It was fairly easy to come up with a topic for this month’s newsletter article in light of the signing of the new highway bill by President Obama on Friday, July 6th. The event is significant because the previous bill was supposed to expire in 2009, but has been extended nine times while Congress debated funding levels and other issues. The new bill provides $105 billion for a 2-year period and is known as the “Moving Ahead for Progress in the 21st Century (MAP-21)” bill.

One of the things that’s included in the new legislation that will have a particular impact on AP Tech is language that requires State Departments of Transportation (DOTs) to develop Asset Management Plans that include “strategies leading to a program of projects that would make progress toward achievement of the State targets for asset condition and performance of the National Highway System (NHS) in accordance with section 150(d) and supporting the progress toward the achievement of the national goals identified in section 150(b).” At a minimum, the Asset Management Plan will include the following:

- A summary listing of the pavement and bridge assets on the National Highway System in the State, including a description of the condition of those assets;
- Asset Management objectives and measures;
- Performance gap identification;
- Lifecycle cost and risk management analysis;
- A financial plan; and
- Investment strategies.

The Federal Highway Administration (FHWA) will be continued on page 7.

The Dangers of Password Reuse by Chris Childress

Password reuse is simply using the same password at multiple websites. We all know strong passwords are essential in protecting online accounts and to some extent, our identity. Using a lengthy password or passphrase is a great way to keep people from guessing your passwords.

How bad would it be if your e-mail address and password were leaked in a breach similar to the one LinkedIn, Last.FM, and eHarmony suffered last month? It depends on where else you use that same e-mail address and password.

For example, Facebook gets hacked and they have a chunk of their user database leaked. Hacker groups post it online and within hours people around the world go to work decrypting the passwords using freely available software. They will have a significant portion of the passwords within hours or days. Stronger passwords can take weeks or months depending on how much CPU power they have available. When it comes to password decryption, length equals time. The longer passwords take much longer to decrypt.

So now they have our e-mail address and our Facebook passwords. They will start to try them out at some popular sites like Amazon, Netflix, Newegg, Twitter, Paypal, etc. If you use any of those services, do any of them have the same password?

This is why password reuse is dangerous. They don’t necessarily have to guess a strong password continued on page 3.
Congratulations to last month’s grammar game winner, Prashant! Thanks to everyone who played!

When do I use a vs. an with acronyms?*
The normal rule for when to use a vs. an is pretty clear cut and ingrained in our memory. However, the rule becomes a bit harder when applied to acronyms since many consonants start with vowel sounds. To determine if a letter starts with a vowel sound, it helps to know how the letter is written when spelled out:

A – a  J – jay  S – ess
B – bee  K – kay  T – tee
C – cee  L – ell  U – you
D – dee  M – em  V – vee
E – e  N – en  W – double-u
F – eff  O – o  X – ex
G – gee  P – pee  Y – wye (why)
H – itch  Q – cue  Z – zee
I – i  R – ar

When to use “a” with acronyms
Use “a” when the first letter of the acronym is said with a consonant sound. Using the above list, you should use an “a” when an acronym begins with b, c, d, g, j, k, p, q, t, u, v, w, y, and z. Note that even though “u” is a vowel, it is said with a consonant sound and therefore requires an “a.”

When to use “an” with acronyms
Use “an” with acronyms when the first letter of the acronym is said with a vowel sound. Using the previous list of letters, you should use an “an” when an acronym begins with a, e, f, h, i, l, m, n, o, r, s, and x.

What to do when an acronym is said as a word
If an acronym is said as a word (such as NASA, FIFA, and NATO), the article before it should be chosen based on the pronunciation of the word. For example, NATO would use an “a” because the “N” is said as a consonant, not as “en.”

Grammar game solution:
1. The City should apply an HMA overlay to the pavement.
2. The proposal requires that we include an UDBE as a subconsultant.
3. David conducted a forensic investigation on a PCC pavement.
4. An LCCA should be performed before a pavement preservation decision is made.
5. The client requested an M&R plan for the next 20 years.

* Please note that I am using the term “acronym” to apply to any abbreviation that uses the first letter of words in a phrase in place of that phrase. Most strict grammarians believe that acronyms are only abbreviations that can be said as words (NASA, NATO, FIFA, etc.) and others (HMA, PCC, UDBE, etc.) are called initialisms.

Below are five sentences that use either “affect” or “effect.” Choose the best option, and send me your selections. The first correct response receives a gift card to Starbucks!

1. The news had a sudden (effect/affect) on her demeanor.
2. Bob was reminded that his nutrition would (effect/affect) his health.
3. An ad online will have a much bigger (effect/affect) than one in the newspaper.
4. The rain (effected/affect) their plans to go to the beach.
5. The volunteer hoped to (effect/affect) change in her community.

Proposals and Projects compiled by Beth McKinney

NEW PROPOSALS
2012-072-AE01 Ohio University Airport Pavement Maintenance Program
2012-073-AE01 Parkersburg (WVA) Runway Rehab
2012-074-RM01 Eagle Point, OR Pavement Management
2012-076- AE01 Cleburne Regional Airport Engineering Services
2012-077-AT01 Kosovo Pavement Training
2012-078-AE01 Deer Valley Electronic ALP
2012-079-RR01 Technology Transfer of Concrete Pavement Technologies
2012-081-RM01 Golden Hills Subdivision Road Analysis
2012-082-AM01 Hawaii APMS Large Hub
2012-083- AM01 Hawaii APMS Small Hub
2012-084-RM01 City of Boulder PM
2012-085-RE01 Beaver Valley FWD Testing

NEW PROJECTS
2011-125-RR01 Optimal Construction Inspection Guide
2012-001-AM01 Iowa Statewide APMS
2012-021-RE01 Urbana Green & Goodwin Intersection Improvements
2012-044-RR01 NCHRP 20-24 (82)
2012-068-RE01 I-81 Staunton Pavement Evaluation
The Dangers of Password Reuse

continued from page 1

if they can steal it from a site and decrypt it. Think of the trouble we would see if our Gmail password was the same as our leaked Facebook password. They could log in to Gmail, change our password, go through the lost password process at our bank, and potentially gain access to the account depending on the bank security measures.

Even if we are doing everything right by picking strong passwords to use online, it may not be enough. We trust sites with those passwords but they don’t always follow best practices and they are susceptible to attack. If they get hacked and the passwords are leaked, that password is no good and must be changed everywhere else it is used.

The ultimate goal is to have a lengthy unique password at every site we use. This will get complicated as sites may have different strength requirements for passwords and remembering all of these passwords will be very difficult if not impossible. Password managers are a great way to keep track of online accounts and passwords. I’ll only list a couple that I have experience with but there are many others out there that can do the job well.

KeePass is a small utility installed on your PC that stores your online account information. Your KeePass database is protected by a master password and the contents of the file are encrypted using a strong algorithm. When the program is launched, you enter this password to unlock your password vault. KeePass keeps everything encrypted so your account data is secure even if your USB drive or computer gets stolen. It also includes a random password generator to help you generate strong passwords for use online. If you prefer to keep your password database stored on your own computer, this may be the one for you. I definitely recommend something like KeePass versus storing passwords in a non-encrypted form like text documents or spreadsheets. KeePass is an excellent password manager and is available for free at http://keepass.info/.

LastPass is my personal favorite and I’ve been using it for a couple of years. LastPass integrates with your web browser and handles website logins and form filling. When you log in to a site, LastPass will prompt you to save the entered data. Once you save it, LastPass will automatically fill in your information the next time you visit the site. LastPass has many other features such as form filling, secure notes, synchronizing across browsers/computers/smart phones, and secure password sharing. If you would like to try it out, they offer a free version of LastPass. The only restriction I’ve noticed is the free version is not available on smart phones. The paid version is $12 per year. If you would like to check out LastPass, visit their website at https://lastpass.com/.

If you have questions about password reuse or either of the applications mentioned in the article, contact Chris.

Meet Ruben Carrasco by Maura Hankinson

Ruben Carrasco joined the APTech team in May as an Engineering Associate in our Austin office. He previously worked at Fugro Consultants, Inc. with Mark Gardner. I asked him a few questions for us to get to know a little more about him.

I asked Ruben what would surprise us most about him. Ruben said one thing that most people seem to find surprising is that in his spare time he loves to play guitar and sing in his brother’s band, but he says he is not very good by any means.

He said the most unusual vacation he has taken was to the “World Youth Day Pilgrimage.” He spent so much money traveling to Europe, every day he found himself walking long distances, hungry, thirsty, hot, cold, dirty, and most times lost. However, he learned to enjoy it once he realized that being a pilgrim is not the same as going on vacation.

When I asked Ruben to tell us about his hometown, he told me he was born and raised in Juarez, Mexico until he started college. He still considers Juarez his hometown even though he would not dare to visit at this time. He said, “As a matter of fact, I have not visited the few relatives and friends that still live there in over 3 years. The charms of my hometown are many but at this time are hidden.”

Ruben considers himself a very easy-going person. He likes working hard and making good friends along the way. He is very determined and passionate when it comes to work. When he was younger, he thought he wanted to be an Architect or a Veterinarian, so he became an Engineer.

In his free time, he enjoys spending time with his two boys and beautiful wife. They love the outdoors, cookouts, movies, and traveling. Ruben's favorite TV show is Sesame Street. His favorite character is Elmo. "It is a lifesaver when you have a very energetic 4-year old boy!" Ruben said. His favorite comfort food is Vietnamese Pho.
Tracey’s File Pile

submitted by Tracey Smith

Geo Poem: Deep Thoughts by Mary C. Nodine, P.E., A.M., ASCE

The last time I drilled and collected rock cores
Recording those fractures ‘til my fingers were sore,
I found myself charmed by the well-behaved samples:
The unweathered sandstone whose core length was ample
With nary a joint to make logging a chore—
Homogenous and smooth, but perhaps, nothing more.
They go me to thinking, those cores so compelling,
About every rock and the story it’s telling.
Maybe, when logging is not such a breeze,
Those marred cores tell tales of a life with less ease.
For flawless granite is a beauty queen,
With little to speak of but its lustrous sheen,
While the clayey-shale mess that I pull from the ground
Is not but much to look at, but much more profound.
A miserable ordeal to box and describe,
It emits a decidedly ornery vibe...
But I’d argue that you, too, would be a disgrace
If the sea level just wouldn’t stay in one place
And it swept back and forth along your facade,
Turning your rock-solid surface to mud and relentlessly layering sand, clay, and silt—
It’s enough to make anyone’s fresh-faced look wilt.
Perhaps taking cores makes my thinking too deep—
but that fat clay-filled rock fairly drove me to weep!
Respecting the lines on its face a bit more
Made logging its layers much less of a chore.
So if ever your sampling’s lost all its glory,
Remember: The worst rock can tell the best story.

Summer Fun

• Watermelon is actually a vegetable, not a fruit! It is most closely related to cucumbers, pumpkins, and squash. The watermelon is composed of 92 percent water, and early explorers often hollowed them out for canteens.

• Watermelon is an ideal health food because it doesn’t contain any fat or cholesterol, is high in fiber and vitamins A and C, and is a good source of potassium.

• On a typical summer day, watermelons are extremely refreshing as they have very high water content and only 8 percent sugar.

• Watermelon is an amazing stress buster. It is high in vitamin B6 and is used by the body to produce brain chemicals, which may relieve stress, anxiety, and panic attacks. It naturally relaxes blood vessels.

• Every part of the watermelon is edible, even the seeds and the rinds.

Law of the Land

(from Roads & Bridges)

We all know that speeding fines in some states can be steep, but at least they’re assessed evenly to everyone. In some European nations, fines are calculated as a percentage of your wealth. In 2010, a driver in Switzerland was caught doing 85 mph in a 50-mph zone, and due to his $22 million in assets, his speeding ticket came to $290,000. In the U.S., older drivers sometimes face extra requirements in order to renew their license. Japan goes a step further by requiring all drivers over the age of 75 to display a special multicolored magnet on the front and back of their car, which surely in no way becomes a source of ridicule. And, of course, we’re all accustomed to keeping our registration and proof of insurance in the car with us at all times. But in France, vehicles must also include a luminous high-visibility vest, a reflective warning triangle, a full set of spare light bulbs, and beginning July 1, a portable Breathalyzer test kit.

Watermelon Lemonade

1/3 cup granulated sugar
5 cubs cubed seeded watermelon
3/4 cup lemon juice

In measuring cub, whisk 1 cup boiling water with sugar until dissolved. Set aside. In blender, blend watermelon with lemon juice until smooth. Strain into glass pitcher, pressing mixture; stir in sugar syrup.
Nathan Kebede joined the APTech team in May as an Engineering Associate in the Urbana office after completing his Master’s Degree at the University of Illinois. I asked him a few questions to get to know more about him.

Q. When you were younger, what did you think you would do when you got “older”?

A. I have always wanted to be a pilot. In Addis Ababa, my family’s house overlooked the city’s airport and I could hear and see each plane take off and land. Sometimes the planes were so loud that windows would shake in our house. I just thought that was the coolest thing to do. I don’t think I went too far off the course since I spend a good amount of time on airfields now. I still plan to go to pilot school and learn how to fly!

Q. What have you always wanted to do but never had the chance?

A. This has to be a trick question because there are LOTS of things I want to do. Some I can’t do because the time has passed, some I plan on doing, and some I will never be able to do. The one thing that I wish I could have done is learn how to play a musical instrument. I love string instruments. Guitar and Violin are amazing to listen to. I would hope that I can still learn the guitar, but I have never taken any type of music lessons so I think it will be very difficult.

Q. Tell us about your hometown.

A. I think I have three hometowns. Addis Ababa is the city I was born and raised in. At the age of 14, I moved to Mississippi and lived there for 8 years. I consider Jackson my hometown since I spent 8 of my most defining years there. I now live in Urbana, and this is my current hometown. Addis Ababa is the capital city of Ethiopia. The population is estimated to be between 3 and 5 million. It is a very rapidly growing city. I left there at a very young age so I haven’t experienced much of the city life. Jackson is the capital of Mississippi. The one thing I don’t like is the summer heat. People just can’t do anything outdoors during the day in Jackson. It is a quiet and laid-back city. People are never in any rush. Almost everyone said hello to everyone and that could be refreshing at times. The move from Addis to the outskirts of Jackson was very shocking for me since Addis was a lot bigger and more populated in comparison but I have adjust well. My very favorite thing about Mississippi in general is the big board placed on the border of the state welcoming people who drive in. It says, “Mississippi, It’s like coming home,” and I do feel like I’m home in Mississippi.

Q. What hobbies do you enjoy in your free time?

A. I love to stay busy at all times. I love doing things that allow me to socialize and meet new people. I love biking, salsa dancing, and cooking. Of course, I would prefer to do these with someone because doing it alone is just boring. Other things I like are driving to new places, hiking, and canoeing. I also plan to start sky diving soon.

Q. If you could live at any time in history, when would it be?

A. This is also very tricky. My instinct tells me to go back to when I was 17 and stay there. I had no worries at that time. Just eat, go to school, play soccer, and sleep. I don’t think I would enjoy living at any time in the past because I just do not think I can live by the rules of the time. Things were very strict back then. I would love to live 300 years from now just to see how people have dealt with these crazy environmental and socio-economic-political issues we face currently.

Q. What would surprise us most about you?

A. I don’t think there is any surprising thing with me but people find it very shocking when I tell them that I eat raw meat. There are certain dishes in the Ethiopian culture that are prepared with raw beef and I enjoy some (not all) of them. For people who don’t know raw meat is eatable, it is very surprising. Legend says that with the Italians came to conquer Ethiopia, they saw local Ethiopians eating raw meat from a distance and thought that the locals were cannibals. The Italians got scared and ran away. I can’t verify these stories, but they are funny.
Best Place for Lunch: Well, there is a DQ right across the street!

Hardest Part of Moving: Everything that the movers didn’t do?

Strangest Thing Unearthed in the Move: Not quite “strange,” but we came across some original (I think) give-aways (see inset photo).

What You Love About the New Office: I (Jim) didn’t think I could get a much shorter commute. And more windows.

What You’ll Miss About the Old Office: The underground parking, especially when it starts snowing again!

Best Place for Lunch: This one’s a toss-up. It’s between the Firehouse Subs and the Cajun Pizza Kitchen.

Hardest Part of Moving: The only problem we encountered was getting the network all set up. I had to call in experts (Chris on our end, and a guy from the ISP), to resolve a problem with the firewall setup. Once that was done, everything started working beautifully.

What You Love About the New Office: After working at home for a year, having someone else in the office is nice. To bounce ideas off of, to chat with at lunch, to say “good morning” to – Its nice to be back in an office again.

What You’ll Miss About the Old Office: Considering I was working from home, the “old office” offered an opportunity for much more relaxed dress code – but I learned that may not be a good thing, and the routine of getting up and getting ready for work is important to the mind set of getting things done.
The President’s Perspective

continued from page 1

responsible for reviewing each State’s Asset Management Plan at least once every 4 years. If a State has not developed a Plan, or is not following its Plan, federal reimbursement for projects can be reduced to 65 percent (from 80 percent).

While the legislation spells out the minimum requirements of an Asset Management Plan, the Secretary of Transportation and the FHWA are now responsible for the “rule-making phase” in which they have 18 months to define what will be considered an acceptable Plan. For instance, MAP-21 states that the Plan will include a lifecycle cost and risk management analysis. At this time, there are no formal definitions of what is involved in a risk management analysis and it is up to the FHWA to define those parameters.

The highway bill also promotes a performance-based program for the NHS that includes national performance goals for improving infrastructure condition, safety, mobility, or freight movement. The FHWA’s new office of Transportation Performance Management, which is headed by Pete Stephanos, is responsible for establishing the performance goals in collaboration with the American Association of State Highway and Transportation Officials (AASHTO). For the past year or two, AASHTO has been working on the development of acceptable performance measures in each of the four program areas in anticipation of this language in the new legislation.

As you can imagine, state highway personnel are very interested in the new requirements for an Asset Management Plan and they’re trying to find out as much as possible about what will be involved in developing the Plan, how their existing long-term and short-term plans will tie into the Asset Management Plan, and how much flexibility the FHWA will allow them. The state leaders that I have had the opportunity to work with recently are relieved that the legislation allows States to set their own performance targets and opinions seem to differ as to how much of a challenge it will be to develop an acceptable Plan.

APTech is heavily involved in a number of studies that are directly and indirectly related to work that is being done to position both the FHWA and State DOTs to be able to meet the requirements spelled out in the legislation at the end of the rule-making period, as listed below:

- Linda and Mark are in the contracting phase of a study to look at the methods State DOTs are currently using to measure pavement structural health. The new legislation is expected to use smoothness (in terms of the International Roughness Index or IRI) as the primary performance indicator for the national performance goals on the NHS, but there is a lot of interest in finding a structural performance measure, too. This new study will help determine what the States are using and whether it can be applied on a national basis.

- A new task order under our Pavement Surface Characteristics Indefinite Delivery Indefinite Quantity (IDIQ) contract involves interviews with FHWA employees to determine their visualization needs to support the FHWA’s role in managing a performance-based federal highway program. Todd, Prashant, and I are involved in this project.

- Last week APTech submitted a proposal to FHWA to develop a new Transportation Asset Management course on developing Asset Management Plans. Prashant is expected to help me with this project. We also submitted a proposal through SAIC to demonstrate the development of Asset Management Plans in three State DOTs.

- APTech is also the contractor to the FHWA’s Transportation Asset Management Expert Task Group (ETG), which is an advisory group comprised of senior leadership in several State and Provincial governments to identify the research and training needs to support the implementation and use of asset management principles. This month we will be writing an article that explains the role of asset management in a performance-based management environment.

As you can see, there’s a lot going on at APTech to support this new legislation and the requirements it places on States. We are in a good position to work on these projects from a national perspective, and we are hoping that our experience will translate into technical assistance contracts to help States develop their Asset Management Plans following the rule-making period. It’s an exciting time to be involved in asset management and the more our staff is up to speed on these new requirements, the better off we’ll be. If you want to read more about the new legislation, you can use the following link:


Enjoy the remainder of your summer, and good luck with all the travel and field trips. I know this will be one of the busiest summers we’ve had in a long time and we certainly appreciate the positive attitudes, the long hours, and the professionalism with which you represent the company. I hope you’re able to sleep well at night knowing that you’re helping these agencies manage their transportation assets effectively!