Huntsville looks forward to updates as construction progresses
Asset management drives action instead of reaction

TRAA’s Northern Region is taking a proactive stance on asset management, evaluating and cataloging equipment and infrastructure to get to the most out of those items. The asset management program will improve reliability and service to customers, control costs and maximize the lifecycle of existing infrastructure.

Infrastructure improvement is a never-ending process, and much of TRAA’s current infrastructure was built in the ’50s, ’60s and ’70s and is approaching the end of its life cycle. A standardized method of rating the condition of those assets makes maintenance and replacement easier to anticipate.

“The team is trying to address this in a methodical fashion, where we are determining the proper assets for replacement,” said Julie Hunt, Northern Region assistant manager/operations. “In order to figure out what rises to the top of that list, you have to create some ranking criteria.”

Some of those standards are straightforward, like age and condition of the equipment. Others may be more complex, based on risk or usage. The end result is an overall rating that will drive infrastructure replacement schedules.

Without a working catalog of equipment and replacement needs, an organization can be forced into a defensive position, reacting to failures as they occur. The asset management program allows TRAA to anticipate and avoid those emergencies by identifying when assets are close to the end of their life and assessing the risk of failures.

Employees and TRAA customers benefit from a reduction in unexpected emergency expenditures and a smarter, more efficient allocation of funds.

“Often, we’re trying to balance replacement funds with the funds that you have,” Hunt said. “In that balance, you’re trying to determine the most critical assets that are closest to the end of their lives so that we can assign the funding in the right place.”

Since the program will provide a better picture of upcoming infrastructure needs, it is anticipated that infrastructure funding needs and gaps can be defined.

“TRA has a capital improvement program, with a five-year plan, and this information will feed into that,” Hunt continued.

Maximo, TRAA’s work order management system, is implemented in some form at all projects and offers a great deal of asset information. That data, supplemented with additional data that has not been collected previously, will form the basis for the asset ratings.

“We’re also improving the geographical information system within the Central Regional Wastewater System and hope to be able to use that as a geographic and visual component for the work order management and asset management systems,” Hunt said.

“What triggers this kind of program is the understanding that the needs are greater than the resources,” she explained. “You’re never going to be able to do everything on the to-do list, so you have to create standards that drive your decision-making process.”

The asset management program promises to do just that, directing resources where they are needed most before problems occur.

Lightning protection measures at Lake Livingston pass the ultimate test

Lightning from an early summer storm strikes the surface of Lake Livingston, LLP’s main office building recently suffered two direct strikes.

The team at the Lake Livingston Project can tell you without hesitation that lightning does strike the same place twice. Last summer, the main office building received two destructive lightning strikes in less than two months.

In both cases, lightning struck an antennae and sensor tower on the west side of the building, damaging equipment and interrupting some of the site’s operations for several weeks. After a nearby 190-foot radio tower was removed, LLP began experiencing some minor electrical issues.

“Sometimes the phones acted strangely or networking equipment needed to be rebooted,” said Mark Waters, project manager for LLP. “We didn’t realize what the problem really was until the actual strike.”

The strike damaged computers and networking equipment, cameras and gate electronics, wind sensors and more. Estimated costs ran more than $25,000. Wayne Chen, information technology supervisor, and Kenny Nguyen, information technology support specialist, rushed down from Arlington, working quickly to get essential networking components up and running and allowing LLP to bring some operations back online.

“Immediately after the incident, we didn’t have any way to communicate,” added Waters. “Computers, routers, phones and lab equipment were all offline for several days. We needed to get back online, but we also needed to figure out how to prevent it from happening again.”

Nearby Kinder Morgan gas plant control buildings had experienced similar lightning damage in the past. Darrell Davis, maintenance supervisor at LLP and Waters visited the site to review its lightning protection system and learned that in the two years since installation there had been no incidents of related damage. The team also consulted an electrical engineer and, with those recommendations, designed a similar system.

The cost of the new system was approximately $2,000 for material and included lowering the lightning-prone equipment tower from 60 feet to 26 feet and placing grounding cable around the building and through the attic. The cable was connected to all electric equipment and panels, a weather radar pole and the lowered tower. All labor required to complete the system was provided by members of the LLP maintenance department.

The system proved its worth in June when LLP experienced more severe weather.

“That afternoon’s heavy thunderstorm was as severe as any I have seen in 20 years,” said Waters. “This time, we were thrilled to find that there was no electrical damage associated with the storm.”
Trinity River Authority receives award from the National Hydrologic Warning Council

The National Hydrologic Warning Council has presented their 2003 Operational Excellence Award to the Trinity River Authority for their application of real-time telemetering for uninterrupted flood conditions. This year, TRA was selected for using this approach during the Central Regional Watershed System’s CAC-1 rehabilitation of a section of 96-inch pipe, part of the system that is responsible for transporting water into the system. The project ensured the contractor and the project could be protected from flash flooding and plan for bad weather by receiving a one-week advanced notice. General Manager and CEO Kevin Ward and Regional Manager Fiona Allen accepted the award on behalf of the Authority at the Texas Water Conservation Services Thursday.

Valerie Ertz, General Manager (center), and Fiona Allen, Regional Manager (right), accept the 2003 Operational Excellence Award from Jean Veissi of Texas Instruments, Inc. (left).

Gov. Perry appoints 11 directors to Trinity River Authority’s board

Recently, Texas Gov. Rick Perry appointed 11 members to serve on Trinity River Authority’s board of directors. The appointments include new appointees as well as terms that have been reappointed.

Currently serving as chair and owner and president of VEE Capital, Dudley Skyrme, of South County, will expire March 15, 2015.

Tom Fordyce of Huntsville is a president and owner of the Vantage Energy Co. He received a bachelor’s degree from Sam Houston State University, is a member of the Natural Resources Management Council. He has worked with the university and the Texas A&M-Commerce Environmental Institute. He is serving as a member of the World Affairs Council of Dallas/Southwest Asia Foundation, as an executive committee member of the Pakistan American Cultural Center, as president of the University of Texas at Austin. He is appointed to serve as one of four directors for Dallas County until March 15, 2019.

Amir Rupani of Dallas is president of Trinity River Authority. He attended the University of Texas at Tyler. He received a bachelor’s degree from Sam Houston State University, is a member of the Natural Resources Management Council. He has worked with the university and the Texas A&M-Commerce Environmental Institute. He is serving as a member of the World Affairs Council of Dallas/Southwest Asia Foundation, as an executive committee member of the Pakistan American Cultural Center, as president of the University of Texas at Austin. He is appointed to serve as one of four directors for Dallas County until March 15, 2019.

Amir Rupani is a member of Tarrant County until March 15, 2019.

Dianna Davis of Dallas is a retired real estate investor, past president of the Pine Park Preservation Association and a board member of the Dallas Mexican American Historical League and Socorro Independent School District Board of Trustees. Socorro attended Eastfield Community College. She is reappointed to serve as one of four directors for Dallas County until March 15, 2019.

Anna Lassau of Dallas is a retired real estate investor, past president of the Pine Park Preservation Association and a board member of the Dallas Mexican American Historical League and Socorro Independent School District Board of Trustees. Socorro attended Eastfield Community College. She is reappointed to serve as one of four directors for Dallas County until March 15, 2019.

Most TRA employees work with water as it comes in or out of pipes, but the Planning and Environmental Management Division’s focus is further downstream. The division operates in-house behind the scenes and out in the field, performing a number of functions for the organization and the river system as a whole.

In the field, the division is charged with monitoring the quality and quantity of water in the Trinity River basin.

“What TRA is producing at the treatment plants becomes the actual river,” said Glenn Clingenpeel, senior manager. “It’s what the fish live in and what the wildlife along the basin depend on. It flows to Lake Livingston and becomes drinking water, so it’s important that we understand it.”

Clingenpeel’s statement is not just philosophical. In low flow conditions, most of the water in the system comes from treatment plants, and the entire basin needs to be monitored and studied. The division has conducted extensive river studies over the last five years covering the entire basin—something that hasn’t been done by any entity in over a century.

“Our team spends significant time in and on the river getting an empirical understanding of the system, explained Webster Mangham, manager of special studies and assessments. “Modeling, though it serves an important function, is very different from being out in the river, seeing it, touching it, and going to parts that haven’t been surveyed in a very long time. The data that PE&M staff collects is being incorporated by PEMD modeling staff as well as other state agencies and consulting firms to create models that better represent the Trinity River system.”

“Even though populations have grown and more wastewater is entering the systems, the river is healthier and larger than it has been in 150 years,” Clingenpeel said. “The quality of the river is so good that both Fort Worth and Dallas have ambitious programs to develop recreational uses along the banks of the Trinity.”

PEMD employees spend only part of their time outside. The division uses sophisticated flood maps and applications that might impact the river in order to ensure that they advise partners and regulatory agencies on those decisions.

The division also monitors current and proposed regulations, working closely with the Texas Commission on Environmental Quality to make sure that the appropriate regulations are put in place to achieve the desired ecological benefit.

On July 1, TRA’s Geographic Information System department joined PEMD. GIS provides data and visual presentations of infrastructure, cities, river layers and more. The system will also play a greater role in asset management, capturing detailed information about infrastructure.

“We’re really excited about having a GIS,” said Clingenpeel. “This year we’re going to integrate our environmental data with TRA’s operational data, giving the organization a clear picture of infrastructure and impact. We’re also going to build a robust system that provides analytics in a way that allows decision makers to know what the projects need.”

GIS is a natural fit for the department, offering even more tools to examine and understand the basin and TRA’s role within it.

Huntsville looks forward to updates as construction progresses

Constrution at the Huntsville Regional Water Supply System is progressing as planned, but Bass expects to be operational before then.

In addition to the increase in operational uses, the expansion will take us up to 12 MGD firm capacity, and I expect that we’ll run between 8 and 10 million MGD as soon as the new construction is completed.

Increased demand in the Huntsville area drove TRA to plan for the expansion and recent technology changes have promised substantial improvements.

“We’ll be one of the first in Texas to use deep-bed carbon filters in our plants and that will help meet state standards,” Bass said.

“The technology has been proven in other locations in the country and it’s currently new for drinking water.”

The application is new enough that the Texas Commission on Environmental Quality requires PEMD to perform a pilot test beginning in February to prove that this type of filtration is not increasing the quality of water.

Clingenpeel’s statement is not just philosophical. In low flow conditions, most of the water in the system comes from treatment plants, and the entire basin needs to be monitored and studied. The division has conducted extensive river studies over the last five years covering the entire basin—something that hasn’t been done by any entity in over a century.

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Summer Campers Celebrate the 4th of July at Wolf Creek Park

TRA’s Wolf Creek Park recreation facility’s camps were hopping for the July 4th weekend, with all 57 sites and all 46 RV hookups booked. Visitors enjoyed the great weather, great fishing and even better company. Summer campers were enthusiastic about their visits to WCP and posted glowing reviews on Facebook.

- We had a wonderful time at the park! It is so clean and well kept. The facilities are wonderful and the views are beautiful. Thanks for letting us share it.
- The best, clean, well-kept place to bring family and friends.
- I was there this weekend and it was beautiful. The weather was great. We just left yesterday, had a great weekend! We will definitely be back!
- Nice, it’s beautiful and the white rose are binging.

Wolf Creek Park occupies 110 acres on the western shore of Lake Livingston. For more information or to post your pictures or comments, visit www.facebook.com/TRAWolfCreekPark.
Thermal hydrolysis offers the right solution at the right time

According to TRA’s solids master plan, the Central Regional Wastewater System will be upgrading sludge treatment processes in 2017 or 2018. With the facility running at near maximum capacity already, this project is on a tight timeline.

**The Need**

The plant is scheduled to replace the existing lime-alkaline system with a thermal hydrolysis process in five years. Thermal hydrolysis has seen extensive use in Europe, but the TRA site is expected to be the second facility of its type in the United States.

The state of the current solids treatment system, which is operating near maximum capacity, has management reviewing options for earlier completion and funding of the project in an effort to expedite the upgrade.

“We’re no longer deciding what we’re going to do, we’re looking at how we’re going to do it,” said Sherri van der Wege, Northern Region manager of engineering services. “If we proceeded with the normal process, it would be five years before thermal hydrolysis is operational. We’re looking at ways to make it happen sooner.”

In biosolids treatment, solids must be thickened, de-watered and disposed. Thermal hydrolysis improves on all three processes.

The technology will replace CRWS’s existing lime-based sludge treatment, offering multiple benefits and cost-saving opportunities.

**The Technology**

In the beginning of the thermal hydrolysis process, solids are aerobically digested and continuously fed to a pulper tank where it is mixed with recycled water and sent to the pulper tank for conversion and digestion. The digestion process breaks down the biomass, reducing solids further.

“It’s a lot like removing the wrapper from a piece of candy,” said Bill Tatum, project manager at CRWS. “It’s a lot easier to eat that way. Thermal hydrolysis breaks down much of the biomass structure, making digestion that much easier and giving it as much of a third.”

**The Result**

Once implemented, the thermal hydrolysis system is expected to yield savings on cost and time. Lower solids system treatment capacity and a better final product. The process yields a reduction in volume of up to 50 percent, translating to reduced storage needs and transportation costs.

“That’s a significant reduction. We’re running 36 truckloads on average per day,” said Tatum. “The thermal hydrolysis process could cut that in half.”

The process also kills all pathogen organisms. The resulting biosolids are also approved for reuse and will help the land application process.

Anoxic digestion creates increased amounts of methane which may be used as on-site use for electricity or heat. By replacing the existing lime-alkaline treatment system, the new process will also reduce chemical costs, offering even greater savings.

All told, cost estimates show the approach pays for itself in less than nine years of operation.

TRA’s use of biosolids is anticipated to be 100 percent by the time the facility reaches full operational capacity.

**Safety**

Active employee safety committees are in place at each operating project, giving employees the opportunity to provide input towards the adoption, revision and implementation of safety programs. Committee members, appointed by project managers, meet monthly to review accident investigations and discuss problems and recommendations.

TRA’s Safety Awards Program recognizes employees who exhibit outstanding characteristics in attitude, hazard recognition, outstanding safety ideas, hazardous waste management, and safety detection and suggestions, safety banners and heroism. There were five winners for the 2012-2013 period. Additionally, the National Safety Council recognized 11 TRA projects with Occupational Excellence Achievement Awards for having no fatalities and less than 50 percent of the industry category’s injuries and illnesses away from work reports in a calendar year.

Congratulations to the 2012 employee safety committee appointees and recent award winners!
Jay Shannon, maintenance engineer at TRA’s Central Regional Wastewater System facility, was searching for operational benchmarking information when he came across the Water Research Foundation’s Effective Utility Management Primer. The document, produced by the EPA and six national water and wastewater associations, is intended to help utility managers identify and address their most common needs in a customized, incremental approach.

Shannon reached out to the foundation and shortly after, TRA was invited to join the foundation’s pilot program.

The manual describes 10 attributes of effectively managed water sector utilities, with desired outcomes and a framework for goal-setting and improvement. For the pilot, TRA focused on three attributes: operational resiliency, infrastructure stability and employee and leadership development.

Operational resiliency involves identifying and quantifying business risks, including legal, financial, safety and other risks. It also includes the ability of staff to work together to anticipate and avoid problems.

The infrastructure stability attribute is an evaluation of the condition and costs associated with critical infrastructure assets, with measures for maintenance, repair and replacement efforts.

Employee and leadership development evaluates institutional knowledge and emphasizes opportunities for development at all levels and a collaborative organization that is dedicated to continual learning and improvement.

The first step in any improvement plan is assessing current conditions. Julie Hunt, Northern Region assistant manager/operations, worked with Shannon, John Bennett, project manager at Denton Creek Regional Wastewater System, Ed Mach, project manager at Ten Mile Creek Regional Wastewater System and Valery Jean-Bart, maintenance engineer at Central Regional Wastewater System to determine what TRA was currently measuring and what numbers it would need to begin tracking.

The baseline information painted an interesting picture.

“In many cases, we were already thinking along these lines,” said Hunt. “Some of the data we needed was being tracked, but there were other factors that we intuitively knew about but hadn’t monitored.”

One such factor was institutional knowledge and the effect that voluntary turnover, such as retirement, has on the organization.

TRA employees are often long-term, building up a deep working knowledge and organizational understanding over time. TRA loses a significant resource when those employees leave, but that loss had not been quantified before.

Using tools outlined in the primer, the team plotted TRA’s current measurements for all three attributes and determined what areas needed focus and what the goals for those areas should be. This completed TRA’s pilot program participation, but more work was ahead.

“We took it to the next step,” Hunt said. “We wanted to improve in these attribute areas, and the program offered the tools to do that.”

In the case of institutional knowledge, it was apparent that TRA needed ways to build more depth through training.

“We are at risk to see an exodus of knowledge due to the potential of upcoming retirements,” Hunt continued. “We need to capture that long-term knowledge in a way that’s easy to access so we can continue to run an efficient operation as long-term employees retire.”

To address this particular need, TRA is planning to track training hours and certifications achieved and is looking for more in-house training and certification opportunities. Hunt proposes to target five key positions each year and develop long-term succession plans for these positions.

Similar goals are planned for the other attributes beginning with the 2014 fiscal year.

“Overall, it brought about an awareness of things that we intuitively knew,” Hunt said. “But looking at the matrix and saying we’re here and need to get there – how do we do that? This is a great first effort.”