2002 Arterial Management Survey

CHARACTERISTICS OF SIGNALIZED INTERSECTIONS

NOTE: The "2002 Estimated Total by 2005" figures and selection information are not included in the companion Excel Spreadsheets.

1. **Total number of signalized intersections operated by your agency**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

2. **Number of signalized intersections operated by your agency under closed loop or central system control**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

3. **Number of signalized intersections operated by your agency that allow signal preemption for emergency vehicles**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

4. **Number of signalized intersections operated by your agency that allow signal priority for transit vehicles**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

5. **Number of signalized intersections operated by your agency within 200 feet of a highway-rail intersection that adjust signal timing in response to train crossing to avoid vehicle entrapment**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

6. **Total number of signalized intersections with automated photo red light running enforcement**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

Real-time electronic traffic data collection

7. **Total number of signalized intersections with electronic data collection capabilities**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

Please indicate the number of signalized intersections that have the following data collection technologies

Technology	Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Loop detectors (for volumes, speed, and density)	Provided to Surveyee	Provided to Surveyee		
Video detection cameras (for volume, speed, and density)	Provided to Surveyee	Provided to Surveyee		
Other:	Provided to Surveyee	Provided to Surveyee		

ROADSIDE TECHNOLOGIES TO DISTRIBUTE EN-ROUTE TRAVELER INFORMATION

8. **Total miles covered by Highway Advisory Radio (HAR)**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

9. **Total number of Permanent CMS deployed on arterials**

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

HIGHWAY-RAIL INTERSECTIONS

10. Total number of highway-rail intersections:

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

11. Total number of highway-rail intersections under electronic surveillance:

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

12. Total number of highway-rail intersections with vehicle intrusion detection devices

Total in 2000	2000 Estimated total by 2005	Total in 2002	2002 Estimated total by 2005
Provided to Surveyee	Provided to Surveyee		

METHODS USED TO DISTRIBUTE INFORMATION TO THE PUBLIC

Please enter the current information for 2002 and the current estimate for 2005 in the boxes provided. We have entered the information your agency provided in 2000 to assist you.

NOTE: The "2002 Response by 2005" figures and selection information are not included in the companion Excel Spreadsheets.

13a. Please check all the methods that your agency uses, or will use, to distribute Arterial travel times, speeds, and conditions and/or Incident information to the public.

	2002 Response in 2002	2002 Response by 2005
Dedicated cable TV:		
Automated telephone system:		
Internet Web sites:		
Pagers or personal data assistants:		
Interactive TV:		
Kiosks:		
E-mail or other direct PC communication:		
In-vehicle navigation systems:		
Facsimile:		
Do not distribute information:		
511 Telephone System:		
Other (please specify):		

13b. Please check all the methods that your agency uses, or will use, to distribute Incident information(e.g. type, severity, etc.).

	2002 Response in 2002	2002 Response by 2005
Dedicated cable TV:		
Automated telephone system:		
Internet Web sites:		
Pagers or personal data assistants:		
Interactive TV:		
Kiosks:		
E-mail or other direct PC communication:		
In-vehicle navigation systems:		
Facsimile:		
Do not distribute information:		
511 Telephone System:		
Other (please specify):		

INTEGRATION

14. Does your agency provide arterial travel time, speed, and condition information in real-time to the following type of agencies?

	2002 Response
Agencies involved in highway incident management:	Yes No
Freeway Management Agencies:	Yes No
Arterial Management Agencies:	Yes No
Public Transit Agencies:	Yes No

15. Does your agency receive information on highway-rail intersection crossing blockages for the purpose of managing incident response?

Yes
No

16. Does your agency share, in real-time, timing plans with another agency, coordinate changes to timing plans with another agency, and/or turn over control of signals to another agency?

	2002 Response
Share timing plans information in real-time:	Yes No
Coordinate changes to timing plans:	Yes No
Turn over control of signals:	Yes No

17. **Does your agency receive, in real-time, arterial travel times derived from vehicle probes from any toll collection agency?**

        Yes
        No
        No toll collection

TRAFFIC INCIDENT MANAGEMENT

NOTE: The "2002 Estimated Total by 2005" figures and selection information are not included in the companion Excel Spreadsheets.

Service Patrols:

18. **Total number of arterial miles patrolled by service patrols**

Total in 2002	2002 Estimated total by 2005

19. **Total number of vehicles operated**

Total in 2002	2002 Estimated total by 2005

20. **Service Hours**

        Peak hours only
        24/7
        Other (please specify)

Incident Detection and Verification Methods:
Please provide the miles covered by each of the following incident detection/verification methods:

21. **Free cellular phone call to a dedicated phone number other than 911**

Miles covered in 2002	2002 estimated miles covered by 2005

22. **Computer algorithms**

Miles covered in 2002	2002 estimated miles covered by 2005

23. **CCTV**

Miles covered in 2002	2002 estimated miles covered by 2005

24. Other (please specify)

Miles covered in 2002	2002 estimated miles covered by 2005

SAFETY AND WEATHER

25. Do you have traffic signal timing plans specifically for inclement weather?
      Yes
          Do you select plans based on the following? (Check all that apply)
          Snow
          Rain
          Fog
          Other (please specify)
      No

26. Do you have a Pedestrian Safety Program to reduce fatalities, injuries, or conflicts to pedestrians?
      Yes, formal
      Yes, informal
      No
      Don't Know

27. Do you use electronic devices to collect Pedestrian data (e.g. pedestrian crossing or walking on the sidewalk)?
      Yes
          What types of devices are used? (Check all that apply)
          Infrared detection
          Video imaging
          Push button related
          Automatic detection
          Other (please specify)
      No

28. Do you use electronic technologies to improve the safety and mobility of pedestrians?
      Yes
          What types of technologies are used? (Check all that apply)
          Infrared
          In-pavement lighting
          Countdown signals
          Automatic detection
          Video imaging
          Other (please specify)
      No

29. Does your agency use automated enforcement in facilities under its jurisdiction?
    Yes
        What types of automated enforcement are used? (Check all that apply)
        Speeding
        Red-light running
        Rail Road crossings
        Other (please specify)
    No

30. With which agencies are the automated enforcement data shared?

31. With which agencies are the automated enforcement data coordinated?

32. Do you have a program for setting speed limits on arterials?
    Yes
        What is it based on? (Check all that apply)
        The 85th percentile
        Engineering judgment
        Speed studies
        Radar studies
        Type of arterial
        Other (please specify)
    No

33. Has your agency deployed any Road Weather Information Systems (RWIS)?
    Yes
        How many have you deployed?
        What information is collected? (Check all that apply)
            Temperature
            Humidity
            Wind speed
            Wind direction
            Precipitation (rain)
            Precipitation (snow)
            Other (please specify)
    No

34. Does your agency have any in-pavement sensors to detect the condition of the roadway?
    Yes
        What conditions are measured? (Check all that apply)
            Temperature
            Presence of water
            Presence of ice
            Anti-icing chemical concentration
            Other (please specify)

35. Does your agency receive weather products tailored to your particular requirements?
    Yes
    No

NATIONAL ITS STANDARDS

36. **Please check the ITS standards, or groups of standards, that are used in your operational arterial management systems. The U.S. DOT ITS Standards Program recognizes that there may be other ITS standards surveys being conducted by other entities. If this is the case, please pardon any overlap; however, your input to these surveys will help the U.S. DOT ITS Standards Program better serve your needs and requirements. If no standards are used, skip to the question 40.**

List of standards to consider when deploying arterial management projects:

COMMERCIAL VEHICLE OPERATIONS
ANSI TS285 - Commercial Vehicle Safety and Credentials Information Exchange
ANSI TS286 - Commercial Vehicle Credentials

DEDICATED SHORT RANGE COMMUNICATIONS
ASTM N/A - Standard Specification for 5.9 GHz Data Link Layer
ASTM N/A - Standard Specification for 5.9 GHz Physical Layer
ASTM PS 105-99 - Specification for DSRC Data Link Layer: Medium Access and Logical Link Ctrl.
ASTM PS 111-98 - Specification for DSRC Physical Layer using Microwave in the 902-928 MHz

INCIDENT MANAGEMENT
IEEE P1512-2000 - Standard for Common Incident Management Message Sets (IMMS) for use by EMCs
IEEE P1512.1 - Standard for Traffic Incident Management Message Sets for Use by EMCs
IEEE P1512.a - Standard for Emergency Management Data Dictionary
IEEE P1556 - Security/Privacy of Vehicle/RS Communications including Smart Card Comm.

CENTER-TO-CENTER COMMUNICATIONS
ITE TM 2.01 - Message Sets for External TMC Communication (MS/ETMCC)
NTCIP 2305 - Application Profile for Common Object Request Broker Architecture (CORBA)
NTCIP 2501 - Information Profile for DATEX
NTCIP 2502 - Information Profile for CORBA NTCIP 1104 - CORBA Naming Convention
NTCIP 1105 - CORBA Security Service
NTCIP 1106 - CORBA Near-Real Time Data Service

TRANSIT
NTCIP 1400 - TCIP - Framework Document
NTCIP 1401 - TCIP - Common Public Transportation (CPT) Business Area Standard
NTCIP 1403 - TCIP - Passenger Information (PI) Business Area Standard
NTCIP 1404 - TCIP - Scheduling/Runcutting (SCH) Business Area Standard
NTCIP 1405 - TCIP - Spatial Representation (SP) Business Area Standard
NTCIP 1406 - TCIP - Onboard (OB) Business Area Standard
NTCIP 1407 - TCIP - Control Center (CC) Business Area Standard
NTCIP 1408 - TCIP - Fare Collection (FC) Business Area Standard

ADVANCED TRAVELER INFORMATION SYSTEM (ATIS)
SAE J2353 - Data Dictionary for Advanced Traveler Information System (ATIS)
SAE J2354 - Message Set for Advanced Traveler Information System (ATIS)
SAE J2529 - Rules for Standardizing Street Names and Route Ids
SAE J2540 - Messages for Handling Strings and Look-Up Tables in ATIS Standards

ADVANCED TRANSPORTATION CONTROLLER (ATC)
ITE 9603-1 - ATC Application Program Interface (API)
ITE 9603-2 - ATC Cabinet
ITE 9603-3 - Advanced Transportation Controller (ATC)

ASTM AG - ADMS Standard Guidelines

ASTM DD - ADMS Data Dictionary Specifications

ITE TM 1.03 - Standard for Functional Level Traffic Management Data Dictionary (TMDD)

NTCIP 1101 - Simple Transportation Management Framework (STMF)

NTCIP 1102 - Base Standard: Octet Encoding Rules (OER)

NTCIP 1103 - Simple Transportation Management Protocol (STMP)

NTCIP 1201 - Global Object Definitions

NTCIP 1202 - Object Definitions for Actuated Traffic Signal Controller Units

NTCIP 1204 - Object Definitions for Environmental Sensor Stations & Roadside Weather Info. System

NTCIP 1205 - Data Dictionary for Closed Circuit Television (CCTV)

NTCIP 1206 - Data Collection & Monitoring Devices

NTCIP 1208 - Object Definitions for Video Switches

NTCIP 1209 - Transportation System Sensor Objects

NTCIP 1210 - Objects for Signal Systems Master

NTCIP 1211 - Objects for Signal Control Priority

NTCIP 1301 - Message Set for Weather Reports

NTCIP 2001 - Class B Profile

NTCIP 2101 - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile

NTCIP 2102 - Subnet Profile for PMPP Over FSK modems

NTCIP 2103 - Subnet Profile for Point-to-Point Protocol using RS 232

NTCIP 2104 - Subnet Profile for Ethernet

NTCIP 2201 - Transportation Transport Profile

NTCIP 2202 - Internet (TCP/IP and UDP/IP) Transport Profile

NTCIP 2301 - Application Profile for Simple Transportation Management Framework (STMF)

NTCIP 2302 - Application Profile for Trivial File Transfer Protocol

NTCIP 2303 - Application Profile for File Transfer Protocol (FTP)

NTCIP 2304 - Application Profile for Data Exchange ASN.1 (DATEX)

NTCIP 8003 - Profiles - Framework and Classification of Profiles

37. What factors helped your agency decide to use ITS standards? Please pick top three factors

	1	2	3
Options offered in the standards			
Products employ standards			
Regional architecture document requirements			
Additional funding provided			
Integration opportunities			
Consultant or integrator's recommendation			

38. **For ITS standards that are used in operational systems, what level of detail was specified in the procurement specification document(s)?**

Brief statement such as "Devices must be NTCIP compliant" was used. Please list the project name(s) that included this statement

A detailed write up of the specification and options from the standard was developed by: Please list project name(s) next to each option

Agency (in-house)

Consultant

Systems integrator

39. **If you are using ITS standards, do you feel that using the standards helped with the integration needs for your agency? Please list project name(s) next to each option**

Absolutely

Somewhat

Not exactly

40. **If no ITS standards are currently used, what factors will ensure that your agency uses ITS standards? Please pick top three factors (if standards are used check no. 1 on the first option and move on to next question).**

	1	2	3
We are already committed to using standards			
Vendors providing products that use ITS standards			
Standards being accepted by the ITS community and being used in deployments			
Training and technical support being provided to my agency			
My agency being involved with standards development			
Additional funding being provided to use the standards			
Standards use enables interoperability of systems			
Other (please specify)			

41. **What tool, resource, or support mechanism was/would be most helpful for implementing the standards? Please pick top three, check only one item in each column.**

	1	2	3
Training courses			
Standards documents			
Workshops			
Standards Web site			
Standards forum			
Reference implementation			
E-mail bulletins			
Resource documents (i.e. user guides and reference notebooks)			
Testing tools			
Case studies of other similar projects that used standards successfully			
Other (please specify)			

Technical assistance. Again, please pick top three

	1	2	3
Training courses			
Standards documents			
Workshops			
Standards Web site			
Standards forum			
Reference implementation			
E-mail bulletins			
Resource documents (i.e. user guides and reference notebooks)			
Testing tools			
Case studies of other similar projects that used standards successfully			
Other (please specify)			

42. **If plans for using ITS standards are underway in projects, at what stage will these deployment projects be in the spring of 2002? Please list project name(s) next to each option.**

    Transportation Improvement Plan

    Procurement specification

    Design

    Systems integration

    System testing and acceptance

43. **Who can we contact in your agency regarding ITS standards?**
    Name:
    Affiliation:
    Phone:
    E-mail:

    NOTE: This information is not included in the companion Excel Spreadsheets.

DATA COLLECTION AND ARCHIVING

44. **Do you have an Archived Data Management System as described in the National ITS Architecture?**
    Yes
    No

45. **How are data archived? (Check all that apply)**
    Computer database - Store raw data. (e.g., sensor feed)
    Computer database - Store processed data (e.g., traffic conditions)
    Other (please specify)

46. **Is an assessment of data quality included with the archived data?**
    Yes
       What are the measures?

    No

47. Please check all the methods your agency uses to make the archived data available?

　　On-line (Web)
　　CD
　　Paper reports
　　Other (please specify)

Please enter the current information for 2002 in the boxes provided. We have entered the information your agency provided in 2000 to assist you.

48. Please check the information that your agency collects/archives in real-time

	Collected in 2000	Archived in 2000	Collect in 2002	Archive in 2002
Traffic volumes	Provided to Surveyee	Provided to Surveyee		
Traffic speeds	Provided to Surveyee	Provided to Surveyee		
Lane occupancy	Provided to Surveyee	Provided to Surveyee		
Vehicle classification	Provided to Surveyee	Provided to Surveyee		
Travel time	Provided to Surveyee	Provided to Surveyee		
Turning movements	Provided to Surveyee	Provided to Surveyee		
Queues	Provided to Surveyee	Provided to Surveyee		
Phasing/cycle lengths	Provided to Surveyee	Provided to Surveyee		
Road conditions (e.g. wet, icy, etc.)	Provided to Surveyee	Provided to Surveyee		
Emergency vehicle signal preemption	Provided to Surveyee	Provided to Surveyee		
Transit vehicle signal priority	Provided to Surveyee	Provided to Surveyee		
Weather conditions (e.g. snow, fog, rain, etc.)	Provided to Surveyee	Provided to Surveyee		
Incidents	Provided to Surveyee	Provided to Surveyee		

49. Please check the information that your agency collects/archives electronically

	Collected in 2000	Archived in 2000	Collect in 2002	Archive in 2002
Route designations (snow emergency, etc.)	Provided to Surveyee	Provided to Surveyee		
Current work zones	Provided to Surveyee	Provided to Surveyee		
Scheduled work zones	Provided to Surveyee	Provided to Surveyee		
Intermodal (air, rail, water) connections	Provided to Surveyee	Provided to Surveyee		
Emergency/evacuation routes and procedures	Provided to Surveyee	Provided to Surveyee		
Incident status	Provided to Surveyee	Provided to Surveyee		
Traffic video surveillance	Provided to Surveyee	Provided to Surveyee		
Other (please specify):	Provided to Surveyee	Provided to Surveyee		
Do not collect/archive information	Provided to Surveyee	Provided to Surveyee		

50. What are the data used for?

	2000 Response	2002 Response
Do not know	Provided to Surveyee	
Traffic analysis	Provided to Surveyee	
Construction impact determination	Provided to Surveyee	
Capital planning/analysis	Provided to Surveyee	
Operation planning/analysis	Provided to Surveyee	
Incident detection algorithm development	Provided to Surveyee	
Roadway impact analysis	Provided to Surveyee	
Accident prediction models	Provided to Surveyee	
Dissemination to the public	Provided to Surveyee	
Traffic Management	Provided to Surveyee	
Measurement of performance	Provided to Surveyee	
Safety analysis	Provided to Surveyee	
Traffic simulation modeling	Provided to Surveyee	
Travel time prediction	Provided to Surveyee	
Other (please specify):	Provided to Surveyee	

EMERGENCY PREPAREDNESS

51. Does your agency participate in a statewide disaster planning program?

Yes

No

Don't know

COST AND BENEFITS

52. Is your agency willing to share COST information on ITS-related equipment (i.e., capital and O&M cost, and brief equipment description)? This information will be used to update the ITS JPO sponsored ITS unit cost database. This database provides ITS cost data for ITS implementation and is accessible at the following URL: http://www.benefitcost.its.dot.gov/.

Yes

Please provide name, phone number, and e-mail of the cost information contact if different from respondent. This person will be contacted for the cost information at a later date.

NOTE: This information is not included in the companion Excel Spreadsheets.

No

53. Is your agency willing to share BENEFITS information from ITS deployment?

Yes

Please provide name and phone number of the benefits information contact if different from respondent. This person will be contacted for the benefits information at a later date.

NOTE: This information is not included in the companion Excel Spreadsheets.

No