Next Generation Traffic Management Data Dictionary (ngTMDD)
System Requirements (SysReq) Walkthrough Plan

Sept 4, 2023

In support of: Task Order No. 693JJ322F00209N

For approval by: Deborah Curtis, Highway Research Engineer
Federal Highway Administration

For use by: Siva Narla, Senior Director, Transportation Technology
Institute of Transportation Engineers

ngTMDD Steering Committee Co-Chairs

Members of the Steering Committee for ngTMDD

Consultant Team for the ngTMDD Standard Project

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Filename	Version	Date	Comments
ngTMDD SysReqWalkthroughPlan-draftv01.docx	v01	09/04/2023	Initial Draft. Eisenhart

Contents

1   Purpose

This document is the draft SysReq Walkthrough Plan (WP) to review the Draft System Requirements Specification (SysReq) for the Next Generation TMDD project. The draft System Requirements are contained in the draft ngTMDD Volume 1 document.

The SysReq WP is submitted as a required deliverable for TOPR Task 2.2.2.1 Deliver SRS Walkthrough Plan.

A formal walkthrough is a proven method to validate a product, in this case, the system requirements for a proposed standard. This document is the Walkthrough Plan (WP) to be used to review the Draft SysReq document for the next Generation TMDD Project at a virtual meeting with the ngTMDD Steering Committee and additional stakeholders and interested parties. The ngTMDD SC is made up of subject matter experts including those from public agencies, manufacturers, software providers, and consulting firms. The working group members may not provide stakeholder representation in all subject areas, so additional stakeholders, as SMEs, will be invited as necessary.

The purpose of the walkthrough is to allow the ngTMDD SC, additional stakeholders, and interested parties to
   a) Find anomalies
   b) Improve the SysReq
   c) Consider alternatives
   d) Ensure conformance to standards and specifications
   e) Ensure completeness
   f) Gain a consensus on the requirements and their mapping to User Needs within SysReq.

The walkthrough will consist of a presentation of the SysReq to attendees who may provide comments that may be resolved during the walkthrough or in subsequent activities of the ngTMDD SC.

2   Walkthrough

2.1   Time and Location

The walkthrough is a web-enabled, virtual meeting of the ngTMDD SC members, invited stakeholders, SEs, SMEs, and association/government liaisons. The walkthrough will take place using MS Teams. Invitees will receive a link to the session.

The walkthrough will take place over three or four days. The walkthrough dates and times will be provided soon after delivery of the Draft ngTMDD SysReq, which was delivered to ITE on September 1, 2023. The FHWA and the steering committee will have 15 working days to review and provide comments on the Draft ngTMDD SysReq. Given the following:
   •   We anticipate a ngTMDD Walkthrough to take place during late September, and as follows.

   •   Day 1 October 16. 12:30-3:30 PM EDT
   •   Day 2 October 17. 12:30-3:30 PM EDT
   •   Day 3: November 01, 12:30-3:30 PM EDT

2.2   Participants

The participants include the NGTMDD SC members, additional stakeholders, and other interested parties. The table below lists the NGTMDD SC members and their role.

Table 1 ngTMDD Steering Committee Members (TBD)

First Name	Last Name	Organization	Role
Alan	Benson	Caltrans HQ Division of Traffic Operations	Co-chair
Shane	Zumpf	Trihydro Corporation	Co-chair
Anthony	Patire	UC Berkeley's PATH program	VotingAlternate
Brian	Peterson	University of California, Berkeley	Voting
Deepak	Ramnath	INRIX	Voting
Kristin	Virshbo	Castle Rock ITS	Voting
Mary	Crowe	Castle Rock ITS	VotingAlternate
Robert	Rausch	Transcore	Voting
Walter	Crear	Transcore	VotingAlternate
Zorica	Cvijovic	Trihydro Corporation	VotingAlternate
William	Sisk	Qlynx Tech	Voting
Joe	Gorman	Michigan Department of Transportation	Voting
Eliseo	Gutierrez	Michigan Department of Transportation	VotingAlternate
Fausto	Rodriguez	State of Connecticut	Voting
Jane	Witherel	State of Connecticut	VotingAlternate
Neil	Boudreau	Massachusetts Department of Transportation	Voting
Carrie	McInerney	Massachusetts Department of Transportation	VotingAlternate
Russell	Holt	Rhode Island Department of Transportation	Voting
Tony	Leingang	Washington State Department of Transportation	Voting
Kelvin	Daratha	Washington State Department of Transportation	VotingAlternate
Jay	Lin	Caltrans HQ Division of Traffic Operations	VotingAlternate

2.3 Walkthrough Materials

ngTMDD SysReq walkthrough materials include:

a) **Presentation:** The presentation, in powerpoint/pdf format, includes the agenda for the meeting, a summary of the project and project status, a review of the systems engineering process used for the proposed standard, a review of the draft SysReq document and a review of the walkthrough process. This will be provided to the invitees before the walkthrough.

b) **Draft SysReq Document (draft ngTMDD Volume1)**: Provided 15 working days prior to the SysReq walkthrough

c) **Walkthrough Workbook**: There will not be a separate walkthrough workbook- the draft document will serve as the workbook and will be marked up during the walkthrough.

3 Meeting Agenda

A draft SysReq Walkthrough agenda follows.

Table 2 Draft Meeting Agenda

	Item
1	Welcome/Call to Order (Co-Chairs)
2	Introductions (Narla)
3	Antitrust Guidance & Logistics (Narla)
4	Review Agenda (Co-Chairs)
5	Purpose (Co-Chairs) Purpose: Solicit input from attendees on the SysReq, Systems Engineering Process (SEP) and implementation perspective. Note: Prior to the SysReq walkthrough, participants will receive the draft ngTMDD Volume 1 (which includes the system requirements and the Needs to Requirements Traceability Matrix (NRTM)). A request for written input prior to the walkthrough will be included when the draft is distributed. During the SysReq walkthrough, the draft ngTMDD Volume1 document (updated to include all comments received prior to the walkthrough) will guide review and providing comments that will be used for updating the SysReq in real-time.
6	Review Process, Ground Rules, Roles/Responsibilities Review SysReq walkthrough process, ground rules, SEP, roles/responsibilities, as well as entry criteria/inputs, and exit criteria/outputs.
7	Discussion of SysReq development approach, with explanation of general choices made in the draft document.
8	Walkthrough of Draft ngTMDD Volume 1 document, using the updated draft document to guide discussion, participants review/evaluate each user need.
9	Next Steps Review the next steps, schedule, and deliverables
10	Adjourn

3.1 Meeting Rules

The following general meeting rules apply to the conduct of a SysReq walkthrough.

a) Show up on time and come prepared
   i. Be prompt in arriving to the meeting and in returning from breaks.
   ii. Be prepared to contribute to achieving the meeting goals.
   iii. Come to the meeting with a positive attitude.
b) Stay mentally and physically present
c) Contribute to meeting goals
   i. Participate 100% by sharing ideas, asking questions, and contributing to discussions.
   ii. Share your unique perspectives and experience, and speak honestly.
   iii. If you state a problem or disagree with a proposal, try to offer a solution.
d) Let everyone participate
   i. Be patient when listening to others speak and do not interrupt them.
   ii. Respect each other's' thinking and value everyone's contributions.
e) Listen with an open mind
   i. Stay open to new ways of doing things, and listen for the future to emerge.
   ii. You can respect another person's point of view without agreeing with them.
f) Think before speaking
   i. Seek first to understand, then to be understood.

      ii.   Avoid using idioms, three letter acronyms, and phrases that can be misunderstood.

      iii.   It's OK to disagree, respectfully and openly, and without being disagreeable.

g) Stay on point and on time
  i. Respect the groups' time and keep comments brief and to the point.
  ii. When a topic has been discussed fully, do not bring it back up.
  iii. Do not waste everyone's time by repeating what others have said.
  iv. To manage discussion, it might be appropriate on some issues to use a one minute per person per User Need rule. Following this 'round' of discussion on a particular User Need, the Co-Chair(s) effectively 'call the question' (a process adapted from Robert's Rules of Order Newly Revised for walkthrough purposes). Essentially, the Co-Chair(s) announce the end of discussion on a particular User Need, summarize the walkthrough input concerning that User Need (or refer to the language reflected in the walkthrough workbook (on-screen)), and move discussion to the next User Need in the walkthrough workbook.

h) Attack the problem, not the person
  i. Respectfully challenge the idea, not the person. Offer an alternative.
  ii. Honest and constructive discussions are necessary to get the best results.

i) Close decisions and follow up
  i. Make sure decisions are supported by the group, otherwise they won't be acted on.
  ii. Note pending issues and schedule follow up actions/meetings as needed.
  iii. Identify actions based on decisions made, and follow up actions assigned to you.

j) Record outcomes and share
  i. Record issues discussed, decisions made, and tasks assigned.

3.2 Walkthrough Process

The following procedure will be used:

1) Review any comments received prior to the walkthrough
   - Identify resolutions or defer the comments to the appropriate place in the walkthrough workbook. Where some minor changes are suggested they will be put into the document used at the walkthrough.
2) Perform a detailed review of draft ngTMDD Volume 1 document using the revised document.
   - Read each section of the requirements, capturing comments in real-time in the updated document to reflect inputs from walkthrough participants.
   - Review each requirement to ensure that it meets the criteria identified in the walkthrough presentation and, if revisions are necessary, that they are captured in the walkthrough document..
   - Collect and document new user needs and requirements proposed by participants as agreed upon by the ngTMDD SC.

3.3 Roles and Responsibilities

The roles and responsibilities for the participants during the SysReq walkthrough follow.

a) Walkthrough Leader (Consultant): Lead walkthrough/guide discussion (Bruce Eisenhart/ AJ Lahiri)
b) Recorder (Consultant): Record all revisions with basis of revisions (anomalies) (Doug Benison)

c) "Document Editor" (Consultant): Subject Matter Expert on standard details with overview of Standard (Bruce Eisenhart/ AJ Lahiri)

d) Review Team (All others): Identify anomalies, discuss, propose and agree to appropriate resolutions

3.4 Entry Inputs

The inputs to be used during the walkthrough follow.

a) Draft ngTMDD Volume 1 Document
b) Inputs (proposed revisions) on the draft SysReq document (if any)
c) Updated ngTMDD Volume 1 Document

3.5 Walkthrough Criteria

The criteria used to determine if a need is well-written follow.

a) Uniquely Identifiable: Each need must be uniquely identified that is each need shall be assigned a unique number and title.
b) Major Desired Capability (MDC): Each need shall express a major desired capability (corridor level) in the system, regardless of whether the capability exists in the current system or situation or is a gap.
c) Solution Free: Each need shall be solution free, thus giving designers flexibility and latitude to produce the best feasible solution.
d) Capture Rationale: Each need shall capture the rationale or intent as to why the capability is needed in the system.

3.6 Walkthrough Procedures

The procedures to be used during the walkthrough follow.

a) Review any comments received prior to the walkthrough
   i. Identify resolutions
b) Perform detailed review of draft ngTMDD Volume 1 document following the developed SysReq Walkthrough Workbook
   i. Use the walkthrough workbook to guide discussion and review during the walkthrough, specifically to ensure that each user need is revised against identified questions contained in the walkthrough workbook, and those inputs resulting in revision to the SysReq document are captured in the walkthrough workbook.
   ii. Read through each section of the draft SysReq document identified in the walkthrough workbook with the participants and answer the designated questions for each User Need.
   iii. Capture comments in 'real time' in the walkthrough workbook, and as needed/appropriate in the draft ngTMDD Volume 1 document to reflect inputs from walkthrough participants.

3.7 Exit Outputs

The outputs of the walkthrough follow.

a) A marked-up ngTMDD Volume 1 document, indicating which requirements were reviewed, the result of the evaluation of that requirements, and input provided during the walkthrough that resulted in a revision.
a) Following, the SysReq walkthrough, an updated ngTMDD Volume 1 document reflecting revisions resulting from walkthrough input.
b) Documented plan for completion of the updated ngTMDD Volume 1.

After the walkthrough, ITE will deliver a SysReq Walkthrough report which identifies inputs received during the SysReq walkthrough, using track changes in a copy of the ngTMDD Volume 1 walkthrough document. An updated draft ngTMDD Volume 1 document will follow shortly after the walkthrough.