

Metropolitan Water Reclamation District of Greater Chicago

Building an Enterprise GIS for Chicago's Water Reclamation District

#### Presenters

• Presented at the 2010 ESRI User Conference

• Authored and Presented By

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Metropolitan Water Reclamation District of Greater Chicago

An In-Depth Look at Building an Enterprise GIS Part I

ESRI UC - July 2010

#### Part I Presented By:

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<u>GeoAnalytics, Inc.</u> **Geoanalytics** Peter G. Thum – President and Co-founder

#### Overview

- Who is MWRDGC (District)?
- How GIS got started at the District?
- Our vision and objectives
- How we accomplished the "E" in E-GIS?
- Subsequent steps
- Where we are today?

## Who is MWRDGC (District)?

- MWRDGC Metropolitan Water Reclamation District of Greater Chicago, often referred to as the "District"
- Located in Chicago, Illinois
- Local Government
- Primary business Waste/Storm-Water Treatment

#### How GIS got started at the District?

- Initiated as a joint Engineering and Information Technology Department effort
- Contracted GeoAnalytics, Inc. for their expertise and services
- Developed District standards, policies and procedures for GIS
- Developed and Implemented the GIS infrastructure and architecture
- Developed the Stormwater Management Reporting and Analysis (SMRA) GIS Application

#### EGIS Policy and Standards Documents

- Enterprise GIS Governance and Operations
- Data Standards
- Data Maintenance Policies and Standards
- Technology Standards
- System Development Policies and Standards
- Enterprise GIS User Standards
- Data Licensing Agreement Standard Agreement
- MWRD Freedom of Information Procedures
- Etc....

#### Our vision and objectives

- To bring to life at the District, GIS capabilities and establish the E-GIS foundation
- To establish and integrate the GIS system as part of the Enterprise Architecture
- To be able to visualize, locate and analyze information and content that would be beneficial to our core business processes
- To be able to share and reuse information and services between all systems from all departments

#### Enterprise Architecture

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#### How we accomplished the "E" in E-GIS?

- Gained approval and "buy-in" from the Executive Committee
- Surveyed all department's for their GIS needs
- Formed the E-GIS Business Team Committee
- Extended the initial scope of work with GeoAnalytics
- Gathered requirements for an additional ten (10) potential GIS applications from the departments
- Created High level requirements and design documents for the additional (ten) 10 E-GIS applications
- Interviewed all District business units in each department
- Constructed the E-GIS logical database model

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#### Enterprise GIS Logical Database Model

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#### Subsequent steps

- Entered into an Enterprise License Agreement (ELA) with ESRI
- Sustainability Furthering our internal staff's knowledge through training

#### Where are we today?

- We currently have three completed GIS applications in place
- We will be developing GIS applications that will be available for public facing via the District's web portal
- Our Maintenance and Operations Department has a current project to create datasets and develop the applications for six(6) of the additional ten (10) GIS projects mentioned previously

### EGIS software components

- ESRI ArcGIS Desktop and Server
- ESRI ImageServer
- Rolta/Orion OnPoint
- Microsoft IIS (web server)
- Microsoft Silverlight (web development)

## EGIS technology environment

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## Initial web-GIS applications

• GIS-based data browse, query, and reporting applications:

- General Purpose GIS Viewer
- Stormwater Management Reporting and Analysis
- Integration of map and other department data
- Field and presentation format map outputs



#### Stormwater GIS uses

- Watershed Planning (H&H Modeling)
- Flood Hazard and Floodplain Mapping
- Stormwater Problem and Project Tracking
- Regulatory Enforcement

## SMRA application scope

- OnPoint Technology
- AGS Map Service
  - 12 map layer groups
  - 80+ map layers
- Multiple Map Tabs

   AGS and Bing
- Custom searches
- Custom map templates



## SMRA application demonstration

### Questions & Answers

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### **Contact Information**

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Metropolitan Water Reclamation District of Greater Chicago

# Building an Enterprise GIS for Chicago's Water Reclamation District Part II

#### Part II Presented By:

• Presented at the 2010 ESRI User Conference

- Authored and Presented By

   Sanjay Patel, PE, CEM, CMRP
   Metropolitan Water Reclamation District of Greater Chicago
  - Jonathan Soulen, AICP, GISP Michael Baker Jr., Inc.

#### Overview

- Project Background
- Scope of Work
- Project Approach
- Take Home Points
- Questions

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- RFP Development
- Project Approach
- Stakeholders
- Schedule

• RFP Development:

### What are our needs?

- RFP Development:
  - Intercepting Sewer and Deep Tunnel
  - Industrial Waste Enforcement
  - Underground Utilities
  - Waterway and Stormwater Mapping
  - Biosolids

RFP Development

Draft/Revisions 2007/2008
Released August 2008
Interviews November 2008
Contract Executed July 2009

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Project Approach

 End User Involvement
 GIS Task Force
 Coordination with IT

- End User Involvement
  - Maintenance and Operations Department
  - Engineering Department
  - Law Department
  - Monitoring and Research Department
  - Information Technology Department

• GIS Task Force

- Meets Monthly
- Solicits Input
- Coordinates with other District projects

• Schedule

- Year 1 (July 2009)
  - Project Initiation
  - Database Design
  - Data Conversion
- Year 2 (2010)
  - Data conversion continues
  - Web portal development
- Year 3 (2011)
  - Project Complete

- Scope of Work
  - Intercepting Sewer and Deep Tunnel
  - Industrial Waste Enforcement
  - Underground Utilities
  - Waterway and Stormwater Mapping
  - Biosolids

 Intercepting Sewer and Deep Tunnel

- 535 miles of sewer and force mains
- 110 miles of deep tunnels
- 10,000 local sewer connections
- 20,000 contract drawings
- MMS Integration
- CCTV Videos

- Industrial Waste Enforcement
  - 2,200 industrial flow locations
  - Track industrial users
  - Industry type
  - Discharge locations

- Underground Utilities
  - Geographic layer of all sewers and structures
  - 20 foot buffer application
  - Identification by address/intersection

- Waterways and Stormwater
  - 76 miles of navigable waterways
  - 5 SEPA stations
  - 2 Instream aeration stations
  - 1,200 miles of small streams
  - 34 reservoirs

- Biosolids Processing
  - Biosolid application sites
  - Analysis of 60 to 100 sites per year for 12 years
  - 150 air quality monitoring stations
  - Groundwater monitoring stations

#### Portal Demonstration

• Portal Goals

- Easy to use
- Quick access
- One stop shop

#### Portal Demonstration

# DEMO

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#### Take Home Points

- Support from Top Management
- Request for Proposal (RFP) vs. Low-bid Contract Award
- End User Involvement
- Regular Meetings
- Ongoing Data Review and Acceptance
- Early Win (Web site deployment)

#### How to reach us

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### **Questions?**

#### **Thank You!**

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