Cities Reap Benefits by Creating Software Marriages That Work

Public Works Directors and City IT Managers around the country are being tasked with creating simple integrated software solutions to collect data and utilize their various technology tools more efficiently.

Although every municipality has its own unique set of challenges, personnel and tools, when speaking with a group of municipalities around the nation, many commonalties were found when it came to usage, implementation and the solutions that these communities need or expect their software technology to solve.

The Double Entry Dilemma and Software "Engagements"

The most common problem facing all of the directors/managers interviewed was finding a way to eliminate double data entry and have all of the data in an easy to access electronic format. All were Hansen Information Systems users for some time and the bulk of the double entry issues were related to data collected from CCTV pipe inspection surveys.

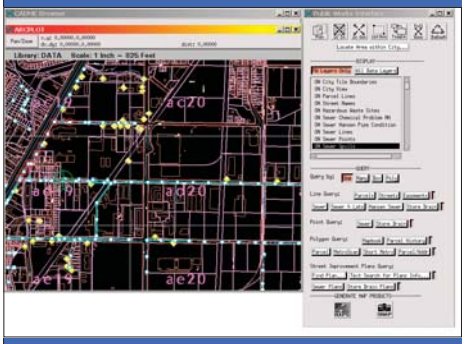
The City of Salem, Oregon currently has its own crew conducting inspections throughout its sewer system and the operators are equipped with a laptop running Hansen. The operators conduct the survey, logging defects into the CCTV inspection system survey software, run reports and then that data is transferred by hand to the Hansen system on the laptop. Recently, the city needed to utilize a contractor to inspect 360,000 feet of storm lines. The contract stipulated that the contractor must utilize data collection software that would interface with Hansen. The solution

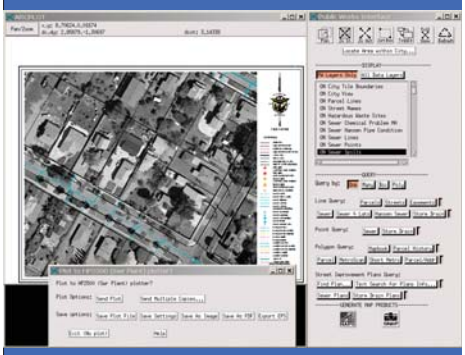
flexidata™

Case Study

- *flexidata™ pipe survey reporting software offers a streamlined solution for the collection and sharing of pipe survey data that works with all CCTV inspection systems.*

The program offers many standard interfaces with well known asset management programs such as Hansen and GBA Master Series. Custom interface application services are also available through flexidata's in-house software engineering and design team.





The Public Works Department of the City of Riverside, California, is an excellent example of several great software marriages.

Riverside utilizes CADME by ESRI and it is linked to Hansen. The CADME program is used to indicate where there are laterals or manholes and provides overlays for all of the utilities for the city along with overhead photos. When changes are logged, they occur in both CADME and Hansen. With this up to the minute accurate information, the City can effectively answer customer concerns quickly.

was *flexidata™* pipe survey software along with Hansen's *Neztek Data Exchange Utility* (NDEU). With these two packages, Salem is able to provide all of the project and work order information to its contractor very quickly. The work order/project data is imported into the contractor's *flexidata* software program through the NDEU and the contractor is ready, possessing all of the information required to begin its projects. When the project is completed, the contractor data is exported back through the NDEU into Hansen including picture files and the database is updated seamlessly. It has exposed improved efficiency opportunities for Salem, Ronald Williams, Hansen Database Coordinator explained, "Since we've seen what can be done with this outside contractor, it is making us rethink what software we should be using for our own inspection crew. With these packages, we can bypass our laptop situation and eliminate double entry."

For the City of Fort Lauderdale, they have dealt with two different double entry challenges. The first was solved with the implementation of Hansen which offered a single application solution for its customer service and work orders. This had previously been handled by two different applications that had an interface between the two that wasn't efficient. The second has arisen within their CCTV inspection department. Fort Lauderdale had been utilizing Field Works and were quite happy until a need for picture and video clip capture developed and the program, though excellent and well liked by the inspection crew, was not able to meet the City's growing needs. The crew is currently collecting data in the field, and then manually entering it in the office. During the recent Hansen IIC in Sacramento, Kathy Brown-Wynn, Process Control Engineer was tasked with finding a solution. As a result of seeing the *flexidata, Hansen Neztek DEU* and *Hansen* interface demonstration at the conference, the city is moving towards implementing these packages to remove its manual entry issues and resolve its image capture requirements.

Taking Full Advantage of the Relationships

The Public Works Department of the City of Riverside, California, is an excellent example of several great software marriages. It too at one time, dealt with the double entry dilemma for its pipe survey data collection. A Hansen user since 1993, Riverside has seen many changes and growth since implementation.

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In the beginning, due to budget constraints, for the collection of its pipe survey data, Riverside utilized a Pinnacle screen capture, created MPEG files and at the same time would run its video recorder. They used a CD version of CADME in the field and all of the data would then be compiled in an Excel form. This Excel form was then sent to the city engineering office where corrections and input were made to the database. Often the workload would become burdensome and could not be completed in a timely fashion so the Public Works Department would pitch in. Then, the City learned about *flexidata* and Hansens NDEU and with its implementation, all of the individual software products previously used and the input of the Engineering Department for the collection of accurate pipe survey data were no longer needed. "Now we can correct these problems ourselves and the Engineering Department is freed up to do what is priority work for them, what they are being paid for—engineering" related Ernie Meloy, Field Maintenance Supervisor.

Video inspection is just a small part of what the Riverside Public Works Department does but is considered a vital function. Meloy explained, "I've noticed that the more technically proficient you become, the more people who aren't, accept what it is that you're doing or you're telling them. For example, with the ability to access information instantly, a video of a line can be brought up on a laptop for a contractor, the problem is

pointed out – there's no argument, they'll just fix it, what else can they do. That's just one great benefit of technology."

In Northern California, Noel Russell, Underground Construction and Maintenance Foreman for the El Dorado Irrigation District realized that his organization had yet to tap into the full potential of their Hansen system and other maintenance/data collection programs. Russell had been using *flexidata* on the district's Pearpoint CCTV truck for about 4 years and the Hansen system for about 2 years. The organization generates the bulk of its repair scheduling through CCTV inspection. By utilizing the Hansen system along with *flexidata* and NDEU, Russell and his team are now able to produce an accurate account of what their system requires. Like other users, double data entry existed at one time, but by implementing the data exchange, the database is becoming an efficient time saving production tool. One important benefit has been the ability to stay ahead of the inspection crews. Fifty percent of El Dorado's system is in the older areas in utility easements without access roads, primarily in back yards. By having the inspection and Hansen data readily available, Russell can pinpoint the manhole to the address, the customer and contact them by phone vs. the old way of hang tags, knocking on doors and waiting for the callbacks. The work is now scheduled efficiently and with the least amount of inconvenience to the customer. Russell related, "the improved contact with customers through using just this one small part of our integrated system has been a big help."

Bonus Benefits of Working Together

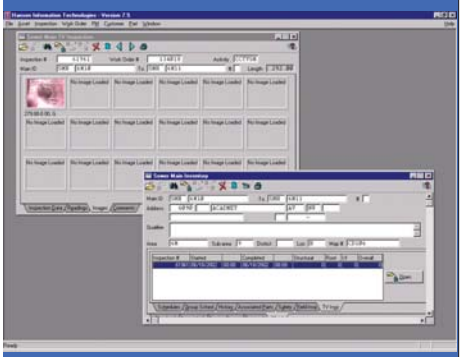
A proactive program of pipeline inspection brings many benefits to a community. In addition to the obvious improvements in maintenance, customer service and environmental impact reductions, gathering and compiling this data often provides unforeseen "gifts".

For Harvey Hansen, Director of Public Works for the City of Ketchikan, Alaska, bringing their inspection work in-house brought many new benefits and cost savings. Ketchikan received a grant from the Alaska Department of Environmental Conservation. This grant allowed the city to put together a contract that called for a contractor to inspect the City's sewers, provide a CCTV inspection van, camera system and pipe survey software, train Ketchikan's crew and leave the inspection vehicle and equipment behind, thus creating a self-sufficient inspection department to continue the surveying project.

Of interesting note is Ketchikan's decision to use the WRc Coding system for the assessment and identification of pipe defects. Another Hansen user, the City of Burnaby, British Columbia, introduced them to the WRc system. Burnaby is quite advanced in their pipeline inspection work and with the assistance of a local contractor (Prism Pipeline Services), training schools were put together and several members of the Ketchikan inspection crew became certified. Ketchikan purchased the WRc compliant version of *flexidata* for their inspection van and are quite enthusiastic about utilizing this standard of coding. "We encourage other cities to look at using the WRc method for if everyone uses the same rating, we can begin to share information among various cities and it would be very useful for comparative studies", Hansen stated.

Having all of their survey data compiled has been of special benefit to Ketchikan. Hansen explained, "a picture is truly worth a thousand words. When we've have applied for grants recently, we've taken reports from *flexidata*, including photos and when the ADEC (Alaska Department of Environmental Conservation) sees the condition of the sewers, there isn't much question that we need assistance." Another benefit of tying the information together is efficient scheduling of work. The City can now perform projects in conjunction with other departments such as the replacement of a water line along with a sewer line or other road repair to reduce inconvenience for their community.

In Riverside, Ernie Meloy and his team have taken their pipe survey data to another level. By integrating the information into the CADME system as mentioned earlier, every department has access to it. With this system, anyone can click on a section of the map, and all of the details are displayed for them, such as when the last time the line was



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❒ *City of Riverside utilizes conditional maps which allows the city to study pipe conditions and how they correlate to spills. With film overlays, they are able to determine relationships to problems such as heavy roots or grease. It will also aid in determining where heavy solids are accumulating. This could also be a potential tool for more effective and accurate flow modeling of a system.*

cleaned or its condition at last inspection. The CADME map isn't a static map—Riverside has made it a conditional map to be used to depict a condition or multiple conditions. Creating this functionality was no small task. Meloy related, "I asked for this to be done and worked with a team of people in the Public Works Engineering Department that did the programming that allowed this to happen. They can't be given enough credit." One way the city uses this information is for the study of pipe conditions and how they correlate to spills. With film overlays, they are able to determine relationships to problems such as heavy roots or grease. It will also aid in determining where heavy solids are accumulating. This type of information has other potential uses for the city as well. Meloy sees this as a potential tool for more effective and accurate flow modeling of a system. In a typical flow model, there is the assumption that the condition of pipe is clean and without defect. The mapping system takes into account the slope of the pipes, diameter and actual condition. When flow modeling for the building of a new subdivision upstream is performed, by utilizing the conditional maps and their specialized data, a more precise picture of the ability for the system to handle the increased load would be generated.

CMOM Considerations

Another reason for implementation of efficient data tools is CMOM. The new CMOM regulations are going to have a great impact on cities nationwide. By implementing technology that can accurately capture and store the wealth of information regarding a municipality's infrastructure will make compliance and creation of proactive maintenance programs easier under the new Federal mandates.

Planning for Our Futures

Ernie Meloy of Riverside summed up the importance of software implementation and data marriages quite appropriately, "You can see your system changing, it is a very living thing. At this particular point in history and time, what we're doing with this technology and data will affect everything that will be done in the future. It will carry on for literally generations and generations and that is pretty exciting."

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