



THIRD WEST COAST WATER UTILITIES WORKSHOP

GEOGRAPHIC INFORMATION SYSTEMS (GIS) & GLOBAL POSITIONING SYSTEMS (GPS)



The *Experience* of Building a GIS for a Wastewater Treatment Plant



Tim Hayes

Senior Geographic Systems Specialist -
Geographic Information Services Team Leader

San Jose/Santa Clara Water Pollution Control Plant
City of San Jose Environmental Services Department



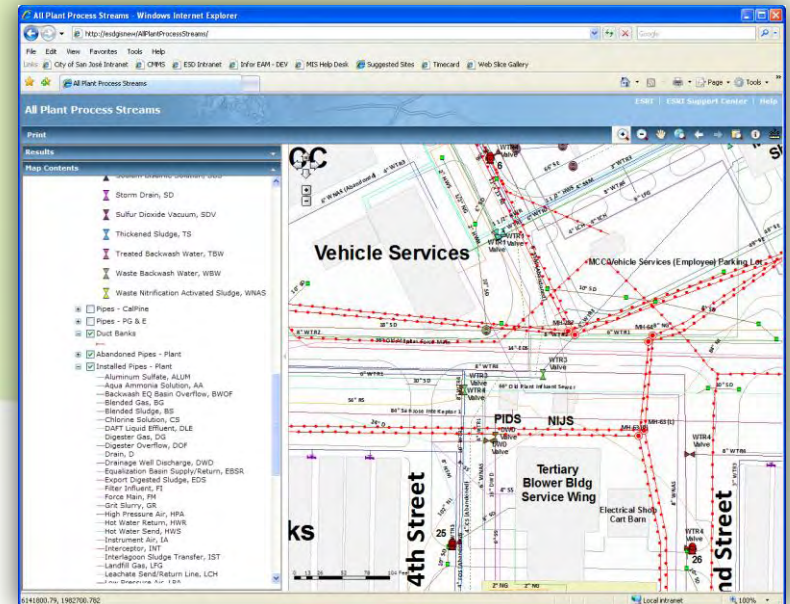
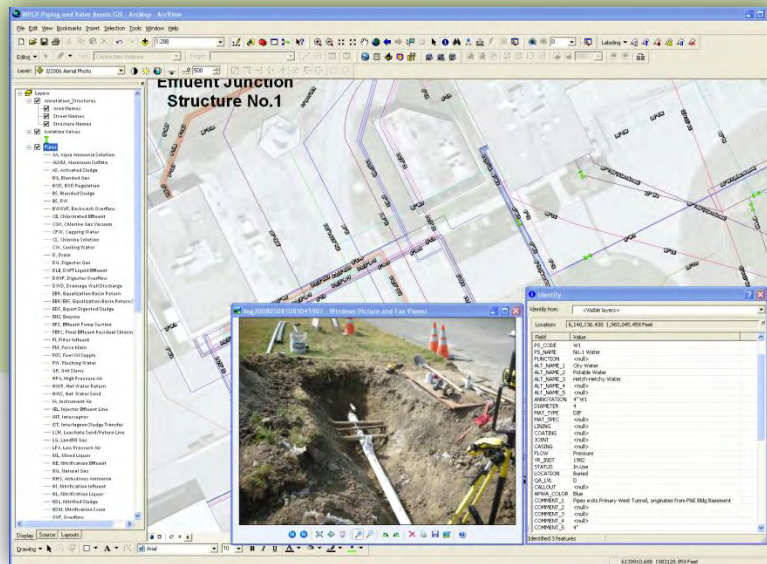
***“Knowing where things are, and why, is essential to
rational decision making”***

ACCOMPLISHMENT:

One-Stop Shop for data on all Pipes, Duct Banks, Fiber Optic Lines, Valves, and more.

MAKING A DIFFERENCE:

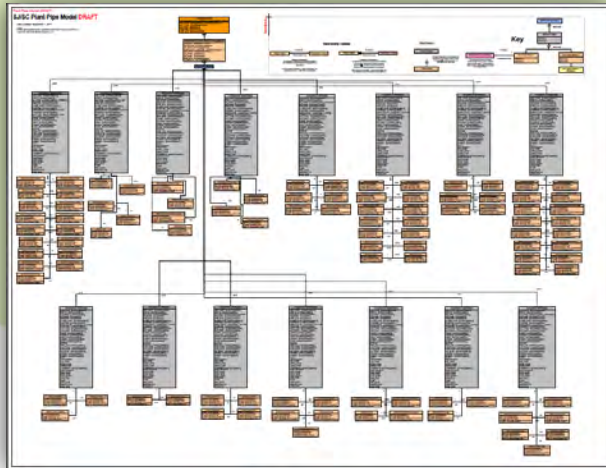
- ✓ 24/7 quick and easy online access to maps which identify isolation valves to close during a leak!
- ✓ Training aid for new staff!
- ✓ No more spending hours searching through mountains of drawings!
- ✓ No more dependence on the “old timers”!
- ✓ Know what is buried where!



GIS is a Decision Support System

CHALLENGES OVERCOME:

- Many inaccurate, misplaced, missing drawings
- Knowledge drain (retirements, etc...)
- No system in place for records/data management
- Undocumented pipes and valves



KEY TO SUCCESS:

- ✓ Think long-term (*years, not months*)
- ✓ Must have dedicated and innovative staff
- ✓ Must have Plant leadership support
- ✓ Limit the use of outside consultants
- ✓ Must have software/hardware systems in place



GIS is the “glue” which holds all the pieces of the puzzle together



How GIS Improves the Reliability of Our Wastewater Collection System



Carl Von Stetten

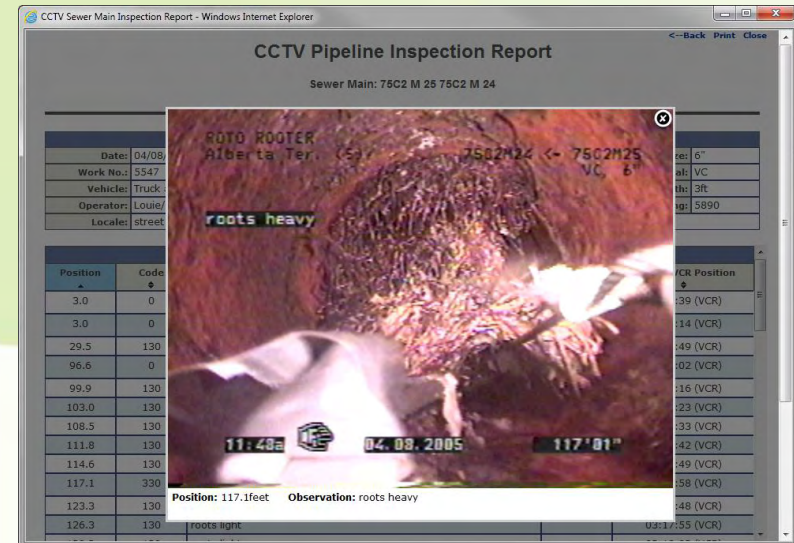
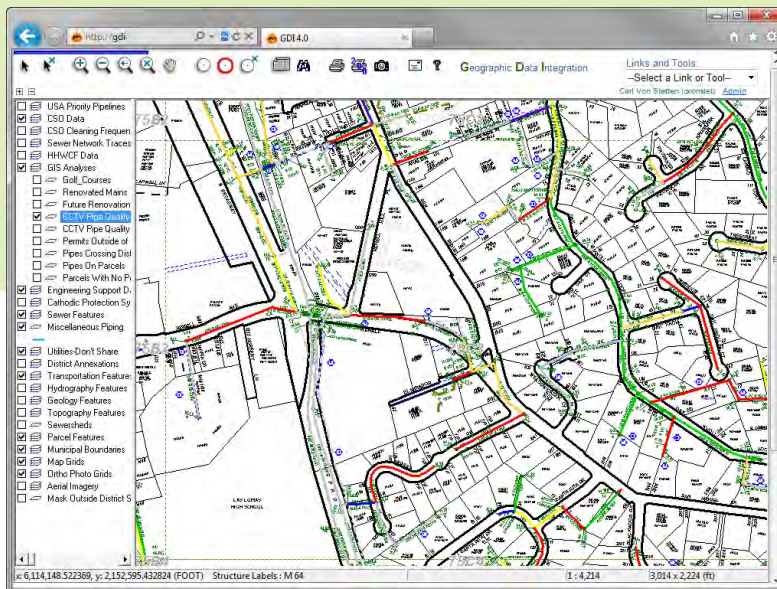
Geographic Information Systems (GIS) Analyst

Central Contra Costa Sanitary District



GIS Provides Significant Staff Time Savings

- Map book production moved from CAD drawings to GIS
 - Before GIS: 4 Full-Time Equivalents (FTEs) x 2.5 years to revise 750+ maps
 - With GIS: 2 FTEs x 6 months to revise 790 maps
- Web GIS portal improved renovation project planning and research
 - Before GIS: 2 months of staff engineer time to find and collect as-builts, maintenance, capacity, and CCTV inspection data; manually prepare planning maps
 - With GIS: 4-6 hours of staff engineer time to gather same data online; planning data already available as map layers
 - Training for Web GIS portal in 30 minutes or less!!!



Lessons Learned and Plans for the Future

- Other Benefits, Some Unanticipated:
 - Web GIS portal Permit Counter
 - Quick access to information improves customer service
 - Mobile version of Web GIS portal aids maintenance crews
 - Provides data for emergency response, including topography and nearby creeks
 - USA locating crews have accurate locations of pipelines
 - Sewer mains connected to medical facilities clearly identified with biohazard symbol
 - Providing CCTV inspection data promotes focused cleaning (quality)
 - Mobile version assists renovation project manager and right-of-way agents
 - While visiting homeowners, can show how project impacts them
- What's Next?
 - Integrate various independent databases into enterprise GIS to improve information flow and reduce redundancy of data and effort
 - Deploy a mobile GIS-based maintenance management system to field crews using ruggedized tablets/notebooks, with GPS and routing for maintenance assignments





GIS AT San Jose Water Company

Jeff Hobbs
GIS Coordinator
San Jose Water Company



Innovations

- Web Portal
- GPS for Location
- Video
- Photo



Direction Facing: South

Latitude: 37 18.718416290
Longitude: -121 58.976991446
Elevation: 171 ft



Lessons Learned

- Change = Bad
- No Change = Bad
- Labels = Good
- Constant Feedback

