

Tracking the Deployment of the Integrated Metropolitan ITS Infrastructure in Albany, Schenectady, Troy

FY99 Results

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Part 1 - Background and Purpose

In January 1996, Secretary Peña set a goal of deploying the integrated metropolitan Intelligent Transportation System (ITS) infrastructure in 75¹ of the nation's largest metropolitan areas by 2006:

*"I'm setting a national goal: to build an intelligent transportation infrastructure across the United States to save time and lives, and improve the quality of life for Americans. I believe that what we do, we must measure . . . Let us set a very tangible target that will focus our attention . . . I want 75 of our largest metropolitan areas outfitted with a complete intelligent transportation infrastructure in 10 years."*²

-- Secretary Peña, 1996

In 1997, the U.S. Department of Transportation initiated an effort to track progress toward fulfillment of this goal by conducting a survey of deployment in the nation's largest metropolitan areas. Traditionally, the product of a transportation infrastructure investment consists of a fixed asset such as a highway, bridge, or public transportation vehicle developed, constructed, or purchased by a single agency. Tracking the level of deployment for such traditional fixed assets can be accomplished by simply counting the number of such assets deployed. Measuring the deployment of the metropolitan ITS infrastructure is more complex because it consists of a set of systems, often deployed by multiple agencies, and integrated through a combination of complex institutional and technical arrangements. In brief, it is often difficult to simply count the number of systems deployed without first devising a measurement approach that captures the essential features of such systems in a consistent fashion across many deployment environments.

In order to track progress toward fulfillment of the Secretary's goal for deployment, the U.S. Department of Transportation ITS Joint Program Office developed the metropolitan ITS deployment tracking methodology. This methodology tracks deployment of the nine components that make up the Metropolitan ITS infrastructure: Freeway Management; Incident Management; Arterial Management; Emergency Management; Transit Management; Electronic Toll Collection; Electronic Fare Payment; Highway-Rail Intersections; and Regional Multimodal Traveler Information. Through a set of indicators tied to the major functions of each component, the level of deployment is tracked for the nation's largest metropolitan areas. In addition, the integration links between agencies operating the infrastructure are also tracked. The details of

¹ Since Secretary Peña's speech, the number of metropolitan areas that DOT will measure has been increased from 75 to 78. However, to maintain reporting consistency across the 10-year goal period, this report considers only the original 75 metropolitan areas.

² Excerpt of a speech delivered by Secretary of Transportation Peña at the Transportation Research Board in Washington, DC on January 10, 1996.

the methodology are explained elsewhere.³

During the summer and fall of 1999, the U.S. DOT undertook a new data collection effort for the purpose of examining ITS deployment progress in the nation's largest metropolitan areas. The Albany, Schenectady, Troy metropolitan area was among the areas surveyed in 1997 and again in 1999. This report presents the results of the 1999 survey efforts and compares the results of the 1997 survey against those observed in 1999. The overall response rate for the surveys administered in the Albany, Schenectady, Troy region was 96% in 1997 and 85% in 1999.

Part 2 contains a summary of the 1999 survey results, and Part 3 provides a comparison of 1999 survey results and the 1997 survey results.

The report also contains a set of appendices containing a map of the survey area, the list of local contacts surveyed along with a status of their response to the survey and a summary of the data collected from the surveys.

Agencies are encouraged to review the data presented in this report for completeness and accuracy and to direct any comments or corrections to the data provided to the contacts listed below:

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³ Additional Resources: "Measuring ITS Deployment and Integration" (Electronic Document Number: 4372). U.S. Department of Transportation, Joint Program Office for Intelligent Transportation Systems, 400 Seventh St., SW (HVH-1), Washington, DC 20590, Phone: 202-366-9536, Fax: 202-366-3302, Web: <http://www.its.dot.gov>.

Part 2 - Summary 1999 Survey Results

Deployment indicators have been developed for two broad areas of interest: (1) the individual components, including their basic functions and characteristics and (2) integration of components, including how these components work together to provide coordinated regional service. As mentioned earlier, these indicators are expressed as percentages of the possible deployment opportunity and not necessarily what should be deployed based on local needs. Requirements for deployment and integration between each component will vary based on local conditions and cannot be assigned without extensive coordination with individual metropolitan areas.

The following two figures portray the surrogate indicators for each of the nine components in Albany, Schenectady, Troy and the same indicators at the national level. These are judged to be the single best representative of a component and are being used as summary indicator for component. The summary indicators are expressed as a percentage; however, because deployment goals have yet to be established, these indicators should not be read as a comparison of what is deployed versus eventual deployment goals. Instead, they only reflect what is deployed compared to full market saturation (i.e., opportunity for deployment).

Each component indicator was selected to reflect a critical function of the individual components. For example, in the case of Freeway Management, three basic functions were defined: surveillance, traffic control, and information display. The three indicators developed to reflect these functions are: percentage of freeway centerline miles under electronic surveillance (surveillance function), percentage of freeway entrance ramps managed by ramp meters (traffic control function), and percentage of freeway centerline miles covered by permanent VMS, HAR, or in-vehicle signing (information display function). The indicators are surrogates that do not necessarily reflect the full breadth of metropolitan ITS deployment activity.

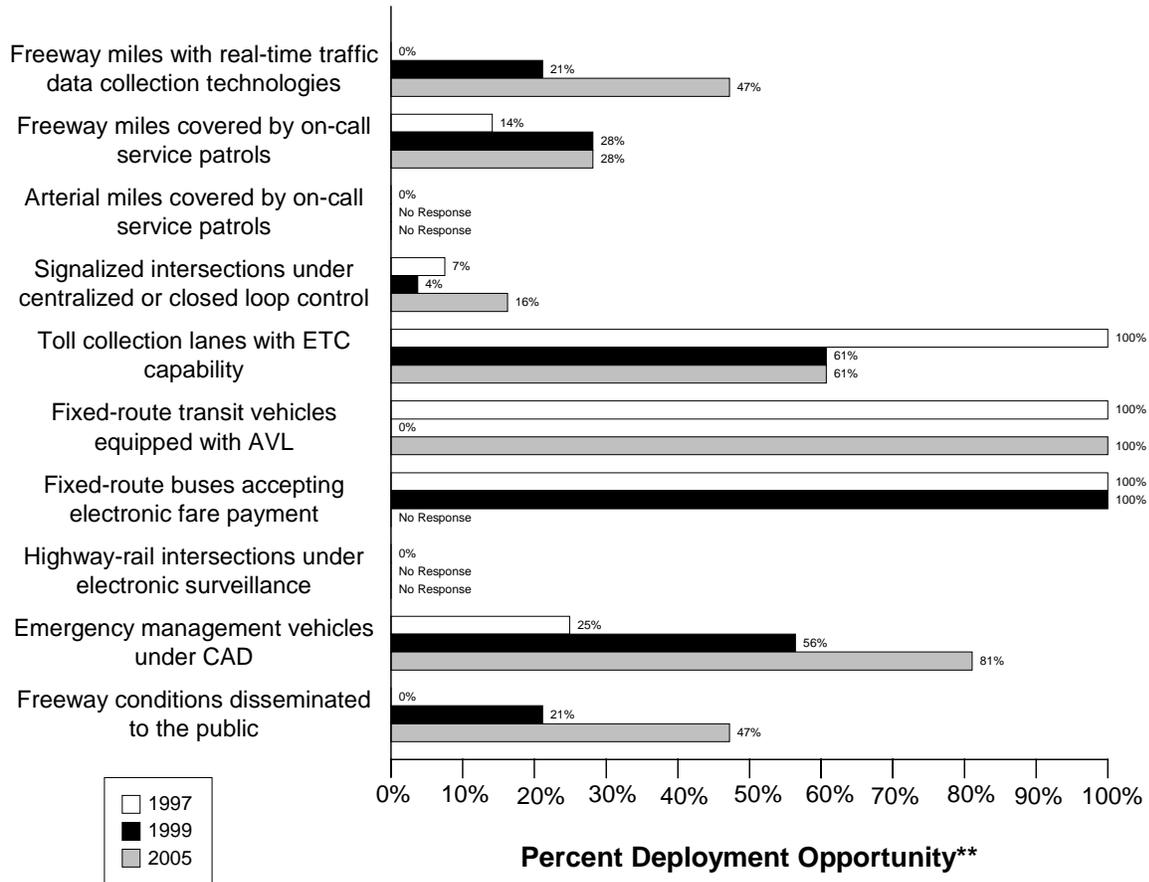
A critical aspect of ITS that provides much of its capability is the integration of individual components to form a unified regional traffic control system. Individual ITS components routinely collect information that is used for purposes internal to that component. For example, the Arterial Management component monitors arterial conditions to revise signal timing and to convey these conditions to travelers through such technologies as variable message signs and highway advisory radio. Other ITS components can make use of this information in formulating their control strategies. For example, Transit Management may alter routes and schedules based on real-time information on arterial traffic conditions, and Freeway Management may alter ramp metering or diversion recommendations based on the same information.

As with the component indicators, definitions for inter- and intra-component integration were developed for each component, and indicators, derived from these definitions, were produced for each component. A total of 34 individual integration indicators was specified and is portrayed in the third figure which follows. Each integration indicator has been assigned a number and an origin/destination path from one ITS infrastructure component to another. For example, the

integration of information from the Freeway Management component to the Regional Multimodal Traveler Information component is identified by the number “10.”

Data as of 5/1/00

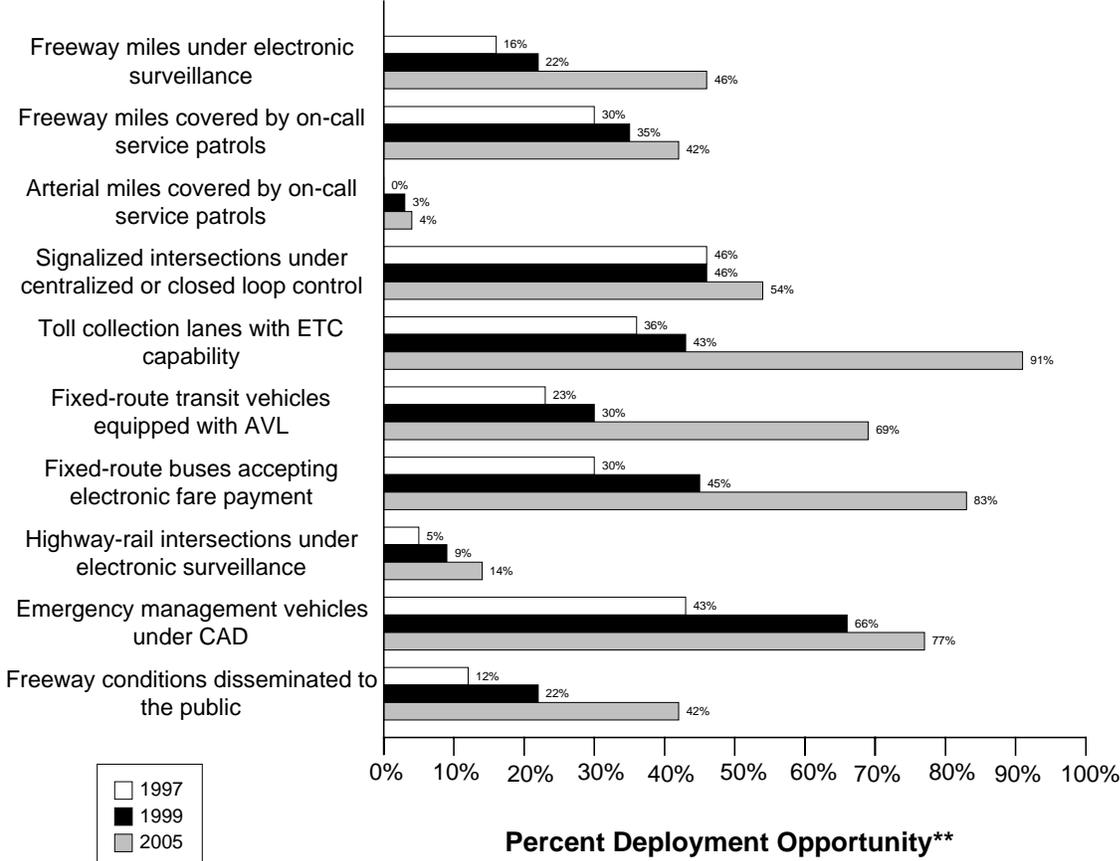
Albany, Schenectady, Troy Summary Indicators*



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

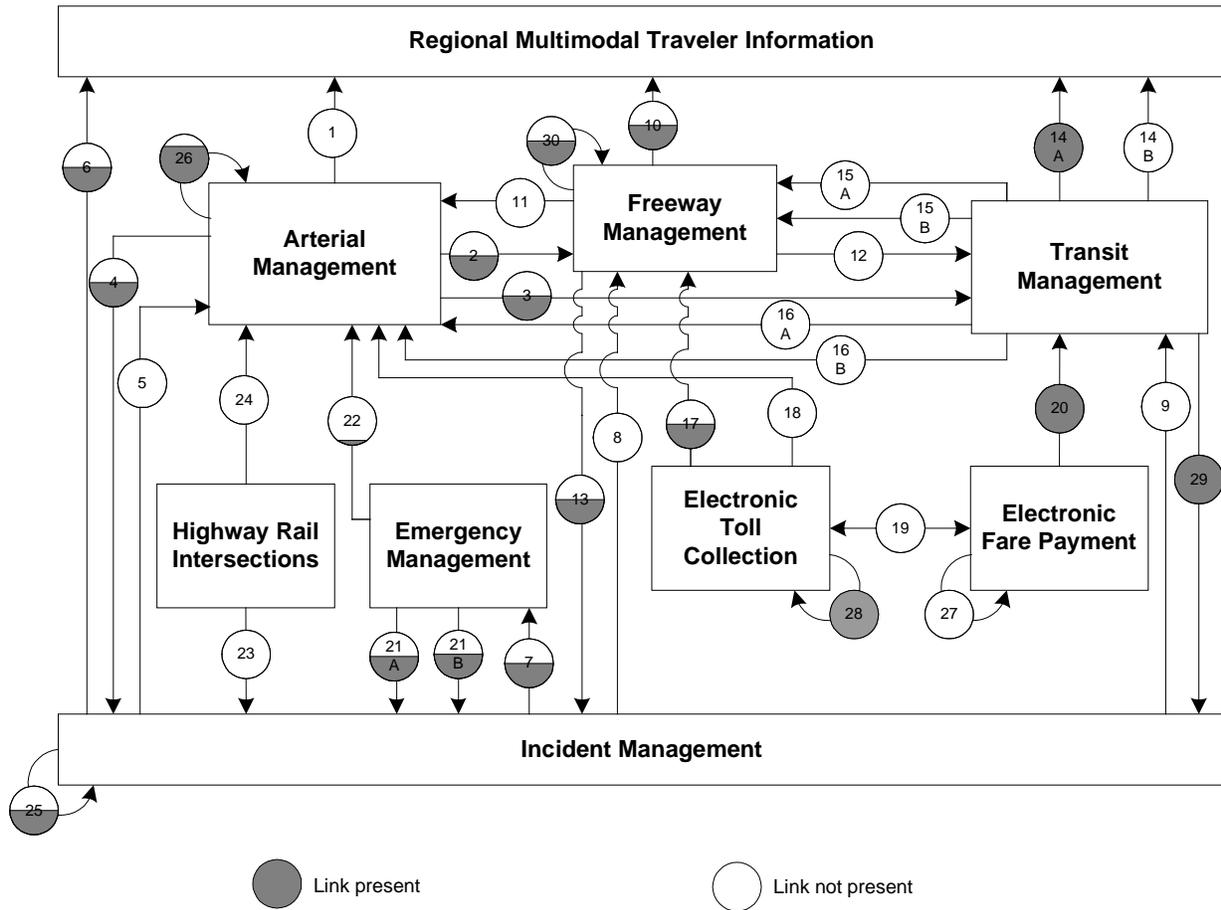
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

National Summary Indicators*



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity
 ** Deployment opportunity reflects potential totals that do not necessarily reflect actual need

Albany, Schenectady, Troy Integration Links



Note: Shading indicates the value of the link. For example a circle half shaded equals 50%

Link	Description	Link	Description
1	Arterial Management to Regional Multimodal Traveler Information	2	Arterial Management to Freeway Management
3	Arterial Management to Transit Management	4	Arterial Management to Incident Management
5	Incident Management to Arterial Management	6	Incident Management to Regional Multimodal Traveler Information
7	Incident Management to Emergency Management.	8	Incident Management to Freeway Management
9	Incident Management to Transit Management	10	Freeway Management to Regional Multimodal Traveler Information
11	Freeway Management to Arterial Management	12	Freeway Management to Transit Management

Link	Description	Link	Description
13	Freeway Management to Incident Management	14a	Transit Management to Regional Multimodal Traveler Information (static route information)
		14b	Transit Management to Regional Multimodal Traveler Information (schedule adherence information)
15a	Transit Management to Freeway Management	16a	Transit Management to Arterial Management
15b	Transit Management to Freeway Management (transit vehicle probes)	16b	Transit Management to Arterial Management (transit vehicle probes)
17	Electronic Toll Collection to Freeway Management (ETC equipped probes)	18	Electronic Toll Collection to Arterial Management (ETC equipped probes)
19	Electronic Fare Payment and Electronic Toll Collection	20	Electronic Fare Payment to Transit Management
21a	Emergency Management to Incident Management (incident notification)	22	Emergency Management to Arterial Management
21b	Emergency Management to Incident Management (incident clearance)		
23	Highway-rail intersections to Incident Management (crossing status)	24	Highway-rail intersections to Arterial Management (crossing status)
25	Incident Management intra component	26	Arterial Management intra component
27	Electronic Fare Payment intra component.	28	Electronic Toll Collection intra component
29	Transit Management to Incident Management (incident reporting)	30	Freeway Management intra component

Part 3 - Detailed 1999 Survey Results

The following figures and tables summarize the complete set of component and integration indicators developed for the Albany, Schenectady, Troy metropolitan area. The figures summarizing the component indicators consist of a bar chart portraying the deployment levels for 1997, 1999, and 2005 accompanied by detailed tables of the data used to calculate each component indicator value (*Num* stands for numerator and *Den* stands for denominator; blank space indicates that no response was received.)

Example: Calculating Component Indicators for Freeway Management

Consider a metropolitan area with 100 miles of freeway and 25 freeway entrance ramps. The area has no ramp meters, 10 freeway miles for which traffic data are collected electronically, and 5 freeway miles, which are covered by highway advisory radio.

The component indicator for electronic surveillance is calculated as $(10/100)$ or 10%.

The component indicator for ramp meter control is calculated as $(0/25)$ or 0%.

The component indicator for HAR coverage is calculated as $(5/100)$ or 5%.

The summary indicator for the metropolitan area is calculated as $(10\%+0\%+5\%)/3 = 5\%$.

The figures summarizing the integration indicators consist of a diagram for each of the nine metropolitan ITS components portraying the integration level for 1999 (*italic*) and 2005 (**bold**), accompanied by tables providing an explanation of the data and calculations performed to develop each integration indicator value for 1999 and 2005. Each diagram portrays the proportion of agencies providing information to a component (e.g., the flow of incident information from Incident Management to Freeway Management) and the proportion of agencies providing information from one component to other components (e.g., the flow of freeway travel condition information from Freeway Management to Arterial Management).

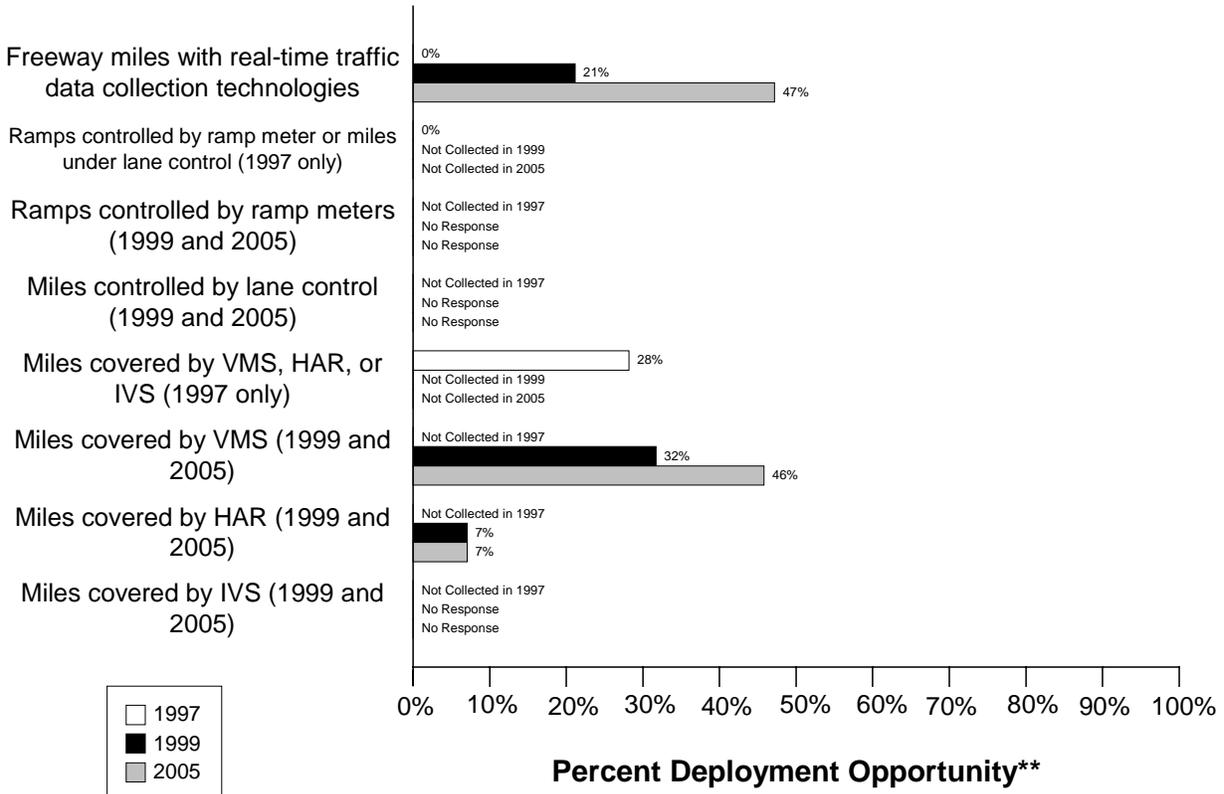
Example: Calculating Integration between Arterial Management and Regional Multimodal Traveler Information

Consider a metropolitan area with three arterial management agencies. One out of three provides information to the public using a Regional Multimodal Traveler Information Media (e.g., internet, kiosk, pager, etc...). The integration indicator is $1/3$ or 33%.

Freeway Management Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Freeway Management*



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

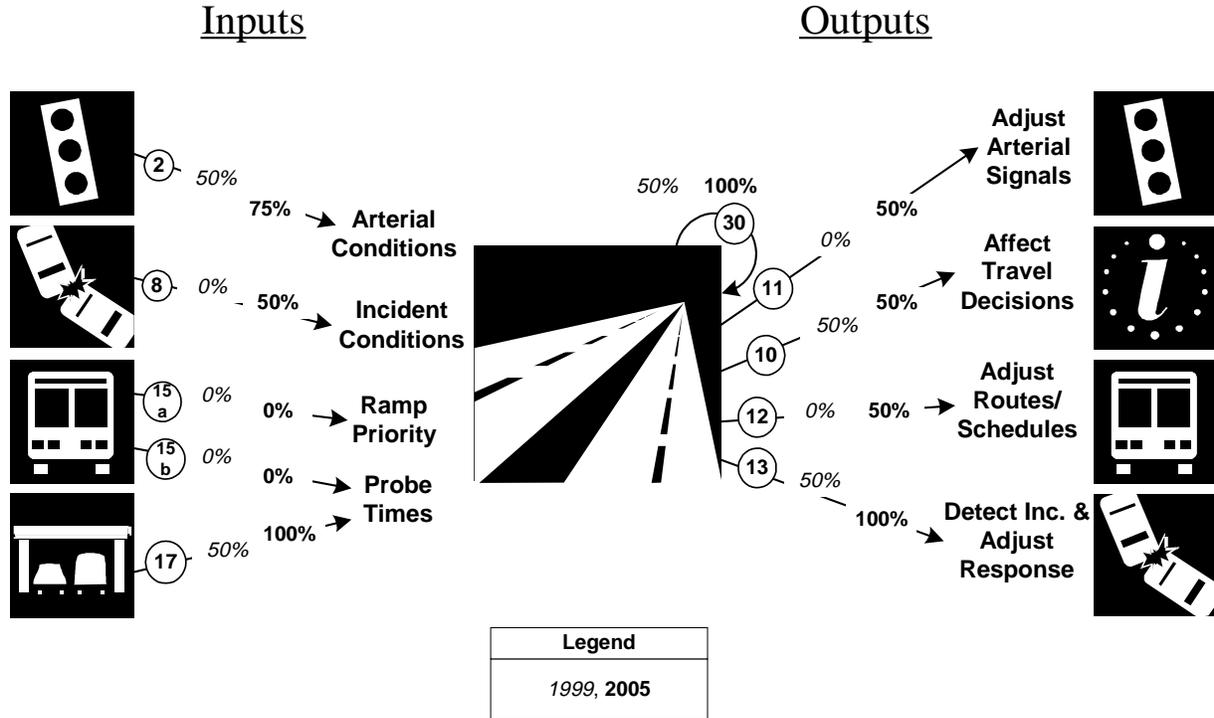
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway centerline miles are under electronic surveillance for monitoring traffic flow	0	142	0%	30	142	21%	67	142	47%
Freeway entrance ramps are controlled by ramp meters or miles under lane control	0	142	0%						

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway entrance ramps are controlled by ramp meters					86			86	
Freeway centerline miles will be controlled by lane control					142			142	
Freeway miles are covered by VMS, HAR, or IVS	40	142	28%						
Freeway miles are covered by VMS				45	142	32%	65	142	46%
Freeway miles are covered by HAR				10	142	7%	10	142	7%
Freeway miles are covered by IVS					142			142	

Freeway Management Integration Indicators

Albany, Schenectady, Troy Freeway Management Integration*



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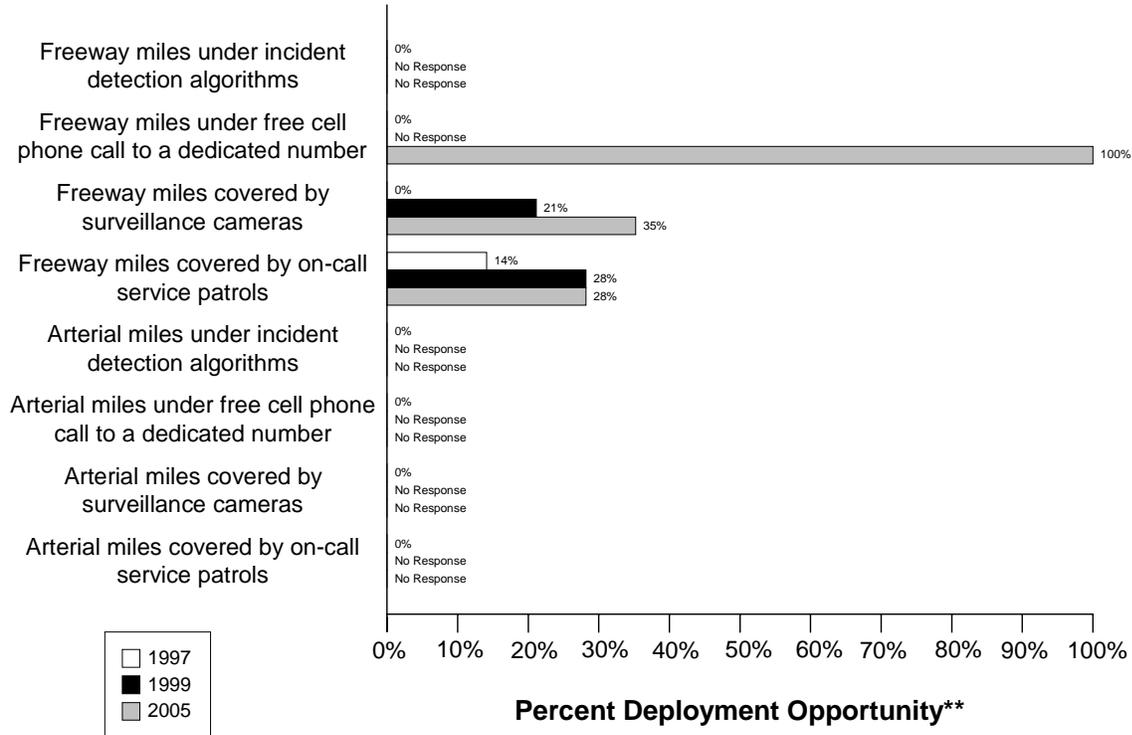
Link Description	1999	2005
2. Arterial Management agencies sending information to Freeway Management	(2 / 4) 50%	(3 / 4) 75%
8. Incident Management agencies sending information to Freeway Management	(0 / 2) 0%	(1 / 2) 50%
15a. Transit management agencies with vehicles equipped with ramp meter priority	(0 / 1) 0%	(0 / 1) 0%
15b. Transit Management agencies with vehicles equipped as probes	(0 / 1) 0%	(0 / 1) 0%
17. Freeway Management agencies receiving freeway conditions from vehicle probes	(1 / 2) 50%	(2 / 2) 100%
30. Freeway Management agencies sending information to another Freeway Management agency	(1 / 2) 50%	(2 / 2) 100%
11. Freeway Management agencies sending information to Arterial Management	(0 / 2) 0%	(1 / 2) 50%

Link Description	1999	2005
10. Freeway Management agencies disseminating freeway conditions to the public	(1/ 2) 50%	(1/ 2) 50%
12. Freeway Management agencies sending freeway conditions to Transit Management	(0/ 2) 0%	(1/ 2) 50%
13. Freeway Management agencies sending freeway conditions to Incident Management	(1/ 2) 50%	(2/ 2) 100%

Incident Management Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Freeway and Arterial Incident Management*



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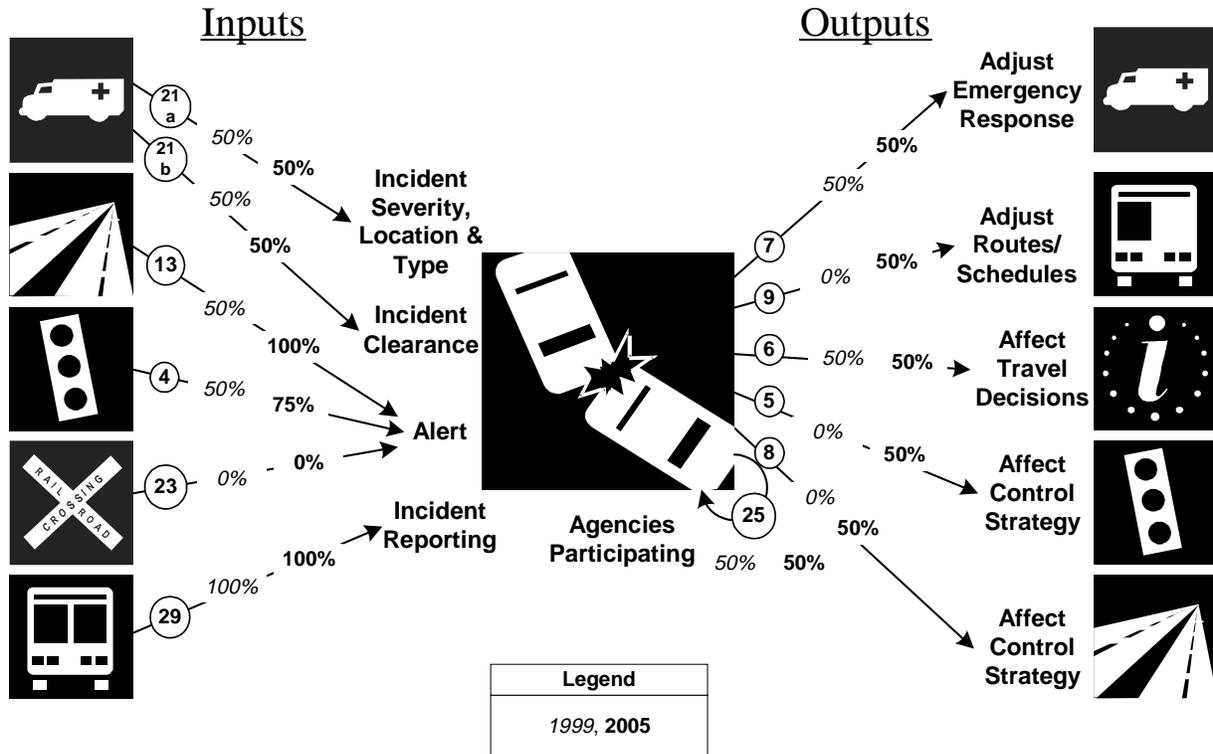
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by incident detection algorithms	0	142	0%		142			142	
Freeway miles are covered by free cellular phone calls to a dedicated number	0	142	0%		142		142	142	100%
Freeway miles are covered by surveillance cameras.	0	142	0%	30	142	21%	50	142	35%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by on-call publicly-sponsored service patrol or towing services.	20	142	14%	40	142	28%	40	142	28%
Arterial miles are covered by incident detection algorithms	0	979	0%		979			979	
Arterial miles are covered by free cellular phone calls to a dedicated number	0	979	0%		979			979	
Arterial miles are covered by surveillance cameras	0	979	0%		979			979	
Arterial miles are covered by on-call publicly-sponsored service patrol or towing services	0	979	0%		979			979	

Incident Management Integration Indicators

Albany, Schenectady, Troy

Incident Management Integration*



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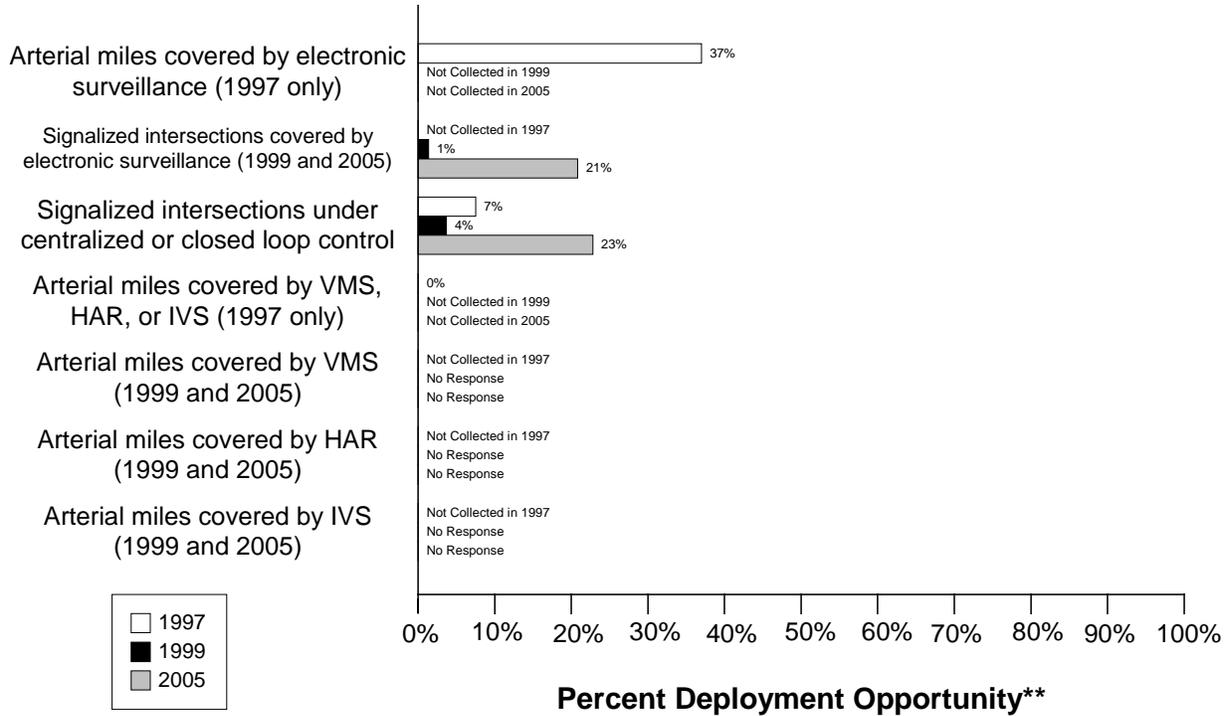
Link Description	1999	2005
21a. Incident management agencies receiving incident severity from Emergency Management	(1 / 2) 50%	(1 / 2) 50%
21b. Incident management agencies receiving incident clearance activities from Emergency Management	(1 / 2) 50%	(1 / 2) 50%
13. Freeway Management agencies sending freeway conditions to Incident Management	(1 / 2) 50%	(2 / 2) 100%
4. Arterial Management agencies sending arterial conditions to Incident Management	(2 / 4) 50%	(3 / 4) 75%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(0 / 4) 0%	(0 / 4) 0%
29. Transit Management agencies report traffic incidents as part of an organized regional incident management program	(1 / 1) 100%	(1 / 1) 100%

Link Description	1999	2005
7. Incident management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	(1/ 2) 50%	(1/ 2) 50%
9. Incident Management agencies transfer information describing incident severity, location, and type to Transit Management agencies	(0/ 2) 0%	(1/ 2) 50%
6. Incident Management agencies disseminate information describing incident severity, location, and type to the public	(1/ 2) 50%	(1/ 2) 50%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management agencies	(0/ 2) 0%	(1/ 2) 50%
8. Incident Management agencies transfer information describing incident severity, location, and type to Freeway Management agencies	(0/ 2) 0%	(1/ 2) 50%
25. Police, fire, and EMS agencies participating in a formal incident management plan/team	(6/ 12) 50%	(6/ 12) 50%

Arterial Management Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Arterial Management*



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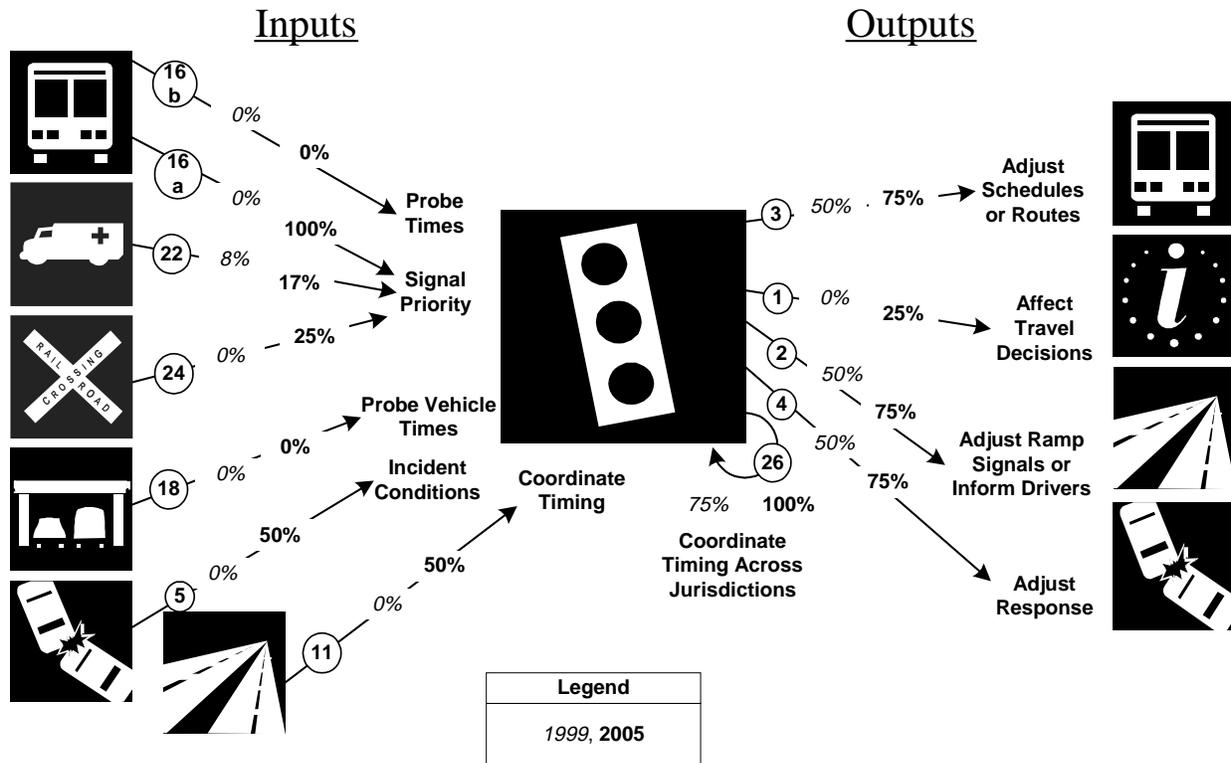
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles covered by electronic surveillance	362	979	37%						
Signalized intersections are covered by electronic surveillance for monitoring traffic flow				13	949	1%	150	720	21%
Signalized intersections are under centralized or closed loop control	34	454	7%	35	949	4%	164	720	23%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles are covered by VMS, HAR, or IVS	0	979	0%						
Arterial miles are covered by VMS					979			979	
Arterial miles are covered by HAR					979			979	
Arterial miles are covered by IVS					979			979	

Arterial Management Integration Indicators

Albany, Schenectady, Troy Arterial Management Integration*



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

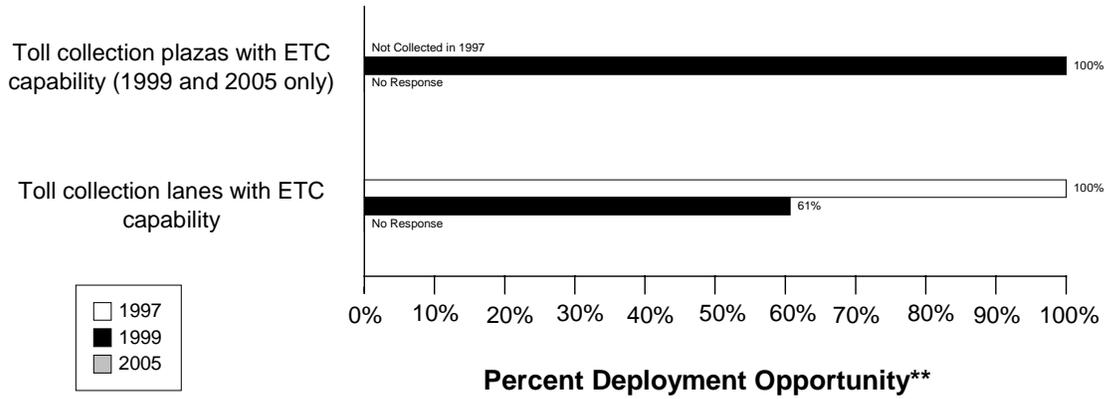
Link Description	1999	2005
16a. Transit management agencies with vehicles equipped with traffic signal priority	(0/ 1) 0%	(1/ 1) 100%
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0/ 1) 0%	(0/ 1) 0%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(1/ 12) 8%	(2/ 12) 17%
24. Arterial Management agencies have traffic signals within 200 feet of a highway rail intersection with the capability of having their signal timing adjusted in response to a train crossing	(0/ 4) 0%	(1/ 4) 25%
18. Number of Arterial Management agencies receiving information from vehicle probes	(0/ 4) 0%	(0/ 4) 0%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management	(0/ 2) 0%	(1/ 2) 50%

Link Description	1999	2005
11. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Arterial Management agencies	(0/ 2) 0%	(1/ 2) 50%
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(2/ 4) 50%	(3/ 4) 75%
1. Arterial Management agencies disseminate arterial travel times, speeds, and conditions to the public	(0/ 4) 0%	(1/ 4) 25%
2. Arterial Management agencies send traffic condition information to Freeway Management	(2/ 4) 50%	(3/ 4) 75%
4. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Incident Management	(2/ 4) 50%	(3/ 4) 75%
26. Arterial Management agencies under cooperative agreement to share traffic signal timing for coordinated response	(3/ 4) 75%	(4/ 4) 100%

Electronic Toll Collection Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Electronic Toll Collection*



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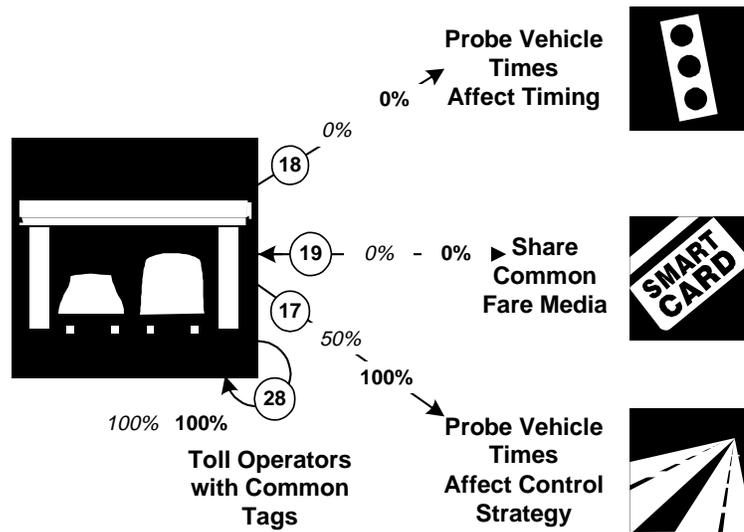
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Toll collection plazas with ETC capability				7	7	100%			
Toll collection lanes with ETC capability	40	40	100%	71	117	61%			

Electronic Toll Collection Integration Indicators

Albany, Schenectady, Troy Electronic Toll Collection Integration*

Inputs

Outputs



Legend
1999, 2005

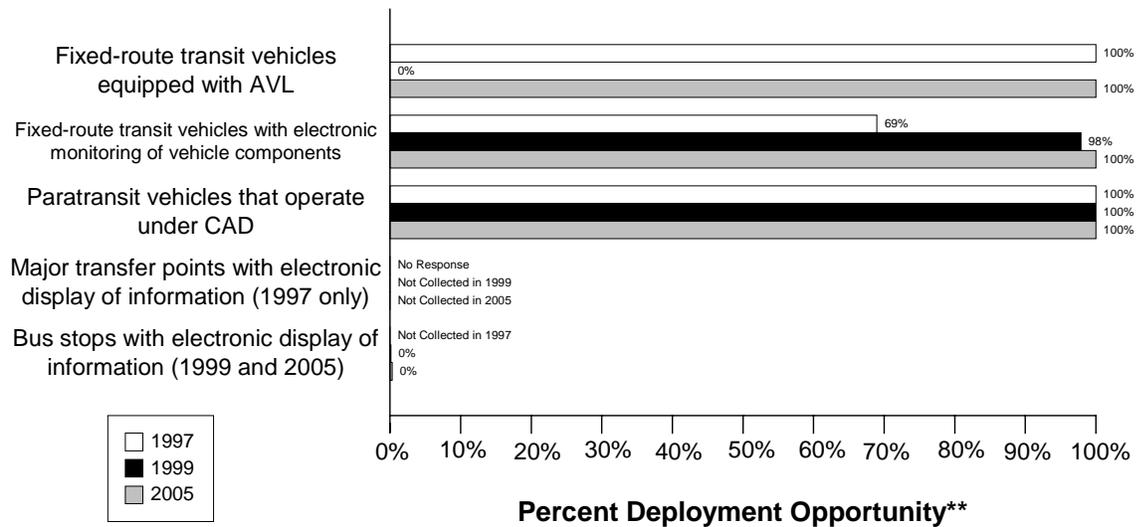
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
18. Number of Arterial Management agencies receiving information from vehicle probes	(0/ 4) 0%	(0/ 4) 0%
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	(0/ 1) 0%	(0/ 1) 0%
17. Freeway Management agencies receiving information from vehicle probes	(1/ 2) 50%	(2/ 2) 100%
28. Toll operators using common toll tag technology	(1/ 1) 100%	(1/ 1) 100%

Transit Management Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Transit Management*



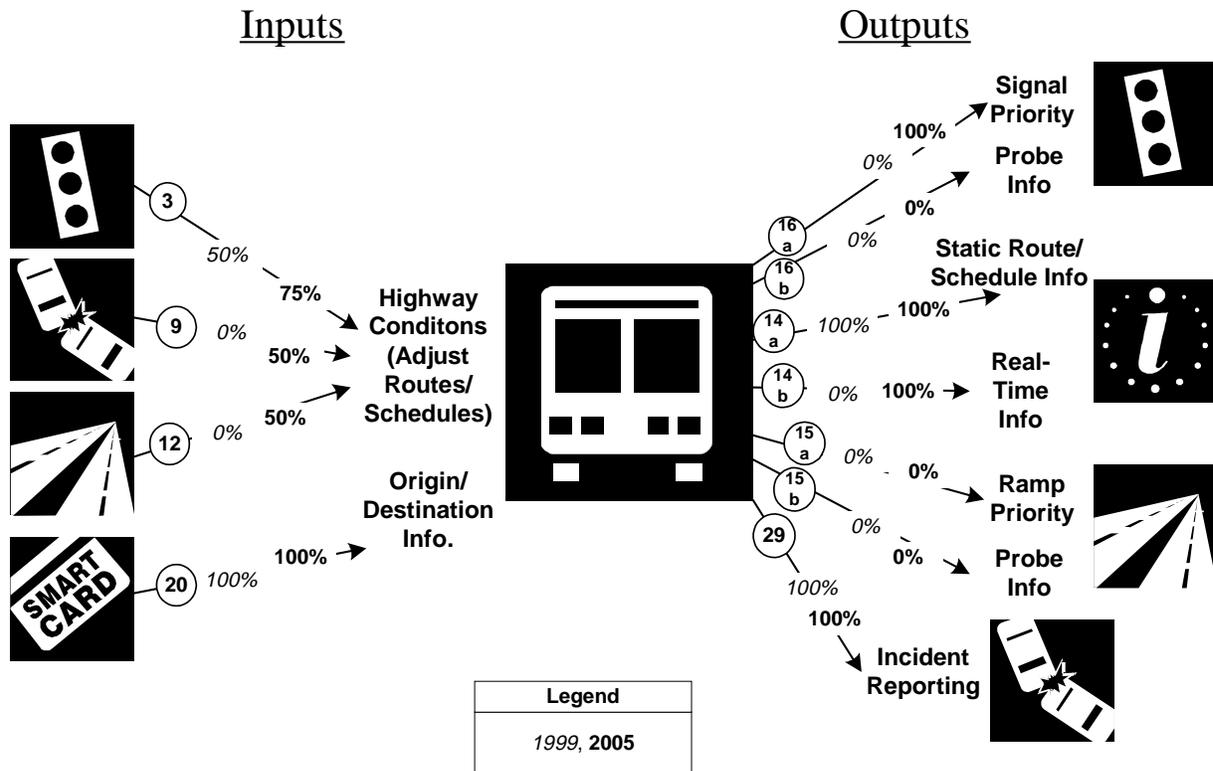
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles are equipped with AVL	232	232	100%	0	235	0%	250	250	100%
Fixed-route transit vehicles are equipped with electronic monitoring of vehicle component	160	232	69%	230	235	98%	250	250	100%
Paratransit vehicles operate under computer-aided dispatch	28	28	100%	25	25	100%	25	25	100%
Percent fixed-route transfer locations with electronic display of information	0	0							
Bus stops display information to the public				4	4000	0%	12	4000	0%

Transit Management Integration Indicators

Albany, Schenectady, Troy Transit Management Integration*



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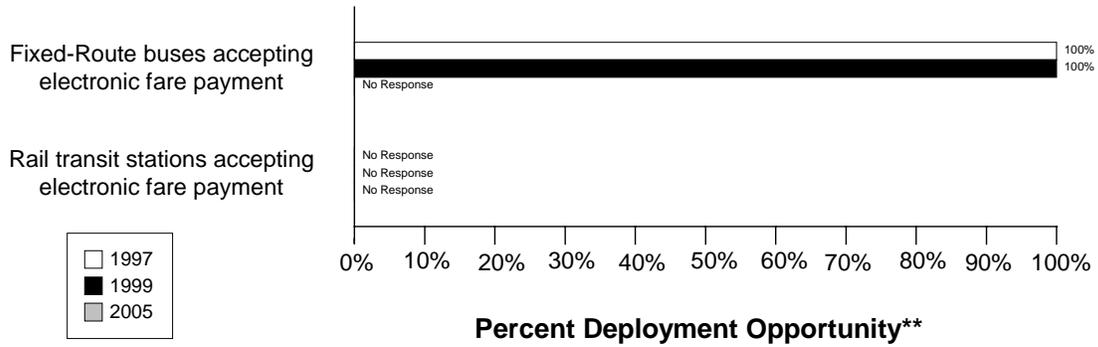
Link Description	1999	2005
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(2 / 4) 50%	(3 / 4) 75%
9. Incident management agencies transfer information describing incident severity, location, and type to Transit Management	(0 / 2) 0%	(1 / 2) 50%
12. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Transit Management	(0 / 2) 0%	(1 / 2) 50%
20. Transit Management agencies using Electronic Fare Payment data in transit service planning	(1 / 1) 100%	(1 / 1) 100%
16a. Transit Management agencies have vehicles equipped with traffic signal priority capability	(0 / 1) 0%	(1 / 1) 100%
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0 / 1) 0%	(0 / 1) 0%
14a. Transit Management agencies disseminate information describing transit routes, schedules, and fares to travelers	(1 / 1) 100%	(1 / 1) 100%

Link Description	1999	2005
14b. Transit Management agencies disseminate information describing schedule/route adherence to travelers	(0/ 1) 0%	(1/ 1) 100%
15a. Transit Management agencies have vehicles equipped with ramp meter priority capability	(0/ 1) 0%	(0/ 1) 0%
15b. Transit Management agencies have vehicles equipped as probes on freeways	(0/ 1) 0%	(0/ 1) 0%
29. Transit Management agencies that report traffic incidents as part of an organized regional Incident Management program	(1/ 1) 100%	(1/ 1) 100%

Electronic Fare Payment Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Electronic Fare Payment*



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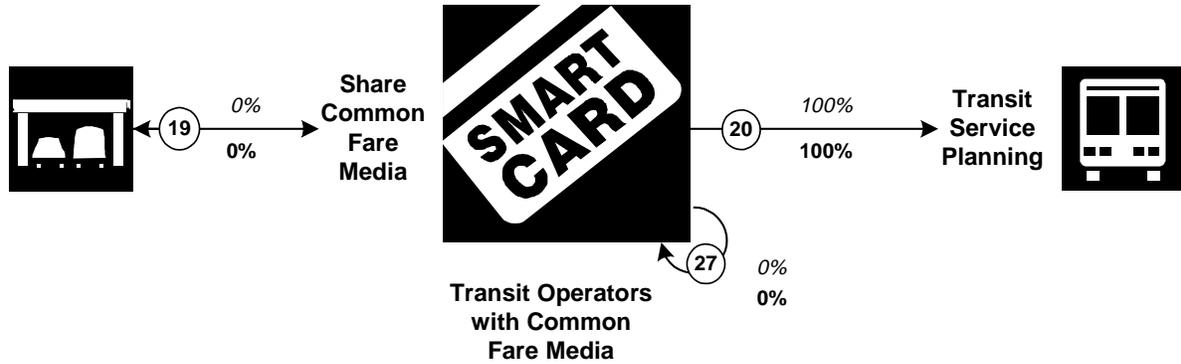
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles that accept electronic payment	232	232	100%	235	235	100%		250	
Rail transit stations that accept electronic payment	0	0			3				

Electronic Fare Payment Integration Indicators

**Albany, Schenectady, Troy
Electronic Fare Payment Integration***

Inputs

Outputs



Legend
1999
2005

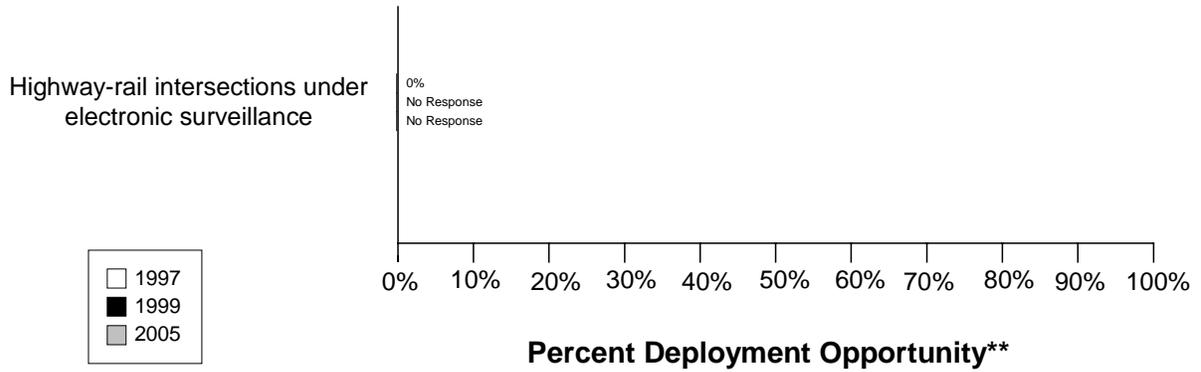
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	(0/ 1) 0%	(0/ 1) 0%
20. Transit Management agencies use Electronic Fare Payment data in transit service planning	(1/ 1) 100%	(1/ 1) 100%
27. Transit Management agencies that use the same electronic payment system	(0/ 1) 0%	(0/ 1) 0%

Highway Rail Intersection Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Highway-Rail Intersections*



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

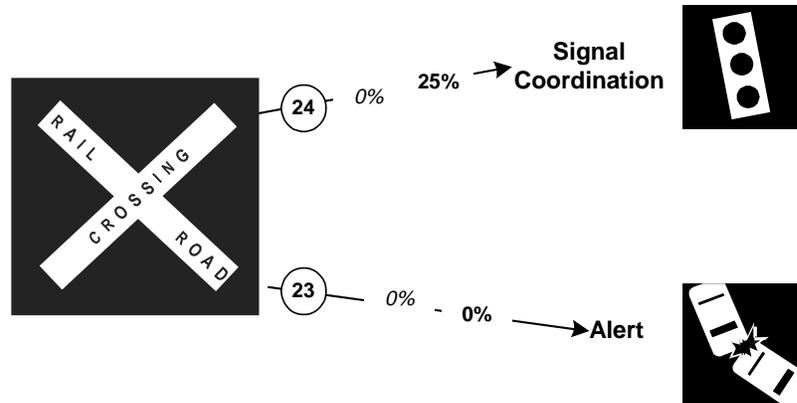
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Highway-rail intersections are under electronic surveillance	0	24	0%		17			17	

Highway Rail Intersection Integration Indicators

Albany, Schenectady, Troy Highway Rail Intersections Integration*

Inputs

Outputs



Legend
1999, 2005

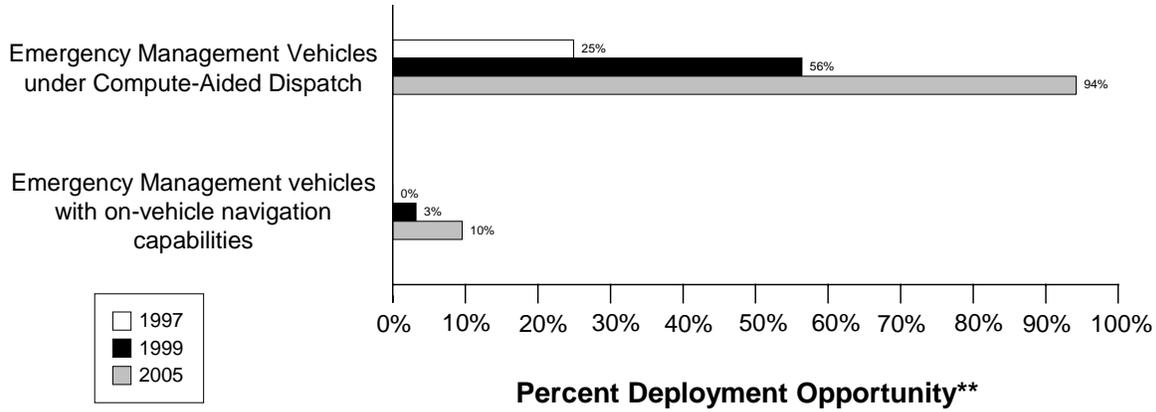
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
24. Arterial Management agencies with traffic signals within 200 feet of a highway rail intersection with the capability of having their signal timing adjusted in response to a train crossing	(0/ 4) 0%	(1/ 4) 25%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(0/ 4) 0%	(0/ 4) 0%

Emergency Management Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Emergency Management*



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

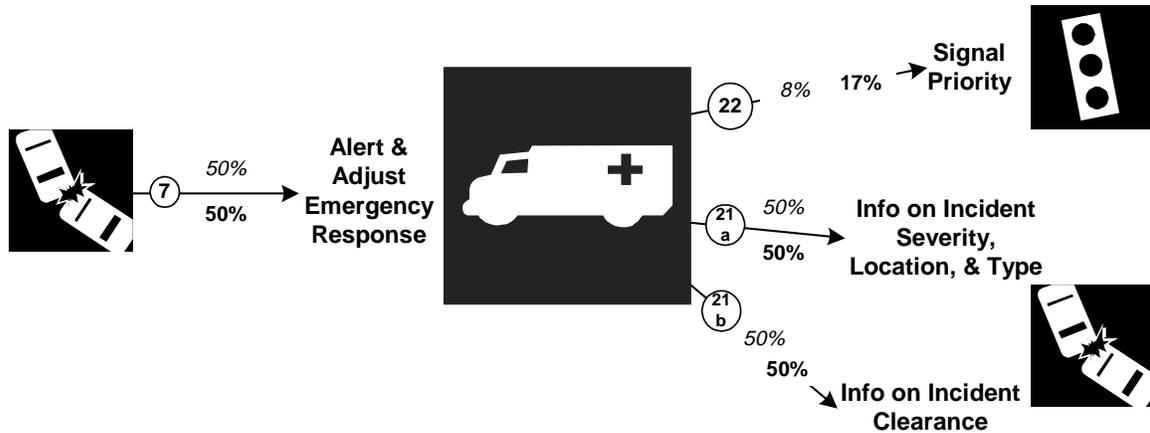
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Public sector emergency vehicles that operate under computer-aided dispatch	124	497	25%	211	374	56%	275	292	94%
Public sector emergency vehicles that have in-vehicle route guidance capability	0	497	0%	12	374	3%	28	292	10%

Emergency Management Integration Indicators

Albany, Schenectady, Troy Emergency Management Integration*

Inputs

Outputs



Legend
1999, 2005

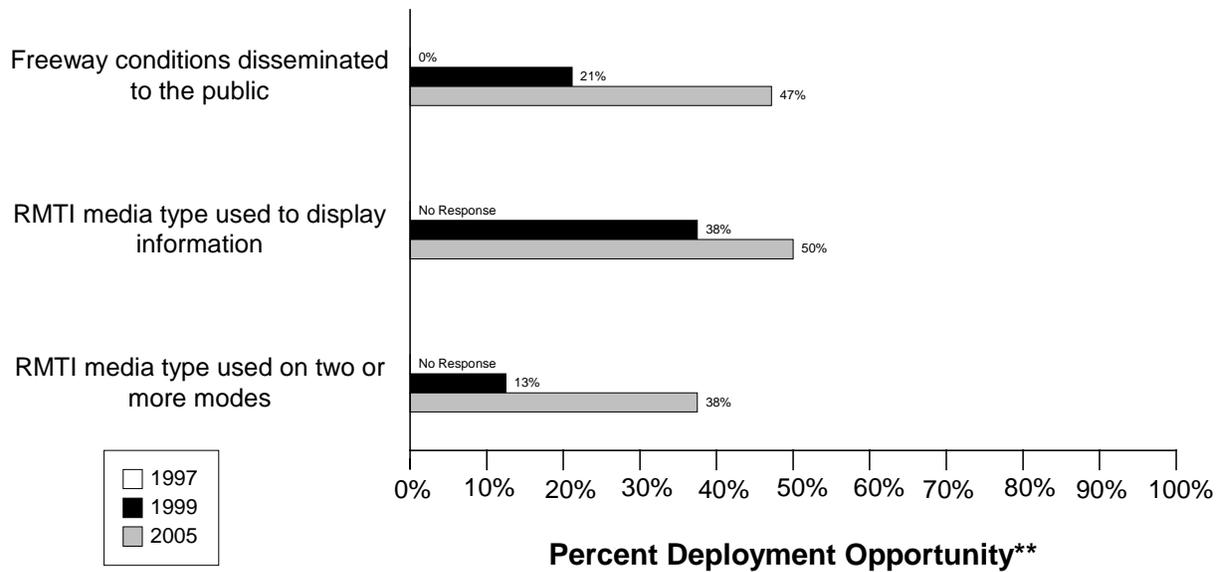
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
7. Freeway Management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	(1 / 2) 50%	(1 / 2) 50%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(1 / 12) 8%	(2 / 12) 17%
21a. Freeway Management agencies receive incident severity, location, and type data from Emergency Management agencies	(1 / 2) 50%	(1 / 2) 50%
21b. Freeway Management agencies receive incident clearance activities information from Emergency Management agencies	(1 / 2) 50%	(1 / 2) 50%

Regional Multimodal Traveler Information Component Indicators

Data as of 5/1/00

Albany, Schenectady, Troy Regional Multimodal Traveler Information*



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

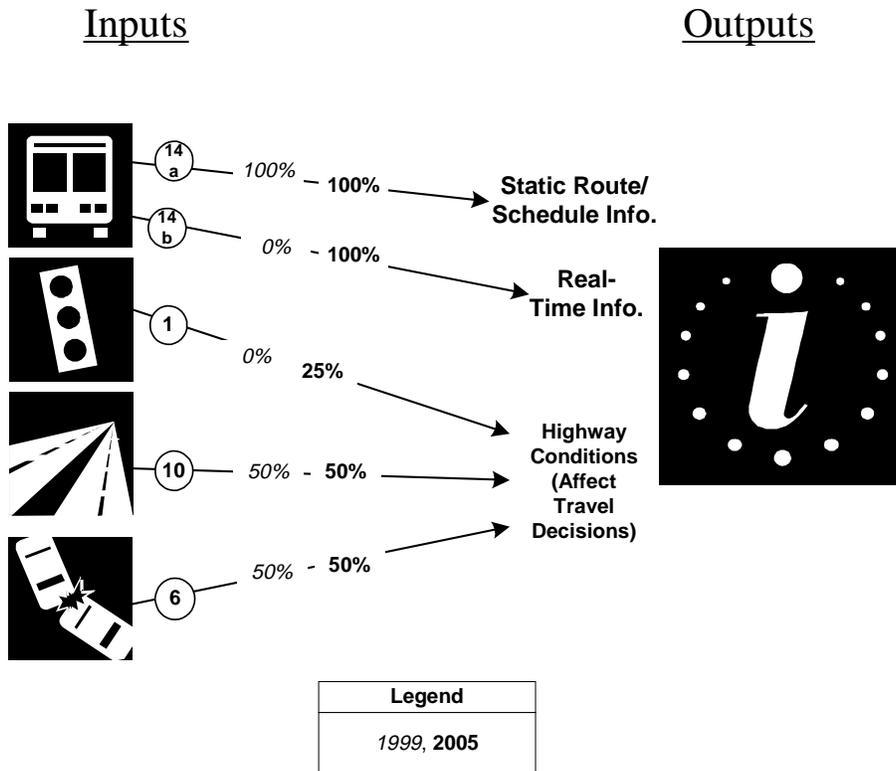
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway conditions disseminated to travelers	0	142	0%	30	142	21%	67	142	47%
Possible RMTI media types are used to display information to travelers				3	8	38%	4	8	50%
Possible RMTI media are used to display information on <i>two or more modes</i> to travelers				1	8	13%	3	8	38%

Regional Multimodal Traveler Information Integration Indicators

Albany, Schenectady, Troy

Regional Multimodal Traveler Information Integration*

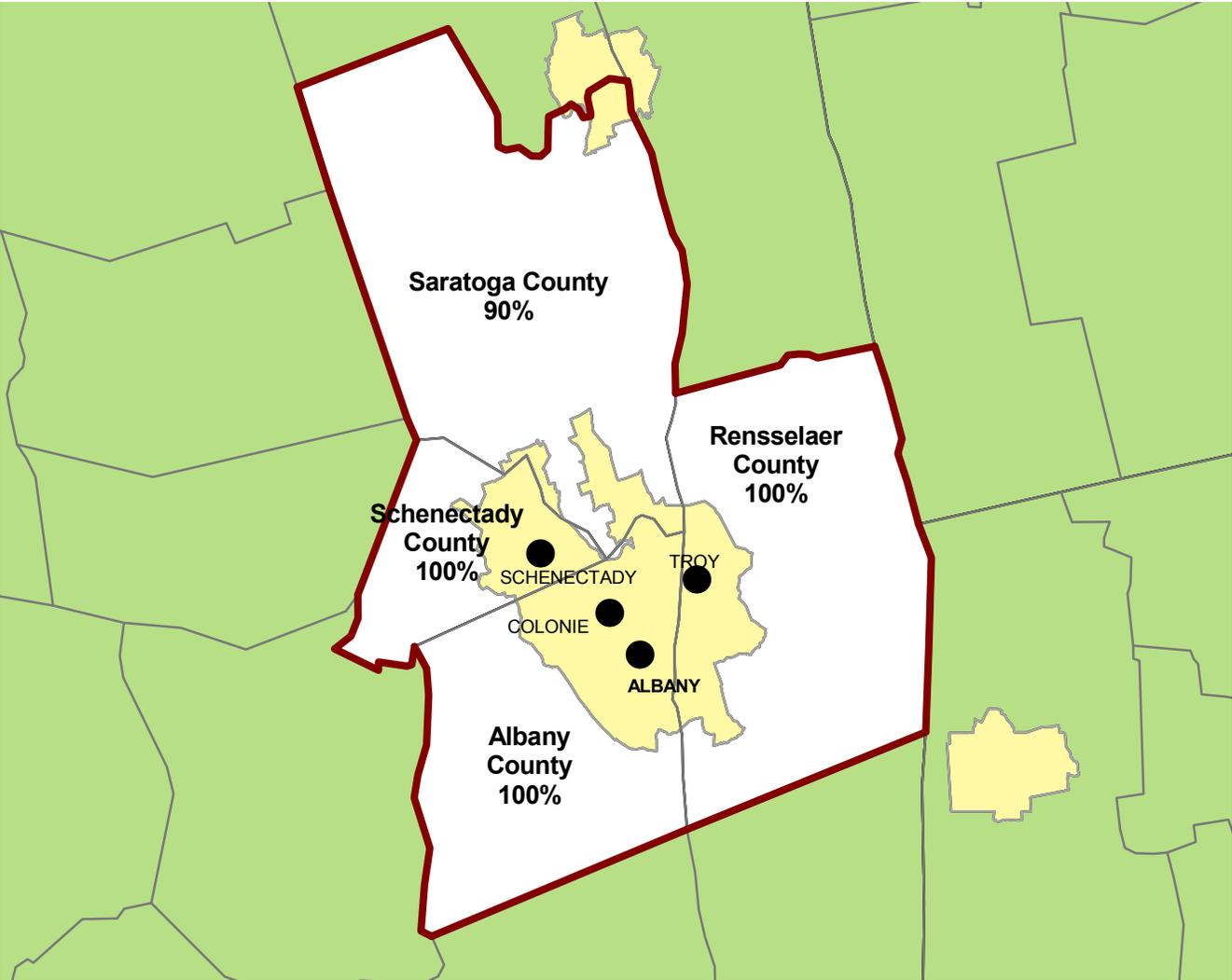


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
14a. Transit Management agencies that disseminate information describing transit routes, schedules, and fares to travelers	(1 / 1) 100%	(1 / 1) 100%
14b. Transit Management agencies that disseminate information describing schedule/route adherence to travelers	(0 / 1) 0%	(1 / 1) 100%
1. Arterial Management agencies that disseminate arterial travel times, speeds, and conditions to the public	(0 / 4) 0%	(1 / 4) 25%
10. Freeway Management agencies that disseminate freeway travel times, speeds, and conditions to travelers	(1 / 2) 50%	(1 / 2) 50%
6. Incident Management agencies that disseminate information describing incident severity, location, and type to the public	(1 / 2) 50%	(1 / 2) 50%

Appendix A
Survey Coverage Area

CAPITAL DISTRICT TRANSPORTATION COMMITTEE, NY



- City Included in Surveys
 - ⌞ Metropolitan Planning Area Boundary
 - ⌞ County Boundary
 - Urbanized Area
 - Outside Survey Area
- Percentage on the Map Represents Percentage of County Population Included within MPO Boundary

Appendix B
Surveyed Agencies

Surveyed Agencies

Agency Name	Phone	Fax	1999		1997	
			Out	In	Out	In
ALBANY, SCHENECTADY, TROY						
Arterial Management						
Troy City	(518) 270-4604	(518) 270-4642	7/30/1999		08/13/1997	
Saratoga County	(518) 885-2235	(518) 885-8809	7/30/1999	9/21/1999	08/13/1997	10/28/1997
New York State Department of Transportation	(518) 474-6377	(518) 474-9963	7/30/1999	9/7/1999	08/13/1997	09/08/1997
Schenectady City	(518) 382-5082	(518) 382-1050	7/30/1999	9/13/1999	08/13/1997	09/15/1997
Albany City	(518) 458-5610	(518) 458-5609	7/30/1999	9/27/1999	08/13/1997	10/10/1997
Electronic Toll Collection						
New York State Thruway Authority	518-436-2805	518-436-2968	8/18/1999	9/8/1999	08/14/1997	10/09/1997
Emergency Management Systems						
Schenectady City Fire & EMS Department	518-382-5141	518-382-5163	8/3/1999	8/18/1999	08/13/1997	09/15/1997
Schenectady City Police Department	(518) 382-5082	(518) 382-1050	6/22/1999	8/27/1999	08/13/1997	09/15/1997
New York State Thruway Authority	518-436-2816	518-436-2968	6/22/1999	8/17/1999	08/14/1997	10/09/1997
Rensselaer County Sheriff Department	(518) 270-5448	(518) 270-5447	6/22/1999	6/23/1999	07/14/1997	07/14/1997
New York State Police	(518) 457-3258	(518) 457-9620	6/22/1999	8/11/1999	08/13/1997	09/09/1997
Albany County Sheriff Department	(518) 487-5440	(518) 487-5816	6/22/1999	6/25/1999	07/13/1998	07/13/1998
Saratoga County Sheriff Department	(518) 885-2250	(518) 885-2253	6/22/1999	6/23/1999	07/14/1998	07/21/1998
Troy City Police Department	(518) 270-4444	(518) 270-4452	6/22/1999	8/4/1999	07/15/1998	07/15/1998
Troy City Fire Department	(518) 270-4471	(518) 270-4474	6/22/1999	8/17/1999	07/28/1998	07/28/1998
Albany City Police Department	(518) 458-5634	(518) 458-5609	6/22/1999	7/2/1999	07/14/1998	07/14/1998
Albany City Fire Department	(518) 447-7879	(518) 447-7883	6/22/1999	6/22/1999	07/28/1998	07/28/1998
Colonie City Police Department	(518) 783-2744	(518) 786-7326	6/22/1999	8/5/1999	07/17/1998	07/17/1998
Freeway Management						
New York State Department of Transportation	(518) 457-1232	(518) 457-1960	7/29/1999	11/9/1999	08/13/1997	09/09/1997
New York State Thruway Authority	(518) 436-2816	(518) 436-2968	7/29/1999	12/9/1999	08/14/1997	10/09/1997
MPO						
Capital District Transportation Committee	(518) 458-2161	(518) 459-2155	7/15/1999	8/5/1999		
Transit Management						
Capital District Transit Authority (CDTA)	(518) 482-4199	(518) 482-9039	8/9/1999	8/19/1999	09/17/1997	09/30/1997

Appendix C
Freeway Management Components

Freeway Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	New York State Department of Transportation		New York State Thruway Authority		Totals	
	1999	2005	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes		2	
FREEWAY MANAGEMENT SECTION						
Number of freeway centerline miles that agency owns or maintains	97		47		144	
Number of freeway centerline miles that is used for planning	97		47		144	
Number of freeway entrance ramps that agency owns, operates or maintains	108		18		126	
Number of freeway entrance ramps that is used for planning	108		18		126	
Type of facilities used to conduct freeway/incident management activities						
Activities housed in a free-standing dedicated building?	No		No		0	
Activities housed in a building shared with other activities?	Yes		Yes		2	
Activities conducted in a dedicated control room?	Yes		Yes		2	
Control room contains operator console(s)?	Yes		Yes		2	
Control room contains electronic wall map?	No		No		0	
Control room contains CCTV display(s)?	Yes		Yes		2	
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes		No		1	
Facilities are electronically linked to other transportation mgt facilities?	Yes		No		1	
Staffing and hours of operation of freeway/incident management activities						
Number of full-time agency staff members	2		NR		2	
Number of full time contractor staff members	NR		NR		0	
Number of part-time agency staff members	5		NR		5	
Number of part-time contractor staff members	NR		NR		0	
Staffed 24 hours day by agency staff or by others	others		agency			
Staffed during peak hours only by agency staff or by others	NR		NR		0	
Staffed by others during off-peak hours	No		No		0	
Agency staff perform transportation management as an ancillary duty	No		No		0	
Agency staff dedicated to transportation management duty	Yes		Yes		2	
Types of operations conducted for freeway/incident management						
Incident detection and management?	Yes		Yes		2	
This metropolitan area?	Yes		No		1	
Other metropolitan area?	No		No		0	
Statewide?	No		Yes		1	
Monitoring and troubleshooting status of system components?	Yes		No		1	
Manual override of ramp metering rates at freeway on-ramps?	No		No		0	
Operating transportation management roadside devices?	Yes		Yes		2	
Radio communications with other agencies?	Yes		Yes		2	
Exchange of electronic data with other agencies such as computer aided dispatch?	Yes		No		1	
Real-Time Traffic Data Collection Technologies						

Freeway Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	New York State Department of Transportation		New York State Thruway Authority		Totals	
	1999	2005	1999	2005	1999	2005
Total number of miles under surveillance with real-time data collection tech.	30	45	0	22	30	67
<u>Number of Stations with data collection technologies</u>						
Loop detectors	14	38	0	5	14	43
Video imaging detectors	0	0	0	0	0	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	255	0	0	0	255
Microwave radar	0	0	0	0	0	0
Other (e.g., acoustic detectors)	0	0	0	0	0	0
<u>Number of Miles covered with data collection technologies</u>						
Loop detectors	30	45	0	22	30	67
Video imaging detectors	0	0	0	0	0	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	1,046	0	0	0	1046
Microwave radar	0	0	0	0	0	0
Other (e.g., acoustic detectors)	0	0	0	0	0	0
Variable Message Signs (VMS) on Freeways						
Candidate locations for deployment of VMS where VMS has been deployed	12	20	6	6	18	26
Candidate locations for deployment of VMS	20	20	6	6	26	26
Roadside Technologies used to Distribute Traveler Information						
Total number of miles where information is distributed	40	60	NR	NR	40	60
<u>Number deployed</u>						
Highway advisory radio	2	2	0	0	2	2
In-vehicle signing	0	0	0	0	0	0
Portable variable message signs	12	17	0	0	12	17
Other	0	0	0	0	0	0
<u>Miles covered</u>						
Highway advisory radio	10	10	0	0	10	10
In-vehicle signing	0	0	0	0	0	0
Portable variable message signs	NR	NR	0	0	0	0
Other	0	0	0	0	0	0
Ramp Meters on Freeways						
Number of entrance ramp meters operated under isolated control	NR	NR	NR	NR	0	0
Number of entrance ramp meters operated under central control	NR	NR	NR	NR	0	0
Number of entrance ramp meters that provide preemption for emergency vehicles	NR	NR	NR	NR	0	0
Number of entrance ramp meters that provide priority for transit vehicles	NR	NR	NR	NR	0	0
Total number of metered ramps	NR	NR	NR	NR	0	0
Freeway centerline miles under lane control	NR	NR	NR	NR	0	0
Communication Links						
<u>Freeway centerline miles covered by the following type of communication</u>						
Twisted pair cable	0	0	0	0	0	0
Coaxial cable	0	0	0	0	0	0
Fiber-optic cable	0	25	0	0	0	25
Microwave radio	0	0	0	0	0	0

Freeway Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	New York State Department of Transportation		New York State Thruway Authority		Totals	
	1999	2005	1999	2005	1999	2005
Other	0	0	0	0	0	0
ITS Standards Used Related to Freeway Management						
ATMS Data Dictionary Sections 1 and 2 (ITE TM 1.01)	No		No		0	
ATMS Data Dictionary Sections 3 and 4 (ITE TM 1.02)	No		No		0	
Message Set for External TMC Communication (ITE-9604-1)	No		No		0	
NTCIP Class B Profile (AASHTO TS 3.3)	No		No		0	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		No		0	
NTCIP Object Definitions for Environmental Sensor Stations (AASHTO TS 3.7)	No		No		0	
NTICP Object Definitions for Dynamic Message Signs (AASHTO TS 3.6)	No		No		0	
NTICP Object Definitions for Highway Advisory Radio (AASHTO TS 3.HAR)	No		No		0	
NTICP Object Definitions for Ramp Meter Control (AASHTO TS 3.RMC)	No		No		0	
NTICP Object Definitions for Transportation Sensor Systems (AASHTO TS 3.TSS)	No		No		0	
NTICP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		0	
Would agency be willing to participate in testing of ITS Standards?	Yes		No		1	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	No		No		0	
INCIDENT MANAGEMENT SECTION						
Use of Service Patrols to Assist in Detection and Response to Incidents						
Publicly operated service patrol vehicles	No		No		0	
Privately operated service patrol vehicles operated under public contract	Yes		No		1	
Total number of freeway miles patrolled by these services	40	40	NR	NR	40	40
Miles Covered by Methods to Detect and Verify Incidents						
Free cellular phone call to a dedicated phone number other than 911	NR	NR	NR	NR	0	0
Police patrols	NR	NR	NR	NR	0	0
Computer algorithms linked to traffic surveillance equipment	NR	NR	NR	NR	0	0
CCTV	30	50	NR	NR	30	50
Private sector sources (e.g., Shadow Traffic, SmartRoutes)	NR	NR	NR	NR	0	0
Other (e.g., free cell phone call to an area radio system, etc.)	97	97	NR	NR	97	97
Procedures in place for Freeway Incident Response?						
Working agreement(s)/arrangement(s) with other agencies	Yes		No		1	
Inter-agency incident management admin. team that meets regularly	Yes		No		1	
Major incident response team that responds to major incidents	No		No		0	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		No		0	
Central focal point for facilitating the two-way flow of information among agencies responding to an incident?						
The central focal point is a Freeway or Traffic Management Center	No		No		0	
The central focal point is a Police, Fire or joint dispatch center	No		No		0	
The central focal point is another center	No		No		0	
Methods of Communication Used On-Site at an Incident						

Freeway Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	New York State Department of Transportation		New York State Thruway Authority		Totals	
	1999	2005	1999	2005	1999	2005
<u>Police</u>						
Two-way radio	Yes		No		1	
800 MHz trunked radio	Yes		No		1	
Cellular telephone	No		No		0	
Hand-held (i.e., walkie-talkie)	No		No		0	
Automated data systems (i.e., CAD)	Yes		No		1	
<u>Fire</u>						
Two-way radio	Yes		No		1	
800 MHz trunked radio	No		No		0	
Cellular telephone	No		No		0	
Hand-held (i.e., walkie-talkie)	No		No		0	
Automated data systems (i.e., CAD)	Yes		No		1	
<u>DOT</u>						
Two-way radio	Yes		No		1	
800 MHz trunked radio	No		No		0	
Cellular telephone	No		No		0	
Hand-held (i.e., walkie-talkie)	No		No		0	
Automated data systems (i.e., CAD)	No		No		0	
<u>Towing</u>						
Two-way radio	Yes		No		1	
800 MHz trunked radio	No		No		0	
Cellular telephone	No		No		0	
Hand-held (i.e., walkie-talkie)	No		No		0	
Automated data systems (i.e., CAD)	No		No		0	
Which police agencies typically respond to incidents on freeways?						
State Police	Yes		Yes		2	
County Police or Sheriff	No		No		0	
City Police	Yes		No		1	
Who provides on-site emergency medical response?						
Fire	Yes		Yes		2	
Emergency Management Service Agency	No		No		0	
Private hospital	No		No		0	
Has a multi-agency contact list been developed in area containing the names, phone numbers, etc. for the appropriate response personnel?						
	Yes		Yes		2	
Is the Incident Command System used to manage incident scenes?						
	Yes		Yes		2	
Is there a legal specification by state law or formal agreement as to who is "in charge" at the incident scene?						
Specified by state law?	No		Yes		1	

Freeway Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	New York State Department of Transportation		New York State Thruway Authority		Totals	
	1999	2005	1999	2005	1999	2005
Formal agreement?	No		No		0	
Not specified or don't know?	Yes		No		1	
On-scene command post used to manage activities of responding agencies?	Yes		Yes		2	
Are there communication linkages to a communications traffic/freeway mgt center?	Yes		Yes		2	
Plan developed and adopted by responding agencies for staging and parking response vehicles and equip. at incident site that minimizes lane blockage and facilitates the re-opening of lanes?	DK		Yes		1	
Respondents protected through law or court opinion for liability claims for damages to vehicles or cargoes during clearance activities?	Leg		DK		0	
Are overturned tank trucks, which are intact and not leaking, uprighted without first off-loading?	NR		Yes		1	
Does your state or local jurisdiction have a law that requires drivers involved in property-damage-only accidents to move the vehicles from travel lanes to a safe location to exchange info and wait for police?	No		No		0	
Have laws or policies regarding the removal of stalled/abandoned vehicles from freeway shoulders?	Yes		Yes		2	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	25-36		0-24			
Have policies or procedures for quick removal of vehicles?	No		Yes		1	
Is Total Station equipment used to investigate major incidents?	Yes		Yes		2	
Handling of Towing Responses to Incidents						
Formal contract based on qualifications?	No		No		0	
Rotation with companies under contract?	No		No		0	
Separate lists kept for light and heavy response and for specialty recovery?	NR		NR		0	
Rotation list with minimal qualifications?	Yes		No		1	
In towing qualifications, do you require towers to be certified under the Towing and Recovery Ass. of America's National Drivers Cert. Program?	No		No		0	
DK: Don't know						
NR: No Response						
Leg: Legislation or action being planned						

Appendix D
Freeway Management Integration

Freeway Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	New York State Department of Transportation		New York State Thruway Authority	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Freeway Management Section				
Agencies your agency provides freeway travel times, speeds, and conditions information, share infrastructure or coordinates operation				
<i>Freeway Management Agencies</i>				
Provide Information	None listed	New York State Thruway Authority	New York State Department of Transportation, New York State Thruway Authority	None listed
Share Infrastructure	None listed	None listed	New York State Thruway Authority	None listed
Coordinate Operation	New York State Thruway Authority	New York State Thruway Authority	New York State Department of Transportation, New York State Thruway Authority	None listed
<i>Incident Management Agencies</i>				
Provide Information	None listed	New York State Thruway Authority, Capital District Transit Authority (CDTA)	New York State Department of Transportation, New York State Thruway Authority	None listed
Share Infrastructure	None listed	Capital District Transit Authority (CDTA)	None listed	None listed
Coordinate Operation	New York State Thruway Authority	New York State Thruway Authority, Capital District Transit Authority (CDTA)	New York State Department of Transportation, New York State Thruway Authority	None listed
<i>Arterial Management Agencies</i>				
Provide Information	None listed	Schenectady City, Albany City	None listed	None listed
Share Infrastructure	None listed	Schenectady City, Albany City	None listed	None listed
Coordinate Operation	None listed	Schenectady City, Albany City	None listed	None listed
<i>Public Transit Operators</i>				
Provide Information	None listed	Capital District Transit Authority (CDTA)	None listed	None listed
Share Infrastructure	None listed	Capital District Transit Authority (CDTA)	None listed	None listed
Coordinate Operation	None listed	Capital District Transit Authority (CDTA)	None listed	None listed

Freeway Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	New York State Department of Transportation		New York State Thruway Authority	
	1999	2005	1999	2005
Receiving real-time information via electronic means from others				
<i>Incident Management agencies from which your agency receives incident severity, location, and type information</i>	None listed	New York State Thruway Authority	New York State Thruway Authority	New York State Department of Transportation
<i>Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions</i>	None listed	Schenectady City, Albany City	None listed	None listed
<i>Public Transit operators from which your agency receives freeway travel times derived from vehicle probes</i>	None listed	Capital District Transit Authority (CDTA)	None listed	None listed
<i>Toll Collection agencies from which your agency receives freeway travel times derived from vehicles probes</i>	None listed	New York State Thruway Authority	New York State Thruway Authority	None listed
Freeway Incident Management Section				
Agencies your agency provides incident severity, location, and type info. and/or shares infrastructure and/or coordinates operation				
Arterial Management Agencies				
Provide Information	None listed	Schenectady City, Albany City	None listed	None listed
Share Infrastructure	None listed	Schenectady City, Albany City	None listed	None listed
Coordinate Operation	None listed	Schenectady City, Albany City	None listed	None listed
Emergency Management Agencies				
Provide Information	New York State Police	Albany City Police Department, Colonie City Police Department, New York State Thruway Authority, Schenectady City Police Department	None listed	None listed
Share Infrastructure	New York State Police	Albany City Police Department, Colonie City Police Department, New York State Thruway Authority, Schenectady City Police Department	None listed	None listed
Coordinate Operation	New York State Police, New York State Thruway Authority	Albany City Police Department, Colonie City Police Department, New York State Thruway Authority, Schenectady City Police Department	None listed	None listed
Freeway Management Agencies				

Freeway Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	New York State Department of Transportation		New York State Thruway Authority	
	1999	2005	1999	2005
Provide Information	None listed	New York State Thruway Authority	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	New York State Thruway Authority	New York State Thruway Authority	None listed	None listed
Public Transit Operators				
Provide Information	None listed	Capital District Transit Authority (CDTA)	None listed	None listed
Share Infrastructure	None listed	Capital District Transit Authority (CDTA)	None listed	None listed
Coordinate Operation	None listed	Capital District Transit Authority (CDTA)	None listed	None listed
Receiving real-time information via electronic means from others				
Emergency Management agencies from which your agency receives incident clearance and/or incident severity and type				
Receive Arterial Incident Clearance Information	New York State Police	Albany City Police Department, Schenectady City Police Department	None listed	None listed
Receive Arterial Incident Severity Information	New York State Police	Albany City Police Department, Schenectady City Police Department	None listed	None listed
Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions				
	None listed	Schenectady City, Albany City	None listed	None listed
Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions				
	None listed	New York State Thruway Authority	None listed	None listed

*short survey: Agency responded using a short survey. The survey did not include names of individual agencies, but only identified whether integration exists.

Appendix E
Freeway Management Information Collection and Dissemination

Data Collection and Dissemination: Freeway Management
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	New York State Department of Transportation		New York State Thruway Authority	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Freeway Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Traffic volumes, Traffic speeds, Weather conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Traffic speeds, Weather conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Ramp queues, Route designations (snow emergency, etc.), Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures	NR
Archived by your agency	Traffic volumes, Traffic speeds, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Traffic speeds, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Ramp queues, Route designations (snow emergency, etc.), Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures	NR
Transferred to another agency by your agency	Traffic volumes, Traffic speeds, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Traffic speeds, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures	NR
Importance of making information available to the public				
Ranked High	Traffic volumes, Traffic speeds, Weather conditions, Incidents, Current work zones, Scheduled work zones		Route designations (snow emergency, etc.), Current work zones, Emergency/evacuation routes and procedures	
Ranked Medium	NR		Ramp queues, Scheduled work zones	
Ranked Low	NR		Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification	

Data Collection and Dissemination: Freeway Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	New York State Department of Transportation		New York State Thruway Authority	
	1999	2005	1999	2005
Groups that make requests for the data	State DOT personnel, Federal DOT personnel, Media (I.e., TV stations, radio stations), MPOs, Consultants		Universities, State DOT personnel, Media (I.e., TV stations, radio stations), Consultants	
What is the data used for?	Traffic analysis, Construction impact determination, Planning, Dissemination to the public		Traffic analysis, Construction impact determination, Planning	
Methods used to disseminate freeway information to the public				
Technologies your agency uses to disseminate:	Internet Web sites	Telephone system	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting freeway conditions	www.troopers.state.ny.us/tmc/tmcindex.html		NR	
Telephone system for reporting freeway information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	Metro Networks		NR	
Freeway Incident Management Section				
Methods used to distribute incident location and severity information to the public				
Technologies your agency uses to disseminate:	Internet Web sites	Telephone system	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting incident information	www.troopers.state.ny.us/tmc/tmcindex.html		NR	
Telephone system for reporting incident information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	Metro Networks		NR	

Appendix F
Arterial Management Components

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Albany City		New York State Department of Transportation		Saratoga County	
	1999	2005	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes		Yes	
ARTERIAL MANAGEMENT SECTION						
Number of arterial miles that agency owns or maintains	238		765		362	
Number of arterial miles that is used for planning	179		170		NR	
Number of highway-rail intersections that agency maintains	1		14		0	
Number of highway-rail intersections that is used for planning	0		2		NR	
Type of facilities used to conduct arterial management activities						
Activities housed in a free-standing dedicated building?	No		No		Yes	
Activities housed in a building shared with other activities?	No		Yes		No	
Activities conducted in a dedicated control room?	No		No		No	
Control room contains operator console(s)?	No		No		No	
Control room contains electronic wall map?	No		No		No	
Control room contains CCTV display(s)?	No		No		No	
Activities conducted in a room containing workstations or PCs that manage traffic?	No		No		No	
Facilities are electronically linked to other transportation mgt facilities?	No		No		No	
Staffing and hours of operation of arterial management activities						
Number of full-time agency staff members	0		10		120	
Number of full time contractor staff members	0		0		0	
Number of part-time agency staff members	0		NR		0	
Number of part-time contractor staff members	0		NR		0	
Staffed 24 hours day by agency staff or by others	NR		NR		agency	
Staffed during peak hours only by agency staff or by others	NR		agency		NR	
Staffed by others during off-peak hours	No		No		No	
Agency staff perform transportation management as an ancillary duty	No		No		No	
Agency staff dedicated to transportation management duty	No		Yes		No	
Types of operations conducted for arterial management						
Incident detection and management?	No		No		Yes	
This metropolitan area?	No		No		Yes	
Other metropolitan area?	No		No		No	
Monitoring and troubleshooting status of system components?	No		Yes		No	
Radio communications with other agencies?	Yes		No		Yes	
Exchange of electronic data with other agencies such as computer aided dispatch?	Yes		No		No	
Manual override of traffic signal timing plans	No		Yes		Yes	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No		No		No	

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Albany City		New York State Department of Transportation		Saratoga County	
	1999	2005	1999	2005	1999	2005
Describe agency's role in traffic signal control	All roads in incorporated area except state routes		State routes only		County routes only	
Traffic Signals Operated by Agency						
Number of signalized intersections operated and owned by agency	290	NR	501	557	13	13
Number of signalized intersections operated by agency but owned by another	0	0	19	23	0	0
Total number of signalized intersections operated by agency	290	NR	520	580	13	13
<u>Characteristics of signalized intersections that agency operates</u>						
Under closed loop or central system control	0	35	0	65	9	9
Under real-time traffic adaptive control using advanced software	0	NR	0	0	0	0
Using SCOOT	No		No		No	
Using SCATS	No		No		No	
Name of software	NR		NR		NR	
Allow signal preemption for emergency vehicles	6	10	8	12	0	0
Allow signal priority for transit vehicles	0	11	0	24	0	0
Within 200 feet of a highway-rail intersection	1	1	3	4	0	0
Within 200 feet of a highway-rail intersection that adjust signal timing	0	0	0	4	0	0
Software used to control the signals agency operates						
Date of last upgrade to traffic signal control system software?			April 1999		April 1999	
How often do you update signal timing?	As needed		5 years		One request to change timing on file	
Software used and number of signalized intersections under control (1999, 2005)	MATTS Closed Loop, 0, 35		MIST, 0, 50 Quick Net 4, 0, 15 Time Based Coordination, 40, 30		EAGLE SIGNAL ET 121, NR, NR CROUSE-HINDS LS186, NR, NR TCT LMD Series 9200, 2, 2 TCT LMD Series 8000, 9, 9	
Controllers used to control signals						
NEMA	279	NR	1	50	0	0
170/179	0	0	519	530	0	0
2070 controller	0	0	0	0	0	0
Other	0	0	0	0	0	0
Technologies Associated with Highway-Rail Intersections						
Total number of highway-rail intersections under electronic surveillance	NR	NR	NR	NR	NR	NR
<u>Highway-Rail intersection capabilities</u>						
Video surveillance	0	0	0	0	0	0
Electronic surveillance other than video	0	0	0	0	0	0
Ability to predict train arrival electronically	0	0	0	0	0	0
Equipped with electronic traffic violator devices	0	0	0	0	0	0

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Albany City		New York State Department of Transportation		Saratoga County	
	1999	2005	1999	2005	1999	2005
Other	0	0	0	0	0	0
Real-Time Electronic Traffic Data Collection Technologies						
Total number of signalized intersections covered by electronic surveillance	NR	35	NR	65	13	13
<i>Number of signalized intersections with data collection technologies</i>						
Loop detectors	0	35	NR	65	0	0
Video detection cameras	0	0	0	0	0	0
Probe readers reading toll tags	0	0	0	0	0	0
Probe readers reading license plates	0	0	0	0	0	0
Other	0	0	0	0	13	13
Roadside Technologies used to Distribute Traveler Information						
<i>Number deployed</i>						
Highway Advisory Radio	NR	NR	NR	NR	NR	NR
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR
VMS controlling parking access	NR	NR	NR	NR	NR	NR
<i>Miles covered</i>						
Highway Advisory Radio	NR	NR	NR	NR	NR	NR
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR
Variable Message Signs (VMS) on Arterials						
Candidate locations for deployment of VMS where VMS has been deployed	NR	NR	NR	NR	NR	NR
Candidate locations for deployment of VMS	NR	NR	NR	NR	NR	NR
Communication Technologies						
<i>Signalized intersections communicated with by each type of communication</i>						
Twisted pair cable	4	10	0	15	0	0
Coaxial cable	0	0	0	0	0	0
Fiber-optic cable	0	50	0	46	0	0
Other (e.g., wireless, dial-up modems, leased lines, etc.)	0	0	0	4	0	0
Does agency convey information on highway-rail intersection crossing status to travelers via roadside media such as VMS or HAR?	No		No		No	
ITS Standards Used Related to Traffic Signal Control						
Advanced Transportation Controller (ATC) Software Application Interface (ITE 9603-1)	No		No		No	
ATC Physical Cabinet Functional Design (ITE-9603-2)	No		No		No	
ATC Functionality and Interface Definitions (ITE-9603-3)	No		No		No	
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	No		No		No	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		No		No	
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		No	
NTCIP Object Definitions for Actuated Traffic Signal Controller Units (AASHTO TS 3.5)	No		No		No	
Would agency be willing to participate in testing of ITS Standards?	Yes		Yes		No	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	No		Yes		No	
INCIDENT MANAGEMENT ON ARTERIAL STREETS						
Receive information on highway-rail intersection crossing blockages for						

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Albany City		New York State Department of Transportation		Saratoga County	
	1999	2005	1999	2005	1999	2005
the purpose of managing incident response?	No		No		No	
Use of Service Patrols to Assist in Detection and Response to Incidents						
Publicly operated service patrol vehicles	No		No		Yes	
Privately operated service patrol vehicles operated under public contract	No		No		No	
Total number of arterial miles patrolled by these services	NR	NR	NR	NR	NR	NR
Miles Covered by Methods to Detect and Verify Incidents						
Free cellular phone call to a dedicated phone number other than 911	0	0	0	0	0	0
Free cellular phone call to an area radio station	0	0	0	0	0	0
Police patrols	0	0	0	0	0	0
Computer algorithms linked to traffic surveillance equipment	0	0	0	0	0	0
CCTV	0	0	0	0	0	0
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	0	0	0	0
Other	0	0	0	15	0	0
Procedures in place for Arterial Incident Response?						
Working agreement(s)/arrangement(s) with other agencies	No		No		No	
Inter-agency incident management admin. team that meets regularly	No		Yes		No	
Major incident response team that responds to major incidents	No		No		No	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		No		No	
Methods of Communication Used On-Site at an Incident						
<u>Police</u>						
Two-way radio	No		Yes		No	
800 MHz trunked radio	No		Yes		No	
Cellular telephone	No		Yes		No	
Hand-held (i.e., walkie-talkie)	No		Yes		No	
Automated data systems (i.e., CAD)	No		Yes		No	
Other	No		No		No	
<u>Fire</u>						
Two-way radio	No		Yes		No	
800 MHz trunked radio	No		Yes		No	
Cellular telephone	No		No		No	
Hand-held (i.e., walkie-talkie)	No		Yes		No	
Automated data systems (i.e., CAD)	No		No		No	
Other	No		No		No	
<u>DOT</u>						
Two-way radio	No		Yes		No	
800 MHz trunked radio	No		No		No	
Cellular telephone	No		Yes		No	
Hand-held (i.e., walkie-talkie)	No		No		No	
Automated data systems (i.e., CAD)	No		No		No	

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Albany City		New York State Department of Transportation		Saratoga County	
	1999	2005	1999	2005	1999	2005
Other	No		No		No	
<u>Towing</u>						
Two-way radio	No		Yes		No	
800 MHz trunked radio	No		No		No	
Cellular telephone	No		No		No	
Hand-held (i.e., walkie-talkie)	No		No		No	
Automated data systems (i.e., CAD)	No		No		No	
Other	No		No		No	
Which police agencies typically respond to incidents on arterials?						
State Police	No		Yes		No	
County Police or Sheriff	No		Yes		No	
City Police	No		Yes		No	
Who provides on-site emergency medical response?						
Fire	No		Yes		No	
Emergency Management Service Agency	No		No		No	
Private hospital	No		No		No	
Has a multi-agency contact list been developed in area containing the names, phone numbers, etc. for the appropriate response personnel?	NR		DK		NR	
Is the Incident Command System used to manage incident scenes?	NR		Yes		NR	
Is there a legal specification by state law or formal agreement as to who is "in charge" at the incident scene?						
Specified by state law?	No		No		No	
Formal agreement?	No		No		No	
Not specified or don't know?	No		Yes		No	
On-scene command post used to manage activities of responding agencies?	NR		Yes		NR	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		Yes		NR	
Plan developed and adopted by responding agencies for staging and parking response vehicles and equip. at incident site that minimizes lane blockage and facilitates the re-opening of lanes?	NR		DK		NR	
Respondents protected through law or court opinion for liability claims for damages to vehicles or cargoes during clearance activities?	NR		No		NR	
Are overturned tank trucks, which are intact and not leaking, uprighted without first off-loading?	NR		NR		NR	
Does your state or local jurisdiction have a law that requires drivers involved in property-damage-only accidents to move the vehicles from travel lanes to a safe location to exchange info and wait for police?	NR		No		NR	
Have laws or policies regarding the removal of stalled/abandoned vehicles from freeway shoulders?	NR		No		NR	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	NR		0-24		NR	
Have policies or procedures for quick removal of vehicles?	NR		No		NR	
Is Total Station equipment used to investigate major incidents?	NR		Yes		NR	

Arterial Management
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Albany City		New York State Department of Transportation		Saratoga County	
	1999	2005	1999	2005	1999	2005
Handling of Towing Responses to Incidents						
Formal contract based on qualifications?	No		No		No	
Rotation with companies under contract?	No		No		No	
Separate lists kept for light and heavy response and for specialty recovery?	NR		NR		NR	
Rotation list with minimal qualifications?	No		Yes		No	
In towing qualifications, do you require towers to be certified under the						
Towing and Recovery Ass. of America's National Drivers Cert. Program?	NR		DK		NR	
DK: Don't know						
NR: No Response						
Leg: Legislation or action being planned						

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Schenectady City		Totals	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		4	
ARTERIAL MANAGEMENT SECTION				
Number of arterial miles that agency owns or maintains	177		1,542	
Number of arterial miles that is used for planning	NR		349	
Number of highway-rail intersections that agency maintains	2		17	
Number of highway-rail intersections that is used for planning	NR		2	
Type of facilities used to conduct arterial management activities				
Activities housed in a free-standing dedicated building?	No		1	
Activities housed in a building shared with other activities?	No		1	
Activities conducted in a dedicated control room?	No		0	
Control room contains operator console(s)?	No		0	
Control room contains electronic wall map?	No		0	
Control room contains CCTV display(s)?	No		0	
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes		1	
Facilities are electronically linked to other transportation mgt facilities?	No		0	
Staffing and hours of operation of arterial management activities				
Number of full-time agency staff members	NR		0	
Number of full time contractor staff members	NR		0	
Number of part-time agency staff members	NR		0	
Number of part-time contractor staff members	NR		0	
Staffed 24 hours day by agency staff or by others	NR		0	
Staffed during peak hours only by agency staff or by others	NR		0	
Staffed by others during off-peak hours	No		0	
Agency staff perform transportation management as an ancillary duty	Yes		1	
Agency staff dedicated to transportation management duty	No		1	
Types of operations conducted for arterial management				
Incident detection and management?	No		1	
This metropolitan area?	No		1	
Other metropolitan area?	No		0	
Monitoring and troubleshooting status of system components?	Yes		2	
Radio communications with other agencies?	Yes		3	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		1	
Manual override of traffic signal timing plans	Yes		3	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No		0	

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Schenectady City		Totals	
	1999	2005	1999	2005
Describe agency's role in traffic signal control	All roads in incorporated area, and roads in another local jurisdiction			
Traffic Signals Operated by Agency				
Number of signalized intersections operated and owned by agency	124	124	928	694
Number of signalized intersections operated by agency but owned by another	2	3	21	26
Total number of signalized intersections operated by agency	126	127	949	720
<u>Characteristics of signalized intersections that agency operates</u>				
Under closed loop or central system control	26	55	35	164
Under real-time traffic adaptive control using advanced software	0	0	0	0
Using SCOOT	No		0	
Using SCATS	No		0	
Name of software	NR			
Allow signal preemption for emergency vehicles	24	24	38	46
Allow signal priority for transit vehicles	0	6	0	41
Within 200 feet of a highway-rail intersection	0	0	4	5
Within 200 feet of a highway-rail intersection that adjust signal timing	0	0	0	4
Software used to control the signals agency operates				
Date of last upgrade to traffic signal control system software?	1995			
How often do you update signal timing?	When Problems Dictate			
Software used and number of signalized intersections under control (1999, 2005)	MIST, NR, 55 SMARTWAYS, 26, NR			
Controllers used to control signals				
NEMA	89	100	369	150
170/179	0	0	519	530
2070 controller	0	0	0	0
Other	37	27	37	27
Technologies Associated with Highway-Rail Intersections				
Total number of highway-rail intersections under electronic surveillance	NR	NR	0	0
<u>Highway-Rail intersection capabilities</u>				
Video surveillance	0	0	0	0
Electronic surveillance other than video	0	0	0	0
Ability to predict train arrival electronically	0	0	0	0
Equipped with electronic traffic violator devices	0	0	0	0

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Schenectady City		Totals	
	1999	2005	1999	2005
Other	0	0	0	0
Real-Time Electronic Traffic Data Collection Technologies				
Total number of signalized intersections covered by electronic surveillance	NR	37	13	150
<i>Number of signalized intersections with data collection technologies</i>				
Loop detectors	NR	36	0	136
Video detection cameras	NR	1	0	1
Probe readers reading toll tags	0	0	0	0
Probe readers reading license plates	0	0	0	0
Other	0	0	13	13
Roadside Technologies used to Distribute Traveler Information				
<i>Number deployed</i>				
Highway Advisory Radio	NR	NR	0	0
In-Vehicle Signing (IVS)	NR	NR	0	0
VMS controlling parking access	NR	NR	0	0
<i>Miles covered</i>				
Highway Advisory Radio	NR	NR	0	0
In-Vehicle Signing (IVS)	NR	NR	0	0
Variable Message Signs (VMS) on Arterials				
Candidate locations for deployment of VMS where VMS has been deployed	NR	NR	0	0
Candidate locations for deployment of VMS	NR	NR	0	0
Communication Technologies				
<i>Signalized intersections communicated with by each type of communication</i>				
Twisted pair cable	27	27	31	52
Coaxial cable	0	0	0	0
Fiber-optic cable	NR	36	0	132
Other (e.g., wireless, dial-up modems, leased lines, etc.)	0	0	0	4
Does agency convey information on highway-rail intersection crossing status to travelers via roadside media such as VMS or HAR?	No		0	
ITS Standards Used Related to Traffic Signal Control				
Advanced Transportation Controller (ATC) Software Application Interface (ITE 9603-1)	No		0	
ATC Physical Cabinet Functional Design (ITE-9603-2)	No		0	
ATC Functionality and Interface Definitions (ITE-9603-3)	No		0	
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	No		0	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		0	
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		0	
NTCIP Object Definitions for Actuated Traffic Signal Controller Units (AASHTO TS 3.5)	No		0	
Would agency be willing to participate in testing of ITS Standards?	No		2	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	Yes		2	
INCIDENT MANAGEMENT ON ARTERIAL STREETS				
Receive information on highway-rail intersection crossing blockages for				

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Schenectady City		Totals	
	1999	2005	1999	2005
the purpose of managing incident response?	No		0	
Use of Service Patrols to Assist in Detection and Response to Incidents				
Publicly operated service patrol vehicles	No		1	
Privately operated service patrol vehicles operated under public contract	No		0	
Total number of arterial miles patrolled by these services	NR	NR	0	0
Miles Covered by Methods to Detect and Verify Incidents				
Free cellular phone call to a dedicated phone number other than 911	0	0	0	0
Free cellular phone call to an area radio station	0	0	0	0
Police patrols	177	177	177	177
Computer algorithms linked to traffic surveillance equipment	0	0	0	0
CCTV	0	0	0	0
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	0	0
Other	0	0	0	15
Procedures in place for Arterial Incident Response?				
Working agreement(s)/arrangement(s) with other agencies	No		0	
Inter-agency incident management admin. team that meets regularly	No		1	
Major incident response team that responds to major incidents	No		0	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		0	
Methods of Communication Used On-Site at an Incident			0	
<u>Police</u>				
Two-way radio	Yes		2	
800 MHz trunked radio	No		1	
Cellular telephone	No		1	
Hand-held (i.e., walkie-talkie)	No		1	
Automated data systems (i.e., CAD)	No		1	
Other	No		0	
<u>Fire</u>				
Two-way radio	Yes		2	
800 MHz trunked radio	No		1	
Cellular telephone	No		0	
Hand-held (i.e., walkie-talkie)	No		1	
Automated data systems (i.e., CAD)	No		0	
Other	No		0	
<u>DOT</u>				
Two-way radio	Yes		2	
800 MHz trunked radio	No		0	
Cellular telephone	No		1	
Hand-held (i.e., walkie-talkie)	No		0	
Automated data systems (i.e., CAD)	No		0	

Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Schenectady City		Totals	
	1999	2005	1999	2005
Other	No		0	
<u>Towing</u>				
Two-way radio	No		1	
800 MHz trunked radio	No		0	
Cellular telephone	No		0	
Hand-held (i.e., walkie-talkie)	No		0	
Automated data systems (i.e., CAD)	No		0	
Other	No		0	
Which police agencies typically respond to incidents on arterials?				
State Police	Yes		2	
County Police or Sheriff	No		1	
City Police	Yes		2	
Who provides on-site emergency medical response?				
Fire	Yes		2	
Emergency Management Service Agency	No		0	
Private hospital	No		0	
Has a multi-agency contact list been developed in area containing the names, phone numbers, etc. for the appropriate response personnel?	Yes		1	
Is the Incident Command System used to manage incident scenes?	Yes		2	
Is there a legal specification by state law or formal agreement as to who is "in charge" at the incident scene?				
Specified by state law?	No		0	
Formal agreement?	No		0	
Not specified or don't know?	Yes		2	
On-scene command post used to manage activities of responding agencies?	Yes		2	
Are there communication linkages to a communications traffic/freeway mgt center?	No		1	
Plan developed and adopted by responding agencies for staging and parking response vehicles and equip. at incident site that minimizes lane blockage and facilitates the re-opening of lanes?	DK		0	
Respondents protected through law or court opinion for liability claims for damages to vehicles or cargoes during clearance activities?	DK		0	
Are overturned tank trucks, which are intact and not leaking, uprighted without first off-loading?	NR		0	
Does your state or local jurisdiction have a law that requires drivers involved in property-damage-only accidents to move the vehicles from travel lanes to a safe location to exchange info and wait for police?	No		0	
Have laws or policies regarding the removal of stalled/abandoned vehicles from freeway shoulders?	Yes		1	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	DK		0	
Have policies or procedures for quick removal of vehicles?	Yes		1	
Is Total Station equipment used to investigate major incidents?	No		1	

Arterial Management
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Schenectady City		Totals	
	1999	2005	1999	2005
Handling of Towing Responses to Incidents				
Formal contract based on qualifications?	No		0	
Rotation with companies under contract?	Yes		1	
Separate lists kept for light and heavy response and for specialty recovery?	Yes		1	
Rotation list with minimal qualifications?	No		1	
In towing qualifications, do you require towers to be certified under the				
Towing and Recovery Ass. of America's National Drivers Cert. Program?	DK		0	
DK: Don't know				
NR: No Response				
Leg: Legislation or action being planned				

Appendix G
Arterial Management Integration

Arterial Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Albany City		New York State Department of Transportation	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
<u>Arterial Mgt. agencies in metropolitan area with which you share info.</u>				
Share Timing Plans Information	Albany City Commissioner	Schenectady City	None listed	Albany City
Coordinate Changes to Timing Plans	Albany City Commissioner	New York State Department of Transportation, Albany City Commissioner, Capital District Transportation Authority, Schenectady City	None listed	Schenectady City, Albany City
Turn over Control of Signals	Albany City Commissioner	Albany City Commissioner	None listed	Schenectady City, Albany City
<u>Agencies your agency provides arterial travel times, speeds, and conditions information, share infrastructure or coordinates operation</u>				
<i>Freeway Management Agencies</i>				
Provide Information	None listed	None listed	None listed	New York State Thruway Authority
Share Infrastructure	None listed	None listed	None listed	New York State Thruway Authority
Coordinate Operation	None listed	None listed	None listed	New York State Thruway Authority
<i>Incident Management Agencies</i>				
Provide Information	None listed	None listed	None listed	New York State Thruway Authority
Share Infrastructure	None listed	None listed	New York State Thruway Authority	New York State Thruway Authority
Coordinate Operation	None listed	None listed	New York State Thruway Authority	New York State Thruway Authority
<i>Public Transit Operators Agencies</i>				
Provide Information	Capital District Transit Authority	Capital District Transit Authority	None listed	Capital District Transit Authority (CDTA)

Arterial Management Integration
Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Albany City		New York State Department of Transportation	
	1999	2005	1999	2005
Share Infrastructure	Capital District Transit Authority	Capital District Transit Authority	None listed	Capital District Transit Authority (CDTA)
Coordinate Operation	None listed	None listed	None listed	Capital District Transit Authority (CDTA)
Arterial Management Agencies				
Provide Information	Albany City Commissioner	New York State Department of Transportation, Schenectady City, Albany City Commissioner	None listed	Albany City, Schenectady City
Share Infrastructure	Albany City Commissioner	Albany City Commissioner	None listed	Albany City, Schenectady City
Coordinate Operation	Albany City Commissioner	New York State Department of Transportation, Schenectady City, Albany City Commissioner	None listed	None listed
<u>Receiving real-time information via electronic means from others</u>				
<i>Freeway Management agencies from which your agency receives</i>				
<i>freeway travel times, speeds, and conditions</i>	None listed	None listed	None listed	New York State Thruway Authority
<i>Public Transit operators from which your agency receives</i>				
<i>arterial travel times derived from vehicle probes</i>	None listed	None listed	None listed	Capital District Transit Authority (CDTA)
<i>Incident Management agencies from which your agency receives</i>				
<i>incident clearance and/or incident severity, location, and type information</i>				
Receive information on Incident Clearance	None listed	None listed	New York State Police	New York State Police
Receive information on Incident Severity, Location, and Type	None listed	None listed	New York State Police	New York State Police
<i>Toll Collection agencies from which your agency receives arterial travel times derived from vehicles probes</i>				
	None listed	None listed	None listed	None listed
Arterial Incident Management Section				
Agencies your agency provides incident severity, location, and type info.				

Arterial Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name <u>and/or shares infrastructure and/or coordinates operation</u>	Albany City		New York State Department of Transportation	
	1999	2005	1999	2005
<i>Emergency Management Agencies</i>				
Provide Information	None listed	None listed	None listed	Albany City Police Department, New York State Police, Schenectady City Traffic Department
Share Infrastructure	None listed	None listed	None listed	Albany City Police Department, New York State Police, Schenectady City Traffic Department
Coordinate Operation	None listed	None listed	None listed	Albany City Police Department, New York State Police, Schenectady City Traffic Department
<i>Freeway Management Agencies</i>				
Provide Information	None listed	None listed	None listed	New York State Thruway Authority, New York State Department of Transportation, Albany City Police, Colonie Police
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	New York State Thruway Authority, New York State Department of Transportation, Albany City Police, Colonie Police
<i>Public Transit Operators</i>				
Provide Information	None listed	None listed	None listed	Capital District Transit Authority (CDTA)
Share Infrastructure	None listed	None listed	None listed	Capital District Transit Authority (CDTA)
Coordinate Operation	None listed	None listed	None listed	Capital District Transit Authority (CDTA)

Arterial Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Albany City		New York State Department of Transportation	
	1999	2005	1999	2005
Receiving real-time information via electronic means from others				
<i>Emergency Management agencies from which your agency receives</i>				
<i>arterial incident clearance and/or arterial incident severity</i>				
Receive Arterial Incident Clearance Information	None listed	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed
<i>Arterial Management agencies from which your agency receives</i>				
<i>arterial travel times, speeds, and conditions</i>	None listed	None listed	None listed	Albany City, Schenectady City
<i>Freeway Management agencies from which your agency receives</i>				
<i>freeway travel times, speeds, and conditions</i>	None listed	None listed	None listed	None listed

*short survey: Agency responded using a short survey. The survey did not include names of individual agencies, but only identified whether integration exists.

Arterial Management Integration
Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Saratoga County		Schenectady City	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
<u>Arterial Mgt. agencies in metropolitan area with which you share info.</u>				
Share Timing Plans Information	New York State Department of Transportation	New York State Department of Transportation	New York State Department of Transportation, Albany City Commissioner	Albany City Commissioner
Coordinate Changes to Timing Plans	New York State Department of Transportation	New York State Department of Transportation	None listed	New York State Department of Transportation, Albany City Commissioner
Turn over Control of Signals	New York State Department of Transportation	New York State Department of Transportation	None listed	None listed
<u>Agencies your agency provides arterial travel times, speeds, and conditions information, share infrastructure or coordinates operation</u>				
<i>Freeway Management Agencies</i>				
Provide Information	New York State Department of Transportation	New York State Department of Transportation	New York State Department of Transportation	New York State Department of Transportation
Share Infrastructure	None listed	None listed	None listed	New York State Department of Transportation
Coordinate Operation	None listed	None listed	None listed	None listed
<i>Incident Management Agencies</i>				
Provide Information	New York State Department of Transportation, Towns	New York State Department of Transportation, Towns	New York State Department of Transportation	New York State Department of Transportation
Share Infrastructure	New York State Department of Transportation	New York State Department of Transportation	None listed	New York State Department of Transportation
Coordinate Operation	None listed	None listed	None listed	None listed
<i>Public Transit Operators Agencies</i>				
Provide Information	None listed	None listed	Capital District Transit Authority	Capital District Transit Authority

Arterial Management Integration
Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Saratoga County		Schenectady City	
	1999	2005	1999	2005
Share Infrastructure	None listed	None listed	None listed	Capital District Transit Authority
Coordinate Operation	None listed	None listed	None listed	Capital District Transit Authority
Arterial Management Agencies				
Provide Information	None listed	None listed	New York State Department of Transportation, Albany City Commissioner	New York State Department of Transportation, Albany City Commissioner
Share Infrastructure	None listed	None listed	None listed	New York State Department of Transportation, Albany City Commissioner
Coordinate Operation	None listed	None listed	None listed	New York State Department of Transportation, Albany City Commissioner
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				
<i>freeway travel times, speeds, and conditions</i>	None listed	None listed	None listed	New York State Department of Transportation, Capital District Transit Authority (CDTA)
Public Transit operators from which your agency receives				
<i>arterial travel times derived from vehicle probes</i>	None listed	None listed	None listed	Capital District Transit Authority (CDTA)
Incident Management agencies from which your agency receives				
incident clearance and/or incident severity, location, and type information				
Receive information on Incident Clearance	None listed	None listed	None listed	None listed
Receive information on Incident Severity, Location, and Type	New York State Department of Transportation	New York State Department of Transportation	None listed	None listed
Toll Collection agencies from which your agency receives arterial travel times derived from vehicles probes				
	None listed	None listed	None listed	None listed
Arterial Incident Management Section				
Agencies your agency provides incident severity, location, and type info.				

Arterial Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Saratoga County		Schenectady City	
	1999	2005	1999	2005
<u>and/or shares infrastructure and/or coordinates operation</u>				
<i>Emergency Management Agencies</i>				
Provide Information	None listed	None listed	Albany City Fire Department	Albany City Fire Department
Share Infrastructure	None listed	None listed	Albany City Fire Department, New York State Police	Albany City Fire Department, New York State Police
Coordinate Operation	None listed	None listed	None listed	Albany City Fire Department, New York State Police
<i>Freeway Management Agencies</i>				
Provide Information	None listed	None listed	New York State Department of Transportation	New York State Department of Transportation
Share Infrastructure	None listed	None listed	None listed	New York State Department of Transportation
Coordinate Operation	None listed	None listed	None listed	New York State Department of Transportation
<i>Public Transit Operators</i>				
Provide Information	None listed	None listed	Capital District Transit Authority (CDTA)	Capital District Transit Authority (CDTA)
Share Infrastructure	None listed	None listed	None listed	Capital District Transit Authority (CDTA)
Coordinate Operation	None listed	None listed	None listed	Capital District Transit Authority (CDTA)

Arterial Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Saratoga County		Schenectady City	
	1999	2005	1999	2005
Receiving real-time information via electronic means from others				
<i>Emergency Management agencies from which your agency receives</i>				
<i>arterial incident clearance and/or arterial incident severity</i>				
Receive Arterial Incident Clearance Information	None listed	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed
<i>Arterial Management agencies from which your agency receives</i>				
<i>arterial travel times, speeds, and conditions</i>	None listed	None listed	None listed	None listed
<i>Freeway Management agencies from which your agency receives</i>				
<i>freeway travel times, speeds, and conditions</i>	None listed	None listed	None listed	None listed

*short survey: Agency responded using a short survey. The survey did not include names of individual agencies, but only identified whether integration exists.

Appendix H
Arterial Management Information Collection and Dissemination

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Albany City		New York State Department of Transportation	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Emergency vehicle signal preemption	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority, Current work zones, Scheduled work zones	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Current work zones, Scheduled work zones	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Transit vehicle signal priority, Current work zones, Scheduled work zones, Highway operations coordination information
Archived by your agency	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Emergency vehicle signal preemption	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Current work zones, Scheduled work zones	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Transit vehicle signal priority, Current work zones, Scheduled work zones, Highway operations coordination information
Transferred to another agency by your agency	NR	NR	Traffic volumes, Current work zones, Scheduled work zones	Traffic volumes, Transit vehicle signal priority, Current work zones, Scheduled work zones, Highway operations coordination information
Importance of making information available to the public				
Ranked High	Queues, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Intermodal (air, rail, water) connections, Emergency/evacuation routes and procedures		Current work zones, Scheduled work zones, Highway operations coordination information	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Albany City		New York State Department of Transportation	
	1999	2005	1999	2005
Ranked Medium	Traffic volumes, Lane occupancy, Vehicle classification, Probe vehicles, Turning movements, Highway operations coordination information		NR	
Ranked Low	Traffic speeds, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority		Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Transit vehicle signal priority	
Groups that make requests for the data	Consultants		Universities, State DOT personnel, Media (I.e., TV stations, radio stations), MPOs, Consultants, Advanced Traveler Information Systems (ATIS) provi	
What is the data used for?	Construction impact determination, Planning		Traffic analysis, Construction impact determination, Planning, Dissemination to the public	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	Internet Web sites
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	Internet Web sites
Internet web site reporting arterial conditions	NR		NR	
Telephone system for reporting arterial information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		Metro Networks	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information to the public				
Technologies your agency uses to disseminate:	NR	NR	Internet Web sites, Pagers or personal data assistants	Telephone system, Internet Web sites, Pagers or personal data assistants
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting incident information	NR		www.troopers.state.ny.us/tmc/tmcindex.html	
Telephone system for reporting incident information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		Metro Networks	

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Saratoga County		Schenectady City	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Traffic volumes, Turning movements, Phasing/cycle lengths, Road conditions, Current work zones, Scheduled work zones	Traffic volumes, Turning movements, Phasing/cycle lengths, Road conditions, Current work zones, Scheduled work zones	Traffic volumes, Turning movements, Phasing/cycle lengths, Route designations (snow emergency, etc.), Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Turning movements, Phasing/cycle lengths, Route designations (snow emergency, etc.), Current work zones, Scheduled work zones, Highway operations coordination information
Archived by your agency	Traffic volumes, Turning movements, Phasing/cycle lengths, Road conditions, Current work zones, Incidents, Scheduled work zones	Traffic volumes, Turning movements, Phasing/cycle lengths, Road conditions, Current work zones, Incidents, Scheduled work zones	Traffic volumes, Turning movements, Phasing/cycle lengths, Route designations (snow emergency, etc.), Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Turning movements, Phasing/cycle lengths, Route designations (snow emergency, etc.), Current work zones, Scheduled work zones, Highway operations coordination information
Transferred to another agency by your agency	Traffic volumes, Current work zones, Incidents, Scheduled work zones	Traffic volumes, Current work zones, Incidents, Scheduled work zones	Traffic volumes, Turning movements, Phasing/cycle lengths	Traffic volumes, Turning movements, Phasing/cycle lengths
Importance of making information available to the public				
Ranked High	Road conditions, Current work zones, Incidents, Scheduled work zones		Traffic volumes, Turning movements	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Saratoga County		Schenectady City	
	1999	2005	1999	2005
Ranked Medium	Traffic volumes, Phasing/cycle lengths		Phasing/cycle lengths	
Ranked Low	Turning movements		NR	
Groups that make requests for the data	State DOT personnel, Media (i.e., TV stations, radio stations), Consultants, Police, Fire, & Ambulance-road closures/detours, Residents-accident data traffic counts		Universities, State DOT personnel, Federal DOT personnel, MPOs, Consultants	
What is the data used for?	Traffic analysis, Construction impact determination, Planning, Roadway impact analysis, Dissemination to the public		Traffic analysis, Construction impact determination, Planning, Roadway impact analysis	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting arterial conditions	NR		NR	
Telephone system for reporting arterial information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting incident information	NR		NR	
Telephone system for reporting incident information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	

Appendix I
Transit Management Components

Transit Management
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Capital District Transit Authority (CDTA)	
	1999	2005
Agency Returned Survey?	Yes	
Number of vehicles used in revenue service		
Fixed Route Bus	235	250
Heavy or Rapid Rail	0	0
Light Rail	0	0
Demand Responsive	25	25
Commuter Rail	0	2
Ferry Boat	0	0
Have of plan to have an Automated Vehicle Location System?	Yes	
Primary and Secondary Location Technologies Used		
<i>Primary Technologies</i>		
GPS	No	No
Sign/Odometer	No	No
Dead-Reckoning	No	No
LORAN C	No	No
Other	No	Yes
<i>Backup Technologies</i>		
GPS	No	No
Sign/Odometer	No	No
Dead-Reckoning	No	Yes
LORAN C	No	No
Other	No	No
Number of Vehicles Equipped with AVL		
Fixed Route Bus	0	250
Heavy or Rapid Rail	0	0
Light Rail	0	0
Demand Responsive	0	25
Commuter Rail	0	0
Ferry Boat	0	0
Motor Buses Operated as Vehicle Probes		
Number of Motor Buses equipped as probes on freeways?	0	
Number of Motor Buses equipped as probes on arterials?	0	
Have Organized Regional Incident Management Program?	Yes	
Have Automated Traveler Information System?	Yes	
<i>Services Automated Traveler Info. System Applies:</i>		

Transit Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Capital District Transit Authority (CDTA)	
	1999	2005
Fixed Route	Yes	
Heavy Rail	No	
Light Rail	No	
Demand Responsive	Yes	
Commuter Rail	No	
Ferry	No	
Locations where traveler information is displayed to public		
Number of bus stops on fixed transit routes	4,000	4,000
Bus stops on fixed transit routes that display traveler info to the public	4	12
Number of rail stations	3	3
Number of rail stations that display traveler information	0	3
Number of other locations that display traveler information to public	NR	NR
Number of vehicles the traveler information system has available		
Fixed Route Bus	0	250
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	0	25
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Deployment of Communications Technology		
<i>Attributes of Radio System:</i>		
Digital?	No	
Analog?	Yes	
Trunked?	No	
Regular?	Yes	
Services that use a Digital or Trunked Radio System		
<i>Digital Only</i>		
Fixed Route Bus	No	No
Heavy or Rapid Rail	No	No
Light Rail	No	No
Demand Responsive	No	No
Commuter Rail	No	No
Ferry Boat	No	No
<i>Trunked Only</i>		
Fixed Route Bus	No	No
Heavy or Rapid Rail	No	No
Light Rail	No	No
Demand Responsive	No	No

Transit Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Capital District Transit Authority (CDTA)	
	1999	2005
Commuter Rail	No	No
Ferry Boat	No	No
Have of plan to have Automatic Passenger Counters (APCs)?	Yes	
Methods used to count passengers		
Treadle Mats	No	
Infrared Beams	Yes	
Primary and Secondary Location Technologies Used		
<i>Primary Technologies</i>		
GPS	No	No
Differential GPS	Yes	Yes
Signpost/Odometer	No	No
Dead_Reckoning	No	No
LORAN C	No	No
Other	No	No
<i>Backup Technologies</i>		
GPS	No	No
Differential GPS	No	No
Signpost/Odometer	No	No
Dead_Reckoning	Yes	Yes
LORAN C	No	No
Other	No	No
Number of Vehicles with APCs		
Fixed Route Bus	22	250
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	0	NR
Commuter Rail	0	NR
Ferry Boat	NR	NR
Remote Real-Time Monitoring and Computer Assisted Dispatching		
<i>Remote Real-Time Monitoring</i>		
Fixed Route Bus	230	250
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	0	25
Commuter Rail	NR	NR
Ferry Boat	NR	NR
<i>Automated Dispatching or Control Software</i>		
Fixed Route Bus	0	250

Transit Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Capital District Transit Authority (CDTA)	
	1999	2005
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	25	25
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Coordinate or plan to coordinate travel request and vehicle dispatching for multiple agencies?	No	
Is there or will there be a Transportation Management Center (TMC) in the region that controls transit and highway modes?	Yes	
Modes that TMC currently controls:		
Highways	Yes	Yes
Fixed Route Bus	No	No
Heavy or Rapid Rail	No	No
Light Rail	No	No
Demand Responsive	No	No
Commuter Rail	No	No
Ferry Boat	No	No
Other	No	No
Priority at Traffic Signals and Ramp Meter Priority		
<i>Priority at Traffic Signals</i>		
Fixed Route Bus	0	25
Light Rail	NR	NR
Demand Responsive	NR	NR
<i>Ramp Meter Priority</i>		
Fixed Route Bus	NR	NR
Demand Responsive	NR	NR
Number of Vehicles Equipped with Navigation Aids		
Fixed Route Bus	NR	NR
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	NR	NR
Commuter Rail	NR	NR
Ferry Boat	NR	NR
ITS Standards Used Related to Transit Management		
TCIP On Board Objects (TCIP-OB)	Yes	
TCIP Traffic Management Objects (TCIP-TM)	Yes	
TCIP Common Public Transportation Objects (TCIP-CPT)	Yes	

Transit Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Capital District Transit Authority (CDTA)	
	1999	2005
TCIP Passenger Information Objects (TCIP-PI)	Yes	
TCIP Incident Management Objects (TCIP-IM)	Yes	
TCIP Fare Collection Objects (TCIP-FC)	Yes	
TCIP Spatial Representation Objects (TCIP-SP)	Yes	
TCIP Control Center Objects (TCIP-CC)	Yes	
TCIP Scheduling/Runcutting Objects (TCIP-SCH)	Yes	
Send data communication between micro computer and heavy duty vehicle applications (SAE J1708)	Yes	
Would agency be willing to participate in testing of ITS Standards?	Yes	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	No	
Electronic Fare Payment		
Have full operational Electronic Fare Payment System?	Yes	
Methods of Fare Payment		
<i>Stored value card with fare deducted for each trip</i>		
Magnetic Stripe	No	
Smart Card	No	
Debit Card	No	
<i>Billed by the month for trips taken</i>		
Magnetic Stripe	No	
Smart Card	No	
Credit Card	No	
<i>Monthly Pass</i>		
Magnetic Stripe	Yes	
Smart Card	No	
Vehicles/Stations Equipped with Automated Payment Mechanism		
<i>Magnetic Stripe Readers</i>		
Fixed Route Bus Vehicles	235	NR
Heavy or Rapid Rail Stations	NR	NR
Light Rail Stations	NR	NR
Demand Responsive Vehicles	25	NR
Commuter Rail Stations	NR	NR
Ferry Boat Landings	NR	NR
<i>Smart Card Readers</i>		
Fixed Route Bus Vehicles	0	NR
Heavy or Rapid Rail Stations	NR	NR
Light Rail Stations	NR	NR

Transit Management
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

	Capital District Transit Authority (CDTA)	
	1999	2005
Demand Responsive Vehicles	NR	NR
Commuter Rail Stations	NR	NR
Ferry Boat Landings	NR	NR
<u>Credit Card</u>		
Fixed Route Bus Vehicles	NR	NR
Heavy or Rapid Rail Stations	NR	NR
Light Rail Stations	NR	NR
Demand Responsive Vehicles	NR	NR
Commuter Rail Stations	NR	NR
Ferry Boat Landings	NR	NR
<u>Debit Card</u>		
Fixed Route Bus Vehicles	NR	NR
Heavy or Rapid Rail Stations	NR	NR
Light Rail Stations	NR	NR
Demand Responsive Vehicles	NR	NR
Commuter Rail Stations	NR	NR
Ferry Boat Landings	NR	NR
NR: No Response		

Appendix J
Transit Management Integration

Transit Management Integration
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Capital District Transit Authority (CDTA)	
	1999	2005
Agency Returned Survey?	Yes	
<u>Transit operators in the region that use the same electronic payment system</u>	None listed	
<u>Toll operators from whom you accept electronic payment of transit fare through the use of ETC media</u>	None listed	
<u>Receiving real-time information via electronic means from others</u>		
<i>Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions</i>		
<i>Receive Information</i>	None listed	None listed
<i>Share Infrastructure</i>	None listed	New York State Department of Transportation, New York State Thruway Authority
<i>Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions</i>		
<i>Receive Information</i>	None listed	None listed
<i>Share Infrastructure</i>	None listed	Schenectady City, Albany City Commissioner
<i>Incident Management agencies from which your agency receives incident severity, location, and type</i>		
<i>Receive Information</i>	New York State Department of Transportation	New York State Thruway Authority, New York State Department of Transportation
<i>Share Infrastructure</i>	None listed	None listed

Appendix K
Transit Management Information Collection and Dissemination

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Capital District Transit Authority (CDTA)	
	1999	2005
Agency Returned Survey?	Yes	
Methods used to disseminate transit information to the public		
Technologies your agency uses to disseminate:		
Transit routes, schedules and fares	Internet Web Sites, Telephone System	Audible Enunciators, Variable Message Signs (in vehicle), Kiosks, Internet Web Sites, Telephone System
Real-time transit schedule adherence or arrival and departure times	NR	Audible Enunciators, Variable Message Signs (in vehicle), Kiosks
Technologies employed by other organization receiving your data		
Transit routes, schedules and fares	Internet Web Sites	Internet Web Sites
Real-time transit schedule adherence or arrival and departure times	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	www.cdta.org	
Telephone system for reporting transit information to the public	518-482-8822	
Organizations your agency sends information for dissemination to the public	Distribution of printed schedules to more than 200 outlets. Web page links to 20+ organizations including NYSDOT, CDTC (MPO).	
Data collected, archived, and/or transferred to another agency		
Collected by your agency	Scheduled roadway work zones for transit, Current roadway work zones for transit, Incidents, Weather conditions, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Trip itinerary planning records, Passenger count, Vehicle time and location	Scheduled roadway work zones for transit, Current roadway work zones for transit, Incidents, Weather conditions, Transit vehicle signal priority, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Trip itinerary planning records, Passenger count, Vehicle time and location
Archived by your agency	Incidents, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count	Incidents, Transit vehicle signal priority, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Trip itinerary planning records, Passenger count, Vehicle time and location
Transferred to another agency by your agency	Passenger information (e.g., surveys, O/D)	Transit vehicle signal priority, Passenger information (e.g., surveys, O/D)
Importance of making information available to the public		
Ranked High	Scheduled roadway work zones for transit, Current roadway work zones for transit, Passenger information (e.g., surveys, O/D)	
Ranked Medium	Passenger count, Vehicle time and location	
Ranked Low	Incidents, Weather conditions, Transit vehicle signal priority, Vehicle monitoring status, Trip itinerary planning records	
Groups that make requests for the data	Consultants, MPOs, Media (i.e., TV stations, radio stations), Federal DOT personnel, State DOT personnel	
What is the data used for?	Dissemination to the public, Planning, Traffic analysis	

Appendix L
Emergency Management

Emergency Management Agencies for Metropolitan Area: Albany, Schenectady, Troy

Agency Name	Total Vehicles		Navigation Capabilities		AVL		CAD		Equipped with Mobile Data Terminal		Vehicles Equipped with Preemption		Participate in Formal Incident Mgt Program	Send Incident Info to other agencies	List of agencies receiving data
	1999	2005	1999	2005	1999	2005	1999	2005	1999	2005	1999	2005			
Albany City Fire Department	48	48	0	0	0	48	48	48	0	48	0	48	Yes	No	None listed
Albany City Police Department	120	130	0	0	0	0	90	130	20	60	0	0	Yes	Yes	NYSPIN
Albany County Sheriff Department	6	8	0	8	0	0	6	8	6	8	6	8	Yes	Yes	None listed
Colonie City Police Department	44	NR	0	NR	NR	NR	35	NR	35	NR	0	NR	No	No	None listed
New York State Police	12	NR	12	NR	0	NR	0	NR	0	NR	0	NR	Yes	Yes	Albany City Police Department, Colonie City Police Department, New York State Thruway Authority, MetroTraffic
New York State Thruway Authority	36	NR	0	NR	0	NR	0	NR	0	NR	0	NR	Yes	No	None listed
Rensselaer County Sheriff Department	25	30	0	20	0	0	0	30	0	20	0	0	No	Yes	New York State Police @ Brunswick, New York State Police @ East Greenbush
Saratoga County Sheriff Department	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No	No	None listed
Schenectady City Fire & EMS Department	7	NR	0	NR	0	NR	7	NR	0	NR	0	NR	Yes	Yes	Red Cross, Schenectady City Police Department, Schenectady Bureau of Service, Schenectady Ambulance, Schenectady Water Department
Schenectady City Police Department	25	25	0	0	0	25	25	25	25	25	0	0	No	No	None listed
Troy City Fire Department	17	17	0	0	0	0	0	0	0	0	0	0	No	No	None listed
Troy City Police Department	34	34	0	NR	0	NR	0	34	0	34	0	0	No	No	None listed

Appendix M
Electronic Toll Collection

Electronic Toll Collection
 Agencies for Metropolitan Area: Albany, Schenectady, Troy

	New York State Thruway Authority	
	1999	2005
Agency Returned Survey?	Yes	
Number of toll Collection Plazas operated	7	NR
Number of toll collection plazas with dedicated ETC	7	NR
Number of toll collection plazas with both manual and ETC	7	NR
Number of toll collection lanes operated	117	NR
Number of toll collection lanes with dedicated ETC	25	NR
Number of toll collection lanes with both manual and ETC	46	NR
Number of toll collection tags issued	750,000	NR
Antennae Location Technologies		
In-Pavement?	No	
Focused Beam?	No	
Distributed Overhead?	Yes	
In-Vehicle Equipment Technologies		
Tag-based?	Yes	
Integrated circuit card-based?	No	
Are toll tags used by other toll operations in metro area?	Yes	
List of toll operators that use tags	MTA Bridges and Tunnels, Port Authority of New York and New Jersey, NYS Bridge Authority, South Jersey Transportation Authority, Delaware Department of Transportation	
Are toll tags used by operators of public transit to pay transit fares in metro area?	No	
List of transit operators that use tags	None	
NR: No Response		