2010 ITS Deployment Tracking National Survey

Survey Summary Report

Arterial Management

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About This Report

For more than a decade, the Intelligent Transportation Systems Joint Program Office (ITS JPO) of the Research and Innovative Technology Administration (RITA) has tracked the deployment of ITS technology through a series of national surveys of metropolitan transportation agencies. This data collection effort targets agencies involved with freeway, arterial, and transit management, public safety (law enforcement and fire/rescue/emergency medical), and toll collection, as well as transportation management systems. The most recent survey, conducted in 2010, involved distribution of 1600 surveys covering 108 metropolitan areas with a response rate of 85%.

This report covers the Arterial Management survey, and represents the results from a total of 290 responding agencies. This is one of a series of survey summaries for each of the survey types that provide an initial look at the data from the 2010 national survey. These summaries are limited to reporting the number of agencies responding to specific questions in the survey. Additional reports will be produced that cover counts and coverage of deployment of individual technologies, including deployment trends, covering national totals as well as individual cities and agencies. In addition, the 2010 survey results will be posted on line at: http://www.itsdeployment.its.dot.gov/ where results from earlier surveys are also available.

Agency Characteristics

Number of Arterial Management agencies that responded: **290**

Number of agencies WITH a documented plan to guide the management, operation and maintenance of traffic: **143**

System Performance

Number of agencies that regularly measure the performance of traffic signals: **218**
Number of agencies that use any of the following methods to gather data

- Manual methods are primarily used (citizen complaints): **220**
- Automated methods are used (travel time, cycle failure, queue length, speed): **91**

Number of agencies that detect queue lengths at intersections: **38**

Number of agencies that collect information on travel time conditions in real time using roadside infrastructure devices such as loops, radar detectors, and video image detector systems: **31**

Number of agencies that collect information on travel time conditions in real time by vehicle probes, using technology such as toll tag readers, cell phones etc.: **17**

Number of agencies where vehicle probe data is collected by:

My agency	15
Other public agency	13
Private vendor	13

Number of agencies that use the following type of vehicle probe readers to obtain traffic information:

Toll tag readers	10
GPS readers	9
Blue tooth readers	5
Cellular phone readers	5
License plate recognition	3

Hardware Characteristics of Signalized Intersections

Number of agencies that deploy the following types of signal controllers:

TS 2	129
Other	114
Model 2070	83
Model 170	72

Number of agencies with signalized intersections with electronic data collection capabilities: **223**

Number of agencies with signalized intersections that utilize the following detection technologies:

Loop detectors (volumes, speed, and density)	196
Video image detection cameras (volume, speed, and density)	167
Radar	38

Number of agencies with signalized intersections equipped with Closed Circuit Television Cameras (CCTV) for the purpose of monitoring traffic flow: **131**

Operational Strategies

Number of agencies with signalized intersections that utilize the following control modes, and the estimated percentage that are connected to a Traffic Management Center (TMC):

	Signalized Intersections	**Percent Connected**
Fully actuated	223	140
Semi-actuated	167	94
Pre-timed	123	66

Number of agencies with signalized intersections that operate in either an isolated (uncoordinated) or coordinated (common cycle length with time-based coordination using offsets) mode:

Coordinated	231
Isolated	226

Number of agencies with signalized intersections coordinated using any of the following methods:

Closed-loop with field masters only (no central management system)	108
Central management system (second-by-second control)	104
Closed-loop with field masters and central management system	70

Number of agencies with intersections actively using a traffic responsive signal timing plan: **61**

Number of agencies that use adaptive control technology to manage the effectiveness of signal timing: **26**

Number of agencies with signalized intersections under the following traffic adaptive control:

SCATS	9
SCOOT	4
RHODES	3
OPAC	3
InSync	3
ACSLite	2

Number of agencies that DO NOT use adaptive control technology to manage the effectiveness of signal timing: **227**

Number of agencies that selected one of the following barriers as the most significant barrier to implementing adaptive control:

Cost to deploy	91
Uncertainty about benefits	72
Cost to operate & maintain	46
Complexity to operate and maintain	22
Incompatibility with existing system	19

Number of agencies that participate in a regional coordination of traffic signal timing plans: **148**

Number of agencies that operate optimization software to time signals: **195**

Number of agencies that operate any of the following lane control strategies: **28**

Reversible lanes	21
HOV lanes	7

Number of agencies that use any analysis, modeling and simulation (AMS) tools to model the arterial system: **118**

Preemption & Priority

Number of agencies with signalized intersections that allow for signal preemption for emergency: **220**

Number of agencies with signalized intersections that allow for signal priority for transit: **55**

Number of agencies that user the following methods of signal timing intervention:

Green time extension	63
Phase truncation (preemption)	44

Number of agencies with signalized intersections within 200 feet of a highway-rail intersection that adjust signal timing in response to train crossing to avoid vehicle entrapment: **148**

Automated Enforcement

Number of agencies that use automated enforcement in facilities under its jurisdiction: **78**
Number of agencies that DO NOT use automated enforcement in facilities under its jurisdiction: **198**

Number of agencies with the following types of automated enforcement:

Red light running	74
Speeding	21
Rail road crossings	6

Travel Reporting

Number of agencies with permanent Dynamic Message Signs (DMS) deployed on arterials: **76**

Number of agencies with arterial centerline miles covered by Highway Advisory Radio (HAR): **21**

Number of agencies that use the following methods to disseminate traveler information on arterials:

Webpage	117
Dynamic Message Signs	63
511	42
Email or alert to desktop	41
Posting on Twitter or other social networking site	28
Email or alert to mobile device such cell phone or smart phone	22
Highway Advisory Radio	22
Subscription service	18
Other (non-511) telephone system	4

Arterial travel time reporting:

Number of agencies that report arterial travel time data on arterials	21
Number of agencies that report travel time by segment	9
Number of agencies that report ravel time over selected route	13
Number of agencies that report other types of travel time	5

Roadway or lane blocking incident and events reporting:

Number of agencies that report roadway or lane blocking incidents and events on arterials	84
Number of agencies that report roadway or lane blocking incidents and events by incident location	84
Number of agencies that report roadway or lane blocking incidents and events by incident duration	47
Number of agencies that report other type of roadway or lane blocking incidents and events	20

Construction activities affecting travel conditions reporting:

Number of agencies that report construction activities affecting travel conditions (e.g., lane closures)	142
Number of agencies that report construction location	142
Number of agencies that report construction duration	118
Number of agencies that report number of lanes closed	98
Number of agencies that report other construction activities	7

Roadway weather observations reporting:

Number of agencies that report roadway weather observations	*23*
Number of agencies that report temperature	12
Number of agencies that report precipitation	15
Number of agencies that report other roadway weather observations	9

Arterial Incident Management

Number of agencies with arterial miles patrolled by service patrols: **30**

Number of agencies with arterial miles covered by each of the following incident detection/verification methods:

CCTV	61
Computer algorithms	3

Number of agencies that user any of the following technologies your agency uses to detect arterial incidents:

Public Safety Computer Aided Dispatch	38
Inductive loop or acoustic roadway detectors	14
Wireless enhanced 911	8
Traveler reported photographs or video from cell phones	7
Mayday or Advanced Crash Notification	0

Number of agencies that deploy variable speed systems: **9**

Safety and Weather Capabilities

Number of agencies that use electronic technologies to improve the safety and mobility of pedestrians or bicyclists: **177**

Number of agencies that user the following types of technologies:

Countdown pedestrian signals	204
Pedestrian-activated flashing beacons	92
Dynamic no right turn on red signs	52
Bicyclist-activated signals	49
In-roadway flashing lights	45
Automatic pedestrian detection	25
Smart lighting (brightens when pedestrians are present)	3

Number of agencies that have in-pavement sensors to detect the condition of the pavement: **25**

Number of agencies that deploy any Environmental Sensor Stations (ESS): **32**

Number of agencies that collect:

Temperature	33
Precipitation (rain)	29
Wind speed	28
Humidity	24
Precipitation (snow)	19

Number of agencies that have traffic signal plans designed specifically for inclement weather: **21**

Number of agencies that use any of the following criteria to implement weather-related signal timing plan:

Slick pavement (due to water, snow or ice)	8
Heavy precipitation	7
Traffic volume	5
Time of day	5
Low visibility (due to fog, wind-blown snow, dust, smoke, etc.)	3
Light precipitation	0

Parking Management Capabilities

Number of agencies that deploy parking management systems that monitor the availability of parking: **22**

Number of agencies that disseminate parking availability information to drivers: **22**

Number of agencies that use a parking pricing strategy (e.g., peak period surcharges) to manage congestion: **12**

Corridor Management

Number of agencies that HAVE identified corridors for the purpose of integrating operations across freeways, major arterials, and/or public transit services: **89**

Number of agencies that currently coordinated services across the corridor and that envision services coordinated in the future by service type:

Service	**Number of agencies**	
	Currently Coordinated	**Future**
Cross jurisdictional traffic signal coordination	81	32
Traffic incident management	39	40
Real-time transfer of performance information	9	42
Electronic toll tags used by other toll road operators	2	12
Traffic responsive signal timing	21	34
Ramp control	15	20
Inclement weather traffic control strategies, treatments, warnings, or road closures	15	20
Transit operations	22	31
Planned special events	50	27
Coordinate traffic signal operations with freeway congestion or value pricing	8	31
Other	1	3

Level of Integration

Number of agencies that provide arterial travel time, speed, and condition information in real-time (as these events occur) to the following types of agencies:

Agency Type	Number of agencies
Agencies involved in incident management	27
Freeway management agencies	25
Arterial management agencies	24
Public transit agencies	18

Data Collection and Archiving

Number of agencies that archive any operational data: **130**

Number of agencies that archive the following information from sensors:

Traffic volume	110
Traffic speeds	68
Phasing/cycle lengths	62
Emergency vehicle signal preemption	47
Lane occupancy	44
Vehicle classification	37
Turning movements	35
Travel time	25
Incidents	23
Transit vehicle signal priority	11
Road conditions (e.g., wet, icy, etc.)	10
Weather conditions (e.g., snow, fog, rain, etc.)	8
Queues	6

Number of agencies that archive the following information from other sources:

Current work zones	43
Planned special events	38
Scheduled work zones	37
Emergency/evacuation routes and procedures	25
Route designations (snow emergency, etc.)	18
Incident status	15
Traffic video surveillance	10
Intermodal (air, rail, water) connections	2

Number of agencies that use the data for:

Traffic analysis	112
Operation planning/analysis	84
Traffic management	80
Construction impact determination	55
Capital planning/analysis	55
Traffic simulation modeling	53
Dissemination to the public	44
Measurement of performance	39
Safety analysis	35
Planned special events	33
Roadway impact analysis	22
Travel time prediction	15
Incident detection algorithm development	8
Accident prediction models	7

ITS Funding

Number of agencies that have a separate budget for ITS: **76**
Number of agencies that track the budget separately for each of the following categories:

Traffic Management or Operations Center	56
ITS Deployments	46
ITS Operations and Maintenance	45

ITS Purchase Decisions

Number of agencies that rated the importance of each of the following factors to your agency's decision to purchase ITS:

Factor	Not at all Important	Not very Important	Neutral	Somewhat Important	Very Important
Price of equipment	4	4	28	91	129
Public/constituent's Involvement	12	32	95	70	41
Funding/grant availability	3	1	17	60	171
Mobility benefits (e.g., to address congestion)	3	7	31	89	124
Safety benefits	3	0	22	79	150
Environmental benefits	6	22	63	109	55
Integration with other agencies	6	23	69	105	47
Integration with your current technologies	4	4	37	77	127
Already used by other agencies	9	20	76	107	32
Other	3	0	9	2	6

Number of agencies that have any plans to invest in new ITS technology or to expand current ITS coverage in 2010 through 2013: **162**

Expand current ITS coverage	139
Invest in new ITS	104

Benefits of Technologies

Number of agencies that rated the benefits of the following technologies based on their experience:

Technology	No Benefit 1	2	Moderate Benefit 3	4	Major Benefit 5	No Experience
Sensors, loops	1	5	28	54	165	11
Vehicle probes	4	12	20	18	11	187
Adaptive traffic signal control	7	13	23	33	35	146
Cameras	1	4	27	49	135	44
Lane management	7	10	17	24	19	174
Traveler information	3	11	43	28	54	113
Automated enforcement	12	19	29	22	20	153
Archived data	2	9	44	67	37	95