

# **Audit**

## **Follow-Up**

**As of February 8, 2012**



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City Auditor

## **Water Infrastructure**

**(Report #0919 issued September 30, 2009)**

**Report #1207**

**February 24, 2012**

### **Summary**

*As of February 8, 2012, Underground Utilities has completed 28 of the 33 action plan steps due for completion as of September 30, 2011. Because of significant actions completed and/or management determinations, responsibility for ensuring completion of one more of those 33 steps has been turned over to Underground Utilities management. Actions are on-going to complete the other four steps. An additional nine action plan steps are due for completion subsequent to September 30, 2011.*

In audit report #0919 we noted that, overall, Underground Utilities adequately accounts for and maintains the City's water infrastructure. We reported adequate processes, for the most part, were in place to ensure new infrastructure is properly designed and installed, and to ensure replacements and expansions are adequately planned and funded. As noted, several of those processes were the result of recent improvements and enhancements initiated by Underground Utilities. We also identified issues indicative of the need for further improvements and enhancements. Accordingly, recommendations were made that related to:

- Physically accounting for and tracking infrastructure components;
- Maintaining infrastructure;
- Designing, constructing, and installing new infrastructure; and
- Planning infrastructure replacements.

Forty-two action plan steps were developed to address the identified issues. Thirty-three of those steps were due for completion as of September 30, 2011. As of February 8, 2012, twenty-eight of those action plan steps had been completed. Four of those were completed during or subsequent to this follow

up period (April 1, 2011, through September 30, 2011). Because of significant actions taken by Underground Utilities during this follow up period, responsibility for one additional action plan step was turned over to management to ensure final completion. We also noted that actions were taken during this follow up period on four additional action plan steps for which additional actions still must be taken before those four steps are completed.

Actions taken by Underground Utilities (relating to nine action plan steps) during the period covered by this review included:

- Implementation of revised procedures and processes to ensure new water infrastructure additions are properly and timely recorded in the City's GIS (represents completion of two action plan steps).
- Determination that current processes for elimination of temporary recordings of water meters in the GIS are appropriate under the current circumstances (represents resolution of one action plan step).
- Enhanced the process relating to creation and completion of work orders within the Mobile Work Management System and training staff on those enhanced processes (represents completion of two action plan steps).
- Issued a request for proposals for new contracts for water (and sewer) infrastructure components, received and evaluated related responses, and initiated negotiation of a contract with the vendor that provided the best response (represents additional actions initiated that relate to three action plan steps).
- Initiated research to determine if it would be feasible to create a system interface that would allow more efficient and practicable creation of system work orders (represents initiation of one action plan step).

We appreciate the cooperation and assistance provided by Underground Utilities staff during this audit follow-up.

### *Scope, Objectives, and Methodology*

We conducted this audit follow-up in accordance with the International Standards for the Professional Practice of Internal Auditing and Generally Accepted Government Auditing Standards. Those standards require we plan and perform the audit follow-up to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit follow-up objectives.

### *Report #0919*

The scope of report #0919 included a review of Underground Utilities' processes established to install (construct), maintain, and account for the City's water infrastructure. The objectives were to determine whether:

- Adequate and complete records were maintained to enable Underground Utilities to effectively and efficiently track, monitor, and manage the City's potable water system (water) infrastructure;
- The Underground Utilities had a process in place to ensure the City's water infrastructure is appropriately maintained in accordance with industry standards and state regulations;
- The Underground Utilities had a process in place to ensure additions and changes (expansions, relocations, and replacements) are properly designed, constructed, and installed;
- The Underground Utilities had a process in place for planning, funding, and providing for replacement of certain water infrastructure components at the end of their useful service lives; and
- The Underground Utilities had an adequate process in place for planning and funding water infrastructure expansion due to City growth and increased demand.

The audit focused on programs and processes in effect during the time of our initial audit fieldwork in winter and spring 2009.

### *Report #1207*

This is our fourth follow-up on action plan steps identified in audit report #0919. The purpose of this follow up is to report on the progress and status of efforts to complete action plan steps due for completion as of September 30, 2011. To determine the status of the action plan steps, we interviewed staff, made observations, and reviewed relevant documentation.

### *Background*

The City's Water Utility was established in 1907. Effective April 1, 2008, the water, sewer, gas, and stormwater utility functions were consolidated into a new City department, Underground Utilities. At the time of our initial audit, the City's water infrastructure was comprised of:

- 27 active production wells;
- 8 elevated storage tanks;
- 1,224 miles of water mains;
- 73,440 water laterals (representing pipe sections connecting water mains to residential or commercial premises or to fire hydrants);
- 6,949 fire hydrants;
- 24,489 system and control valves (excluding valves on individual service lines); and
- Other miscellaneous components comprised of various fittings (e.g., bends, caps, sleeves, taps, etc.).

Traditionally, water infrastructure expansion and replacement has been performed by a combination of City crews, City contractors, and private developers. For example, City crews or contractors hired by the City may be used to install new water infrastructure as part of a road infrastructure project. On the other hand, a private developer may have water infrastructure installed when building a new neighborhood. Upon completion of that new development (neighborhood), the City will take ownership of that infrastructure.

Several Underground Utilities divisions perform functions pertaining to water infrastructure, including:

- Constructions and Operations;
- Gas Operations and Regulatory Compliance (helps maintain water valves in addition to gas valves);
- Water Quality;
- Water Resources Engineering (WRE); and
- Business and Technology Development.

There are two major software applications used to help track, maintain, and manage the City’s water infrastructure: (1) Geographic Information System (GIS) and (2) Mobile Work Management System.

The primary authorities that control and regulate the City’s water distribution system infrastructure are the Florida Department of Environmental Protection (FDEP) and Northwest Florida Water Management District.

Costs incurred under capital projects established for the City’s water infrastructure in fiscal year 2008 totaled \$9.1 million.

**Previous Conditions and Current Status**

In report #0919, we noted that, overall, Underground Utilities adequately accounts for and maintains the City’s water infrastructure. We also identified issues indicative of the need for further improvements and enhancements.

Forty-two action plan steps were developed to address the identified issues. Of those 42 steps, 33 were due for completion no later than September 30, 2011. As shown below in Table 1, as of February 8, 2012, Underground Utilities has completed or resolved 28 of those 33 action plan steps. In regard to the remaining five action plan steps due for completion as of September 30, 2011:

- Responsibility for finalization of one action plan step is turned over to Underground Utilities management because of significant actions taken to date and/or management decisions regarding the underlying circumstances.
- Actions are in progress to complete the other four steps.

**Table 1  
Action Plan Steps from Audit Report #0919  
Due as of September 30, 2011, and Current Status (as of February 8, 2012)**

Action Plan Steps Due as of September 30, 2011	Current Status (as of February 8, 2012)
<b>Ensure new infrastructure is added to and tracked in GIS</b>	
<ul style="list-style-type: none"> <li>• A formal process will be established to identify and track external and internal projects involving the addition of new components to the water infrastructure. That process will include assigning responsibility to a project manager for ensuring new components are added to the GIS. A quality assurance/quality control process (QA/QC) will be developed and used to verify and document that new components are added to the GIS.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Underground Utilities has implemented several actions to help ensure new water infrastructure installations (components) are added to the GIS. Steps taken include:                             <ul style="list-style-type: none"> <li>– Specific employees within the Underground Utilities Business and Technology Division and the Water Resources Engineering (WRE) Division have been assigned responsibility to track internal and external projects and coordinate with each other for the purpose of ensuring “as-built” or other appropriate drawings are obtained and entered into the GIS. We found the designated employees are communicating and coordinating with each other to ensure new infrastructure is being entered into the GIS.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>- The designated employee within the Underground Utilities Business and Technology Division meets periodically with Underground Utilities construction and operations staff to identify “in-house” infrastructure additions (and revisions), obtain the related field drawings, and record the new (or altered) components into the GIS. To facilitate remittance of completed field drawings for this purpose, collection containers have been strategically located for construction and operations staff to place their completed field drawings. (Audit observed several construction and operations staff remitting completed field drawings to the designated business and technology staff during the time of our follow up fieldwork.)</li> <li>- In addition to the above, Utility Services “locators,” who find and mark City utilities before underground construction is started by City or non-City entities, are now assigned responsibility for informing GIS staff when they determine actual underground utility infrastructure locations or components are different from what is indicated by the GIS. That information is used by the business and technology staff to enhance the accuracy of the GIS.</li> </ul> <p>Underground Utilities staff indicated implementation of the above processes and procedures are helping significantly in ensuring new, altered, and existing infrastructure is timely and/or properly recorded in the GIS. That staff also indicated the processes and procedures continue to be refined and improved. Our review of two selected as-built or other drawings from the WRE Division and two field drawings obtained from construction and operations staff showed the respective infrastructure additions (alterations) were properly recorded in the GIS. Accordingly, this step is considered completed.</p>
<ul style="list-style-type: none"> <li>• Formal procedures will be developed that specify As-Built drawings are required for water infrastructure additions installed by private developers, even when the developer does not execute a formal letter of agreement with the City.</li> </ul>	<ul style="list-style-type: none"> <li>✓ For the most part, this issue has been addressed through the actions described for the previous action plan step, as formal as-built or less formal alternative drawings are now required for all water infrastructure additions, regardless of the installing entity or circumstance under which the additions are made. Additionally, for new infrastructure additions relating to private developments performed by the City’s contractor, the contractor is provided a GIS printout of the applicable locations. Upon completion of the new water infrastructure addition, the contractor is required to</li> </ul>

	<p>draw the new infrastructure on the GIS printout and turn the completed drawing into the Underground Utilities staff for update to the GIS. Payment to the contractor is not approved unless the completed drawing has been submitted.</p>
<p><b>Ensure critical and useful component attributes are tracked in GIS</b></p>	
<ul style="list-style-type: none"> <li>• Efforts will be enhanced to capture and record accurate and complete fire hydrant attribute data in connection with the on-going “GIS data cleansing” project.</li> </ul>	<p>✓ Completed in a prior period.</p>
<ul style="list-style-type: none"> <li>• Staff will revisit a sample of hydrants previously surveyed during the “GIS data cleansing” project to ascertain if the audit findings, relating to incomplete/inaccurate recording of data for surveyed hydrants, were isolated or representative of work completed to date. If representative of work completed to date, hydrants will be resurveyed to capture and record accurate and complete data in the GIS.</li> </ul>	<p>✓ Completed in a prior period.</p>
<p><b>Ensure efficient tracking of all infrastructure components</b></p>	
<ul style="list-style-type: none"> <li>• The GIS will be used as the primary record to account for and track critical and useful attributes for water wells and storage tanks.</li> </ul>	<p>✓ Completed in a prior period.</p>
<ul style="list-style-type: none"> <li>• The GIS will be used as the primary record to account for and track privately-owned backflow control valves.</li> </ul>	<p>✓ Completed in a prior period.</p>
<ul style="list-style-type: none"> <li>• A process will be developed to timely remove “virtual” water meters when the actual meters are installed at applicable premises.</li> </ul>	<p>➤ In the initial audit we noted preliminary depictions of water meters were sometimes recorded in the GIS based on as-built drawings submitted for new developments. The preliminary depictions were recorded after the primary infrastructure components (water mains, hydrants, and system valves) were installed for new developments, but before actual premises (e.g., houses) were built. Those preliminary depictions of pending water meter installations were termed “virtual” meters for purposes of the audit. As reported, when new premises were established within the new developments, a recording (depiction) of the actual meter was also made in the GIS. However, the virtual meters were not always removed. As a result, the GIS reflected approximately 6,000 virtual meters in the GIS for which the actual meters were also shown in the GIS. To avoid a pictorial depiction of two meters (one a virtual meter and the other the actual meter) in the GIS, we recommended a process be developed to timely remove the virtual meters from the GIS. Discussions with Underground Utilities staff showed these circumstances continue to exist.</p>

	<p>Attempts were made to identify a process to retroactively remove the virtual meters from those GIS locations at which an actual meter had subsequently been installed. However, GIS staff indicated difficulties were encountered because:</p> <ul style="list-style-type: none"> <li>- Sometimes there is not a one-to-one relationship between the virtual and actual meters (e.g., apartment complexes) and eliminating the virtual meters at such locations prior to determining and verifying the locations of the actual meters could hinder the identification of those actual meters, and</li> <li>- Elimination of the virtual meter without first determining the location of the actual meter at a premises could result in the Underground Utilities staff incorrectly misinterpreting the location of the actual meter (i.e., the fact that a virtual meter is recorded at a premise where an actual meter has been installed lets staff know the location of the actual meter has not yet been determined by GIS staff).</li> </ul> <p>Accordingly, Underground Utilities determined to continue their on-going efforts to “cleanse” (i.e., make more accurate) the GIS by removing the virtual meters as the locations of the actual meters are determined for individual premises. Determinations of those actual locations are and will continue to be made based on as-built or alternative drawings provided by developers, contractors, or different Underground Utilities staff during site visits conducted for various reasons. Based on these management determinations, this step is turned over to management to ensure final resolution.</p>
<ul style="list-style-type: none"> <li>• All automatic flush stands will be added to and reflected in GIS.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>
<p><b>Ensure proper, logical, consistent, and informative data in the Mobile Work Management System</b></p>	
<ul style="list-style-type: none"> <li>• The Mobile Work Management System and process for completing work orders in that system will be revised to:             <ul style="list-style-type: none"> <li>- Identify/designate “critical fields” for each work order type.</li> <li>- Require completion of all critical fields for each work order, including “work performed” and “actual problem.”</li> <li>- Allow for documentation of multiple problems and multiple tasks on an individual work order.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ In our initial audit we recommended several enhancements to ensure the Mobile Work Management System (Mobile System) provides proper, logical, consistent and informative data.</li> </ul> <p>During this follow up review, we found several significant enhancements were made, including:</p> <ul style="list-style-type: none"> <li>- Certain attribute fields were established as “key” or “critical,” such that those fields must be completed before the work order can be completed within the system. For example, “work performed,” “actual problem,” and/or</li> </ul>

<ul style="list-style-type: none"> <li>- Provide for use of the same attribute to identify similar problems and tasks.</li> <li>- Preclude use of the same attribute to describe dissimilar problems and work tasks.</li> <li>- Preclude use of inappropriate or illogical attributes to describe tasks performed.</li> <li>- Eliminate use of generic descriptions such as “repaired” or “replaced.”</li> <li>- Require recording of a facility ID when a facility ID exists for the component worked on.</li> </ul>	<p>“action taken” are now required fields for applicable work order types.</p> <ul style="list-style-type: none"> <li>- For hydrant maintenance work orders, staff can now document multiple problems on a single work order.</li> <li>- For hydrant maintenance work orders, staff can now demonstrate the performance of multiple common tasks on a single work order.</li> <li>- Additional attributes were included within the system to document common work tasks, such as “raising hydrants” to allow more efficient access and valve opening by the Fire Department.</li> <li>- Requiring the “access” field to be completed on water valve work orders.</li> <li>- Revising certain attribute fields to make them more descriptive (e.g., defining when a valve is actually “exercised” during an inspection and requiring more informative descriptions than simply “repaired” or “replaced”).</li> <li>- Allowing for description of common multiple tasks performed for valve inspection and repair work orders.</li> </ul> <p>This action plan step is considered completed.</p>
<ul style="list-style-type: none"> <li>• Staff creating and completing system work orders will be trained on the revised processes and methods developed pursuant to the previous action plan step.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Applicable Underground Utilities staff is being trained on revised processes and methods as developed.</li> </ul>
<ul style="list-style-type: none"> <li>• The 6,066 invalid preventive maintenance fire hydrant work orders will be deleted from the Mobile Work Management System.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>
<p><b>Ensure appropriate and useful managerial reports from the Mobile Work Management System</b></p>	
<ul style="list-style-type: none"> <li>• Current reports produced for water and hydrant repairs will be revised to reflect the “actual” problem.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>
<ul style="list-style-type: none"> <li>• A determination will be made as to what represents an “excessive period” for a work order to remain open in the system without any recorded activity. Periodic reports will be generated reflecting work orders that have been outstanding for the defined excessive period. Based on review of those reports, appropriate actions will be taken to ensure work is</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>

<p>completed, the system is updated to reflect completed work, and/or invalid work orders are deleted.</p>	
<p><b>Ensure tracking of maintenance activities</b></p>	
<ul style="list-style-type: none"> <li>• The Mobile Work Management System will be used to schedule, document, and monitor sandblasting and painting of fire hydrants.</li> </ul>	<p>✓ Completed in a prior period.</p>
<ul style="list-style-type: none"> <li>• The Mobile Work Management System will be used to document manual flushes of water mains and the quantities of water used during those flushes.</li> </ul>	<p>✓ Completed in a prior period.</p>
<p><b>Ensure proper and timely maintenance of isolation valves</b></p>	
<ul style="list-style-type: none"> <li>• Staff will explore the feasibility of an interface between the Mobile Work Management System and the GIS, such that work orders can be generated directly from the GIS.</li> </ul>	<ul style="list-style-type: none"> <li>○ In our initial audit, we recommended Underground Utilities staff consider creating a system interface between the GIS and the Mobile Work Management System that allows work orders to be created directly from the GIS. The purpose of that enhancement would be to facilitate field staffs' ability to timely complete and document the inspection and exercise of key water (and gas) valves. During our current audit follow up, applicable Underground Utilities staff indicated completion of such an interface remains a goal and the issue was being studied and researched. They acknowledged a final decision had not been made as to whether such an interface was feasible. We recommend efforts be continued to determine if an efficient and useful interface can be established, and to create such an interface if determined practicable and efficient.</li> </ul>
<p><b>Ensure consistent and proper maintenance activities</b></p>	
<ul style="list-style-type: none"> <li>• Written procedures will be established that address (1) fire hydrant inspections, (2) flushing of water mains, and (3) standard reports that should be generated periodically from the Mobile Work Management System.</li> </ul>	<p>✓ Completed in a prior period.</p>
<p><b>Ensure availability of backup engines and generators at City wells</b></p>	
<ul style="list-style-type: none"> <li>• A contract will be executed with a vendor to provide for timely responses (i.e., within two hours) in instances where backup engines and generators at applicable City wells are not functional. The contract will include provisions for rental of equipment as needed.</li> </ul>	<p>✓ Completed in a prior period.</p>
<p><b>Ensure proper and consistent maintenance of wells and storage tanks</b></p>	
<ul style="list-style-type: none"> <li>• Prospective vendors will be required to provide proof of licensure status when submitting their proposals in response to requests for services.</li> </ul>	<p>✓ Completed in a prior period.</p>



<ul style="list-style-type: none"> <li>Written procedures will be established that address (1) annual calibrations of water well meters, (2) exercising well backup equipment, (3) staffing water wells, (4) periodically inspecting, cleaning, and painting storage tanks, and (5) documenting various maintenance activities.</li> </ul>	<p>✓ Completed in a prior period.</p>
<p><b>Ensure appropriate safety measures are implemented</b></p>	
<ul style="list-style-type: none"> <li>Discussions will be held with the Aviation Department, and the Federal Aviation Administration (FAA) if needed, to ascertain if aviation lights are appropriate for each of the City’s elevated storage tanks. If a determination is made that lights are needed for certain tanks currently without such lights, a plan will be developed to install the appropriate lights.</li> </ul>	<p>✓ Completed in a prior period.</p>
<p><b>Ensure appropriate infrastructure additions</b></p>	
<ul style="list-style-type: none"> <li>Plans and processes requiring proper involvement by the Water Resources Engineering (WRE) Division for “in-house” infrastructure additions will be finalized. A standard checklist will be developed to verify and document proper involvement by WRE staff.</li> </ul>	<p>✓ Completed in a prior period.</p>
<p><b>Ensure appropriate inspections are performed and documented</b></p>	
<ul style="list-style-type: none"> <li>A standard inspection form/checklist will be developed and used by WRE inspectors to formally document their final inspection and approval of new infrastructure additions installed by contractors and private developers. Areas specified in the audit report will be addressed on that form/checklist. The completed form/checklist will be signed and dated by the applicable inspector and the supervising WRE senior engineer.</li> </ul>	<p>✓ Completed in a prior period.</p>
<ul style="list-style-type: none"> <li>WRE inspectors will better document, in their inspector logbooks, the resolution of identified problems.</li> </ul>	<p>✓ Completed in a prior period.</p>
<ul style="list-style-type: none"> <li>A standard inspection form/checklist will be developed and used for “in house” infrastructure additions. That form will be used to document staff’s assertions as to (1) use of proper materials and installation methods, (2) performance of required pressure tests, and (3) conduct of required disinfections and water quality tests. This form/checklist will also be used to document the results of the required pressure and water quality results.</li> </ul>	<p>✓ Completed in a prior period.</p>

<ul style="list-style-type: none"> <li>• A process will be developed to inspect infrastructure additions installed by the contractor on behalf of the City. Once developed, that process will address (1) use of proper materials and installation methods, (2) performance of required pressure tests and related results, and (3) conduct of required disinfections and water quality tests and related results.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>
<p><b>Ensure projects are permitted as required</b></p>	
<ul style="list-style-type: none"> <li>• Each applicable project will be self-permitted in accordance with the delegation order issued by the FDEP. A copy of the applicable self-permit will be attached to and retained with project records.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>
<p><b>Ensure acquisition of appropriate materials and components</b></p>	
<ul style="list-style-type: none"> <li>• Attribute specifications in the PeopleSoft Financials System for each approved water infrastructure material and component will refer to the Underground Utilities’ “Standard Specifications for the Design and Construction of Water and Wastewater Facilities.”</li> </ul>	<ul style="list-style-type: none"> <li>○ In our prior follow up reports we noted complete and accurate attribute specifications for fire hydrants had been entered into the City’s PeopleSoft Financials System. In the most recent of those prior follow up reports (report #1115, dated July 14, 2011), we also noted that Underground Utilities was in the process of developing a request for proposals (RFP) for new water and sewer infrastructure materials and components. Our current follow up efforts showed that the RFP was prepared and issued to prospective vendors. Responses to that RFP were received and evaluated by City staff. On December 7, 2011, Underground Utilities obtained City Commission approval to negotiate a contract with the firm (vendor) that provided the best (highest ranked) response. As of the end of our current follow up audit fieldwork, Underground Utilities was in the process of negotiating a contract with that vendor. If successfully negotiated and executed, the contract will require the vendor to provide applicable material and components that meet the specifications established and provided by the Underground Utilities Water Engineering Resources (WRE) Division. Additionally, the contract will provide Underground Utilities staff the right to inspect the quality, materials, and condition of all parts (components) and to reject items deemed inferior.</li> </ul> <p>Under the anticipated contract the vendor will maintain the applicable parts and materials on hand such that they are available to the City at any time. Accordingly, those same parts and materials may no longer be maintained by the City.</p>

	<p>However, for those parts (components) still maintained by the City for the benefit of Underground Utilities, staff indicated the PeopleSoft Financials System would be updated to reflect the complete material specifications established by the WRE Division.</p> <p>We will continue to follow up on these action plan steps in our subsequent follow up engagement.</p>
<ul style="list-style-type: none"> <li>• Subsequent purchase contracts for water infrastructure components will refer to the complete specifications established in the Underground Utilities’ “Standard Specifications for the Design and Construction of Water and Wastewater Facilities.”</li> </ul>	<ul style="list-style-type: none"> <li>○ See described status reported for the previous action plan step.</li> </ul>
<ul style="list-style-type: none"> <li>• Subsequent purchase contracts for water infrastructure components will require suppliers to submit documentation (shop drawings/material submittals) to demonstrate their materials comply with City specifications.</li> </ul>	<ul style="list-style-type: none"> <li>○ See described status reported for the previous action plan step.</li> </ul>
<p><b>Ensure replacement of deteriorated and older infrastructure</b></p>	
<ul style="list-style-type: none"> <li>• A plan will be developed for replacement of the City’s downtown water infrastructure. That plan will (1) define the downtown area, (2) specify the locations within that area for which the infrastructure should be replaced, (3) project the costs of replacement, (4) identify funding to be used for replacement, (5) identify the most efficient and appropriate replacement methods, and (6) include a schedule and timeframe for completing the replacement.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>
<ul style="list-style-type: none"> <li>• To the extent funding is available, the current contract with Malcolm Pirnie for the update to the City’s Master Water Plan will be amended to include assistance in development of a “downtown water infrastructure replacement plan.”</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>
<ul style="list-style-type: none"> <li>• To the extent funding is available, the downtown water infrastructure improvements will be initiated in accordance with the plan developed pursuant to the previous action plan steps. (NOTE: This step was due for completion after March 31, 2011.)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Completed in a prior period.</li> </ul>

**Table Legend:**

- Issue to be addressed from the original audit.
- ✓ Issue addressed and resolved.
- Responsibility for finalization of actions turned over to management
- Action initiated but not completed.

## *Conclusion*

Table 1 above shows 28 action plan steps have been completed or resolved and one additional step turned over to Underground Utilities management to ensure finalization of the planned action. As also shown in Table 1, efforts are in progress to complete four more action plan steps. Three of those four steps pertain to the determination and entry of complete attribute specifications (for various water infrastructure components) into the PeopleSoft Financials System and ensuring subsequent term contracts contain appropriate provisions to help ensure acquisition of proper components. The fourth step pertains to establishment of a system interface that would allow more timely and efficient creation of work orders.

In addition to the four steps in progress but not completed, there are nine other action plan steps due to be completed in future periods. Those nine action plan steps include:

- Identifying and designating critical and useful attributes to be captured and recorded in GIS for new infrastructure additions (two steps).
- Identifying and recording installation dates for existing water infrastructure components (one step).
- Ensuring appropriate and useful managerial reports are produced from the Mobile Work Management System (two steps).
- Additional monitoring of valve maintenance activities and enhancing existing efforts and systems to ensure valves are exercised at prescribed frequencies (one step).
- Enhancing written procedures for the exercising of water isolation valves to define valves to be exercised and the number of those valves (one step).

- Evaluating the status of the hydrant replacement program (two steps). (*NOTE: Underground Utilities management asserted the planned actions pertaining to the hydrant replacement program have been appropriately addressed and resolved. We will review and report on those actions in our subsequent follow up engagement.*)

We will address Underground Utilities efforts in completing the actions for those nine steps in our subsequent follow up engagement.

We appreciate the cooperation and assistance provided by Underground Utilities staff during this audit follow-up.

## *Appointed Official's Response*

### **City Manager:**

I am pleased with the results of this follow-up audit. It reflects Management's commitment to utilizing technology and creative business practices to further enhance the delivery of safe and reliable potable water service to our customers. I would like to thank the audit staff for their thorough review, and the Underground Utilities staff for their implementation of the action plan.

Copies of this audit follow-up #1207 or audit report #0919 may be obtained from the City Auditor's website (<http://talgov.com/auditing/index.cfm>) or via request by telephone (850 / 891-8397), by FAX (850 / 891-0912), by mail or in person (Office of the City Auditor, 300 S. Adams Street, Mail Box A-22, Tallahassee, FL 32301-1731), or by e-mail ([auditors@talgov.com](mailto:auditors@talgov.com)).

Audit follow-up conducted by:  
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