



U.S. Department of Transportation

## COMPLETE TRIP

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# ITS4US

The logo for ITS4US, where the number '4' is stylized as a blue and white graphic with a dashed orange line and two red location pins, suggesting a route or path.

### CALACT

Phase 1 Integrated Complete Trip  
Deployment Plan Webinar

May 3, 2022

# Agenda

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## ■ Purpose of this Webinar

- To share the submitted Integrated Complete Trip Deployment Plan from CALACT with the stakeholders of the project and ITS4US community.

## ■ Webinar Content

- Complete Trip – ITS4US Deployment Program Overview, Robert Sheehan
- Site Orientation & Deployment Concept Overview, Thomas Craig
- Integrated Complete Trip Deployment Plan, Elle Ogden
- Timeline and Cost Overview, Taylor Bailey
- Stakeholder Q&A
- How to Stay Connected, Robert Sheehan

## ■ Webinar Protocol

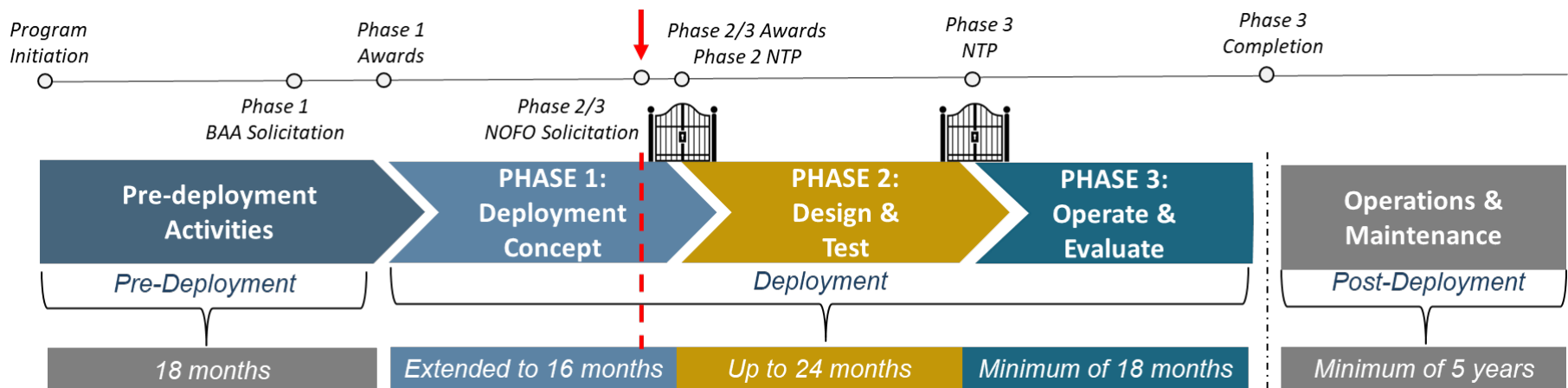
- You are welcome to ask questions via chatbox
- The webinar recording and the presentation material will be posted on the ITS4US website

# Program Overview

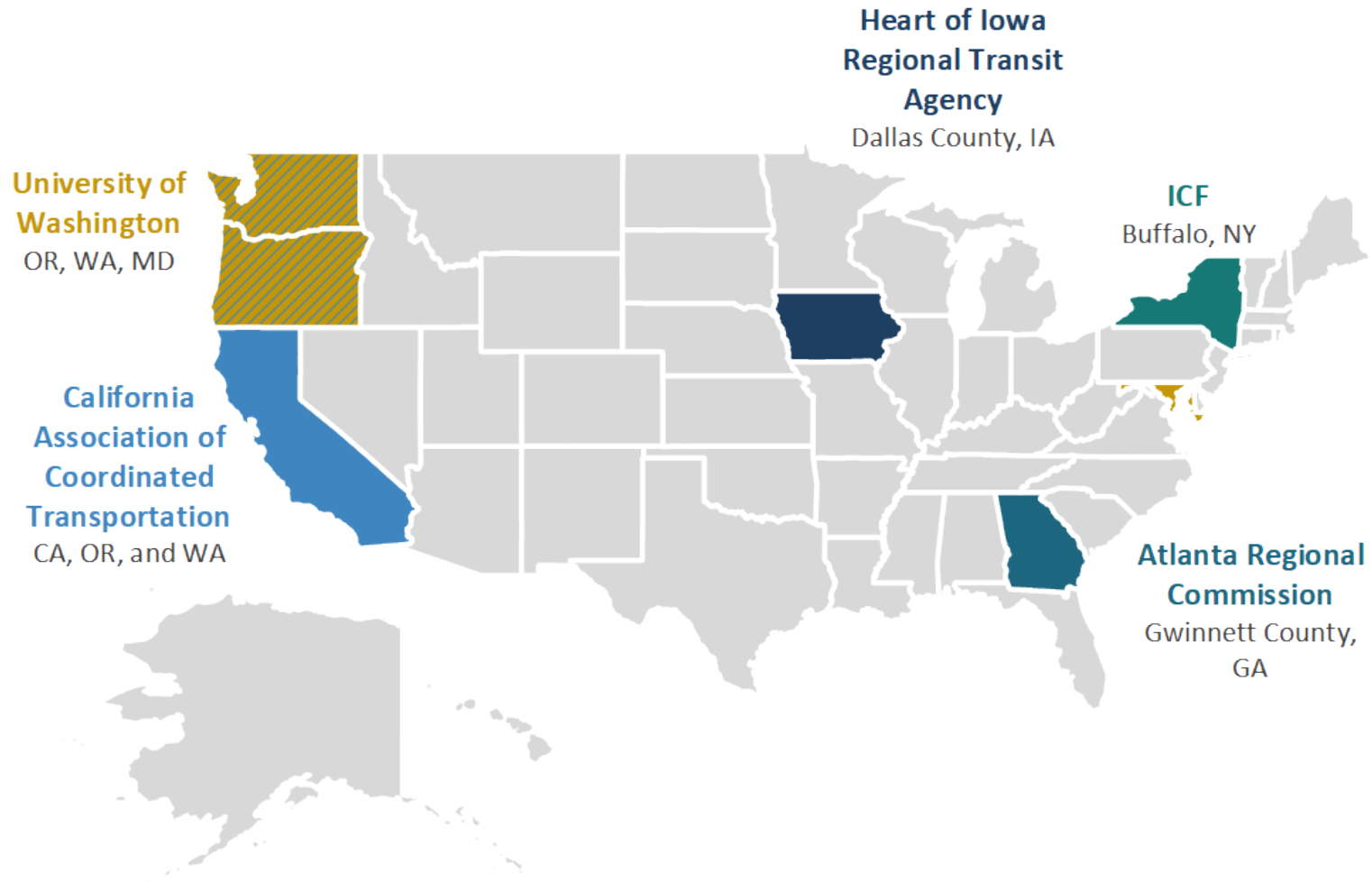
Robert Sheehan, Site COR

# ITS4US Deployment 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



# Complete Trip Phase 1 Awardees



# Summary of Phase 1 Deployment Concept

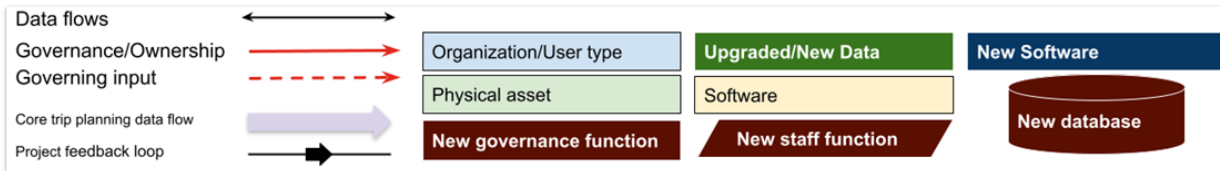
Thomas Craig, Project Manager

# Project Overview

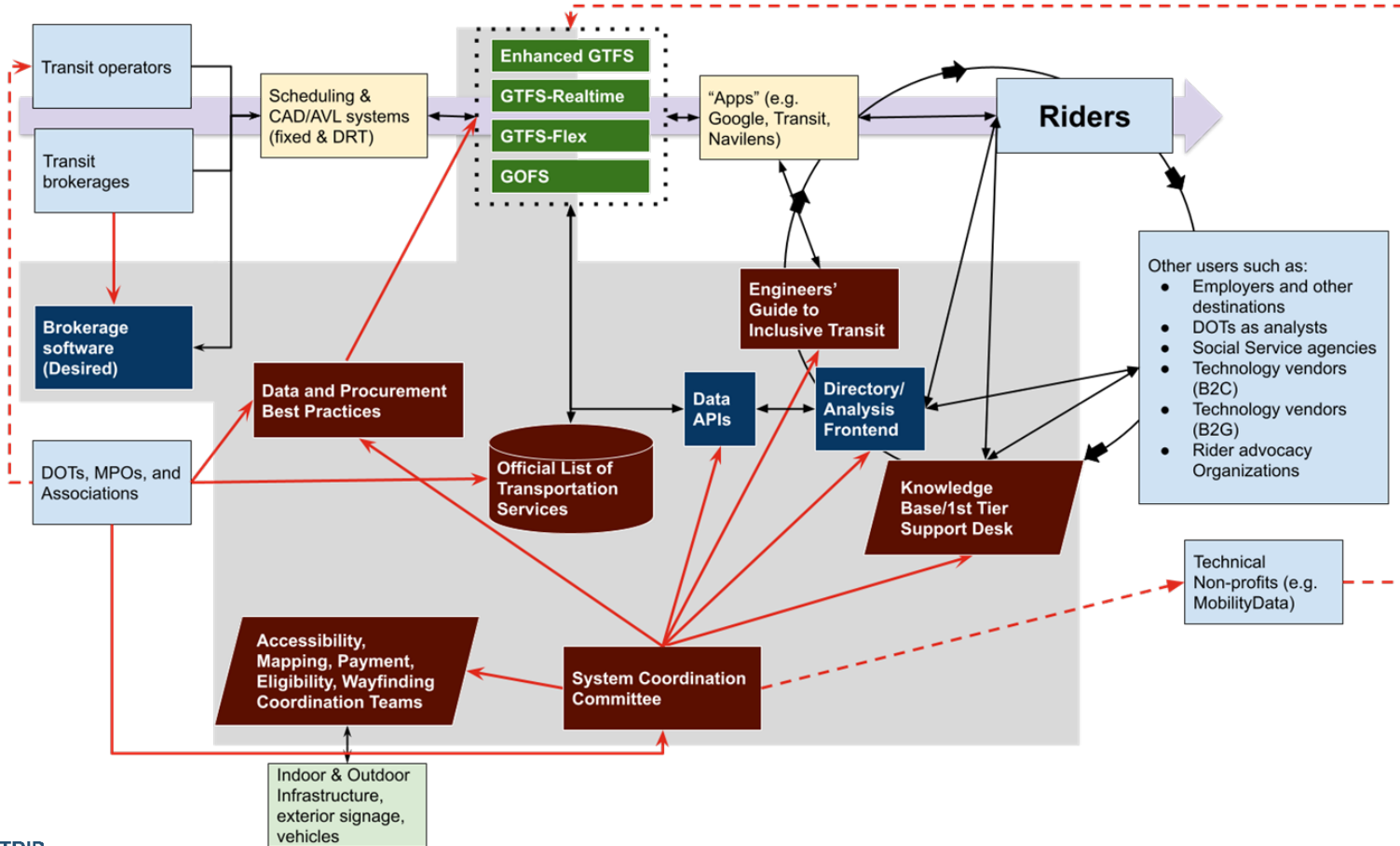
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- This project is a community-driven effort to improve public transit trip planning technology for underserved riders and agencies
- Broad stakeholder engagement led to development of system and management approach, and a community governance model will steward project activities going forward
- The system deployed provides software and information resources that meet shared needs of Operators, Vendors, DOTs, and other stakeholders.
- Most project components are deployed across the three-state region, but focus in 3 local deployment area will help highlight benefits of the system

# The Proposed System

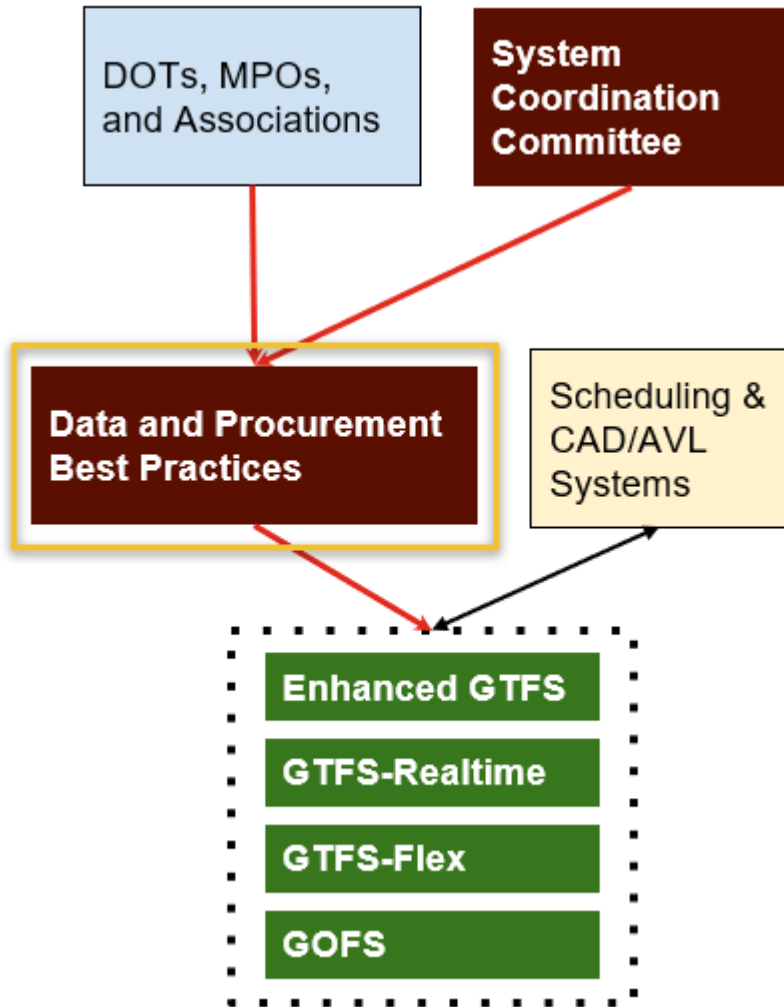


**The System**  
Denotes data flows and components directly engaged by the project.





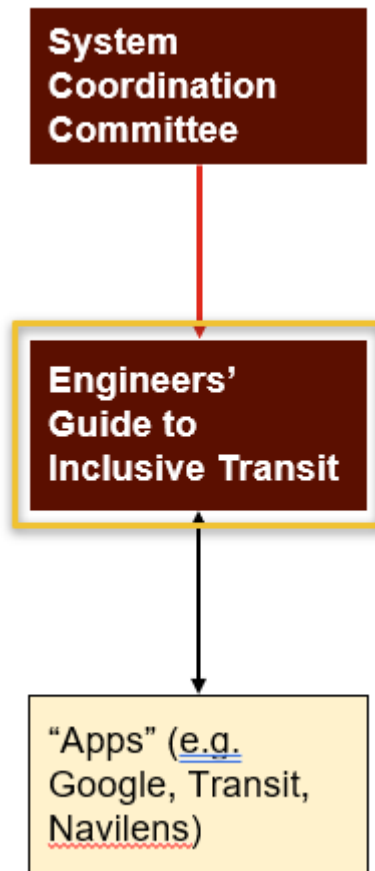
# Data and Procurement Best Practices



- Define quality GTFS data
- For insertion into contracts and procurements
- On a public website with open-source code and versioning
- Supported within each state by DOTs
- Developed in coordination with related resources

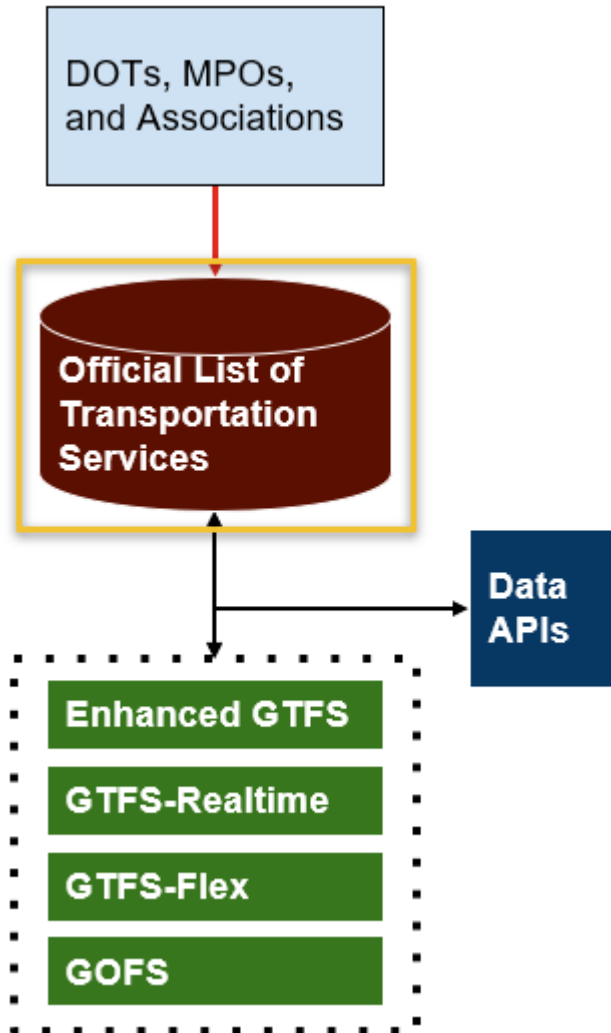
# Engineers' Guide to Inclusive Transit

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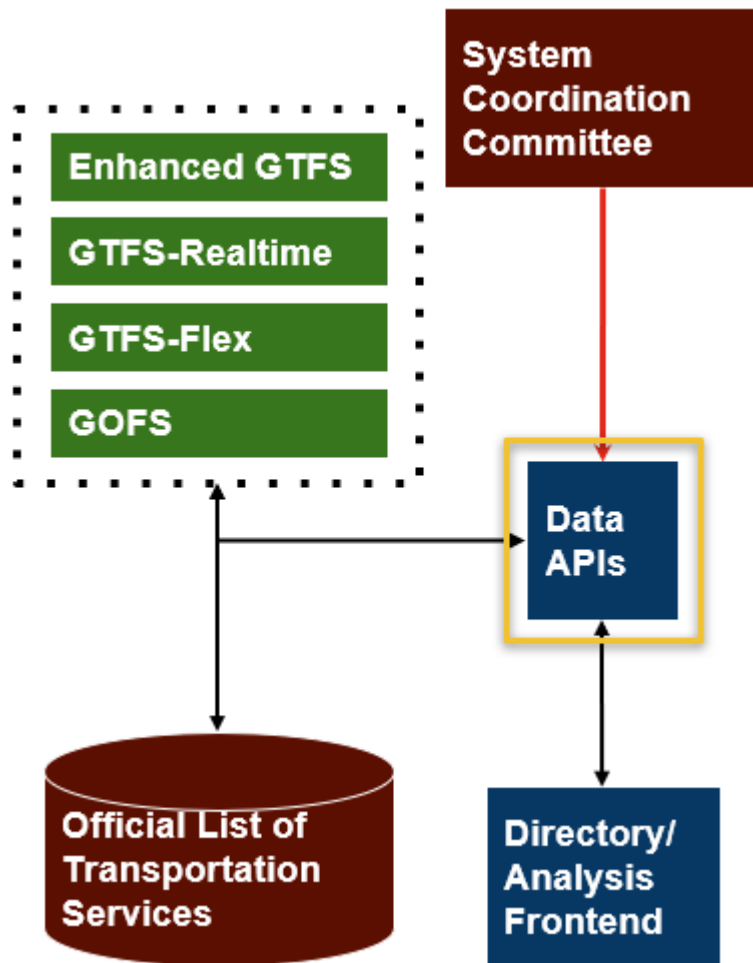
- Guidance on how to provide transit interfaces
- Directed at small developers and large established vendors but may provide different resources to each
- Focused on accessibility and information that is important to underserved groups
- On a public website

# Official List of Transportation Services



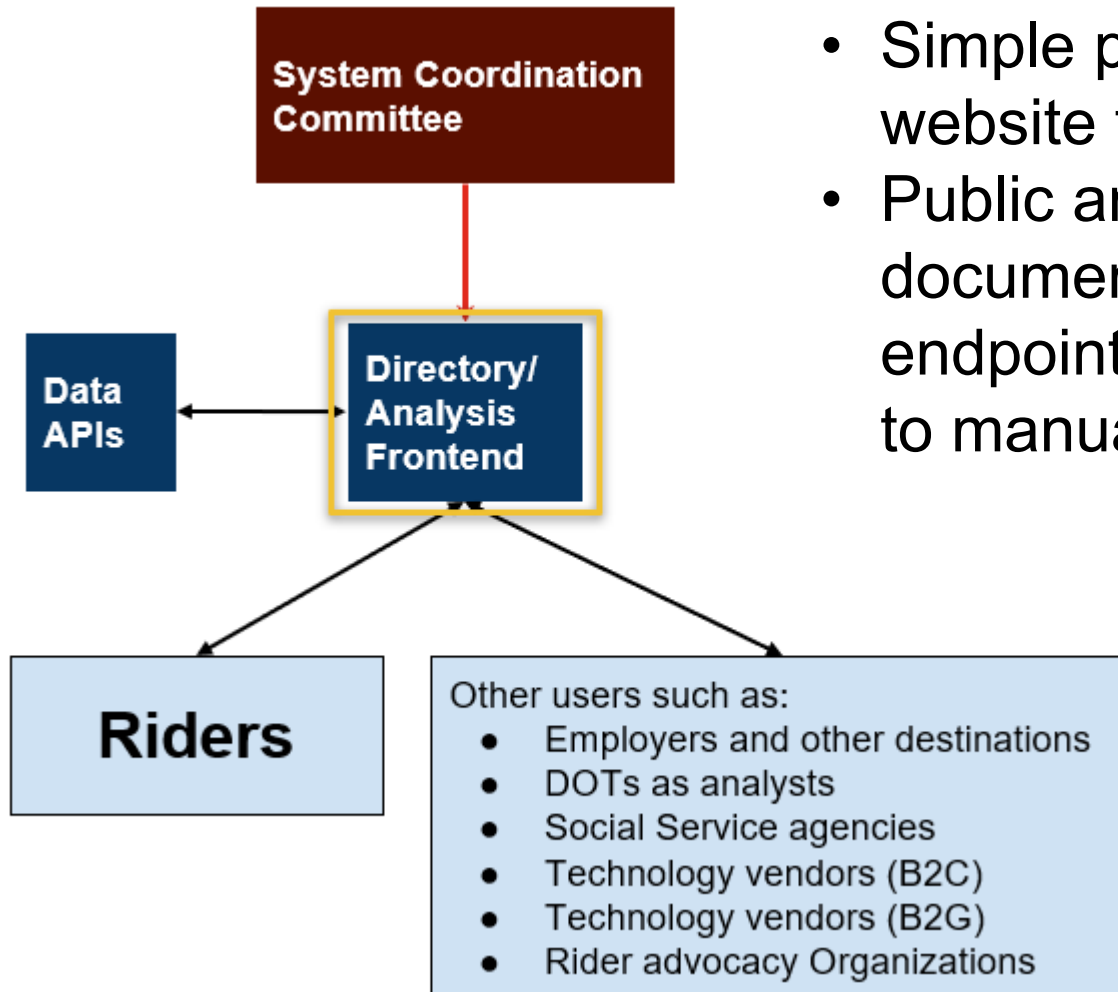
- Data product produced by each state DOT
- Identifies transportation services and the data feeds that describe those services
- Open source and published at a retrievable location
- Standardized, simple format that may include other metadata regarding services

# Data APIs



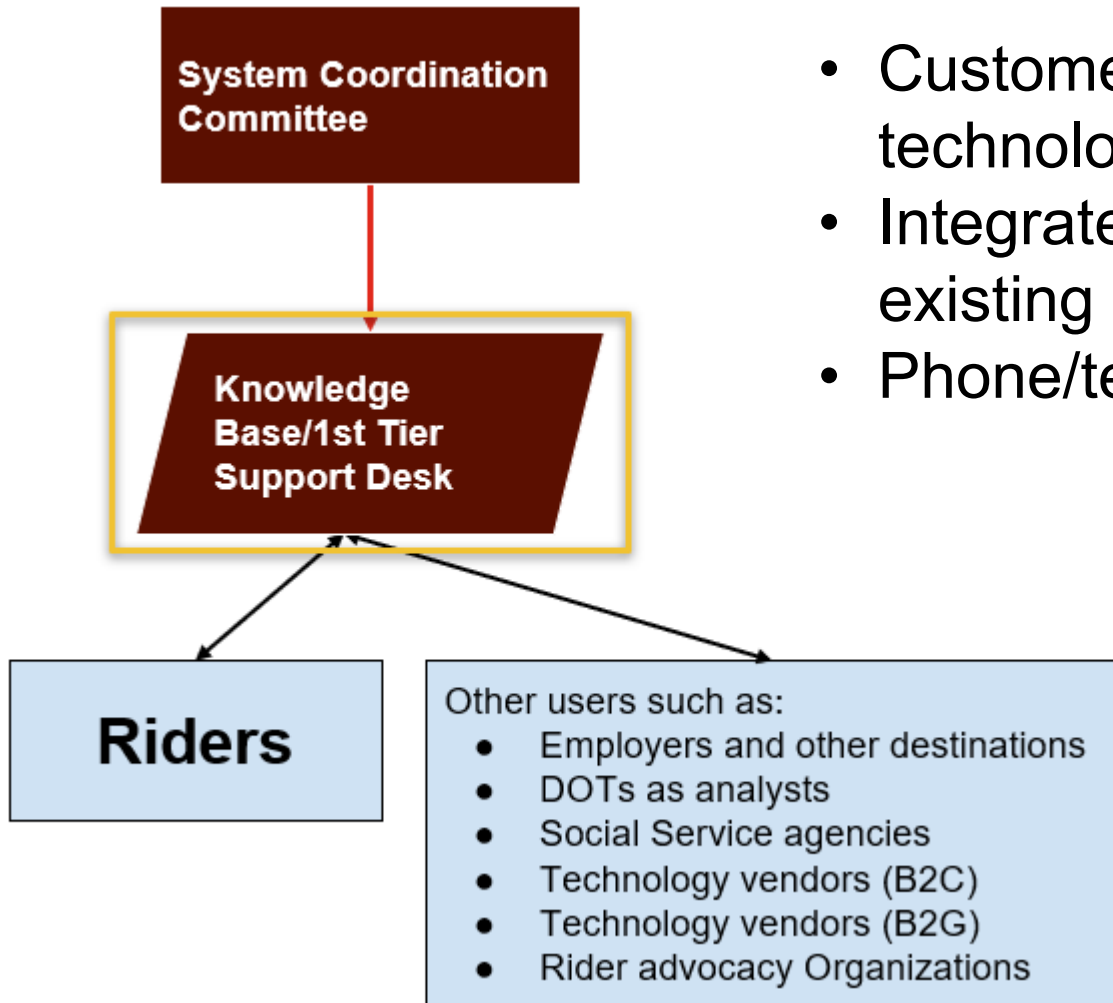
- A database of all GTFS data sets identified within the Official List
- A software application that deploys API endpoints where data elements can be retrieved by other applications
- Contains basic GTFS elements and useful abstractions

# Directory/Analysis Frontend



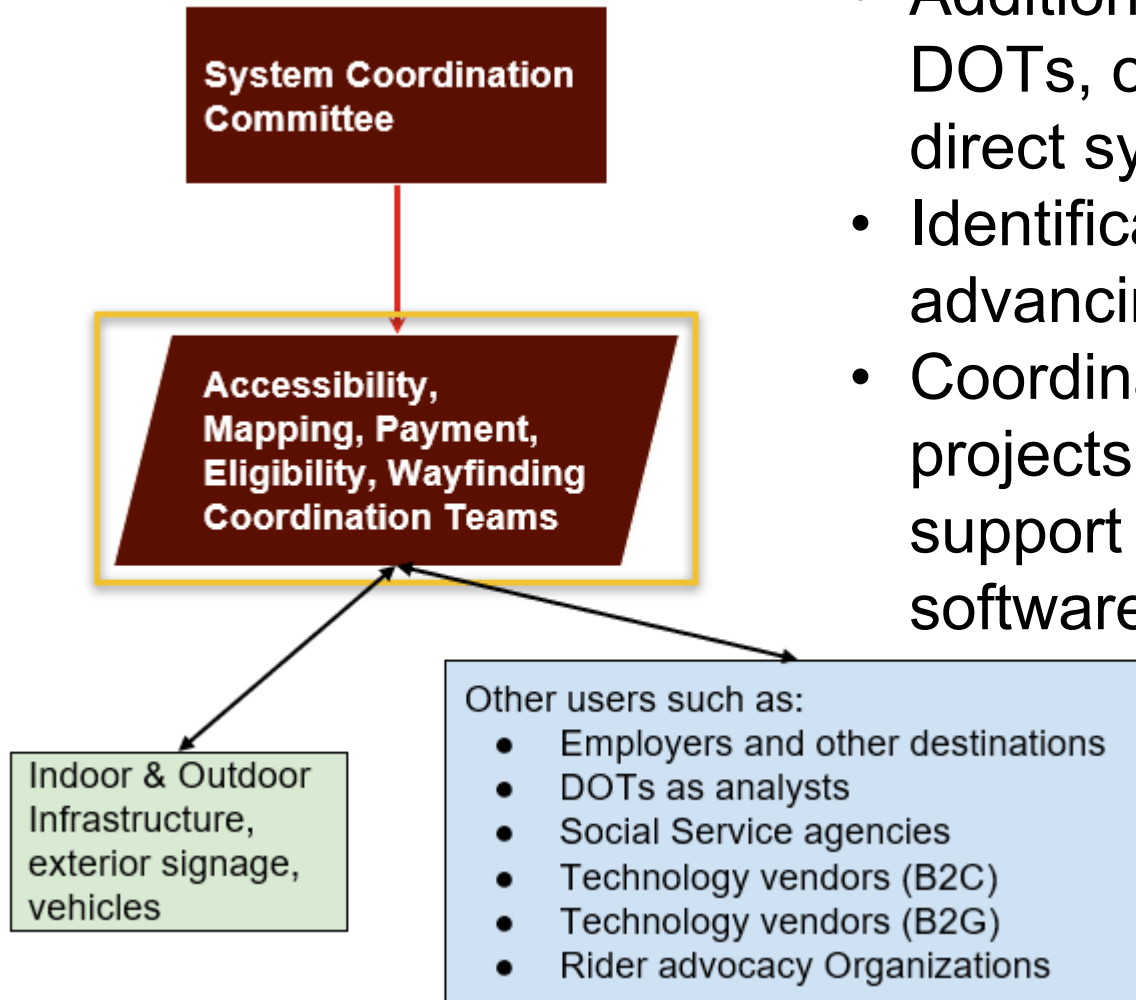
- Simple public frontend website for the APIs
- Public and easily accessible documentation of what API endpoints exist, and ability to manually download data

# Knowledge Base/1<sup>st</sup> Tier Support Desk



- Customer service technology enhancements
- Integrated with a website or existing agency services
- Phone/text access to info

# Technology Coordination Teams



- Additional technical support for DOTs, operators, and other direct system users
- Identification of other projects advancing standardization
- Coordination with other projects and research to support Best Practices and software development

# At scale deployment and long-term operations

- All system components will continue to be maintained long-term
  - Governance (System Coordination Committee)
  - Software (Data APIs, Frontend, Support Desk)
  - Online Resources (Data Best Practices and Engineers' Guide to Inclusive Transit)
  - Support for Agencies (Technology Teams)
- Amount of labor applied is scalable, coordinated with other efforts
- Governance structure will be determined in Phase 3
  - System management could be vested in one organization or dispersed



# Summary of Phase 2 and 3 Technical Approach

Elle Ogden, Deployments Manager

# Deployment Site 1 – Region Wide

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- Few specific “partnerships” and more open “resources”
  - Data Best Practices
  - Data APIs and Directory/Analysis Frontend
  - Engineers’ Guide to Inclusive Transit
  - Technology Coordination Teams
- Information regarding relationships will be maintained through internal records, but no official partnership documentation in most cases
- Outreach activities including:
  - Project website
  - Webinars
  - Conferences and Trade Shows

## Deployment Site 2 – Puget Sound, Washington

- Hopelink is the primary agency partner
  - Hopelink is deeply engaged in innovative technology work that aligns with our project
  - They are a community transit organization that works with NEMT and other transportation providers
- One-Call-One-Click Website built on Data APIs
- Focus on GTFS-Eligibilities, GTFS-Translations
- Outreach activities primarily led by Hopelink and focused on their application, rather than the ITS4US component
- Coordination with other regional fixed-route partners for improved data (including UW ITS4US project)

# Deployment Site 3 – Southern Oregon

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- Partnerships with 3 – 5 agencies
- Partnerships with RVTD and JCT are very strong. Other agencies are playing less critical roles
- DRT real-time, multimodal booking in a third-party app via an open data specification
- Support Desk
  - Will help riders identify the right agency or agencies for their trip
  - Starting within just this deployment site. Will not be fully defined until end of year 1 in collaboration with agencies
- Outreach will include Support Desk, and a focus on promoting multimodal booking

# Deployment Site 4 – San Bernardino, California

- Omnitrans is the primary deployment site agency
- Additional involvement of VVTA, SBCTA (owner of transfer facility), and potentially Metrolink and City of Beaumont
- Focus on GTFS-Pathways and Mapping data
- Installation of digital signage infrastructure for app-aided wayfinding
- Could also be an additional site for DRT real-time booking deployment
- Outreach will involve providing extensive resources to Omnitrans to support marketing of system including agency and rider training.

# Outreach Efforts

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- Phase 1 Outreach plan identifies possible outreach approaches but not precise timelines or activities.
  - Outreach will be highly dependent on exact future partner needs
  - Support will be offered to supplement partner activities during deployment
- There will be at least one on-site demonstration at each deployment site with a presentation and training on the sponsored technologies and public participation
- Conferences and webinars will be critical to raising awareness with operators and vendors
- Considerable outreach will also consist of direct communications to key stakeholders

# Systems Engineering (SE) Approach

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- Iterative approach to all system components
- SE approach applied “in miniature” to each system component
  - Brief architecture and design documentation for each component
  - 1–3-hour architecture and design walkthroughs
  - Validation by inspection and testing through user review and feedback
  - First deployments of some components in year 1
- SE documents for full system delivered in full late in year 2
- Final Operational Readiness Assessment with tests of operational scenarios within deployment sites

# Agile Development of Software Applications

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- Within SE process, Agile (generally Scrum) methodologies will be used for software development
  - Data APIs, Directory/Analysis Frontend, 1<sup>st</sup> Tier Support Desk
- Self-organized Agile team including Data and Software Manager, Senior Developer, and others as needed
- Default sprint length of 4 weeks, with documentation/ demonstration of sprint accomplishments
- First 2 or 3 sprints will be focused on Data APIs design
- Architecture, design, and budget for Directory/Analysis Frontend and 1st Tier Support Desk will not be determined until 8-12 months into Phase 2



# Key Advantages to Approach

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- Iterative approach will allow designs that are up-to-date for the time in which the component is focused on
  - Allows project to better coordinate with other projects and investments
- Supplements other projects that work on data standardization
- Builds investment of DOTs in providing further technical support and assistance
- If successful, offers very impressive results for a modest investment

# Performance Measures and Outcomes

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- Performance measurement strategy overview
  - Performance measures have been identified at a high level, but will be further specified within Phase 2
  - The goal of the performance measures is to test whether the system is
    - improving the breadth and quality of transit data in the region in a way that improves how trip planning apps describe services to riders and
    - results in increased rider satisfaction with their trip planning and wayfinding experiences.
  - The project accepts that not all success on these metrics will be attributable to this project alone.

# Performance Measures - Deployment Site 1

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## Performance Measures

- 1.1 The project will increase the number of transit agencies providing access to booking through two open-data-based rider applications from the baseline to 50 agencies across Deployment Site 1.
- 1.2 The project will increase the number of transit agencies publishing GTFS data including all project-sponsored extensions (appropriate to the agency) to an open directory of data from the baseline to 80% of all agencies across Deployment Site 1.
- 1.3 The project will increase the average quality of GTFS data published by transit agencies across Deployment Site 1.

## Data Needs

- These measures will require information derived from the Directory/Analysis Frontend.

# Performance Measures - Deployment Site 2 & 4

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## Performance Measures

- 2.1 and 4.1 The project will increase the satisfaction reported by riders across different demographic groups with regard to stop and station wayfinding by 0.3 on a 5-point Likert scale, without an increase in the variance of satisfaction, as reported within Deployment Sites 2 and 4.
- 2.2 and 4.2 The project will increase the satisfaction reported by riders, across different demographic groups with regard to trip planning by 0.3 on a 5-point Likert scale, without an increase in the variance of satisfaction, as reported within Deployment Sites 2 and 4.

## Data Needs

- These PM's will require information derived from the rider surveys to be developed in coordination with agencies and vendors participating within the project Deployment Sites.

# Performance Measures - Deployment Site 3

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## Performance Measures

- 3.1 The project will increase the percentage of trips booked by riders on online or mobile booking tools for demand responsive or paratransit services by 100%, or to a proportion of 10% of trips if no such rides are currently booked that way, within Deployment Site 3.
- 3.2 The project will increase the % of origins or destinations of demand-response trips that service key fixed route transfer locations by 10% from the baseline.

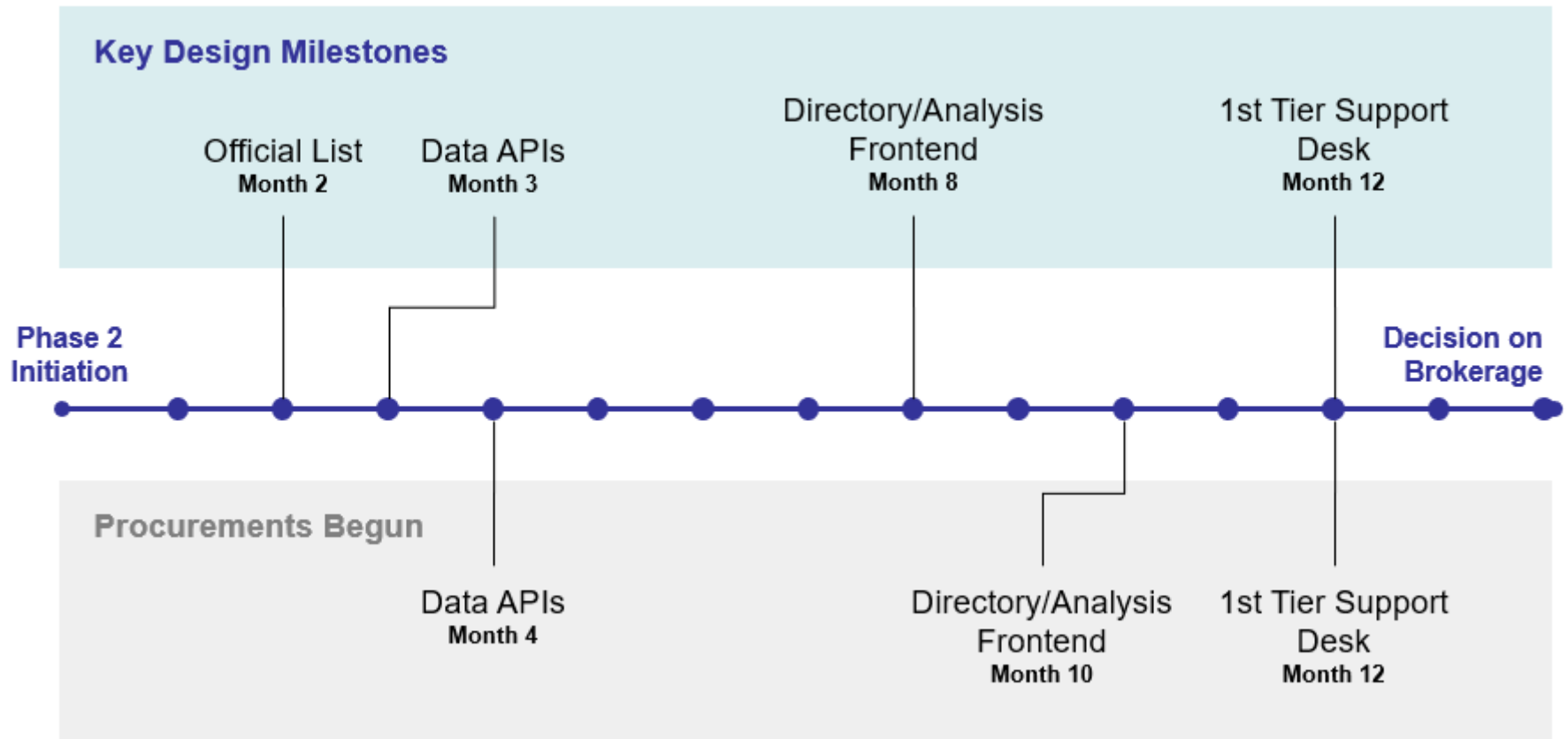
## Data Needs

- This performance measure will require information derived agency or vendor records within Deployment Site 3.

# Phase 2 and Phase 3 Deployment Schedule

Taylor Bailey, Reporting Lead

# Phase 2 Milestones



- Additional Deliverable timelines proposed in ICTDP

# Phase 3 Milestones

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- Deployment Thresholds:
  - 20% Deployment: 4 months before Phase 3 initiation
    - Data and Procurement Best Practices and Data APIs deployed with at least 10% of agencies in region meeting Best Practices.
  - 50% Deployment: At Phase 3 initiation
    - All system components deployed, and 20% of agencies in region meeting Best Practices.
  - 80% Deployment: 4 months after
    - All system components deployed, and 50% of agencies in region meeting Best Practices.
  - 100% Deployment: 11 months
    - All system components deployed, and 80% of agencies in region meeting Best Practices.
- Long-term governance structure determined: 12 months
- Additional Deliverable timelines proposed in ICTDP



# Phase 2 and Phase 3 Cost Estimate

Taylor Bailey, Reporting Lead

# Cost Estimate

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Phase	Local Match	Federal Match
2	\$657,500	\$2,415,900
3	\$557,500	\$1,645,100

Area of expenditure	Phase 2 % of funding	Phase 3 % of funding
Labor	90.0%	84.0%
Software Hosting	0.4%	1.0%
Software licenses	5.0%	9.1%
Printing	0.3%	0%
Outreach expenses (labor)^	3.0%	4.4%
Outreach expenses (travel)^	0.2%	0.3%
Outreach expenses (compensation for stakeholders)^	0.4%	0.3%
Outreach expenses (materials for events and marketing)^	0.6%	0.9%

# Cost Estimate

Partner	Match Amount	Cash or In Kind	Specific Roles Assigned
VVTA	\$15,000	In Kind	Prime Contract Management
CALACT	\$255,000	In Kind	Data and Software Manager Deployment Manager, and PMO Support
WSDOT	\$415,000	In Kind	Project Manager and other assigned staffing
ODOT	\$250,000	Cash	N/A
Caltrans	\$100,000	Cash	N/A
CCJPA/Cal-ITP (Partner of Caltrans)	\$60,000	In Kind	Report drafting
SBCTA	\$65,000	Cash	N/A
Navilens	\$55,000	In Kind	Discount off Digital Signage licensing

- Long-term hard operational costs low
- Additional long-term costs and benefits result from operational changes at DOTs, operators, and others

# Stakeholder Q&A

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- Please keep your phone muted
- Please use chat box to ask questions
- Questions will be answered in the order in which they were received

# Stay Connected

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**For more information please contact:**

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Visit the Complete Trip - ITS4US Deployment Program Website and FAQs:  
<https://its.dot.gov/its4us/>  
[https://www.its.dot.gov/its4us/its4us\\_faq.htm](https://www.its.dot.gov/its4us/its4us_faq.htm)