

Hi, everyone! Well, we have the first month of the New Year under our belt, and what an interesting month it has been – on one January Saturday I rode my bike in 50-degree weather, and on another I found myself running the quiet streets of Vinton, Iowa (where we were visiting college friends) in minus-13 degree weather. In between we were looking for wedding and reception venues for my oldest daughter Mary and her fiancée Adam (we have a date – January 3, 2020!) and discussing things like the bride's and groom's signature drink. That led to my funniest moment of the month, when Mary replied, "Hot chocolate?" (Mary is our easiest child.) The wedding planner amiably suggested a hot chocolate bar, which sat well with our gentle Mary.

Personal comments aside, January always marks the start of legislative session, and this year marked the start of Governor Reynolds' new administration, both of which are great places to start our report for January.

## Governor Reynolds launches new initiatives

Governor Reynolds started the new session and her administration with the annual Governor's "condition of the state" address to both houses of the legislature. I was fortunate to attend with my fellow executive agency directors, and thought it would be good to share some pieces of the address (you can read the full text [here](#)) that we have a unique opportunity to support and advance.

The theme of Governor Reynolds' address was opportunity – giving every person and part of the state the opportunity to thrive and be successful. In her words:

*One year ago, I stood at this podium and told you that my vision for the future is an Iowa overflowing with opportunity— opportunity for our working families, young people, and our communities, both rural and urban.*

*A place where it doesn't matter if you're rich or poor, young or old, male or female.*

*Where your last name and zip code aren't nearly as important as your ability to dream and willingness to reach for it.*

*A place where, if life got in the way of those dreams, you can make a new start.*

*And if you've made mistakes, you can find a second chance.*

That theme resulted in three initiatives she shared that struck me as crossing paths with mobility and our mission of getting you there safely, efficiently and conveniently:

- **Future Ready Iowa.** Future Ready Iowa brings educators, employers and local leaders together to help educate people about employment and career opportunities and prepare them for those opportunities with the goal of connecting people with the jobs and careers they need to thrive,



*Governor Reynolds delivers her "Condition of the State" address.*

supplying Iowa business and employers with the work force they need to thrive, and strengthening our communities. Examples of successes included apprenticeship and student debt pay-down programs.

- **Empower Rural Iowa Initiative.** This initiative is a partnership between the Governor's office and the Iowa Rural Development Council. It focuses on making and keeping rural communities throughout the state connected, thriving, livable and attractive to young and new residents by assuring access to broad-band technology and housing, and includes the establishment of a Center for Rural Revitalization within the Iowa Economic Development Authority.
- **Second chances for offenders.** Although not formally named, Governor Reynolds closed by focusing on the importance of second chances for criminal offenders, by developing offenders into skilled workers through education, training, and apprenticeships while incarcerated and by encouraging their employment when released.

None of these initiatives scream out "transportation" or "Iowa DOT," yet it's entirely true that we support all of them. How? By recognizing that "getting there" is critical to employers, employees and communities. Employers need employees that reliably and consistently get every day, and employees need to be able to reliably and consistently get there every day. That means building and maintaining the primary roads that are the backbone of our state's transportation system is critical, but it means even more than that. It means recognizing that although broadband is the new infrastructure our communities need to connect and thrive, we must keep up and modernize the first infrastructure that connected our communities – roads and bridges – through good stewardship and asset management. It means recognizing that increasing access to the transportation system is vital, whether it's access to personal driving privileges (which includes not just access to driver's licenses but safe, legally registered vehicles) or access to transit, rideshare, and other alternate modes of transportation for people that can't drive or afford to drive. And it means recognizing that access to identity, whether through an ID card or a driver's license, is foundational to employment and employability, and that we need to make it as easy and seamless as we safely and legally can to help Iowans get an ID or license. (It also means our work with Iowa's prisons to help offenders who are being released re-establish identity and driving privileges is on the right track and should remain a priority.) Never doubt the relevance and importance of our work, either collectively or individually!

## Paul Trombino rejoins state government



*Paul Trombino III, new  
state COO*

A pleasant surprise as Governor Reynolds announced staff changes in the Governor's office was the return of Paul Trombino to state government. Many of you know Paul as our former agency director – Paul joined the Iowa DOT as director in April 2011 and continued in that role through November 2016. Paul, who has degrees in economics and civil engineering, spent the last two years as President of McClure Co., a professional services company in the areas of civil engineering, planning, and creative placemaking with offices in Iowa, Missouri, and Kansas, and joined Governor Reynolds' staff as Chief Operations Officer (COO).

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As COO, Paul will help lead the state's executive agencies to assure our work is aligned, effective, and efficient. (This differs from the work of the Governor's Chief of Staff, Sara Craig Gongol, who will focus on function of the Governor's office, including staff, agenda, and policy.) I've had the chance to attend both a large-group meeting with other agency directors and a one-one-one meeting with Paul, and I'm excited about the direction this is taking executive agencies – it promises more direction on common goals, more contact and interaction between agency leaders and more opportunities for collaboration, and a focus on delivering agile, world-class services across state government.

Many of you will recognize a goal that Paul instilled here and that we continue to pursue – the concept of acting as **One Team**. Acting as One Team means setting aside silos to pursue common goals and results – to be collaborative and not competitive; to see work not as my work or your work but our work – and it's a concept that works very well not just within agencies but among agencies. One thing I'm always grateful to hear is that we are known in state government as being helpful to the work and needs of other agencies. That's a reputation we should be jealous to keep, and we're entering an era in which that inclination can thrive. Follow your natural intuition to be collaborative and helpful, and we will be a great participant as this effort unfolds.

## **FY2020/2021 budget progresses**

In the November report we shared the details of our FY2020 and 2FY021 budget proposal to the Governor and Iowa Department of Management. Since then, Governor Reynolds approved our proposed budget and has submitted it to the legislature for approval. The first stop for legislative consideration of our budget is the **Transportation, Infrastructure and Capitals Appropriations Subcommittee**, a 14-member subcommittee with five members from the Senate and nine members from the House.

**Lee Wilkinson, Administrative Services Division Director; Stu Anderson, Planning Programming & Modal Division Director;** and I presented our proposed budget to this subcommittee on January 29<sup>th</sup>, and I'm pleased to report that it was well received. You can find a copy of our presentation [here](#).

The next step will be to move our budget through full approval by the legislature. This year our budget will start in the Senate, where it's been filed as Senate Study Bill 1130. (You can read the full text of our budget bill [here](#).) Once it passes the Senate it will be submitted to the House for its approval, and then it will go to the Governor to be signed. We of course have a way to go before it gets to that point, but we're off to a good start and we will keep you updated as it progresses.

## **Electric vehicle study submitted**

Last month we reported on the legislative proposals we submitted as an agency. With the exception of the proposal regarding [salvage vehicles from out-of-state insurers](#), which we decided to pull for further discussion with stakeholders, all of our proposals remain alive and are advancing. (Again, these proposals [eliminate paper requirements for aircraft certificates](#), [update commercial driver's license statutes to comply with new federal regulations](#) for entry-level driver training and federal drug and alcohol clearinghouse checks, and [increase the legal length for automobile transporters](#) to align to new legal federal lengths.) This month we thought it would be good to share a report on the impact of

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electric vehicles on the Road Use Tax Fund (RUTF) that we filed with the legislature, and that may result in legislative action this year.

The report was required by a bill passed last year, House File 2256, which directed us to estimate and report the impact of increased use of electric, hybrid, and other high-efficiency motor vehicles in Iowa on future revenues to the RUTF, and also directed us to evaluate and recommend in the report alternate funding mechanisms (or changes to existing funding mechanisms) to mitigate any estimated decrease in future revenues to the RUTF caused by increased use of these kinds of vehicles.

Our **Planning, Programming & Modal Division** led preparation of the report, and did a great job of engaging people and stakeholders inside and outside the Iowa DOT to develop very clear and well-considered analysis and recommendations. You can read in full report [here](#), but in the meantime here are highlights of our findings and recommendations:

- Electric vehicle use is small now but growing.** Right now, there are not many electric vehicles registered in Iowa – in September 2018 there were about 800 full battery-electric vehicles (BHEV, examples include the Nissan Leaf and Tesla Model 3) and 1900 plug-in hybrid electric vehicles (PHEV, examples include the Chevy Volt) registered in Iowa, but by all accounts the manufacturing and use of electric vehicles is going to grow – conservative estimates suggest electric vehicles will comprise 14% of new vehicle sales by 2040, and more aggressive estimates suggest electric vehicles will comprise 60% of new vehicle sales by 2040 and 60% of the vehicle fleet by 2050. (How many of you saw the Audi Super Bowl ad, which Audi ended by announcing at least a third of its vehicles will be electrified by 2025? They are just one of many auto manufacturers, both passenger and commercial, predicting increased investment in and production of electric vehicles over the next decade.)

- As use grows, impact on the RUTF will be significant.** Fuel taxes are the single largest contributor to the RUTF (they make up about 45% of the total revenue flowing to the RUTF, with the other major contributors being the fee for new registration on newly purchased vehicles and annual vehicle registration fees), so increased use of electric vehicles will have a negative impact on

the RUTF and the money available for road and bridge infrastructure at the state, county, and city level. Although the impact right now is relatively small – an estimated \$318,000 in FY2018, the impact will become much more significant, even by conservative estimates. We estimated the impact based on low, medium, and high use estimates, and the projected loss to the RUTF ranged from a low of just under \$40M to high of just over \$240M annually by 2040. Based on

 <b>REDUCTION IN RUTF DUE TO ELECTRIC VEHICLES</b>			
YEAR	LOW LOSS SCENARIO	MEDIUM LOSS SCENARIO	HIGH LOSS SCENARIO
2018	-\$317,000	-\$317,000	-\$317,000
2020	-\$488,000	-\$520,000	-\$564,000
2025	-\$1,858,000	-\$2,684,000	-\$11,117,000
2030	-\$7,083,000	-\$14,207,000	-\$45,221,000
2035	-\$19,603,000	-\$47,748,000	-\$129,260,000
2040	-\$39,975,000	-\$115,200,000	-\$241,316,000

this analysis, we recommended action to mitigate these future losses be taken now, before the impact becomes more significant.

- **Goals.** When we developed our recommended mitigation strategies, we kept these goals in mind:
  - Goal 1. Keep the RUTF whole.** The goal is to make up for the loss of revenue caused by use of electric vehicles, not to grow the RUTF at the expense of electric vehicles.
  - Goal 2. Be equitable.** The goal is to have electric vehicle users contribute to the RUTF on an equal basis with traditional vehicle users, but not to penalize electric vehicle users.
  - Goal 3. Capture all users.** As use grows it will grow across all users, noncommercial and commercial, in-state and out-of-state. The strategies chosen should fairly capture revenue from all users and not just a certain segment, like in-state owners of passenger vehicles.
  - Goal 4. Keep administrative costs low.** Strategies chosen shouldn't require complex systems that diminish returns with high administrative costs.
  - Goal 5. Maintain constitutional protection of the revenue.** Article 7, section 8 of the Iowa Constitution protects the use of money deposited in the RUTF for road purposes and against use for general purposes, by providing that motor vehicle registration fees and all licenses and excise taxes on motor vehicle fuel, except cost of administration, shall be used exclusively for the construction, maintenance and supervision of the public highways. To keep that protection, it's important that the revenue mechanisms selected be structured as registration fees and excise taxes on fuel.
  
- **Recommendations.** Based on our analysis and goals, we made the following recommendations:
  - Rec. 1. Add a per kilowatt hour (kWh) excise tax for charging at non-residential charging locations.**
    - Proposed start date:** July 1, 2020
    - Proposed amount:** \$0.026 per kWh
    - Upside:** Covers out-of-state vehicles, including commercial vehicles
    - Downside:** Because most passenger vehicle charging (80% to 90%) is done at home and there's no separate metering to capture that, this strategy misses a good portion of the revenue that would otherwise be generated by charging in-state passenger vehicles at residential locations.
  
  - Rec. 2. Add a supplemental registration fee for passenger electric vehicles (including pickups, sport utility vehicles, motorcycles, and other vehicles with an unladen weight of less than 10,000 pounds).** This proposal covers the revenue that the first recommendation misses.
    - Proposed start:** January 1, 2020

**Amount:** \$130 per year for BEV, \$65 per year for PHEV, and \$9 per year for electric motorcycles.

**Why these amounts:** Approximates the average fuel tax paid of \$150 per year, with a 15% reduction for charging away from home covered by the kWh charge

**Upside:** Easy and low cost to collect because it can be collected through our existing vehicle registration system.

**Rec. 3. Add a hydrogen fuel excise tax.**

**When:** Begin January 1, 2020,

**Amount:** \$0.65 per diesel gallon equivalent (2.49 pounds of hydrogen) for hydrogen fuel cell electric vehicles.

**Why:** Hydrogen fuel is an alternative fuel for commercial vehicles that function as electric vehicles, because the vehicles use hydrogen to produce electricity that powers the vehicle. These vehicles are not being used in any significant numbers yet, but this would keep Iowa ahead of the impact from future use of these vehicles.

**Upside:** Assures collection of a user fees from out-of-state and commercial truck hydrogen fuel cell electric vehicles.

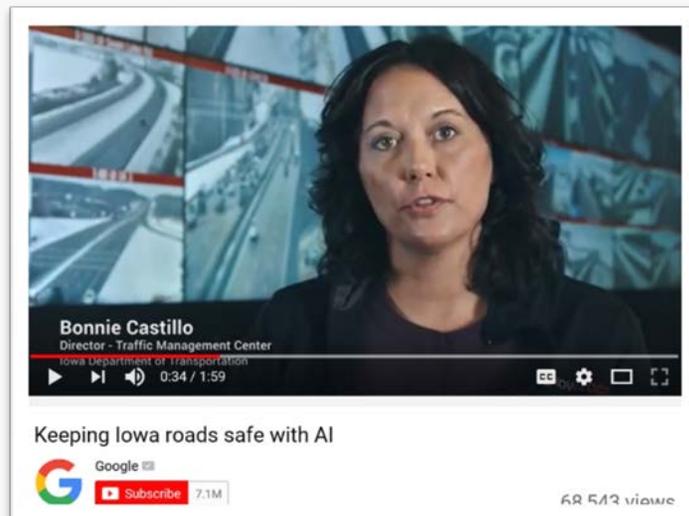
All these proposals can be structured to maintain constitutional protection of the revenue generated.

- **What's next?** What's next will depend upon the legislature – these are merely recommendations they can choose to accept or reject. However, based on our early conversation and presentations we think they have been well received and will be given serious consideration. Work has begun to draft legislation that would implement them, and we are in the process of reviewing that now. We will let you know what happens as that progresses, and in the meantime, we will talk next month about the other side of the coin – what's happening with the electric vehicle charging infrastructure needed to support broad adoption and use of electric vehicles.

## Partnership with InTrans drives data analysis projects

Iowa State's Institute for Transportation (InTrans for short) has been a long time partner in innovation with us, and that partnership has again come to the fore through innovations in data analysis. Using **artificial intelligence**, **machine learning**, and **camera-as-sensor technology**, InTrans is helping us combine computing power and data sets to develop practical applications that help us

better manage traffic and our work. On January 22<sup>nd</sup> InTrans released a terrific article about their work with us, "Iowa State engineers use big data tools to assist Iowa DOT," that you can read [here](#), and at the same time Google released a YouTube video, "Keeping Iowa Roads Safe with AI," that highlights our work with InTrans and use of Google AI. You can find the video [here](#). Both are really worth a look. In the meantime, to give you a sense of the cool things that are possible, I took the liberty of lifting these projects ideas from the article:



*Bonnie Castillo, Director of our Traffic Management Center, speaks in Google's YouTube video*

- *TIMELI, Traffic Incident Management Enabled by Large-data Innovations*

The Iowa State researchers are using computers to scan camera feeds and sensor data to identify traffic problems and quickly alert DOT staffers. The project will take advantage of machine learning tools that will allow the system to learn from experience and find better ways to identify traffic problems – and maybe even predict them.

- *Artificial intelligence to understand driver behavior*

Using data from cameras and even the GPS systems and accelerometers built into smartphones, the researchers will study how drivers respond to traffic signs, work zones and detours. They could even look at how older drivers respond to fatigue or drivers with diabetes respond when their blood sugar is low. One result could be "personalized transportation" with smart cars that could, for example, recommend leaving the road for a coffee break.

- *Artificial intelligence to call out the snow plows*

Data tools can analyze forecast, radar and traffic data and predict the spread of winter storms and their effects on traffic, even to the point of directing plows to the areas that will be hardest hit. Artificial intelligence could even calculate the probability of crashes caused by rain, wind or snow storms and warn approaching drivers.

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- *Saving monarch butterflies by tracking milkweed*

Cameras-as-sensors mounted on vehicles can scan the ditches along roads and highways. Computer technology can analyze the footage to find and count the number of milkweed plants, the only host plant for monarch caterpillars. If counts are low, milkweed could be planted. And that could help establish an uninterrupted migratory corridor for the butterflies from Canada to Mexico.

An additional project discussed in the article is the study of traffic patterns in the Des Moines metro area to optimize the performance of the Highway Helper program.

Data analysis often seems complex and “out-there,” but its essence is the simple concept of using information to improve our work. If you have an idea for how analytics could improve our work and need help, let **John Selmer, Director of our Strategic Performance Division**, know. Good things always start with an idea!

## Song of the month

This month I'm going with one of my favorite songs from one of my favorite bands, “**Airport Song**” by **Guster**. This song doesn't have any immediate connection to anything we talked about this month (although it does have a multi-modal title), until you realize that we had our second annual ping pong tournament with our college friends, and that made me think of Airport Song, which inexplicably ends with the sounds of people playing ping pong. If you go to a Guster concert (which I highly recommend), bring ping pong balls, because they always play “Airport Song” and the crowd always throws ping pong balls at the end. It's surprisingly fun.

## Wellness tip

It's growing late so in the interest of adhering to an earlier wellness tip (get plenty of sleep), I'll briefly encourage you to make time for things you enjoy in your personal life and to try new things. Finding joy and enjoyment in your personal life improves every aspect of your life, and trying new things keeps your mind active and healthy. My new thing this month was joining the Drake Community Choir, which I'm sure I'll talk more about in the coming months. 😊

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Well, my friends, we have once again reached the end of the report. I would be remiss if I didn't include a special thank you to and recognition of everyone that works so hard to keep our roads clear and safe during this winter season, which is shaping up to be one of the more severe we have had in the last ten years. Everywhere I go I receive compliments on the terrific work you are all doing, and I direct all credit to the people that go out day and night, weekday and weekend to keep us all moving and safe. Thank you for all you do. Stay safe and well!

Best,

*Mark*