



# ITS Deployment Evaluation Program

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## ITS DEPLOYMENT **EVALUATION PROGRAM:** OVERVIEW AND PLAN FOR THE FUTURE

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## ITS DEPLOYMENT EVALUATION PROGRAM OVERVIEW

- Provide information to decision makers to help them plan, procure, and assess effectiveness of ITS investments
- Support future deployment by:
  - Tracking extent of ITS deployment
  - Disseminating data on benefits, costs and best practices of deployed ITS
  - Analyzing data for deployment trends and enablers of adoption



#### ITS DEPLOYMENT EVALUATION PROGRAM BACKGROUND

- 1996: Authorized by Congress
- **1997:** First *ITS Deployment Tracking Survey* conducted
- 2000: ITS Benefits, Costs and Lessons Learned Databases online
- **2003:** First *ITS Benefit and Cost Report* published
- 2018: Revamp Deployment
   Tracking Survey and ITS
   Benefits, Costs and Lessons
   Learned databases to reflect
   new technologies and improve
   user experience



## ITS DEPLOYMENT EVALUATION PROGRAM – PORTFOLIO OF PRODUCTS



# ITS DEPLOYMENT EVALUATION PROGRAM NEAR-TERM FOCUS: ACCOMMODATING NEW TECHNOLOGIES AND DEPLOYMENTS

## NEW ITS TECHNOLOGIES ARE CREATING NEW INFORMATION NEEDS: CHANGE IS IMPORTANT

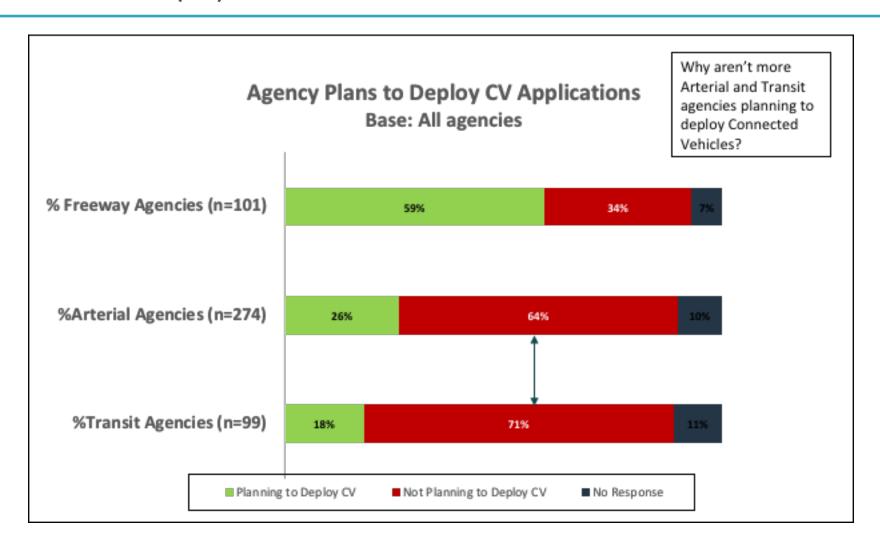
- People need information about new technologies in order to support deployment decision-making
- Update the ITS Deployment Survey and informational databases to reflect new technologies (such as AV, C-AV, and Mobility on Demand (MOD), etc.)
- Need interim results faster
- New audiences are hungry for CV data in any form, especially cost data
- Reorganize how information is presented so audiences can find what they need faster and easier
- New audiences and "new" IT hardware/software encourage new ways of viewing, consuming and searching for digital content

# 2016-17 ITS DEPLOYMENT TRACKING SURVEY: TRACKING AND ANALYZING NEW TECHNOLOGY TRENDS

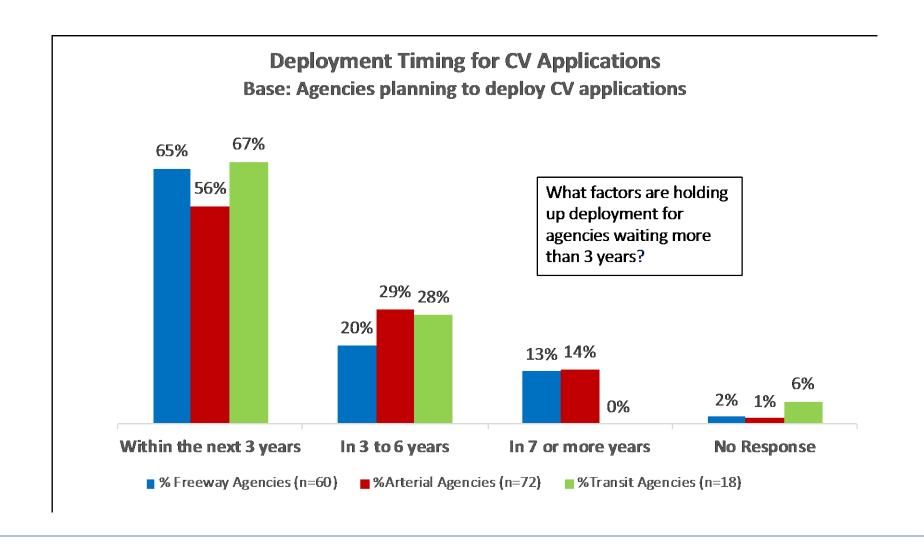
### BACKGROUND: ITS JPO DEPLOYMENT TRACKING SURVEY

- ITS Deployment Tracking Survey (DTS) gathers deployment data from state and local agencies nationwide on a regular basis
- Survey targets transportation agencies in 108 metropolitan areas, including 78 large and 30 medium-sized areas
  - Freeway, arterial, transit agencies
  - Survey administered online
- DTS originally administered to track and manage progress toward a 10-year deployment goal set by the Secretary of Transportation in 1995
  - First survey conducted in 1997
  - Data collected yearly during the 10-year goal period
- Current DTS does not track a national deployment goal, but continues to monitor deployment and informs various ITS program assessment and deployment goals
  - Surveys are conducted on a three-year cycle
  - Most recent survey conducted in 2016-2017
  - Responses received from 274 Arterial Agencies, 101 Freeway Management Agencies, 99 Transit Management Agencies
  - Results currently being analyzed
  - Webinars on results to be presented Feb 2017

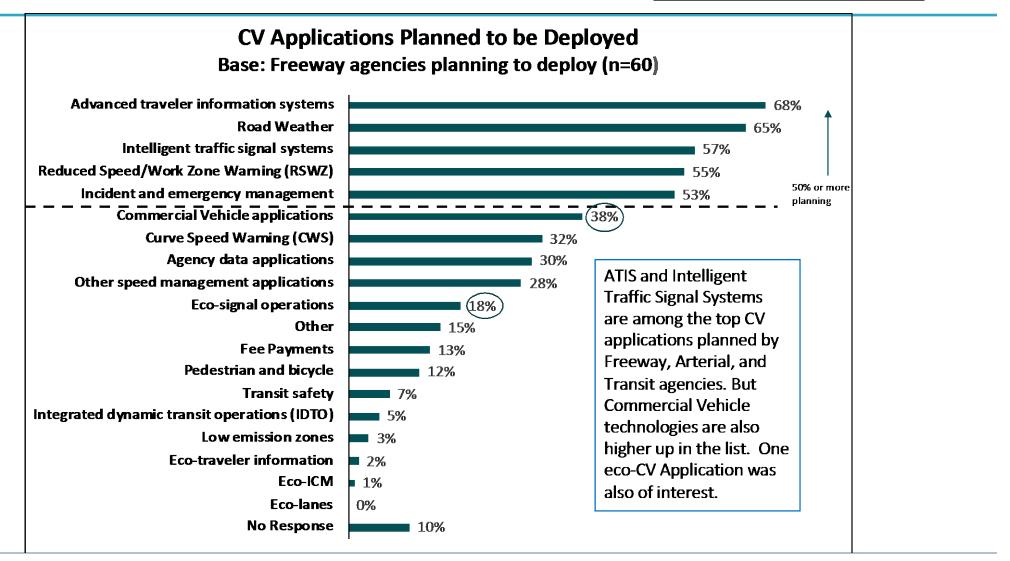
## FREEWAY AGENCIES LEAD ARTERIAL AND TRANSIT IN PLANS TO DEPLOY CONNECTED VEHICLE (CV) APPLICATIONS



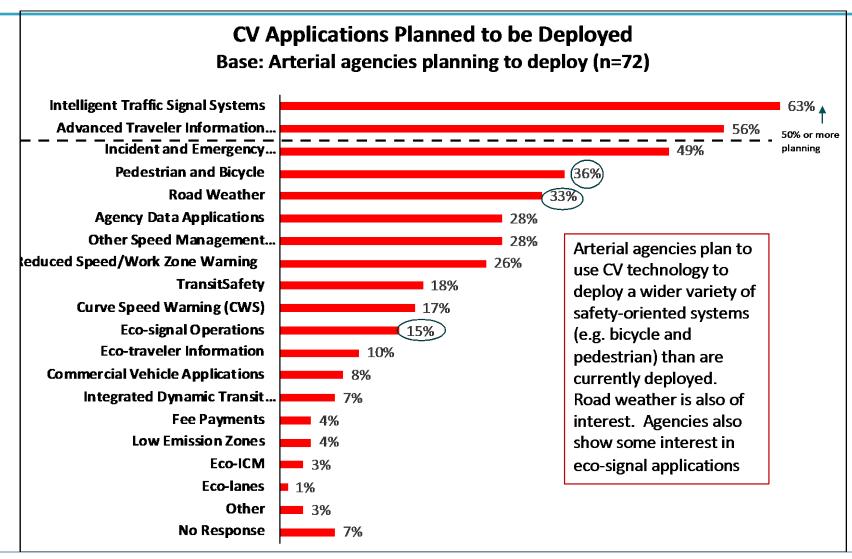
## MOST DEPLOYMENT WILL OCCUR WITHIN THE NEXT THREE YEARS, FOR ALL AGENCY TYPES



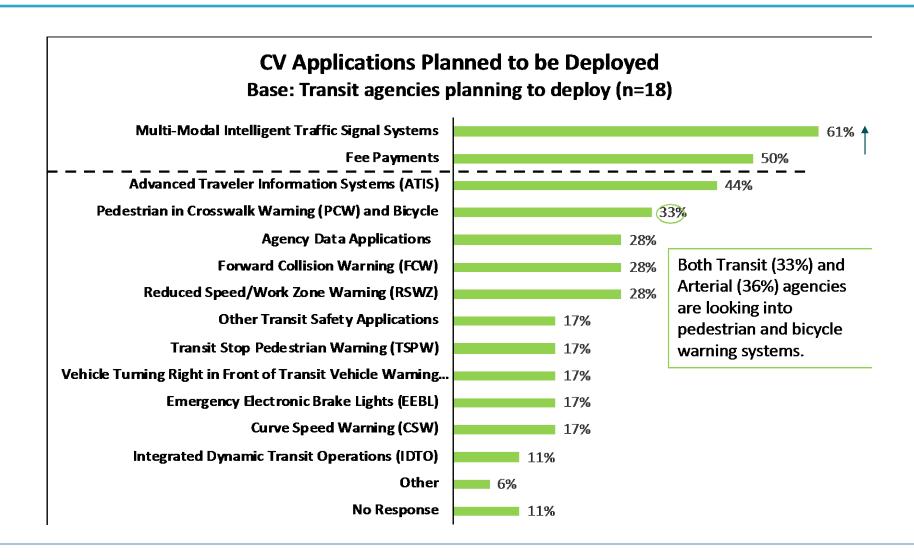
## ADVANCED TRAVELER INFORMATION SYSTEMS (ATIS) AND ROAD WEATHER SYSTEMS ARE THE TOP PLANNED CV APPLICATIONS FOR FREEWAY AGENCIES



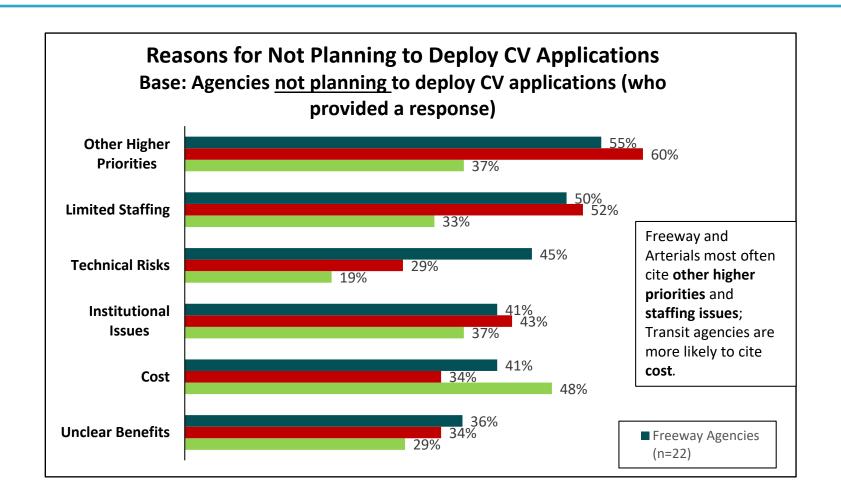
## INTELLIGENT TRAFFIC SIGNAL SYSTEMS AND ADVANCED TRAVELER INFORMATION SYSTEMS (ATIS) RISE TO THE TOP FOR <u>ARTERIAL AGENCIES</u>



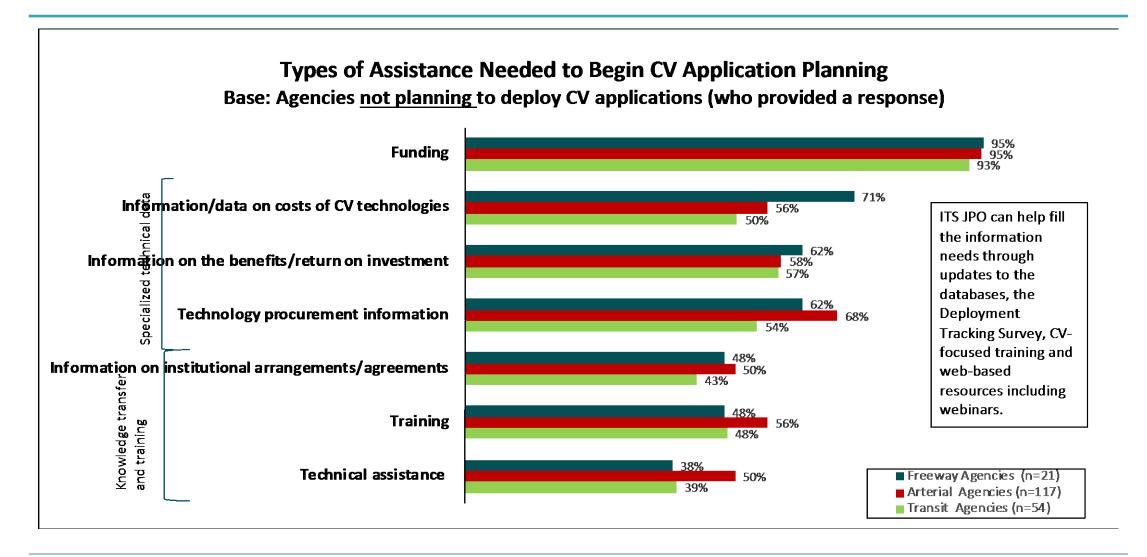
## TRANSIT AGENCIES ARE LOOKING TO DEPLOY MULTI-MODAL INTELLIGENT TRAFFIC SIGNALS AND FEE PAYMENT SYSTEMS, AND ARE ALSO INTERESTED IN ATIS



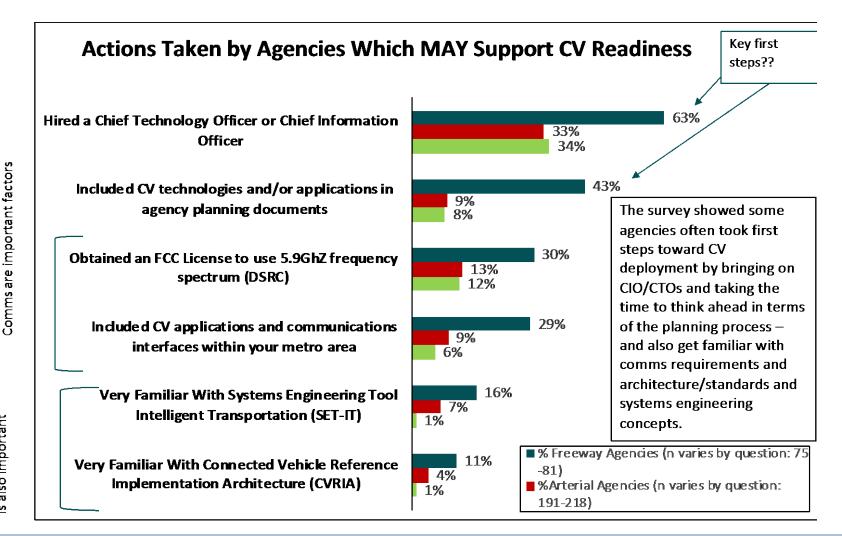
## THERE ARE MANY FACTORS THAT PREVENT AGENCIES FROM DEPLOYING CV APPLICATIONS; THEY DIFFER BY AGENCY TYPE



## FUNDING IS THE MOST DESIRED RESOURCE, BUT EDUCATION AND TRAINING ARE ALSO NEEDED TO OVERCOME BARRIERS TO CV DEPLOYMENT

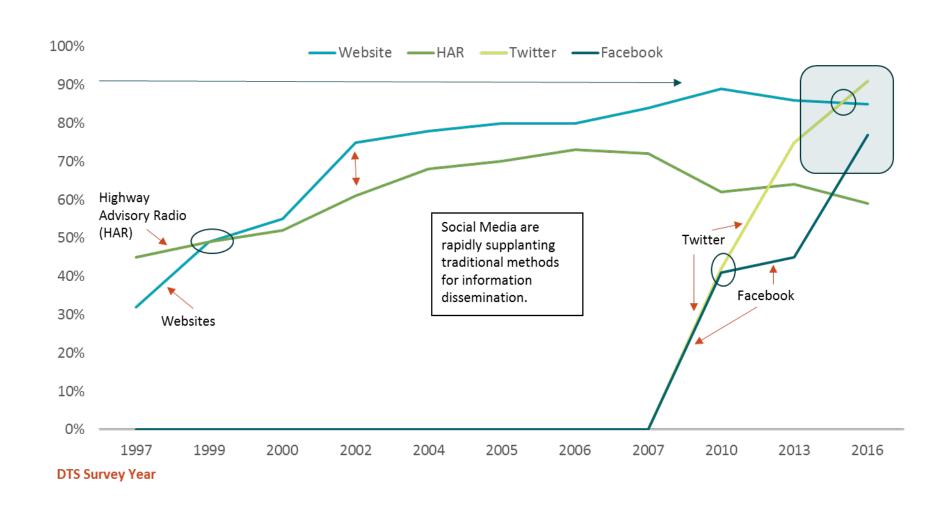


## FREEWAY AGENCIES ARE THE FURTHEST ALONG IN READINESS INDICATORS; SOME ARTERIAL AND TRANSIT AGENCIES HAVE INVESTED IN CTOS/CIOS



Familiarity with architecture and standards is also important

# HOW AGENCIES DISSEMINATE INFORMATION: A VIEW OF CHANGES OVER TIME (TECHNOLOGY EVOLUTION AND MARKET TRENDS)





### **SHOW OF HANDS:**

Have you ever used data from the ITS Deployment Tracking Survey in your work?

☐ Yes

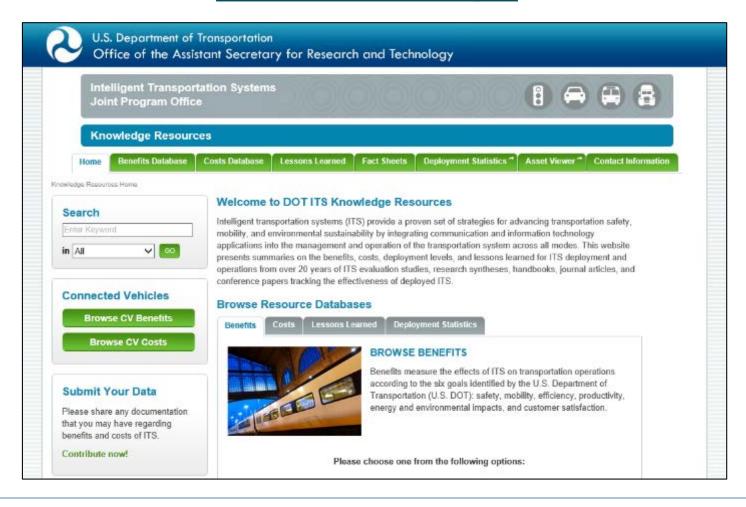
☐ No

Food for Thought: What might improve the likelihood of your using the databases in the course of your work?

# CHANGES TO THE DATABASES: TALKING TO ITS DEPLOYMENT STAKEHOLDERS ABOUT THEIR NEEDS

## UPDATING THE ITS BENEFITS, COSTS AND LESSONS LEARNED DATABASES

#### www.itskrs.its.dot.gov





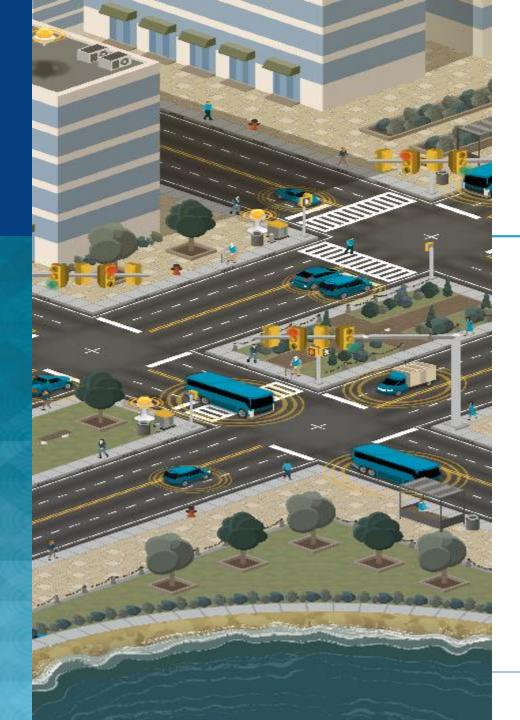
### **SHOW OF HANDS:**

Have you used the ITS Benefit, Costs, or Deployment Tracking databases within the past year?

☐ Yes

☐ No

Food for Thought: If you didn't use them, what might encourage you to use them?



Scenario: You are a transportation planner at a local transit authority researching CV or C-AV technologies/applications to improve pedestrian and bicycle safety:

- What data/information resources would you need and use to help your transit agency make the case for investing in future deployments of this type? (or make the case for investing elsewhere)
- Where would you go to find information on benefits and costs of deployments of the technologies/applications you're interested in?
- How would you find information on best practices for deploying/operating these technologies/applications?
- Would information from similar deployments in other jurisdictions be important and useful to you? What kinds of information?

#### ITS COST ENTRY

- Would the benefits, costs and lessons learned entries – as you see them here – be helpful to you?
- What would improve them?
- If you could redesign their contents/approach from scratch, what would they contain? How much detail would you want?

#### Cost

Capital costs for a transit vehicle pedestrian warning system installed on 45 buses in Portland ranged from \$58,500 to \$97,200.

Experience with bus-based pedestrian warning systems in Portland.

May 2015

E-mail | Post a Comment

#### Source

**Evaluation of Trans Bus Turn Warning** Systems for Pedestrians and Cyclists: Draft Final Report

Author: Pecheux, Kelley (AEM); James Strathman (PSU); and Jason Kennedy (AEM)

Published By: U.S. DOT Federal Transit Administration (FTA)

Prepared by Applied Engineering Management Corporation for the FTA

Source Date: May 2015

Other Reference Number: Report No. 0084

URL: http://www.fta.dot.gov/docu ments/FTA\_Report\_No.\_008

#### Summary Information

As part of a cooperative agreement with the Federal Transit Administration (FTA) the Tri-County Metropolitan Transportation District of Oregon (TriMet) equipped 45 buses with three types of commercially available auditory warning systems (15 buses with each type of system).

The bus-based system used auditory messages and LED directional lighting on the forward side of each bus to improve driver visibility and alert pedestrians at intersections on five bus routes. The system was activated automatically when bus speed profiles and steering components met pre-defined thresholds on each bus route.

#### System A

System A was a commercially available turn warning system that provided an external auditory warning to pedestrians and other road users when a bus made a left or right turn. Using sensors to monitor the movement of the pitman arm steering linkage the system automatically played the auditory warning when the bus steering wheel turned the linkage activated an electronic sensor. To prevent warnings from being broadcast during a normal lane changes or other turns of the steering wheel the system incorporated a maximum speed threshold feature. The outside speaker system was equipped with an automated volume adjustment feature to compensate for ambient noise around the bus. Strobe lights on the exterior of the bus flashed simultaneously with auditory warnings. An optional geo-fencing feature was proposed to enable agencies to disable the auditory warning in specific areas.

#### System B

System B was a commercially available turn warning system that provided any external auditory warning to pedestrians and other road users when buses made left or right turns. System B differed from System A only in the way in which the auditory warnings were activated. System B used an optical sensor and a sticker having a checkerboard pattern affixed to the column of the steering that enable the system to be activated.

#### System Cost

Purchase and installation of a transit vehicle turn pedestrian warning system on 45 buses: \$58,500 to \$97,200.

#### WHAT STAKEHOLDERS ARE TELLING US

- If you're not in Google, you don't exist.
  - Making the ITS data and databases more findable is really, really important.
- We all love clean, modern design and expect searches to be like Google.
  - The current interface is busy and hard to search.
  - o The database structure is difficult to understand even for people who know ITS.
- Content is king.
  - The data in the databases is generally useful once you get to it.
  - More visuals would be helpful
  - Reuse and repurpose content to keep websites relevant and fresh.
  - o Crowd-sourcing content is appealing to some, but quality control is a concern.
- Show us the money users love their cost data.
  - Frequent questions about costs of new and existing ITS
  - Most popular search is "cost of fiber optic cable."
  - o Users would like more synthesized data and trends for decision makers.

#### WHAT STAKEHOLDERS ARE TELLING US

- We live in a 24/7 world. Timeliness of data is important.
  - Users tell us that data in the ITS databases should be more up-to-date with info on AV, CV, C-AV and MOD, for example.
  - Evaluation reports can take a long time to complete the time delay between a project's start and its evaluation can be three years or more!
- I'll take that data to go.
  - Mobile and tablet use is increasing. We need to become more mobile/tablet friendly.
- Who you know can be as important as what you know.
  - o Personal contacts are second biggest source of decision making info, after Google search.
  - Users would like to know who is active in the field.
- ICYMI keep reminding us of what ITS Benefit, Cost and Lessons Learned databases have to offer.
  - We are all super busy dealing with the day to day.
  - o Promotion of new content is critical to keep users coming back.



### **SHOW OF HANDS:**

How likely are you to use the ITS Benefit, Costs, or Deployment Tracking databases in the future?

- ☐ Not likely
- ☐ Maybe/I Don't Know
- ☐ Likely

Food for Thought: If you don't think you'd be likely to use them, what might improve the likelihood of your using them?



# ITS DEPLOYMENT EVALUATION RESOURCES

- ITS Deployment Statistics: <u>http://www.itsdeployment.its.dot.gov/</u>
- ITS Benefits, Costs and Lessons Learned Databases: <a href="https://www.itsknowledgeresources.its.d">https://www.itsknowledgeresources.its.d</a> ot.gov
- ITS Benefits, Costs and Lessons Learned Fact Sheets: <a href="https://www.itsknowledgeresources.its.d">https://www.itsknowledgeresources.its.d</a> ot.gov/its/bcllupdate/
- ITS Asset Viewer: <u>http://www.itsassets.its.dot.gov/</u>

## FOR MORE INFORMATION

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QUESTIONS?