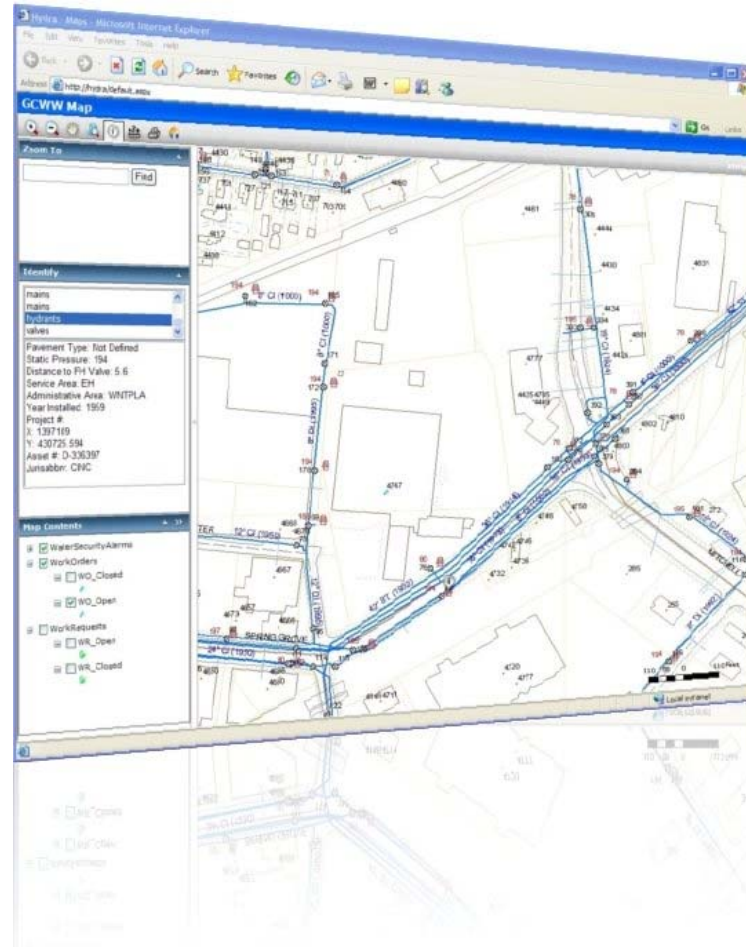


# Integrating GIS Using ArcGIS Server



# Integrating GIS Using ArcGIS Server



## Authors:

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Greater Cincinnati Water Works

## Abstract:

Accurate and timely communication about the status of work is critical to quality customer service in the water utility industry. There is an average of 1000 open work orders in the GCWW (Greater Cincinnati Water Works) system each day for an area that services 235,000 residents in a 400+ square mile area.

To provide this information to the customer service representatives and all other employees, GCWW has created a web mapping application using an ArcGIS Server and the Web ADF. The work order layer available through this application is populated and updated with each transaction that occurs in the work order system and is stored in SDE feature class. GCWW personnel can access this application through the online work order application or separately as an independent application.



## Enterprise Asset Management at GCWW

2001 – EMPAC Asset Management System

Works well for Facility Assets

Does not support GIS Assets

Integrated with custom GIS applications



## Brief History of GCWW GIS

- **1981 to 1989 Hamilton County and MSD Piloted Synercom-Based GIS Project**
- **1990 - CAGIS (Cincinnati Area Geographic Information System) Consortium**
- **1994 to 1995 CAGIS Converted GIS from Synercom to ESRI**
- **1994 to 1999 - GCWW WatNet/Master Plan Project (Black & Veatch Engineering)**
- **1998 to 2001- GCWW BranchNet Project (Black & Veatch Engineering)**
- **2001 - Conversion from ESRI ArcInfo/Librarian to ArcGis 8 SDE Geodatabase (Headache)**
- **2002 to Present Updating/Maintenance of WatNet, BranchNet and Premises Data**
- **2005 - Upgrade to ArcGis 9 platform (Headache)**
- **2007 - Implement ArcGis Server Technology To Map Work Orders and Water Quality Complaints.**



## 2008 GCWW Statistics

- **638,500 assets (in GIS)**
  - 244,000 Branches
  - 200,000 Water Mains (> 3,000 miles)
  - 70,800 Valves
  - 32,500 Fire Hydrants
  - 91,200 Fittings
- **240,000 customer accounts**
- **160,000 work orders per year**
- **149,000 of work orders are GIS asset work orders**
- **553 users**



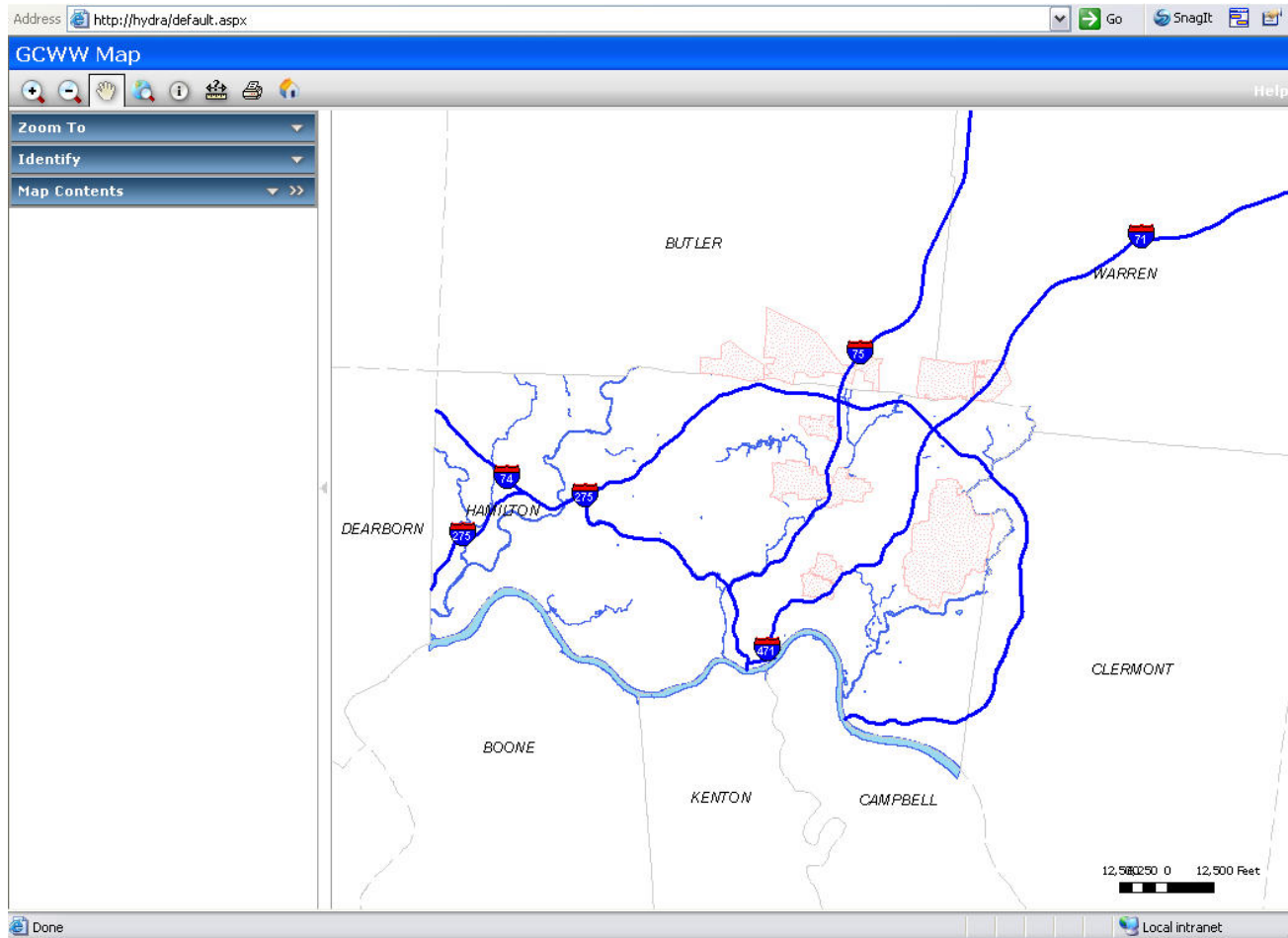
## Hydra Web Application Maps

- Default map zoomed to full extent
- Work Order/Work Request maps zoomed to 500 ft. envelope with home symbol
- Valve Card map without work layers
- Custom Identify with ability to send GIS asset information data to work order
- Custom Zoom To for addresses using Web Service
- Custom Work Order and Work Request layers, turned off by default
- Custom Identify for Work Order and Work Request layers
- Valve Card map allows data for valves and addresses to be sent to other screens to be viewed and stored

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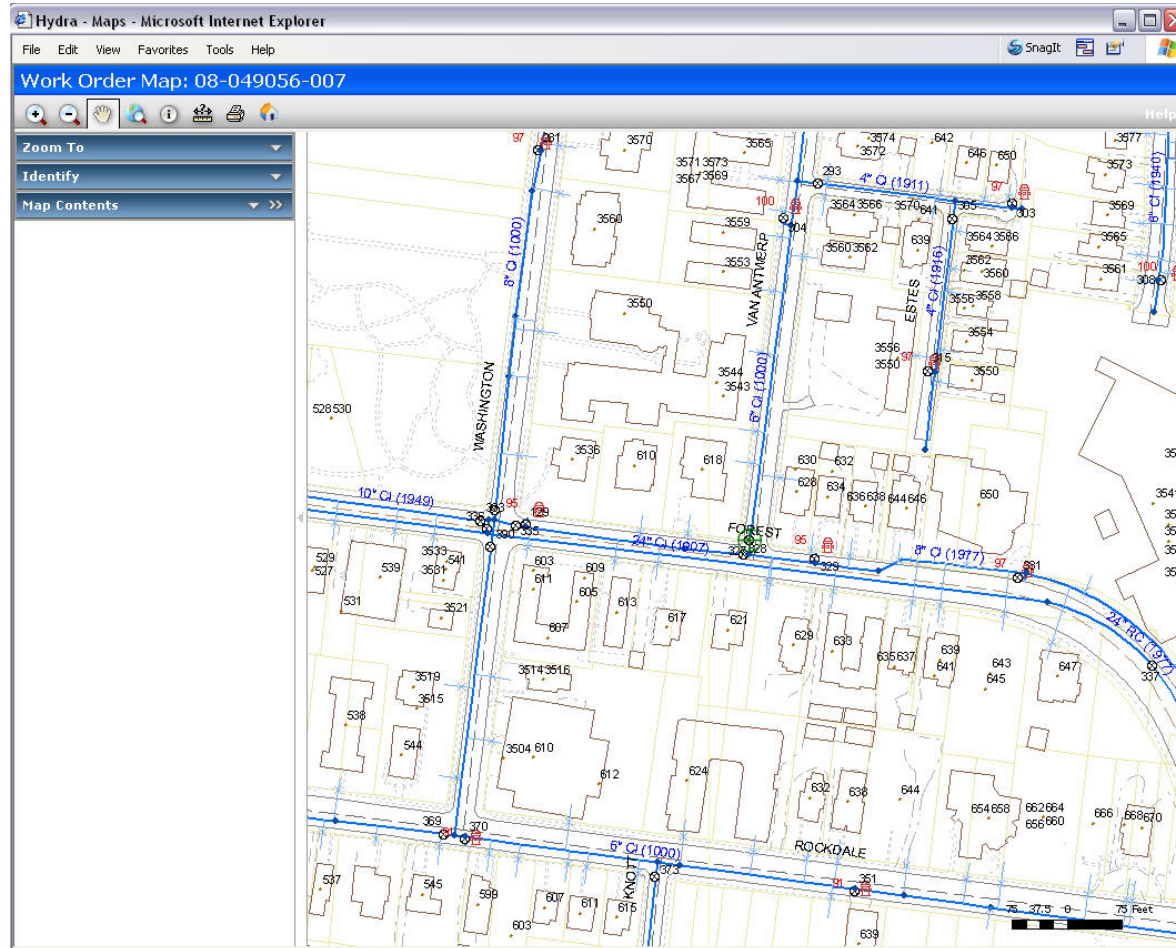
## Sample Screenshots – Default View



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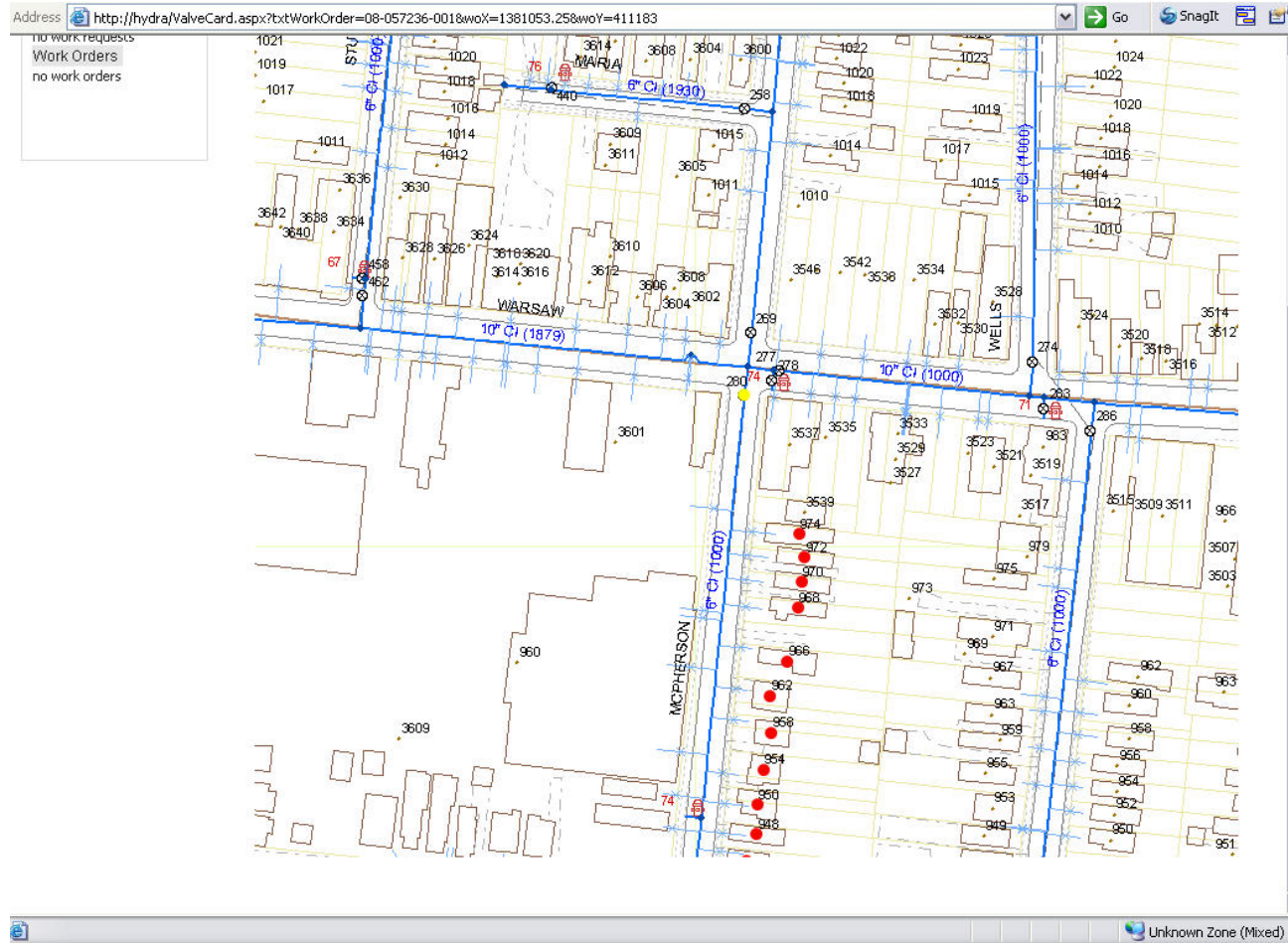
## Sample Screenshots – Work Order Map







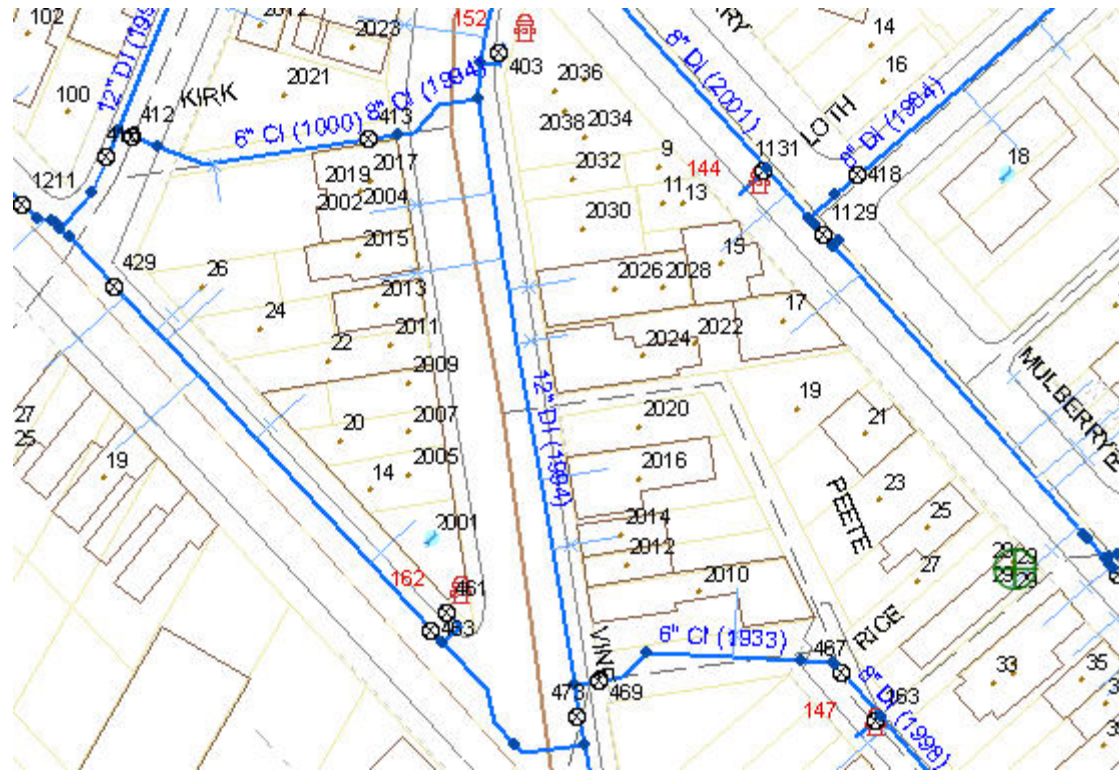
## Sample Screenshots – Valve Card Map



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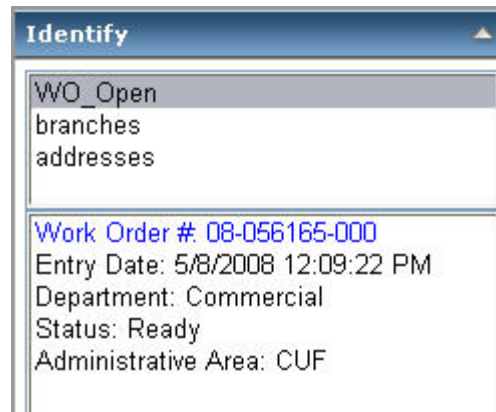
## Sample Screenshots – Mapped Work Orders



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## Sample Screenshots – Custom Work Order Identify with Link to Work Order





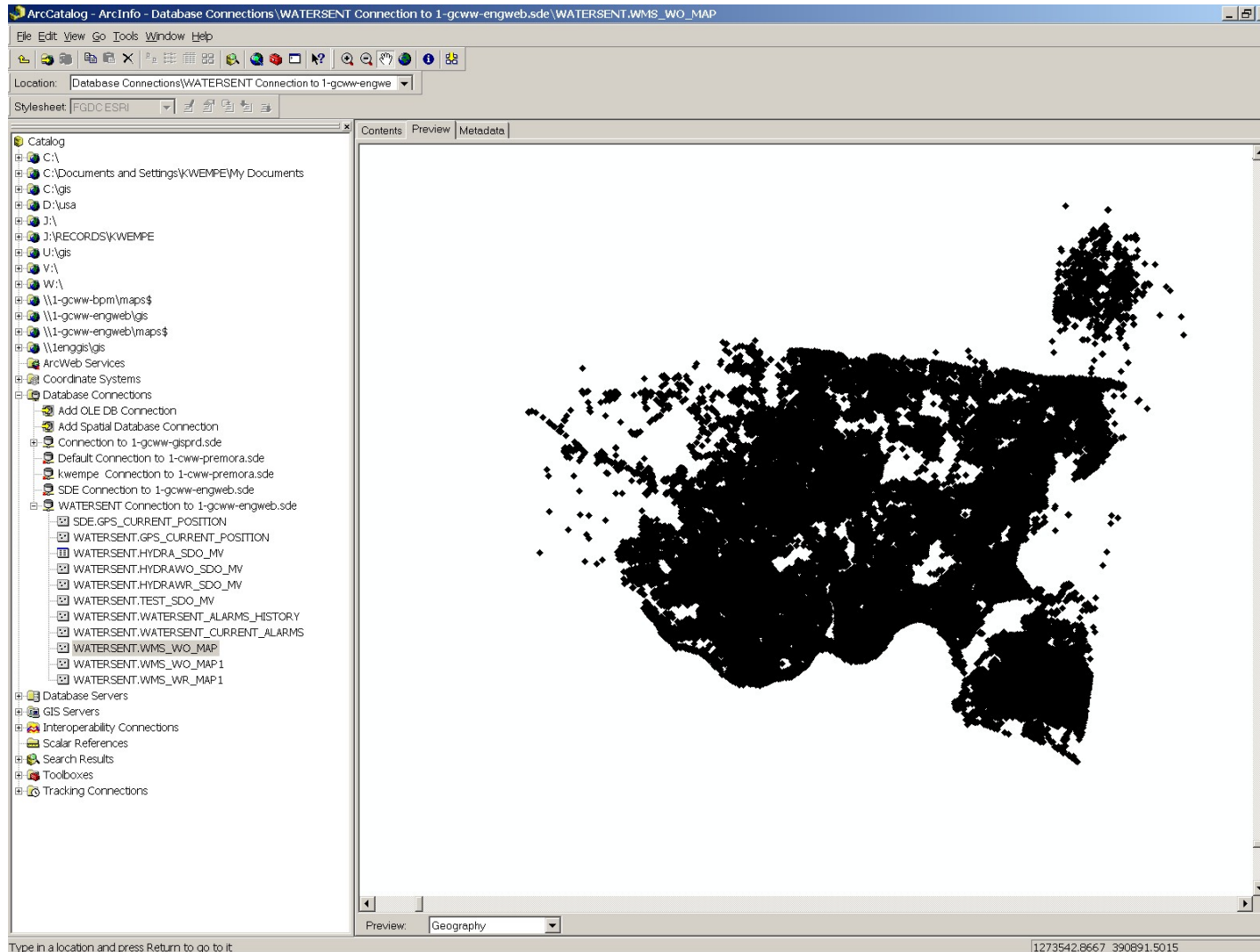
## Work Order Layer

- ArcCatalog Feature Class
- SDO Geometry

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## Use ArcCatalog to create SDO Feature Class





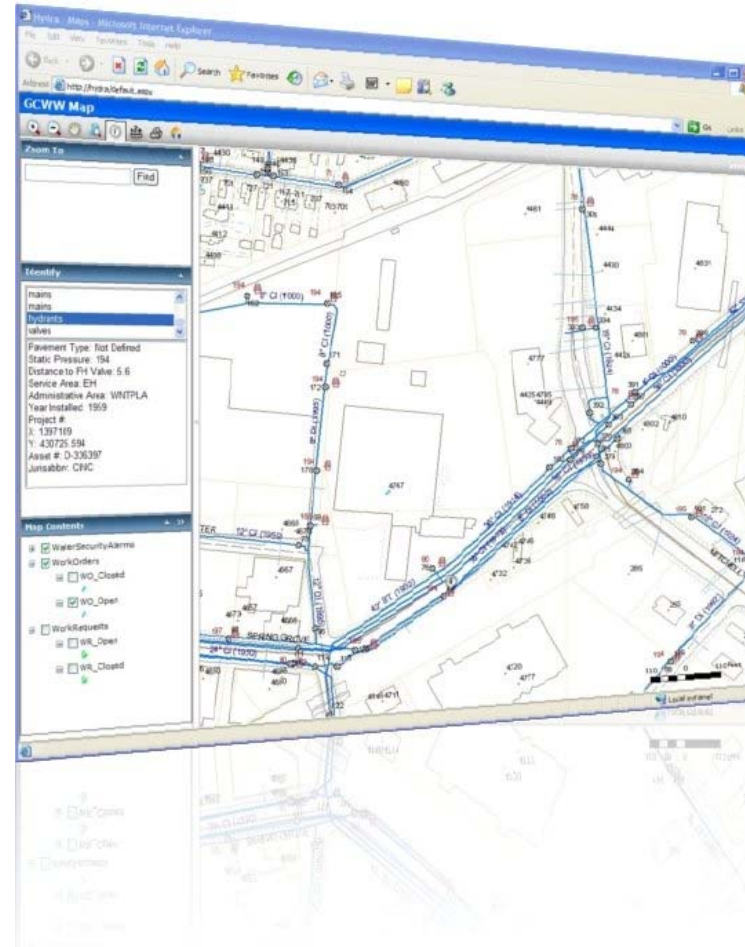
## Insert Statement using SDO Geometry Type

```
INSERT INTO WMS_WO_MAP
    (OBJECTID, WORK_ORDER_NO, SHAPE, STATUS,
    DEPARTMENTID, ENTRYDATE)
VALUES
    (hydrawomap.NEXTVAL
    ,vworkno
    ,sdo_geometry (2001,NULL,SDO_POINT_TYPE
                  (X_CORD, Y_CORD ,NULL),NULL,NULL)
    , vstatus
    , vdeptid
    , ventrydate);
```

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## Demo





## Conclusion

- Questions