March 20, 2023

Gloria M. Shepard
Executive Director
Federal Highway Administration
1200 New Jersey Avenue SE
Washington, DC 20590-0001

RE: Improving Road Safety for All Users on Federal-Aid Projects, Docket No. FHWA-2021-0011
Dear Ms. Shepard,

As the nation's leading advocate for the technological modernization of our transportation system by focusing on advancing research and deployment of intelligent transportation technology, the Intelligent Transportation Society of America (ITS America) is grateful for the opportunity to comment on the Federal Highway Administration's (FHWA) Request for Information (RFI) on "Improving Road Safety for All Users on Federal-Aid Projects."

ITS America fundamentally believes that the key to federal highway's road safety goals must include intelligent transportation solutions. Digital infrastructure is poised to measurably improve safety across the U.S. road network, and FHWA is well positioned to take advantage of these solutions in upcoming funding opportunities. We look forward to continuing to work with FHWA and our members to use technology to help achieve the goals outlined in the United States Department of Transportation's (USDOT) National Roadway Safety Strategy.

About Us

ITS America was founded in 1991 as an advisory council to USDOT on technology innovation and emerging transportation technologies. ITS America is the only organization in the country that represents all sectors – public, private, academic, and nonprofit – to advance transportation technology. Our membership includes state and city departments of transportation, transit agencies, metropolitan planning organizations, automotive manufacturers, technology companies, engineering firms, automotive suppliers, insurance companies, and research and academic universities. Our vision is one of a better future transformed by transportation technology and innovation. Safer. Greener. Smarter. For all.

Our work accelerates the deployment of technology that saves lives, promotes sustainability, and advances more equitable transportation for all. Our members' work focuses on connected and automated vehicle technologies, smart and digital infrastructure, sustainable technologies like electric vehicles, and other mobility technologies that support public transportation and freight. ITS America's work breathes new life into our transportation system by expanding investments in technologies that support smart communities, encourage new models and modes of transportation, including micro-transit, ride-sourcing, carshare, bikeshare, micro-mobility, and uncrewed systems - innovations that make our transportation system safer, greener, and smarter for all. Investments in these technologies

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must also address transportation equity so everyone gains access to mobility and opportunity and our workforce is a part of these conversations.

Transportation Technology and Innovation is Critical to Achieving Vision Zero

ITS America commends FHWA's efforts to study ways to improve safety on U.S. highways. We firmly believe that safety technologies and innovations are our best tool to achieve the United States Department of Transportation's (USDOT) vision of zero fatalities on U.S. roadways. We believe that this Vision Zero goal cannot be accomplished without technology investment. As transportation fatalities continue to transpire at unacceptable levels, new approaches must be utilized to improve road safety. ITS America recommends USDOT continue to invest in a safe systems approach that includes both physical infrastructure improvements and digital infrastructure solutions, such as connectivity, automation and other tools to achieve Vision Zero.

Digital Infrastructure is Key to Advancing Road Safety

USDOT's continued leadership in the deployment of digital infrastructure is a key factor in improving safety. City, state, and regional transportation agencies' success with implementing digital infrastructure is often defined by factors determined by Federal and private sector partners alike. The Federal role in this relationship is multifaceted: USDOT plays a pivotal role in bringing legacy systems into the digital age to advance American innovation. Below are several key recommendations to USDOT to support road safety through digital infrastructure.

1. *Provide much-needed grant coordination and support and formula funding to invest in transportation technologies* – While grants like Strengthening Mobility and Revolutionizing Transportation (SMART) and other technology-informed grants are critical, FHWA must ensure that the modal administrations coordinate SMART and other grant projects to help share the early lessons learned from these grant recipients with the broader transportation industry so that every community – regardless of whether they received a grant or not – can benefit from this important federal investment.
2. *Provide formula funding support to help states, local agencies and tribes understand how to invest in transportation technologies* – FHWA and USDOT should provide clarity on how formula funding to state departments of transportation may be leveraged by states, local agencies, MPOs and tribes may invest in innovative transportation infrastructure. FHWA and USDOT must ensure that these formula-funded investments think holistically about the safe systems approach to integrating technology into Vision Zero goals. FHWA can host peer exchanges and share best practices on how states are using formula funding, whether its HSIP or SP&R funds, to partners to promote digital infrastructure integrated with physical infrastructure.
3. *Develop a national digital infrastructure strategy and reference architecture* - This leadership is crucial, as it provides certainty for investments in digital tools, including ITS solutions, connectivity, automation, use of real-time data, edge computing, integrating sensors that provide insights that help prevent crashes and aid in emergency response.

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USDOT is a crucial partner in standards-setting and the development of a common understanding of how technology can be implemented and utilized, including how we address critical components such as privacy and security. Additionally, FHWA's recent *Request for Information on Improving Safety for Vulnerable Road Users* was an important information-gathering opportunity for the Department to further determine how we advance digital infrastructure on the U.S. road network. ITS America applauds USDOT's efforts in this space.

Metrics Drive Outcomes

While Federal leadership is instrumental in supporting the development and deployment of digital infrastructure, there is more that can be done. USDOT needs to collaborate with stakeholders from the ITS industry to develop key performance indicators, including developing a benefit cost-analysis tool (BCA) to help understand the enormous return on investment in investing in technology to advance Vision Zero goals. Transportation planners are stewards of taxpayer money. They choose where to invest limited public resources to achieve the most benefit for transportation system users. The Infrastructure Investment and Jobs Act (IIJA) represents a once-in-a-generation influx of funding for these systems, but it is the responsibility of transportation agencies to decide how to maximize this opportunity. Digital infrastructure is uniquely situated to provide that efficiency – it provides the data that transportation planners need to make vital strategic decisions around existing and planned transportation operations. Below are a few examples of the importance of how every dollar invested in technology returns numerous additional benefits on that investment:

- In Utah, Flowlabs partnered with the Utah Department of Transportation to utilize their end-to-end traffic signal management system, which helped the state reprogram their signal phase timing for maximum efficiency. This solution reduced vehicle delay by up to 29%, reduced peak travel times by up to 10%, and reduced emissions by up to 21%, all while returning a 413-1 return on investment.
- Using ITS bus telematics, New York City managed transit signals to give priority to buses, resulting in 5-14% more efficient bus speeds to move people more effectively. This data helped to convert lanes for buses, increasing ridership by 14% and reducing injuries. Additionally, NYC used ITS data and sensors to make the business case to convert a lane on the Brooklyn Bridge to a bike and pedestrian path, increasing walking by an overwhelming 80% without impacting traffic into and out of the largest city in the country. This data informed decisions they hadn't otherwise predicted because it showed human behavior better than any observable information about pedestrian trends.
- Using Rekor's connected vehicle data and powerful AI system in Nevada, the company detected 43% of crashes faster than 911, reduced crashes by 18%, reduced speeding by 43%, and decreased emergency response time by 9-12 minutes. When every minute saves lives, this shows the importance of tech in the safe systems approach to Vision Zero.
- Velodyne's LiDAR solutions can predict walkers and cyclists around buildings that human drivers can't see, as well as demonstrates gaps in systems for public agencies. For example, using pedestrian detection LiDAR technology, one community found that pedestrians were in danger

because a bus drop-off was near an intersection where people walking weren't visible to cars, which helped the city redesign bus stops locations to protect humans. ITS technologies allow public agencies to learn key insights to help invest in safer hard infrastructure, make better design decisions, promoting Complete Streets goals and context-sensitive solutions.

Documenting outcomes like the above examples is critical to helping to understand the importance of investing federal funding in technology. These use cases will build public trust in newly-deployed transportation innovations while establishing critical success targets for new technologies, particularly around user-focused goals like access, equity, and efficiency. At the same time, once these performance indicators are established, USDOT should exercise sufficient grace in oversight and monitoring to tolerate some of the experimentation that may accompany the first iterations of new approaches, enabling states and cities the flexibility they need to both attempt new solutions and meet their metrics in innovative ways.

DOT Grants and Funding Must Include ITS and Digital Infrastructure Solutions & Must Promote Cohort-Based Learning Models to Widely Share Information

USDOT grants (particularly those in the Infrastructure Investment and Jobs Act) and similar programs to promote digital infrastructure solutions are a major tool to spur technology deployment by piloting new technologies, helping others learn lessons and best practices, and developing key insights for new research and policy. ITS America has published a series of twelve recommendations for USDOT to consider while implementing the Infrastructure Investment and Jobs Act programs to ensure that federal investment directly supports funding technology and digital solutions. ITS America's recommendations for how the USDOT must develop programs to fund technology are enclosed with this letter.

Notwithstanding IIJA's historic investment in transportation infrastructure, USDOT must ensure that technology grant grants like the SMART program are set up in a way that supports grant recipients like cities, states and tribes to work collaboratively together to learn from each other in peer cohort models. Furthermore, the early lessons from Stage 1 and Stage 2 grants must be immediately and widely shared with transportation stakeholders so that over the next four years all communities can benefit from the hundreds of millions of dollars being invested across the country. SMART and other technology-related grant programs have an incredible opportunity to help transfer knowledge, develop deployment guidebooks and lessons learned, institutionalize technology transformation and innovation programs, and build up the workforce of tomorrow and new collar jobs, but that can only be accomplished if USDOT – including the modal administrations and the Secretary's office – work in concert to distribute information from these grants widely and in different communications channels and audiences.
ITS America is confident with that these recommendations, the Department can leverage technology, digital transformation and innovation to dramatically improve safety on our nation's roads.

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Conclusion

As stated above, ITS America fundamentally believes that the key to federal highway's road safety goals must include intelligent transportation solutions. Digital infrastructure is poised to measurably improve safety across the U.S. road network, and FHWA is well positioned to take advantage of these solutions in upcoming funding opportunities. We look forward to continuing to working with FHWA and our members to use technology to help achieve the goals outlined in the United States Department of Transportation's (USDOT) National Roadway Safety Strategy.

ITS America is grateful for the opportunity to provide feedback from our organization and our members on this RFI and looks forward to working with FHWA on additional efforts related to improving road safety for all users. If you have any questions about any of the responses above, please contact Bobby McCurdy at bmccurdy@itsa.org.

Sincerely,

Laura D. Chace
President & CEO
ITS America

Recommendations for Infrastructure Investment and Jobs Act Implementation

June 2022

1. **Make Technology Eligible – Provide guidance on technology eligibility for formula and discretionary programs:** USDOT should consider and fund digital infrastructure just as it funds concrete and steel. Provide more explicit and flexible guidance to use existing formula funding for the deployment and operational support of transportation technologies for all travel modes. Provide examples of technologies that are eligible to be deployed under all discretionary grant programs. To advance USDOT's goals, broaden the definition of infrastructure to include transportation technology and digital infrastructure such as connected signals, smart city technologies, broadband and other digital infrastructure. Ensure guidance is provided to modal and division offices to ensure fair and equitable investments and to set clear expectations of eligibilities.

2. **Define Criteria on How Technology and Innovation Will Be Addressed in Grants:** USDOT should provide specific guidance on how it will consider technology and innovation in reviewing grant applications. Establish the use of technology benefiting specific, defined needs as a review criterion for discretionary grant applications. This could include incorporating "innovative technologies" as identified by USDOT in its RAISE Grant Notice of Funding Opportunity, defining "new vehicle or other transportation-related technologies" as included under the Safe Streets and Roads for All Grant Program, or using the eight grant criteria under the SMART grant program (e.g. automated vehicles, connected vehicles, intelligent infrastructure, system integration, commercial delivery, aviation, smart grid tech, and smart traffic signals).

3. **Authorize Funding for Operations and Maintenance:** USDOT should include eligibility of technology operations and maintenance (O&M) for both formula and discretionary grant funding opportunities, when possible. Innovative technology investments require sustainable funding for maintenance, operations, and stewardship. Technology has unique needs, such as technical support, data retention, software upgrades and cybersecurity, distinct from hard infrastructure. Ongoing maintenance, investment and support of transportation technologies is necessary – it provides the public meaningful return on investment and shows responsible stewardship of public funds.

4. **Public-Private Partnerships**: USDOT should explore policy changes to allow private sector companies to submit applications for funding on behalf of their public sector partners for joint projects.

5. **Streamline New and Existing Application Processes and Provide Grant Guidance**: USDOT should make discretionary grant programs more accessible by streamlining the application process. Simplify the grant application requirements by considering grant response templates to allow more communities to participate in the grant application process. Use a standard online application template that can easily be used across different programs, with attached links and examples to educate the applicant. USDOT should provide examples of information needed to show how the project will promote criteria like economic competitiveness and identify where priority will be given if applicable. Consider allowing new types of application processes by using phased approaches and innovative partnering models, particularly for resource-limited community applicants. This phased approach could include first a written project summary, and if it is deemed likely to satisfy grant criteria, then applicants can submit a full application. Lastly, USDOT should create a one-stop-shop Innovation Hub that includes program guidance, eligibilities, technical assistance, and additional information for innovation-related programs that integrate technology. USDOT should also conduct proactive outreach to eligible entities.

6. **Expedite the Procurement Process and Improve the Contracts Administration Process**: Review and revise USDOT and GAO procurement processes to expedite reviews and approvals and provide more flexibility, particularly for communities who have limited resources to manage federal contracts. Procurement processes should be more flexible, use plain language in their terms and guidance and provide better resources for grants administration. Increase contract administration efficiency so technology does not become obsolete between application and disbursement of funds.

7. **Allow Discretionary Funding for the Development of Open-Sourced Digital Infrastructure Software and Standards**: Support investments in digital infrastructure, like the mobility data specification, curb data specification and other specifications by mobility data foundations, to manage the digital version of the physical infrastructure. Digital infrastructure is critical to the future of transportation and to advance USDOT's goals in safety, sustainability, and equity. Cities and local communities need APIs (app program interfaces) that allow communities to promote policies that can be easily integrated into a product development cycle. In addition to the built environment and physical infrastructure, the data layers and digital optimization of what we build can harness opportunities and future-proof us for tomorrow. These criteria also help communities better manage their rights-of-way through data, technology, and informed policy-driven by goals like safety, sustainability, and equity.

8. **Provide Successful Technology Examples**: USDOT should showcase successful technology deployments to better inform stakeholders of technology deployment opportunities. Provide examples of existing successful public projects that currently deploy technology which benefited from program funding flexibility and eligibility. Highlight how technology can be successfully implemented into programs to support goals to advance safety, sustainability, equity, and multi-modal mobility.

9. **Provide Examples of Strong Performance Metrics and Outcomes**: USDOT should provide examples of USDOT-supported performance measures and outcomes. Grant programs such as Safe Streets and Roads for All require metrics for evaluating outcomes, which is relatively new for many applications, communities and transportation professionals. Potential metrics could address: percent reduction in near-miss crashes or crashes; percent reduction in GHG/carbon emissions or increased access to charging stations; number of jobs created; reduction in speed violations; economic competitiveness (e.g., reduction in transportation expenditures, households choosing to own fewer cars); and increased access to public health (e.g., reduction in infant mortality rates, increased number of walkers). USDOT should develop guidance on how to create performance measures and provide example performance measures that are clear, accountable and transparent and provide access to the respective data needed to conduct the performance analysis. USDOT should also show examples of difficult-to-measure goals and outcomes, for example safety, sustainability, and equity. Metrics should be practical, feasible and suitable for various phases of community and technology development, not one size fits all.

10. **Provide education on existing funding flexibilities**: USDOT should provide resources and guidance on the funding flexibilities that exist within current and upcoming programs so applicants are aware of what is available to them and can plan and apply accordingly.

11. **Fund Stakeholder and Community Engagement**: Provide funding for community and stakeholder engagement on how technology can help overcome community transportation challenges and achieve the USDOT's goals to advance safety, sustainability, equity, and accessibility. Prioritize applications in Areas of Persistent Poverty (APP) and disadvantaged communities to understand the specific transportation challenges facing communities. Provide resources and guidance to support local governments in implementing effective public education campaigns that empower communities to be a part of discussions on how to leverage IIJA funding and discretionary programs to solve for their problems using USDOT's Innovation Principles to incorporate technology solutions into these conversations. Stakeholder and community engagement should be tailored to the needs and context of the community.

12. **USDOT Programmatic Goals Clarification**: Clarify that for discretionary grant programs recipients do not have to advance each goal to promote safety, job access, education, economic competitiveness, private investment and emergency response, among others. Clarify that the language includes an 'or' with the ability to promote multiple goals of USDOT, but each discretionary grant application project does not have to fulfill all goals.