INTEGRATION OF WORK ORDERS AND GIS SYSTEMS: YES, IT IS ACHIEVABLE!

Monday, August 29, 2016

PRESENTATION

WHAT IS IT?
WHY DO WE NEED IT?
HOW DID WE ACCOMPLISH IT?
AND... LET’S SEE IT!
WHAT IS IT?

ASSET MANAGEMENT AND GIS COMPUTER SYSTEMS

• The City of Bloomington utilizes the Infor Enterprise Asset Management (EAM) system to provide a powerful, integrated tool to fully manage all aspects of the assets and work orders within the Utilities Division.

• To maximize the EAM system, the Utilities integrated the system with the City’s new ESRI GIS system.
A Bit of Background...

• The Utilities Division began utilizing various versions of maintenance management systems in the late 1980’s through the late-1990’s.

• The City’s first enterprise-wide GIS was implemented in 1998.

• The Utilities Division upgraded to the EAM system in 2006.

• The EAM system includes equipment, hours worked and parts/materials.

• In 2014, the EAM was updated and enhanced and the GIS system was replaced with ESRI. The GIS conversion required thousands of hours to complete.

• The EAM and GIS systems were integrated in 2015.

• The updated and enhanced utilization of the EAM incorporates the GIS system. This project brought together thousands of equipment assets (~100,000).

• The equipment includes hydrants, water mainlines, water service lines, sewer mainlines, etc.
**A WORK ORDER/GIS INTEGRATION PROJECT**

**Project Timeline**

- Needs Assessment: August – October 2014
- Contract Negotiation: October – November 2014
- Project Schedule: December 2014
- Data Cleanup: October 2014 – January 2015
- Project Implementation: January 2015
- Project Completion: September 2015
- PWX Presentation: Today

**EAM WORK ORDER MANAGEMENT SYSTEM**

**OVERVIEW**
EAM WORK ORDER MANAGEMENT SYSTEM
PRIMARY SCREENS: WORK

EAM WORK ORDER MANAGEMENT SYSTEM
PRIMARY SCREENS: EQUIPMENT
EAM Work Order Management System

Primary Screens: Administration

ESRI Arc Map
WHY DO WE NEED IT?

IMPROVE ASSET MAINTENANCE

• Maintain and easily access assets and attribute information, tabular and graphical.

• Provide an easy-to-use system to manage work orders, materials, and track and manage equipment.
**SYSTEM INTEGRATION**

- Establish and maintain consistent asset information.
- Allow users to locate, capture and generate one or more work orders from the interactive map.
- Allow managers to add notations to maps and attach to associated work orders.
- Increase workforce efficiency by easily identifying and pinpointing widely dispersed assets for preventive maintenance and regular inspections.

**INTEGRATION**

- Eliminate redundant data entry.
- Improve productivity per resource by consolidating field work assignments based upon job groupings in a selected geographic area.
- Make better decisions and avoid costly delays by accessing critical information prior to servicing with a consolidated, easy-to-access view of asset location and history.
SO WE CAN... SEARCH AND VIEW ASSETS

100 FEET

Graphically locate Equipment integrated to GIS
- Common GIS tools
- Search with Dataspy and Filter
- Search by Layer
- Search by Geocode
- Search by Linear reference

AND THIS... MULTIPLE ASSETS

1,000 FEET
CREATE WORK ORDERS

WORK ORDER SCREEN
**WORK ORDERS WITHIN SEARCH AREA**

- Create Route
  - For multiple Point Assets
  - For multiple Linear Asset
- Incorporate problem codes, cost codes, status, etc...
- Assign Work Order

**CREATE WORK ORDER ROUTE**
MAP FUNCTIONALITY

INFOR EAM GIS INTEGRATION

CONFIGURATION IN ArcMap

Used to establish Link to Infor EAM
INFOR EAM GIS INTEGRATION

CREATE ASSET IN ArcMap

Used to provide user assistance on GIS extensions

INFOR EAM GIS INTEGRATION

CREATE WORK ORDER IN ArcMap

Used to create actions for Infor EAM technicians
**INFOR EAM GIS INTEGRATION**

**VIEW EVENTS IN ArcMap**

Used to view equipment history of events

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**INFOR EAM GIS INTEGRATION**

**ATTRIBUTE MAPPING IN ArcMap**

Used to establish field-attribute mapping rules

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**INFOR EAM GIS INTEGRATION**

**SYNCHRONIZE RECORDS IN ArcMAP**

Used to identify and create assets in Infor EAM.

**INFOR EAM GIS INTEGRATION**

**SYNCHRONIZE ATTRIBUTES IN ArcMAP**

Used to maintain field-attribute data integrity.
**INFOR EAM GIS INTEGRATION**

GIS Filter in ArcMap

Used to filter information presented on the GIS Map.

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**ASSET MANAGEMENT PROGRAM**

- Incorporates the information and data from the work orders as part of a Asset Management program.
- EAM captures the historic information of the equipment being inspected, maintained and/or repaired.
- The near-live EAM Reliability Module (RM) incorporates the historic condition, performance and reliability of the assets.
- The RM provides the analytical tool to observe, monitor and predict the remaining life cycle of each asset.
- This information will be reviewed by Administrative staff to help inform capital replacement decisions.
HOW DID WE ACCOMPLISH THIS?

HOW WAS IT DONE?

• Five consultant visits
• Support from administration
• A team of Bloomington staff
• A few bucks
• Many, many, many hours and...
STANDARD WEB-SERVICES BASED INTEGRATION VIA GIS EXTENSIONS TO ArcGIS

DATA CLEANUP AND STRUCTURE
DATA CLEANUP AND STRUCTURE

LET’S SEE IT...
MOBILITY

TECHNOLOGY UTILIZED TO CAPTURE FIELD DATA

TOUGHBOOKS
NETMOTION SOFTWARE
WIRELESS DATA CARDS AND HOT SPOTS
QUESTIONS?

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