

Roadway Challenges



Reality versus experience.

By Deodat Budhu and Elizabeth Serrano

For many years, the Orange County Government in Central Florida issued building permits on unopened or opened non-maintained rights-of-way. This practice provided an affordable alternative for single family property owners to build on unimproved or substandard roads. Property owners were required to sign a Non-Maintenance Agreement and a Notice of Future Assessment whereby the owner assumed responsibility for maintaining the road and acknowledged the property may be assessed the cost for future road improvements.

The Saracity Gardens Subdivision, originally platted in 1925, presents a challenging rippled and twisted effect of this policy. Subdivision regulations require builders to bear the burden of all applicable costs for planning, right-of-

way, survey, design, and permitting, and to establish a letter of credit for the workmanship and materials for one year after the roads are completed and accepted by Orange County. However, builders in the area were allowed to construct low-cost single family homes and failed to bring area roadways up to approved standards.

Between 2000 and 2004, a developer was permitted to build several houses in the area by individual building permits. The developer never submitted documents for site plan approval, hence the infrastructure required to build a neighborhood was never installed.

Homeowners were left with the false impression by the developer that the county would later pave the roads. Since the county had no maintenance responsibilities over the area, improvements

never took place, leaving residents with the challenge of maintaining these dirt roads and the issue of accessing their properties through mud and dirt, especially during rain periods. Homeowners were also left to bear the cost to bring the roads to county standards including design, permitting, clearing and grubbing, base stabilization, and drainage.

In 2008, property owners requested approval of a Municipal Service Taxing Unit (MSTU) to have their roads improved. Seventy-five percent of the parcel owners fronting unimproved roadways were in agreement to initiate the process. The MSTU would provide property owners a pay back period of up to ten years for the cost of improvements.

A Difficult Process

Upgrading non-maintained roads has proven to be a difficult process throughout the years, and Saracity Gardens was no exception. Most of the existing roads were substandard with insufficient cross sections and inadequate roadside drainage.

Since individual property owners were responsible for maintaining these non-maintained dirt roads, the roads were heavily deteriorated and required extensive repairs. No right-of-way had to be donated to construct most of the roadways in the area. However, property owners fronting Jarrett Lane, the last of the roadways, did not agree on donating the right-of-way needed for improvements, eliminating the road from consideration.

Lack of an operating drainage system made it more difficult to handle stormwater runoff in the area. Also, lack of adequate maintenance allowed trees



Saracity Gardens today. Drainage was improved by removing trees as required and installing pipes and structures. Sod and asphalt aprons were added once resurfacing of the roads was completed. The Orange County Roads & Drainage Division staff made the needed improvements a reality.

to grow where roads were supposed to be. The combination of these issues delayed the start and overall progress of the project and required additional funding for improvements not originally contemplated to complete the job at hand.

More Challenges

To make the project even more challenging, residents did not like the aesthetics of the alternative pavement used in the area. Although residents were educated on the required surface to be used, expectations called for a smoother more conventional surface on the roads. Since alternative surface is expected to be a porous surface, residents would have to deal with the surface in place as required by the Water Management District for the area.

During the resurfacing process, the contractor had challenges of his own preventing him from providing the

required thickness for the porous pavement. Existing contour and conditions made the project more challenging to achieve the required uniform thickness for the area. To correct the problem, another paving methodology—flex pavement—was introduced to the area. This porous pavement was compliant with contract and permit requirements and not only allowed the contractor to comply with requirements, but also provided residents with the smoother and more aesthetic surface they expected.

Flex Pavement

Flex pavement is similar to cold-mix asphalt and can be made by any paving company. It is a densely-graded cold-mix pavement surface course laid in thin lifts, achieved by using smaller aggregate than porous paving methods, emulsified asphalt, and a portable mix plant combined with traditional lay-down compaction equipment. Flex pavement is typical-

ly placed in 1- to 1 1/2-in. lifts and varies from \$6/sq yd for a 1-in. thick layer to \$10/sq yd for a 2-in. thick layer.

Joint efforts from the Orange County Roads & Drainage Division staff made needed improvements and changes a reality. Trees were removed as needed and pipes and structures installed to improve drainage in the area. Once the resurfacing of the roads was completed, sod and asphalt aprons were added.

Although challenging for the most part, the roadway improvement project in the Saraciny Gardens Subdivision has proven once again the quality of services county staff provides through their services to citizens throughout unincorporated Orange County. Although difficulties arise in every project, expertise and experience overcome inconveniences to make every project a success. **GE**

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Anchorage Municipal Light & Power Improves Network Records Management

Servicing an area of 19.9 square miles, Anchorage Municipal Light & Power (ML&P) provides electric power to a large portion of the commercial and high-density residential areas of Anchorage, and also provides power to two military bases. In addition to delivering reliable services to customers, Anchorage ML&P must perform an annual voltage profile study of its distribution network, reporting to the Regulatory Commission of Alaska.

Currently, data for this study is extracted from Anchorage ML&P's Continuing Property Records Management System. But soon Autodesk Topobase software (www.autodesk.com) will help ML&P to automate the process. Topobase provides a centralized repository for design and as-built records, improving the quality and accessibility of information about the utility's network assets.

With Topobase in place, ML&P will be able to more easily bring together design and as-built network data created in Autodesk Utility Design (AUD) software with data from its property records and financial systems. This integration will help reduce data conversions and silos, and make more accurate spatial data accessible throughout the utility, driving better planning decisions and operating efficiencies.

"Automating our annual feeder load study is a good example of how Topobase will help improve our planning processes and help contain costs," said Ray Pearce, GIS Project Manager/Engineering Support Supervisor at

Anchorage ML&P. "Topobase gives us the tools to bring together CAD designs, as-built records, and GIS data. With that consolidated view, we can effectively manage asset life-cycles, streamline and increase operational efficiency and reliability, and perform feeder load studies more efficiently." Anchorage ML&P employs Autodesk solutions that are purpose-built for utilities and that fit into the utility's workflow. In addition, Autodesk has provided consulting services to help further streamline the utility's processes from gathering legacy system data to sharing project information with teams throughout the company. For instance, using Autodesk Utility Design software for distribution design allows Anchorage ML&P to more easily generate material orders, estimate project costs, and track when drawings are assigned, approved, sent for construction, and finally when the as-built has been completed. AutoCAD Map 3D software is used to update the utility's grid maps and produce construction drawings.

Extending the benefits of integration beyond design-based processes, ML&P will integrate Topobase with a new financial system, PowerPlant by PowerPlan Consultants, and billing system, Utility PowerNet by Southeastern Data Cooperative. This will establish a core network connectivity model that includes interactive network tracing and thematic network representation.