A Project Document for the
Infrastructure Standards Security Implementation (ISSI) Project

ISSI PMP v01.00

Project Management Plan (PMP) for the Infrastructure Standards Security Implementation

August 16, 2022

PMP in support of:	USDOT Contract # 93JJ321D000005, Task Order # 693JJ322F00150N
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Change History

Date	Vers	Author	Note
8/16/2022	01.00	K Vaughn	Initial Draft for this Project Management Plan (PMP)

CONTENTS

1 INTRODUCTION

1.1 Purpose of the Project Management Plan

This document a Project Management Plan (PMP) for the Infrastructure Standards Security Implementation (ISSI) Project under the United States Department of Transportation (USDOT) Contract Number USDOT Contract # 93JJ321D000005, Task Order # 693JJ322F00150N. This PMP identifies the activities for the ISSI and establishes a common understanding for the management of the project for:

a) The USDOT Intelligent Transportation Systems (ITS) Joint Program Office (JPO) who is sponsoring the work, and
b) The consulting team contracted to perform the work.

This PMP includes plans for scope management; communications; deliverables and milestones; quality management; human resource management; and risk management. Portions of this PMP may be updated during the course of the project if the management team or the USDOT determines that modification would significantly facilitate the project management functions. The PMP is not intended to be a progress tracking tool or to be modified for minor changes in schedule once the project has started.

1.2 Background of Project

ITS standards, including the NTCIP family of standards, are critically important for the interoperability of ITS. The rapid evolution of ITS and deployment of connected vehicle (CV) technologies has heightened need for securing ITS infrastructure communications. Traditionally, NTCIP center-to-field communications have been based on the Simple Network Management Protocol (SNMP) Version 1 (v1) which lacks security. While SNMPv1 can be placed over secured links, the data itself remains vulnerable to attack at either end of a secure link. This vulnerability can be exploited to access and modify information and to launch further cybersecurity attacks against a target.

The Infrastructure Standards Security Assessment (ISSA) project concluded that migrating existing NTCIP standards from SNMPv1 to SNMP Version 3 (v3) was a technically sound approach for addressing known vulnerabilities while also causing minimal disruption to existing standards and practices. This assessment was reviewed by the NTCIP BSP2 WG and the NTCIP Joint Committee where full consensus was reached on this conclusion. ITE has already started this work with efforts to update NTCIP 8002, 8003, 8004, and 8005 under existing maintenance funding. Other efforts are in the process of updating RFC 6353 and ISO 15784-2 to reflect the recommendations contained in NTCIP 9014.

The objective of this project is to continue the implementation of the recommendations contained within the NTCIP 9014 *NTCIP Infrastructure Standards Security Assessment (ISSA)* informational report by updating NTCIP profiles and device standards to be based on SNMPv3.

Further, and consistent with NTCIP 9014, ITE will produce an NTCIP Security Guide to aid state and local agencies in better understanding security concerns and the policies and procedures they might want to consider to ensure that their systems remain secure.

As with the development of the ISSA, the work under this project will be achieved with the cooperation of reconstituted NTCIP working groups (WGs) to ensure that there is consensus on the updates being made. NTCIP standards are developed according to a process adapted from the American National Standards Institute's (ANSI) process for developing standards and is approved by the ITE board of Direction. The process is based on fair and open participation of stakeholders from the public and private sector and practitioners with valuable support from USDOT.

The ISSI Project will result in updates to the following NTCIP documents:

a) NTCIP 1201
b) NTCIP 1203
c) NTCIP 1204
d) NTCIP 1209 (UCD)
e) NTCIP 1211 (UCD)
f) NTCIP 1218

g) NTCIP 2202
h) NTCIP 2301
i) NTCIP 8007
j) NTCIP Security Guide (new document)

2 SCOPE MANAGEMENT PLAN

2.1 Purpose of the Scope Management Plan

This Scope Management Plan establishes the scope management approach and processes as they pertain to scope description, verification and control measures. It establishes the processes which ensure that the ISSI Project includes all tasks required to complete the work identified while excluding all work that is unnecessary. Each of the major project tasks are listed below with the objectives, approach and deliverables identified. Tasks specifically identified in the TOPR are identified in brackets with the TOPR task number (i.e. [TOPR Task #]). Specific deliverables identified in the TOPR are identified in brackets with the TOPR deliverable number (i.e. [TOPR Deliverable #]).

2.2 Scope Statement

2.2.1 Project Scope Description

The subsections below describe the project activities listed in the Gantt Charts in Section 4.3 Project Schedule. The development of the deliverable documents is carried out using a cyclical draft-review-update process with a working group (WG) of qualified reviewers that is not a part of the development team.

2.2.1.1 Task 1 Project Management [TOPR Task 1]

The purpose of this task is for the Contractor to provide project management of all tasks described in this scope statement.

2.2.1.1.1 Task 1.1 Kick-off Meeting [TOPR Task 1.1]

Objectives

- Ensure that all parties have a clear understanding of the requirements of the project scope and the USDOT's expectations

Approach

- Contractor and selected subcontractors will attend a kick-off meeting within 30 working days of the effective date of the task order

Deliverables

- <None>

2.2.1.1.2 Task 1.2 Project Management Plan (PMP) [TOPR Task 1.2]

Objectives

- Develop a PMP that describes the overall approach to managing the ISSI Project and coordinating the work performed by all subcontractors.

Approach

- The PMP will be based on the Project Management Institute (PMI) "Guide to the Project Management Body of Knowledge" and modified as needed.
- The PMP will contain a Communications Plan that describes how ITE will coordinate their efforts with the USDOT, particularly the Contracting Officer's Representative (COR) and the Contracting Officer (CO).
- The PMP will include a Human Resources Management Plan that describes the overall structure of the development team, explain the roles and responsibilities of all key individuals, and describe the reporting relationships among the team. The Team Management Plan will contain team resumes, representing domain experts and a qualified technical editor.

- The PMP will include a Quality Management Plan to ensure that the documents submitted as deliverables will:
  - contain suitable material for the target audience;
  - be organized in presentation;
  - contain proper word use and English diction;
  - contain detailed illustrations;
  - be comprehensive, complete and correct; and
  - be edited for grammatical and editorial errors.

  The Quality Management Plan will describe how the team will coordinate its efforts with the USDOT, particularly the Task Order Contracting Officer's Representative (TOCOR) and the Contracting Officer (CO).
- The PMP includes a detailed project schedule in Microsoft Project format that contains all of the planned tasks and milestones for the project. The project schedule includes a work breakdown structure (WBS) comprised of at least three levels. An updated project schedule reflecting actual work performed for the previous month will be included with every monthly report (see Section 2.2.1.1.1). The monthly updated project schedule will reflect both the baselined task start and end dates and the actual start and end dates for each task. The project schedule will be provided in both Microsoft Project and Adobe Acrobat formats.
- The approved version of the PMP and baseline schedule will only be revised with pre-approval from the COR. Any modified version of the schedule will be delivered to the COR within 10 working days after receiving COR approval.
- ITE will put the revised version of each contract deliverable (including the project schedule) under document configuration control, with version numbers assigned to each document. All documents submitted to, and approved by, USDOT will be assigned a unique version number.
- Authorization to proceed (ATP) to Task 2 is pursuant to USDOT's approval of the revised PMP and schedule.

Deliverables
- Project Management Plan (PMP) and Schedule.
- Updated Project Management Plan (PMP) and Schedule.

2.2.1.1.3 Task 1.3 Monthly Progress Reporting

Objectives
- Establish and execute the process of monthly project reviews.

Approach
- Prepare and deliver monthly progress reports for the ISSI Project as defined in the PMP

Deliverables
- Monthly Progress Report
- Monthly Updated Schedule

2.2.1.2 Task 2: Update NTCIP Standards to Address NTCIP 9014 Recommendations [TOPR Task 2]

Objectives
- Update appropriate elements of NTCIP standards to respond to the security recommendations contained within NTCIP 9014.

Approach
- For each NTCIP document for which changes are needed, the project team will:

a) convene the respective working group within 90 calendar days after initiating work on the document

b) prepare a report indicating how the project team proposes to respond to each issue raised by NTCIP 9014 that is associated with the respective NTCIP document

c) work with the working group to reach consensus on the resolution of each issue

d) produce a red-lined version of a pre-user comment draft (pre-UCD) showing WG-approved edits made since the current published version[1]

2.2.1.2.1 Task 2.1: Update Foundational NTCIP Standards [TOPR Task 2.1]

Objectives

- Update the documents that NTCIP identified as "foundational".

Approach

- Update the following documents per the approach identified above:
  1. NTCIP 1201: *Global Object (GO) Definitions*, March 2011
  2. NTCIP 2202: *Internet (TCP/IP and UDP/IP) Transport Profile*, December 2001
  3. NTCIP 2301: *Simple Transportation Management Framework (STMF) Application Profile (AP) (AP-STMF)*, July 2010
  4. NTCIP 8007: *Testing and Conformity Assessment Documentation within NTCIP Standards Publications*, May 2008
- In addition, the team will convene a new WG or use an existing WG (as determined by the NTCIP Joint Committee) to develop an NTCIP Security Guide. This guide will provide guidance to transportation operations agencies on the activities that should be performed when planning for, deploying, and maintaining NTCIP compliant equipment in a secure manner.

Deliverables

- pre-UCD for NTCIP 1201
- pre-UCD for NTCIP 2202
- pre-UCD for NTCIP 2301
- pre-UCD for NTCIP 8007
- pre-UCD for NTCIP Security Guide

2.2.1.2.2 Task 2.2 Update NTCIP Device Standards [TOPR Task 2.2]

Objectives

- Update an initial set of the documents that NTCIP identified as "device standards".

Approach

- Develop a presentation that describes the update process. The target audience for this presentation will include the WG members who will be requested to review the updates as well as subject matter experts who might be used during this or future projects to update NTCIP standards to SNMPv3.
- Update the following documents per the approach identified above:
  1. NTCIP 1203: *Object Definitions for Dynamic Message Signs (DMS)*, September 2014
  2. NTCIP 1204: *Environmental Sensor Station (ESS) Interface Protocol*, October 2009
  3. NTCIP 1209: *Object Definitions for Transportation Sensor Systems (TSS)*, May 2014
  4. NTCIP 1211: *Object Definitions for Signal Control and Prioritization (SCP)*, September 2014

[1] Some changes may be indicated with notes rather than track changes to simplify the presentation of changes.

5. NTCIP 1218: *Object Definitions for Roadside Units (RSUs)*, September 2020

Deliverables

- ISSI Training Course
- pre-UCD for NTCIP 1203
- pre-UCD for NTCIP 1204
- pre-UCD for NTCIP 1209
- pre-UCD for NTCIP 1211
- pre-UCD for NTCIP 1218

2.2.1.2.3 Task 2.3 Update Lower Priority Standards [TOPR Task 2.3]

Objectives

- Update an initial set of the documents that NTCIP identified as “device standards”.

Approach

- Given the limited schedule and resources of this project, this task is deferred to a future effort

Deliverables

- <None>

2.2.1.2.4 Task 2.4 Deprecate Targeted NTCIP Standards [TOPR Task 2.4]

Objectives

- Withdraw standards that are no longer needed.

Approach

- Submit documents for formal withdrawal

Deliverables

- Withdrawal of NTCIP 1103
- Withdrawal of NTCIP 2101
- Withdrawal of NTCIP 2102
- Withdrawal of NTCIP 2201

2.2.1.3 Task 3 Publication of Updated Standards [TOPR Task 3]

Objectives

- Ballot and publish the updates to the standards identified in Task 2

Approach

- Follow the standards development process, which includes:

    1. At least one formal, public user comment period
    2. Disposition of all comments received within the WG
    3. Revisions to the document as necessary
    4. Final approval of the WG and NTCIP Joint Committee
    5. Formal balloting of the standard
    6. Final editing for publication

- As the envisioned edits are only addressing the security issues identified in NTCIP 9014, ITE does not expect to receive a large number of comments on any of the documents, except for the NTCIP Security Guide. Further, ITE expects all the comments, even on the security guide, to be easily addressed and that only one user comment period will be required.

- If these expectations and the proposed schedule holds true, most of the drafts developed within Task 2 will evolve into published updated standards during the 24-month project schedule with the following exceptions, which are expected to be at the indicated stage within the standards development process:
    - NTCIP 1209 is expected to be sent to user comment, but the user comment period is not expected to close until after the end of the project schedule.
    - NTCIP 1211 is expected to be sent to user comment and comments are expected to be resolved within the WG, but a final package will not be submitted for Joint Committee approval within the project schedule.

Deliverables

- Comment disposition report for NTCIP 1201
- Published version of NTCIP 1201
- Comment disposition report for NTCIP 2301
- Published version of NTCIP 2301
- Comment disposition report for NTCIP 2202
- Published version of NTCIP 2202
- Comment disposition report for NTCIP 8007
- Published version of NTCIP 8007
- Comment disposition report for NTCIP Security Guide
- Published version of NTCIP Security Guide
- Comment disposition report for NTCIP 1203
- Published version of NTCIP 1203
- Comment disposition report for NTCIP 1204
- Published version of NTCIP 1204
- Comment disposition report for NTCIP 1218
- Published version of NTCIP 1218
- UCD version of NTCIP 1209
- Comment disposition report for NTCIP 1211
- UCD version of NTCIP 1211 with resolved comments

2.2.1.4 Task 4 Outreach Material [TOPR Task 4]

Objectives

- Provide outreach materials as directed by the COR and TOCOR.

Approach

- ITE will develop the following outreach materials for completed standards:
    1. a one to two-page summary of the updated standard upon its publication,
    2. content for standards advisories, as directed, including:
        a) background related to the JPO Strategic Plan, the ITS Standards Strategic Plan, and the National ITS Architecture
        b) a description of the standard(s)
        c) a description of current deployment activities
        d) a listing of information related to the standard, such as websites, forums, fact sheets, and guides
        e) an indication of how the standard is intended to fit into the communication stack and other standards it might be paired with
        f) a listing of relevant acronyms and abbreviations

Deliverables

- One to two-page summary of NTCIP 1201v04
- One to two-page summary of NTCIP 2301v03
- One to two-page summary of NTCIP 2202v02
- One to two-page summary of NTCIP 8007v02
- One to two-page summary of NTCIP Security Guide v01
- One to two-page summary of NTCIP 1203v04
- One to two-page summary of NTCIP 1204v05
- One to two-page summary of NTCIP 1218v02
- Content for standards advisories as directed

2.2.2 Project Acceptance Criteria

Overall project acceptance is based on acceptance of the deliverables. Table 1 identifies the acceptance criteria and the accepting entity for each type of deliverable identified in the Section 2.2.1 Project Scope Description.

Table 1. Deliverable Acceptance Criteria and Accepting Entity

Deliverable Type	Acceptance Criteria	Acceptance By
Monthly Progress Reports	• Adherence to Section 4.1. • Meets quality control criteria as described in Section 5.3.	COR
Project Management Plan	• Adherence to Section 2.2.1.1.2. • Meets quality control criteria as described in Section 5.3.	USDOT
Comment Disposition Reports	• Criteria to be established by the Project Manager. • Meets quality control criteria as described in Section 5.3.	Project Team, USDOT, WG
Updated Standards	• Meets the objectives of the applicable project task (see Sections 2.2.1.2.1, 2.2.1.2.2, 2.2.1.3). • Meets quality control criteria as described in Section 5.3.	USDOT, WG
Outreach Materials	• Meets the objectives of Section 2.2.1.4. • Meets quality control criteria as described in Section 5.3.	USDOT

2.2.3 Project Exclusions

No exclusions have been identified.

2.2.4 Project Constraints

The following constraints have been established for the ISSI Project:

a) The project schedule may not extend beyond June 30, 2024.
b) No capital expenditures are available on the project.
c) Project travel must be preapproved by ITE.

2.2.5 Project Assumptions

The following assumptions are being made for the ISSI Project:

a) Additional web conferences will be used as needed to meet the project goals.

b) Time has been built in to many of the tasks due to the WG reviews and process.
c) Throughout the project, there may be various versions of the project schedule produced to take advantage of economies discovered or to account for anomalies unforeseen. As long as there is no change in scope, this PMP does not need to be modified.

2.3 Scope Verification

It is the responsibility of the Project Manager to verify interim project deliverables against the original scope as defined in the scope description (see Section 2.2.1). If there is a proposed change of scope (see Section 2.4), ITS JPO must formally accept the change prior to its incorporation into the project.

2.4 Scope Control

The Project Manager and the ProjectTeam will work together to control the scope of the project. The Project Team will leverage the project scope description (see Section 2.2.1) and the project schedule (see Section 4.3) as a statement of work for each task. The Project Team will ensure that they perform only the work described in the project scope description and generate the deliverables identified. The Project Manager will oversee the Project Team and the progression of the project to ensure that this scope control process is followed.

A change in scope is defined by a change in the overall budget, a change that extends the overall schedule, or a change in the work to be performed. Any member of the Project Management Team, the Project Team, the WG, or the ITS JPO may propose a change in scope. The proposed change is assessed by the Project Management Team. If the Project Management Team determine that a change in scope is warranted, formal approval from ITS JPO is required. This PMP is to be updated in the case of an approved change in scope.

3 COMMUNICATIONS PLAN

3.1 Purpose of the Communications Plan

This Communications Management Plan sets the communications framework for the administration of the ISSI Project. It identifies the key stakeholders, their roles, contact information, and how ITE will coordinate their efforts with the USDOT.

3.2 Stakeholder Points of Contact

ITS JPO Contracting Officer's Representative (COR)

Steve Sill, ITS Architecture & Standards Program Manager
ITS Joint Program Office
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590
Phone: 202-366-1603
Email: steve.sill@dot.gov

ITS JPO Task Order Contracting Officer's Representative (TOCOR)
Deborah M Curtis, Highway Research Engineer
Office of Safety and Operations Research and Development
United States Department of Transportation
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Washington, DC 20590
Phone: 202-493-3267
Email: deborah.curtis@dot.gov

Project Administrator/Coordinator

(Primary)
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Project Manager

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Program Manager, Transportation Systems
National Electrical Manufacturers Association (NEMA)
Work PH# 703-841-3226
Cell PH# 856-581-1391
Email: Brian.Doherty@nema.org

3.3 Project Team and Working Group Communications

Communications within the Project Team is on an ad hoc basis. Meetings of the WG will typically use web conferencing. Throughout the project, the WG will provide technical guidance and document reviews/validation. The Project Manager will work to ensure that WG meetings and web conferences are carried out according to the project needs.

3.4 Communications with ITS JPO

Communications between the project team and ITS JPO Contract Officer's Representative will formally take place once monthly and as deliverables occur as described in Section 4. It is anticipated that ITS JPO Contract Officer's Representative will have one or more technical staff participating in the WG meetings and web conferences where they will have extemporaneous and informal communication with the project team. Official communications between ITS JPO and the project team should be made through the Project Administrator/Coordinator and the COR (see Section 3.2).

4 DELIVERABLES AND MILESTONES

4.1 Monthly Progress Reports

ITE will provide monthly progress reports as follows:

a) Monthly Progress Reports – ITE will submit monthly progress reports no later than 30 days after the end of the month being reported on in the format specified by the COR. The progress report will describe work completed during the period, anticipated work, problems encountered and and/or anticipated as well as financial status including at least hours expended and other costs.
b) Project Schedule – ITE will submit, to the Government, an initial project schedule in Microsoft Project format within sixty (60) days after the effective date of the contract and updates showing

the percent complete of major deliverables every thirty (30) days thereafter. The schedule will include at a minimum, the major deliverables and milestones and adhere to the Microsoft Project template structure provided by the COR. Any changes to due dates after the initial project schedule baseline must be approved by the COR. ITE and the project team will support the identification of schedule dependencies related to the project and in accordance with the Government defined process.

c) Risk Register – ITE will document risks that might affect the project and the characteristics of the risk defined by the ITS JPO. Each risk will have a unique number, probability of occurrence and impact of occurrence rating. The risk log will be updated monthly and submitted with monthly progress reports.

The Project Manager will provide a monthly summary of the Project Team progress reports to the Project Administrator/Coordinator and an updated project schedule per the requirements for the Project Administrator/Coordinator's monthly reporting.

4.2 Deliverable Summary

Documents and software deliverables are to be sent electronically to the COR. Table 2 identifies the deliverables based on the project tasks.

Table 2. Deliverables by Project and Task

Proj Task	Deliverable Item	Delivery Date
1.2	Project Management Plan and Schedule	30 days after Authorization to Proceed (ATP)
1.2	Updated Project Management Plan and Schedule (as needed)	10 working days after receiving TOCOR approval
1.3	Monthly Progress Report and Schedule	30 days after the end of the month
2.1.1	Pre-UCD for NTCIP 1201	10/5/22
2.1.2	Pre-UCD for NTCIP 2202	10/12/22
2.1.3	Pre-UCD for NTCIP 2301	10/19/22
2.1.4	Pre-UCD for NTCIP 8007	10/26/22
2.1.5	Pre-UCD for NTCIP Security Guide	4/28/23
2.2.1	ISSI Training Course	11/14/22
2.2.2	Pre-UCD for NTCIP 1203	9/1/23
2.2.3	Pre-UCD for NTCIP 1204	10/13/23
2.2.4	Pre-UCD for NTCIP 1209	6/4/24
2.2.5	Pre-UCD for NTCIP 1211	4/10/24
2.2.6	Pre-UCD for NTCIP 1218	11/28/23
2.4.1	Withdrawal of NTCIP 1103	12/29/23
2.4.2	Withdrawal of NTCIP 2101	12/29/23
2.4.3	Withdrawal of NTCIP 2102	12/29/23
2.4.4	Withdrawal of NTCIP 2201	12/29/23
3.1.3	Comment disposition report for NTCIP 1201	12/16/22
3.1.10	Published version of NTCIP 1201	5/23/23
3.2.3	Comment disposition report for NTCIP 2202	1/24/23
3.2.10	Published version of NTCIP 2202	6/30/23
3.3.3	Comment disposition report for NTCIP 2301	1/31/23
3.3.10	Published version of NTCIP 2301	7/10/23

Proj Task	Deliverable Item	Delivery Date
3.4.3	Comment disposition report for NTCIP 8007	2/7/23
3.4.10	Published version of NTCIP 8007	7/17/23
3.5.3	Comment disposition report for NTCIP Security Guide	8/28/23
3.5.10	Published version of NTCIP Security Guide	2/19/24
3.6.3	Comment disposition report for NTCIP 1203	12/13/23
3.6.10	Published version of NTCIP 1203	5/23/24
3.7.3	Comment disposition report for NTCIP 1204	1/8/24
3.7.10	Published version of NTCIP 1204	5/31/24
3.10.3	Comment disposition report for NTCIP 1218	2/8/24
3.10.10	Published version of NTCIP 1218	6/27/24
3.9.3	Comment disposition report for NTCIP 1211	6/14/24
3.9.4	UCD version of NTCIP 1211 with resolved comments	6/21/24
4.1	One to two-page summary of NTCIP 1201v04	5/26/23
4.2	One to two-page summary of NTCIP 2301v03	7/6/23
4.3	One to two-page summary of NTCIP 2202v02	7/13/23
4.4	One to two-page summary of NTCIP 8007v02	7/20/23
4.5	One to two-page summary of NTCIP Security Guide v01	2/21/24
4.6	One to two-page summary of NTCIP 1203v04	5/28/24
4.7	One to two-page summary of NTCIP 1204v05	6/5/24
4.8	One to two-page summary of NTCIP 1218v02	6/28/24
	Content for standards advisories	as directed

4.3 Project Schedule

See ISSI v01 20220805.mpp and .pdf.

5 QUALITY MANAGEMENT PLAN

5.1 Purpose of the Quality Management Plan

This Quality Management Plan describes how quality will be managed throughout the life of the project. It includes processes and practices for ensuring quality planning, quality control and quality assurance. The plan ensures that the documents submitted as deliverables will:

- contain suitable material for the target audience;
- be organized in presentation;
- contain proper word use and English diction;
- contain detailed illustrations;
- be comprehensive, complete and correct; and
- be edited for grammatical and editorial errors.

The Quality Management Plan also describes how the team will accommodate quality inputs from the USDOT.

5.2 Quality Planning

To be successful, this PMP integrates a quality system into the project tasks, project schedule, project deliverables and project team. The ISSI project relies heavily on the SMEs to provide quality technical content and the WG to validate it. The WG are made up of subject matter experts including those from public agencies, manufacturers, software providers, and consulting firms. The WG include operational users which provide quality input from the user's perspective. The WG will also include one or more technical staff from ITS JPO. This allows the ITS JPO to have quality input early in the development of project deliverables. It is the responsibility of the WG Chairs and the Project Manager to ensure that the WG are made up of individuals appropriate for the quality aspects of the project. The Project Manager and Project Team have been selected for their experience with the NTCIP program, SNMP, and cybersecurity.

There are two types of "quality" addressed by this plan: "product quality" and "process quality." Product quality focuses on the project deliverables. Product quality will be insured by the WG as described in the previous paragraph. Process quality focuses on how the project deliverables will be produced, which is defined by ITE's standards development process. In addition, the SMEs and Project Manager provide overall quality review prior to the deliverable submission.

5.3 Quality Control

This section describes the process for monitoring and recording the results of executing the quality activities. It applies to the project's products as opposed to its processes.

The WG review of all project deliverables will be performed according to the project schedule. Additional reviews may be required to meet project objectives. Reviewers will verify that deliverable documents:

a) contain suitable material for the target audience;
b) are organized in presentation;
c) contain proper word use and English diction;
d) contain detailed illustrations;
e) are comprehensive, complete and technically correct; and
f) are edited for grammatical and editorial errors.

Project deliverables will be judged on a "suitable for purpose" basis. A WG may identify more items or make suggestions for changes to a document beyond those needed to meet the project goals. In some cases, gaining consensus on technical matters within a WG can be time consuming. If any undertaking by a WG potentially jeopardizes the project schedule, the Project Manager or Project Coordinator/Administrator may make decisions and recommendations to move the project forward.

5.4 Quality Assurance

A final Quality Checklist will be established and maintained by the Project Manager to assist in identifying specific items to be reviewed by the WG. A Project Issue Log will be established and maintained by the Project Manager to capture any issue regarding the project that should be addressed by the project management team including items that pertain to quality. Items for the Quality Checklist and Project Issue Log may be proposed by any member of the project team. It is up to the project management team to determine if these items should be included on these lists and if any action should be taken. The Project Management Team will discuss any quality items on a bi-weekly basis. A Comments Excel Consolidation will be established and maintained by the Project Manager to capture written inputs during the review process and their disposition.

6 HUMAN RESOURCES MANAGEMENT PLAN

6.1 Purpose of the Human Resources Management Plan

This Human Resources Management Plan is a tool which aides in the management of the human resources throughout the ISSI Project. Figure 1 describes the overall structure of the development team and reporting relationships. Section 6.2 explains the roles and responsibilities of all key individuals. Resumes of team members are provided in the Appendix C.

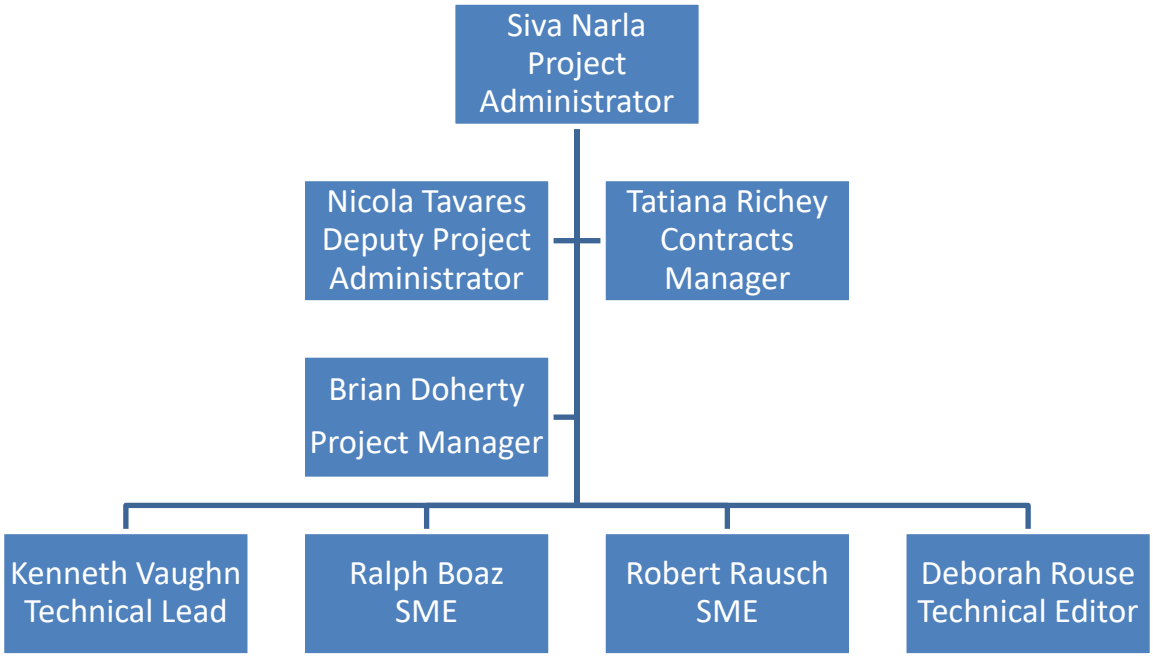

Figure 1: Team Organization

6.2 Roles, Responsibilities and Reporting

Table 3 identifies the members of the ISSI Project Team, their roles within the project, their project responsibilities and their reporting responsibilities.

Table 3. ISSA Project Team and Reporting

Name	Project Role	Responsibilities	Reporting
Narla, Siva ITE (202) 464-6219 snarla@ite.org	Project Administrator/ Coordinator	• Part of the Project Management Team. • Official administration and coordination of the project from a contracts perspective. • Monitors project expenditures in labor, travel expenses and capital expenses. • Official project communications channel to the COR. • Plays a quality management function on deliverables. • Provides leadership for the rest of the consulting team.	• Provides monthly progress reports to the COR per Section 4.1 including an updated Microsoft Project Schedule.
Tavares, Nicola ITE (202) 464-6208 ntavares@ite.org	Deputy Project Administrator/ Coordinator	• Part of the Project Management Team. • Official administration and coordination of the project from a contracts perspective. • Monitors project expenditures in labor, travel expenses and capital expenses. • Official project communications channel to the COR. • Organizes meetings and keeps records between ITE and USDOT, as well as between SDO's as needed.	• Provides monthly progress reports to the COR per Section 4.1 including an updated Microsoft Project Schedule.
Richey, Tatiana ITE (202) 785-0060 ntavares@ite.org	Contracts Manager	• Part of the Project Management Team. • Official administration and coordination of the project from a contracts perspective. • Prepares project policies and procedures to fulfil contract requirements.	• Provides monthly progress reports to the COR per Section 4.1 including an updated Microsoft Project Schedule.
Brian Doherty NEMA 703-841-3226 Brian.Doherty@nema.org	Project Manager	• Part of the Project Management Team. • Works with the ITE program manager to maintain project reporting required by the USDOT. • Maintains the PMP and MS Project schedule. • Serves as quality reviewer. • Actively manages project and resources to conform to schedule. • Coordinates with the ISSA Project WG.	• Provides monthly progress reports to the Project Administrator/Coordinator per Section 4.1 including an updated Microsoft Project Schedule.
Deborah Rouse ITE drouse@ite.org	Technical Editor	• Performs editorial review of each deliverable; for standards this is done during the User Comment Period and prior to a document being sent to the Joint Committee for elevation to a Recommended Standard	• Provides monthly progress reports to the Project Manager.

Name	Project Role	Responsibilities	Reporting
Vaughn, Kenneth Trevilon LLC 571-331-5670 kvaughn@trevilon.com	Subcontractor	• Part of the Project Team. • Subject matter expert within the NTCIP Standards Program. • Cyber Security • Investigator for the ISSI Project.	• Provides monthly progress reports to the Project Manager.
Boaz, Ralph Pillar Consulting 858-352-6281 rboaz@pillarinc.com	Subcontractor	• Part of the Project Team. • Subject matter expert within the NTCIP Standards Program. • Cyber Security • Investigator for the ISSI Project.	• Provides monthly progress reports to the Project Manager.
Rausch, Robert Transcore 678-427-7834 robert.rausch@transcore.com	Subcontractor	• Part of the Project Team. • Subject matter expert within the NTCIP Standards Program. • Cyber Security • Investigator for the ISSI Project.	• Provides monthly progress reports to the Project Manager.

7 RISK MANAGEMENT PLAN

This section identifies potential problems in the project before they occur, plans for their occurrence, and monitors the system development so that early actions can be taken. A Risk Log has been established as shown in Table 4. Using this log, risks can be identified, analyzed, prioritized, and mitigated.

Risk monitoring will be performed by the project manager on a bi-weekly basis. Each risk area addressed in this PMP will be reviewed along with any new risk area that is identified during the execution of the project. At any time during the project any member of the WG or interested parties may alert the management team of the occurrence of a risk item or identify new risk areas. New risk areas identified will be added to a Risk Log Table maintained by the project manager.

Table 4. Risk log

ID#	Project Work Stream	Status	Risk Category	Description	Impacts	Owner	Mitigation (update where applicable)	(P)	(I)	P*I	Priority
01	2	N	Schedule	Kick-off delays	Delays	CO	Quick approval of contracts	3	2	6	1
02	2.1.3	N	Schedule/ Technical/ Cost	Source document delays	Complicates NTCIP 2301	Vaughn	Ensure consensus is quickly reached within IETF OPSAWG and ISO TC 204	1	3	3	3
03	3	N	Schedule/ Cost	Excessive NTCIP WG comments	Additional work	Vaughn	Manage WG discussions and focus items on only security issues	2	2	4	2
04											

LEGEND:
ID# – Unique identifier for each identified risk item.
Project Work Stream – Specific contract/task order activity and/or deliverable to which the risk item applies.
Status – N: New
R: Retired
IDPMP: Identified in PMP or SEMP
Risk Category –
a) Schedule – Risks that cause schedule slippage of the project;
b) Cost – Risks that cause cost to exceed budget of the project; and
c) Technical – Risks affecting the completeness or correctness of the product.
Description – Concise description of the risk item.
Impacts – Impacts on the task or program if the identified risk occurs.
Owner – Individual or entity with authority to resolve risk.
Risk Response Plan – Description of the planned response should an identified risk occur. This column can be a reference to a specific plan document.
Date Assessed – Most recent date the risk and/or risk response plan was updated.
(P) – See Table 5 below.
(I) – See Table 5 below.
P*I – Risk probability (P) multiplied by impact of risk (I).
Priority - Identifies priority based on the P*I.

Table 5. Values Assigned for Probability of Risk and Impact of Risk

Probability of Occurrence (P)	Impact of Risk (I)
3 = High Certain or very likely to occur	**3 = High** Major impact on cost, schedule, or scope
2 = Medium 50/50 chance of occurring	**2 = Medium** Significant impact on cost, schedule or scope
1 = Low Possible, but unlikely to occur	**1 = Low** Insignificant impact on cost, schedule, or scope

Risk Item Details

01) Includes any delay that results in Task 2 starting after 7/29.

02) Includes any issue that jeopardizes the approval of one of the ISO or IETF source documents that we plan to reference in our standards. No such problems are envisioned to arise.

03) Includes any comments that require multiple WG meetings to resolve; these are not expected, but opening documents for review always runs the risk of commenters trying to expand the scope of the change, and such input must be considered while striving to move forward.

04) TBD

APPENDIX A – REFERENCES

USDOT ITS Joint Program Office, *Performance Work Statement for NTCIP Infrastructure Standards Security Implementation, Contract 693JJ321D000005, Task Order Proposal Request No. HOIT220103PR*. USDOT ITS Joint Program Office, 2022.

National Transportation Communications for ITS Protocol (NTCIP) Website
https://www.ntcip.org

APPENDIX B – GLOSSARY, ACRONYMS AND ABBREVIATIONS

Term	Definition
ATP	Authorization to Proceed
CO	Contracting Officer
COR	Contract Officer's Representative
ISO	International Organization for Standardization
ISSI	Infrastructure Standards Security Implementation
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
JPO	Joint Program Office
NEMA	National Electrical Manufacturers Association
NTCIP	National Transportation Communications for ITS Protocol
PMP	Project Management Plan
SDO	Standards Development Organization
SNMP	Simple Network Management Protocol
TOPR	Task Order Proposal Request
TBD	To Be Determined
US	United States
USDOT	United States Department of Transportation
WBS	Work Breakdown Structure
WG	Working Group

APPENDIX C – RESUMES

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