



U.S. Department of Transportation

ITS4US

The logo for ITS4US features the text 'ITS4US' in a bold, dark grey sans-serif font. The number '4' is stylized as a blue highway with a white dashed center line, flanked by two red location pins. A thin orange horizontal line is positioned below the text.

IT'S TRANSPORTATION FOR ALL OF US

Task 2-L:
Standards Development



Elina Zlotchenko

ITS4US Program Manager

ITS Joint Program Office

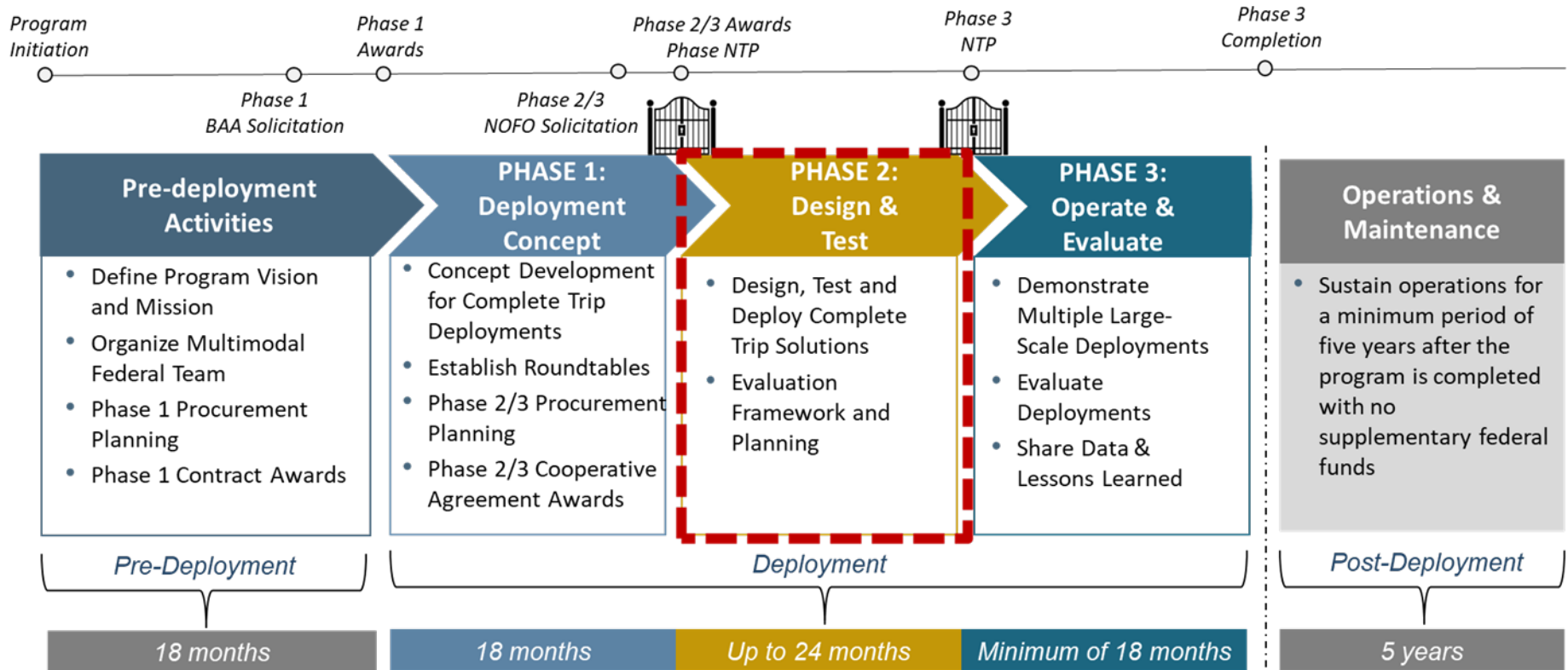
ITS4US Program Overview

- A USDOT Multimodal Deployment effort, led by ITS JPO and supported by OST, FHWA and FTA
- Supports multiple large-scale replicable deployments to address the challenges of planning and executing all segments of a complete trip

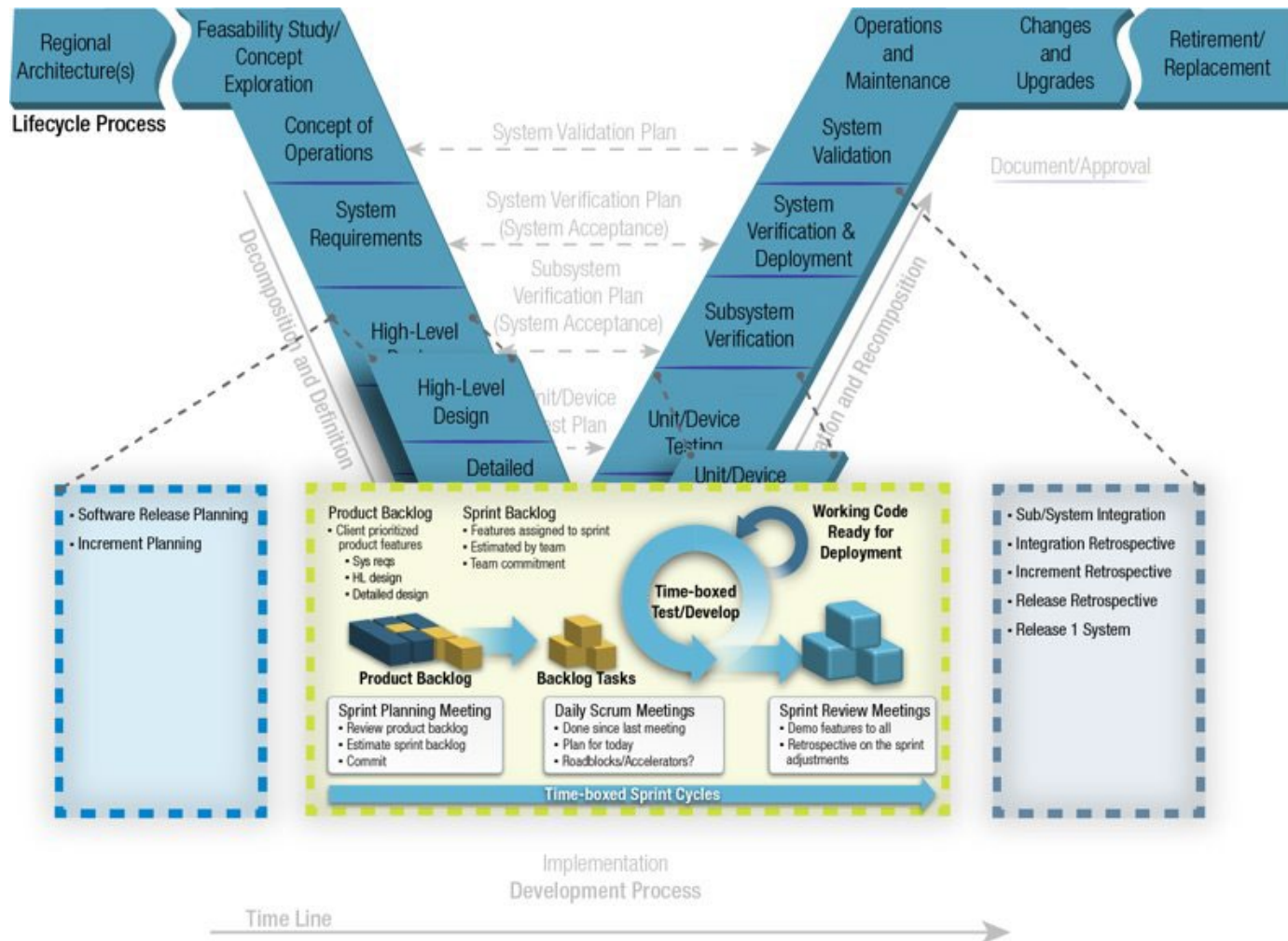


Vision: Innovative and integrated complete trip deployments to support seamless travel for all users across all modes, regardless of location, income, or disability

Deployment Phases



Systems Engineering “Vee” Diagram



(Source: FHWA 2007 and modified by Noblis 2017)

Task 2-L: Standards Development



Deborah Curtis

Highway Research Engineer
FHWA-Office of Operations,
Research, and Development

ITS4US Systems Engineering
Subject Matter Expert

2-L Participation in Standards Development

Task 2-L extends throughout all of Phase 2. The key activity of this task is to provide real world deployment insights and lessons learned to relevant ITS standards developments. ITS Standards are an important piece in deploying nationwide, interoperable ITS deployments. Lessons learned from utilizing ITS Standards and identifying gaps in standards helps the ITS Standards program identify and fund new or updated ITS standards development efforts to help future deployment agencies.

Deliverables

1. Standards Development Organization (SDO)-specific Technical Memoranda (as defined in the Standards Plan within the SAD)
2. Participation in SDO working group or committee meetings/activities (as required)

2-L Deliverables

- **SDO-specific Technical Memoranda (as defined in the Standards Plan within the SAD)**
 - These Technical Memoranda can serve a number of different functions including:
 - Identifying gaps in standards and proposing potential user needs, requirements and design elements that serve as a starting point for standards development
 - Identifying ambiguities or other issues within existing standards and how those ambiguities or issues were addressed within the project. These inputs can be utilized by SDOs to update existing standards to clarify guidance or provide additional insight into deployment of standard-based solutions.
- **Participation in SDO working group or committee meetings/activities (as required)**
 - In conjunction with the Technical Memoranda, ITS4US sites may be asked to participate or present their findings and solutions to relevant SDO working groups, technical committees or task forces
 - Participation is not expected to be onerous or time consuming. Most SDO working groups only meet once per month

2-L Key Activities

- **Identifying your Standards Plan as part of SAD development**
 - The Standards Plan should identify the known standards the project plans to use
 - Identify any known gaps or potential implementation issues
 - Identify any planned engagement in standards development activities
- **Identifying gaps or issues implementing standards**
 - When developing your system design, you may identify gaps in standards that your project may have to develop your own design or interface for
 - When building your system, you may identify ambiguities or other issues in standards that may it more difficult to implement your system in an interoperable way
 - Documenting your solutions in detail to both situations can inform Technical Memoranda and provide important inputs to SDO working groups and technical committees to help improve standards material

2-L Challenges and Possible Strategies

- **Challenge Name**

- Issue: Significant Gaps in Standards Exist in Supporting the Design of Your System
- Possible Strategy: Document in detail the approach your project took to addressing these gaps. Develop a Technical Memoranda and/or participate in a relevant SDO activity to help better inform future standards development opportunities.

- **Challenge Name**

- Issue: Having Issues Engaging with SDOs
- Possible Strategy: Reach out to the USDOT Standards SME to help facilitate participation in the appropriate SDO working groups and technical committees.

2-L Lessons Learned

- Utilizing consensus-based standards generally leads to interoperable system designs
- Many new standards or standards with limited real-world deployments may contain ambiguities or other issues that make implementation more difficult
- Tech Roundtables and coordination among ITS4US projects can help resolve issues with implementing standards and help develop interoperable solutions
- Participation in SDO working groups and technical committees can provide insight into why certain standards were designed in a specific way

Relationship between SE Tasks

- Phase 2 SE activities build on the SE activities in Phase 1, adding more technical detail and refining user needs and requirements as appropriate
 - Traceability between the User Needs, Requirements, System Design and Testing is very important in Phase 2
- Phase 2 activities, whether traditional waterfall processes or Agile, become more connected and interrelated
 - Acquisition plans may be heavily reliant on system requirements to drive procurement efforts
 - Installation plans will be driven by requirements and system design
 - A logical test program that builds from lower-level Unit/Component tests, to integration testing to full system testing will be verifying system requirements, validating user needs and demonstrating that the system is ready to enter operations
- Phase 2 activities can move very quickly and the USDOT SE Team is always available to help with any questions and concerns that arise during any of the Phase 2 SE activities

References for SE Session

- Phase 1 [Connected vehicle pilot deployment program phase 1 : lessons learned : final report. \(bts.gov\)](#)
- Phase 2 [Connected Vehicle Pilot Deployment Program: Driving Towards Deployment: Lessons Learned From the Design/Build/Test Phase \(bts.gov\)](#)
- [Architecture Reference for Cooperative and Intelligent Transportation](#)
- https://www.its.dot.gov/pilots/thea_obu.htm
- https://www.its.dot.gov/press/2018/nycdot_airsupport.htm
- https://www.its.dot.gov/pilots/disparate_systems.htm

ITS4US Contact Information

Elina Zlotchenko
Program Manager, ITS JPO
Elina.Zlotchenko@dot.gov



Visit the ITS4US Deployment Program Website:

<https://its.dot.gov/its4us/>



ITS4US Deployment Program Video

<https://youtu.be/pztl1lRyXAc>