

ITS AMERICA ANNUAL CONFERENCE

PUTTING PEOPLE FIRST: ITS IS SMART COMMUNITIES AND CITIES

December 2021



U.S. Department of Transportation

Intelligent Transportation Systems
Joint Program Office



INTRODUCTION - PANELIST



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MOVING FORWARD: PUTTING PEOPLE FIRST

PUTTING PEOPLE FIRST

SMART CITIES AND COMMUNITIES

READ NOW ▶

PUTTING PEOPLE FIRST
Smart Cities and Communities

PUBLICATION DATE: 9 JUNE 2021
PUBLICATION NUMBER: FHWV-PD-21-004

U.S. Department of Transportation

PUTTING PEOPLE FIRST: SMART CITIES AND COMMUNITIES

The report covers the benefits, goals, challenges, and success factors associated with smart cities and communities and gives a glimpse of a path forward.



<https://its.dot.gov/smartcities/SmartCities.pdf>

WHAT ARE SMART CITIES AND COMMUNITIES (SC&Cs)?

SC&Cs use advanced information and communications technologies to find new ways to solve age-old problems like potholes and pollution, traffic and parking, public health and safety, and equity and public engagement.



SC&C BENEFITS



SC&C solutions support safer and healthier communities by improving traffic safety and emergency response, improving access to health care, supporting active modes of transportation, and identifying and addressing emissions hot spots.

HEALTH AND SAFETY

SC&C solutions are leading the way to a zero-emissions future by improving traffic flows, installing electric vehicle infrastructure, and converting public fleets and buses to electric vehicles.



CLIMATE CHANGE

OPEN GOVERNMENT

SC&C solutions provide new pathways and platforms for citizen engagement by creating open-data portals; breaking down silos; and enabling more responsive, integrated, data-driven municipal services.

EQUITY

SC&C solutions increase access to opportunity by making technologies more accessible and affordable; improving access to broadband and wireless services; connecting underserved communities to employment, amenities, and services by providing affordable, reliable transportation options; and bridging the digital divide.



MOBILITY

SC&C solutions support better mobility choices, improving the quality and reliability of transit services, enhancing pedestrian and bicycle infrastructure, and making better use of the space allocated to parking.

ECONOMIC GROWTH



SC&C solutions improve access to employment and, by reducing congestion and improving truck routing, parking, and curbside management, make it possible for goods to be delivered to homes and businesses safely, reliably, and efficiently.

WHAT IS DOT'S ROLE IN SUPPORTING SC&Cs?

- The U.S. DOT has awarded millions of dollars in grants to support community-driven, advanced-technology transportation projects to fight congestion, increase connectivity, and improve access to opportunity.
- As SC&C solutions evolve, the U.S. DOT is working to speed the transformation of research, prototypes, and pilots into market-ready technologies and, ultimately, widespread deployment by preparing the public sector to address challenges associated with their adoption.
- The U.S. DOT provides communication and education to facilitate awareness, understanding, acceptance, adoption, and deployment of ITS technologies.



SUCCESS FACTORS



Set clear goals



Break down silos



Use a structured engineering approach



Speak the same language



Foster a culture of innovation



Engage citizens



Explore with living labs



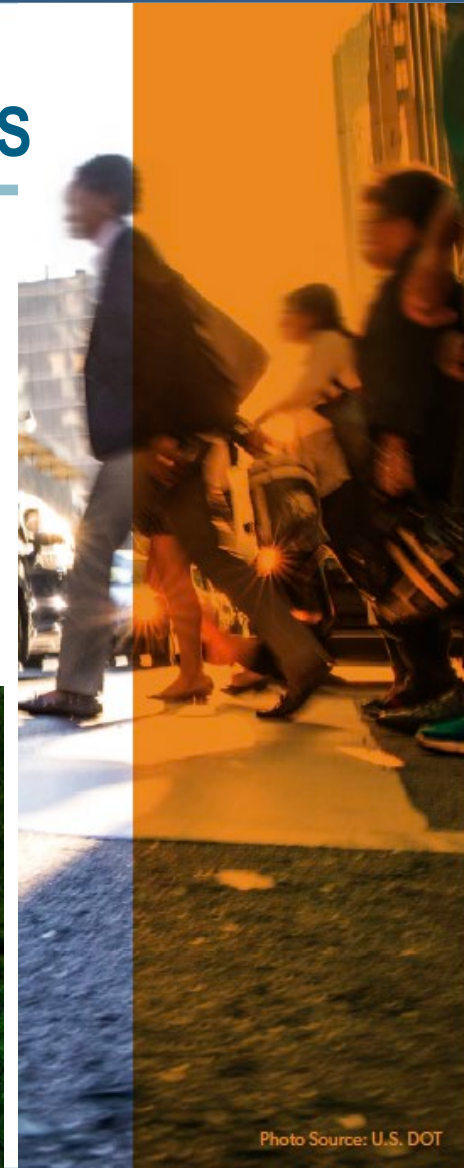
Partner strategically



Photo Source: U.S. DOT

How SC&Cs ARE TACKLING THEIR TRANSPORTATION CHALLENGES

- Safety
- Curb management
- Mobility justice
- Congestion
- Energy efficiency and pollution
- Responsive government services



U.S. DOT's INTELLIGENT TRANSPORTATION SYSTEMS JOINT PROGRAM OFFICE

The ITS JPO's role is to coordinate the U.S. DOT's ITS research and deployment portfolio.




Intelligent Transportation Systems Joint Program Office

U.S. Department of Transportation

- Federal Highway Administration
- Federal Motor Carrier Safety Administration
- Federal Railroad Administration
- Federal Transit Administration
- Maritime Administration
- National Highway Traffic Safety Administration
- Office of the Assistant Secretary for Research and Technology
- Pipeline and Hazardous Materials Safety Administration
- St. Lawrence Seaway Development Corporation

ITS JPO 30TH ANNIVERSARY

Celebrating the past
and looking toward the
future.....November
ITE Journal



PARTNERSHIPS 

ITS JPO 30th Anniversary:

Celebrating the Past and Looking Toward the Future

By EGAN SMITH, P.E., PTOE, PTP (M)

The U.S. Department of Transportation (USDOT) Intelligent Transportation Systems Joint Program Office (ITS JPO) celebrates 30 years of service this year! That is three decades of innovative research and development initiatives that have helped increase the safety of travelers both inside and outside the vehicle, advance roadside communications infrastructure, and expand mobility options for Americans across the nation. As ITS JPO ushers in a new era, this is the opportune time to reflect on past successes with an eye on emerging trends that have the potential to disrupt the transportation system of the future.



www.itsjpo.gov November 2021 41

The Beginning: The Rise of ITS JPO

In the 1990s, the nation was on the cusp of a technological revolution. Rapidly improving technologies—such as computing, sensing, and communications—were opening new opportunities for a safer and more efficient transportation system. However, their implementation presented significant and multifaceted challenges across the industry, such as ensuring widespread system adoption, their importance, successful deployment, and their role and importance of ITS in maintaining and growing the nation's transportation systems, the public commitment to institutionalize the federal ITS JPO program and the Intermodal Surface Transportation Act signed into law in 1991, it established the operational management and development of ITS through:

• that served as the bridge between basic research and development, and transfer activities that facilitated the deployment of ITS technologies.

• focused on developing and implementing ITS architectures along with a coordinated effort to encourage the widespread use of the ITS architecture provided the transportation and communication infrastructure as traveler information, electronic tolling, and other ITS applications.

• pursued major ITS research and development challenges of developing an integrated transportation infrastructure, transportation systems and better operational moment in ITS JPO's history.

• the Equity Act for the 21st Century provided the ITS JPO with funding for research, development, and grant programs for commercial vehicle ITS systems that were transformed from one that works to a system that works.

2000s and 2010s – Continuing the Push to Deploy ITS: Advancing Mobility and Connected Vehicle Technologies

In the 2000s, a variety of forces—including the economic downturn—focused increased attention on making the most efficient use of the highway system and vehicle fleets. At the same time, communications and information technology systems, and applications evolved at a rapid rate. These factors ultimately led to innovative research initiatives and an explosion of new transportation apps, often combining the use of vehicles as probes with enhanced geographic location and mapping systems in the form of user-friendly mobile and in-vehicle user interfaces. ITS JPO recognized the potential to propel ITS forward by connecting the vehicles, roads, and travelers' personal devices and began to focus on the significant safety and mobility benefits that could result.

In 2011, ITS JPO sponsored the Connected Vehicle Safety Pilot Program. At the time, it was the largest real-world test of connected vehicle technology—with more than 2,700 participating vehicles in Ann Arbor, MI, USA using wireless safety technology to help everyday drivers avoid crashes as they traveled along their normal routes. The Safety Pilot program paved the way for the more robust, nationwide Connected Vehicle Pilot Deployment Program.

This program awarded cooperative agreements collectively worth more than \$45 million USD to three pilot sites in New York City, NY, USA; Wyoming, USA; and Tampa, FL, USA to implement a suite of connected vehicle applications and technologies tailored to meet each region's unique transportation needs. Each site worked to design, build, and test deployments of integrated wireless in-vehicle, mobile device, and roadside technologies. The sites are currently operational and system impact is being monitored through key performance measures. By uncovering and addressing barriers to deployment, documenting lessons learned, and providing a template for other early deployments, the pilots have established the base for growing a nationwide connected vehicle system.

2020s – The Way Forward: Putting People First

ITS JPO will continue to provide a focused role for USDOT in supporting development and deployment of new technologies as well as adopting and adapting innovative technologies from other industries to meet the specific needs of the surface transportation system. By working with industry partners, academia, and stakeholders through cooperative agreements and grant programs, ITS JPO will continue to develop intelligent and advanced technologies that address some of the more intractable transportation-specific problems.

To fulfill its mission, ITS JPO is guided by the ITS JPO Strategic Plan 2020–2025, which outlines a focused set of strategies to lead collaborative ITS research, development, and implementation across USDOT. ITS JPO will capitalize on past

ITS JPO RESEARCH PROGRAMS



COMPLETE TRIP

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***

The Complete Trip Concept

Complete Trip: An individual's ability to go from origin to destination reliably, spontaneously, confidently, independently, safely, and efficiently without gaps in the travel chain.



Complete Trip Deployment Concept: Fundamental Elements

- Complete Trip deployments will be real-world environment ***deployments***
 - *Serve as replicable models and remain in operation*
- There are ***multiple*** Complete Trip deployments
 - *Unique solutions to address critical, local challenges*
- Complete Trip deployments are expected to be both ***large-scale and multi-modal***
 - ***Large-scale*** implies deployments will have measurable impact
 - Sites will deploy ***multiple technologies and modes***

Program Goals



Spur high-impact integrated Complete Trip deployments nationwide



Identify needs and challenges by populations



Develop and deploy mobility solutions that meet user needs

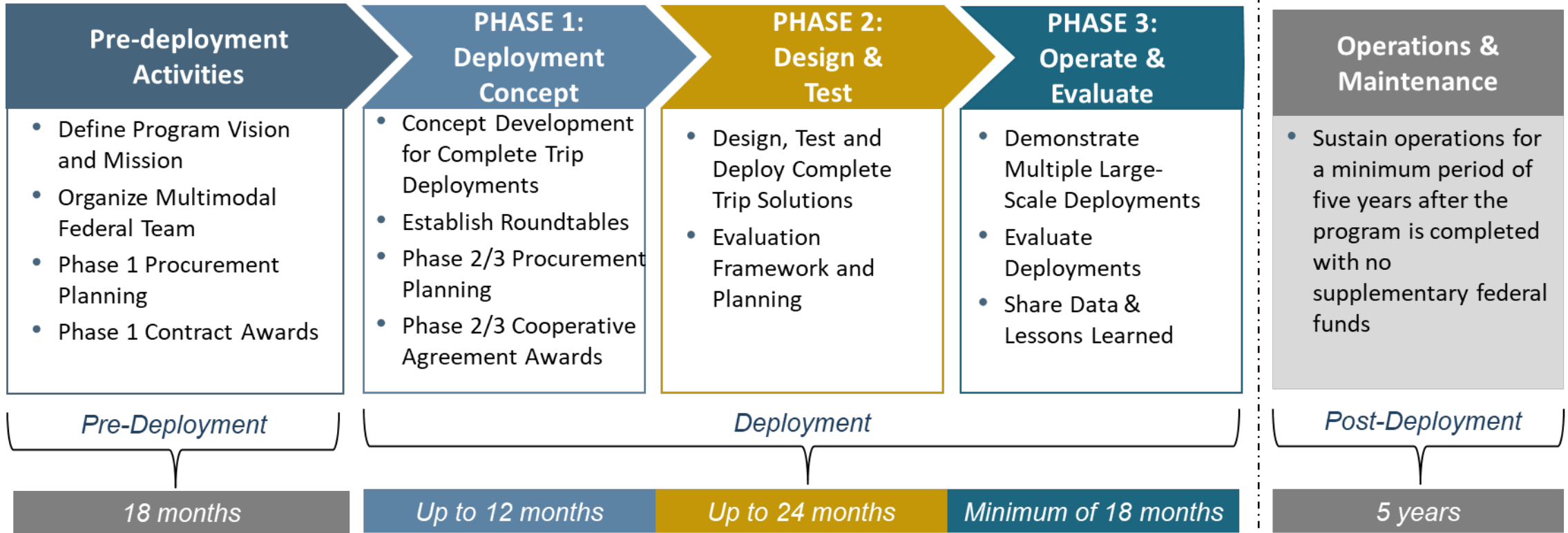


Measure impact of integrated deployments



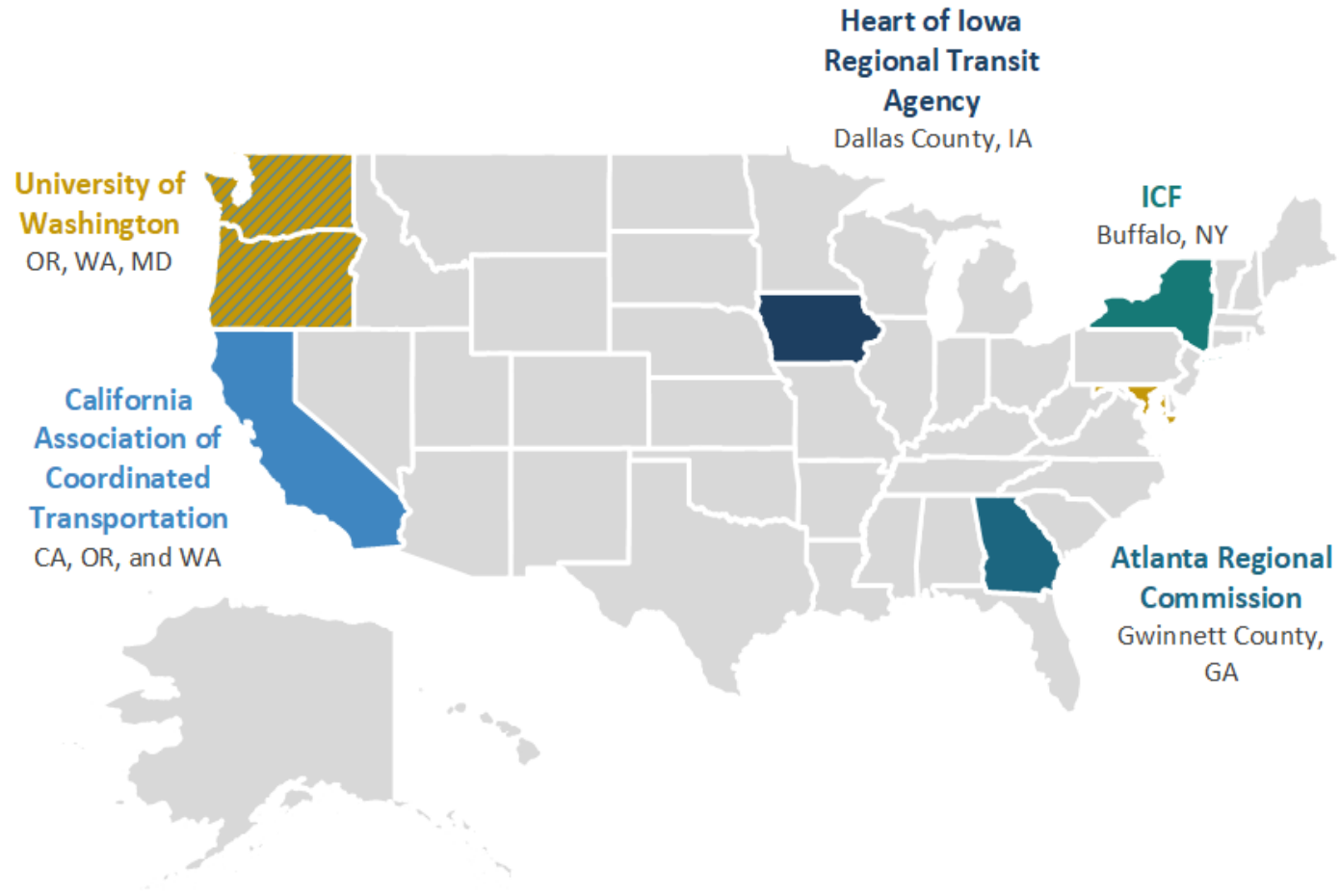
Identify replicable solutions and disseminate lessons learned

Deployment Phases





Phase 1 Awardees



Project Overviews



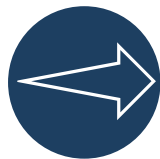
ARC - Safe Trips in Connected Transportation Network

Improve personalized trip planning, indoor/outdoor navigation, and the connection between trip segments by integrating CV data with an open-source web-based and mobile application.



CALACT - Plan, Book, & Pay for Demand-Responsive Transit Agencies

Adopt a common framework for data publication, encourage use of accessibility-focused data specifications, and develop open-source software tools to improve accessible trip planning.



HIRTA - Health Connector for the Most Vulnerable

Deploy emerging technologies to enable coordination of medical appointment scheduling with transportation services and support enhanced end-to-end traveler experience including wayfinding.

Projects Overview, continued



ICF-Buffalo - Complete Trip Deployment in Buffalo, NY

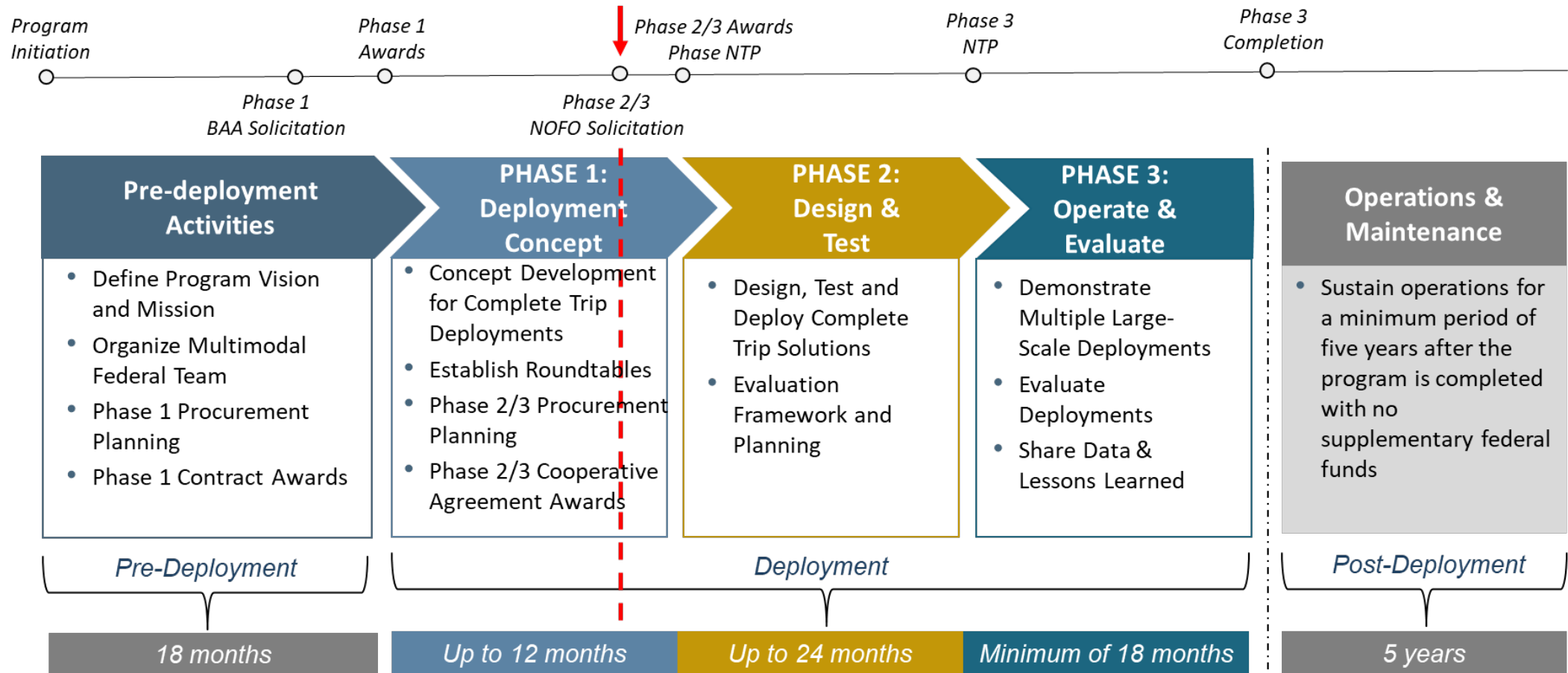
Deploy integrated travel support services and systems to improve mobility and accessibility including a complete trips platform app; an integrated automated shuttle service; and smart infrastructure technologies to assist travelers with disabilities.



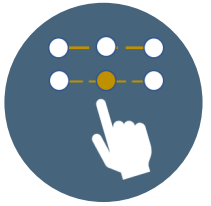
UW - Accessible Mapping Standards and Data Collaboration Drive Accessible Multimodal Active Transportation and Mobility

Coordinate and support standardization of open-source data standards that enable a wide variety of mobility applications; power customized trip planning and visualization data; and create the data infrastructure necessary to scale collection and maintenance.

Current Status of the ITS4US Deployment Program



Concept Development Phase 1 Activities



- ✓ **Refine proposed approach**
 - Planning for Phase 2 and 3



- ✓ **Participate in cross-collaboration activities:**
 - ✓ Phase 1 Cohort Activities
 - Independent Evaluation



- ✓ **Create a set of documents that:**
 - ✓ Define user needs, deployment scope and requirements;
 - ✓ Describe data and safety;
 - ✓ Identify performance measurement approach;
 - ✓ Outline outreach activities;
 - Address participant training and partnering arrangements
 - Describe preliminary complete trip deployment site plan.

ITS4US Program: Doing it Right!

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



Coordinated and Collaborative Multimodal Team

(OST, ITS JPO, FHWA, FTA: Planning, Research, Operations, Infrastructure, Safety, Civil Rights, Policy, Contracts, Modal and Regional Offices)



Required Planning Phase

(Rigorous SE Approach and Documentation)



Strong Technical Support

(SMEs, Supporting Materials, Trainings, Cross-site collaboration opportunities, Standards Support)



Extensive Stakeholder Outreach

(Site Plans, Trainings, Webinars, Industry Engagement)



Independent Evaluation

(Overseeing program and site-led evaluation)

ITS4US Phase 1 Outputs for Replicability

14 Deliverable training sessions

65 Published Plans

15 Documents for PMPs, Stakeholder Registries, and Needs Summaries

15 Public Webinars:

- ConOps
- Performance Measurement
- Deployment Plans

Knowledge Technology & Transfer

- 7** Pre-Award Webinars reached over **800** unique attendees and **360** different organizations
- 5** Site ConOps Webinars reached more than **500** unique registrants and **330** attendees.
- 5** Performance Measurement and **5** Deployment Plans Webinars
- 5** site-specific Outreach Plans
- 1** ITS4US Program Outreach Plan
 - Program presentations and panel sessions at targeted national and regional conferences and meetings
 - Program website: <https://its.dot.gov/its4us/>
 - Program and site-specific videos
 - Active social media presence
 - Extensive coordination with other efforts including the Professional Capacity Building (PCB) Program

ITS4US Contact Information

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Visit the Complete Trip - ITS4US Deployment Program
Website:

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



ACCELERATING ITS DEPLOYMENT PROGRAM AREA: SUMMARY



ITS Deployment Evaluation

ITS Benefits, Cost &
Lessons Learned

ITS Deployment Tracking

Evaluation Resources &
Performance Measures



ITS Professional Capacity Building

T3 Webinars

ITS Training

ITS Technical Assistance

Academic Initiatives



ITS Architecture & Standards

ITS Architecture

ITS Standards

International Cooperation

Emerging Technologies
Monitoring



ITS Communications

Targeted Resources

News & Events

Videos & Images

Publication Guidelines



ACCELERATING ITS DEPLOYMENT PROGRAM AREA: SUMMARY

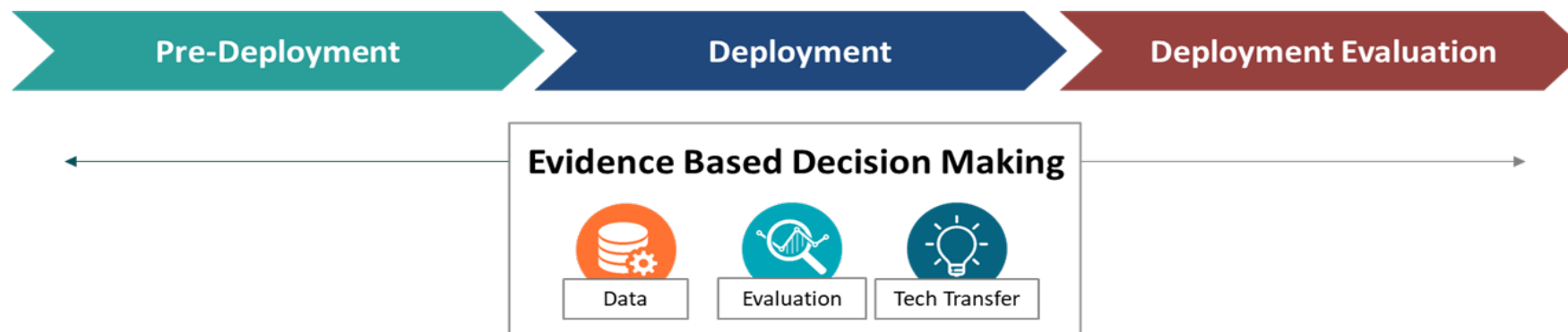
- The Accelerating Deployment Program Area is designed to **put people and communities first** by addressing a **full spectrum of stakeholder needs** related to the foundational elements of successful ITS deployment
- Provide the **research, analytics, training, and tools and services** to enable successful, efficient, and interoperable ITS deployments
- Maximize deployment **benefits** and enable positive **return on ITS investments**



WHAT IS FULL ITS DEPLOYMENT LIFECYCLE SUPPORT?

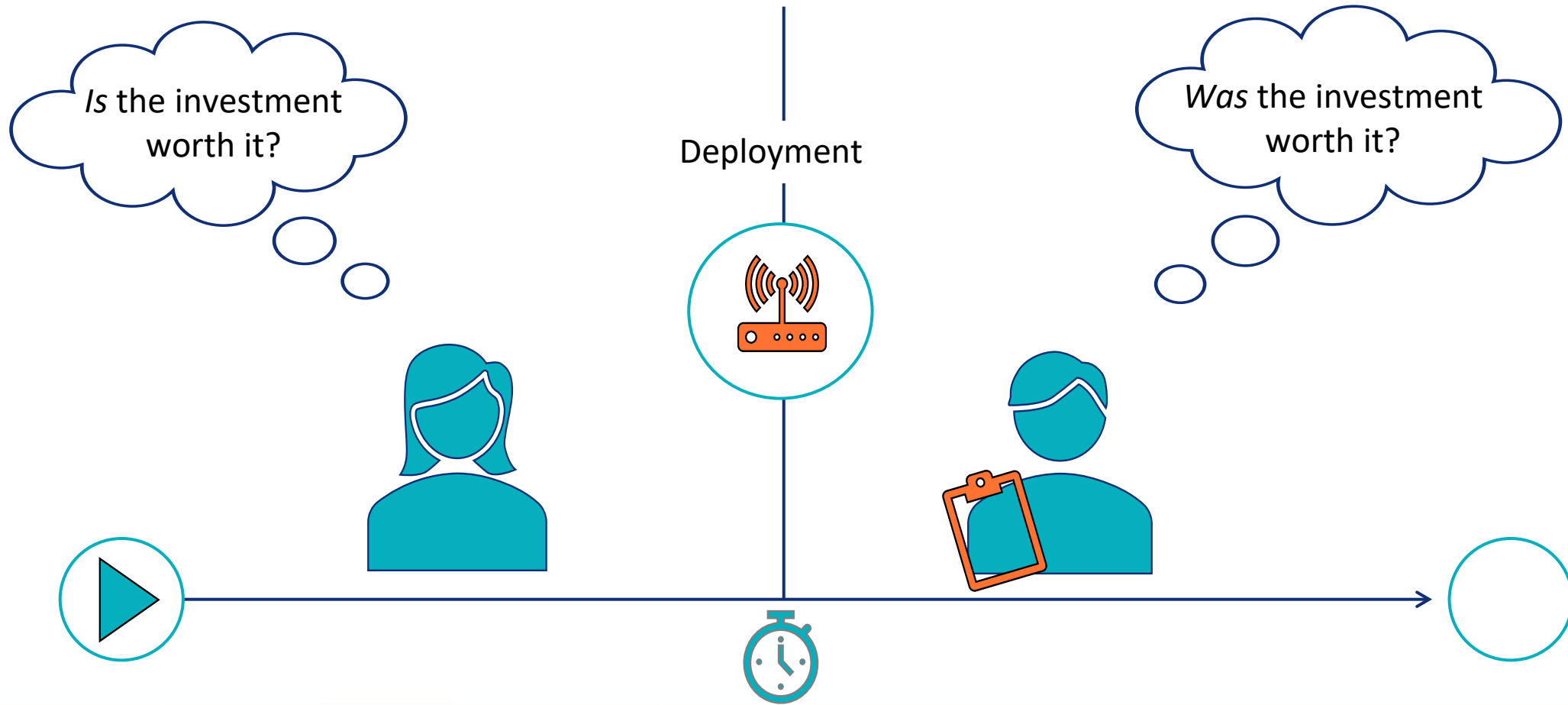
Full ITS deployment lifecycle support includes:

- An integrated, leveraged **project-lifecycle** approach to accelerating and improving stakeholder investment in ITS technologies, applications, and services.
- Improving the **capability and capacity of stakeholders** to provide and receive deep technical assistance **to support and accelerate successful ITS deployment** at all stages of the effort.
- Supporting **evidence-based and data-driven decision making**.





WHAT IS FULL ITS DEPLOYMENT LIFECYCLE SUPPORT?





ITS DEPLOYMENT EVALUATION PROGRAM



- Evaluation is critical to understanding if ITS projects are serving a community's needs.
- The Program has been collecting, analyzing, and disseminating data from verified and reliable sources in the public sector for 25+ years.
- Support accelerating ITS deployment by providing ITS resources for a variety of users in the community:
 - Benefits, Costs, and Lessons Learned Databases
 - ITS Deployment Tracking Survey Data Repository
 - Decision Support Resources (e.g., Case Studies, Data Visualizations, Cost Plots, Executive Briefings)



ACCESSING EVALUATION DATA FROM THE ITS JPO HOME PAGE

The screenshot shows the homepage of the Intelligent Transportation Systems Joint Program Office. At the top, the United States Department of Transportation logo is on the left, and navigation links for 'About DOT | Briefing Room | Our Activities' and 'About OST-R | Programs | Library' are on the right. Below this is the office name: 'OFFICE OF THE ASSISTANT SECRETARY FOR RESEARCH AND TECHNOLOGY Intelligent Transportation Systems Joint Program Office'. A search bar with the text 'ENHANCED BY Google' and a magnifying glass icon is present. The main navigation menu includes 'About', 'Research', 'ITS Deployment', 'Communications', 'Technology Transfer', 'Resources', and 'Contact Us'. The 'Resources' menu item is circled in yellow. Below the navigation, the 'Resources' section is titled, followed by a large image collage. To the right of the collage is a list of resource links: 'Connected Vehicle Basics', 'ITS Fast Facts', 'ITS CodeHub', 'ITS DataHub', 'Knowledge Resources', 'Security Credential Management System (SCMS)', and 'Staff Presentations'. A yellow arrow points from the 'Knowledge Resources' link to the right side of the slide.

www.its.dot.gov

USING THE EVALUATION DATABASES: OVERVIEW

The screenshot shows the homepage of the ITS Deployment Evaluation website. At the top, it identifies the United States Department of Transportation and the Office of the Assistant Secretary for Research and Technology. The main navigation bar includes links for Benefits, Costs, Deployment Statistics, Executive Briefings, Lessons Learned, and Decision Support Resources. The central banner features the title 'ITS Deployment Evaluation' and a descriptive sentence: 'Intelligent transportation systems (ITS) provides a proven set of strategies for advancing transportation objectives.' Below this is a search bar containing the text 'accessibility' and a blue 'SEARCH' button. A yellow callout box on the left points to the search bar with the text 'Search all databases by entering your search term'. At the bottom, a row of icons represents the various data categories: Benefits, Costs, Deployment Statistics, Executive Briefings, Lessons Learned, and Decision Support Resources. The 'Lessons Learned' icon is highlighted with a yellow border.

www.itskrs.its.dot.gov

SEARCH RESULTS FOR “ACCESSIBILITY”

Filters enable more robust search

The screenshot shows the ITS Deployment Evaluation website search results for the term "accessibility". The page displays 10 results out of 1076. The search filters on the left are highlighted with a red box. The results are sorted by "Published Date Descending". The first three results are:

- Account for Site-Specific Objectives and Conditions When Selecting Sensors for Dynamic Passive Pedestrian Detection.**
Consider the specific use when selecting a sensor. Examine the sensor specification ratings, sensitivities to various environmental conditions, desired use case functionality, and agency goals in...
11/22/2021
Taxonomy: [Bicycle & Pedestrian](#)
- Deploying More Road Weather Information System Sites Having Basic Capabilities Located Near Maintenance Section Boundaries Is More Beneficial than Fewer Sites with More Sensors.**
Researchers used workshops, surveys, and interviews with Montana DOT personnel to conduct a RWIS needs assessment. Findings included a number of key lessons including: Maintenance personnel...
08/30/2021
Taxonomy: [Surveillance, Monitoring, & Prediction](#)
- The Cost To Implement Video Data Storage and Networking Services To Support 68 Traffic Cameras in New York City Was Estimated at \$1,663 per Year Annualized Over Three Years.**

Most recent benefits, costs, and lessons learned shown first

BENEFIT EXAMPLE

Headline with location and date information



Installation of Pedestrian Countdown Signals Estimated to Reduce Crashes by 8 Percent, Resulting in an Average Expected Annual Benefit of \$12,900.

Before-After Empirical Bayes Analysis of Crash Data in Charlotte, NC and Philadelphia, PA Estimated the Expected Change in Crash Frequency after Installation.

Date Posted: 05/24/2021 IDENTIFIER: 2021-01560
Charlotte, North Carolina, United States;
Philadelphia, Pennsylvania, United States;

Summary Information

A pedestrian countdown signal (PCS) displays a real-time numerical countdown of how many seconds are left in the flashing "DON'T WALK" interval, to provide pedestrians with more information on remaining crossing time. Researchers investigated the effectiveness of PCS in reducing pedestrian crashes, and also studied impacts on other types of crashes. The research team obtained geometric, traffic, and crash data from signalized intersections in Charlotte, NC and Philadelphia, PA to evaluate the safety effect of PCS installations.

Researchers performed a before-after empirical Bayes (EB) analysis using data from 115 treated intersections in Charlotte, NC and 218 treated intersections in Philadelphia, PA. The evaluation also included 136 reference intersections in Charlotte, NC and 597 reference intersections in Philadelphia, PA. For Philadelphia, treatment and reference sites were only considered if they were

Findings

- The CMF for total crashes was estimated at 0.921, representing an 8 percent reduction, which was statistically significant at the 95 percent confidence level.
- The CMF for rear-end crashes was estimated at 0.875, representing a 12 percent reduction, which was also statistically significant at the 95 percent confidence level.
- The CMF for pedestrian-involved crashes was estimated at 0.912, representing a 9 percent reduction. This was statistically significant at the 90 percent confidence level, which was

Findings with benefits summary



Safety Evaluation of Pedestrian Countdown Signals

Source Date: 11/01/2019
Author: Srinivasan, Raghavan; Bo Lan; Daniel Carter; Sarah Smith; Kari Signor; and Bhagwant Persaud
Publisher: Federal Highway Administration
Other Reference Number: FHWA-HRT-19-045
URL: <https://rosap.ntl.bts.gov/view/dot/42730>

Application Areas
Arterial Management » Traffic Control » Bicycle & Pedestrian
Crash Prevention & Safety » Pedestrian Safety

Goal Areas
Safety

Deployment Locations
Metropolitan Areas

Clickable original report link

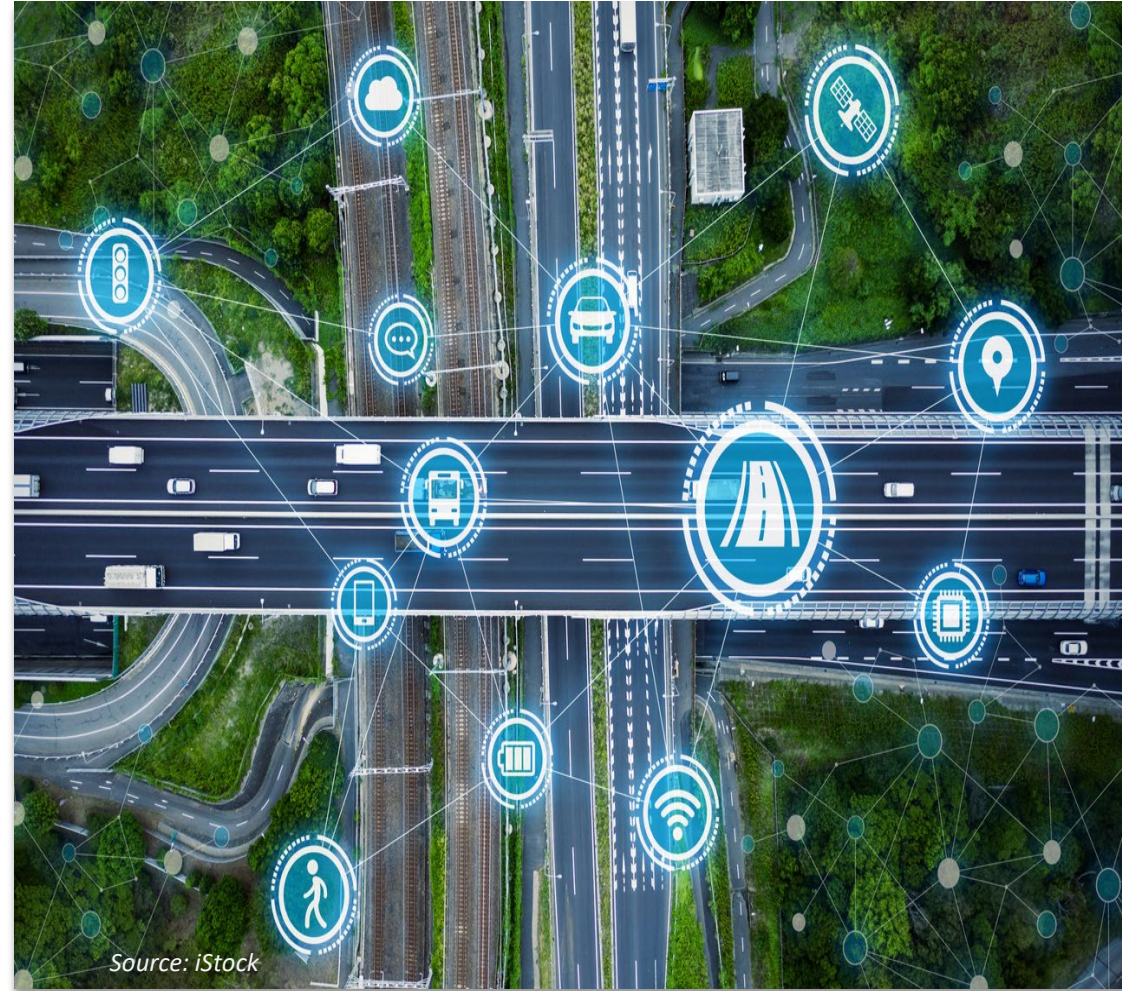


Methods summary



ITS DEPLOYMENT TRACKING SURVEY (DTS) DATA

- Survey tracks public sector ITS deployment, agencies' plans for future ITS, and needs for knowledge transfer
- Survey has been administered since 1997
 - Survey administered to freeway, arterial, and transit agencies within 108 large and medium sized metropolitan areas
- 20+ years of ITS deployment data



ACCESSING ITS DEPLOYMENT TRACKING SURVEY DATA

United States Department of Transportation | Office of the Assistant Secretary for Research and Technology

ITS DEPLOYMENT EVALUATION
Intelligent Transportation Systems
Joint Program Office

Benefits Costs Deployment Statistics Executive Briefings Lessons Learned Decision Support Resources

ITS Deployment Evaluation

Intelligent transportation systems (ITS) provides a proven set of strategies for advancing transportation objectives.

accessibility SEARCH

Benefits Costs **Deployment Statistics** Executive Briefings Lessons Learned Decision Support Resources

www.itskrs.its.dot.gov

DEPLOYMENT STATISTICS LANDING PAGE

Deployment Statistics
The Intelligent Transportation Systems (ITS) Joint Program Office collects nationwide ITS deployment statistics through surveying public sector transportation agencies.

ITS Deployment Tracking Survey Data Repository

The Intelligent Transportation Systems (ITS) Deployment Tracking Survey (DTS) Data Repository contains a set of downloadable electronic files related to a series of ITS surveys conducted by the ITS Joint Program Office (JPO) since 1999.

[User Guide](#) ← [FAQs](#) ←

A document that describes the DTS methodology and the contents of the electronic files contained in this ITS Deployment Tracking Survey Data Repository, including guidance on how to use this repository.

Frequently Asked Questions about the Deployment Tracking Survey and the Data Repository.

2019 Connected Vehicle and Automated Vehicle (CV/AV) Survey

Survey instrument, data file, and report for the most recent DTS survey, which focused on the deployment of CV and AV technologies in Freeway, Arterial and Transit agencies.

[Read more →](#)

Instructions on how to access and use the raw data

Most recent survey – the 2020 DTS will be posted soon

And if you scroll down a bit further...



DEPLOYMENT STATISTICS LANDING PAGE

Past Surveys,
Data, and
Reports



ITS Deployment Tracking Surveys – 1999 to 2016

The ITS Deployment Tracking Surveys (DTS) were conducted a total of ten times between 1999 and 2016. Data is collected from Freeway, Arterial, and Transit agencies in 78 large and 30 medium-sized metropolitan areas. The DTS were designed to collect data characterizing ITS technology deployment, as well as programs and policies implemented to support ITS. The website includes the following DTS files:

SURVEY INSTRUMENTS

Arterial, Freeway, and Transit Management survey instruments used to collect deployment data each year a survey was conducted.

DEPLOYMENT DATA

Data files associated with the Arterial, Freeway, and Transit surveys. Each data file contains three worksheets: Data, Data dictionary, and Variable Summary Statistics.

FINAL REPORTS

The complete set of downloadable Final Reports associated with each Intelligent Transportation Systems (ITS) Deployment Tracking Survey (DTS) conducted.

COMMON SURVEY QUESTIONS

Three files (one for each survey type – Freeway, Arterial and Transit) that group common questions across the surveys conducted.

Special Topic
Surveys such as
Rural Transit
Survey



Special Topic Deployment Surveys

In addition to the Deployment Tracking Surveys administered to freeway, arterial and transit agencies, the ITS JPO has conducted a number of special topic surveys, including the following:

2019
Small
Urban
and Rural
Transit
Survey



Electronic Toll Collection (ETC)
Surveys

Incident Management/Public
Safety Surveys

Metropolitan Planning
Organization (MPO) Surveys

Statewide ITS Systems
Surveys

Traffic Management Center
(TMC) Surveys

ITS Deployment Evaluation Program

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Visit the ITS Deployment Evaluation Website:

www.itskrs.its.dot.gov



ITS Professional Capacity Building Homepage



ITS Professional Capacity Building Homepage

United States Department of Transportation

Intelligent Transportation Systems
Joint Program Office

ITS Professional Capacity Building Program

Home About Training Resources for Practitioners Resources for Students and Instructors

- Course Catalog
- ITS Standards Training
- Talking Technology and Transportation (T3) Webinars
- T3 Webinar Archive
- Connected and Automated Vehicle Education (CAVe)

Free

Over 70 web modules, eLearning, and deploy standards-based highway and transit technologies.

Learn More →

Training

e, and deploy

Intelligent Transportation Systems
Joint Program Office

ITS Professional Capacity Building Program

Home About Training Resources for Practitioners Resources for Students and Instructors

- Connected Vehicle Deployer Resources
- ITS Peer Program
- ITS ePrimer
- ITS Transit Fact Sheets
- Knowledge Resources Databases

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eploy

Intelligent Transportation Systems Joint Program Office

Search PCB website

ITS Professional Capacity Building Program

**SIGN UP FOR
PCB UPDATES**

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- Resources for Practitioners ▾
- Resources for Students and Instructors ▾

About the ITS Professional Capacity Building Program

PCB's Role

The ITS PCB Program works with the managers of the ITS Program's research programs to devise, coordinate, and implement outreach and technology transfer activities. These activities keep transportation stakeholders informed about the progress in research and advances in ITS technologies and how they can be applied to solve real-world transportation challenges.

The ITS PCB Program has worked successfully to bring emerging results from the ITS Test Beds, the Integrated Corridor Management, and Active Transportation Demand Management research programs to the wider transportation community through partnerships to deliver training at ITS America state chapter meetings and the T3 webinar program.

The USDOT is currently engaged in an ambitious technology transfer effort to move the results of its connected vehicle research program into implementation by private industry and public transportation agencies. The ITS PCB Program is assisting in this effort by highlighting demonstrations of connected vehicle concepts and technologies, developing T3 webinars on lessons learned from the ITS Test beds and model deployment, and collecting audience needs for future connected vehicle training.

For more information about the ITS PCB Program, read the program's [Fact Sheet](#). [HTML]



For more information, contact:

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 ITS Professional
 Capacity Building
 Program Manager

SUPPORT



Technical Assistance is available to Federal, State and local transportation agencies through:

- ITS Peer Program - The [ITS Peer-to-Peer Program](#) puts you in touch with technical experts or experienced peers.
- ITS Help Line - The ITS Help Line provides technical support by email or telephone at [866-367-7487](tel:866-367-7487).

STAY CONNECTED



ITS PCB Program Stakeholders

The ITS PCB Program works in partnership with professional associations, universities, and the training programs of U.S. DOT modal administrations to engage the broad technical and organizational expertise needed to develop and deliver ITS learning.



The ITS PCB Program has established partnerships with several organizations:

- [American Association of State Highway and Transportation Officials](#)
- [American Public Transportation Association](#)
- [Association of Metropolitan Planning Organizations](#)
- [Institute of Transportation Engineers](#)
- [Intelligent Transportation Society of America](#)
- [National Association of Development Organizations](#)
- [National Association of Regional Councils](#)
- [National Operations Center of Excellence](#)
- [National Highway Institute](#)
- [National Transit Institute](#)

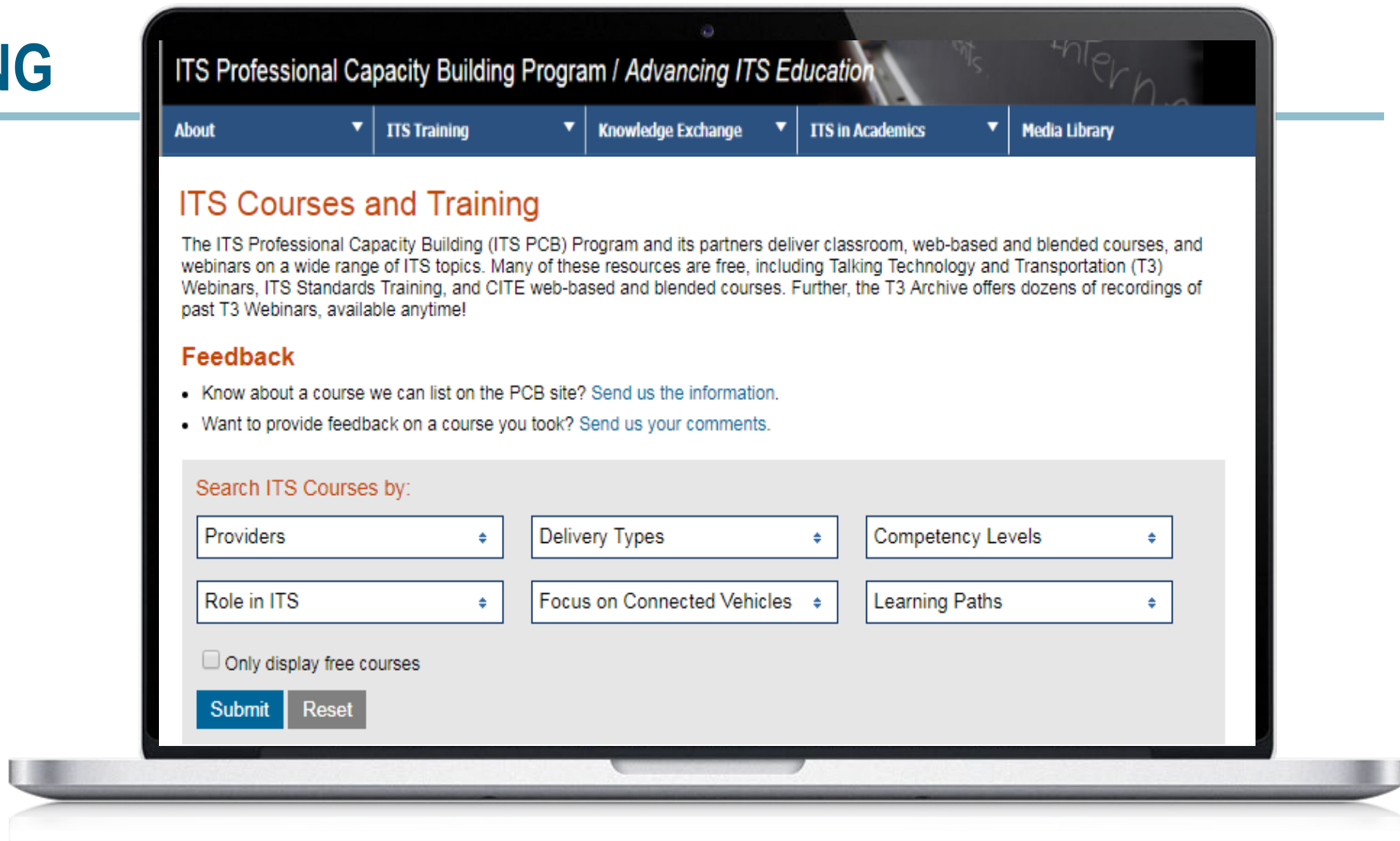
- **Classroom/Courses** – National Highway Institute live and online courses; courses developed by other partners and third parties
- **Online Training Modules** – ITS standards, ITS transit standards, ITS ePrimer
- **Guidance and Educational Materials** – ITS ePrimer modules, transit technology fact sheets, ITS Knowledge Resources Database

To learn more about this program, visit: www.pcb.its.dot.gov/

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ONLINE TRAINING



Intelligent Transportation Systems Joint Program Office

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Course Catalog

The ITS Professional Capacity Building Program and its partners deliver classroom, web-based and blended courses, and webinars on a wide range of ITS topics. Many of these resources are free, including Talking Technology and Transportation (T3) Webinars and ITS Standards Training. Further, the T3 Archive offers dozens of recordings of past T3 Webinars, available anytime!

Feedback

- Know about a course we can list on the PCB site? [Send us the information.](#)
- Want to provide feedback on a course you took? [Send us your comments.](#)

For more information, contact:

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SUPPORT

Technical Assistance is available to Federal, State and local transportation agencies through:

ITS Peer Program - The [ITS Peer-to-Peer Program](#) puts you in touch with technical experts or experienced peers.

ITS Help Line - The ITS Help Line provides technical support by [email](#) or telephone at 866-367-7487.

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ITS Training

ITS Standards Training Modules

The ITS Professional Capacity Building Program (ITS PCB) is pleased to offer FREE ITS standards training.

The **61-module training series** is for practitioners in state and local highway agencies and transit agencies who seek the skills needed to procure, test, implement, and operate standards-based ITS systems and devices. Consultants, system designers, integrators, and testers will also find the training informative.

The **25-module transit training series** focuses exclusively on standards used in transit applications. Similar to the 61-modules series, the transit modules give practitioners the skills to help them effectively procure and utilize standards used in transit systems and devices.

[Get started with the 61-module training series →](#)

[Get started with the 25-module transit training series →](#)

Why Should You Take ITS Standards Training?

Agencies that use standards in their ITS deployments have a greater capacity to share data and coordinate transportation services across different surface transportation modes. These 90-minute training modules discuss topics and content related to purchasing, testing, implementing, and operating standards-based ITS equipment and systems. Take these modules at your own pace and gain valuable skills that can benefit your career and improve the efficiency of your agency's ITS systems. [Read more.](#)



Resources for Practitioners



ePrimer

Module 1 Introduction to ITS	Updated 2021	+
Module 2 Systems Engineering	2014	+
Module 3 Application of ITS in TSMO	New 2021	+
Module 4 ITS Data in Decision Making	New 2021	+
Module 5 ITS to Support Travelers	Update 2022	+
Module 6 Freight and Commercial Vehicle ITS	Update 2022	+
Module 7 Public Transportation	Updated 2016	+
Module 8 Electronic Toll Collection and Pricing	Updated 2016	+
Module 9 Supporting ITS Technologies	2014	+
Module 10 Rural and Regional ITS Applications	2014	+
Module 11 Sustainable Transportation	2014	+
Module 12 Institutional Issues	2014	+
Module 13 Connected Vehicles	Updated 2021	+
Module 14 ITS in Emergencies and Disasters	New 2021	+
Module 15 Port Operations	New 2019	+
Module 16 ITS Emerging Opportunities and	Updated 2021	+























Guidance and Educational Materials

Resources for Practitioners

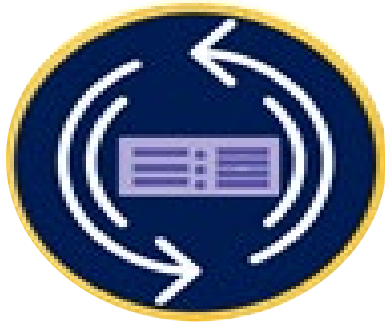
ITS Transit Fact Sheets



[View All +](#)

 Automatic Passenger Counters 	 Maintenance Management Systems 
 Automatic Vehicle Location 	 Security Cameras / Security Systems 
 Communication Technologies 	 Transit Signal Priority 
 Computer Aided Dispatch & Scheduling 	 Traveler Information 
 Electronic Fare Payment 	 Weather Information System 
 GIS & Data Management 	

Technical Assistance



Equipment Loan Program

Provides a connected and automated vehicle user with the opportunity to become familiar with the types of equipment typically used in connected vehicle deployment.



Help Desk

Provides technical assistance during connected vehicle and automated vehicle testing and deployments



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Visit the ITS Professional Capacity Building Program Website:

<https://www.pcb.its.dot.gov/>



WRAP UP?

