

# Improving Citizen Service and Access with GIS

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*Crowne Plaza North Hotel*

*Columbus, Ohio*

1. Introduction
2. Citizen Expectations
3. Design Principles
4. Project: Hilliard SRC
5. Project: Westerville Street Program
6. Closing

- + Improving Service and Access with *Technology*

- Internet and the World Wide Web

- + Web 2.0

“...changing trends in the use of World Wide Web technology and web design that aims to enhance creativity, information sharing, collaboration and functionality of the web.”

[www.wikipedia.org](http://www.wikipedia.org)

*does not refer to an update to any technical specifications, but to changes in the ways software developers and end-users utilize the Web*

- + President Obama called for an unprecedented level of openness in Government, asking agencies to "ensure the public trust and establish a system of transparency, public participation, and collaboration."

[http://www.whitehouse.gov/the\\_press\\_office/Transparency\\_and\\_Open\\_Government](http://www.whitehouse.gov/the_press_office/Transparency_and_Open_Government)

- + Interpreted to be calling for the utilization of web 2.0 technology across all federal departments and agencies.

## 1. Introduction

### + Government 2.0

“...attempts to apply the social networking and integration advantages of Web 2.0 to the practice of government. Government 2.0 is an attempt to provide more effective processes for government service delivery to individuals and businesses.”

[www.wikipedia.org](http://www.wikipedia.org)

Government point of view

- + Ensure the public trust
- + Transparency
- + Public participation
- + Collaboration
- + More effective processes

- + “Why can’t I just do this on the Internet!?”
  - Transition more services on-line
- + “That’s impossible to use!”
  - Make on-line services easy to use
- + “Pig Roast in May!? It’s September now!”
  - Provide accurate and up-to-date information
- + “I can’t find anything on your home page!”
  - Make it organized and easy to understand
- + “You never call me back!”
  - Keep citizens conveniently informed

### Design with the Citizen in mind

1. Assume nothing
  - Develop for the least common denominator
2. Inform them first
  - Shape their expectations
3. Provide fail-safe access
  - They need a last resort or they'll become frustrated

Design with the Citizen in mind (continued)

#### 4. Limit what they can do

- Only allow them to do what they can do well

#### 5. Support long-term automation

- Make sure feedback is uniform and actionable

#### 6. Update dynamically and regularly

- Keeps the site relevant and useful

### + Mashup (GIS in Government 2.0)

“In web development, a mashup is a web application that combines data from more than one source into a single integrated tool; an example is the use of cartographic data from Google Maps to add location information to real-estate data, thereby creating a new and distinct web service that was not originally provided by either source.”

[www.wikipedia.org](http://www.wikipedia.org)

### + Significance

- More and more, GIS is a mainstream tool for visualization and analysis
- Mashups are a Web 2.0 technology that shows quite a bit of promise
- Mashups are an excellent way to combine resources to serve and inform citizens

## + Pros and Cons of Using Google Maps

### Pros

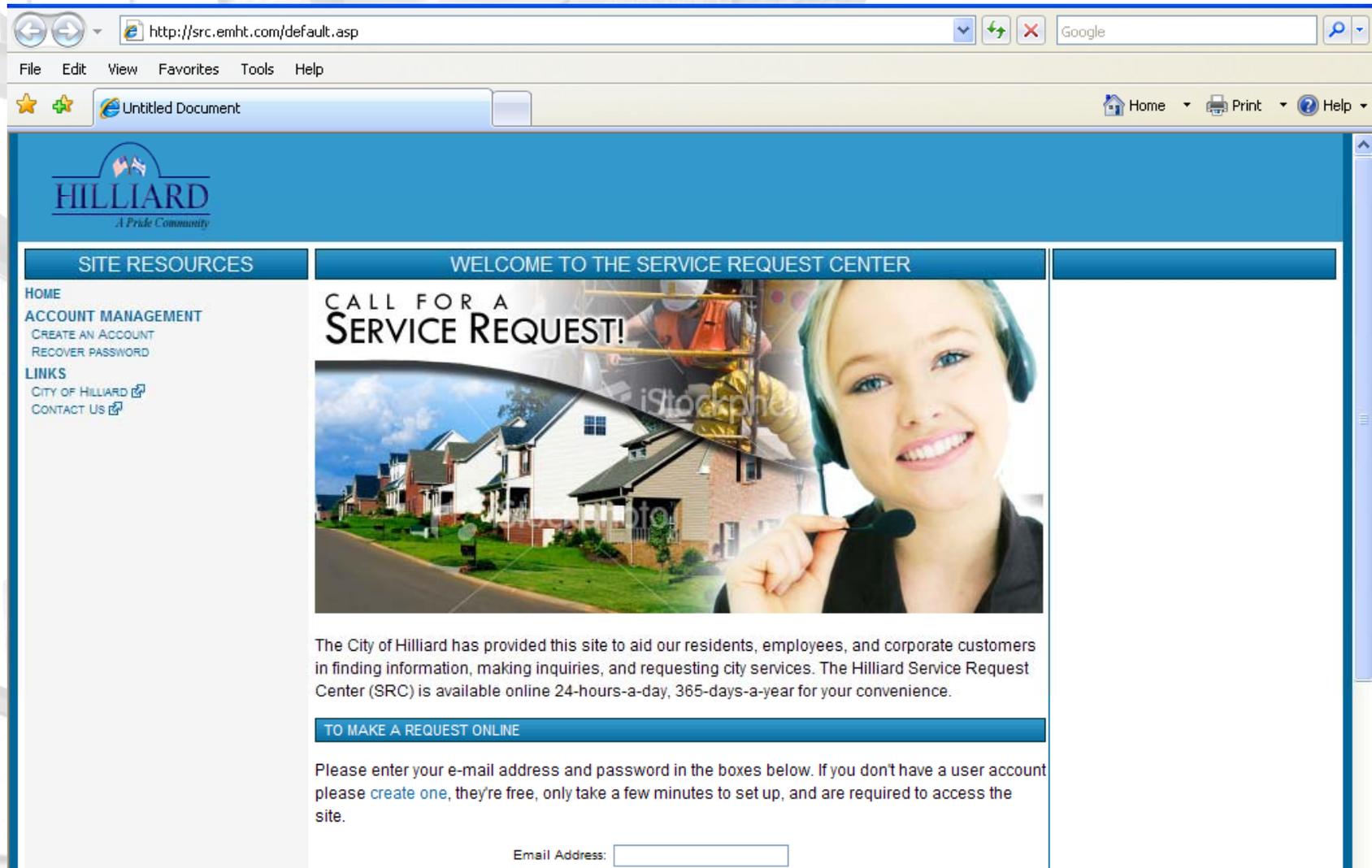
- + Ready made base map
  - Focus on your data
- + Simple to setup
  - Free registration
- + Custom data
  - Added as an overlay
  - Can be WMS resource
- + Geocoding
  - Forward geocoding
  - Reverse geocoding
- + Can link to additional information
- + Familiar/easy to use
- + Built-in functions
  - Routing, mileage, directions

### Cons

- + No control over base map
  - Quality depends on location
  - Priority given to larger areas
- + Limits on access
  - Free key is not unlimited
- + Custom data
  - Must use lat/lon
- + Code is evolving
  - Can change without notice
  - Extra care with custom code
- + Limited Support
  - Online docs and user forums
  - Solve problems on your own

- + Service Request Center (SRC)
  - A comprehensive system that can deal with any and all types of standard requests received internally or from the public
  - The system is capable of receiving request information, tracking request through investigation, work order, and completion, and provide reporting and long tracking of all requests

- + Desired benefits of the new system:
  - Improves Public (and Staff) access
    - Whether they call or log-on
  - Drives operations to resolution
    - Email inbox - can't ignore
  - Measures performance/provides accountability
    - Real-time reporting
  - Integrates valuable data sources
    - GIS with valuable layers
  - Promotes collaboration between service providers
    - Sub-tasks - system alerts next department
  - Customizable and extensible



The screenshot shows a web browser window displaying the Hilliard Service Request Center (SRC) website. The browser's address bar shows the URL `http://src.emht.com/default.asp`. The website features a blue header with the Hilliard logo and the tagline "A Pride Community". Below the header, there are three main sections: "SITE RESOURCES", "WELCOME TO THE SERVICE REQUEST CENTER", and a large banner area. The "SITE RESOURCES" section includes links for "HOME", "ACCOUNT MANAGEMENT" (with sub-links "CREATE AN ACCOUNT" and "RECOVER PASSWORD"), and "LINKS" (with sub-links "CITY OF HILLIARD" and "CONTACT US"). The "WELCOME TO THE SERVICE REQUEST CENTER" section features a large banner with the text "CALL FOR A SERVICE REQUEST!" and an image of a smiling woman wearing a headset, holding a microphone. Below the banner, there is a paragraph of text: "The City of Hilliard has provided this site to aid our residents, employees, and corporate customers in finding information, making inquiries, and requesting city services. The Hilliard Service Request Center (SRC) is available online 24-hours-a-day, 365-days-a-year for your convenience." Below this text is a blue button labeled "TO MAKE A REQUEST ONLINE". Underneath the button, there is a paragraph of text: "Please enter your e-mail address and password in the boxes below. If you don't have a user account please [create one](#), they're free, only take a few minutes to set up, and are required to access the site." At the bottom of the page, there is a form field labeled "Email Address:" with an empty input box.

+Web-based - accessible from any location with an Internet connection

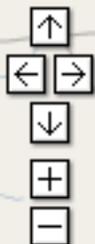
- + Google Maps Integration Option
  - No complicated (expensive) GIS server required
  - Interface familiar to most
  - Easy to use - simple and effective searches
  - Don't have to be concerned with updates
- + GIS tie-ins
  - Locating the request
  - Viewing available requests
  - Event data accessible via SQL Server

### WHAT IS THE LOCATION OF YOUR REQUEST

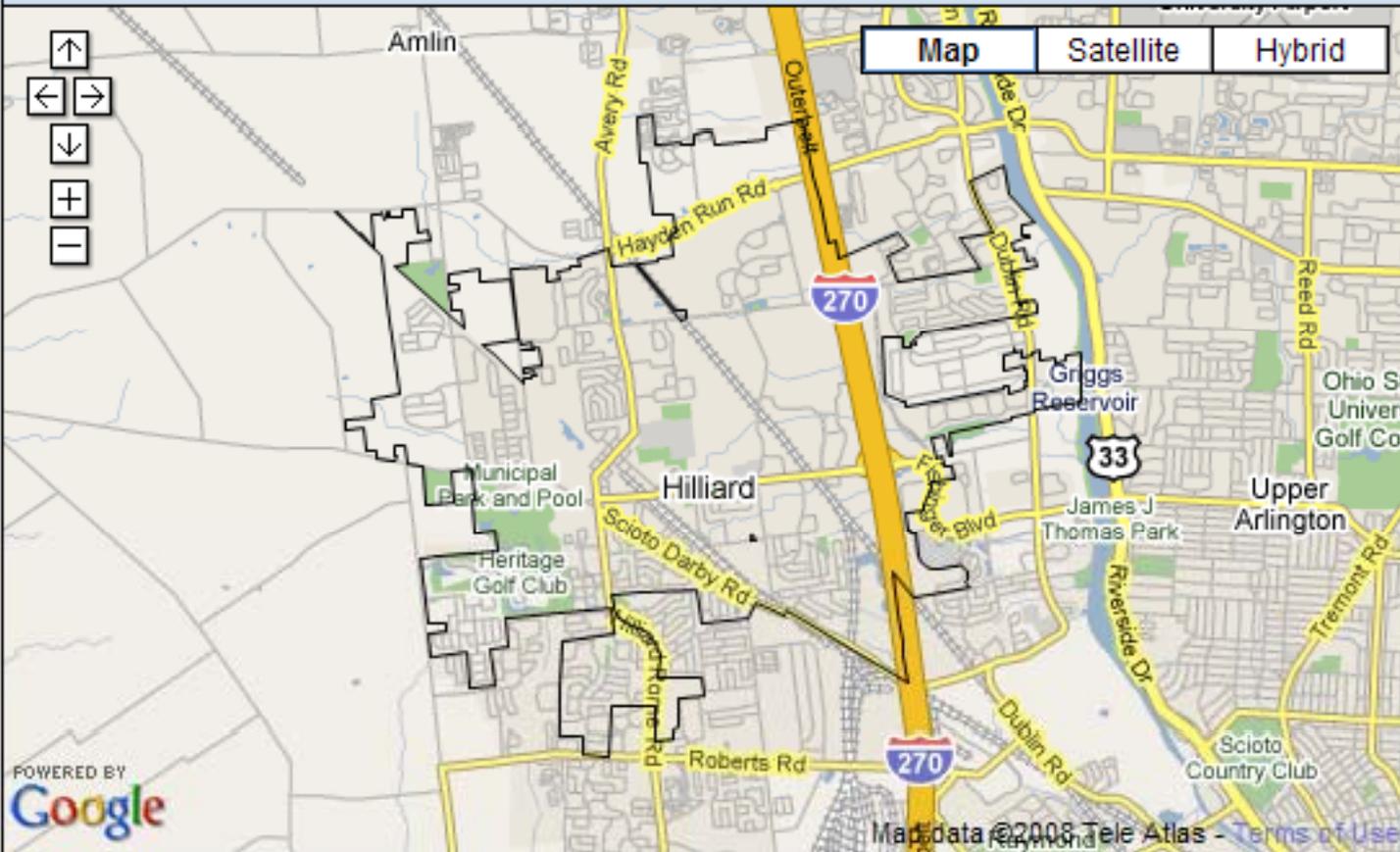
Please provide us with the location of your request. You can enter either a street address (123 E. Main St) or a street intersection (E. Main St. and Hilliard-Rome Rd.). You can also specify the location of the service request using the map.

Location:  , Hilliard, OH 43026 

 Set request location by clicking on the map  Show location  Clear location  Help?



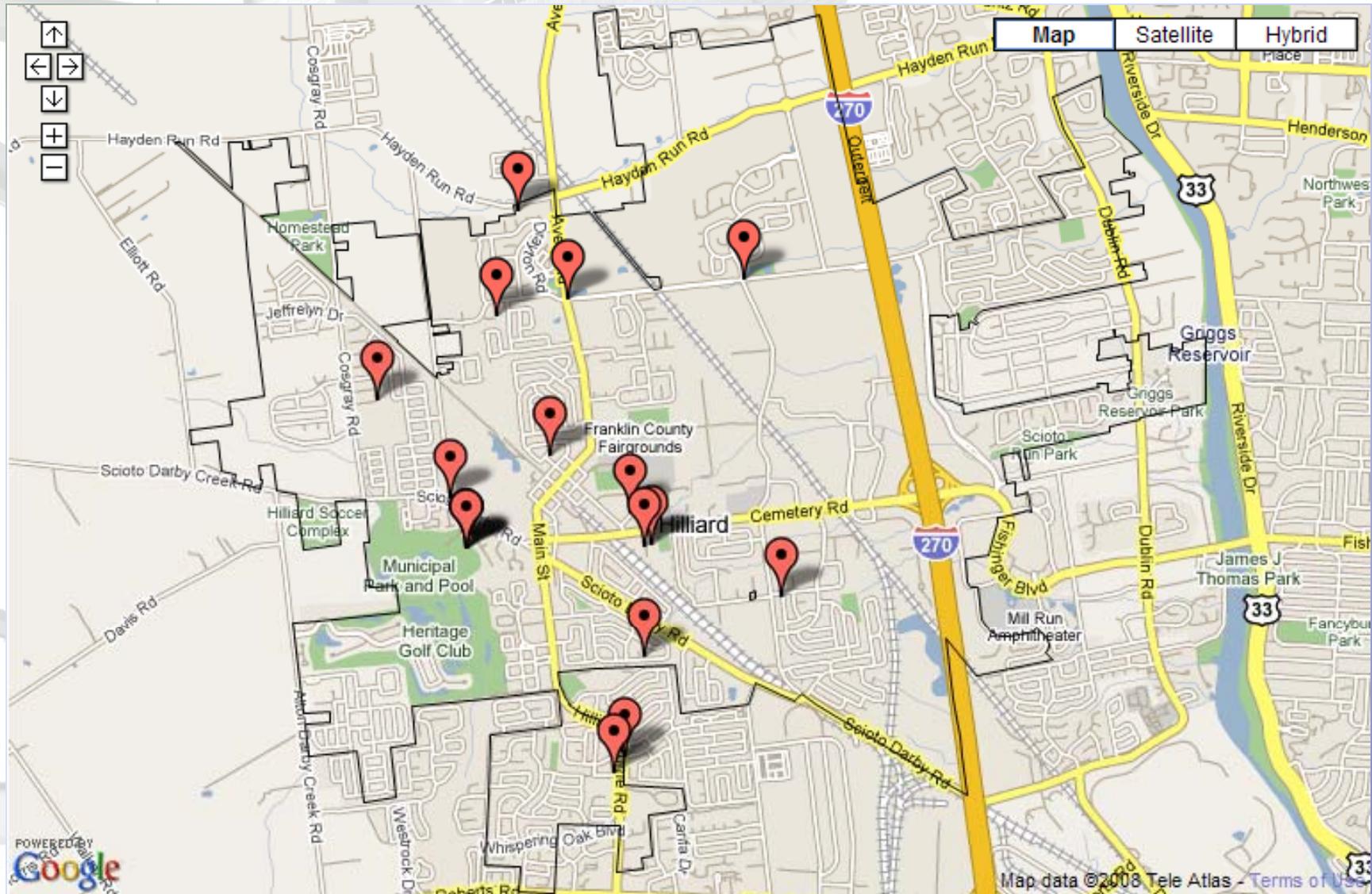
**Map** **Satellite** **Hybrid**



Map data ©2008 Tele Atlas - [Terms of Use](#)

- + Custom Map controls
  - Used smaller controls for panning and zooming
- + Custom Event Handling
  - Captured the mouse wheel event trigger and set it to zoom the map in or out
- + Map Types
  - Set the allowable map types to:
    - Map - Standard street map
    - Satellite - Aerial photos
    - Hybrid - Aerial photos with street centerlines and street names overlaid on it
- + Custom Data
  - Added City of Hilliard corporation line as a custom overlay
- + Geocoding
  - Takes a location and shows it on the map
  - Location can be an address or street intersection
  - Reverse Geocoding: Takes a specified location on the map and returns the closest address
- + Drag and Drop
  - User can move to location marker around the map and will get updated location information

# 4. Project: Hilliard SRC



- + Custom Map controls
  - Used smaller controls for panning and zooming
- + Custom Event Handling
  - Captured the mouse wheel event trigger and set it to zoom the map in or out
- + Map Types
  - Set the allowable map types to:
    - Map - Standard street map
    - Satellite - Aerial photos
    - Hybrid - Aerial photos with street centerlines and street names overlade on it
- + Dynamically generated markers
  - Location are dynamically added to map as page content changes
  - Each location contains summary information about itself and links to defailed information

ExampleGIS.mxd - ArcMap - ArcView

File Edit View Bookmarks Insert Selection Tools Window Help

1:10,582

Task: Create New Feature Target:

Layers

- Requests
- Corporate Boundary
- Orthophotography

Attributes of Requests

CSRDate	AccDate	ReqDate	ComDate
3/17/2006	3/17/2006	4/14/2006	5/25/2006
4/4/2006	4/4/2006	4/18/2006	6/15/2006
4/4/2006	4/4/2006	4/18/2006	6/1/2006
4/4/2006	4/4/2006	4/18/2006	6/1/2006
4/11/2006	4/19/2006	4/16/2006	6/1/2006
4/11/2006	4/11/2006	4/16/2006	4/25/2006
4/12/2006	4/20/2006	4/26/2006	4/25/2006
4/13/2006	4/13/2006	1/1/2007	12/19/2006
4/13/2006	4/21/2006	4/18/2006	4/21/2006
4/13/2006	4/21/2006	4/18/2006	4/27/2006
4/17/2006	4/17/2006	4/20/2006	4/17/2006
4/17/2006	<Null>	5/1/2006	4/20/2006
4/19/2006	4/25/2006	4/26/2006	4/27/2006
4/20/2006	4/20/2006	4/30/2006	4/27/2006
4/20/2006	4/20/2006	5/4/2006	4/25/2006
4/21/2006	4/21/2006	5/19/2006	<Null>
4/21/2006	4/21/2006	5/19/2006	5/24/2006
4/21/2006	8/4/2009	5/5/2006	<Null>
4/21/2006	4/26/2006	4/28/2006	5/5/2006
4/25/2006	<Null>	5/9/2006	<Null>
4/25/2006	5/24/2006	5/9/2006	5/24/2006
4/26/2006	<Null>	5/10/2006	5/22/2006
4/26/2006	<Null>	4/29/2006	4/27/2006
4/27/2006	<Null>	5/2/2006	5/1/2006
4/27/2006	6/9/2006	5/11/2006	6/22/2006

Record: 1 Show: All

1791063.628 746435.505 Feet

Design with the Citizen in mind

1. Develop for the least common denominator
2. Shape their expectations
3. They need a last resort or they'll become frustrated
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5. Make sure feedback is uniform and actionable
6. Keep the site relevant and useful

## 4. Project: Hilliard SRC

### + Result

*"The use of the system has resulted in increased accountability, efficiency and productivity."*

*Mr. Larry M. Lester Jr.  
Right of Way Services Manager  
City of Hilliard*

### + Issue 54 Impact

“City Leadership committed to increase the annual Street Maintenance Program spending by at least \$4.0 million when voters approved Issue 54 last year. As promised, City Council has increased the 2009 General Fund budget appropriation for this year’s Street Program from \$2,145,000 to \$6,690,000.”

- + The City was concerned about communicating the details of the program which was now three (3!) times bigger.

**Westerville, Ohio**  
IT'S JUST RIGHT

[Westerville Home](#) | [City Maps](#) | [Traffic/Construction](#) | [Community Recreation](#)

I want to...  Search

**Home**

**Discover Westerville**

**Resident Services**

**Business Development**

**City Government**

**City Departments**

**Employment**

**Events Calendar**

**eServices**

**Helpful Links**

**Contact Us**

**South State Street**

**Sidewalk Program**

- > Administrative Services
- > City Manager's Office
- > Communications
- > Electric
- > Finance
- > Fire
- > Human Resources
- > Income Tax
- > Information Systems
- > Mayor's Court
- > Parks & Recreation
- > Planning & Development
- > Police
- > Public Service
  - Refuse, Recycling & Yard Waste
  - Storm Water Management
  - Wastewater Collection System
  - Water Distribution



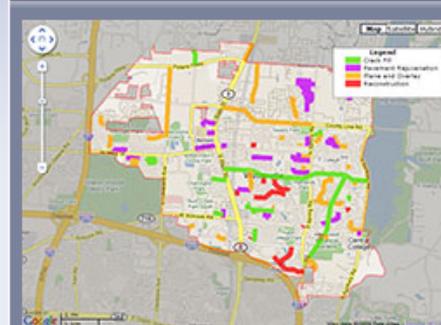
## Street Maintenance Program

The City is responsible for approximately 155 miles of roadway within Westerville. The City implements an annual street maintenance program to maintain and improve our roadways for the safety of the traveling public.

Each year, the City inspects the roadways and identifies those streets that require repair or reconstruction. The condition of the pavement is evaluated and measured using a [pavement condition index rating system](#). This approach assigns a numerical rating to each section of road being evaluated for the presence of numerous distresses (39 in all) and the severity level of each distress (low, medium, high). A database program tracks the pavement condition and the history of maintenance of every roadway section.

It is the City's [Pavement Condition Policy](#) that at least 85 percent of the major arterial roadways will have a pavement condition rating of "good" or better.

### Street Maintenance Links

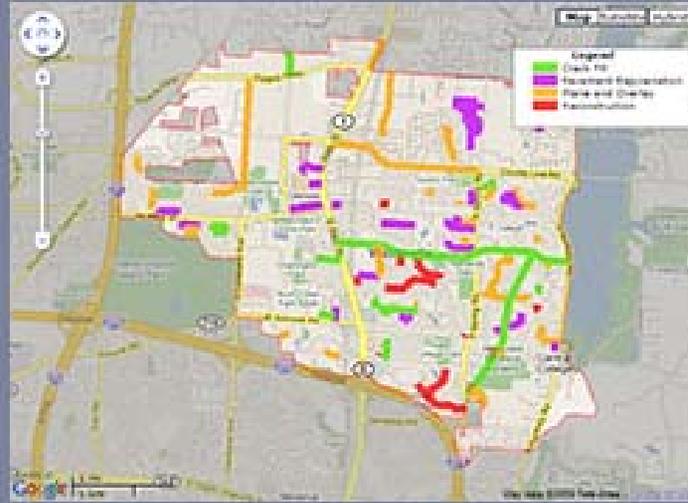


Legend:  
■ Good PDI  
■ Pavement Rehabilitation  
■ Plans and Studies  
■ Reconstruction

[Home](#)  
[FAQ](#)  
[Issue 54 Impact](#)

## 5. Project: Westerville Street Program

### Street Maintenance Links



[Home](#)

[FAQ](#)

[Issue 54 Impact](#)

[Pavement Rating System](#)

[Treatments](#)

[Map](#)

[Schedule](#)

[Brochure](#)

[Contact Us](#)

[RSS](#)

- + Google Maps with ArcGIS Server
  - Interface familiar to most
  - Easy to use - simple and effective searches
  - Project specific information overlay
  - Live updates
    - By Street Program Project Manager
- + GIS tie-ins
  - Searching/zooming to point on map
  - Viewing scheduled treatments

# 5. Project: Westerville Street Program

- Water Distribution
- Snow Removal
- Sidewalk Maintenance Program
- Leaf Collection
- Cemetery - Local History
- Street Maintenance
- Sidewalk Maintenance
- › Utility Billing
- › Water

Location:  ➔

**Map** | Satellite | Hybrid

**Legend**

- Crack Fill
- Pavement Rejuvenation
- Plane and Overlay
- Reconstruction

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## 5. Project: Westerville Street Program

### + Result

*“Even though we expanded our street maintenance program by roughly a factor of 3 this year, the resident calls we have received are less than in previous years... We attribute this to the mailing / brochure and having the information on the web. So, thank you!!”*

*Susan Banbury, City Engineer  
City of Westerville, Ohio*

- + Improving Service and Access with *Technology*

- Internet and the World Wide Web

- + Web 2.0 (this is where GIS comes in)

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## *Questions*

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