UNITS & SECTIONS  
JOIN THE VPD

### Hockey Riot 2011

Media Information / Submitting Tips

Chief Constable's Video Message

CITY OF SURREY  
the future lives here.

Careers | Media Room | Maps & COSMOS

search

CITY SERVICES | FOR BUSINESS | CULTURE & RECREATION | BYLAWS, POLICIES, LICENSES | CITY GOVERNMENT | PLANS & STRATEGIES

Home > City Services > Online Services > Report a Problem or Submit a Request

### Report a Problem or Submit a Request

#### Submit a Service Request

Traffic Signal Malfunctions	604-591-4338
Missing Stop Signs	604-591-4152
Potholes	604-591-4152
Sewer/Water/Drainage Problems	604-591-4152

After normal business hours, weekends, and statutory holidays, please phone (604) 591-4431.

#### Phone the City

For all items listed below please immediately contact the City at the phone numbers provided during normal business hours Monday to Friday 8:30 am to 4:30 pm

SELECT A PROBLEM

#### City Services Menu

- BUILDING & CONSTRUCTION
- CAREERS
- CEMETERY SERVICES
- DRAINAGE & ENVIRONMENT
- DRINKING WATER
- FIRE, POLICE AND EMERGENCY SERVICES
- ENGINEERING CUSTOMER SERVICES
- FILMING & FILM LOCATIONS
- GIFTS & DONATIONS - COMMUNITY WISHING WELL
- GRANTS & RESOURCES
- LAND DEVELOPMENT PROCESS
- MAKING THE CITY BEAUTIFUL
- ONLINE SERVICES
- ARTS CENTRE THEATRE TICKETS
- BUSINESS DIRECTORY SEARCH

FIX MY STREET CANADA

Submit a Report | View Reports | About | Contact Us

### REPORT/VIEW/DISCUSS

GRAFFITI. POTHoles. EXCESSIVE GARBAGE. STREET LIGHTING.

Supported Cities:

- Ottawa, ON
- Montreal - Outremont, QC
- Montreal - Plateau-Mont-Royal, QC
- Montreal - Ville-Marie, QC
- Fredericton, NB
- Summerside, PE
- Charlottetown, PE
- Stratford, PE
- Catmwa, PE
- Hamilton, ON
- Add Your City

Enter a nearby postal code, or street name and city:

Search

# GIS AND SOCIAL MEDIA ARE BEING INTEGRATED

Creating New Sources of Geospatial Information



... Creating New Opportunities and Challenges

# WHAT IS SOCIAL MEDIA?

“Social Media tools introduce substantial and pervasive changes to communication between organizations, communities, and individuals”

Kietzmann, Jan H.; Kris Hermkens, Ian P. McCarthy, & Bruno S. Silvestre (2011). ["Social media? Get serious! Understanding the functional building blocks of social media"](#).

# Social Media Facts & Figures

Is it mostly buzz or is it the real thing? You be the judge

- **46 percent** of people globally access a social network every day
- More than **one million** companies have **LinkedIn Company Pages**. There were nearly **2 billion people** searches on **LinkedIn during 2010**
- The average profile age on LinkedIn is **40 years**, Twitter **35 years**. Facebook's biggest age group of followers is now in the **35-54 range**

# More Facts & Figures

## Some Interesting Facts

- **53% of employers research** potential job candidates on social networks
- Every minute, **66,667 tweets** are made on Twitter. - **95 million tweets** are written each day
- Every minute, **24 hours of video** is uploaded to YouTube. There are more than **2 billion video views** on YouTube every 24 hours
- **If Facebook were a country** it would be the world's **third largest**, after China and India

Mike Rabinovici, LL.B.

VP, Web & Social Media Marketing

# So Many things to Consider

## Legal /Regulatory Issues

- New Canadian anti-spam legislation
- Privacy
- Social Media use by employees
- Public Company issues
- Advertising
- Copyrights

# SOCIAL MEDIA EVOLVING TO SUPPORT GOVERNMENT OPERATIONS

- WHAT DOES IT DO?

# PROVIDES: INSIGHT

The image displays a screenshot of an interactive map application. The map shows the Gulf of Mexico coastline, including parts of Louisiana, Alabama, and Florida. A search bar at the top left contains the text "Locate". To its right are social media icons for Facebook and Twitter. Further right are three map style buttons: "Streetmap" (highlighted in green), "Satellite Imagery", and "Topographic Map".

On the left side, there are two vertical panels. The top panel, titled "Explore", contains a list of features with checkboxes: News, Threatened Sites, Nautical Chart, Sensitive Habitat, and Precipitation. The bottom panel, titled "Shared Content", has radio buttons for "Show All" (selected) and "Show Last 24hrs". It lists content types: Ushahidi, YouTube Videos, Flickr, and Shared Content (checked). Below this is an "Add" button, a "Search" button, and a prompt "Select a feature type and place it." with icons for Link, Photo, Video, and Note.

The map itself is populated with numerous blue icons representing shared content, primarily clustered along the Gulf of Mexico coast. A prominent red circular marker is visible in the Gulf of Mexico. The text "Deep Water Horizon" is overlaid at the bottom of the map. The Esri logo is in the bottom right corner.

# DOCUMENTATION – MESSAGES/VIDEOS/PHOTOS

**Gulf of Mexico Oil Spill**

On April 20, 2010, Transocean Ltd. reported an explosion and subsequent fire on board the semi-submersible drilling rig Deepwater Horizon leased and operated by BP. The incident has resulted in a massive oil spill and has been declared an Incident of National Significance by President Obama.

This application allows you to add points with links to websites, and YouTube videos. Please feel free to add information to the map and increase everyone's awareness related to this tragic event.

**Explore**

- News
- Ushahidi
- YouTube Videos
- Tweets
- Threatened Sites
- Nautical Chart
- Environmental Sensitivity
- Sensitive Habitat
- Estimated Spill Areas
- Shared Content

**Map Labels:** Mississippi, Alabama, Georgia, Florida, Louisiana, Texas, New Orleans, Mobile, Montgomery, Columbus, Tallahassee, Jacksonville, Savannah, Charleston, Daytona Beach, Ocala, Palm Bay, West Palm Beach, Fort Lauderdale, Miami, Key West, Tampa, St. Petersburg, Clearwater, New Port Richey, Panama City, Dothan, Macon, Augusta, Birmingham, Huntsville, Tupelo, Greenville, Little Rock, Memphis, Jackson, Baton Rouge, New Orleans, Corpus Christi, Havana, Matanzas, Santa Clara, Pinar Del Rio, Cienfuegos.

**Red Sheen Santa Rosa Sound**

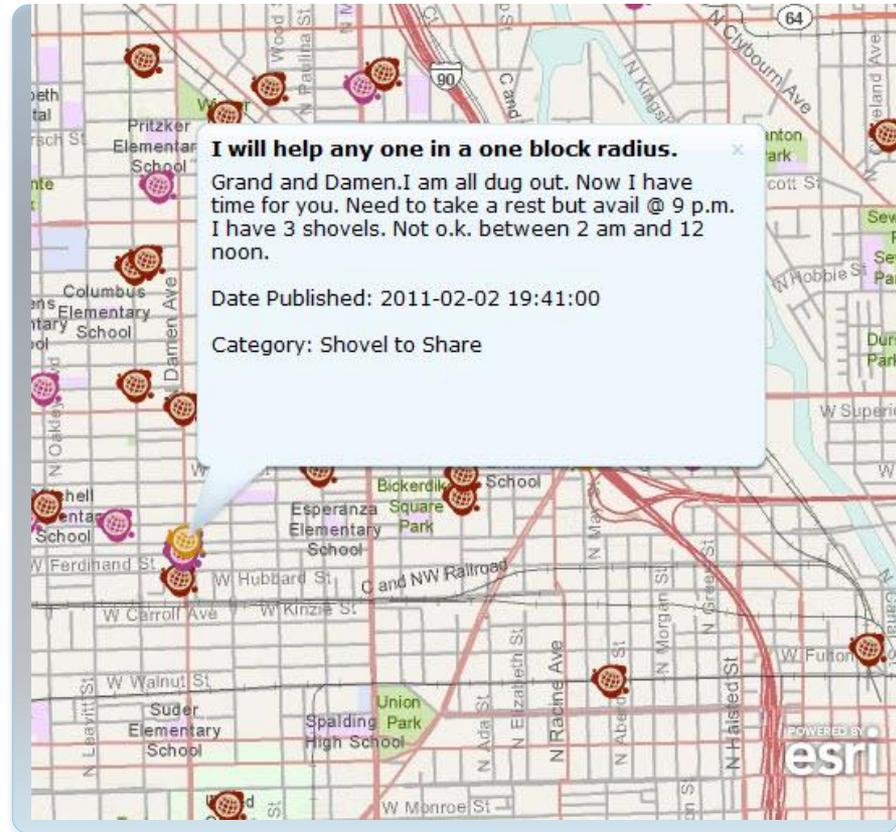
Red shiny surface in sunlight in Santa Rosa Sound near shore (more visible with polarized lenses in sunlight, previously not present until yesterday), water generally appears darker, sediment present.

Date Published: Tue, 11 May 2010 20:23:00 GMT



# INCREASED RESILIENCY

Social Networks + Location can connect you with your neighbor



**Merriam Webster - 'an ability to recover from or adjust easily to misfortune or change'**

*Enabling communities to help themselves during a crisis. . .*

# SITUATIONAL AWARENESS...

The screenshot shows a web browser window displaying an ArcGIS Public Information Map. The browser's address bar shows "ArcGIS - Public Information Map - Form...". The map interface includes a search bar with "slave lake" entered, a "Share" button, and a "Settings" menu. The map itself shows a topographic view of southern Manitoba, with major cities like Brandon, Winnipeg, and Steinbach labeled. A video player overlay is positioned in the center-left, titled "Part 3 Spruce Woods Park Flood Damage". The video player shows a scene of a flooded area with a rocky bank and a body of water. Below the video, it indicates "Published: 2011-07-17 17:01:20.00 UTC" and "Flag as inappropriate content". To the right of the map, a social sharing menu is open, listing "YouTube Videos", "Tweets", "Flickr", and "Shared Content". Below these are icons for "Link", "Photo", "Video", and "Note". The text "Manitoba Floods" is overlaid in large black font at the bottom center of the map. The Esri logo is visible in the bottom right corner of the map area. The browser's taskbar at the bottom shows "57 of 83" and "DataFusionWorkshop".

# VOLUNTEER GEOGRAPHIC INFORMATION (VGI)

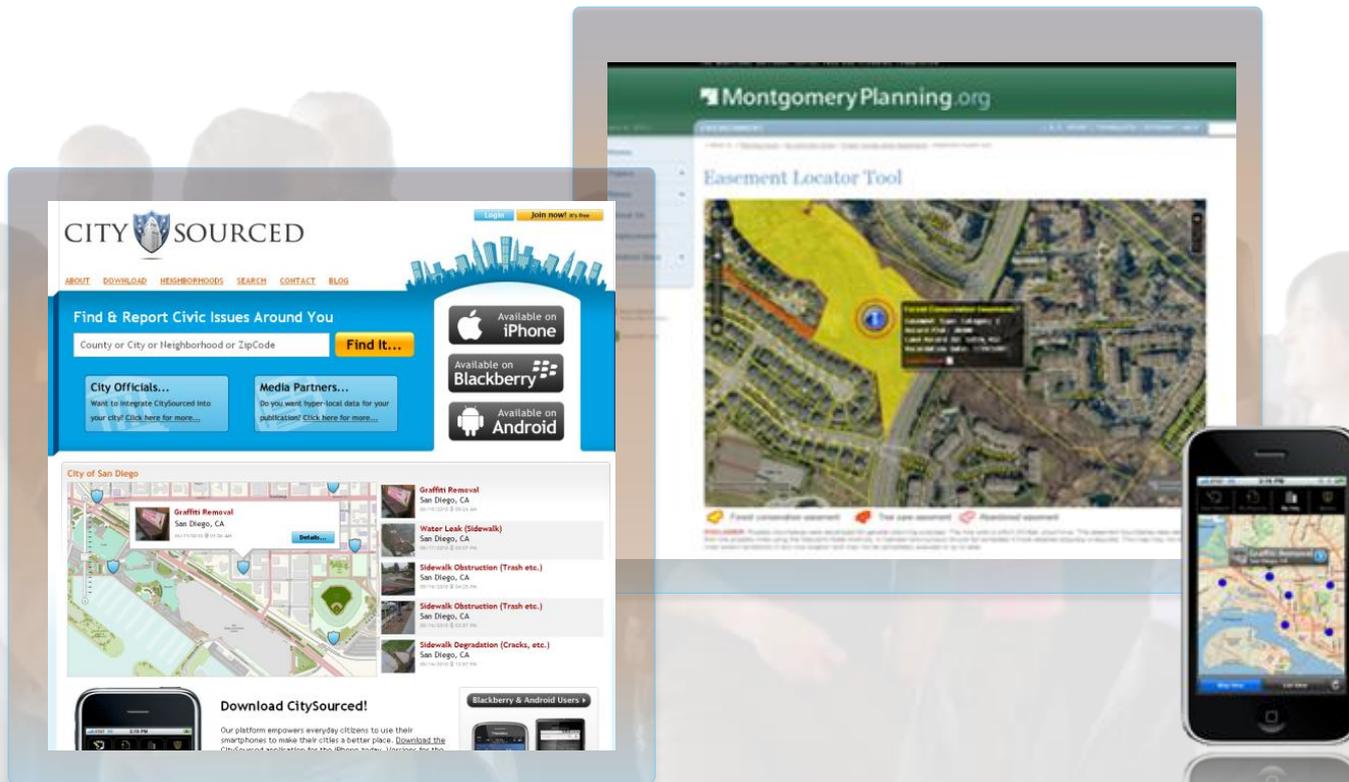
Citizens as Sensors: The World of Volunteered Geography



*Connecting Mobile Workers,  
The Public . . . Everyone*

# A NEW GENERATION OF GEO-APPLICATIONS IS EMERGING

## CITYSOURCED.COM - LEVERAGING THE GEOSPATIAL PLATFORM



*CREATING FUN, INTERESTING AND USEFUL APPS*

# Report an Issue – Toronto, Ontario

The screenshot shows the SeeClickFix website interface for Toronto, Ontario. At the top, there is a navigation bar with the SeeClickFix logo and the text "Toronto, Ontario". To the right of the logo are links for "GoPro", "Login", "Sign Up", "How it Works", and "Help". Below the navigation bar is a blue header with tabs for "Issues", "Neighbors", and "Watch Areas", and a search bar on the right that says "Search Issues, Neighbors or Watch Areas...".

Below the header, there are two buttons: "Report an Issue" and "Follow this Place". The main content area is divided into two columns. The left column displays a list of reported issues, sorted by "Hotness". Each issue entry includes a small icon, a title, a location, and the time it was reported and commented on.

The right column features a map of Toronto and its surrounding areas, including Mississauga, Vaughan, and Markham. The map shows several orange markers indicating reported issues. Below the map is a section titled "Top Users" and "Who's Watching", which lists the names of users and their respective issue counts.

**Sort by: Hotness**

- 1** **Kew Gardens lawn still destroyed...** Open  
47 Lee Ave Toronto, ON M4L 1J1, Canada - Toronto  
reported 6 days ago commented 6 days ago
- 1** **Tree branches awaiting pickup** Open  
162 Lytton Blvd Toronto, ON - Toronto  
reported 7 months ago commented 4 months ago
- 2** **Roncesvalles still under construction-cyclists should avoid** Open  
Roncesvalles Toronto, ON - Toronto  
reported 25 days ago commented 15 days ago
- 1** **Kew Gardens park lawn damaged by City employees** Open  
30-46 Lee Ave Toronto, ON M4L 3T2, Canada - Toronto  
reported 15 days ago commented 15 days ago
- 1** **Missing Stop Sign** Open  
Corner Of Schell Ave And Ronald Ave Toronto, ON - Toronto  
Street Smart crzyrczy reported 19 days ago commented 19 days ago

**Top Users** | **Who's Watching**

User	Count
patcon	960
Denis Carr	655
braemie	310
suzannelong	200

# Crime Mapping – Saint John

Contact Help About The Omega Group

**CRIME MAPPING**<sup>TM</sup>  
Building Safer Communities

Try: 15 Market Square, Saint John, NB

SEARCH

RECEIVE CRIME ALERTS

Crime Types Dates Address Agencies Version 5.1

19 crimes between 4/27/2011 - 5/3/2011

CLICK then DRAG

Use Mini Icons

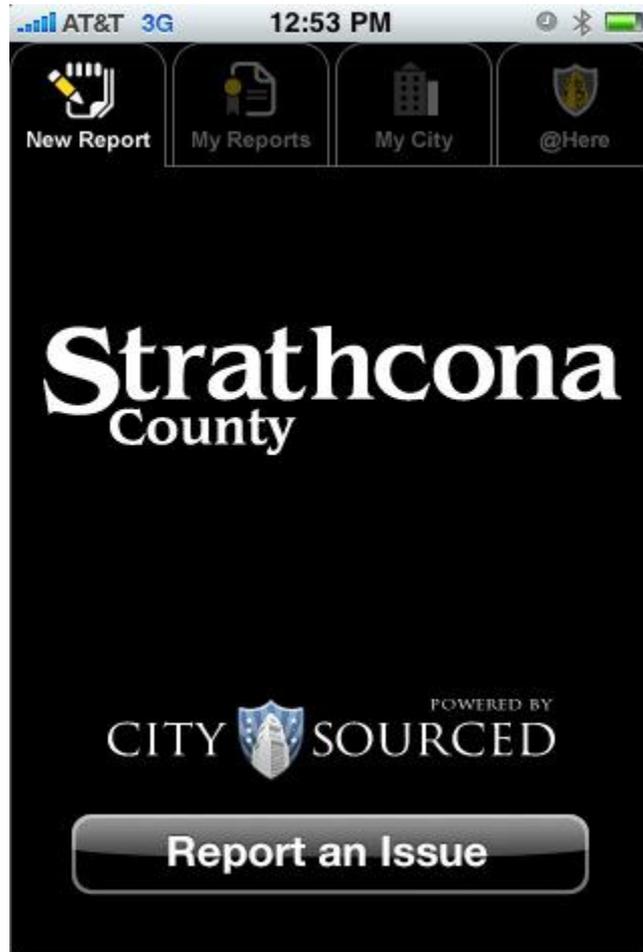
BRUNSWICK

Saint John

NEW BRUNSWICK

esri

# Strathcona County – Report an Issue “Civic Reporter”

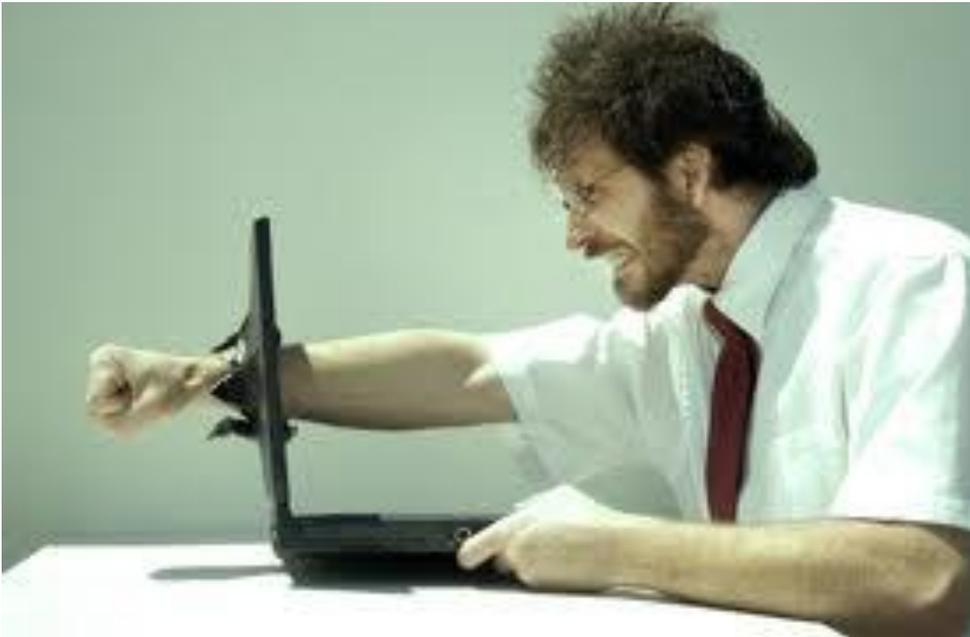


# CHALLENGES

**ACCURACY\***

**VERIFICATION**

**FILTERING**



# ACCURACY

WHO  
COLLECTED IT?

WHAT IS THE  
COLLECTION  
METHOD?



WHEN WAS IS  
COLLECTED?

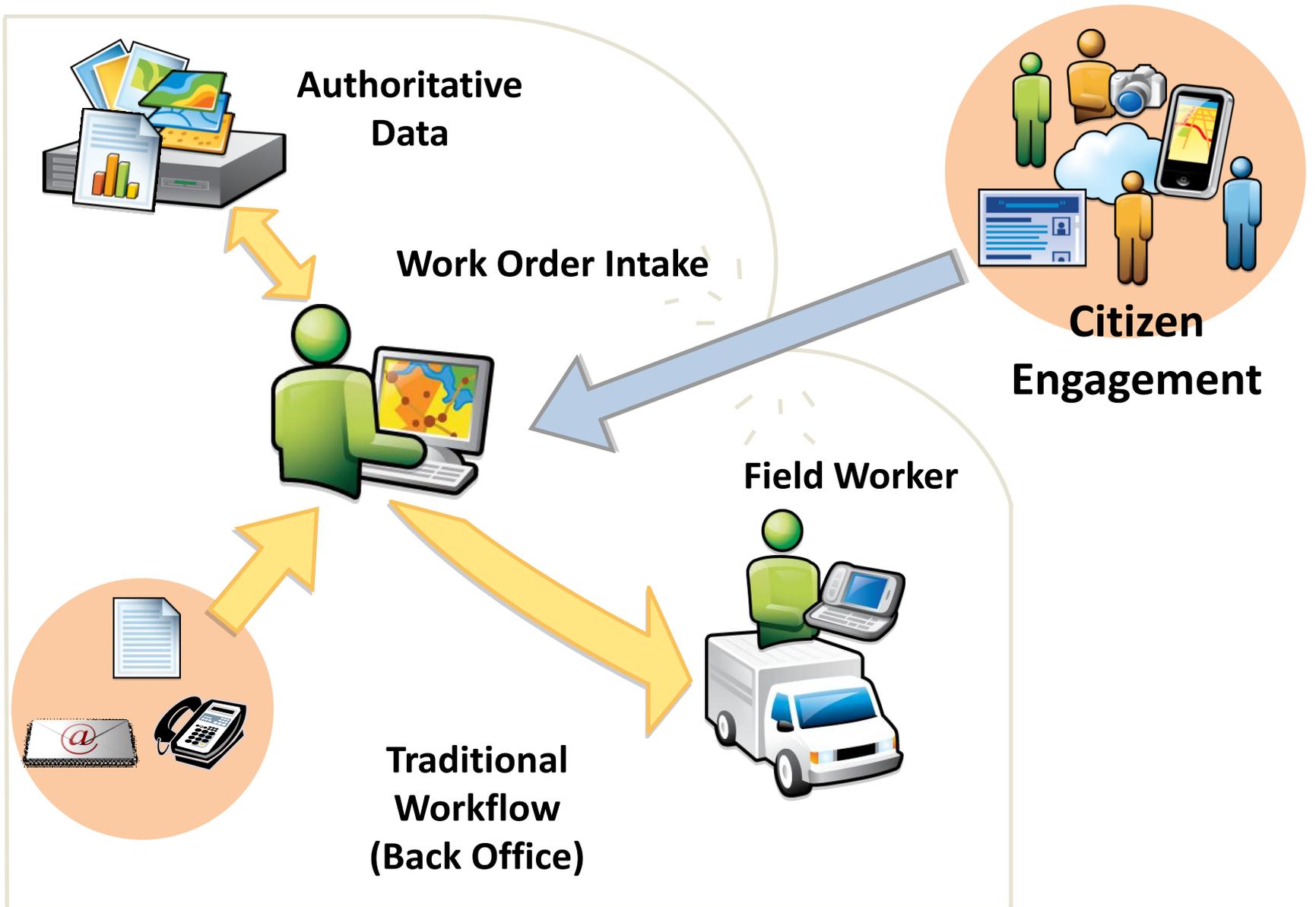
NEWS  
EVENTS

HOW WAS DATA  
COLLECTED?

PUBLIC  
FACING

**IT COULD BE THIS PERSON!**  
**IT COULD BE YOU!**



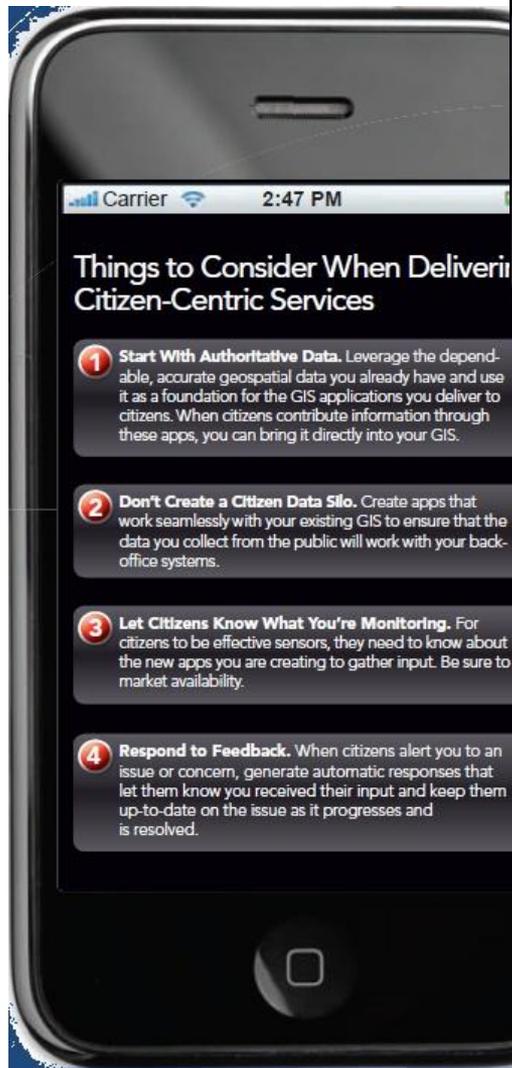




Channel	Cost Per Transaction
Walk-in	\$9.00
Web Chat	\$7.00-\$7.50
Live Phone Agent	\$4.50-\$5.30
Email	\$2.50-\$3.00
Phone Self Service	\$0.45-\$1.85
Web Self-Service (on-line)	\$0.24-\$0.65

Social media and kiosk are other low cost intake channels which are so new that accurate transaction costs have not been verified. However, they will be similar to the web self service channel. This Cost Breakdown is from Forrester Research - 2009

# Improving Citizen Engagement



1

**Start With Authoritative Data.** Leverage the dependable, accurate geospatial data you already have and use it as a foundation for the GIS applications you deliver to citizens. When citizens contribute information through these apps, you can bring it directly into your GIS.

2

**Don't Create a Citizen Data Silo.** Create apps that work seamlessly with your existing GIS to ensure that the data you collect from the public will work with your back-office systems.

3

**Let Citizens Know What You're Monitoring.** For citizens to be effective sensors, they need to know about the new apps you are creating to gather input. Be sure to market availability.

4

**Respond to Feedback.** When citizens alert you to an issue or concern, generate automatic responses that let them know you received their input and keep them up-to-date on the issue as it progresses and is resolved.



©2007 Southborough News



# Why?

- **To help Strathcona operationally:**
  - Increase Efficiency
  - Increase Effectiveness
- **To increase civic engagement:**
  - “citysourced *empowers ordinary citizens to crowd source solutions for common civil issues.*”

# Strathcona's Chosen Implementation Approach

## Pilot Project Approach – Limited Scope

- Limited Users:
  - Staff with County Issued Blackberries
- Limited Issues:
  - Transportation: pot holes, damaged signs
  - Engineering: street & traffic lights, trail surface issues
  - Recreation & Parks: graffiti, playground equipment problems
  - Utilities: leaking fire hydrants, water main problems
- Limited Duration:
  - One year followed by evaluation

# Implementation

## Decision Points

- Scope:
  - Departments Involved,
  - Issues Reported ~ Routing
  - Workflows & Integration
- Application “Skin”:
  - Application Name & Description
  - Success Message

"Congratulations! Your report has been submitted. Thanks for taking the time to help make Strathcona County a better place"

# Report Types

List of Report Types	Department	Contact
Street - Pothole	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Street Sign - Problem	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Street - BlackIce	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Street Light - Problem	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Street - Dead Animal	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Street - Pavement Marking Problem	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Traffic Light - Problem	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Sidewalk - Safety Hazard / Tripping	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Trail - Problem	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Broken Glass - Streets / Sidewalks	TAS	<a href="mailto:TASREC@strathcona.ab.ca">TASREC@strathcona.ab.ca</a>
Traffic Safety Issue	EEP	<a href="mailto:EEPREC@strathcona.ab.ca">EEPREC@strathcona.ab.ca</a>
Utility Box Damaged	EEP	<a href="mailto:EEPREC@strathcona.ab.ca">EEPREC@strathcona.ab.ca</a>
Litter Removal	RPC*	<a href="mailto:RPCREC@strathcona.ab.ca">RPCREC@strathcona.ab.ca</a>
Broken Glass - Trails / Playgrounds	RPC	<a href="mailto:RPCREC@strathcona.ab.ca">RPCREC@strathcona.ab.ca</a>
Tree - Damage	RPC	<a href="mailto:RPCREC@strathcona.ab.ca">RPCREC@strathcona.ab.ca</a>
Playground Equipment - Problem	RPC	<a href="mailto:RPCREC@strathcona.ab.ca">RPCREC@strathcona.ab.ca</a>
Playing Field - Problem	RPC	<a href="mailto:RPCREC@strathcona.ab.ca">RPCREC@strathcona.ab.ca</a>
Graffiti - Offensive	RPC	<a href="mailto:graffiti@strathcona.ab.ca">graffiti@strathcona.ab.ca</a>
Graffiti - Not Offensive	RPC	<a href="mailto:graffiti@strathcona.ab.ca">graffiti@strathcona.ab.ca</a>
Fire Hydrant - Damaged or Leaking	Utilities	<a href="mailto:UTILREC@strathcona.ab.ca">UTILREC@strathcona.ab.ca</a>
Water Main - Leaking	Utilities	<a href="mailto:UTILREC@strathcona.ab.ca">UTILREC@strathcona.ab.ca</a>
Manhole Lid Missing	Utilities	<a href="mailto:UTILREC@strathcona.ab.ca">UTILREC@strathcona.ab.ca</a>
Water Service Problem	Utilities	<a href="mailto:UTILREC@strathcona.ab.ca">UTILREC@strathcona.ab.ca</a>

# Demo

- **City Sourced Administration Console...**

- Below is the raw data collected by the CitySourced smartphone application. This data can also be downloaded via our APIs in a variety of formats (XML, JSON, CSV, etc.) or can be accessed through the [CitySourced Customer Console](#).
- If you have any questions, please feel free to email them to our [Customer Support Staff](#) or visit our self-service [Customer Support Portal](#). We make it a point to respond to all inquiries in a timely manner - our goal is to make our customers completely satisfied.
- If you're having trouble viewing the images below, please [click here to view this report online](#).
- **Issue ID# 21282 : Other (Not Listed Please Describe)**
- Date Created: 06/18/2011 @ 03:21 PM PST  
Taken On: Android SGH-T959D  
Latitude: 53.51210683333333  
Longitude: -113.32724283333333  
Directionality: South  
Nearest Address: 23333 Wye Rd, Sherwood Park, AB T8B 1M6, Canada  
Url Long: <http://www.citysourced.com/report/21282/other-not-listed-please-describe>  
Url Short: <http://ctysr.cd/mB5Llu>  
Current Status: Submitted

# Lessons Learned

- Ensure you have a corporate champion.
- If piloting, ensure you get a cross section of users (device types) & report types.
- Workflows are critical!
- Integration is very important!
- Involve secondary departments as well.
- Managing expectations of users is important.
- Very effective for Graffiti – integral to police investigations and as evidence.

# Next Steps

- Launch to the public in 2012
- Workflows & Integration with workflow tools will be top priorities.
- Leveraging the data ~ integrating with GIS tools
- Measures of Success

# QUESTIONS?

Daren Sears

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604-695-7403

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Twitter: @Karen\_ESRI\_PW

# THANK YOU!