

# 2016 Transit Management Survey

## AGENCY CHARACTERISTICS

1. a. **County where agency headquarters is located:**

1. b. **Other counties in service area:**

## TRANSIT VEHICLE CHARACTERISTICS

2. **Total number of vehicles used in revenue service:**

Fixed Route Bus:

Heavy or Rapid Rail:

Light Rail:

Paratransit:

Demand Responsive:

Commuter Rail:

Street Car:

Ferry Boat:

3. **Total number of vehicles equipped with Automated Vehicle Location (AVL):**

Fixed Route Bus:

Heavy or Rapid Rail:

Light Rail:

Paratransit:

Demand Responsive:

Commuter Rail:

Street Car:

Ferry Boat:

4. **Total number of vehicles with real-time monitoring of vehicle components:**

Fixed Route Bus:

Heavy or Rapid Rail:

Light Rail:

Paratransit:

Demand Responsive:

Commuter Rail:

Street Car:

Ferry Boat:

5. **Total number of vehicles where automated dispatching or control software is available:**

Fixed Route Bus:

Heavy or Rapid Rail:

Light Rail:

Paratransit:

Demand Responsive:

Commuter Rail:

Street Car:

Ferry Boat:

**6. Total number of vehicles equipped with mobile data terminals:**

- Fixed Route Bus:
- Heavy or Rapid Rail:
- Light Rail:
- Paratransit:
- Demand Responsive:
- Commuter Rail:
- Street Car:
- Ferry Boat:

**7. Total number of vehicles that have Automatic Passenger Counters: (Do not include registering fareboxes)**

- Fixed Route Bus:
- Heavy or Rapid Rail:
- Light Rail:
- Paratransit:
- Demand Responsive:
- Commuter Rail:
- Street Car:
- Ferry Boat:

## TRANSIT SIGNAL PRIORITY/PREEMPTION

**8. Number of Fixed Route Buses that have traffic signal priority capability:**

**9. Number of Fixed Route Buses that have traffic signal pre-emption capability:**

**10. Number of Light Rail vehicles that have traffic signal priority capability:**

**11. Number of Light Rail vehicles that have traffic signal pre-emption capability:**

## RAMP METER SIGNAL PRIORITY

**12. Does your agency have any Fixed Route Buses with ramp meter signal priority capability?**

- Yes
- No

## VEHICLES OPERATED AS PROBES

**13. Does your agency operate any Fixed Route Buses as probes?**

- Yes
- No (go to Next Section)

**14. What types of information are gathered by probes? (Check all that apply)**

- Travel time
- Speed
- Travel conditions on freeways
- Travel conditions on arterials
- Other (please specify):

## PLANNING FOR EMERGENCIES AND PLANNED SPECIAL EVENTS

**15. Does your agency participate in multi-agency regional planning for planned special events?**

- Yes
- No

**16. Does your agency participate in multi-agency regional planning for emergency evacuations (e.g., due to hurricane, other natural or man-made disaster)?**

- Yes
- No

## ELECTRONIC FARE PAYMENT

**17. Number of vehicles / stations equipped with Magnetic Stripe Readers:**

- Fixed Route Buses:
- Heavy or Rapid Rail Stations:
- Light-Rail Stations:
- Bus Stations:
- Paratransit Vehicles:
- Demand Responsive Vehicles:
- Commuter Rail Stations:
- Street Cars:
- Ferry Boat Landings:

**18. Number of vehicle / stations equipped with Smart Card Readers (with embedded computer chip):**

- Fixed Route Buses:
- Heavy or Rapid Rail Stations:
- Light-Rail Stations:
- Bus Stations:
- Paratransit Vehicles:
- Demand Responsive Vehicles:
- Commuter Rail Stations:
- Street Cars:
- Ferry Boat Landings:

**19. Please indicate the types of electronic fare payment system operated by your agency: (Check all that apply)**

- Closed loop, proprietary system
- Open loop, bank card system
- Other (please specify):

**20. Does your agency electronically store collected fare payment data for use in route and service planning?**

- Yes
- No

**21. Please indicate with which modes your agency's electronic fare payment system is integrated: (Check all that apply)**

- Bus (within my agency)
- Commuter Rail (within my agency)
- Ferry (within my agency)
- Vans (within my agency)
- Other transit agencies
- Parking payment systems
- Other toll collection systems in this metropolitan area (e.g., road or bridge tolls)
- Electronic fare payment is not integrated.
- We do not have fare payment.

## TRAVELER INFORMATION OR TRIP PLANNING

**22. Has your agency deployed a web-based trip planner to assist travelers in making trip related decisions?**

Yes

Please check all that apply to your agency's web-based trip planner:

- This tool incorporates multiple transit systems and modes.
- This tool incorporates modes other than transit (e.g., walking, biking, auto).
- This tool incorporates real-time traffic condition information.

No

**23. Does your agency have an agreement with a private vendor to distribute real-time transit information to travelers?**

Yes

No

**24. Does your agency have an open data policy with a data feed available for app developers, information service providers or the public?**

Yes

No, but agency is working on this

No current plans for an open data policy

**25. Please indicate the methods used by your agency to disseminate real-time transit schedule adherence or arrival and departure times to the public: (Check all that apply)**

- 511
- Twitter
- LinkedIn
- Podcasts
- Pinterest
- Other social media sites (please specify in part b below)
- Email or alert
- Custom-built smartphone app
- Other app for mobile device
- Website
- Dynamic message signs in-station
- Dynamic message signs in-vehicle
- Dynamic message signs at stop
- Kiosks
- Other (please specify):

If applicable, please describe other social media used:

**26. Please indicate the total number of the following facilities:**

- Bus Stops
- Rail Stations
- Bus Stations
- Multi-modal Stations or Transfer Stations

**27. Please indicate the total number of your agency's facilities where dynamic traveler information (e.g., schedule and system information) is electronically displayed to the public, delivered by SMS or text, or delivered by application:**

	Publicly Displayed	Delivered by SMS or Text	Delivered by Application
Bus Stops			
Rail Stations			
Bus Stations			
Multi-modal Stations or Transfer Centers			

**28. Total number of fixed route buses that electronically display automated or dynamic traveler information (e.g., schedule and system information) to the public:**

**SAFETY AND SECURITY**

**29. Are any of the following vehicles equipped with audio or video surveillance to enhance security? (Check all that apply)**

- Fixed Route Bus
- Heavy or Rapid Rail
- Light Rail
- Paratransit
- Demand Responsive
- Commuter Rail
- Street Car
- Ferry Boat
- No vehicles equipped

**30. Are any of the following facilities equipped with audio or video surveillance to enhance security? (Check all that apply)**

- Bus Stops
- Rail Stations
- Bus Stations
- Ferry Boat Landings
- Multi-modal Stations or Transfer Centers
- No facilities equipped

**31. Can any of the following vehicles be remotely shut down via wireless communications? (Check all that apply)**

- Fixed Route Bus
- Heavy or Rapid Rail
- Light Rail
- Paratransit
- Demand Responsive
- Commuter Rail
- Street Car
- Ferry Boat
- No vehicles equipped

**32. Does your agency use advanced video technologies to re-create crashes for accident review?**

- Yes
- No

## MOBILITY ON DEMAND

**33. Does your agency provide ride sharing and carpool matching services?**

- Yes
- No

**34. Does your agency operate collaborative multimodal systems?**

- Yes
- No

**35. Does your agency partner with private transportation service partners?**

Yes

With which services does your agency partner? (Check all that apply)

- Ride-hailing/Transportation Network Company (e.g., Uber, Lyft)
- Bikesharing
- Microtransit (privately operated transit along select routes)
- Taxis
- Parking
- Other (please specify):

In what ways does your agency partner with these services? (Check all that apply)

- Integrates dispatching
- Shares payment platforms
- Share traveler information through an App
- Other (please specify):

No

## TRANSPORTATION DEMAND MANAGEMENT

36. Does your agency use data from technologies such as AVL/CAD systems and automatic passenger counter systems, to assist in planning?

- Yes
- No

37. Does your agency employ automated vehicle location, combined with dispatching and reservation technologies to provide flexible routing and scheduling?

- Yes
- No

38. Does your agency employ vehicle monitoring and communication technologies to hold vehicles to facilitate the coordination of passenger transfers between vehicles or between transit systems (e.g., connection protection)?

- Yes
- No

39. Does your agency reduce transit fares in a particular corridor as congestion or delay on that corridor increases in order to encourage the use of transit to reduce traffic volumes?

- Yes
- No

40. Does your agency recognize schedules and adjust the assignments of assets (e.g., buses) based on real-time demand to cover the most overcrowded sections of the network?

- Yes
- No

41. Does your agency operate a transportation management travel coordination center and/or participate in a brokerage service that coordinates travel requests or performs vehicle dispatching, or billing for multiple agencies (e.g., social service agencies, Health and Human Services, other transit agencies)?

Yes, operates a transportation management travel coordination center

Which of the following functions does this center perform? (Check all that apply)

- Coordinates travel information
- Performs vehicle dispatching
- Performs billing
- Other (please specify):

- Yes, participates in a brokerage service
- No

## INTEGRATED CORRIDOR MANAGEMENT

This section focuses on corridor operations and seeks to understand **whether and how your agency coordinates with other agencies to actively manage operations within a corridor, such that performance is optimized for the corridor as a whole** (rather than optimizing performance on individual facilities). Please refer these questions to appropriate person(s) in your agency.

For the purposes of these questions, a corridor is defined as: a largely linear geographic band that serves a particular travel market (or markets) affected by similar transportation needs and mobility issues. The corridor includes multiple facilities (e.g., freeway, arterial and public transit) with cross-facility connections.

**42. Have you identified corridor(s) for the purpose of integrating operations across multiple transportation facilities (including freeways, major arterials, and public transit networks) in order to actively manage travel demand and capacity in the corridor as a whole?**

Yes

How many corridors have been identified for integrated transportation operations?

- 1 corridor identified
- 2 corridors identified
- 3 or more corridors identified

No (go to Next Section)

**43. The next set of questions all pertain specifically to the corridor you identified above. If you identified more than one corridor, please tell us about the corridor where the greatest level of coordination is taking place. In your responses, please do NOT include coordination efforts that are occurring outside the specific corridor you have identified**

Please name the key facilities that comprise the corridor (please be as specific as possible):

- a. Freeway(s) (e.g., US-75):
- b. Key Arterial(s) (e.g., Greenville Avenue, US-75 Frontage Roads):
- c. Public Transit Services (e.g., DART Red/Orange Light Rail Line, MTS Express Bus):
- d. Other (e.g., freight, rail, bicycle, pedestrian):

**44. Approximately how long is the corridor?**

- Less than 10 miles
- 11-20 miles
- 21-30 miles
- 31-50 miles
- More than 50 miles

**45. For each agency type listed below, please indicate whether you are currently coordinating or plan to coordinate integrated transportation operations in the corridor specified above. If yes, please provide the name of the agencies in the corridor with which your agency is coordinating (referred to as the "coordinating agencies" in this survey). Please do NOT include coordination efforts that are occurring outside the corridor. For each agency type, a-d, select only one response.**

	Currently Coordinate in Corridor	Plan to Coordinate in Corridor	No Plans to Coordinate in Corridor	Not Applicable	Agency Names
Freeway agencies:					
Arterial agencies:					
Transit agencies:					
Other agencies (e.g., MPOs, Toll Authorities, Port Operators):					



**46. Has your agency signed any formal multi-jurisdictional or multi-agency Agreements, Memorandums of Understanding (MOUs), or other instruments with these coordinating agencies regarding the integrated operations of the corridor?**

Yes, already signed

One instrument signed

Multiple instruments signed

No, but agreements, MOUs, or instruments are being developed (plan to sign)

No, there is no plan to develop or sign Agreements, MOUs, or other instruments

Do not know

IF SIGNED OR PLAN TO SIGN: Please describe what is covered by the Agreements, MOUs, or instruments:

**47. How are data about conditions in the corridor shared among the coordinating agencies? (Check all that apply)**

**Manual data sharing:** Corridor stakeholders call, radio, fax or email relevant corridor data to one another

**Automated sharing of real-time video data** (video servers/switcher communicate directly to one another in real time to share video images through video protocols)

**Automated sharing of real-time data** (computers, database servers communicate directly to one another to transmit data automatically (in real time) via center-to-center protocols)

**Information Clearing House/Information Exchange Network (IEN) between corridor networks/agencies** (a software system that collects, aggregates, warehouses and distributes traffic flow/transit performance data and incident/construction data for the corridor. All corridor agencies can access the agency/network information)

**Other (please specify):**

**48. How would you describe the institutional coordination among the corridor stakeholders? Please select one response from the following scale, which ranges from less formal institutional coordination (1) to more formal institutional coordination (5).**

1 (Less Formal) - Ad hoc coordination; no regular meetings; corridor stakeholders address near-term issues only

2 - Informal working groups; regular meetings among corridor stakeholders

3 - Formally established working groups; assigned responsibilities for Integrated Corridor Management

4 - Funded staff person(s) and well-defined responsibilities for Integrated Corridor Management

5 - (More Formal) - Legal entity with dedicated resources and a governing board

**49. a. Have the coordinating agencies in the corridor developed an Integrated Corridor Management (ICM) Concept of Operations (ConOps) or some other planning document that includes shared operating objectives for the corridor? (Check all that apply)**

Yes, ICM ConOps has been developed

ICM ConOps is currently being developed

Plan to develop ICM ConOps

No plans to develop ConOps

Other planning document on corridor operations has been developed (please describe in part b below)

Other planning document on corridor operations is currently being developed or plan to develop (please describe in part c below)

Do not know

**49. b. If applicable, please specify other planning document on corridor operations that has been developed:**

**49. c. If applicable, specify the other planning document on corridor operations that is currently being developed or planned to develop:**

**50. Have the coordinating agencies in the corridor developed a documented set of response plans or strategies, in any level of detail, that are based on shared operational objectives and that are designed to optimize performance in the corridor as a whole (e.g., across transportation facilities/modes) during conditions of both recurring and non-recurring congestion? In your response, please do not include response plans developed for emergency situations, such as evacuations.**

- Response plans or strategies have been developed for day-to-day operations during congested conditions
- Response plans have been developed for emergency situations only (e.g., detours, evacuations)
- Response plans or strategies are currently being developed
- There are plans to develop response plans or strategies
- There are no plans to develop response plans or strategies (skip to last question for additional comments)
- Do not know

**51. Has your agency deployed or does it plan to deploy a Decision Support System (DSS) to assist in the integrated operations of the Corridor?**

- Yes, deployed
- Plan to deploy
- No (no plans to deploy)
- Do not know

**52. Have the coordinating agencies identified corridor-level/multimodal performance measures (e.g., person throughput, average travel time, average travel speed, etc.) that will be used to measure the effectiveness of the strategies and response plans that are implemented in the corridor?**

- Yes, corridor-level/multimodal performance measures identified
- Agency plans to identify corridor-level/multimodal performance measures
- No plans to identify corridor-level/multimodal performance measures
- Do not know

**53. Please use the space below to provide any additional comments about the integration and coordination of operations in the corridor:**

## INTERAGENCY COORDINATION OUTSIDE INTEGRATED CORRIDORS

The purpose of this section is to assess the coordination of your agency with other agencies outside of corridors.

**54. For each agency type listed below, please indicate whether you are currently coordinating or planning to coordinate integrated transportation operations. Please provide the agency names. For each agency type, a-d, select only one response.**

	Currently Coordinate	Plan to Coordinate	No Plans to Coordinate	Not Applicable	Agency Names
Freeway agencies:					
Arterial agencies:					
Transit agencies:					
Other agencies:					

**55. How are data about conditions shared among the coordinating agencies? (Check all that apply)**

**Manual data sharing:** Stakeholders call, radio, fax or email relevant data to one another

**Automated sharing of real-time video data** (video servers/switcher communicate directly to one another in real time to share video images through video protocols)

**Automated sharing of real-time data** (computers, database servers communicate directly to one another to transmit data automatically (in real time) via center-to-center protocols)

**Information Clearing House/Information Exchange Network (IEN) between networks/agencies** (a software system that collects, aggregates, warehouses and distributes traffic flow/transit performance data and incident/construction data. All agencies can access the agency/network information)

**Other (please specify):**

## DATA COLLECTION AND ARCHIVING

**56. What information does your agency collect/archive in real time? (Check all that apply)**

Vehicle time and location

Vehicle diagnostics and health

Passenger count

Trip itinerary planning records

Passenger information

Vehicle monitoring status

Road surface conditions (e.g., wet, icy)

Emergency vehicle signal preemption events

Transit vehicle signal priority events

Weather conditions (e.g., snow, fog, rain)

Incidents

Impact of work zones on transit operations

Do not collect/archive data in real time

Other (please specify):

## CONNECTED VEHICLES (CV)

Need more information about connected vehicle applications? See

[http://www.its.dot.gov/pilots/cv\\_pilot\\_apps.htm](http://www.its.dot.gov/pilots/cv_pilot_apps.htm)

**57. Does your agency have plans to deploy connected vehicle applications?**

Yes

When do you expect to deploy?

Within the next 3 years

In 3 to 6 years

In 7 or more years

No plans to deploy (skip next question)

**58. Which of the following vehicle to infrastructure (V2I) and vehicle to vehicle (V2V) applications does your agency plan to deploy? (Check all that apply)**

**SAFETY APPLICATIONS:**

- Reduced Speed/Work Zone Warning (RSWZ)
- Curve Speed Warning (CSW)
- Forward Collision Warning (FCW)
- Emergency Electronic Brake Lights (EEBL)
- Vehicle Turning Right in Front of Transit Vehicle Warning (VTRW)
- Pedestrian in Crosswalk Warning (PCW) and bicycle
- Transit Stop Pedestrian Warning (TSPW)
- Other Transit safety applications (please specify):

**MOBILITY APPLICATIONS:**

- Multi-Modal Intelligent Traffic Signal Systems (MMITSS) (e.g., Transit Signal Priority)
- Advanced traveler information systems
- Integrated Dynamic Transit Operations (IDTO)

**OTHER APPLICATIONS:**

- Fee Payments
- Agency data applications (performance measures, probe data applications, etc.)
- Other (please specify):

**59. If your agency is not planning to deploy connected vehicle (CV) applications, why not? (Check all that apply)**

- Too costly for now
- Too much technical risk; want to wait until technology and standards mature
- Want to see benefits proven by pilot/early deployments
- Not ready from an institutional or organizational point of view
- Do not have enough staff with the right qualifications to plan and deploy CV applications
- Concerned about security issues
- Concerned about privacy issues
- Not a high priority right now
- We are more focused on:
- Other (please specify):

**60. When your agency starts planning the deployment of Connected Vehicle applications, which type of application will be the priority? (Select one)**

- Safety applications
- Mobility applications
- Environment-focused applications
- Other
- Please specify:
- Do not know

**61. What types of assistance or resources would your agency need in order to begin planning to deploy Connected Vehicle applications or to accelerate an existing deployment schedule? (Check all that apply)**

- Funding
- Technology Procurement Information
- Training
- Please indicate in what areas:
  - Technical assistance (e.g., CV technology information, deployment guidance, etc.)
  - Please indicate in what areas:
    - Information on institutional arrangements and agreements
    - Information on the benefits/return on investment
    - Information/data on costs of CV technologies
    - Other (please specify):

**62. . How familiar is your agency with the following?**

	Very familiar	Moderately familiar	Slightly familiar	Not at all familiar
Connected Vehicle Reference Implementation Architecture (CVRIA)				
Systems Engineering Tool Intelligent Transportation (SET-IT)				

**63. Has your agency:**

	Yes	No, but plan to	No plans to
Hired a Chief Technology Officer or Chief Information Officer			
Obtained an FCC License to use 5.9GHz frequency spectrum (Dedicated Short-Range Communication)			
Included CV technologies and/or applications in agency planning documents (e.g., long range transportation plan, Strategic Highway Safety Plan, Transportation Improvement Program, etc.)			
Included CV applications and communications interfaces within your metropolitan area			

**64. Has your agency been in discussions with public and/or private sector partners about forming partnerships for Connected Vehicle deployment and operations? (Select one answer)**

- Yes, both public and private sector partners
- Yes, public sector partners only
- Yes, private sector partners only
- No

## COMMUNICATIONS

**65. What type of communications technologies does your agency use to communicate between any of its ITS devices, or between ITS roadside devices and a central processing location? (Check all that apply)**

- Fiber
- Digital Subscriber Line (DSL)
- Cable TV
- Powerline carrier communications (PLCC)
- Cellular (LTE)
- Cellular (GPRS)
- WiMAX
- Fixed service satellite (FSS)
- Satellite digital audio radio service (SDARS)
- Ultra wideband (UAB)
- Wi-Fi
- Dedicated Short Range Communications (DSRC)
- ZigBee
- Microwave
- Other (please specify):

**66. Does your agency have a security policy and procedures whose scope includes field devices and communications?**

- Yes
  - Does this policy cover cyber security?
    - Yes
    - No
- No

## FUTURE DEPLOYMENT PLANNING

**67. a. Does your agency have any plans to invest in new ITS technology or to expand current ITS coverage in 2016 through 2019?**

- Yes
  - Check all that apply:
    - Invest in new ITS
    - Expand current ITS coverage
- No

**67. b. Please describe new ITS (if applicable):**

## PUBLIC SAFETY FOR PEOPLE WITH DISABILITIES

**68. Has your agency deployed any technologies to support transport of people with disabilities? (Check all that apply)**

- Paratransit travel apps
- Navigation app using GPS-enabled mobile phones
- Audio-tactile mapping tools supporting wayfinding
- Augmentative communication system
  - Speech
  - Gestures
  - Sign language
  - Symbols
- Interactive voice response
- Automated audio and visual announcements of routes and stops
- Magnification software to enlarge text
- Audio and Braille equipped fare vending machines
- Other (please specify):

## STANDARDS

**69. Please check any of the following transit-related ITS standards implemented by your agency. (check all that apply)**

- Transit Communication Interface Profiles (TCIP)
- General Transit Feed Specifications (GTFS) (Exfacto Standards)
- NTCIP Advanced Traveler Information System (ATIS)
- Service Interface for Real Time Information (SIRI)
- Do not know
- Other (please specify):

**70. Are there Human Service Transportation (HST) related exchange data standards, protocols or guidelines in the transit industry which you must observe/comply?**

- Yes
- No (skip next question)

**71. Are these HST related exchange data standards, protocols or guidelines standards mandated or required by:**

- Federal
- State
- Regional body
- Do not know
- Other
- Please specify:

**72. Does your agency have observations or data driven evidence demonstrating the effectiveness of any standards?**

- Yes
- Please explain:
- No

**73. Are there specific areas of concern for which U.S./DOT FTA should establish minimum data standards?**

- Yes
- Please explain:
- No

**74. Are you aware of standards within other industries that could be used in the public transportation?**

Yes

Please explain:

No

**75. Do you feel that there are gaps or needs for data standards in public transportation?**

Yes

Please explain:

No

## ADDITIONAL COMMENTS

**76. Please use the space below to provide any additional comments regarding your agency's deployment, operations or maintenance of ITS. (Please be as specific as possible when commenting on particular ITS technologies.)**