SMART
GRANTEE SUMMIT

SMART Summit Session Notes

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Introduction

The Strengthening Mobility and Revolutionizing Transportation (SMART) Summit 2024 was held at the U.S. Volpe Center on July 10-11, 2024 for Stage 1 Grantees selected from the Fiscal Year 2022 and 2023 SMART Notices of Funding Opportunity.

Over 200 attendees representing 83 SMART project teams participated. Attendees included both lead grant recipients as well as their project partners. Spanning nine project types, including smart traffic signals, connected vehicles, curb management, uncrewed aircraft systems (UAS), sensors, smart grid, transit innovation, work zone safety, and international commerce, FY22 and FY23 SMART project teams met to build communities of practice to enhance their projects.

This two-day conference provided attendees with the opportunity to participate in educational panel sessions, engage in enriching breakout sessions, and gain valuable knowledge about the SMART grant process. Day one of the summit set the foundation for navigating the grant process through a series of large group panel sessions as well as office hours led by USDOT experts, providing attendees with the tools to better understand topics ranging from cybersecurity to procurement. Day two of the summit offered smaller-group technology-specific breakout sessions for grantees to network with similar teams, exchange insight, and reflect the progress of their projects.

For more details on the agenda:

2024 SMART Summit Agenda

All photos are courtesy of US DOT

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Day One: SMART Summit (7/10/24)

Welcome and Opening Remarks

Speaker: **Dr. Robert Hampshire**, Deputy Assistant Secretary, Research and Technology, US DOT

Purpose: To greet FY22 and FY23 SMART grantees, Dr. Robert Hampshire opened up the 2024 SMART Summit with a warm welcome and words of encouragement, congratulating grantees on their achievement of being a part of the SMART Grants program and highlighting SMART's role as part of the historic infrastructure program of the Bipartisan Infrastructure Law.

Dr. Robert Hampshire

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SMART Summit Panel Discussions

Delivering Technology Projects: Lessons from the field

Moderator: **Ben Levine,** Senior Advisor for Research and Technology, OST-R
Panelists: **Nigel Jacob,** Co-Chair of the Mayor's Office of New Urban Mechanics, **Luisa Paiewonsky,** Volpe Center's Director of the Center for Infrastructure Systems and Technology

Purpose: Emphasized bringing together local experience for implementing innovative technology projects with federal expertise in project delivery to think about how to approach projects with a focus on community engagement, experimentation, and adaptability.

Key takeaways included:

- Embrace the value of newness and experimentation. Welcome change and revisions in your project to encourage the creation of innovative new solutions.
- Center community engagement throughout this exploration process of building projects that reflect the public's wants and needs. Determine who benefits from this project and engage the beneficiaries at the early stages.
- Prioritize engaging with and seeking guidance from those who have familiarity with the process already to improve the efficiency and effectiveness of project delivery.
- Accept that sometimes the delivery of bad news is inevitable. Remember that the point of experimentation is *to learn*. Understand the benefit of learning that some things do not work.
- Understand the importance of addressing the digital divide in underserved communities. Take time to think about how to accommodate equitable practices ensuring that every rider enjoys the same transit experience.

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DOT Technical Assistance

Speaker: **Kim Higgins**, Policy Analyst, Volpe Center

Purpose: Provided an overview of various grant programs and resources available to support infrastructure and community development projects, and also emphasized the importance of effective grant application strategies and thorough planning to ensure project feasibility and compliance.

Key takeaways included:

- Build America Bureau's Suite of Technical Assistance for Grant Programs includes innovative finance/asset concessions, regional infrastructure accelerators, rural/tribal assistance, and the Thriving Communities Program
- USDOT's discretionary grants dashboard provides access to 90+ grant programs, covering 8 DOT and 10+ non-DOT agencies, including features like multiple search filters based on keywords, eligible activities, transportation type, etc.
- Be a storyteller with data. Use it to your advantage to represent a compelling narrative for your grant application.
- Plan ahead of time to ensure the proper completion of environmental review and permitting requirements.
- Take the time to develop a project plan that outlines the details of project financing and project management of the grant.

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FY22 - Cybersecurity Presentation and Ask-Me-Anything

Speaker: **Edward Fok**, Transportation Technologies Specialist, FHWA

Purpose: Helped grantees think about and plan to secure their projects against cyber threats, identified the main types of threats they may face through the basics of cybersecurity in transportation, best practices. Outlined an approach to building a credible and realistic plan for handling cybersecurity.

Key takeaways included:

- Acknowledge current issues with technical devices, e.g. shorter device or system life cycle than with mechanical/analog. This increases exposure to maintenance challenges if you don't deal with cybersecurity vulnerabilities.
- Know the difference in titles. Hackers may have harmful or beneficial intentions. However, cyber threat actors aim to damage the organization while security researchers discover vulnerabilities in cybersecurity.
- Understand the motivations of a cybersecurity attack: Curiosity, bragging rights, greed for monetized information, or political causes for warfare.
- Remember that cyber criminals often follow the same pattern as burglars during a home invasion: scan perimeter, breach, map interior, and exploit the information. They aim to target manipulable information the public sees like transit priority, parking meters, signals, toll readers, etc.
- Recognize the shift in information technology and operations technology; while in the past IT and OT were handled very separately, it can be more effective in handling a cybersecurity attack to see them as overlapping fields.
- Follow the NIST cyber security framework. Core functions include the following: identify, protect, detect, respond, recover.

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FY22- Data Sharing with DOT: Grantee Listening Session/Discussion

Speaker: **Dan Flynn,** Data Analyst, Volpe Center

Purpose: Addressed questions about project data grantees are required to share, why DOT is asking for this information, how it contributes to national priorities, and how it leads to benefits in their communities.

Key takeaways included:

- Important to promote the effort to develop data strategy within OST-R as a means of maximizing the value of data coming from research for the public. SMART program deployments generate data on innovation that could be useful for other people.
- Emphasized the role of evidence-based policymaking. Data is not just for stakeholder requirements, but also to provide the foundation for transportation legislation.
- Remember that when people contribute their data, this information is available for you to use in your agency to build on previous research –ie what are other people doing using computer vision for VRUs, etc.
- Understand that data can be re-used to build upon existing evidence. Data goes beyond a research project. Implement FAIR principles in data governance: data should be findable, accessible, interoperable, reusable.
- On an internal level, develop a plan for how you will share back data; in the future, determine how you can leverage data created by everyone under data innovation/evidence-driven pillars.
- Foster collaborative research environments for data innovation. Move beyond funding individual recipients and finishing the process; make it more collaborative through sharing knowledge.
- Moving forward, we should comply with federal data strategy, review the DOT public access plan, optimize resources, prevent loss of unique and valuable data, and improve FAIR.

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FY22- Workforce Impact Planning Session

Speaker: **Ross Templeton**, Labor Policy Advisor, OST-R

Purpose: Highlighted the importance of leveraging technology grants made through the Bipartisan Infrastructure Law (BIL) to expand the capacity of the existing workforce, address new workforce needs, and ensure worker involvement and collaboration in shaping innovative solutions.

Key takeaways included:

- Emphasized the importance of technology grants in expanding the capacity of the existing workforce and addressing new workforce needs. Understanding how new technology impacts the current workforce is crucial, particularly concerning safety improvements and job impacts.
- Recognize that the BIL focuses significantly on workforce considerations during its implementation. The signing of the BIL highlighted the priority given to workers and their organizations, with standards ensuring minimum wages based on prevailing local rates.
- Acknowledge worker involvement in shaping innovation through programs like SMART emphasize collaboration with labor unions and community groups. The Executive Order on worker organizing and empowerment facilitates meaningful input from workers and their organizations.
- Focus on inclusive recruitment, benefits, diversity, and ensuring workers have a voice on the job. The aim is to offer high-quality jobs that are accessible to historically excluded communities.
- Address the impact of technology on jobs with a focus on how new tech will be used by frontline workers. An example from the ironworker's industry illustrates the transition from rivet construction to using high-tension bolts, highlighting the shift in skills and the importance of safety training.
- Develop partnerships with unions and labor organizations to create effective workforce impact plans. Tools such as registered apprenticeships, apprenticeship readiness programs, project labor agreements, and neutrality agreements are recommended to ensure comprehensive workforce development and support.

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FY22/23 - Procurement

Speaker: **Shannon Louie,** Supervisory Grants Management Specialist, OST

Purpose: Provided an overview of the key characteristics and responsibilities of subrecipients and contractors under federal grant programs, as well as guidance on evaluating risk and ensuring proper procurement practices.

Key takeaways included:

- Know the scope of subrecipient characteristics: federal assistance eligibility, programmatic decision making, performance measures, adherence to program requirements, and advancing public good
- Know the scope of contractor characteristics: provider of goods/services within normal business operations, many different purchasers, and ancillary to the operation of the Federal program; operates in a competitive environment; not subject to compliance requirements of the Federal program
- When evaluating risk, a pass-through entity should consider the subrecipient's: experience with similar subawards, previous audit results, new personnel or changed systems, and extent and results of any Federal agency monitoring.
- Responsibilities of the recipient or subrecipient include: Maintaining records sufficient to detail the history of each procurement transaction, documented procedures for procurement transactions under a federal award or subaward, and oversight to ensure contractors perform according to the terms, conditions, and specific of their contracts or purchase orders.
- All procurement transactions must provide full and open competition. Procurement methods include formal procurement (sealed bid and proposal), informal procurement (micro-purchase and small purchase), and non-competitive procurement
- The recipient or subrecipient should ensure that small businesses, minority businesses, women's business enterprises, veteran-owned businesses, and labor surplus area firms are considered.

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FY23- Reporting and Grant Management Requirements

Speakers: **Thy Nguyen**, Grants Management Specialist, OST-R and **Madeline Zhu**, Transportation Specialist, OST-R

Purpose: Outlined an overview of the SMART grant requirements to provide a clear explanation of all the expectations and regulations for continuing with moving forward in the grants process.

Key takeaways included:

- Make sure your SAM.gov registration is active, it may have expired since you submitted your application.
- Gather all required documents including the budget justification template, certification regarding lobbying, and civil rights requirements.
- Refer to the 'Resources for Grantees' section of the SMART website for everything you need.
- Evaluation plans are intended to help you prepare for the implementation report. After receiving feedback you can revise it and resubmit, but this is not required.
- There are two steps to the implementation report: 1) Draft – 12 months from grant agreement date 2) Final – end of period of performance period. The thought process behind this is that the SMART program models itself after how tech startups work – incremental progress.
- Promote SMART grant projects: the SMART grants program is the largest investment in smart technologies. Spotlight your achievements, not just when you finish your project.

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FY23 - Working with Data: Data Management Plans and Data Sharing with USDOT

Speaker: **Jesse Long**, Data Curation Librarian, OST-R and **Dan Flynn**, Data analyst, Volpe Center

Purpose: Offered guidance on creating a comprehensive Data Management Plan (DMP) to better handle the collect, usage, and distribution of data in research-driven initiatives.

Key takeaways included:

- Understand that a Data Management Plan (DMP) is a formal document that outlines how data will be handled during a research project. It covers the entire data lifecycle, including collection, organization, documentation, storage, preservation, and sharing.
- Create a DMP with an account associated with "United States Department of Transportation (DOT) (transportation.gov)" to access all necessary features. Only the owner or a designated co-owner can request feedback and submit the DMP.
- Include statements on data formats and metadata standards, emphasizing open-access formats where possible. It should list all file formats used, noting any proprietary formats and their required documentation.
- Address privacy and confidentiality concerns, detailing how informed consent will be obtained, and privacy protected before data archiving. Outline any additional concerns related to data access and sharing.
- USDOT receives a comprehensive, non-exclusive copyright license for all project outputs. This includes rights to copy, distribute, create derivative works, and publicly display or perform the work.
- Specify the use of pre-approved data repositories that comply with USDOT standards. A simple statement confirming the repository's compliance with persistent identifiers and the DCAT-US Metadata Schema is required. Resources and guidelines are available on the SMART website to assist in this process.

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Day Two: SMART Summit (7/11/24)

General Session

Federal Requirements and looking ahead to Stage 2 BABA and NEPA

Speakers: **Darren Timothy**, Chief Economist OST-P, **Theresa Claxton**, Environmentalist Protection Specialist, FHWA, **John Foley**, Environmentalist Protection Specialist, FHWA

Purpose: Supplied information on the environmental requirements and considerations for infrastructure projects to comply with various environmental laws and regulations and find strategies for avoiding sensitive environmental areas/minimizing impacts.

Key takeaways included:

- Environmental requirements include reviews and permitting under other environmental resource laws (e.g., Endangered Species Act, Clean Air Act, Clean Water Act, National Historic Preservation Act, etc.), NEPA Class of Action/documentation.
- Avoid floodplains, ground disturbance, existing tall vegetation, designated Endangered Species Act Critical Habitat, Wetlands and Section 4(f) properties. Opt for existing disturbed sites, minimally intrusive areas, and context sensitive design.
- Specify project scope, project location, project readiness, sensitive environmental resources in grant applications or supporting documents.
- BABA requirements apply to Federal financial assistance programs for infrastructure and requires that all of the iron, steel, manufactured products, and construction materials used in a federally-assisted infrastructure project are produced in the United States. All manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United State.
- SMART Grants Program Office will coordinate with grant recipients on whether their projects are designated as “infrastructure projects.” If a SMART grant recipient would like to request a waiver, they should contact the SMART program office, who will coordinate with the Office of Transportation Policy and the Office of General Counsel.

Planning, Executing, and Realizing Accessible Transportation Systems

Speaker: **Lindsey Teel**, Advisor for Policy and Program Implementation, OST-P

Purpose: Highlighted the importance of incorporating accessibility considerations into transportation projects, particularly through the use of emerging technologies and inclusive design approaches.

- Explore the uses of emerging technology like CV2X technology that will help people cross the street, GTFS pathways maps connected to smart tech to assist with wayfinding, or changing road signs to give real time notification/ accommodate pedestrians and folks using assistive technologies
- Incorporate accessibility/community needs into your project through perspective taking
- Make sure to engage groups early and often as you iterate your project: veteran groups, Disability advocacy groups, assisted living centers
- Don't think of disabled folks as 20% of the population. Design transportation systems that will meet your needs as an older adult – this will ensure an accessible transportation system for all.

FY23 – Closing Remarks and Stage 2 NOFO Timing

Speaker: **Stan Caldwell**, Director of the SMART Grants Program

Purpose: Closed out the 2024 SMART Summit and outlined the next steps for Stage 1 projects looking to apply for the Stage 2 NOFO.

Key takeaways included:

- Stage 1 projects have been valuable learning experiences, while Stage 2 aims for broader community impact and benefits at scale.
- The application process for Stage 2 is set to open next week (July 15th). The NOFO will be open for 30 days, but only FY22 Stage 1 projects are eligible to apply.
- This NOFO is funded to support about $50 million for 3-5 projects. This is the first Stage 2 funding opportunity, with at least two more expected in the next two years, so applicants should not feel pressured to apply if their project is not yet ready.
- Proposals need to meet NEPA and BABA requirements. Applicants should consider if their projects are sufficiently developed with meaningful and substantial data for scaling before deciding to apply this year.

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Breakout Sessions

Overall Key Takeaways:

Attendees met with other teams of the same project type and their USDOT technical advisors to introduce themselves as well as discuss their project status, purpose, and goals. Project types include smart traffic signals, connected vehicles, curb management, uncrewed aircraft systems (UAS), sensors, smart grid, transit innovation, work zone safety, and rail and transit automation.

- Get the community from “alarmed” to “aligned” through stakeholder engagement; bring people in and keeping them involved.
- Work with community groups that have presence, language background for community needs. Focus on equity benefits and economic development. Work with young students. They bring fresh perspective and are more tech savvy – if we teach them, they can educate their parents.
- Don’t assume internal team members will follow-up on initial conversations automatically; continue lines of communications throughout the grant timeline. Develop a crisis communication plan.
- Alleviate procurement concerns by developing a comprehensive strategy.
- Manage costs with a feasible budget that aligns with the security of consistent funding throughout the project timeline.
- Form alliances with technology providers and local political figures. Establish key partnerships to distribute workload and resources for the whole project.
- Be careful with language because sometimes it can raise questions, especially when using terms like AI.

Technology Cluster: Connected Vehicles

Key takeaways included:

- Mounting hardware sometimes causes holdups in the building process. Some deployers try to get around procurement lead times by fabricating equipment, such as mounts, in-house.
- For external sensors, traditional loops don't detect most bikes. Biggest challenge is mid-block, middle-of-the-night pedestrians trying to cross the street; they are the ones dying the most since they are hard to detect.
- Must maintain communication with signal control company to get them to update, but they have other priorities because this isn't a big market. However, cannot be done without access to accurate signal information, even harder when being ignored by signal control companies.

Technology Cluster: Curb Management

Key takeaways included:

- It is challenging to integrate internal data systems, external vendors.
- Important policies to consider:
    - Internal policy – formalizing authorities to use cameras for curb monitoring.
    - Need for specific privacy policies/protections that reference curb applications for larger deployment.
    - Permits that allow a grace period to transition fleets.
    - Policy around citation approach
- Being clear about your value proposition will help to bring potential allies along, and get leadership on board or at least not blockers. Benefits translate in different ways to different departments.

Technology Cluster: Sensors

Key takeaways included:

- Prepare to navigate issues related to data management. Determine storage and collection when thinking about scalability. Consider implementing a data clearing house as a way for people to access data from SMART projects.
- Maintain sensor systems to learn how to ensure longevity, vendor transition, and compatibility with other products, etc. Think about technology portability and legacy systems as these projects expand and how to overcome some of these barriers.
- Keep in mind scaled deployments (have that big vision, but remember in Stage 1 that you're just proving a prototype).

Technology Cluster: SMART Grid

Key takeaways included:

- Account for maintaining and managing equipment usage; monitor the lifespan of equipment. Must account for having staff to troubleshoot and ask for a minimum of spare parts on site and establish a central dashboard for when technology is down.
- Cut costs by doing in-house training to reduce the amount of money on outsourcing repairs. Bring engineers to the bus facilitators to immerse them in the equipment.
- Create clear and detailed evaluation tools for pricing for energy, tracking dollar per mile, verifying a reduction in emissions.

Technology Cluster: SMART Traffic Signals

Key takeaways included:

- Explore working with startups, but recognize the potential risks and benefits of innovative solutions.
- Focus on interoperability to avoid getting locked into one vendor.
- Account for funding for operations and maintenance and move towards subscription models as well as funding and training for operations and maintenance staff.
- Breaking down silos. Bring in partners from other agencies/jurisdictions.
- Identify partners and have conversations early and get scopes and RFPs ready early.

Technology Cluster: Transit Innovation

Key takeaways included:

- Look at procurement from a wide angle including examining multiple internal and external groups, international firms- procuring tech, contract language, and technical bureaucracy.
- Implement an interdisciplinary lens; get every part of the transit agency involved. Balance internal stakeholders' engagement with procurement, data owners, operational, and maintenance, as well as external engagement with learning how they see and will use your project.
- Remember that high level benefits are difficult to measure yet important to represent impact. Use evaluation tools and data to tell a story.

Technology Cluster: Transit Innovation Rail and Automation

Key takeaways included:

- Must mend the disconnect between federal highways and (another office, possibly state level): They have different competitiveness standards.
- Plan ahead to anticipate enough time to handle appropriate data management, data collection, and data distribution to meet funding timelines.

- Remember to improvise for projects. Procure for it, put out a few contracts, and try to justify a sole source. There are a few different paths for sole source justification.

Technology Cluster: UAS

Key takeaways included:

- Once a team has defined the demo outputs or data products, the team is able to understand the UAS Concept of Operations and test plans necessary to generate those outputs. Performing test flights of incremental complexity, collecting safety and performance data, and using that data to write the safety case to get FAA waivers and/or authorizations necessary to run the final Stage 1 demo is a challenge.
- For UAS projects, consider performing incremental test flights in previous test environments to relieve some of the regulatory requirements and use lessons-learned from past teams.
- Have enough data been collected to benefit the existing transportation practice (e.g., supporting infrastructure inspection-we need to use the word “support” to indicate that UAS does not replace the jobs of inspectors).

Technology Cluster: Workzone Safety

Key takeaways included:

- Prepare for contracting challenges relating to navigation of inter-governmental agreements (IGAs).
- Explore the option of creating a collaborative grant application with multiple states; yet, each state gets their own contract from U.S. DOT.
- Complete an RFI ahead of the grant agreement to help speed up timelines as a means of satisfying the 18-month deadline.

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Conclusion

The SMART Summit 2024 served as a valuable event for the 83 SMART project teams looking to connect with other transportation professionals and learn about how to enhance their approach to the SMART grant process. The diversity of project types showcased at the summit, ranging from smart traffic signals to connected vehicles to uncrewed aircraft systems, demonstrated the breadth and innovation of the SMART program. Teams got to discuss a wide array of transportation technology solutions and share their unique experiences and perspectives on their projects.

Hearing firsthand advice directly from experts on critical issues like procurement and data management helped in shaping project strategy and implementation. The opportunity to participate in technology-specific breakout sessions was beneficial in allowing grantees to delve deeper into the nuances of their projects and collaborate with other teams. Networking with fellow grantees, exchanging best practices, and receiving guidance from the USDOT provided meaningful contributions for the SMART grantees and transportation community at large.