Sonoma County Water Agency

Building a County Wide Sanitation GIS

By
Tim Gahagan
Sonoma County Water Agency
GIS tech II
Presentation Overview

- History of agency’s sanitation atlas
- Options for converting CAD features to GIS
- Options for populating attribute information
- Benefits of GIS mapping for sanitation districts
The Sonoma County Water Agency is responsible for 8 different sanitation zones or districts county wide serving:

- 33,000 ESD’s (equivalent single family dwelling)
- 20,000 parcels
- 250 miles of pipe
- 6,000 manholes and cleanouts
Pre GIS Atlas Mapping

- Hand drafted books - costly & poorly maintained, several "Master" copies
- Parcel base very difficult to manage
- Unable to view historic data
Page Example from Old Sanitation Atlas Book *with field notes*

- Copy of engineer drawing taped to page
- Added features – hand written
- Notes of abandoned features
Conversion to GIS

Where to Start?

- **Presence of Block Attributes**
  - Export from CAD

- **Staging using Toolbox Conversion Tools**
  - Use Import CAD Annotation into FGD

- **Select CAD features by attributes**
  - Layer, Color, etc.
Exporting from CAD

With Block Attributes available

• "Layiso" command to select CAD objects
Exporting Block Attributes from CAD
Map > Tools > Export > Data tab

```
[Select Attributes]
Expression:
- [ ] Properties
- [ ] Object Data
- [ ] Block Attributes
  - [ ] APNO
  - [ ] PARCEL
  - [ ] PROJ_NAM
  - [ ] WMH
  - [ ] W00_ID
- [ ] Object Properties
```

Jun-08
Creation of File Geo Database

Import Existing Sanitation Schema
Once Shapefile/Feature Class is Available

Options for importing into Database Schema

- Data loader (simple feature class)
- Copy and paste (non simple feature class)

*Use join table to bring over other MH info stored in a dbf table
Store Other Attributes in Excel Table for Importing

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Jun-08 2008 ESRI UC San Diego
More Tools for Building the GIS
Examples of custom scripts available to assist in building a pipe network:

- Transfer Invert Elevations from Manholes to Mains
- Generate Manhole ID’s
- Calculate Accumulation
- Auto Sewer Laterals

ESRI Knowledge base - ArcScripts search “Teamwater”
Once Data is Stored in GIS...

- **Link to base map information maintained by other departments**
  - Parcel and Address data
  - Road Centerlines
  - Right-of-Way, easements

- **Easily distribute updated maps**
  - Hard copy atlas
  - Intra-net service

- **Link to O & M line cleaning and stoppage reports**

- **System stored in SDE Geodatabase available for analysis**
Organizational Chart for SCWA Sanitation GIS Development

Sonoma County Water Agency (SCWA) – Sanitation GIS Update and Data Distribution Flowchart

- College Ave Service Center
  - Stoppage DB
  - Daily Line Cleaning (DLC)

- Master parcel connect DB
- XLS data
- Local Muni Info
- CAD & scanned docs
- Video Logs
- Plan Drawings
- Field data GPS
- ArcPad/Access
- County GIS Central roads parcels imagery
- SDE Features

- Update of Access databases
- SDE GIS Geodatabase, Features & Views

- GIS Server Services and Applications
- Hard Copy WOD map Atlas

- SCWA Service Center
- Maintenance Crews
- Web Service Uses
  - Underground Service Alerts (USA)
  - Maintenance Scheduling (DLC)
  - Stoppage Reports
  - Regulatory Compliance Reports
  - Utility Checks

- Agency Staff
  - Engineers
  - Inspectors
  - Planners

Legend:
- Direct editing to the Sanitation DB by others
- Agency GIS Central; edits and updates
- Data Distribution

Note: pdf data\sanitation\GIS Admin\Docs\Sanitation GIS Flow Chart.doc
New Hard Copy Atlas for Each District
Water Agency Intranet Web Application for Sanitation
Analysis on Web Applications
Map Daily Line Cleaning Schedule
Map and Analysis of Historical Data

Incorporate Custom Models

Search past overflows within 2,000 ft of current spill
Running Custom Tools from Desktop or Web Application
Network Tracing on Desktop
Future Enhancements to GIS

- Addition of Storm Drain layer when available
- Addition of DEM for more precise spillage analysis
- Interface with Maximo and maintenance scheduling
Conclusion

• **Several options to converting CAD features to GIS**
  – Which is best for you?

• **Options getting attributes into GIS**
  – Some manual entry might still be required

• **Benefits to mapping in GIS**
  – Custom Desktop and Web analysis
End of show!

Thank you for your interest!

Questions?

Please contact Tim Gahagan at the Sonoma County Water Agency
tgahagan@scwa.ca.gov