COMPLETE TRIP

ITS4US

CALACT
Phase 1 Integrated Complete Trip Deployment Plan Webinar

May 3, 2022
Agenda

- **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

- University of Washington
  - OR, WA, MD

- California Association of Coordinated Transportation
  - CA, OR, and WA

- Heart of Iowa Regional Transit Agency
  - Dallas County, IA

- ICF
  - Buffalo, NY

- Atlanta Regional Commission
  - Gwinnett County, GA
Summary of Phase 1 Deployment Concept

Thomas Craig, Project Manager
Project Overview

• 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.

Other users such as:
- Employers and other destinations
- DOTS as analysts
- Social Service agencies
- Technology vendors (B2C)
- Technology vendors (B2G)
- Rider advocacy Organizations

Technical Non-profits (e.g., MobilityData)

The System

Data and Procurement
Best Practices

Scheduling & CAD/AVL systems (fixed & DRT)

Enhanced GTFS
GTFS-Realtime
GTFS-Flex
GOFs

“Apps” (e.g., Google, Transit, Navilens)

Engineers’ Guide to Inclusive Transit

Directory/Analysis Frontend

Knowledge Base/1st Tier Support Desk

System Coordination Committee

Accessibility, Mapping, Payment, Eligibility, Wayfinding Coordination Teams

Data APIs

Official List of Transportation Services

Riders

Transit operators

Transit brokerages

Brokerage software (Desired)

DOTs, MPOs, and Associations

New governance function

New staff function

New database

U.S. Department of Transportation
ITS Joint Program Office

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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

- 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

Other users such as:
- Employers and other destinations
- DOTs as analysts
- Social Service agencies
- Technology vendors (B2C)
- Technology vendors (B2G)
- Rider advocacy Organizations
Knowledge Base/1st Tier Support Desk

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

Other users such as:
- Employers and other destinations
- DOTs as analysts
- Social Service agencies
- Technology vendors (B2C)
- Technology vendors (B2G)
- Rider advocacy Organizations
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

Other users such as:
- Employers and other destinations
- DOTs as analysts
- Social Service agencies
- Technology vendors (B2C)
- Technology vendors (B2G)
- Rider advocacy Organizations
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
Deployment Site 1 – Region Wide

• 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

- 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

• 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

• 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

• Within SE process, Agile (generally Scrum) methodologies will be used for software development
  - Data APIs, Directory/Analysis Frontend, 1st 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

- 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

• 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

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

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

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

Key Design Milestones

- Official List
  - Month 2
- Data APIs
  - Month 3
- Directory/Analysis
  - Frontend
  - Month 8
- 1st Tier Support Desk
  - Month 12

Phase 2 Initiation

Decision on Brokerage

Procurements Begun

- Data APIs
  - Month 4
- Directory/Analysis
  - Frontend
  - Month 10
- 1st Tier Support Desk
  - Month 12

• Additional Deliverable timelines proposed in ICTDP
Phase 3 Milestones

• 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

<table>
<thead>
<tr>
<th>Phase</th>
<th>Local Match</th>
<th>Federal Match</th>
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<tbody>
<tr>
<td>2</td>
<td>$657,500</td>
<td>$2,415,900</td>
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<tr>
<td>3</td>
<td>$557,500</td>
<td>$1,645,100</td>
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### Area of expenditure

<table>
<thead>
<tr>
<th>Area of expenditure</th>
<th>Phase 2 % of funding</th>
<th>Phase 3 % of funding</th>
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</thead>
<tbody>
<tr>
<td>Labor</td>
<td>90.0%</td>
<td>84.0%</td>
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<tr>
<td>Software Hosting</td>
<td>0.4%</td>
<td>1.0%</td>
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<tr>
<td>Software licenses</td>
<td>5.0%</td>
<td>9.1%</td>
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<tr>
<td>Printing</td>
<td>0.3%</td>
<td>0%</td>
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<tr>
<td>Outreach expenses (labor)^</td>
<td>3.0%</td>
<td>4.4%</td>
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<tr>
<td>Outreach expenses (travel)^</td>
<td>0.2%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Outreach expenses (compensation for stakeholders)^</td>
<td>0.4%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Outreach expenses (materials for events and marketing)^</td>
<td>0.6%</td>
<td>0.9%</td>
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</table>
## Cost Estimate

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

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

- 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

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