



Drainage Academy By: The Drainage Team

The Drainage Team lost a wealth of knowledge and experience during the last 15 years through retirement, promotions, and relocation of staff. These individuals had well over seventy years of experience and were pioneers and leaders within the agency and the State. As a result, the team has had to overcome a knowledge gap in the unit.

Combating the effect of this “brain drain”, the team conducted strategic planning sessions and developed what is known as “Drainage Academy”; bi-weekly learning sessions, using a “teach-back” methodology. Individual team members research technical engineering or administrative topics and present them to the team. The material is presented using Power Point and hands-on exercises. This allows the team to develop technical and presentation skills. Periodically, individuals from other offices, including the central office are invited to participate as students or presenters, allowing everyone to gain a better understanding of our many processes.

Upper management fully supports the Academy. The District’s Design, Roadway, and Maintenance Engineers have all attended to learn and share information. In addition, the State Drainage Engineer has been a presenter and promotes the academy.

Another aspect of Drainage Academy is involvement with the industry and construction. Team members tour construction sites and manufacturing facilities to learn about new products, product applications and construction techniques. Industry personnel also present their products to the drainage team. Outside presenters at Drainage Academy include manufacturers, consulting engineers and staff from various permitting agencies. These individuals share design approaches, insights, rule changes and understanding of environmental and stormwater permitting.

The results of Drainage Academy have been impressive. Having a zero cost for presenters, the knowledge, confidence, networking and experience obtained by team members are immeasurable. The learning curve for team members has been reduced and the office offers an improved training phase for Professional Engineering Trainees. Team members are able to quickly take ownership of their projects and confidently make sound technical and project management decisions, taking prudent risks to deliver high quality products on-time. Drainage Academy is considered a resounding success, resulting in the team’s ability to provide fantastic customer service while enjoying a very high morale.

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Schedule Adjustments on Projects with Right-of-Way Acquisition

By: Bing Wang, P.E.

Last summer, FDOT D-4 evaluated the R/W acquisition process using the Value Engineering study approach. There were multiple recommendations that came out of the study, many of which are currently being implemented. One of the changes you'll see on all new R/W projects is the addition of a review of the R/W requirements by a multi-disciplined team prior to the required R/W being mapped.

Traditionally on R/W projects, the project team would identify the R/W needs around the Initial Engineering stage, provide that information to the Mapping office to be put onto R/W maps, which would then be sent to Appraisal to begin the acquisition process. During acquisition of the R/W, a number of questions would invariably come up that sometimes causes significant changes to the R/W requirements or documents, which then creates a major setback in the acquisition process.

The improved process injects a review of the R/W requirements by a multi-disciplined team after the requirements are finalized by the project team. This team will include representatives from the project team, Mapping, Appraisal, Acquisition and Legal Offices who will then review the area and purpose of each required parcel to make sure the taking will stand up to scrutiny throughout the acquisition.

Several things to consider as we make the transition to the new process on R/W projects came up in the recent review of an ongoing project. The first of which is that the project schedule may need to be adjusted. This R/W review will take place shortly before Initial Engineering (I.E.) and will consider all required R/W including all fee parcels, perpetual easements, temporary easements, joint use documents and license agreements. These parcels are frequently determined by or impacted by the drainage design which would need to be further along than normal at this time.

In order to make sure that R/W project schedules have sufficient time allocated to these new steps, the project templates have been modified. This is still currently evolving, but you will soon see some new activities that occur about one month before I.E. submittal. In addition, the design team will need to insure that the design elements that contribute to the R/W requirements are all completed to the extent necessary to have confidence in the proposed R/W. That means that besides the drainage design, all pond locations and sizes, slope tie-ins, driveway profiles, maintenance access, construction methods, utility subordinations, signal pole locations, permitting requirements and anything else that might impact R/W all have to be considered. Those plans will then be submitted to the multi-disciplined team for R/W review. Once comments are received from the R/W review, they will be addressed by the design team and the updated plans will be submitted for the I.E. review. The I.E. comments will then be reviewed by the project team to look for anything that could impact R/W. Any significant changes made to the R/W requirements as a result of the I.E. comments will be checked by the R/W review team. Any new comments will then be addressed by the design team and plans will be submitted to Mapping as the final R/W requirements.

Every project will be a bit different and every project schedule will need to be modified to allow time for that particular project's requirements to be fully vetted. There are a couple of pilot projects going through this process now and the schedule templates will be adjusted accordingly. If you currently have a R/W project, please discuss this new process with your FDOT Project Manager to determine how best to apply the review into ongoing projects. This review has now been used on two reconstruction projects on King's Highway and one widening project on SR-80. This has resulted in numerous adjustments to the R/W requirements and purpose language that will greatly improve the acquisition process.

Shop Drawings...The New APL

By: Morayma Ochoa, E.I.

New times call for new ways, and as we try methods and processes, we are able to experience more accurately what works and what does not.

As you may already know, for a long time the Structures Department has been acting as the Shop Drawing Administrator for District 4. Since we took upon this responsibility there have always been changes in the way we handle and process shop drawings. In 2011, I wrote a Design Newsletter article called "Shop Drawings...The Mystery Unfolded" sharing with you the highlights of the shop drawing review process and encouraging you to refer to the proper sources to learn more about it. Although most of us may be familiar with the submittal process currently in place, at this time I would like to make you aware of the most significant recent changes.

Previously, I had explained that when a product was fully designed and detailed in our Qualified Product List (QPL), it did not need to undergo a shop drawing review process. However, since October 20, 2014, the QPL is no longer available.

As explained by Karen Byram in her video webinar entitled "Merging of the QPL and the APL", the Department's implementation of the CPR (Consistent Predictable Repeatable) Initiative prompted us to align all of our interactions with the public, peers, suppliers, contractors, etc. with CPR. As part of the effort to comply with this initiative, it was decided to merge the QPL Index and the Approved Product List (APL) into a single list due to the similarities between both lists:

- They were both required to be used on all Federal and State Highway projects.
- Both were based on specifications. The APL is based on the Minimum Specifications for Traffic Control Signals and Devices (Min) Specs. The QPL is based on the Standard Specifications (Specs).
- Both had application and review processes.
- Products were only approved for a specific spec.

Conversely, the QPL was maintained by the Product Evaluation Office while the APL was managed by the Traffic Operations Office.

It took a long time to materialize this merge because of the volume of products maintained in both lists. However, the final specifications changes of this merger were implemented in January 2015 when Min Specs were included in the Standard Specs, and the QPL and old APL were discontinued.

All approved QPL and APL products were given new numbers for the new APL, but none of them required re-qualification unless their specifications had changed. Otherwise, they were simply moved over to the new list.

Now we have the "new" Approved Product List, whose official name is APL. This new APL is administered by the Product Evaluation Office that handles the web site, the main work of it, and the associated paper work of the list, while the Traffic Operations Office continues conducting the testing, investigations, reviews, etc for all of their traffic control devices. The new APL even allows photos, drawings and short video clips to further detail the product.

In the absence of the QPL, what we need to keep in mind when it comes to Shop Drawings is that any products listed in the APL will not require a shop drawing review as long as they are unmodified and used as intended.

What is a Genesis Map?

By: Jeff Smith, P.S.M.

You may have heard the term "Genesis Map" and wondered what is that? Simply put, it is a map of the existing right of way that has been field surveyed, title-searched, calculated in a coordinate geometry software such as Geopak, mapped in CADD, and is on the state plane coordinate system.

Why do we call this type of right of way map a Genesis Map? The word "Genesis" is defined by the American Heritage College dictionary, third edition as: "The coming into being of something; the origin." The definition of the word "Genesis" has great meaning for these maps as they become the new origin for mapping going forward.

About 20 years ago, Horst Korn, the District Four Surveying and Mapping Administrator for 30+ years, had a vision for all of the District's right of way maps to become base maps supported by a field survey, aerial planimetric topography and title searches. He also wanted them all in CADD format, and geo-referenced to the state plane coordinate system. Horst was able to rally support and funding for creating Genesis Maps by explaining the importance of having this type of map for each of our state road corridors. The Surveying & Mapping unit began implementing Horst's idea in 1996.

What is the value in creating these maps? For 3R design projects, knowing the extent of the existing right of way is critical because designers are asked to include as many roadway and drainage improvements as possible within it. Also, with a Genesis Map being created in CADD and on the state plane coordinate system, the main map file can be easily referenced to the design files, providing the designer with the baseline of survey and existing right of way lines at the very beginning of the design process. With a greater emphasis being placed on delivering projects quicker and smarter, a Genesis Map is a good initial step towards that goal.

Horst's idea was to have the Genesis Maps replace the older, hand drawn map(s) and become the new origin from which all future mapping would emanate.

Genesis maps are a big time-saver to designers on 3R projects, and are of equal value for acquisition projects where a Genesis Map exists. A Genesis Map allows the Surveying & Mapping unit to quickly add the parent tracts, and the required right of way parcel information very efficiently, and allows us to deliver information to the Right of Way Office earlier.

What does it cost to produce a typical Genesis Map? Our data for the past several years show that an average cost for Genesis Mapping is \$60,000 per mile and includes a Control Survey and Right of Way Survey, Primary Network Control sheet(s), a Control Survey Map and a Genesis Map. A Genesis Map depicts the historical baseline, section corners and lines, plats, found survey monuments, condominium limits, topography (aerial planimetrics), and title-searched existing right of way and easements recorded in the official public records.

Once a Genesis Map is created, any future design projects (3R or add lanes) for the same limits would only require updated aerial rasters and planimetrics, a design survey (Digital Terrain Model), and an update of the title reports identifying any new owners, encumbrances, plats, and easements. No longer is a control and right of way survey needed since the project control, baseline of survey, and section lines were already established for the Genesis Map.

Horst would be happy to know that his vision has become a reality.

New/Relocated Employee Introductions



Humberto Arrieta - Consultant Management

Humberto will be working in Consultant Management Section 5 and brings a strong design presence, coming from in-house design Section 2. Humberto is a licensed P.E. and has a Bachelor's Degree in Civil Engineering and a Master's Degree in Construction Management, from Florida International University. He began his career with FDOT, 8 years ago as a roadway designer with In-house Section 2. Last year he became the Assistant Section Leader and also the District Pavement Design Engineer. During his career at FDOT he has had the opportunity to be the lead designer on reconstruction and RRR projects, participated in VE studies and TRCs, and managed several projects. He has also reviewed multiple pavement designs including the new managed lanes for I-95 and I-75. On a personal side Humberto is happily married with one daughter. He enjoys photography as a hobby, and loves to spend time with his family. Please help us welcome Humberto to the Consultant Management Family!



Robert Lopes - Consultant Management

Robert will be working in Consultant Management Section 4. Rob received his Bachelors in Civil Engineering from Lawrence Tech University; and his Master's Degree in Traffic Engineering from Wayne State University. He is a Registered Professional Engineer in the state of Florida and has over 12 years' experience in the Transportation Industry. He started his career in the private sector as a Roadway Designer. He joined the Department in 2006 with District 7 where he served as FMS/ATMS Engineer, and later the District Pavement Material Engineer. He also spent one year in Central office serving as a Quality Assurance Engineer. Through his background he has gained a high level of experience in areas of Leadership, Pavement Engineering, Traffic Operations, and Roadway Design. He is happily married with two children. In his spare time he enjoys reading American History books, taking his kids to the beach, and sampling different cuisines from around the world. Congratulations and Welcome to D4 Consultant Project Management.

Did You Know?

In the past, geotechnical field investigation for conventional design projects has not required a SFWMD permit. As long as there were no impacts to wetlands or surface waters, a No-Notice General Permit was sufficient to address this activities. However, recent SFWMD rule changes no longer support No-Notice General Permits. An Environmental Resources Permit (see SFWMD 62-330-407; <https://www.flrules.org/gateway/ruleno.asp?id=62-330.407&Section=0>) is now required before any activity on Surface Waters or wetland areas. This applies to geotechnical investigation.

The permit application process for this kind of activity can be accomplished very quickly (for a recent bridge project over the AICWW, the whole process took 2 days). Please make sure that you consider this permit in your project schedules and before sending field crews to perform this work. Not having a valid permit is a violation that can result in fines and interrupt the progress of your project.

Upcoming Events

- ◆ D4 Design Townhall - April 16, 2015
- ◆ PM Forum - May 28, 2015
- ◆ Design Expo - June 9-11, 2015

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