Renovating Maintenance Units

Consistency among facilities yields efficiency and improved productivity.

By Deodat Budhu

The Orange County (FL) Roads & Drainage Division is responsible for the maintenance of over 2,800 miles of roadway and infrastructure. To provide maintenance in a timely manner the division strategically located eight maintenance units throughout the 1,000 square miles of Orange County: Taft, Three Points, Goldenrod, and Bithlo on the eastside of the county and John Young, West Orange, Zellwood, and Apopka on the west side. These units service over 1,000,000 residents.

Each unit is responsible for a variety of services, including pothole repairs, roadside ditch cleaning, shoulder repairs, right-of-way mowing, litter and debris removal, mowing secondary drainage canals, tree trimming, sidewalk repairs, flagging, citizen inquires, emergency response, community services, coordination of inmate crews, and roadway shoulder grading. The maintenance units also provide support to other roads and drainage sections, such as the paving section and the construction section that are working within the boundaries of any of the maintenance units.

Before the 1950's, the Orange County Roads & Bridges Division maintained four maintenance "barns" within the unincorporated county area. There were five commission districts at that time. An additional City of Orlando unit inside the city limits brought the total to five. These maintenance areas were called "districts." The term barn referring to the maintenance unit proper, was carried over from the days when mules were used in daily operations. In addition, inmates were used to clean ditches and do other manual tasks on the roadsides. Each of the four county barns included a house that was used by the elected commissioner for that district. Each commissioner would specify the duties of the district crews and the commissioner with the most influence would direct the main crews.

The 1960's marked the beginning of big changes in the Orange County commission system. The commissioners were pulled away from the division and thus had little to do with day-to-day operations. The maintenance unit houses had already been ceded to each unit's respective foreman. Commission and maintenance boundaries were altered in 1960 and a new commission/maintenance district was formed, bringing the county's total to five. The new political district was District 1, later to become John Young Maintenance Facility.

What is now called the drainage section of this division was created after Hurricane Donna came through in 1960. This new group was called water control. Westside Manor subdivision was flooded so badly that the National Guard posted personnel on rooftops to guard the area from looters. They used small boats to go from rooftop to rooftop.

The decades of the 1970's and 1980's also witnessed significant changes within the division. In the early seventies, water control consisted of a foreman II; a two-man crew to check, clean, and repair all the wells in the county; a backhoe with a flatbed to repair washouts on canal banks; and a labor crew to cut the grass with swing blades. These crews were stationed at maintenance district #5 on Forsyth Road, which is now known as the Goldenrod Maintenance Facility.

In April 1999, the maintenance units began a change that would both upgrade and provide consistency for all facilities. The change started with the Apopka Maintenance Unit, since the surrounding area was annexed by the City of Apopka. A decision was made to relocate the Apopka Maintenance Facility to an area in unincorporated Orange County. This provided an opportunity to construct a new maintenance unit to meet the requirements of the work that was being performed. A new site for the Apopka Facility was located and planning began.

Determining Needs

To move forward with this plan the needs of each facility had to be determined, including a cost estimate to combine them into a basic plan that would provide consistency among all the facilities. Approval was given to initiate a program where each of the units, one per year, would be renovated to meet the new standard. The Apopka unit would be the first to host the new look. In reviewing the needs of the maintenance facilities it was determined that each unit would have an office/break room building, equipment bays, bins for material storage, truck wash, generator, and a fuel island. Each maintenance facility has generally the same number of staff and the same basic equipment. The major variance among the facilities would be the acreage of each unit. To add acreage to each facility would be costly because many of the sites were surrounded by development. The renovated facilities were adjusted to the acreage available.

The office/break room would be the center piece of the facility. It would con-

sist of three offices, a reception area, a large break room, and shower facility. The overall building size is 60 ft by 32 ft. The office spaces are occupied by the unit foreman, the senior foreman, and a small conference/file room. Each facility has a reception area for the maintenance unit secretary. The break room consists of a large area with tables and chairs where daily work assignments are distributed to the crews and training classes are held. The kitchen area includes a refrigerator and microwave oven. There is a locker area available for the employees and men and women's restrooms with shower. The building is the main hub of activity for the unit.

The equipment bays consist of eight bays, six of them for storage of equipment and large trucks. The dimensions of the individual bays are 24 ft by 26 ft. Two of the bays are enclosed; one used as a repair area for small equipment such as chainsaws, and the second bay is used for storage. These enclosed bays include lighting, a small crane, water, electrical outlets, and proper ventilation.

The truck wash is a system that permits the rinsing of equipment in an environmentally friendly manner. It consists of a covered area, high pressure hose, a hazardous material containment system, and lighting. The truck wash bay is separate from the other facilities. The cover is elevated high enough so that a ten-wheel dump truck can raise the dump bed for washing. A curb is placed surrounding the truck wash to contain the water and hazardous material rinsed from the equipment. In the center of the truck wash is the containment system for water and waste. This system can function as a storage tank, which must be emptied regularly, or a filtering system. The type of system used depends on the location and environmental requirements.

Each facility stores large quantities of materials for its maintenance work. Rock, shell, sand, and topsoil are some of the materials stored in piles wherever there is space in the maintenance yard. To consolidate the material storage, bins were installed to localize the material on the property. The bins are constructed of concrete block on three sides, with the front open. Each bin is 30 ft by 30 ft in size. The bins organize the material on the facility and allow open space for additional material storage when special projects are being completed. On the back wall of these bins a sprinkler system has been added to wet the material and minimize dust. The number of bins varies with each unit depending on the size of the property.

Electronic gates have also been added. Before renovation, an employee that arrived early at the facility would need to exit the vehicle, unlock the gate, then enter the facility. During the workday, most of the maintenance units left the gate open to allow access to both employees and non-employees. The electronic gates limit access to the facility by requiring the employee to use their badge to gain access. Each staff member that requires access must be programmed into the system. The secretary at each unit can remotely provide access to vendors or citizens. This system helps provide improved security for the facility and a tracking capability to monitor who enters by using their badge and the time they entered. This is most important for after normal work hours and on weekends.

Permanent generators were installed at each site. The maintenance units are essential for emergency response. Without power at the facility, the staff would not have the ability to respond to emergencies. The electrical needs were evaluated at each site and the generators were then selected to meet the required power needs. Each generator is permanently installed and automatically engaged within minutes of a power failure. To assure that the system will operate as designed, a test run is automatically completed each week.

Financing all the renovations in one year was not feasible. To meet the financial requirements, an average of $1.5 million was requested from the Board of County Commissioners per budget year until the project was completed. These funds were distributed through the capital improvements budget. Developing a plan for scheduling the order in which the units would be completed was the next step. Each site was evaluated as to what facilities were needed and what additional work was required. The work would begin with the site that needed the least work. Upon completing the schedule and obtaining funding, the Orange County Capital Improvement Department was commissioned to oversee the projects.

Construction began in 2001 and seven units were completed by 2007 at a cost of $12.7 million. The county is currently looking for land for the final unit, whose construction cost is expected to be $3.25 million.

Project Coordinator

The Orange County Roads and Drainage Division was assigned a project coordinator for the renovation projects. The coordinator handled all aspects of the project including bidding contracts, oversight of the budget, monitoring the actual construction, and keeping the roads and drainage division updated on the projects. Using this method removed much of the work from roads and drainage staff for daily oversight of the projects.

The design phase started the projects. Whenever possible the same design was used on each project. The office/break room building, equipment bays, and truck wash was carried over from project to project. At each site only minor changes were required to fit the facility to the location. Using the basic design footprint saved both time and money as each site was developed. The projects at each of the sites generally took more than a year to complete. This resulted in two or more locations under renovations at the same time. In some situations, the bidding of the construction, contracts, and permitting required more time than the construction project itself.

Each site provided unique and unexpected challenges. Removal of unused septic tanks required specific permits and close out procedures that needed to be followed. At one location, the contractor that was removing the septic tank found another tank that had to be removed. This sent staff scrambling to make changes to the purchase orders to have the tank removed. During the review of the site plan of another location, it was determined that a portion of the property had been elevated over three feet. The cause of the elevation was

due to years of material storage in that portion of the site. The result was a redesign of the existing drainage and the removal of numerous cubic yards of materials to bring the site to proper grade.

At another site the facility was serviced by two separate power companies and two separate utilities. It required three months of negotiations to settle on an agreement for one water and electric provider. Special landscaping was installed to serve as a visual barrier for the residential properties that adjoined the maintenance facility. Electrical power caused an adjustment to the work schedule due to a dart tournament. The main electrical power to the area had to be shut down to tie in the new generator. This would affect about six businesses on the same line. The outage was scheduled for a Sunday morning, but one business was hosting a regional electronic dart tournament on the scheduled day and requested that we reschedule the power outage. The power outage was rescheduled for about a month.

As the renovation progressed from facility to facility, improvements in the construction methods and facilities occurred with each new project. These improvements included upgrade of the waste containment system, lighting and high pressure nozzle at the truck wash; improved lighting at the fuel island; installation of generators at each site; lighting of equipment storage areas; bins for material storage; and a second card reader at a higher level for gate access. Some were significant and required a review to determine if the change should be retrofitted to the other facilities.

Improved operations, increased morale, and pride in their facility were some of the advantages that resulted for the staff at each of the renovated facilities. The additional space and organization allowed for increased efficiency in all aspects of the operation. The results are demonstrated in the improved service to the citizens. GE

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