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

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

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

“Rome was not built in a day”
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
Lessons Learned

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