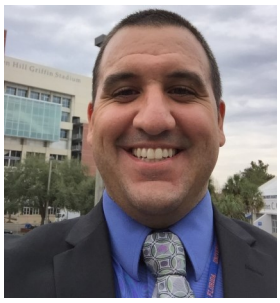
ASCE
FLORIDA SECTION
Sun Coast Branch

October 2016
Volume 17, Issue 12

Civil Times

PRESIDENT'S MESSAGE



Dear Members and Friends of ASCE,

"This is the end, my only friend, the end."

With this being my final message to our branch as President, I find myself looking back over the past 4 years as I started down this road. I am proud at the successful events we had done as well as improve efficiencies and quality in our overall production as officers. With most of our professional training coming from the technical side, the personal development gained by being a part of our branch is something that all should have the experience in some form or another in this branch or as a part of another professional organization. Please pass this on to others and especially our young engineers so they also can improve their professional foundation.

With this month's meeting being also our new officer induction, please remember to take the time to cheer them on as they take the pledge. Though they are the ones organizing and running the show this coming year, it is all for us as members of this branch and we should always be there to support our professional family as we all grow.

Salvatore G. DePaolis, PE, M.ASCE

INSIDE THIS ISSUE

WANT MORE?

Help us to fill this space by submitting more content to our newsletter. Gain more exposure for you, your company, or your event by emailing your technical articles, announcements, Flyers, or photos to:
asce.suncoast@gmail.com

EDUCATION CORNER

The education corner seeks to provide valuable information to our members related to continuing education, opportunities for PDH credits, and information related to upcoming PE exams.
http://ncees.org/exams/

Education Corner material is on hiatus and will resume next month.

The ASCE SunCoast Branch would like to say "Good Luck!" to all our young engineers preparing to take the PE Exam on October 28th, 2016.

If you would like to make an announcement in the Education Corner or if you would like to submit an exam-type question for inclusion in a future edition, please email asce.suncoast@gmail.com.

ANNOUNCEMENTS

ASCE SUNCOAST BRANCH MONTHLY LUNCHEON

WHEN: **Thursday, October 20th, 2016**
Check-in begins at 11:40 AM

WHERE: **Der Dutchman Restaurant**

RSVP: **http://ascesuncoast.weebly.com/monthly-meetings.html**

GUEST SPEAKER: LEN BRAMBLE, PE,
CITY OF VENICE—ASSISTANT CITY MANAGER

INSTALLATION OF SUNCOAST BRANCH OFFICERS

As of October 1, 2015, the new ASCE SunCoast Branch elected officers are as follows:

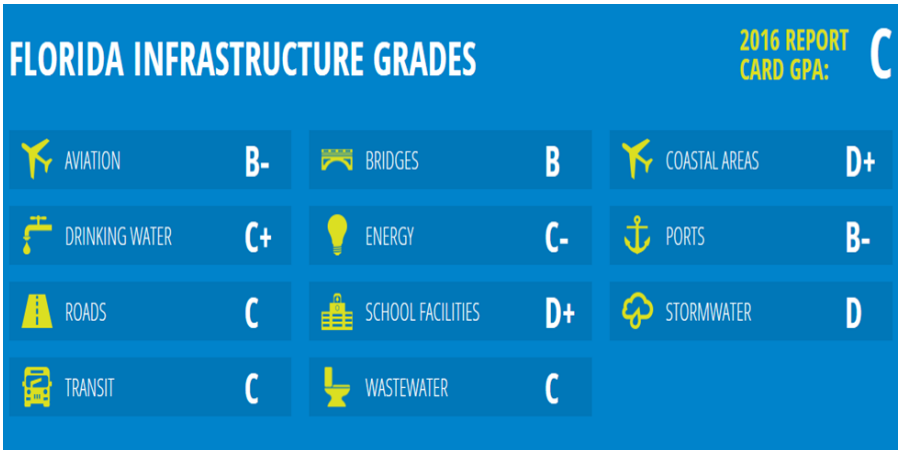
* President – Norman Robertson, P.E.
* Vice President – Geza Bankuty, E.I.
* Treasurer – Marquis Bing , E.I.
* Secretary – Shanon Rodden, E.I.

Please join us at the October 20th meeting when our ASCE Florida Section District II Vice President, Jim Ink, will be present to install these individuals into their new officer positions.

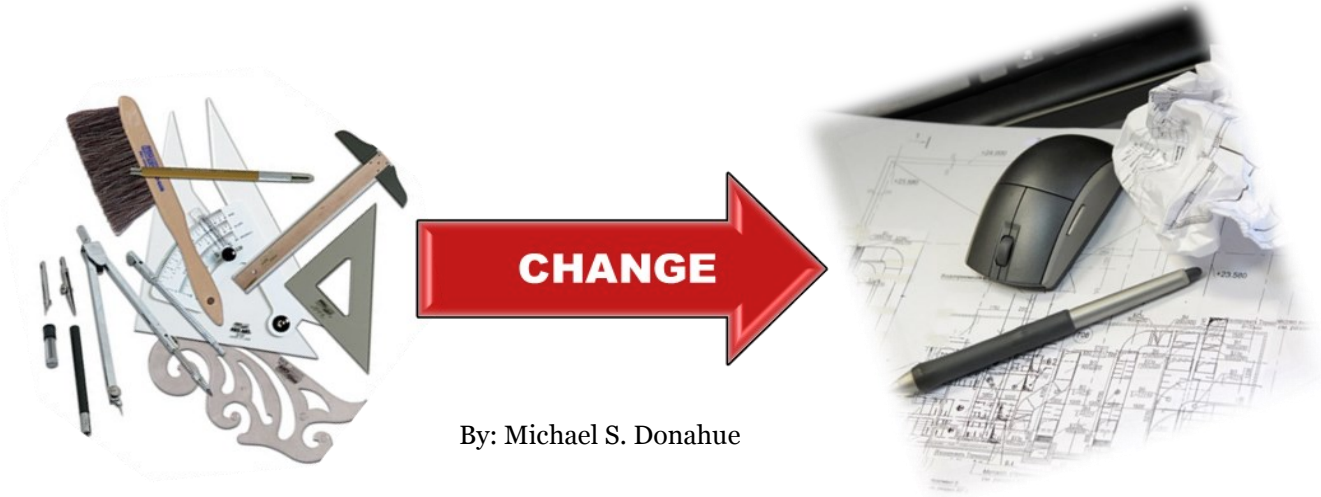
2016 FLORIDA INFRASTRUCTURE REPORT CARD SUMMARY

On July 14, the Florida Section of the American Society of Civil Engineers released the *2016 Report Card for Florida's Infrastructure.* A summary of the grades are provided below.

For additional information please the following link:
http://www.infrastructurereportcard.org/florida/florida-overview/



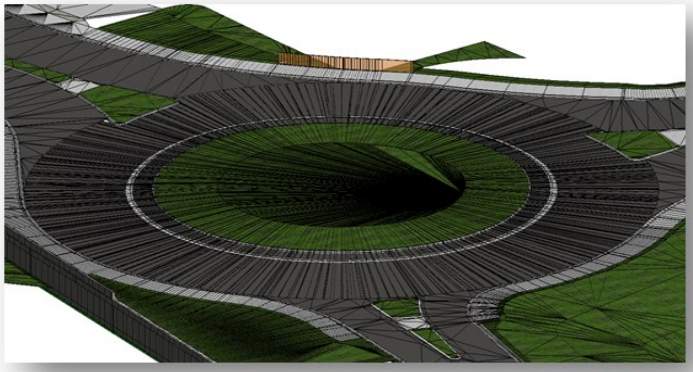
FEATURED ARTICLE



By: Michael S. Donahue

With constant advancements being made in technology, change is inevitable. After all, who still has a rotary phone hanging on their kitchen wall? Admittedly, keeping up with the pace of technology's development can present unique challenges and the engineering industry is not immune to those growing pains. The requirement of 3-dimensional (3D) design for the Florida Department of Transportation's (FDOT) design projects is the most recent example of this evolution and, like most change, is causing a bit of a stir at all levels.

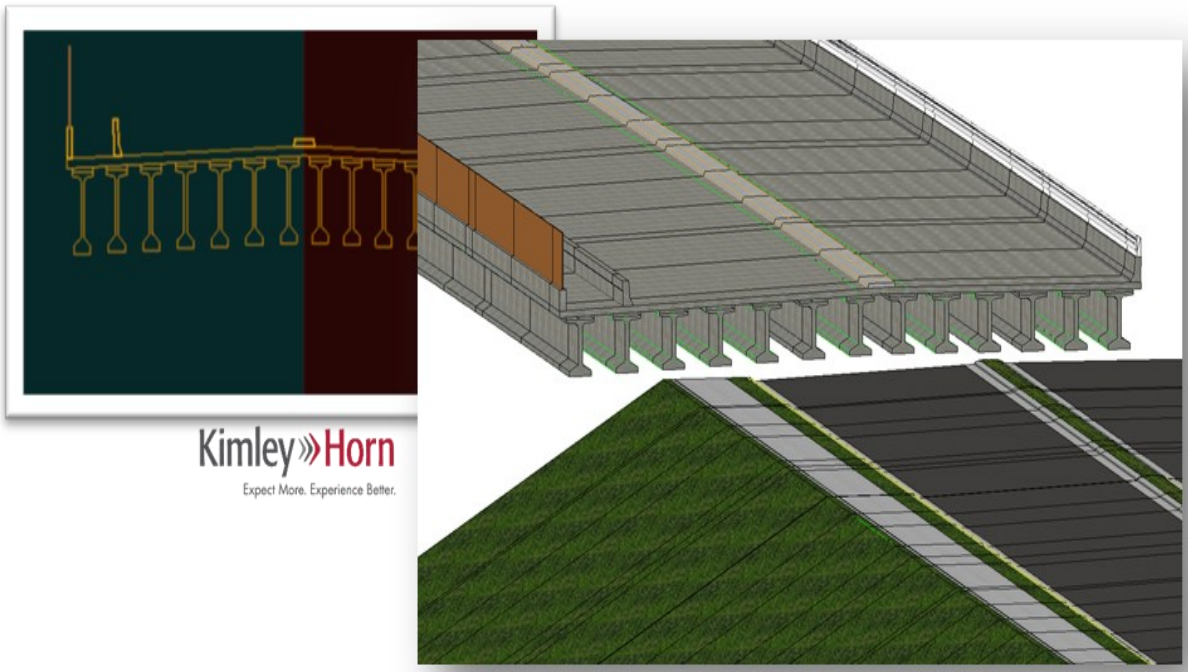
There is a constant with this change—Engineering remains the same, we just have another tool at our disposal. Few of us today remember the struggles the industry felt with the development of Computer Aided Design Drafting (CADD)—and yes I am one who remembers it. But I doubt that there are many users nowadays who would prefer to push aside the mouse and monitor and pick up the lead holder, eraser shield, and Leroy sets. So looking back, the change from board to CADD was a development that increased accuracy and productivity while reducing costs. Ultimately this change to a 3D design environment will prove to do much of the same.



Kimley»Horn
Expect More. Experience Better.

As a result of this advancement our approach to transportation engineering will change. In times past we would design in three planes (Plan + Profile + Cross section), which represented the 3D product to be constructed. Today we design in a 3D Model and the 2-dimensional plans, profile and cross sections become more of a byproduct of the completed design. *Why is this so beneficial?* Consider the benefits of seeing the results of design decisions in real time. Change a profile grade and you immediately see the revised limits of construction and resulting cut/fill slopes. The ability to see these impacts during each phase of design assists with critical decisions regarding alignment, grading, balancing earthwork, property impact avoidance, drainage improvements, etc. Better decision making and more accurate design should ultimately equal less requests for additional information during construction. Having a 3D design model also affords contractors the ability to utilize Automated Machine Guidance (AMG) systems, which should improve accuracy, shorten duration, and increase safety; all of which will result in less cost.

Even with the benefits being too many to mention in this brief article, the industry is going to be challenged in much of the same way it was with the introduction of CADD.



Additional concerns with this new technology include:

Training – How and Cost?

FDOT's Engineering and CADD Systems Office (ECSO) has recorded a plethora of videos regarding the more common functionality of the new environment and is a great resource to start with. I will caution however that watching a video is good theoretical training but cannot replace the knowledge gained by hands-on application. I could watch videos of how to perform the perfect golf swing and memorize the more critical points, but until I go to the range and work on those fundamentals I haven't improved my swing. Modeling is the same.

My recommendation: Make the investment in your staff by identifying a project for modeling and commit to it, using the videos as resources along the way. The overhead associated with developing staff is more than likely considered the cost of doing business from a client standpoint and so it cannot be expected to negotiate training into design fee. Training for consultants is available from FDOT as well as from private firms and individuals like myself. Experience teaches that early investment in understanding the "how" translates into a reduction in the cost.

How to scope modeling and estimate fee?

Scope language is being developed by the FDOT in partnership with FICE representatives and is expected to be finalized in mid-2017. There is an understanding at the FDOT that there will be some increase in design fee for projects requiring 3D deliverables. The increase however is not a result of additional hours anticipated to model a task as much as it is a reflection of *who* will be doing the work. It is likely that more senior level designers and engineers will be "designing" in the 3D environment which will result in less redlines for junior staff. This highlights the unfortunate issue of the learning curve between the level of design knowledge recent graduates have as they enter the workforce and the experience level needed to be effective with the new technology. The fee and effort for 3D modeling on municipal projects will need to be negotiated independently until an industry-wide equilibrium is found.

My recommendation: Default to the FDOT guidelines in the interim until municipal clients begin to establish scope and fee guidelines.

New Hires – Closing the Gap

After college, a young engineer has a great deal to learn on the job: specific criteria for design, software functionality, production guidelines and processes, etc. With previous versions of design software, teams could compartmentalize training. For example: personnel could work on profile generation, horizontal layout and cross section generation for the same project without impacting the other components. With an integrated 3D model this becomes much more challenging. When a user changes the profile, the model is revised. When horizontal elements are manipulated, so is the model. Since cross sections are generated from the model they can still be generated independently—as long as the industry keeps them around. Basically there is no shortcut to answering this problem. At Kimley-Horn and Associates, Inc. we have established an approach to workflow that allows for staff development through a systematic emersion into the 3D environment while reinforcing sound engineering practices and knowledge of criteria. No matter how training is approached, be sure that consideration is given to the dynamic environment of the model and how each component of design works in relationship with the others. Understanding these relationships is critical to staff development.

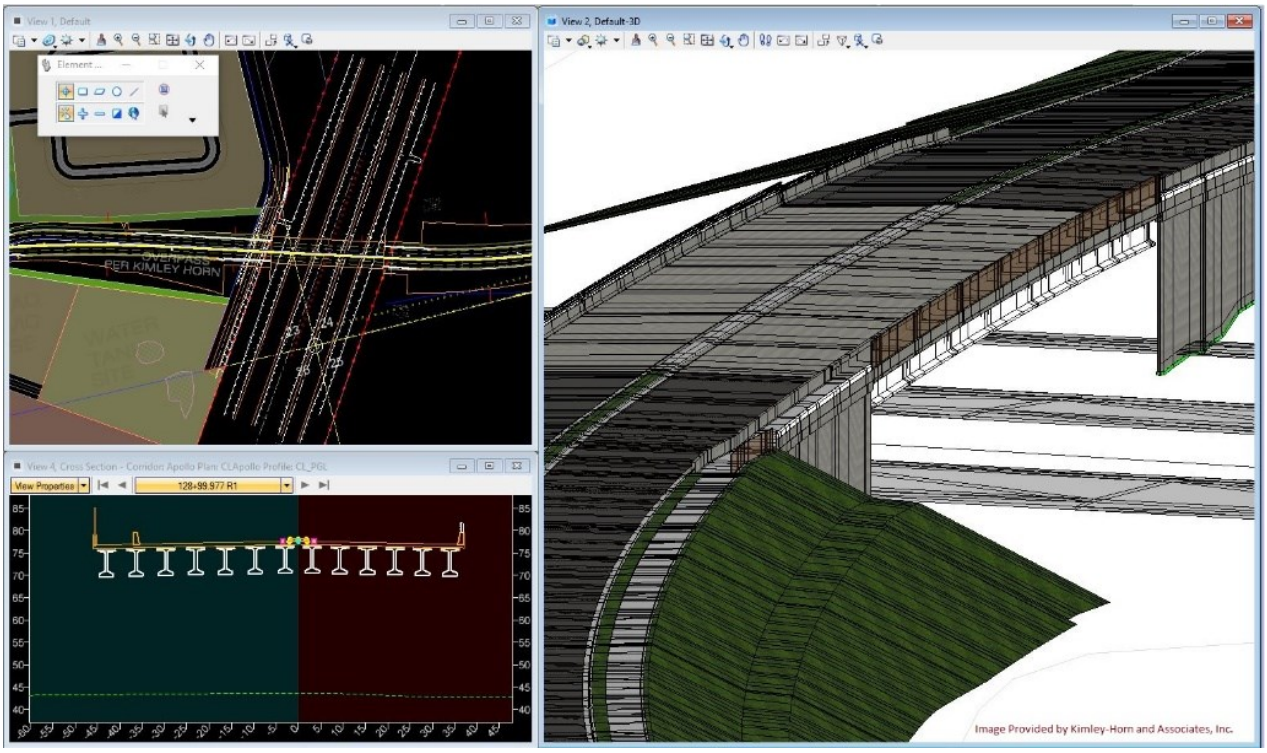
My recommendation: Every team makeup is different and so training will need to be customized to utilize the skillset of available personnel. As part of new hire orientation, assigned resources for technical and professional development.

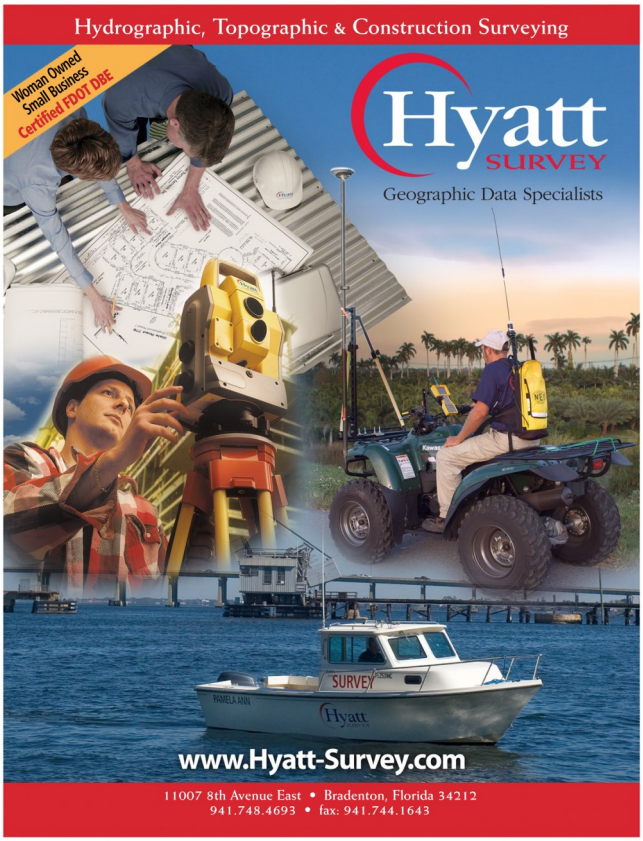
Things to Remember

We are no longer producing "lines on screen" in CADD—there is intelligent design intent constructed into the drawing environment. The current version of the Microstation (Select Series 4) is proven to be a strong technical tool for holistic design (meaning we model the entire project including the area between cross sections) but it cannot replace the engineering mind. As the technology advances and as the industry evolves we move closer to full 3D deliverables. This requires caution and a heightened focus on engineering fundamentals. There is a future goal within the industry of eliminating plans altogether and providing contractors a signed and sealed 3D model. This is a very real proposition but more questions exist around how to achieve this than the industry has answers for. So until these questions are thoroughly answered, plans will remain the primary deliverable.

ABOUT THE AUTHOR:

Michael Donahue is a Senior Design Associate with Kimley-Horn and Associates, Inc. Michael has 23 years of experience serving public and private sector clients on transportation projects and is an active member of the FDOT Engineering and CADD Systems Office (ECSO) Technical Advisory Committee (TAC) and the FICE/FDOT 3D Task Team Committee. In 2016 Michael facilitated sessions at the spring Florida User Group convention and the FDOT Design Expo on the subjects of 2D roundabout geometrics and 3D roundabout modeling. Michael presented at the 2016 FICE Transportation conference on the impacts of 3D design on the transportation industry.





DO YOU LIKE OUR NEW LOOK? BE A SPONSOR!

We are continuing to change our look to provide you more value. If you or your company is interested in sponsoring your local ASCE Suncoast Branch Newsletter, please contact any of the Executive Board Members.

* Quarter Page—$250 / 6mo.
* Business Card—$150 / 6mo.

EXECUTIVE BOARD 2015-2016

AMERICAN SOCIETY
OF CIVIL ENGINEERS

www.ascesuncoast.weebly.com

ASCE
FLORIDA SECTION
Sun Coast Branch

PRESIDENT

Salvatore DePaolis, P.E.
sdepaolis@wraengineering.com
941-914-3328

VICE-PRESIDENT

Norman Robertson, P.E.
norman.robertson@atkinsglobal.com
941-451-6676

SECRETARY

Marquis Bing, E.I.
mbing@sgov.net
941-861-0766

TREASURER

Geza Bankuty, Jr., E.I
geza.bankuty@stantec.com
941-907-6900

PAST PRESIDENT

Kwamena Sankah, P.E.
Ksankah@scgov.net
941-861-0511