Developing Trends Facing the Transportation Industry:

Artificial Intelligence, Transportation Workforce Development, and Transportation System Resilience

A Thought Leadership Report by the ITE Council Leadership Team

2024 Edition

ite
A Community of Transportation Professionals

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Introduction

The ITE Council Leadership Team (CLT) publishes a biannual *Developing Trends Report* to identify emerging challenges and solutions in transportation. Informed by ITE's Councils and Committees, this report highlights advancements in planning, engineering, management, and operations. By exploring key trends, it aims to guide discussions among transportation professionals on adopting new technologies and approaches while reevaluating traditional practices.

Developing Trends is a collaborative effort that brings together diverse perspectives from across ITE's councils and committees. It seeks to answer the critical question: *What will be relevant to practitioners within the next two years?* By addressing transportation complexities, the report provides insights that help shape the profession's future, fostering dialogue on innovation and implementation.

This *2024 Developing Trends Report* spotlights three member-prioritized topic areas:

- **Artificial Intelligence**—Artificial Intelligence (AI) is transforming the transportation profession by enhancing efficiency, optimizing planning and operations, and improving decision-making through data-driven insights. As the technology rapidly evolves, transportation professionals must understand its potential and limitations to harness its benefits while mitigating risks such as misinformation and bias.
- **Transportation Workforce Development**—Transportation workforce development is crucial for the profession to ensure a skilled, knowledgeable, and adaptable workforce that can meet evolving industry challenges, from emerging technologies to sustainability and safety. By investing in education, training, and professional growth, ITE can support its members in advancing their careers while strengthening the overall transportation profession.
- **Transportation Resilience**— Transportation system resilience is essential for ITE members to ensure that infrastructure and operations can withstand and adapt to disruptions, such as extreme weather, cyber threats, or other unforeseen events. By integrating resilience into planning, design, and operations, transportation professionals can enhance safety, reliability, and sustainability for the communities they serve.

The following summarizes individual articles published in the *ITE Journal* throughout 2024, each highlighting key emerging trends. These articles—"Artificial Intelligence" (May), "Workforce Development" (September), and "Resilience" (October)—are linked within their respective sections for further exploration. Each section also identifies how ITE can support its members in these critical areas, and a summary of these actions are provided at the conclusion of this report.

Artificial Intelligence[1]

Overview

Generative Artificial Intelligence (GenAI) continues to be a disruptive technology, as its usage becomes more prevalent throughout all sectors. As an emerging technology, GenAI paves the way for future use cases and technological impacts yet to be developed. It is crucial to note that AI's conceptual scope is broad, ever evolving, and occasionally perplexing. While definitions may diverge, AI generally pertains to the programming of computational systems to execute tasks requiring cognitive faculties akin to those of humans. Innovations in mathematical theory, computational power, and the unprecedented abundance of data have fostered AI applications capable of rivaling or surpassing human proficiency in specialized domains. The transportation sector must develop an understanding of the power and implications of GenAI in order to remain competitive.

The transportation industry stands to gain substantial benefits from leveraging AI to innovate, augment, and optimize every facet of the industry including education, research, planning, design, operations, and maintenance. The rapid evolution of AI is profoundly reshaping our societal landscape, influencing diverse sectors ranging from industry to commerce to daily routines. In the realm of transportation, insights shared at the ITE Virtual Spring Conference in March 2024 underscored the important ways in which AI is revolutionizing conventional practices. Beyond merely enhancing operational efficiency through data-driven insights, transportation professionals are harnessing AI to refine visualizations, facilitate clearer communication, and streamline processes. However, one key takeaway in all of this is to exercise caution in using AI tools. While AI tools are powerful, their outputs can contain misinformation, bias, or even harmful content. Use them critically, and be aware of their limitations.

State of Play

Evolution of AI

The roots of AI trace back to a 1956 workshop led by emeritus Stanford Professor John McCarthy. Its aim was to delve into the potential of machines to mimic human intelligence. AI draws from various disciplines, including computer science, physics, linguistics, mathematics, statistics, economics, evolutionary biology, neuroscience, psychology, philosophy, and ethics. In the early days of AI, the field often revolved around expert systems—programs built on rules defined and coded by human experts within specific, limited domains. While these expert systems delivered some productivity gains, they were inherently constrained by the limits of computing resources and their predefined, human-centric nature.

[1] 2024 ITE Developing Trend: Use and Application of Artificial Intelligence in Transportation
https://www.ite.org/ITEORG/assets/File/AI%20Dev%20Trends.pdf

The tide began to turn with the rise of machine learning (ML) systems over the past two decades. Rather than relying on explicitly programmed rules, ML algorithms and models were trained on observational or simulated data, allowing them to learn patterns and relationships on their own. This foundation, combined with advancements in computing hardware, proved to be a major driver of AI innovation, underpinning applications ranging from natural language processing (NLP) to machine vision. Natural language processing enabled breakthroughs such as machine translation and digital assistants, and machine vision techniques could classify and interpret visual scenes captured by an array of sensors. However, the spotlight presently is on emerging Generative AI models, powered by Deep Learning on expansive datasets. These systems can now create entirely new content—from images and music to text—through the simple use of prompts, unlocking unprecedented creative potential.

In 2023, there was a significant democratization of AI tools with the widespread availability of numerous generative models and engines. Notable tools include OpenAI's ChatGPT and DALL-E, Microsoft's Copilot, and Google's Gemini, among others. AI assistants are also being integrated into daily use applications such as Microsoft Office Suite and Adobe Acrobat. These tools are rapidly becoming integral components of the daily toolkit for many professionals across all industries, facilitating tasks ranging from routine administrative duties, such as drafting meeting notes and developing responses, to more complex undertakings, such as reviewing and summarizing legislative, regulatory and policy documents, and supporting the development of various plans.

AI Opportunities in Transportation

The application of AI in the transportation field is not entirely new. For example, decision support systems (DSS) and expert (or rule-based) AI systems have been utilized by agencies for incident management and road weather management within their Transportation/Traffic Management Centers (TMCs). These systems enable TMC operators to swiftly choose responses to incidents or severe weather events.[2] Furthermore, predictive traffic management (powered by AI) forecasts future traffic patterns by analyzing historical data, weather conditions, and events, thus enabling proactive congestion mitigation strategies. The integration of AI into traffic engineering, Intelligent Transportation Systems (ITS), and smart mobility solutions are crucial for accommodating connected and autonomous vehicles, which rely on AI algorithms to navigate safely and efficiently through complex traffic scenarios.

The use of AI can be organized into six overarching categories in the context of transportation:

[2] FHWA-HOP-19-052 *Raising Awareness of Artificial Intelligence for Transportation Systems Management and Operations* (Accessed April 9, 2024).

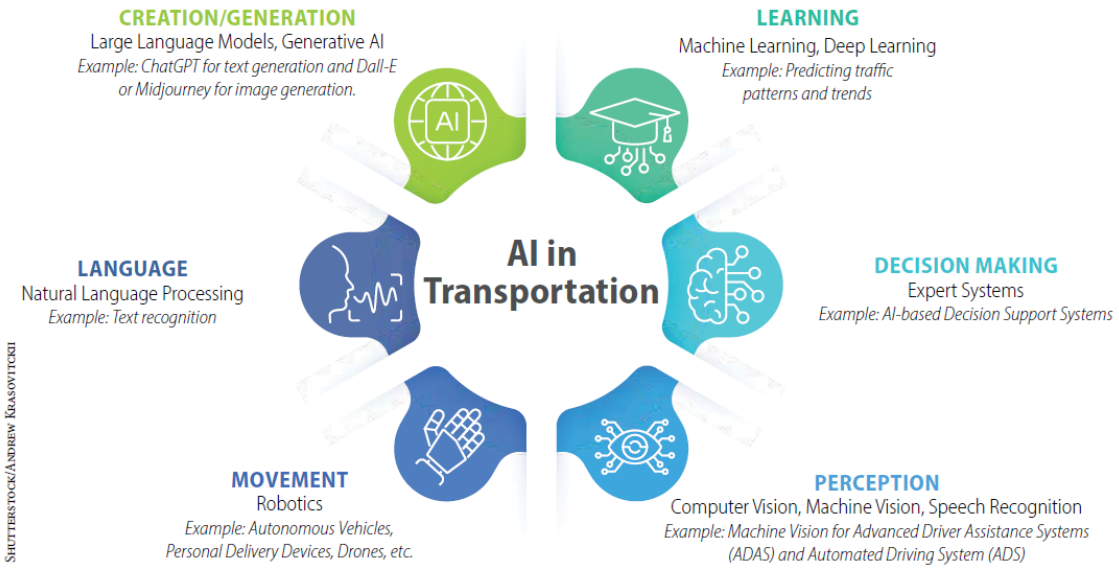

Figure 1. ITE Journal Illustration/Shutterstock/Andrew Krasovitck

ITE and its members understand and appreciate the potential that AI tools have in supporting the transportation industry by improving safety, increasing system efficiency, and boosting productivity. Given the six categories of AI tools identified in Figure 1 and how current AI tools are being used, ITE members were asked in a June 2024 survey which areas of transportation they see as having the greatest opportunities for applying AI technologies in the future. Shown below in Table 1 are the rankings for 17 different transportation application areas, including the traditional project life cycle (planning through operations) and specialized applications such as vehicle safety systems and knowledge management.

Table 1. Opportunities of AI in Transportation

Transportation Application Area	Response
Traffic Signal Optimization	62%
Traffic Modeling and Simulation	61%
Connected and Autonomous Vehicles	61%
Transportation Systems Management and Operations	57%
Vehicle Safety Systems (collision avoidance, vision systems, etc.)	54%
Planning	51%
Asset Management	48%
Knowledge Management	45%
Smart Cities	43%
Design	38%
Supply Chain and Logistics Optimization	32%
Infrastructure Safety	25%
Transportation Resilience	22%
Maintenance	20%
Equity Analysis	19%
Construction	13%
Environmental Sustainability	12%

The top five application areas are consistent with current and historic use of AI tools. Traffic engineers have been applying machine learning and deep learning algorithms to optimize networks of traffic signals for over a decade[3]. Traffic modeling and simulation have also utilized machine learning and expert systems to improve and develop better macro-, meso-, and micro-simulation models. Additionally, vehicle manufacturers have been using machine learning, machine vision, computer vision, and other sensor technologies to enable connected and automated vehicles as well as to develop and deploy in-vehicle automated safety systems. Even more compelling to ITE members is the usage of AI tools across the traditional project life cycle (planning, design, construction, operations, and asset management) and in other areas such as smart cities and knowledge management.

ITE will continue to work with our members through the AI Working Group to better understand which types of AI applications will be applied to various transportation areas and to what extent. For example, the use of AI to enhance transportation resilience will likely include aspects of AI perception tools (detecting rockfall in mountainous areas), which will inform decision-making systems. These systems will then assess next steps, leading to improved learning for transportation simulation models to predict the flow and movement of vehicles on the transportation network.

Action Items

It is important for ITE members to be aware of and understand how AI models operate and the limitations of the information they can provide so that safeguards can be developed, such as human oversight to ensure that the results are valid. Otherwise, members risk perpetuating misinformation and methodological errors that may be present in the datasets used to train the models. The outputs of the models are only as reliable and valid as the data used to train the models. Thus, there is likely an important need for education and training programs within ITE to ensure members are adequately equipped with the knowledge, skills, and resources to navigate AI advancements in transportation.

There is a need to share guidelines, best practices, and case studies among transportation professionals to further support informed decision-making and effective utilization of AI tools. ITE looks forward to partnering with other organizations to teach practitioners about the use and application of AI in transportation. Working through the ITE Council and Committee structure, the Council Leadership Team (CLT) will explore the following topic areas related to the use and application of AI in transportation:

1. **Education and Knowledge Transfer:**
    - Develop clear definitions and explanations of AI terms (AI, ML, DL, LLM) relevant to transportation.
    - Offer resources on how AI tools impact specific transportation domains.
    - Create a glossary of AI terms for transportation professionals.
    - Raising awareness regarding AI ethics.

[3] The AI Toolbox for Transportation Professionals: Understanding Data, Predicting Problems, and Enhancing Safety, 2024 ITE Spring Virtual Conference. Available at http://www.ite.org.

2. **Evaluating and Validating AI Tools:**
    - Partner with other organizations to develop a framework for assessing AI product performance in transportation.
    - Establish performance criteria for AI applications in transportation.
    - Identify "deployment-ready" AI tools for practical applications.
3. **Sharing Best Practices and Resources:**
    - Facilitate knowledge exchange through educational programs and case studies on AI applications.
    - Leverage ITE's platform to share best practices and guidelines for using AI in transportation.
    - Leverage ITE's Industry Council membership to exchange knowledge of their AI tools/applications and share their best practices in the transportation industry.
4. **Policy and Standards:**
    - Provide input to AI-related legislation, regulations, policies, and standards at the federal (through ITE national) and state level (through Districts and Sections).
    - Support development of AI standards for transportation in collaboration with other transportation partners.
5. **Broader Initiatives:**
    - Explore applications of AI from other domains that can be adapted to transportation.
    - Organize cross-cutting initiatives focused on AI in transportation. This could potentially involve the Education and Consultant Councils.

By addressing these topic areas, the CLT hopes to better equip members with the knowledge, skills, and resources needed to navigate AI advancements in transportation.

Transportation Workforce Development[4]

Overview

Workforce supply, development, and retention continues to be an ongoing challenge in every sector and facet of the transportation industry. In its role as a membership association for transportation professionals, ITE is often focused on promoting professional development and career advancement for its members; ITE also supports and encourages pre-career education opportunities. However, developing the next generation of transportation professionals has become very complex, and based on workforce shortages, it appears the transportation industry is not doing enough to prepare for the future.

State of Play

Creating resources for professionals has been a hallmark of ITE. Many existing training and professional development opportunities exist. For example, ITE's mentoring program, Councils and Committees, and webinars can all contribute to attracting transitioning mid-career professionals and retaining existing transportation professionals.

Here are three key takeaways from the Education Council's workshop at the 2024 ITE Annual Meeting in Philadelphia.

1. Within civil engineering, students get exposure to transportation significantly later than other disciplines, as early general courses are more aligned with other subdisciplines, such as structures. There is a need to move transportation content earlier into college curricula, preferably to the second year, or ideally, the first.
2. The transportation profession needs to better integrate with other disciplines, particularly planners.
3. The ITE Education Council surveyed transportation faculty and the transportation industry. The Council plans to synthesize and publish changes that have occurred over time and contrast perspectives of academia and industry.

The National Science Board published The State of U.S. Science and Engineering 2024.[5] Here are two key takeaways from the report:

- National assessments show a sharp decline in elementary and secondary student mathematics performance since the COVID-19 pandemic. From 2019 to 2022, average mathematics scores of fourth and eighth-grade students dropped to levels last measured approximately 20 years ago.
- Women account for fewer degree recipients in engineering and computer and information sciences than men. Women are underrepresented in the science, technology, engineering, and mathematics (STEM) workforce,

[5] 2024 ITE Developing Trend: Workforce Development
https://www.ite.org/ITEORG/assets/File/ITE%20Journal/Dev%20Trends%20Sept%20-%20Workforce%20Development.pdf
[5] Steven Deitz and Christina Freyman. National Science Board. "The State of U.S. Science and Engineering 2024." March 2024. https://ncses.nsf.gov/pubs/nsb20243 (Accessed August 2, 2024).

accounting for 35% of all STEM workers in 2021. Hispanic or Latino, Black or African American, and American Indian or Alaska Native individuals are underrepresented among science and engineering degree recipients at the bachelor's degree level and above, and among STEM workers with at least a bachelor's degree.

ITE has already been taking action to recruit and retain people interested in STEM careers while addressing the concerns highlighted above. Initiatives such as the following are already making a difference: the ITE STEM Committee; a focus on diversity, equity, inclusion, and belonging (DEIB) through the Diversity & Inclusion Committee and Women in ITE; efforts by the ITE Transportation Education Council; and the combined STEM volunteer efforts across all levels of our organization.[6,7,8,9]

However, the urgency to focus even further on the critical topic of workforce development continues to rise. In addition to helping interested collegiate students get into the workforce more quickly, ITE can also provide a pathway for individuals who start their careers in a trade and for those who may begin in an adjacent career and are drawn to becoming a transportation professional later in life. Enhanced existing efforts combined with new approaches will be the way to achieve a complete transportation professional workforce.

Action Items

- **Create and Attract the Interested Collegiate Workforce.** K-12 STEM outreach and education will continue to be a hallmark of creating an interested collegiate workforce. Demand will justify post-secondary education investment in transportation curricula, certifications, and degrees by continuing to collect, exchange, and deliver grassroots best practices in STEM outreach at all levels. Taking a siloed approach will likely not work.
- **Engineering Workforce Consortium (EWC).** ITE is proud to be involved as a founding member of the Engineering Workforce Consortium (EWC). The EWC is a result of an Engineering and Public Works Workforce Summit hosted by the American Council of Engineering Companies (ACEC), the American Society of Civil Engineers (ASCE), and the American Public Works Association (APWA) in April 2024. The EWC offers the following strong value proposition that matches ITE values: "By aligning and pooling together the varied strengths, resources, and particular talents of participating organizations, the Consortium can maximize its impact to inform, educate, and advocate for the engineering and public works industries under a common banner and voice. As more organizations join the Consortium, the groups' ability to reach new audiences, conduct industry defining research and drive impactful change will only grow." Other ways of increasing the workforce include accelerating the path toward practical experience for university students and providing early leadership development opportunities for young professionals.

[6] ITE. Science Technology Engineering and Math (STEM) Resources https://www.ite.org/councils/transportation-education-council/science-technology-engineeringand-math-stem-resources/ (Accessed August 2, 2024).
[7] ITE. Diversity & Inclusion. https://www.ite.org/membership/diversity-and-inclusion/ (Accessed August 2, 2024).
[8] ITE. Women in ITE Committee. https://www.ite.org/about-ite/women-in-ite-subcommittee/ (Accessed August 2, 2024)
[9] ITE. Transportation Education Council. https://www.ite.org/councils/transportationeducation-council/ (Accessed August 2, 2024).

- **Outreach to Young Professionals.** ITE is supporting young professionals through the development of dedicated resources such as those available through the young professional's resource page on its website and by developing content explicitly intended for young professionals, including the Back to Basics webinar series and the *ignITE* webinar series: A Non-Technical Career Skills On-Demand Training Program.[10]
- **Additional Partnerships.** The next phase of this work includes establishing a strategic relationship with Engineers Without Borders USA (EWB-USA). In the summer of 2024, ITE engaged in discussions to provide opportunities for ITE members within the EWB international and U.S. domestic programs. Although the details of this partnership are being finalized, ITE believes that a strategic alliance with EWB-USA will enhance leadership development opportunities for ITE members.
- **Leverage ITE Districts and Sections to reach younger members.** ITE's Districts and Sections are terrific vehicles for better exploring alternative models, recognizing that one-size-fits-all might not be the most realistic. Recent efforts of the Younger Member Committee (YMC) support the formation of YMC's across the Districts and Sections as well as peer exchanges across these groups to share best practices and activities that engage younger members.
- **Succession planning.** An emphasis on succession planning led to a proposal to create a guide to promote knowledge transfer from experienced professionals to young professionals and transitioning professionals. While still being assessed for feasibility by ITE leadership, creating a guide or programming around succession planning could serve many purposes for ITE members.

What Can You Do?

Members play a vital role in evaluating and shaping new areas of focus for ITE, including workforce development. Possibilities include the following:

- Get active in your District and Section STEM outreach efforts.
- Join ITE Councils and Committees to help chart the future.
- Contact your elected officials, emphasizing the importance of STEM education investment.
- Leverage ITE resources and groups to enhance your knowledge of workforce development issues and possible solutions.
- Become a mentor.
- Actively recruit people from outside our industry and let them know that we have a career pathway toward transportation for them.
- Promote involvement in ITE across your company or agency, especially to younger professionals in need of both technical and non-technical professional development skills.

[10] ITE. Young Professionals. https://www.ite.org/membership/current-members/young-professionals/ (Accessed August 2, 2024).

Transportation System Resilience[11]

Overview

Recent natural events, such as Hurricanes Helene and Milton in the southeastern United States and the wildfires in the western United States, continue to emphasize the importance of transportation system resilience. As transportation networks continue to evolve to meet the traveling public's demand, it has become increasingly complicated to integrate additional technology, infrastructure, and road users. There are more modes to manage and more technology to support as our profession tries to improve the lives of those in our communities. The addition of all that infrastructure, whether physical or digital, can lead to increased susceptibility to failure as people rely on those improvements as part of their day-to-day experiences. Those infrastructure elements increasingly rely on one another, adding to their complexity and exposure to potential failure. The need for a resilience transportation system is increasingly apparent.

State of Play

Evaluating transportation resilience can occur on drastically different scales. Resilience can be particular to large or unexpected but widespread events, such as climate change and natural disasters, and can also be project-specific.[12] Generally speaking, resiliency can be defined as "the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions."[13] Resilience considers not only the ability to prepare for such an event, but also the ability to absorb the shock that comes when the event occurs and to recover in a timely manner.

[11] 2024 ITE Developing Trend: Transportation Resilience. https://www.ite.org/ITEORG/assets/File/ITE%20Journal/Dev%20Trends%20Oct%20-%20Resilience.pdf
[12] *See, e.g.*, FHWA Order 5520 and 23 U.S.C.§ 101(a)(24).
[13] FHWA Order 5520. Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events. December 15, 2014. https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm (Accessed September 16, 2024).

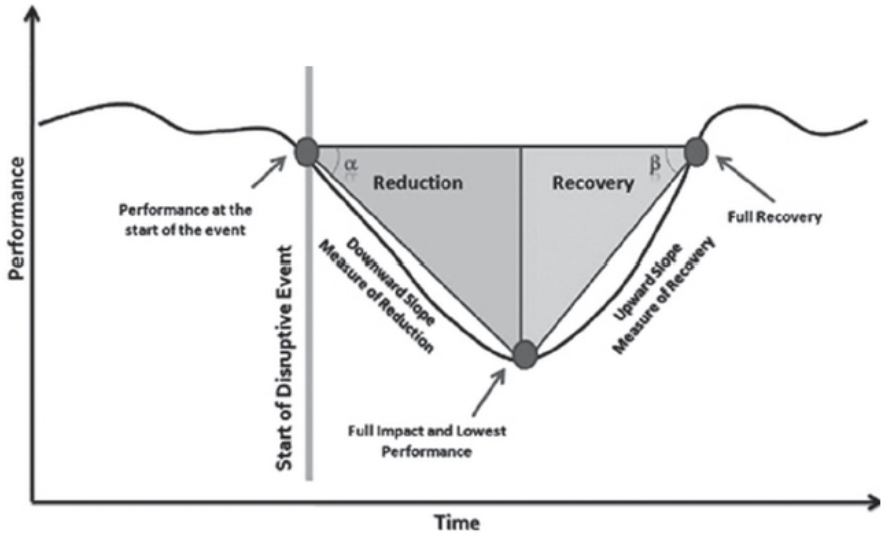

Figure 2. Resilience Triangle[14]

A depiction of a system's resilience is shown in Figure 2 with the typical performance of the transportation system on the left of the image.[15] When a shock event happens, performance is reduced. The responsible agency or agencies respond, and the performance eventually recovers. A resilient system makes the Reduction-Recovery triangle as small as possible.

It is not only the infrastructure that is impacted; operations and maintenance activities on the transportation system can also be vulnerable. Designing a facility to accommodate the anticipated demand and damaging elements of nature may also need to consider redundancy to support failures should they occur. In the case of a closed roadway, this can take the form of real-time communication to travelers, designation of alternate routes, reduced demand for that particular mode of travel, or reduced demand on the facility overall.

Potential threats are both natural and manmade. Threats may include flooding, wildfires, or heavy snow conditions, all of which can break networks indefinitely. The cost of large-scale natural disasters driven by climate change has been estimated at more than $100 billion annually. While some threats may be more likely in certain geographical regions, many threats can happen anywhere at any time, such as cyberattacks, bridge collapses, or labor stoppages.

In preparing for such events, state and local agencies can benefit from a systemic risk management approach. Understanding the risks involved in such events would provide the framework for assessing how resilient a system needs to be. In some cases, failure may be acceptable. The cost (whether in terms of labor, capital, land, or other constraining factors) may be prohibitive given the relative risk. Others may be unacceptable based on the values, priorities, and resources of the responsible agency and the communities they serve.

[14] Adams, T. et al. 2012. Freight Resilience Measures, J. Transp. Eng., ASCE, 138(11): 1403-1409.
[15] Adams, T. et al. 2012. Freight Resilience Measures, J. Transp. Eng., ASCE, 138(11):1403-1409.

Implementing Resilience in a Public Agency

Some specific items for public agencies to consider in addressing resilience include developing risk assessment frameworks, prioritizing investment strategies and embracing funding opportunities, and developing technical expertise for staff.

Risk assessments from threats such as nature-based threats often consider the severity of the disruption, the probability of occurrence, and the condition or vulnerability of the assets or system at risk. As an example, the likelihood of a western state being subjected to hurricanes is very slim, but it may occasionally deal with flooding and certain types of extreme weather, like blizzards. Some may also have occasional wildfires that shut down key routes. An earthquake of significance is a rare event, but its impact can have severe enough consequences that necessitate appropriate mitigations. In addition, poor condition assets or systems will likely experience more severe consequences or losses than those that are in good or excellent condition.

To increase safety and reliability in the transportation system, an agency's investment strategy should acknowledge the potential problems and weigh the costs of not preparing against the opportunities to invest in other capital improvements and expand a potentially undermaintained infrastructure system. Another opportunity is developing a Resilience Improvement Plan. Although not federally required, 18 states have submitted a Resilience Improvement Plan as of early 2024. In addition to laying out a preliminary plan for investment and prioritization, these plans help reduce states' cost share requirements associated with the federal funding available through the PROTECT grant program included in the Bipartisan Infrastructure Law (Pub. L. No. 117-58).

A further step can be to develop a transportation resilience certification with a body of knowledge and supporting training for engineers and planners focusing on transportation and operational resilience to demonstrate that those who pass the examination have the requisite knowledge, skill, and ability in all facets of transportation resilience considerations, such as the recent establishment of the Roadway Safety Professional (RSP) certification. As evidenced by the identification of transportation resilience as a key developing trend within ITE, investing in and preparing the profession at large can make communities more resilient through the proactive identification and management of risks and the improved response to potential disruptions.

Communities and agencies that have clear plans to handle shock events and priorities about what is important are best situated to respond to such disruptions. These value-based assessments can help decision makers determine how to fund redundancy and responses to limit the severity and response times to shock events. These steps can help lead to a more resilient infrastructure and shorter recovery times when an event occurs. Combining more robust assets with disaster recovery plans can lead to a more resilient, reliable system for users.

Action Items

The role of ITE in knowledge transfer that can assist the industry in sharing tools and resources to create a more resilient transportation system overall. There is a clear opportunity for ITE to take a leadership role in developing transportation resilience resources for the profession. One potential initiative could be the creation of a Transportation Resilience Great Idea Group (GIG) under TSMO Council and Education Council, serving as an incubator to advance key efforts, including:

1. Establishing a Transportation Resilience Hub to provide resources, case studies, tools, and best practices.
2. Developing introductory course materials for university programs, aligned with ABET accreditation requirements.
3. Creating the first-of-its-kind Transportation Resilience Certificate Course to equip professionals with essential knowledge and skills.

This initiative will help strengthen resilience-focused education, research, and practice within the transportation community.

Conclusion and Next Steps

The transportation profession is rapidly evolving, driven by advancements in areas such artificial intelligence, workforce development, and transportation system resilience. As these trends shape the industry, ITE remains committed to equipping its members with the knowledge, tools, and resources necessary to navigate these changes. Through collaboration across ITE's technical councils and committees the organization will continue to drive innovation and support the profession in adopting forward-thinking solutions.

Key action items from the *2024 Developing Trends Report* include:

- **Artificial Intelligence**: ITE will focus on education and knowledge transfer, helping members understand AI concepts, applications, and ethical considerations. This includes developing resources to evaluate AI tools, share best practices, and contribute to policy discussions that shape AI's role in transportation.
- **Workforce Development**: ITE is strengthening its efforts to attract and retain transportation professionals by expanding STEM outreach, mentorship programs, and professional development opportunities. Key initiatives include supporting the Engineering Workforce Consortium (EWC), fostering early career leadership, and creating partnerships to broaden workforce pathways.
- **Transportation Resilience**: Recognizing the critical need for resilient infrastructure, ITE will support the establishment of a Transportation Resilience Hub, develop university-level curriculum materials, and create a Transportation Resilience Certificate Course to build professional expertise in this essential area.

As these trends continue to unfold, ITE will serve as a thought leader, advocating for policies and initiatives that advance transportation safety, efficiency, and sustainability. Members are encouraged to engage in councils and committees, participate in professional development opportunities, and contribute their expertise to help shape the future of transportation.