Stage 1 Implementation Report Guidance

The purpose of this guidance is to assist grant recipients in developing their Implementation Report, as required for the Strengthening Mobility and Revolutionizing Transportation (SMART) Stage 1 grant program. While not all grant recipients will require Stage 2 funding for at-scale implementation, this report could function as a blueprint for future proposals.

Following this guidance, while not required, is highly recommended, as the USDOT intends to use the information from the Implementation Reports to prepare the required program-level reports on the effectiveness of the grant recipients in meeting the original expectations projected in their proposals.

The information you have provided in the evaluation plan, data management plan, and quarterly reports should help you prepare this report. However, reflect on the experience to provide a holistic view of the project, your accomplishments, the challenges ahead, and what you have learned from the experience.

Reporting Requirement:

In accordance with the requirements established in the Bipartisan Infrastructure Law, the SMART grant agreement states that Stage 1 grant recipients must submit an Implementation Report. A draft report shall be submitted no later than one year after receiving the grant, and the final report shall be submitted by the end of the period of performance.[1]

Per the grant agreement, grant recipients must submit implementation reports that describe:

1. The anticipated deployment and operational costs of the project as compared to the benefits and savings from the project if implemented at scale
2. The means by which the project has met the original expectation, as projected in the grant application, including data describing the means by which the project met the specific goals
3. The performance measurement data
4. The requirements for a successful at-scale implementation and an assessment of the feasibility of at-scale implementation
5. An analysis of the success, challenges and validity of the initial approach, any changes or improvements that would be made in Stage 2 if recommended for award and any challenges to continued maintenance and operations in Stage 2
6. Lessons learned and recommendations

This guidance outlines the 6 sections expected in the Implementation Report:

1. Part 1 of 6: Introduction and Project Overview
2. Part 2 of 6: Proof-of-Concept or Prototype Evaluation Findings
3. Part 3 of 6: Anticipated Costs and Benefits of At-Scale Implementation
4. Part 4 of 6: Challenges and Lessons Learned
5. Part 5 of 6: Deployment Readiness
6. Part 6 of 6: Wrap-up

[1] This timeline may be adjusted for projects with a period of performance that differs from 18 months.

Part 1 of 6: Introduction and Project Overview

The introduction and project overview should provide a thorough description of the project. In general, the report should be accessible to an audience that is not familiar with the project but has a high-level understanding of the technologies deployed. Language from other reports may be used in the description; however, it is critical that you review the text and make adjustments for this context.

The title page and/or introduction should include:

- Project title
- Recipient name[2]
- Fiscal year of award
- Period of performance
- Organization(s) preparing the Implementation Report
- Date the Implementation Report is submitted

1) Provide a description of your project, including:

   - The real-world issues and challenges that would be addressed with at-scale implementation
   - The geographic area or jurisdiction the project will service with at-scale implementation [3]
   - The technology(ies) being deployed
     - Please reference the following categories in your description of the specific deployments (as applicable): coordinated automation, connected vehicles, intelligent sensor-based infrastructure, systems integration, commerce delivery and logistics, innovative aviation technology, smart grid, and smart technology traffic signals.
   - The goals and desired outcomes for at-scale implementation
     - Please reference the following program benefit areas (as applicable): safety and reliability, resiliency, equity and access, climate, partnerships, and integration.
   - Any other information that may be relevant

2) Describe the communities that would be impacted by at-scale implementation. How does the project direct benefits to Historically Disadvantaged Communities? How were community stakeholders meaningfully involved in determining program benefits?

3) Describe the scale of the deployment in Stage 1 and the anticipated scale of an at-scale implementation. The measure of scale may vary by technology (e.g., the number of on-board units [OBUs], roadside units [RSUs], equipped intersections, partners with signed agreements, size/population of service area).

4) Summarize the project activities you have engaged in during Stage 1. The description should summarize the information provided in the quarterly reports, including key milestones accomplished, partners engaged, and outcomes described.

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[2] To the best of your knowledge, please note if the recipient organization has not applied for USDOT funding before (for this or any other project).

[3] Maps, diagrams, and photos are helpful.

5) What attention has this project gained, if any? Were any media stories published? Was the project discussed in any conference presentations or academic articles? Has information from the project been published such as data or best practices reports?

6) Note any major deviations or changes from the original proposal.

Part 2 of 6: Proof-of-Concept or Prototype Evaluation Findings

Part 2 of the Implementation Report should focus on the proof-of-concept or prototype deployed during Stage 1. One objective of evaluating the proof-of-concept or prototype is to better understand what would be realistically achievable through at-scale implementation. The evaluation findings should inform and refine your expectations.

In this section, you should discuss the findings from your evaluation of the proof-of-concept or prototype. In your Evaluation Plan, you identified performance metrics based on the project goals to inform whether the proof-of-concept or prototype meets expectations. This section of the report should restate those metrics, discuss the data collected, and summarize the findings. It is critical that you reflect on the findings and address how the project has met your original expectations.

7) Discuss your findings on the performance of your proof-of-concept or prototype. The description should include data on the performance metrics for the proof-of-concept or prototype discussed in your Evaluation Plan. Your summary should include data limitations.

8) How has the proof-of-concept or prototype met the original expectations stated in the project proposal? Address the goals described in your grant proposal.

9) How has your Stage 1 project demonstrated improvement in the following goal areas?
   - Safety and reliability: Improve the safety of systems for pedestrians, bicyclists, and the broader traveling public. Improve emergency response.
   - Resiliency: Increase the reliability and resiliency of the transportation system, including cybersecurity and resiliency to climate change effects.
   - Equity and access: Connect or expand access for underserved or disadvantaged populations. Improve access to jobs, education, and essential services.
   - Climate: Reduce congestion and/or air pollution, including greenhouse gases. Improve energy efficiency.
   - Partnerships: Contribute to economic competitiveness and incentivize private sector investments or partnerships, including technical and financial commitments on the proposed solution. Demonstrate committed leadership and capacity from the applicant, partners, and community.
   - Integration: Improve integration of systems and promote connectivity of infrastructure, connected vehicles, pedestrians, bicyclists, and the broader traveling public.
   - Workforce development: Promote a skilled and inclusive workforce through training and education programs and activities.

Part 3 of 6: Anticipated Costs and Benefits of At-Scale Implementation

Part 3 of the Implementation Report should focus on your expectations for at-scale implementation of the project. One aspect of deployment readiness is developing clear expectations for the project including what benefits and costs to anticipate. To be prepared to measure project benefits, you should examine the baseline data to confirm data availability and recognize what impacts could be realistically measured in a short timeframe.

10) Based on the findings discussed in Part 2 of this report, what are the anticipated/estimated impacts of at-scale implementation for each key goal area?

    To satisfy the performance measurement requirements established in the SMART grant agreement, provide qualitative descriptions of the anticipated impacts of at-scale implementation in each of the following goal areas:[4]

    - Safety and reliability: Improve the safety of systems for pedestrians, bicyclists, and the broader traveling public. Improve emergency response.
    - Resiliency: Increase the reliability and resiliency of the transportation system, including cybersecurity and resiliency to climate change effects.
    - Equity and access: Connect or expand access for underserved or disadvantaged populations. Improve access to jobs, education, and essential services.
    - Climate: Reduce congestion and/or air pollution, including greenhouse gases. Improve energy efficiency.
    - Partnerships: Contribute to economic competitiveness and incentivize private sector investments or partnerships, including technical and financial commitments on the proposed solution. Demonstrate committed leadership and capacity from the applicant, partners, and community.
    - Integration: Improve integration of systems and promote connectivity of infrastructure, connected vehicles, pedestrians, bicyclists, and the broader traveling public.
    - Workforce development: Promote a skilled and inclusive workforce through training and education programs and activities.

11) What are anticipated costs of at-scale implementation? Include the overall estimated costs of the proof-of-concept or prototype.

12) How do the expected deployment and operational costs of at-scale implementation compare with the benefits and savings the project would provide? Do you expect the benefits to exceed the costs?

13) Describe any preliminary baseline data collected in Stage 1 for an evaluation of at-scale implementation. For the key goal areas of at-scale implementation, what are the current or historic levels of performance (e.g., crash rates for safety goals, travel times for mobility goals)?

[4] If particular goal areas are not relevant to your project, then you can note that the project does not anticipate impacts in that area.

Part 4 of 6: Challenges & Lessons Learned

Challenges and lessons learned are also performance measures required in the SMART grant agreement. The key challenges and difficulties that arose during Stage 1 should be addressed in Part 4 of the Implementation Report. You should reflect on the challenges and expand on what you have learned from the experience.

14) Describe all project challenges encountered during the Stage 1 period of performance, lessons learned, and recommendations.

    Topic areas that you should consider include:
    - Legal, Policy, and Regulatory Requirements (e.g., NEPA, BABA)
    - Procurement and Budget
    - Partnerships
    - Technology Suitability / Integration with Incumbent Systems
    - Data Governance
    - Workforce Capacity (e.g., impacts on jobs)
    - Internal Project Coordination
    - Community Impact
    - Public Acceptance
    - Cybersecurity

Part 5 of 6: Deployment Readiness

During Stage 1, you may uncover previously unknown institutional barriers or technical limitations. In Part 5 of the Implementation Report, you should describe what deployment readiness means for your project and the ways in which you have prepared.

15) Describe the requirements for successful implementation. What are the key obstacles to scaling this project? Please also address project readiness for at-scale implementation including strategies or demonstrated progress. Please discuss uncertainties and risk mitigations.

    Topic areas that you should consider include:
    - Legal, Policy, and Regulatory Requirements
    - Procurement and Budget
    - Partnerships
    - Technology Suitability / Integration with Incumbent Systems
    - Data Governance
    - Workforce Capacity (e.g., impacts on jobs)
    - Internal Project Coordination
    - Community Impact
    - Public Acceptance
    - Cybersecurity

16) What would you need to learn to better understand the maintenance and operating requirements that would be necessary to continuing this project (i.e., after at-scale implementation)? If technology needs to be updated in the future, do you have the capacity to make improvements and prevent technical debt?

17) Assess how at-scale implementation would harness beneficial impacts and mitigate negative impacts of new technologies on the availability of good-paying jobs with a free and fair choice to join a union.

Part 6 of 6: Wrap-Up

18) Reflecting on the course of the project, did the proposed solution meet your expectations? Do you think you would make any notable changes to the proposed solution for at-scale implementation. What advice would you give to other communities embarking on the same path?