

## MEETING NOTES

### Iowa Advisory Council on Automated Transportation (ATC)

#### Economic Development (EcDev) Subcommittee Meeting

Wednesday, January 5, 2022

1-2 pm CT

#### Action Items:

- Adam Shell to reach out to ITS PCB Program for a list of community colleges involved with their working groups
- Resources:
  - [ITS Professional Capacity Building \(PCB\)](#)
  - [Transportation Systems Management and Operations \(TSMO\) Workforce Guidebook](#)
  - [National Transportation Career Pathways Initiative](#)
  - [Southeast Transportation Workforce Center](#)

#### 1. Welcome and introductions – Rick Peterson, Economic Development Subcommittee Chair

##### a. Attendees – 23 attendees

- Rick Peterson – Iowa Economic Development Authority (EcDev Chair)
- Emily Lawless, Tara Reel – US DOT Volpe Center
- Stephanie Ivey – University of Memphis
- Jill Lippincott – Iowa Economic Development Authority
- Rob Denson – Des Moines Area Community College
- John Hartog – Northwest Iowa Community College
- Ray Warner – Aureon
- Shannon Landauer – Iowa Lakes Corridor
- Todd Szymkowski – Gannett Fleming
- Neal Hawkins – Iowa State University
- Dan McGehee, Omar Ahmad, Jacob Heiden – University of Iowa, National Advanced Driving Simulator
- Newman Abuissa, Susan Fenton, Troy Jerman, Andy Lewis, Dave Lorenzen, Adam Shell, Tim Simodynes, Austin Yates, Mark Van Dyke – Iowa DOT

##### b. New Members

- i. John Hartog – President, Northwest Iowa Community College
- ii. Ray Warner – Aureon

#### 2. Intelligent Transportation Systems (ITS) Joint Program Office (JPO) Professional Capacity Building (PCB)

**Program: Workforce Development Efforts** - Emily Lawless, Tara Reel (US DOT Volpe Center) and Dr. Stephanie Ivey, Associate Dean for Research, Herff College of Engineering; Professor, Civil Engineering at the University of Memphis

- a. Intelligent Transportation Systems (ITS) is the application of advanced information and communications technology to surface transportation. These technologies are available today and will be prominent tomorrow's multimodal transportation system. Current ITS include electronic tolls, dynamic message signs, traffic cameras, map applications, and more.
- b. The ITS Joint Program Office (JPO) funds and coordinates projects that deploy these technologies in communities. Examples of future ITS include automation, emerging technologies, data access & exchanges, cybersecurity, and more. ITS provides solutions that save lives, improve mobility, increase efficiency, and reduce environmental footprint.
- c. ITS has made advances in the past decade with the first public connected vehicle demonstration held in 2011 through NHTSA requiring back-up cameras in 2014 into today where the global ITS market is

estimated to be at \$27.3 billion. This market will continue to grow, especially in the active transportation market.

- d. ITS Joint Program Office (JPO) was established in 1991 and houses the Professional Capacity Building (PCB) program. The PCB program embarked in a new strategic direction to develop new ITS content, build partnership with academia, and move to cost-effective delivery methods.
- e. The PCB program vision is to prepare knowledgeable community of transportation industry professionals for a connected automated transportation system. Its mission is to provide a multimodal and multi-disciplinary capacity building program for all levels of current and future transportation professionals to accelerate preparation for & the deployment of innovative ITS.
- f. The PCB program has identified four program goals to achieve its mission: cooperative relationship building, training & education, strategic outreach, and program management & evaluation.
- g. Strategic relationships are needed with public and private entities across transportation modes. Partnerships include state, regional, and local associations, training and academic organizations, and professional associations. This program has a tradition of working with universities and has recently expanded to community colleges and trade schools.
- h. The ITS PCB Program offers numerous training and educational products: webinars, academic support, workshops, educational materials, courses, technical assistance, and online training modules.
- i. The PCB program provides recent research and initiatives for ITS labor and workforce needs. Some examples include the National Transportation Career Pathways Initiative, textbooks, Women in Transportation & T-STEM Academies, and the [Transportation Systems Management and Operations \(TSMO\) Workforce Guidebook](#). The TSMO Workforce Guidebook is a rich resource with a wide array of support for agencies as they evolve their TSMO and ITS workforce.
- j. Rapid evolution of technology is driving changes in labor and workforce needs. Tomorrow's workforce will have an increased emphasis on interconnected mobility, data-driven solutions, and multidisciplinary backgrounds. The ITS workforce faces challenges. The workforce of the future must possess more interdisciplinary skills that cross over traditional boundaries of academic preparation.
- k. Transportation organizations need to think about career pathways differently starting with K-12 through technical schools, community colleges, universities, and industries. Organizations can't do this in silos; they must form robust partnerships across sectors to build the transportation workforce of the future.
- l. The ITS JPO recent held a workshop with community college working groups. Takeaways from these sessions include increasing awareness of ITS pathways, job market data for ITS positions is needed to justify new community college courses, and documentation of ITS certifications are needed to inform curriculum development.
- m. Partnerships are an effective way to create ITS career pipelines. Community college and employer partnerships are used to address a local workforce need. University Transportation Centers and consortiums partnering to develop the coursework to address local needs. A model is needed for workforce partnerships.
- n. Lessons learned:
  - Local and regional coordination is key
  - Specialized certificate programs can be a good place to start
  - Determining core competencies for ITS related positions and finding overlap can help
  - Technology changes so rapidly that utilizing industry training, when possible, can help community colleges keep their coursework current
  - Engagement with Department of Labor is needed to ensure that ITS related positions are included in their job market projections

### **3. EcDev Work Plan & Tactical Activities – Rick Peterson, EcDev Subcommittee Chair**

- a. Engage with Iowa Businesses
- b. Assess AV/AT-related Iowa Workforce
- c. Engage with Iowa Community Colleges

4. **Federal Transportation Infrastructure Bill Update** – Adam Shell, Iowa DOT
  - a. The Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act (IIJA), is leading to Traffic Safety Management Operations funding, which includes automated transportation, opportunities for the state of Iowa and for other entities through discretionary grants. Some resources on the IIJA are below:
    - FHWA BIL Update: <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/>
    - USDOT BIL Update: [https://www.transportation.gov/sites/dot.gov/files/2021-11/Bipartisan Infrastructure Law Iowa.pdf](https://www.transportation.gov/sites/dot.gov/files/2021-11/Bipartisan_Infrastructure_Law_Iowa.pdf)
    - AASHTO Analysis of BIL:  
<https://policy.transportation.org/wpcontent/uploads/sites/59/2021/09/2021-09-15-AASHTO-Comprehensive-Analysis-of-IIJAFINAL.pdf>
5. **Open Discussion** – All subcommittee members
6. **Information and key meeting dates**
  - a. **Infrastructure Readiness Subcommittee Meeting** – Monday, December 13 from 1-2 pm
    - *Short Term Road Condition Forecasts: Enabling Practical Trip Modification in Adverse Weather* – Tina Greenfield (Iowa DOT)
  - b. **Policy & Legislation Subcommittee Meeting** – Wednesday, January 19 from 1-2 pm
    - *Austin, TX PDD Deployment Experience* – Alex Payson (City of Austin, TX)
  - c. **Public Safety & Enforcement Subcommittee Meeting** – Tuesday, January 25 from 1-2 pm
    - *Preparing Law Enforcement, First Responders, and Crash Investigators for Automated Vehicle Technology* – Tammy Trimble (Virginia Tech Transportation Institute)
  - d. **AT Council Meeting** – Wednesday, March 16<sup>th</sup> from 1-3 pm



# ATC SUBCOMMITTEE MEETING

Economic Development  
January 5, 2022



## Automated drive

Destination: 50° 43' 50.34" N - 6° 10' 55.294" E  
Arrival: 08:55 pm - Distance 783 miles

TCP/IP: 192.56.327.684.1  
SYNC: **enabled** | Sensors: **active** | Cameras: **active**

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# MEETING AGENDA

- 1. Welcome and introductions** – Rick Peterson, Economic Development Subcommittee Chair
- 2. Intelligent Transportation Systems (ITS) Joint Program Office (JPO) Professional Capacity Program (PCB): Workforce Development Efforts** - (30 minutes)
  - a. Emily Lawless & Tara Reel, US DOT Volpe Center
  - b. Dr. Stephanie Ivey, Associate Dean for Research, Herff College of Engineering; Professor, Civil Engineering at the University of Memphis
- 3. EcDev Subcommittee Work Plan & Tactical Actions** – Rick Peterson (10 minutes)
  - a. Engage with Iowa Businesses
  - b. Assess AV/AT-related Iowa Workforce
  - c. Engage with Iowa Community Colleges
- 4. Federal Transportation Infrastructure Bill Update** – Adam Shell, Iowa DOT (10 minutes)
- 5. Open Discussion** – All subcommittee members (10 minutes)
- 6. Information and key upcoming dates**
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# WELCOME AND INTRODUCTIONS

Rick Peterson –  
Economic Development  
Subcommittee Chair





# NEW SUBCOMMITTEE MEMBERS

- Dr. John Hartog – President, Northwest Iowa Community College







# INTELLIGENT TRANSPORTATION SYSTEMS (ITS) JOINT PROGRAM OFFICE (JPO) PROFESSIONAL CAPACITY PROGRAM (PCB): WORKFORCE DEVELOPMENT EFFORTS

Emily Lawless & Tara Reel – US DOT Volpe Center

Dr. Stephanie Ivey – Associate Dean for Research,  
Herff College of Engineering; Professor, Civil  
Engineering at the University of Memphis



INTELLIGENT TRANSPORTATION SYSTEMS  
(ITS)  
JOINT PROGRAM OFFICE (JPO)  
PROFESSIONAL CAPACITY PROGRAM (PCB):  
WORKFORCE DEVELOPMENT EFFORTS

TARA REEL, USDOT VOLPE CENTER

EMILY LAWLESS, USDOT VOLPE CENTER

DR. STEPHANIE IVEY, SETWC/UNIVERSITY  
OF MEMPHIS

# AGENDA

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- What is ITS?
- ITS JPO and PCB program overview
- ITS labor and workforce needs
- Preliminary findings from ITS PCB Academic Program workshops and working groups
- Best practices and lessons learned so far



# WHAT IS ITS?

# INTELLIGENT TRANSPORTATION SYSTEMS: WHAT'S AVAILABLE TODAY AND THE VISION FOR TOMORROW

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# INTELLIGENT TRANSPORTATION SYSTEMS (ITS) DEFINITION

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**2014:** The application of advanced information and communications technology to surface transportation in order to achieve enhanced safety and mobility while reducing the environmental impact of transportation.<sup>1</sup>

**1990:** Intelligent Vehicle-Highway Systems (IVHS) – the application of advanced technology to improve the operation of our highway and public transportation systems.<sup>2</sup>

1) Source: USDOT's Intelligent Transportation Systems (ITS) ITS Strategic Plan 2015-2019 (December 2014)  
<https://www.its.dot.gov/strategicplan.pdf>

2) Source: Strategic Plan for Intelligent Vehicle-Highway Systems in the United States; Report No: IVHS-AMER-92-3; Prepared by IVHS AMERICA with support from the USDOT (May 1992)  
[https://rosap.ntl.bts.gov/view/dot/2708/dot\\_2708\\_DS1.pdf?](https://rosap.ntl.bts.gov/view/dot/2708/dot_2708_DS1.pdf?)

# HISTORY OF ITS (1990)

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A wide array of technologies makes up IVHS, including electronics, computer hardware and software, control, and communications. Five functional areas were identified in which these technologies are applied. These are:

- Advanced Traffic Management Systems (ATMS)
- Advanced Traveler Information Systems (ATIS)
- Advanced Vehicle Control Systems (AVCS)
- Commercial Vehicle Operations (CVO)
- Advanced Public Transportation Systems (APTS)



# ITS ADVANCES IN THE PAST DECADE

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2011 – 1st public connected vehicle demonstration is held at 18th ITS World Congress in Orlando, FL

2014 – General Motors announces semi-autonomous driving features and V2V communications on 2017 Cadillacs

2014 – NHTSA mandates back-up cameras

2014 – Google unveils driverless car without pedals or steering wheels

2015 – Connected Vehicle (CV) Pilot Deployment awarded to Wyoming, New York City and Tampa

2016 – Advanced Transportation & Congestion Management Deployment (ATCMTD) 6-year grant program initiated (≈10 sites funded per year)

2020 – Global ITS Market estimated at \$27.3B (US = \$8.0B); to increase to \$36.8B by 2027 (US = \$10.6B)...ATMS will see largest increase

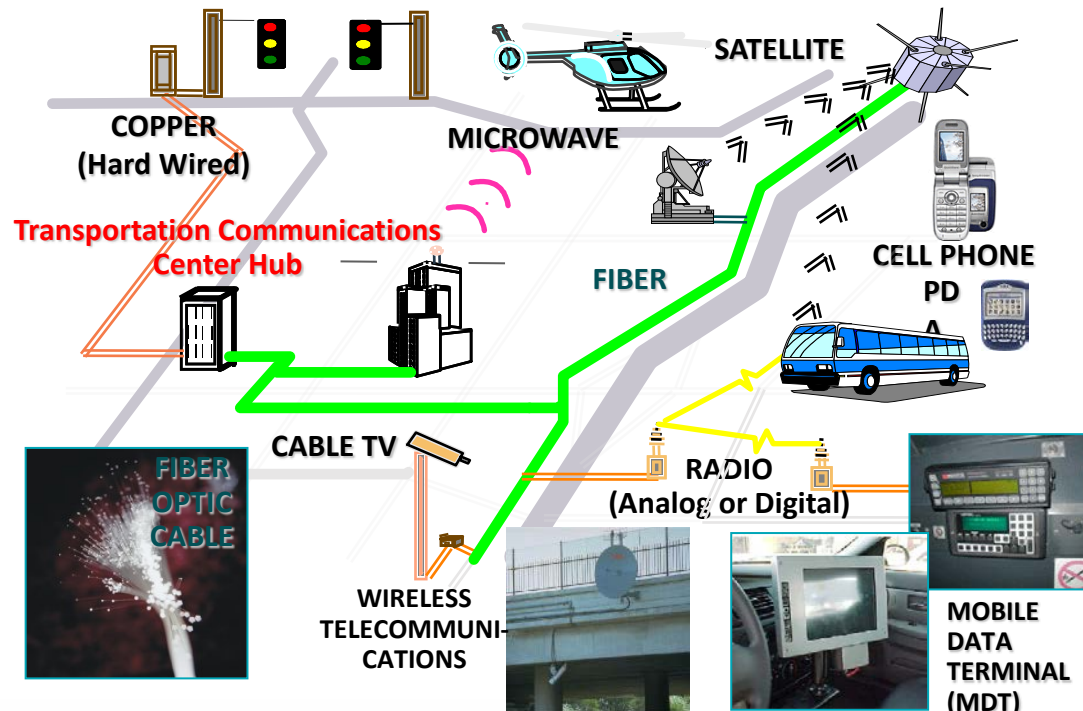
# EXAMPLES OF ITS TECHNOLOGIES

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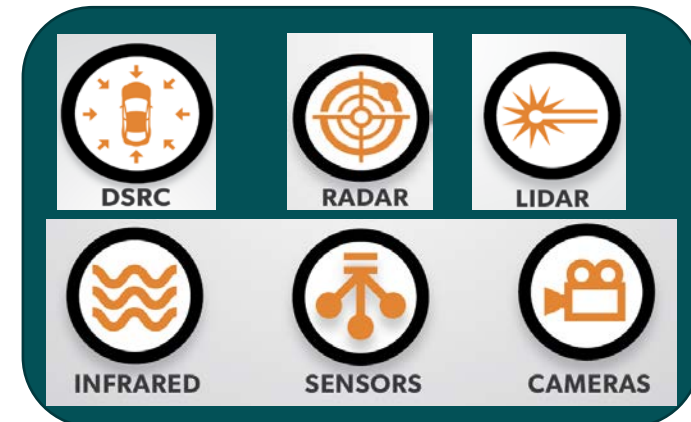
- Dynamic Message Signs (DMS)
- Traveler Information Systems
- Electronic Tolling / Interoperable Tolling Systems
- Traffic Signal Systems / Coordinated Signals
- Incident Management Systems
- Traffic Management Center (TMC) / Traffic Operations Center (TOC) / Traffic Control Center (TCC)
- Road Weather Information Systems (RWIS)
- Integrated Corridor Management (ICM)



# COMMUNICATION AND BACKBONE SYSTEMS



- Detectors - Bluetooth / Wi-Fi / Microwave
- Network Communications – Wireless, Hardwire / Wire Line, Fiber
- Computer Software and Hardware



# ITS JPO AND PCB PROGRAM OVERVIEW



INTELLIGENT TRANSPORTATION SYSTEMS

**PROFESSIONAL  
CAPACITY BUILDING**



# ITS PCB PROGRAM – BACKGROUND

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## **Part of USDOT ITS Joint Program Office (JPO)**

- 1991: IVHS/ITS JPO established
- 1996: Authorized by Congress
- 2010: Reauthorized by MAP-21
- 2016: Reaffirmed by FAST Act

## **2010: Embarked on new strategic direction**

- Develop new ITS content and fill gaps in existing content
- Build partnerships to direct learning to the right audiences
- Move to cost-effective, engaging delivery methods

# ITS PCB PROGRAM – PURPOSE

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- **Vision:** Prepare a dynamically knowledgeable community of transportation industry professionals for a connected automated transportation system
  
- **Mission:** Provide a multimodal & multi-disciplinary capacity building program for all levels of current & future transportation professionals to accelerate preparation for & the deployment of innovative ITS



# ITS PCB PROGRAM – STRATEGY

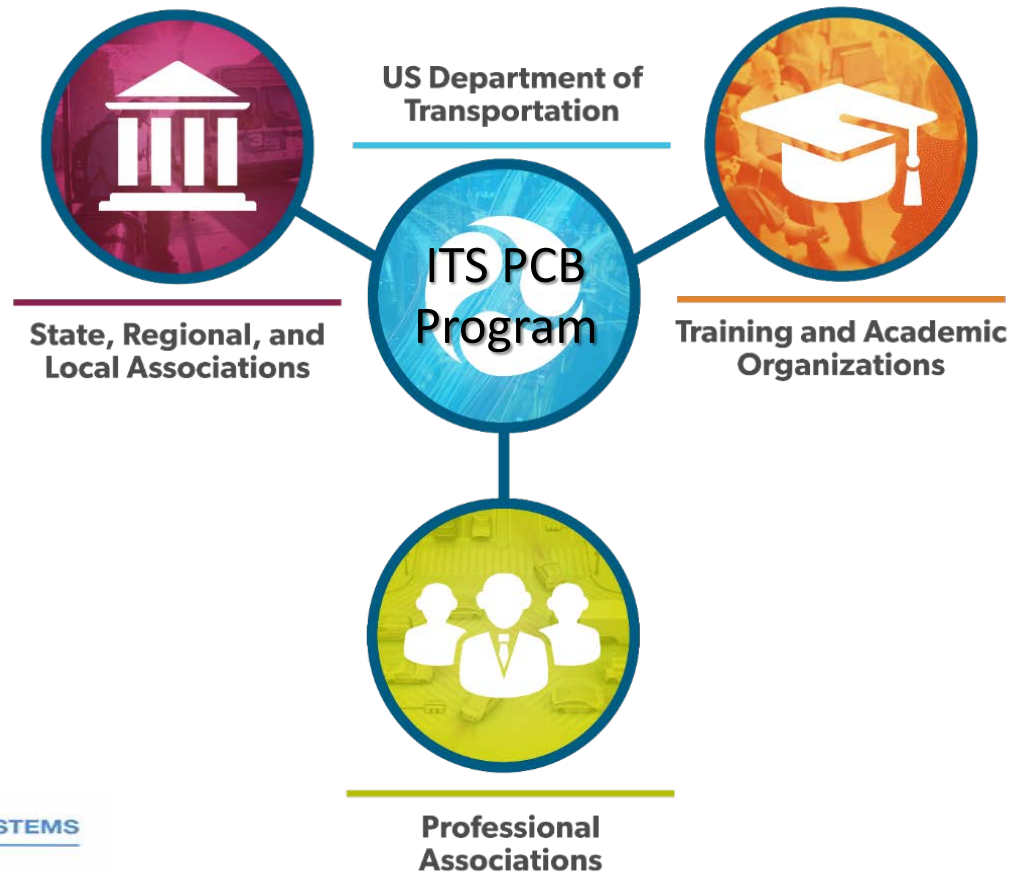
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## Program Goals

- Cooperative Relationship Building
- Training and Education
- Strategic Outreach
- Program Management and Evaluation

# STRATEGIC RELATIONSHIPS TO ACHIEVE SUCCESS

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# ITS PCB PROGRAM – PORTFOLIO OF PRODUCTS





# ITS LABOR AND WORKFORCE NEEDS

# ITS LABOR AND WORKFORCE NEEDS

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## Recent Research and Initiatives

- **ITSPCB Resources for Students and Instructors**
- FHWA National Transportation Career Pathways Initiative (NTCPI)
- Empowering the New Mobility Workforce: Educating, Training, and Inspiring Future Transportation Professionals – Ed. Tyler Reeb, Elsevier 2019
- SETWC Playbooks:
  - Women in Transportation
  - T-STEM Academy
- TSMO Workforce Guidebook (*transportationops.org*)

# ITS LABOR AND WORKFORCE NEEDS

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Diverse

Tech-savvy

Interdisciplinary  
skills

What is driving changes in labor and workforce needs?

- Rapid evolution of technology transforming transportation system operations and how work is done
- Increased emphasis on interconnected mobility – and emerging markets/modes
- Transform data into information – and other data considerations
- Complexity of problems blurs lines between disciplines



# ITS LABOR AND WORKFORCE NEEDS

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## Implications and Challenges for Developing the ITS Workforce

- Lifelong learning is essential
- Evolution of positions – and emerging roles
- Complication of career pathway models
- **Limited awareness**
- Competition from other industry segments



*The workforce of the future must possess more **interdisciplinary skills** that cross over traditional boundaries of academic preparation.*

# ITS LABOR AND WORKFORCE NEEDS

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What does this mean?

- We have to think about career pathways differently.
- We have to approach education and training differently.
- Ultimately, we need to **connect the dots** between K-12, technical schools, community colleges, university, and industry.



# ITS LABOR AND WORKFORCE NEEDS

## ITSPCB Resources



**Keith Thomas**  
Job Title: ITS Inspector Senior  
Company: Virginia Department of Transportation  
College/University: Thomas Nelson Community College  
Certification or Degree: Over 14 technical certifications

**How did you select your certification program or college major?**  
My dad was really into computers - he built them. He gave me one and I learned how to modify it. In high school, I took an education program sponsored by NASA, which sparked my interest. I also worked in manufacturing and learned a lot about programming before I joined the Marines. The passion with electronics just built through the years.

**What was the biggest influence in your selection of career pathway?**  
I think my dad opened my eyes to the opportunity with computers. I had built them from the ground up, building out which hardware you needed, loading software, and making them work. And, of course, I was video game!

**What attracted you to the transportation industry?**  
After the military, I started working in manufacturing again. They changed the schedule to 12-hour rotating shifts, and I wasn't happy. I had several other jobs, but couldn't find something that was the right fit for me. Then I found a job in public works, but it was in winter and I knew this was where I ultimately wanted to be. It had very good experience. A traffic electronics position opened up with the City of Hampton, and I took this opportunity. I have remained in the transportation industry since then!

**How did you get involved in an ITS career path?**  
I worked for Arlington County, Virginia in a role where I managed all of the ITS devices as a Traffic Systems Analyst. After 3 years in the role, I had an opportunity to work with the City of Fredericksburg on the Deputy Superintendent of Traffic, where I got my first experience. This was my first step into the profession.

**How did your education/training prepare you for this role? What did you have to learn on the job?**  
The education definitely helped me. The networking degree is really valuable. Knowledge of computer applications is very important in the work that I do. As a general understanding of how an internet network works. I have had to learn the correct computer applications specific to the job. The networking software, such as the applications for specific ITS devices, etc. was a big learning curve.

**What is the most interesting aspect of ITS for you?**  
The most interesting aspect to me is the way technology is used today to make traffic systems work. I love the way technology is integrated to make travel safer and the way that multiple transportation modalities (bicycles, motorists, pedestrians) are connected.



**How do you/your organization make a positive impact on society/your community?**  
The most interesting thing so far has been the work that I was able to do with the City of Fredericksburg in getting a connected vehicle system in. This afforded me the opportunity to experiment and take it a step further. The system was installed in 12 locations in the downtown area and was connected to an app that connects everyone with a mobile phone. It can warn people about pedestrians in the road, a red light, etc.

**What's the most interesting thing you have been able to do in your professional career?**  
I think my dad opened my eyes to the opportunity with computers. I had built them from the ground up, building out which hardware you needed, loading software, and making them work. And, of course, I was video game!

**What makes you get up each morning excited about your profession?**  
I work for my family, and I am in a position that I am really interested in and know a lot about. This makes it rewarding for me.

**If you could go back in time and select any elective course that would have better prepared you for the future, what would it be?**  
I would have to say I would have chosen to pursue a bachelor's degree in engineering. That is covered by ASST so that I could apply for an ITS and eventually become a professional engineer. Every position above my head requires that you become a professional engineer (and I am currently pursuing a computer engineering degree).

**What advice would you share with students that are considering your profession?**  
Keep an open mind, and push hard for electronics-based classes or engineering opportunities. Be patient! Keep your attention on your coursework and prepare yourself by taking electronics/computer-related courses in school.



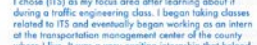

**Alexandra Lopez**  
Company: Connett Fleming Inc.  
College/University: Florida International University  
Certification or Degree: BSCE, MSCE

**How did you select your certification program or college major?**  
During high school, I took a few aptitude tests that came back recommending engineering. I chose Civil Engineering after I completed a drafting technical program in the high school I graduated from. I think a combination of the aptitude test results and the actual experience of doing work related to my college major during high school helped me set my mind on Civil Engineering.

**What was the biggest influence in your selection of career pathway?**  
I chose the transportation field after being exposed to the various specialties in Civil Engineering while pursuing my Bachelor's Degree at Florida International University.

**What attracted you to the transportation industry?**  
Being able to have a daily impact on everyone's life is what attracted me to transportation. While attending Florida International University, my drive was well over an hour everyday. I understood first hand the kind of impact transportation has on our daily life and wanted to do something to improve it.

**How did you get involved in an ITS career path?**  
I chose ITS as my focus area after learning about it during a traffic engineering class. I began taking classes related to ITS and eventually began working as an intern at the transportation management center of the county where I live. It was a very exciting internship that helped me find my passion.




**Michael Boone P.E.**  
Job Title: Product Marketing Manager, Autonomous Vehicles and Computer Vision.  
Company: NVIDIA  
College/University: (UVA) for Bachelor, (WPU) for Masters  
Certification or Degree: Bachelors in Civil Engineering, Masters in Management

**How did you select your certification program or college major?**  
I loved cars and wanted to do something within transportation. Knowing I could work with people on the evolving transportation system excited me, so I enrolled in civil engineering.

**What was the biggest influence in your selection of career pathway?**  
As a child, I was always drawn to and wanted to move cars. I started early collecting Hot Wheels and Matchbox cars.

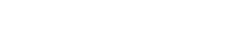
**What attracted you to the transportation industry?**  
Connected and fueled by my fascination with cars, I liked the ability to create, deliver, and solve problems. It is innate to who I am.

**How did you get involved in an ITS career path?**  
As an environmental intern, I got my start working on what would become the R2 Express Lanes in Northern Virginia. I outlined the project footprint via the wasteland mitigation strategy. As I understood more about the project's scope through its plans, I learned the multidimensionality of transportation and how technology would play a critical part in design and operation of the facility.

**What makes you get up each morning excited about your profession?**  
I love learning and I love breaking down what is unknown into what can be known. It is deeply satisfying. When you connect what you are doing to the impact your team is delivering, you recognize the gravity and harness the exciting world developing around you.

**If you could go back in time and select any elective course to take that would have better prepared you for the future, what would it be?**  
I would take an electrical engineering course (or two) to better understand how electricity moves through circuits and how to setup different types of electrical networks. So much of the wireless world relies on these related fundamental principles from electric vehicles to cybersecurity for toll systems.

**What advice would you share with students that are considering your profession?**  
Do not be afraid to dive deep into technical content. Understand and be the go-to resource for someone intersecting need and your interest. Take your certifications and license exams as early as eligible.



**What's the most interesting thing you have been able to do in your professional career?**  
I am a requirements guy at heart. I love getting to define and characterize software and hardware, both in the cockpit and around the vehicle to influence design, adding the reporting systems that assemble tolling transactions, and teaching users how to leverage both.



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**ORANGE COUNTY TRIANGLE ICM PROJECT**  
Caltrans D12: Design of an ICM System for the Orange County Triangle  
Lead Organization: Iteris  
Project Location: Orange County, California

**Briefly describe the scope of the project.**  
Iteris was selected by Caltrans District 12 to lead the planning and design of the innovative Orange County Triangle Integrated Corridor Management (ICM) project involving the I-5, SR-91, and SR-57 freeways. While these freeways are heavily travelled by commuter traffic, they are also located around a high concentration of special events and theme parks, including a baseball stadium, sports arena complex, convention center, and Disneyland. The goal of this project is to achieve a more efficient integrated transportation system with reductions in travel time, smoother traffic flow, and a reduction in emissions and fuel consumption in order to provide a safer and more efficient transportation facility.

**Why was this project needed?**  
Currently, project corridors are operating with obsolete transportation system deficiencies and intelligent Transportation System elements and upgrades are needed, including CCTV, Ramp Metering System upgrades, Maintenance Vehicle Pullouts (MVPs), Fiber Optic Hubs, etc.



**Who are the partners that were involved in project conception, development and implementation?**  
Caltrans, Michael Baker International, Intueo Consulting Inc., Irvine Global Consultants, System Metrics Group.

**What are the 'cool' technologies integrated into this project and how were they used?**  
This project includes the design of upgraded ITS freeway elements such as HD video surveillance, an upgraded Corridor Management System, upgraded communication infrastructure, state-of-the-art network control system for Caltrans Lighting Poles, deployment of performance measure systems, and several roadway modernization and safety improvement elements. It includes the upgrading of all ramp meter systems and traffic signal intersections at ramp entry/exit points, as well as developing state-of-the-art adaptive ramp metering algorithms.



INTELLIGENT TRANSPORTATION SYSTEMS  
**PROFESSIONAL CAPACITY BUILDING**

INTELLIGENT TRANSPORTATION SYSTEMS  
**PROFESSIONAL CAPACITY BUILDING**

INTELLIGENT TRANSPORTATION SYSTEMS  
**PROFESSIONAL CAPACITY BUILDING**



# ITS LABOR AND WORKFORCE NEEDS

How do we move forward?

- Full pipeline efforts
- Robust partnerships between industry and academia
- Changing the conversation about transportation careers

FRIDAY, DECEMBER 3, 10-11 AM - CENTRAL TIME (CT) **TRANSPORTATION  
STEM WEBINAR SERIES**

Attention K-12 students and teachers! Join the National Network for the Transportation Workforce as we host an engaging panel discussion with community college and technical school students (and recent grads) in diverse majors who are planning to pursue transportation careers. This is a great opportunity to learn about the varied opportunities in the transportation industry, and how students can prepare to follow in their footsteps! Come prepared to listen, learn, and ask questions!

  
**Marcus Jordan**  
Computer Information Technology -  
Programming, Southwest Tennessee  
Community College

  
**Victor Uriarte**  
GM Automotive Service  
Educational Program,  
Cerritos College

  
**Shannon McPhillips**  
Maneuvers and Driving Program  
Pima Community College Center for  
Transportation Training

  
**Trevor Clayton**  
Transportation Technologies -  
Powertrain Development,  
Washtenaw Community College

  
**Kevin Berrios**  
Advanced Transportation and  
Manufacturing Pathway  
Los Angeles Trade Technical College

REGISTRATION LINK: [HTTPS://BIT.LY/3FYTVAG](https://bit.ly/3fytvag)

INTELLIGENT TRANSPORTATION SYSTEMS  
PROFESSIONAL  
CAPACITY BUILDING

 **NNTW**  
National Network for the  
Transportation Workforce

# TAKEAWAYS AND LESSONS LEARNED FROM RECENT ITS PCB ACADEMIC EFFORTS

# TAKEAWAYS FROM RECENT WORKSHOP AND COMMUNITY COLLEGE (CC) WORKING GROUPS

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- Increased awareness of ITS in general and related career paths is needed from a national standpoint.
- Job market data for ITS related positions are needed to justify new CC courses or programs.
- Documentation of ITS related certifications are needed to inform curriculum development.



# TAKEAWAYS FROM RECENT WORKSHOP AND COMMUNITY COLLEGE (CC) WORKING GROUPS

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- Partnerships are an effective way to create ITS career pipelines.
  - More than CC/ITS employer partnerships, also think about things like University Transportation Centers and CC consortiums.
- Guidance/framework/models for workforce partnerships are needed.

# ITS WORKFORCE TAKEAWAYS FROM RECENT WORKSHOP AND COMMUNITY COLLEGE (CC) WORKING GROUPS

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## Areas for Further Investigation

- Potential student market for ITS technician roles.
  - Where is the most likely place these technicians are coming from?
- Structures for advancement opportunities for technician level positions.
- ITS technicians on the research and development side for proof-of-concept purposes, rather than operations side.
  - Look at potential jobs being created within the research space.

# LESSONS LEARNED

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- Local and regional coordination is key, especially when working with community colleges and technical schools.
- Specialized certificate programs can be a good place to start.
- Determining core competencies for ITS related positions and finding overlap can help.
- Technology changes so rapidly, utilizing industry training, when possible, can help CCs keep their coursework current.
- Engagement with Department of Labor is needed to ensure that ITS related positions are included in their job market projections.



# QUESTIONS?

# THANK YOU!

CONTACT INFO:

TARA.REEL@DOT.GOV

EMILY.LAWLESS@DOT.GOV

WEBSITE:

[HTTPS://WWW.PCB.ITS.DOT.GOV](https://www.pcb.its.dot.gov)



# ECONOMIC DEVELOPMENT SUBCOMMITTEE WORK PLAN & TACTICAL ACTIONS





# EcDev Subcommittee Tactics Summary

## 2.1 Current Tactics Summary Table

	Deliverables	Lead(s)	Resources	Scenarios	Timeline
<b>Engage with Iowa Businesses</b>	Targeted engagements	Rick Peterson (IEDA)	Staff time	Impacts of pandemic, derecho	Ongoing
<b>Assess AV/AT-related Iowa Workforce</b>	Jobs classifications Gap analysis Draft opportunities	Jill Lippincott (IEDA)	Staff time	N/A	2021
<b>Engage with Iowa Community Colleges</b>	Targeted engagement (IACCT)	IEDA (TBD)	Staff time	Possible workforce emphasis	2020 webinar series

<i>Inactive Tactics</i>					
<i>Implement Pilot Program</i>	<i>New program established Targeted deployments</i>	<i>IEDA (TBD)</i>	<i>Seed funds to be identified</i>	<i>Funding dependent</i>	<i>Ongoing, pending resources</i>
<i>Assess Platooning Corridors</i>	<i>Assessment Plan for next steps</i>	<i>DOT (TBD)</i>	<i>Staff time</i>	<i>Platooning tactics may be combined with one another and/or with the broader readiness assessment (led by Infrastructure Readiness)</i>	<i>2019 discussion and legislation</i>
<i>Initiate Platooning Study</i>	<i>Scope Study Recommendations</i>	<i>DOT (TBD)</i>	<i>Staff time and/or consultant support</i>		<i>2019 discussion and legislation</i>

# FEDERAL TRANSPORTATION INFRASTRUCTURE BILL UPDATE

Adam Shell - Iowa DOT







# Bipartisan Infrastructure Law\* TSMO Funding Opportunities

\* also known as Infrastructure  
Investment and Jobs Act (IIJA)



# 2021 Infrastructure Investment and Jobs Act (IIJA) HR 3684



# IIJA at a Glance

## US Overview

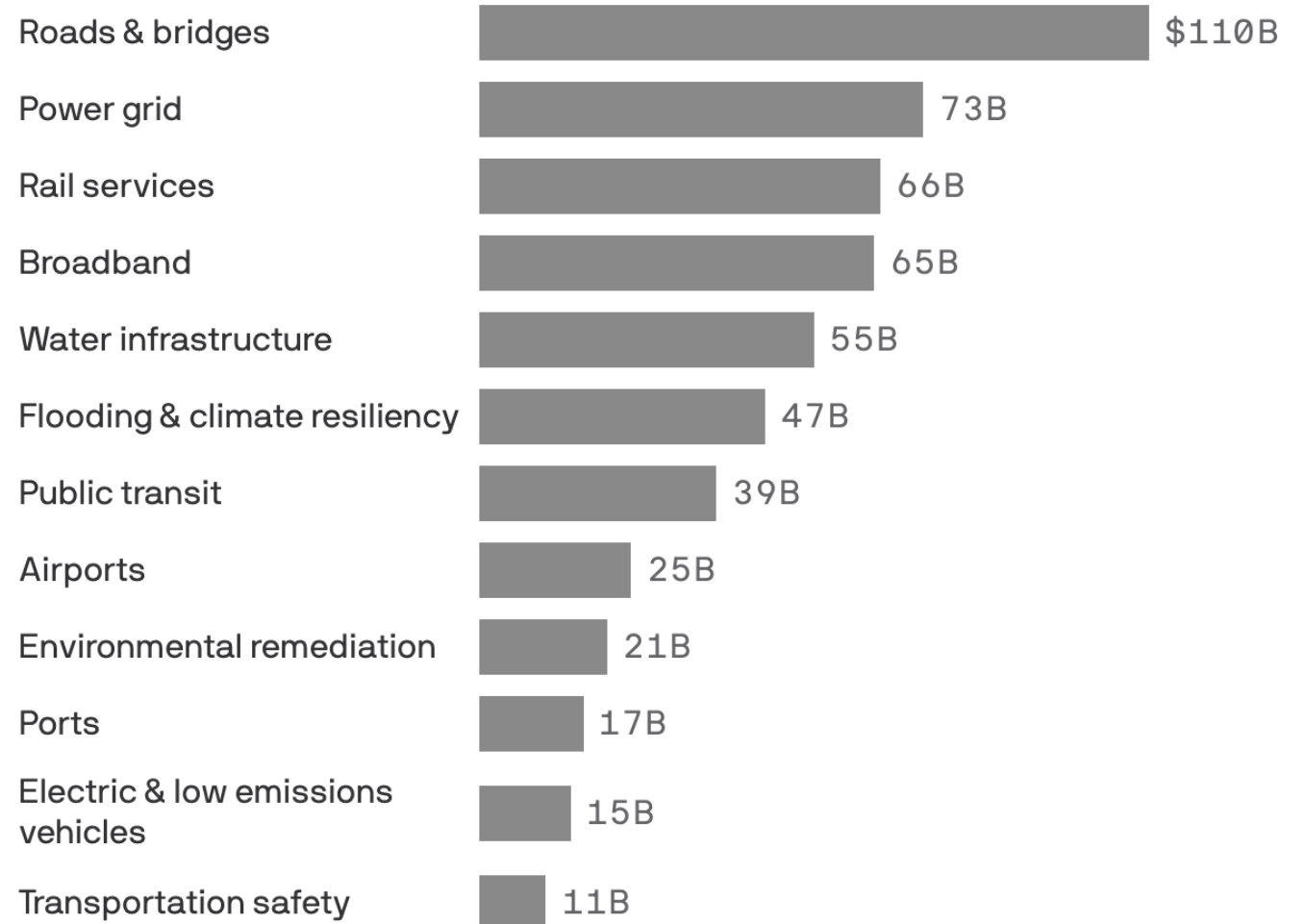
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**5-Year Bill Signed Nov. 15, 2021**

**\$1.2 Trillion Total**

**39% of overall funds** will be awarded on a competitive basis

## Bipartisan infrastructure bill spending breakdown



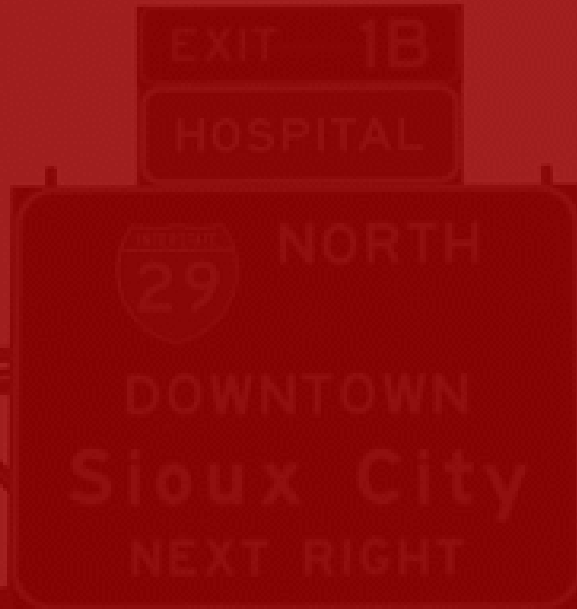
# IIJA at a Glance

## Iowa Overview

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- **49% increase** in federal-aid highway and bridge funding
  - \$2.6B (2016 – 2020 FAST Act)
  - \$3.8B (2022 – 2026 IIJA)
- **\$3.4B** for federal-aid highway programs
- **\$432M** for bridge replacements & repairs
- **\$305M** for public transportation
- **\$83M** to reduce emissions
- **\$94M** to improve resiliency
- **\$26M** in highway safety programs
- **\$35.9M** for CMV safety efforts
- **\$51M** in EV Charging Infrastructure

# Discretionary Funding





# Discretionary Funding Overview

## US Overview

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**\$150B** in discretionary grant programs

- Railway-Highway Grade Crossings
- **INFRA**
- Bridge Discretionary Grant Program
- Wildlife Crossings Pilot Program
- **Charging and Fueling Infrastructure**  
Congestion Relief Program
- **PROTECT**
- Healthy Streets
- Reconnecting Communities
- Megaprojects
- **RAISE**
- Culvert Removal, Replacement, and Restoration
- Safe Streets and Roads for All
- **SMART**
- **Advanced Transportation Technologies and Innovative Mobility Deployment Program (ATTIMD)**
- Several Transit related opportunities

# INFRA Discretionary Grant Program

- Provides Federal financial assistance to highway and freight projects of national or regional significance
- \$8 billion
- Increased cap on multimodal projects to 30% of program funds

## **TSMO Opportunities**

ICM Strategies, especially those that knock down equity barriers, connects all users, and/or reduce green house gases, Freight movement improvements

## **Primary Selection Criteria**

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Support for National or Regional Economic Vitality  
Climate Change and Env. Justice Impacts  
Racial Equity and Barriers to Opportunity  
Leveraging of Federal Funding  
Potential for Innovation  
Performance and Accountability

## **Secondary Selection Criteria**

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Includes improvements for multimodal non-motorized users

# Charging and Fueling Infrastructure Program

- Deploy EV charging and hydrogen/propane/natural gas fueling infrastructure along designated alternative fuel corridors and in communities
- \$2.5 billion
- Set-aside (50%) to install EV charging and alt. fueling infrastructure on public roads or in other publicly accessible locations, such as parking facilities at public buildings, schools, and parks

## **TSMO Opportunities**

Leverage ITS Maintenance to support 5-years of fed-supported O&M

## **Primary Selection Criteria**

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TBD

# PROTECT

- Increase resilience of the transportation system
- \$7.3B in formula funding nationally
- \$1.4B in competitive planning grants nationally
- Higher Fed. share if State develops a resilience improvement plan and incorporates into its LRTP

## **TSMO Opportunities**

Emergency mgmt., planning for physical and cyber infrastructure hardening, Operational Tech. network hardening & resiliency

## **Primary Selection Criteria**

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TBD



# RAISE Discretionary Grant Program

- Invest in national infrastructure projects that result in good-paying jobs, improve safety, apply transformative technology, and explicitly address climate change and racial equity.
- \$7.5 billion over 5 years
- Provisions for RAISE have doubled

## **TSMO Opportunities**

ICM Strategies, especially those that introduce new technologies through innovative partnerships

## **Primary Selection Criteria**

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Safety

Environmental Sustainability

Quality of Life

Economic Competitiveness

State of Good Repair

## **Secondary Selection Criteria**

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Partnership

Innovation

# Strengthening Mobility and Revolutionizing Transportation (SMART)

- Focus on advanced smart city or community technologies and systems to improve transportation safety and efficiency
- \$7.3B in formula funding nationally
- \$1.4B in competitive planning grants nationally

## **TSMO Opportunities**

Partner with metro area transit agencies to integrate trip planning across modes, work with local agencies for signal system modernization

## **Primary Selection Criteria**

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State of public transportation/transit system

Population density and transit need

Use of advanced data, tech, and apps

## **Secondary Selection Criteria**

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Scalability/repeatability

Encourages public/private data sharing

Promote skilled workforce

Promote cybersecurity

# Advanced Transportation Technologies and Innovative Mobility Deployment Program (ATTIMD)

- Former Advanced Transportation and Congestion Management Technologies Deployment Program (ATCMTD)
- \$300M
- Focuses on deployment and operation of technologies – 20% dedicated to rural projects

## **TSMO Opportunities**

ICM Applications, Rural TIM Data Sharing Pilot, Freight Technology Demonstration

## **Primary Selection Criteria**

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TBD

# Notable AT-Readiness Sections of the IJA

- SEC. 11302. Work zone process reviews
- SEC. 11303. Transportation management plans
- SEC. 11304. Intelligent transportation systems
- SEC. 11135. Updates to Manual on Uniform Traffic Control Devices
- SEC. 11504. Study of impacts on roads from self-driving vehicles
- SEC. 11510. Cybersecurity tool; cyber coordinator
- SEC. 13005. Emerging technology research pilot program
- SEC. 13006. Research and technology development and deployment
- SEC. 24213. New Car Assessment Program
- SEC. 24219. Research on connected vehicle technology
- SEC. 25001. Intelligent Transportation Systems Program Advisory Committee
- SEC. 25002. Smart Community Resource Center
- SEC. 25008. Coordination on emerging transportation technology
- SEC. 25020. Transportation workforce development
- SEC. 60102. Grants for broadband deployment



# Resources

- **FHWA BIL website:** <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/>
- **USDOT BIL Iowa Fact Sheet:** [https://www.transportation.gov/sites/dot.gov/files/2021-11/Bipartisan Infrastructure Law Iowa.pdf](https://www.transportation.gov/sites/dot.gov/files/2021-11/Bipartisan%20Infrastructure%20Law%20Iowa.pdf)
- **AASHTO Analysis of BIL:** <https://policy.transportation.org/wp-content/uploads/sites/59/2021/09/2021-09-15-AASHTO-Comprehensive-Analysis-of-IIJA-FINAL.pdf>

# OPEN DISCUSSION



# INFORMATION AND KEY MEETING DATES

**Infrastructure Readiness Subcommittee Meeting** – Monday, December 13 from 1-2 pm

- *Short Term Road Condition Forecasts: Enabling Practical Trip Modification in Adverse Weather* – Tina Greenfield (Iowa DOT)

**Policy & Legislation Subcommittee Meeting** – Wednesday, January 19 from 1-2 pm

- *Austin, TX PDD Deployment Experience* – Alex Payson (City of Austin, TX)

**Public Safety & Enforcement Subcommittee Meeting** – Tuesday, January 25 from 1-2 pm

- *Preparing Law Enforcement, First Responders, and Crash Investigators for Automated Vehicle Technology* – Tammy Trimble (Virginia Tech Transportation Institute)

**AT Council Meeting** – Wednesday, March 16<sup>th</sup> from 1-3 pm



**THANK YOU**