Tracking the Deployment of the Integrated Metropolitan ITS Infrastructure in Washington

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 75[1] 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

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[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 Washington 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 Washington region was 88% in 1997 and 77% 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 Washington 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."

Washington
Summary Indicators*

Indicator	1997	1999	2005
Freeway miles with real-time traffic data collection technologies	100%	100%	100%
Freeway miles covered by on-call service patrols	70%	62%	62%
Arterial miles covered by on-call service patrols	0%	0%	3%
Signalized intersections under centralized or closed loop control	78%	94%	98%
Toll collection lanes with ETC capability	100%	100%	100%
Fixed-route transit vehicles equipped with AVL	1%	6%	28%
Fixed-route buses accepting electronic fare payment	0%	0%	88%
Highway-rail intersections under electronic surveillance	5%	0%	9%
Emergency management vehicles under CAD	32%	77%	81%
Freeway conditions disseminated to the public	0%	100%	100%

Legend:
- ☐ 1997
- ■ 1999
- ▨ 2005

Percent Deployment Opportunity**

* 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*

Freeway miles under electronic surveillance
- 16%
- 22%
- 46%

Freeway miles covered by on-call service patrols
- 30%
- 35%
- 42%

Arterial miles covered by on-call service patrols
- 0%
- 3%
- 4%

Signalized intersections under centralized or closed loop control
- 46%
- 46%
- 54%

Toll collection lanes with ETC capability
- 36%
- 43%
- 91%

Fixed-route transit vehicles equipped with AVL
- 23%
- 30%
- 69%

Fixed-route buses accepting electronic fare payment
- 30%
- 45%
- 83%

Highway-rail intersections under electronic surveillance
- 5%
- 9%
- 14%

Emergency management vehicles under CAD
- 43%
- 66%
- 77%

Freeway conditions disseminated to the public
- 12%
- 22%
- 42%

Legend:
- ☐ 1997
- ■ 1999
- ▨ 2005

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Percent Deployment Opportunity

* 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

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Washington Integration Links
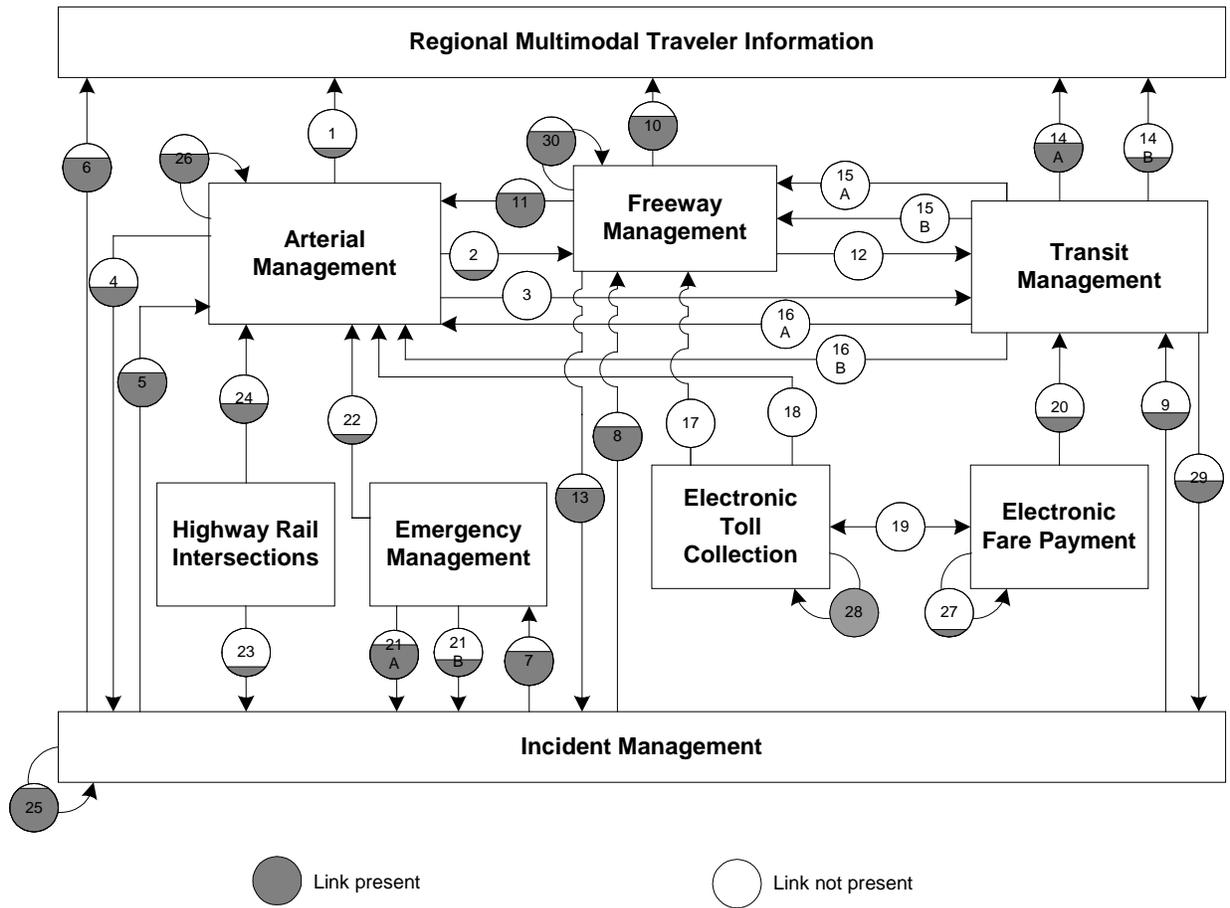
Link	Description	Link	Description
1	Arterial Management to Regional Multimodal Traveler Information	2	Arterial Management to Freeway Management
3	Arterial Management to Transit Management	4	Arterial Management to Incident Management
5	Incident Management to Arterial Management	6	Incident Management to 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 Washington 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

Washington
Freeway Management*

	1997	1999	2005

Freeway miles with real-time traffic data collection technologies — 100% / 100% / 100%

Ramps controlled by ramp meter or miles under lane control (1997 only) — 3% / Not Collected in 1999 / Not Collected in 2005

Ramps controlled by ramp meters (1999 and 2005) — Not Collected in 1997 / 0% / 1%

Miles controlled by lane control (1999 and 2005) — Not Collected in 1997 / 1% / 6%

Miles covered by VMS, HAR, or IVS (1997 only) — 23% / Not Collected in 1999 / Not Collected in 2005

Miles covered by VMS (1999 and 2005) — Not Collected in 1997 / 98% / 70%

Miles covered by HAR (1999 and 2005) — Not Collected in 1997 / 23% / 34%

Miles covered by IVS (1999 and 2005) — Not Collected in 1997 / No Response / No Response

Legend: ☐ 1997 ■ 1999 ▨ 2005

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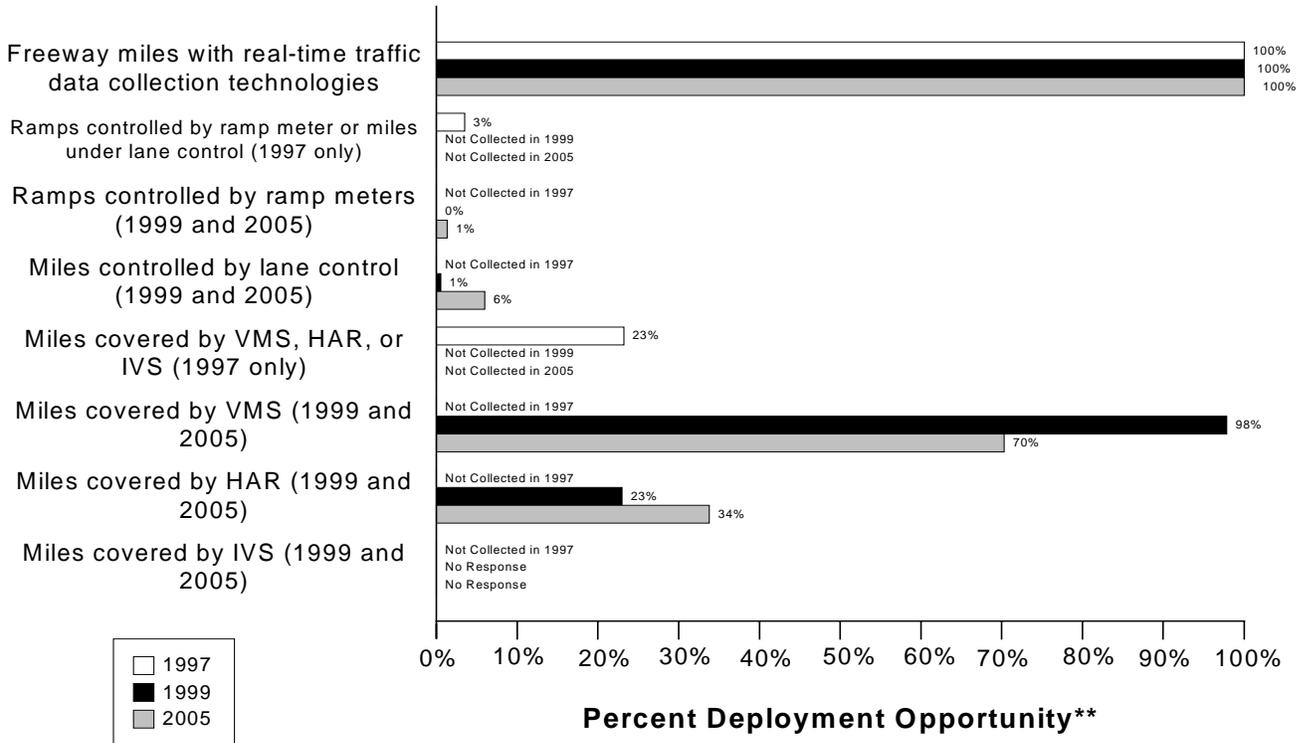
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway centerline miles are under electronic surveillance for monitoring traffic flow	330	330	100%	370	370	100%	370	370	100%
Freeway entrance ramps are controlled by ramp meters or miles under lane control	26	746	3%						

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Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway entrance ramps are controlled by ramp meters				0	746	0%	10	746	1%
Freeway centerline miles will be controlled by lane control				2	370	1%	22	370	6%
Freeway miles are covered by VMS, HAR, or IVS	76.5	330	23%						
Freeway miles are covered by VMS				362	370	98%	260	370	70%
Freeway miles are covered by HAR				85	370	23%	125	370	34%
Freeway miles are covered by IVS					370			370	

Washington
Freeway Management Integration*

Inputs

Outputs

2 *20%*
40% → **Arterial Conditions**

8 *67%*
67% → **Incident Conditions**

15a *0%*
15b *0%*
0% → **Ramp Priority**

0% → **Probe Times**

17 *0%*
33%

67% **67%**
30

67%
11 67% → **Adjust Arterial Signals**

67%
10 100% → **Affect Travel Decisions**

12 *0%* 0% → **Adjust Routes/ Schedules**

13 *67%*
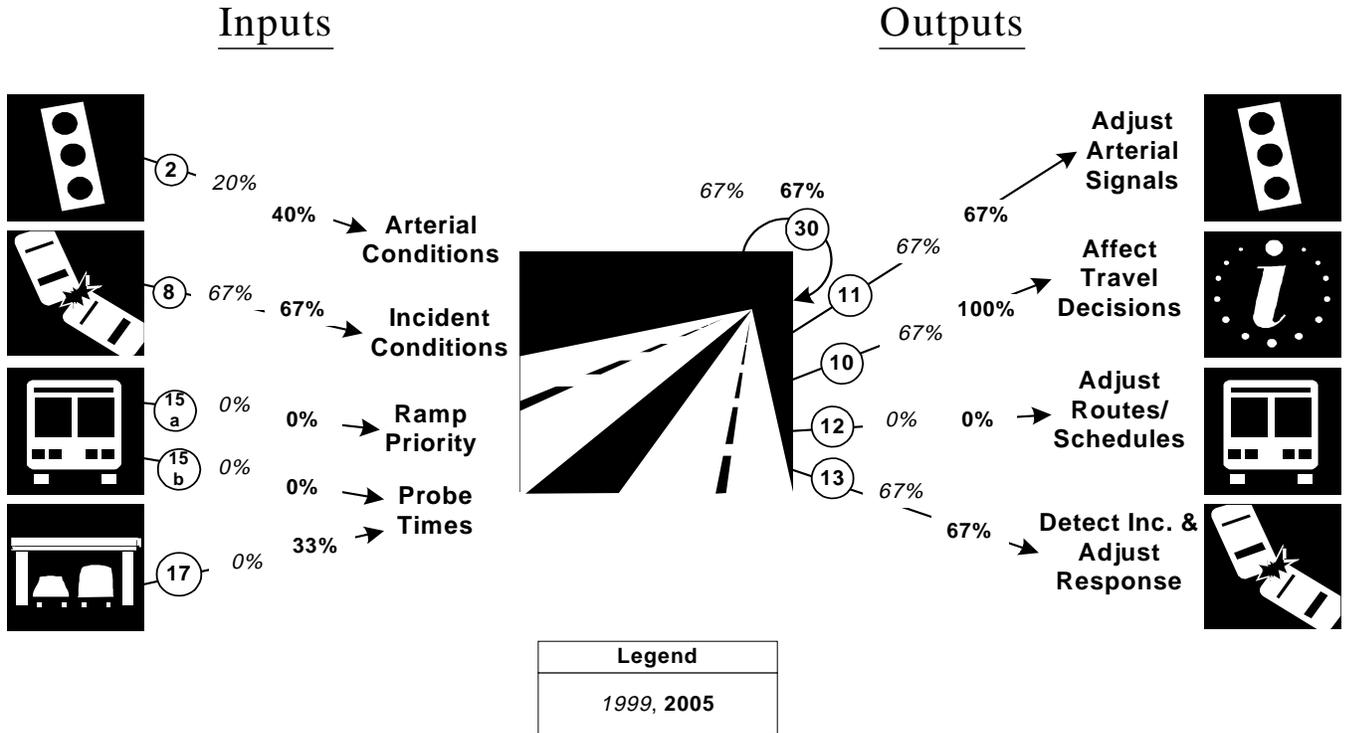67% → **Detect Inc. & Adjust Response**

Legend
1999, **2005**

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

Link Description	1999	2005
2. Arterial Management agencies sending information to Freeway Management	(1/ 5) 20%	(2/ 5) 40%
8. Incident Management agencies sending information to Freeway Management	(2/ 3) 67%	(2/ 3) 67%
15a. Transit management agencies with vehicles equipped with ramp meter priority	(0/ 7) 0%	(0/ 7) 0%
15b. Transit Management agencies with vehicles equipped as probes	(0/ 7) 0%	(0/ 7) 0%
17. Freeway Management agencies receiving freeway conditions from vehicle probes	(0/ 3) 0%	(1/ 3) 33%
30. Freeway Management agencies sending information to another Freeway Management agency	(2/ 3) 67%	(2/ 3) 67%

Link Description	1999	2005
11. Freeway Management agencies sending information to Arterial Management	(2/ 3) 67%	(2/ 3) 67%
10. Freeway Management agencies disseminating freeway conditions to the public	(2/ 3) 67%	(3/ 3) 100%
12. Freeway Management agencies sending freeway conditions to Transit Management	(0/ 3) 0%	(0/ 3) 0%
13. Freeway Management agencies sending freeway conditions to Incident Management	(2/ 3) 67%	(2/ 3) 67%

Incident Management Component Indicators

Washington
Freeway and Arterial Incident Management*

Legend:
- ☐ 1997
- ■ 1999
- ▨ 2005

Percent Deployment Opportunity**

Chart values:

- Freeway miles under incident detection algorithms: 10%, 19%, 100%
- Freeway miles under free cell phone call to a dedicated number: 100%, 100%, 100%
- Freeway miles covered by surveillance cameras: 15%, 30%, 53%
- Freeway miles covered by on-call service patrols: 70%, 62%, 62%
- Arterial miles under incident detection algorithms: 0%, 3%, 9%
- Arterial miles under free cell phone call to a dedicated number: 100%, No Response, No Response
- Arterial miles covered by surveillance cameras: 1%, 5%, 13%
- Arterial miles covered by on-call service patrols: 0%, 0%, 3%

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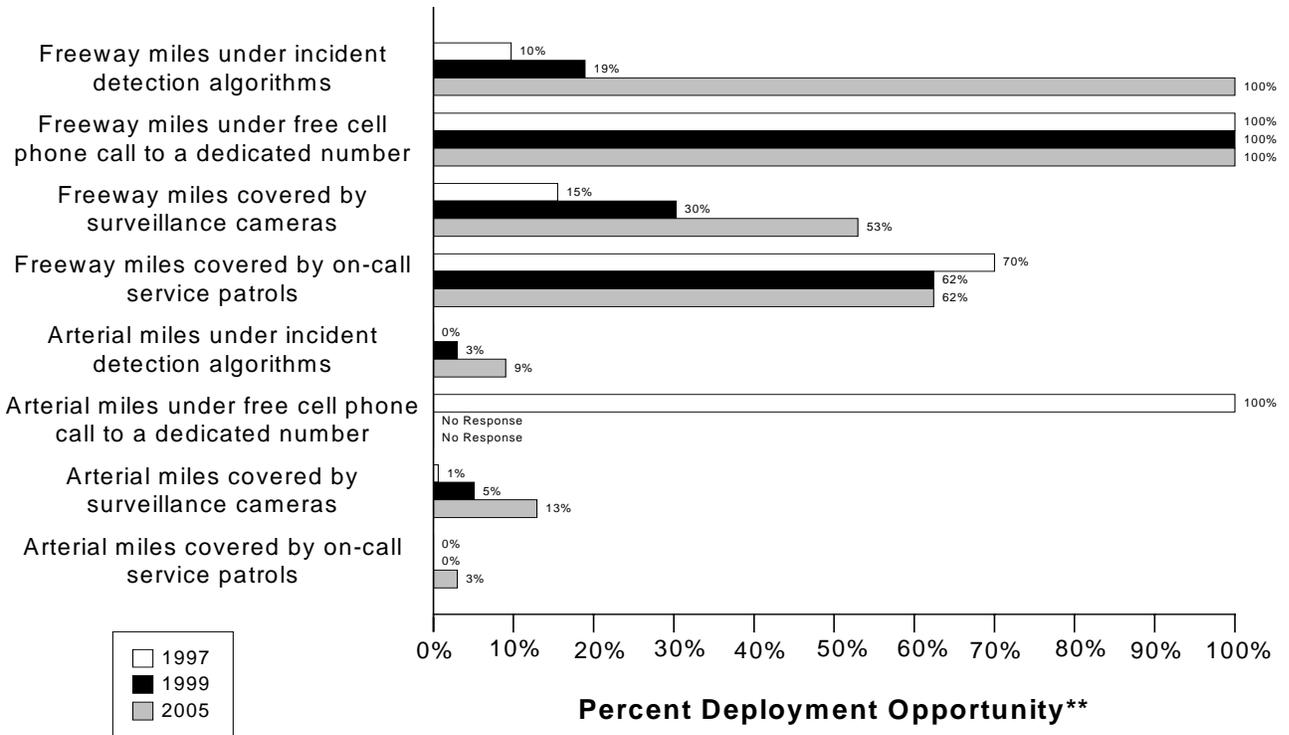** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by incident detection algorithms	32	330	10%	70	370	19%	370	370	100%
Freeway miles are covered by free cellular phone calls to a dedicated number	330	330	100%	370	370	100%	370	370	100%
Freeway miles are covered by surveillance cameras.	51.1	330	15%	112	370	30%	196	370	53%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by on-call publicly-sponsored service patrol or towing services.	231	330	70%	231	370	62%	231	370	62%
Arterial miles are covered by incident detection algorithms	0	1663	0%	50	1663	3%	150	1663	9%
Arterial miles are covered by free cellular phone calls to a dedicated number	1663	1663	100%		1663			1663	
Arterial miles are covered by surveillance cameras	10	1663	1%	85	1663	5%	215	1663	13%
Arterial miles are covered by on-call publicly-sponsored service patrol or towing services	0	1663	0%	0	1663	0%	50	1663	3%

Incident Management Integration Indicators

Washington
Incident Management Integration*
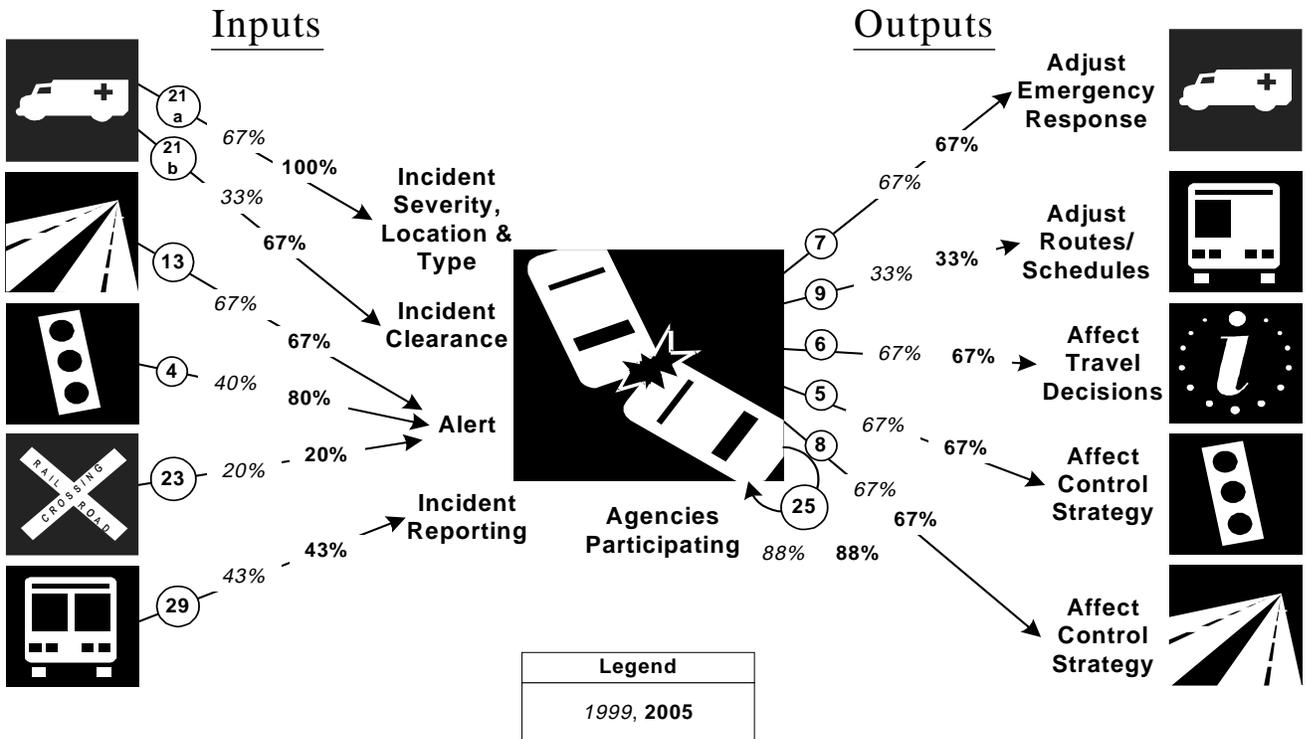
Inputs   Outputs

Legend
1999, **2005**

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

Link Description	1999	2005
21a. Incident management agencies receiving incident severity from Emergency Management	(2/ 3) 67%	(3/ 3) 100%
21b. Incident management agencies receiving incident clearance activities from Emergency Management	(1/ 3) 33%	(2/ 3) 67%
13. Freeway Management agencies sending freeway conditions to Incident Management	(2/ 3) 67%	(2/ 3) 67%
4. Arterial Management agencies sending arterial conditions to Incident Management	(2/ 5) 40%	(4/ 5) 80%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(1/ 5) 20%	(1/ 5) 20%
29. Transit Management agencies report traffic incidents as part of an organized regional incident management program	(3/ 7) 43%	(3/ 7) 43%

Link Description	1999	2005
7. Incident management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	(2/ 3) 67%	(2/ 3) 67%
9. Incident Management agencies transfer information describing incident severity, location, and type to Transit Management agencies	(1/ 3) 33%	(1/ 3) 33%
6. Incident Management agencies disseminate information describing incident severity, location, and type to the public	(2/ 3) 67%	(2/ 3) 67%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management agencies	(2/ 3) 67%	(2/ 3) 67%
8. Incident Management agencies transfer information describing incident severity, location, and type to Freeway Management agencies	(2/ 3) 67%	(2/ 3) 67%
25. Police, fire, and EMS agencies participating in a formal incident management plan/team	(14/ 16) 88%	(14/ 16) 88%

Arterial Management Component Indicators

Washington
Arterial Management*

Arterial miles covered by electronic surveillance (1997 only)
- 6%
- Not Collected in 1999
- Not Collected in 2005

Signalized intersections covered by electronic surveillance (1999 and 2005)
- Not Collected in 1997
- 15%
- 57%

Signalized intersections under centralized or closed loop control
- 78%
- 94%
- 98%

Arterial miles covered by VMS, HAR, or IVS (1997 only)
- 0%
- Not Collected in 1999
- Not Collected in 2005

Arterial miles covered by VMS (1999 and 2005)
- Not Collected in 1997
- 2%
- 17%

Arterial miles covered by HAR (1999 and 2005)
- Not Collected in 1997
- 3%
- 3%

Arterial miles covered by IVS (1999 and 2005)
- Not Collected in 1997
- No Response
- No Response

Legend:
- 1997
- 1999
- 2005

Percent Deployment Opportunity**

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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	100	1663	6%						
Signalized intersections are covered by electronic surveillance for monitoring traffic flow				204	1321	15%	828	1449	57%
Signalized intersections are under centralized or closed loop control	2730	3505	78%	1242	1321	94%	1420	1449	98%
Arterial miles are covered by VMS, HAR, or IVS	0	1663	0%						

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles are covered by VMS				32	1663	2%	275	1663	17%
Arterial miles are covered by HAR				50	1663	3%	50	1663	3%
Arterial miles are covered by IVS					1663			1663	

Washington
Arterial Management Integration*

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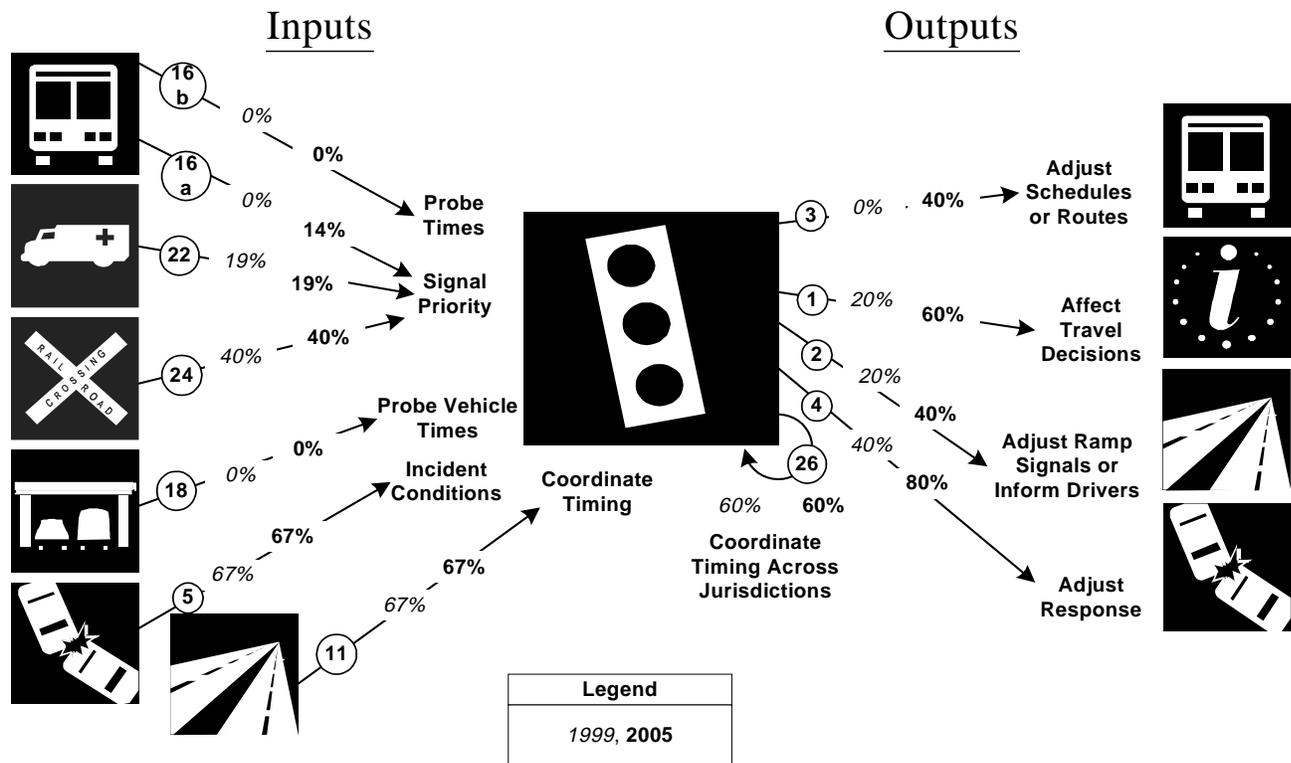
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
16a. Transit management agencies with vehicles equipped with traffic signal priority	(0/ 7) 0%	(1/ 7) 14%
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0/ 7) 0%	(0/ 7) 0%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(3/ 16) 19%	(3/ 16) 19%
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	(2/ 5) 40%	(2/ 5) 40%
18. Number of Arterial Management agencies receiving information from vehicle probes	(0/ 5) 0%	(0/ 5) 0%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management	(2/ 3) 67%	(2/ 3) 67%

Link Description	1999	2005
11. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Arterial Management agencies	(2/ 3) 67%	(2/ 3) 67%
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(0/ 5) 0%	(2/ 5) 40%
1. Arterial Management agencies disseminate arterial travel times, speeds, and conditions to the public	(1/ 5) 20%	(3/ 5) 60%
2. Arterial Management agencies send traffic condition information to Freeway Management	(1/ 5) 20%	(2/ 5) 40%
4. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Incident Management	(2/ 5) 40%	(4/ 5) 80%
26. Arterial Management agencies under cooperative agreement to share traffic signal timing for coordinated response	(3/ 5) 60%	(3/ 5) 60%

Electronic Toll Collection Component Indicators
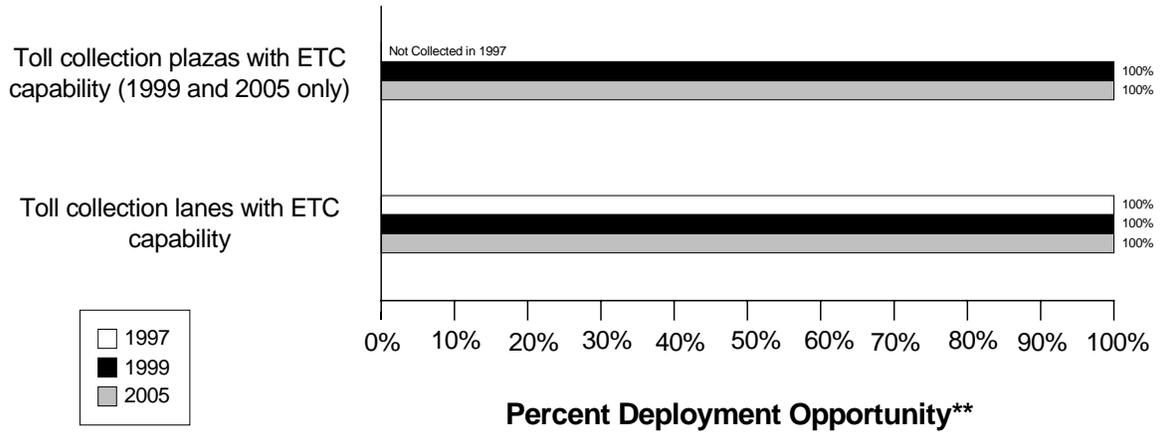
Washington
Electronic Toll Collection*

Toll collection plazas with ETC capability (1999 and 2005 only)

Not Collected in 1997
100%
100%

Toll collection lanes with ETC capability

100%
100%
100%

☐ 1997
■ 1999
▨ 2005

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Percent Deployment Opportunity**

* 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	%
Toll collection plazas with ETC capability				30	30	100%	20	20	100%
Toll collection lanes with ETC capability	84	84	100%	85	85	100%	59	59	100%

Electronic Toll Collection Integration Indicators

Washington
Electronic Toll Collection Integration*

Inputs   ### Outputs

**Probe
Vehicle
Times
Affect Timing**

0%

0%

(18)

(19)   0% - 0% ▶ **Share
Common
Fare Media**

(17)

0%

33%

(28)

100% **100%**

**Toll
Operators
with Common
Tags**

**Probe Vehicle
Times
Affect Control
Strategy**

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/ 5) 0%	(0/ 5) 0%
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	(0/ 7) 0%	(0/ 7) 0%
17. Freeway Management agencies receiving information from vehicle probes	(0/ 3) 0%	(1/ 3) 33%
28. Toll operators using common toll tag technology	(2/ 2) 100%	(2/ 2) 100%

Transit Management Component Indicators

Washington
Transit Management*

Fixed-route transit vehicles equipped with AVL — 1% / 6% / 100%

Fixed-route transit vehicles with electronic monitoring of vehicle components — 0% / 0% / 100%

Paratransit vehicles that operate under CAD — 0% / 70% / 85%

Major transfer points with electronic display of information (1997 only) — No Response / Not Collected in 1999 / Not Collected in 2005

Bus stops with electronic display of information (1999 and 2005) — Not Collected in 1997 / 26% / 38%

Legend:
☐ 1997
■ 1999
▨ 2005

Percent Deployment Opportunity**

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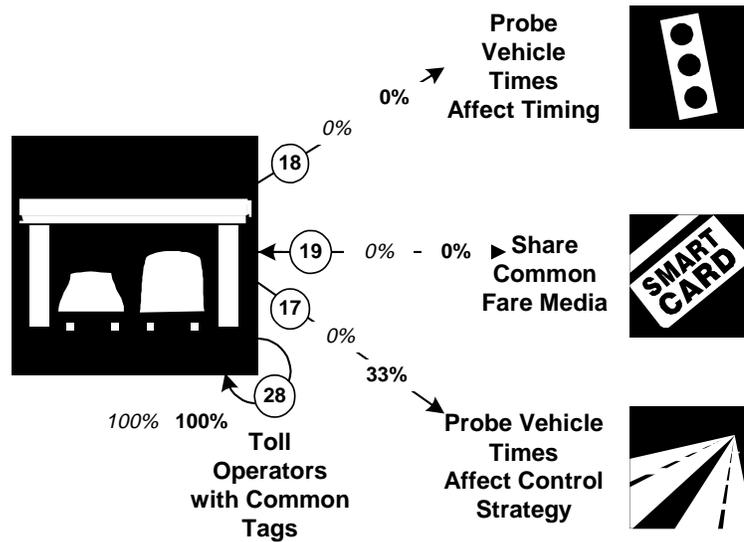** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles are equipped with AVL	22	1487	1%	118	1824	6%	325	325	100%
Fixed-route transit vehicles are equipped with electronic monitoring of vehicle component	0	1487	0%	0	1824	0%	1341	1341	100%
Paratransit vehicles operate under computer-aided dispatch	0	168	0%	124	178	70%	150	176	85%
Percent fixed-route transfer locations with electronic display of information	0	0							
Bus stops display information to the public				4376	16718	26%	6450	17000	38%

Washington
Transit Management Integration*
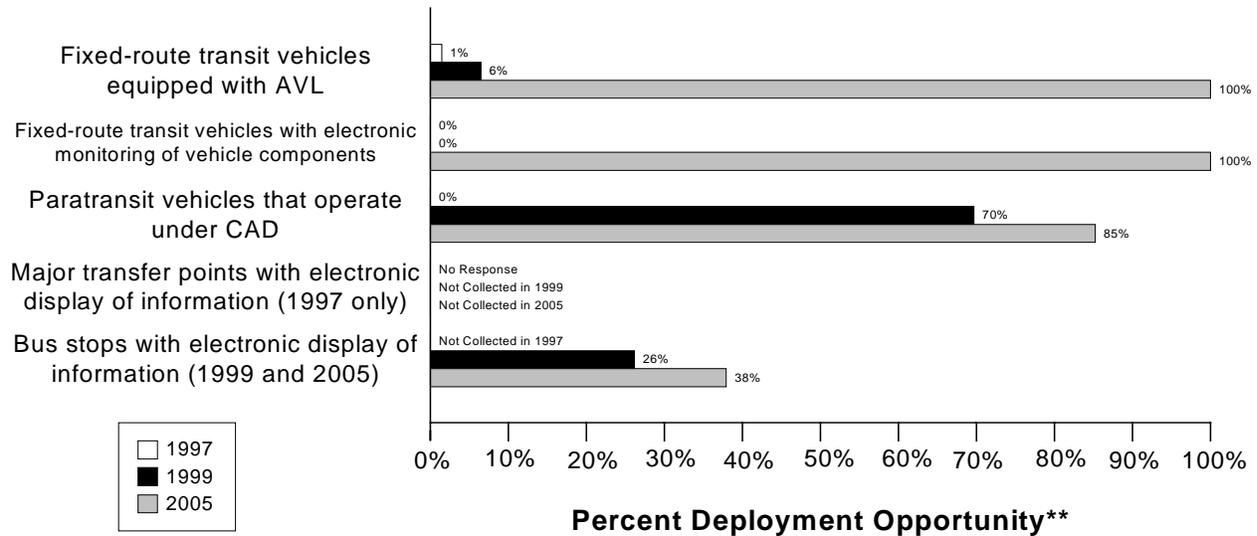
Inputs

Outputs

Legend

1999, **2005**
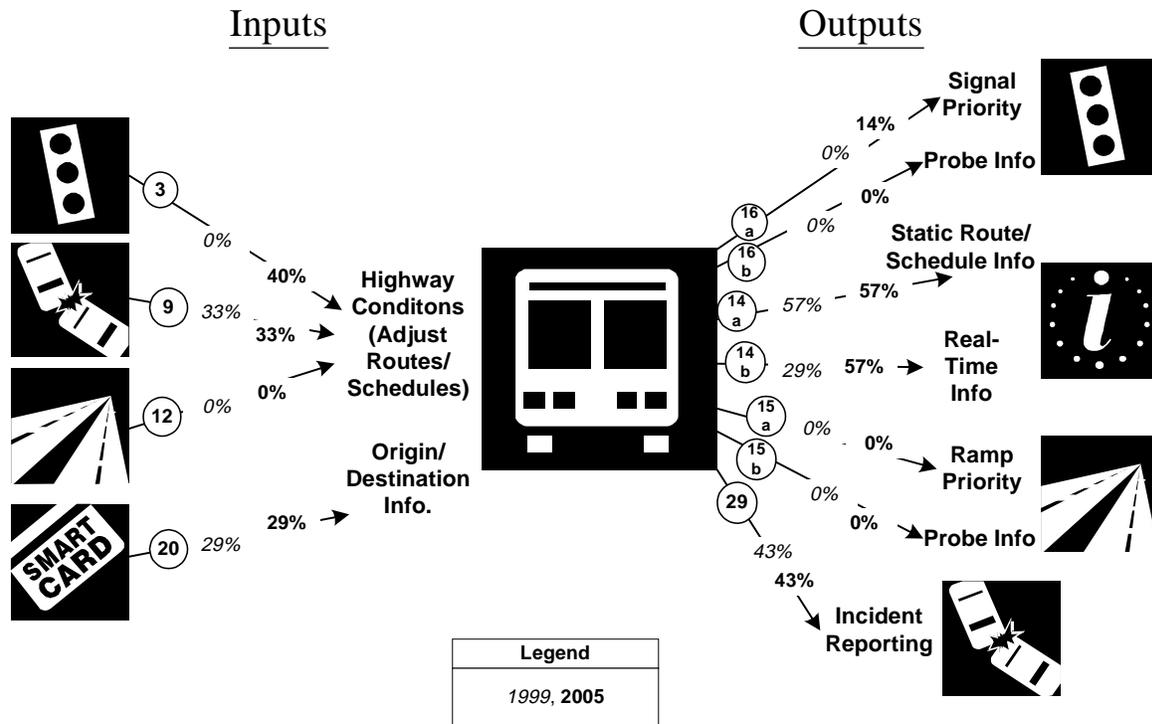
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(0/ 5) 0%	(2/ 5) 40%
9. Incident management agencies transfer information describing incident severity, location, and type to Transit Management	(1/ 3) 33%	(1/ 3) 33%
12. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Transit Management	(0/ 3) 0%	(0/ 3) 0%
20. Transit Management agencies using Electronic Fare Payment data in transit service planning	(2/ 7) 29%	(2/ 7) 29%
16a. Transit Management agencies have vehicles equipped with traffic signal priority capability	(0/ 7) 0%	(1/ 7) 14%
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0/ 7) 0%	(0/ 7) 0%
14a. Transit Management agencies disseminate information describing transit routes, schedules, and fares to travelers	(4/ 7) 57%	(4/ 7) 57%
14b. Transit Management agencies disseminate information describing schedule/route adherence to travelers	(2/ 7) 29%	(4/ 7) 57%

Link Description	1999	2005
15a. Transit Management agencies have vehicles equipped with ramp meter priority capability	(0/ 7) 0%	(0/ 7) 0%
15b. Transit Management agencies have vehicles equipped as probes on freeways	(0/ 7) 0%	(0/ 7) 0%
29. Transit Management agencies that report traffic incidents as part of an organized regional Incident Management program	(3/ 7) 43%	(3/ 7) 43%

Electronic Fare Payment Component Indicators

Washington
Electronic Fare Payment*

Fixed-Route buses accepting electronic fare payment

Rail transit stations accepting electronic fare payment

☐	1997
■	1999
▨	2005

Percent Deployment Opportunity**

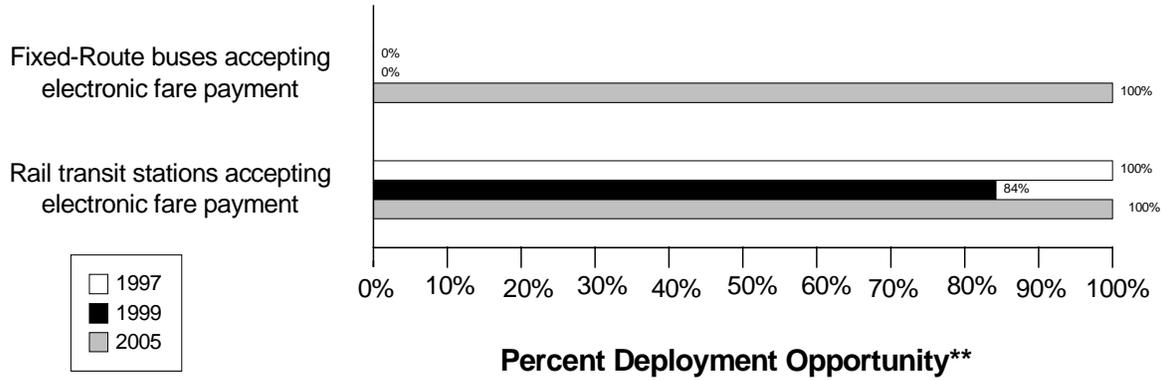* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles that accept electronic payment	0	1487	0%	0	1824	0%	1638	1638	100%
Rail transit stations that accept electronic payment	81	81	100%	96	114	84%	95	95	100%

Electronic Fare Payment Integration Indicators

Washington
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/ 7) 0%	(0/ 7) 0%
20. Transit Management agencies use Electronic Fare Payment data in transit service planning	(2/ 7) 29%	(2/ 7) 29%
27. Transit Management agencies that use the same electronic payment system	(1/ 7) 14%	(1/ 7) 14%

Data as of 5/1/00

Washington
Highway-Rail Intersections*

Highway-rail intersections under electronic surveillance

5%

0%

9%

1997
1999
2005

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Percent Deployment Opportunity**

* 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.
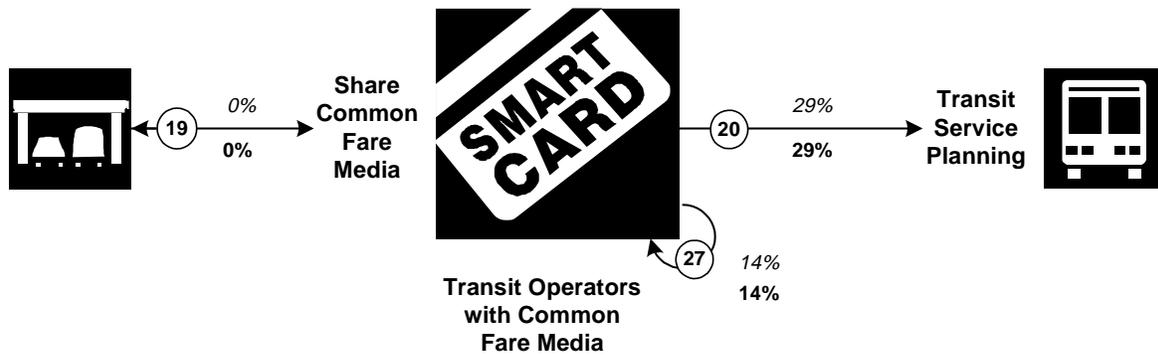
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Highway-rail intersections are under electronic surveillance	1	20	5%	0	35	0%	3	35	9%

Washington   28

Washington
Highway Rail Intersections Integration*

Inputs   Outputs

Signal
40% Coordination

24 *40%*

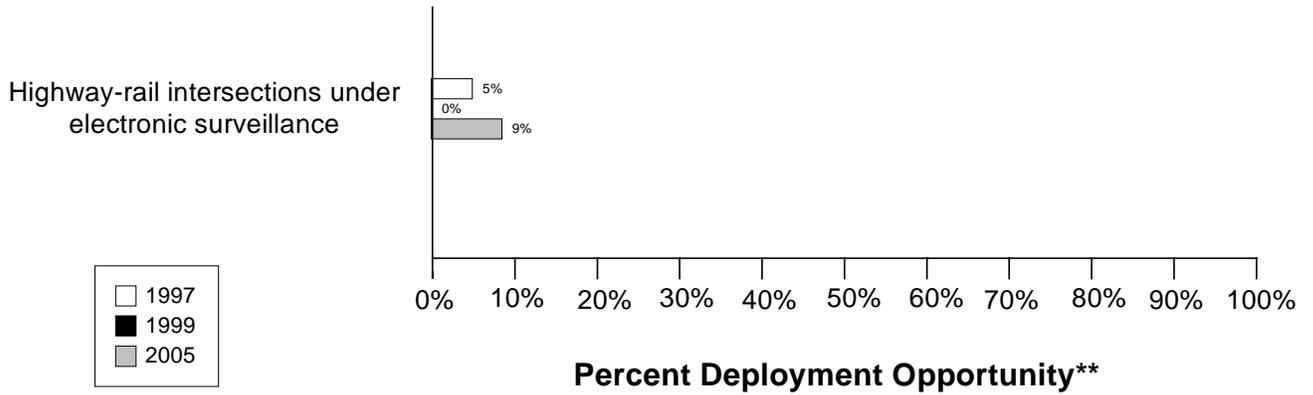**23** *20%* ˜ **20%** →Alert

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	(2/ 5) 40%	(2/ 5) 40%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(1/ 5) 20%	(1/ 5) 20%

Emergency Management Component Indicators

Washington
Emergency Management*

Emergency Management Vehicles under Compute-Aided Dispatch
- 32%
- 77%
- 90%

Emergency Management vehicles with on-vehicle navigation capabilities
- 0%
- 0%
- 34%

Legend:
- ☐ 1997
- ■ 1999
- ▨ 2005

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Percent Deployment Opportunity**

* 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.
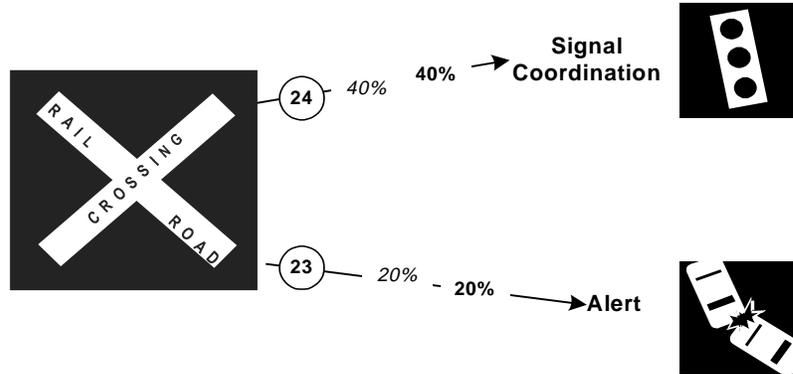
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Public sector emergency vehicles that operate under computer-aided dispatch	1278	4035	32%	1396	1807	77%	2239	2499	90%
Public sector emergency vehicles that have in-vehicle route guidance capability	12	4035	0%	2	1807	0%	842	2499	34%

Washington
Emergency Management Integration*

Inputs   Outputs
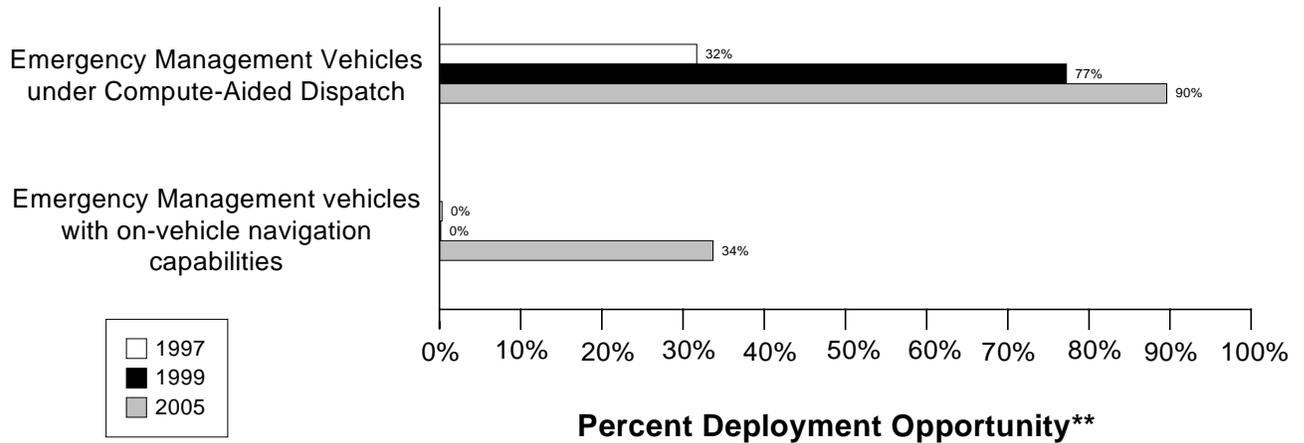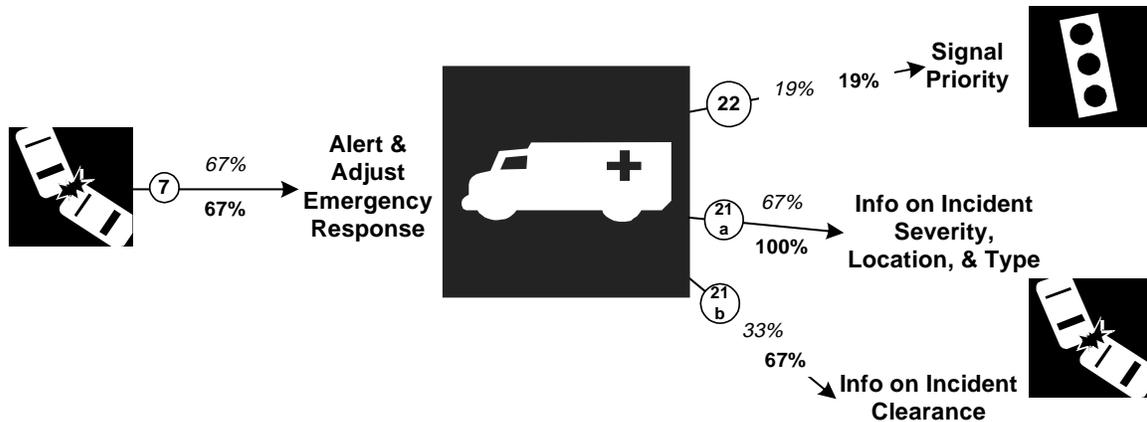

Legend
1999, **2005**

* 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	(2/ 3) 67%	(2/ 3) 67%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(3/ 16) 19%	(3/ 16) 19%
21a. Freeway Management agencies receive incident severity, location, and type data from Emergency Management agencies	(2/ 3) 67%	(3/ 3) 100%
21b. Freeway Management agencies receive incident clearance activities information from Emergency Management agencies	(1/ 3) 33%	(2/ 3) 67%

Regional Multimodal Traveler Information Component Indicators

Washington
Regional Multimodal Traveler Information*

Percent Deployment Opportunity**

Legend:
- 1997
- 1999
- 2005

Freeway conditions disseminated to the public: 0% (1997), 100% (1999), 100% (2005)

RMTI media type used to display information: 50% (1997), 88% (1999), 88% (2005)

RMTI media type used on two or more modes: 38% (1997), 50% (1999), 88% (2005)

* 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	330	0%	370	370	100%	370	370	100%
Possible RMTI media types are used to display information to travelers	4	8	50%	7	8	88%	7	8	88%
Possible RMTI media are used to display information on *two or more modes* to travelers	3	8	38%	4	8	50%	7	8	88%

Washington
Regional Multimodal Traveler Information Integration*

Inputs   ### Outputs
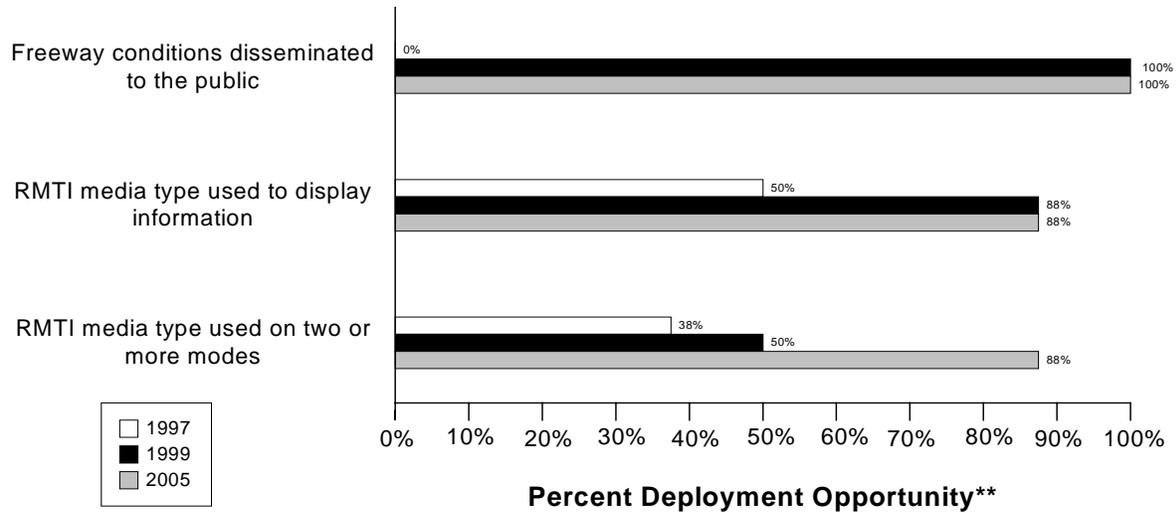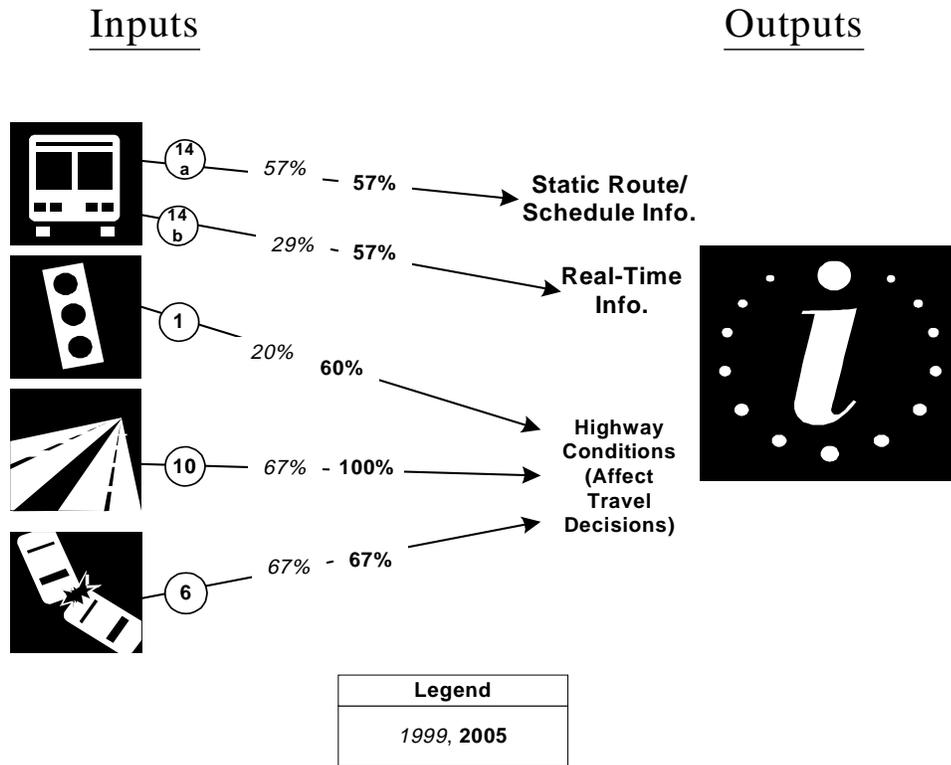

Legend
1999, **2005**

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

Link Description	1999	2005
14a. Transit Management agencies that disseminate information describing transit routes, schedules, and fares to travelers	(4/ 7) 57%	(4/ 7) 57%
14b. Transit Management agencies that disseminate information describing schedule/route adherence to travelers	(2/ 7) 29%	(4/ 7) 57%
1. Arterial Management agencies that disseminate arterial travel times, speeds, and conditions to the public	(1/ 5) 20%	(3/ 5) 60%
10. Freeway Management agencies that disseminate freeway travel times, speeds, and conditions to travelers	(2/ 3) 67%	(3/ 3) 100%
6. Incident Management agencies that disseminate information describing incident severity, location, and type to the public	(2/ 3) 67%	(2/ 3) 67%

Appendix A
Survey Coverage Area

METROPOLITAN WASHINGTON
TRANSPORTATION PLANNING BOARD, DC-MD-VA

Frederick County
100%

Montgomery County
100%

WHEATON

SILVER
SPRING

BETHESDA

WASHINGTON

Loudoun County
100%

Washington, DC
100%

ARLINGTON

ANNANDALE

ALEXANDRIA

BURKE

Fairfax Co.
100%

Prince
George's Co.
100%

Prince
William Co.
100%

* Arlington County
100%
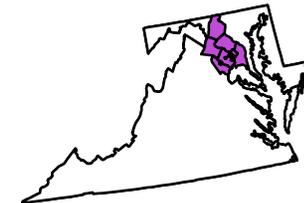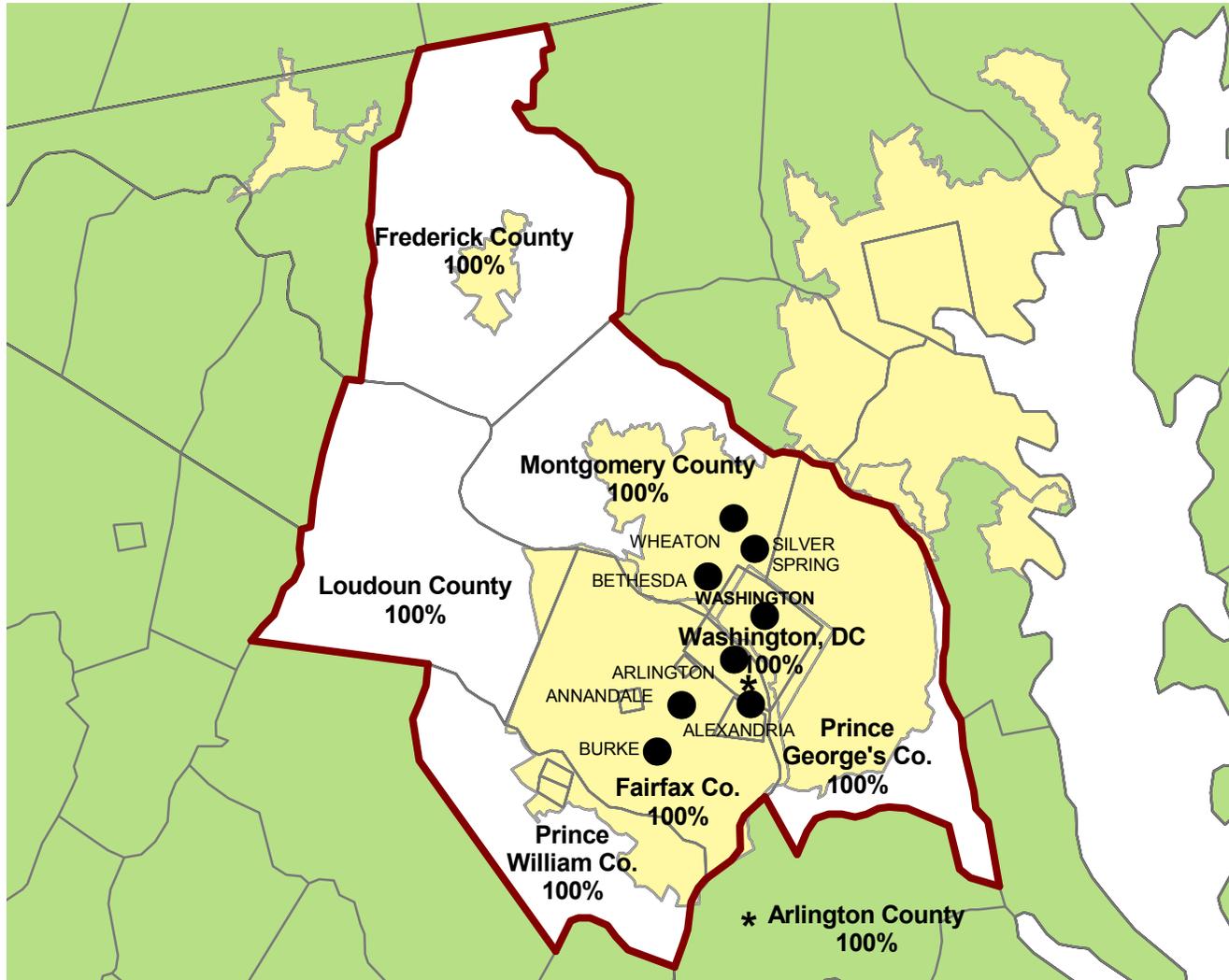
● City Included in
Surveys

⋀ Metropolitan Planning
Area Boundary

⋀ County Boundary

Urbanlized 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**

<div align="center">WASHINGTON</div>

Arterial Management

Agency Name	Phone	Fax	Out	In	Out	In
Arlington County	(703) 228-3722	(703) 228-3719	8/5/1999	9/17/1999	8/5/1997	8/24/1998
Montgomery County	(301) 217-2208	(301) 217-2011	8/5/1999	10/1/1999	8/5/1997	
District of Columbia	(202) 939-7113	(202) 939-3073	8/5/1999	1/12/2000	8/5/1997	9/15/1997
Maryland State Highway Administration	(410) 787-5878	(410-582-9469)	8/5/1999		8/5/1997	11/4/1997
Prince George's County	(301) 883-5650	(301) 883-5703	8/5/1999	10/21/1999	8/5/1997	
Virginia Department of Transportation	(703) 383-2776	(703) 830-9879	8/5/1999		8/5/1997	11/14/1997
Alexandria City	(703) 838-4076	(703) 519-3356	8/5/1999	8/23/1999	8/5/1997	

Electronic Toll Collection

Agency Name	Phone	Fax	Out	In	Out	In
Virginia Department of Transportation Dulles Toll	(703) 383-2700	(703) 876-6970	6/30/1999	7/1/1999	8/5/1997	11/14/1997
Dulles Greenway	(703) 661-1010	(703) 661-1046	7/1/1999	8/31/1999	8/5/1997	11/14/1997

Emergency Management

Agency Name	Phone	Fax	Out	In	Out	In
Prince George County Sheriff Department	(301) 952-3924	(301) 952-4386	6/23/1999	8/16/1999	7/7/1998	7/7/1998
Fairfax County Fire & Rescue Department	703-273-4830	703-246-2549	8/18/1999	8/23/1999	8/5/1997	8/24/1998
Montgomery County Police Department	(301) 279-1832	301-279-1780	6/23/1999	8/19/1999	7/7/1998	7/7/1998
Virginia State Police	(804) 674-2095	(804) 674-2234	6/23/1999	7/9/1999	8/5/1997	11/14/1997
DC Fire Department (Fire)	(202) 673-3240	(202) 673-6551	6/23/1999	6/28/1999	8/5/1997	9/15/1997
Frederick County Sheriff Department	(301) 631-3661	(301) 631-3700	6/23/1999		7/7/1998	7/7/1998
Arlington County Fire & EMS Department (EMS)	703-228-3366	703-228-4669	6/23/1999	8/23/1999	8/5/1997	3/1/1998
DC Fire Department (EMS)	(202) 673-3240	(202) 673-6551	6/25/1999	6/28/1999	8/5/1997	9/15/1997
Fairfax County Police Department	(703) 246-2265	(703) 352-5652	6/23/1999		8/5/1997	7/20/1998
DC Metropolitan Police Department	(202) 727-6730	(202) 727-5167	6/23/1999	8/19/1999	8/5/1997	11/20/1997
Fairfax County Fire & Rescue Department (Fire)	703-273-4830	703-246-2549	8/18/1999	8/23/1999	8/5/1997	8/24/1998
Arlington County Fire & EMS Department	703-228-3366	703-228-4669	6/23/1999	8/23/1999	8/5/1997	3/1/1998
Arlington County Police Department	703-228-4069	703-228-4127	6/23/1999	8/23/1999	8/5/1997	3/1/1998
Alexandria City Emergency Medical Services	703-838-5093	703-519-3356	6/23/1999	7/2/1999	8/5/1997	3/1/1998
Alexandria City Fire Department	703-838-4076	703-838-3642	6/23/1999	6/29/1999	8/5/1997	3/1/1998
Alexandria City Police Department	703-838-4700	703-838-6345	7/6/1999	8/16/1999	8/5/1997	3/1/1998

Freeway Management

Agency Name	Phone	Fax	Out	In	Out	In
Maryland State Highway Administration	(410) 787-5884	(410) 582-9880	8/5/1999	10/13/1999	8/5/1997	11/41997
District of Columbia	(202) 939-8092	(202) 939-3039	8/5/1999	12/28/1999	8/5/1997	3/3/1998
Virginia Department of Transportation	(703) 383-2600	(703) 383-2620	8/5/1999	8/23/1999	8/5/1997	11/14/1997

Agency Name	Phone	Fax	1999		1997	
			Out	**In**	**Out**	**In**
MPO						
Metropolitan Washington Council of	(202) 962-3789	(202) 962-3202	7/15/1999	9/27/1999		
Transit Management						
Washington Metropolitan Area Transit Authority	202-962-1526	202-962-2801	8/10/1999	10/11/1999	7/7/1997	7/18/1997
Montgomery County - Ride On	(301) 217-2097	(301) 217-2957	8/9/1999	9/30/1999	7/8/1997	
Fairfax Connector Bus System	(703) 324-1197	(703) 324-1450	8/9/1999	10/4/1999	7/7/1997	7/28/1997
Northern Virginia Transportation Commission	(703) 524-3322	(703) 524-1756	8/9/1999	11/8/1999	7/7/1997	7/11/1997
Potomac and Rappahannock Transportation	(703) 583-7782	(703) 583-1377	8/9/1999	8/27/1999	7/7/1997	7/17/1997
Frederick County Transit	(301) 631-3542	(301) 631-3471	8/9/1999	11/17/1999	7/7/1997	9/29/1997

Appendix C
Freeway Management Components

	District of Columbia		Maryland State Highway Administration		Virginia Department of Transportation		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes		Yes		3	
FREEWAY MANAGEMENT SECTION								
Number of freeway centerline miles that agency owns or maintains	NR		NR		110		110	
Number of freeway centerline miles that is used for planning	NR		NR		110		110	
Number of freeway entrance ramps that agency owns, operates or maintains	NR		NR		NR		0	
Number of freeway entrance ramps that is used for planning	NR		NR		NR		0	
Type of facilities used to conduct freeway/incident management activities								
Activities housed in a free-standing dedicated building?	No		No		No		0	
Activities housed in a building shared with other activities?	No		No		No		0	
Activities conducted in a dedicated control room?	No		No		Yes		1	
Control room contains operator console(s)?	No		No		No		0	
Control room contains electronic wall map?	No		No		No		0	
Control room contains CCTV display(s)?	No		No		No		0	
Activities conducted in a room containing workstations or PCs that manage traffic?	No		No		No		0	
Facilities are electronically linked to other transportation mgt facilities?	No		No		No		0	
Staffing and hours of operation of freeway/incident management activities								
Number of full-time agency staff members	NR		NR		NR		0	
Number of full time contractor staff members	NR		NR		NR		0	
Number of part-time agency staff members	NR		NR		NR		0	
Number of part-time contractor staff members	NR		NR		NR		0	
Staffed 24 hours day by agency staff or by others	NR		NR		agency		0	
Staffed during peak hours only by agency staff or by others	NR		NR		NR		0	
Staffed by others during off-peak hours	No		No		No		0	
Agency staff perform transportation management as an ancillary duty	No		No		No		0	
Agency staff dedicated to transportation management duty	No		No		Yes		1	
Types of operations conducted for freeway/incident management								
Incident detection and management?	No		No		Yes		1	
This metropolitan area?	No		No		No		0	
Other metropolitan area?	No		No		No		0	
Statewide?	No		No		No		0	
Monitoring and troubleshooting status of system components?	No		No		Yes		1	
Manual override of ramp metering rates at freeway on-ramps?	No		No		Yes		1	
Operating transportation management roadside devices?	No		No		Yes		1	
Radio communications with other agencies?	No		No		Yes		1	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		No		Yes		1	
Real-Time Traffic Data Collection Technologies								

	District of Columbia		Maryland State Highway Administration		Virginia Department of Transportation		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Total number of miles under surveillance with real-time data collection tech.	2	6	300	300	70	100	372	406
Number of Stations with data collection technologies								
Loop detectors	0	0	0	0	2,000	NR	2000	0
Video imaging detectors	0	0	0	0	0	0	0	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	0	0	0	0	0	0	0
Microwave radar	0	0	0	0	0	0	0	0
Other (e.g., acoustic detectors)	0	0	0	0	0	0	0	0
Number of Miles covered with data collection technologies								
Loop detectors	0	0	0	0	70	100	70	100
Video imaging detectors	0	0	0	0	0	0	0	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	0	0	0	0	0	0	0
Microwave radar	0	0	0	0	0	0	0	0
Other (e.g., acoustic detectors)	0	0	0	0	40	30	40	30
Variable Message Signs (VMS) on Freeways								
Candidate locations for deployment of VMS where VMS has been deployed	NR	14	45	60	100	30	145	104
Candidate locations for deployment of VMS	NR	22	45	60	100	30	145	112
Roadside Technologies used to Distribute Traveler Information								
Total number of miles where information is distributed	3	3	42	42	40	80	85	125
Number deployed								
Highway advisory radio	NR	NR	NR	NR	3	6	3	6
In-vehicle signing	0	0	0	0	0	0	0	0
Portable variable message signs	0	0	0	0	2	0	2	0
Other	0	0	0	0	0	0	0	0
Miles covered								
Highway advisory radio	3	3	42	42	40	80	85	125
In-vehicle signing	0	0	0	0	0	0	0	0
Portable variable message signs	0	0	0	0	NR	NR	0	0
Other	0	0	0	0	0	0	0	0
Ramp Meters on Freeways								
Number of entrance ramp meters operated under isolated control	NR	NR	NR	NR	NR	NR	0	0
Number of entrance ramp meters operated under central control	NR	NR	NR	NR	NR	NR	0	0
Number of entrance ramp meters that provide preemption for emergency vehicles	NR	NR	NR	NR	NR	NR	0	0
Number of entrance ramp meters that provide priority for transit vehicles	NR	NR	NR	NR	NR	NR	0	0
Total number of metered ramps	NR	NR	0	10	NR	NR	0	10
Freeway centerline miles under lane control	2	2	0	20	NR	NR	2	22
Communication Links								
Freeway centerline miles covered by the following type of communication								
Twisted pair cable	0	0	0	0	0	0	0	0
Coaxial cable	0	0	0	0	0	0	0	0
Fiber-optic cable	0	0	0	0	60	30	60	30
Microwave radio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0

	District of Columbia		Maryland State Highway Administration		Virginia Department of Transportation		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
ITS Standards Used Related to Freeway Management								
ATMS Data Dictionary Sections 1 and 2 (ITE TM 1.01)	No		No		No		0	
ATMS Data Dictionary Sections 3 and 4 (ITE TM 1.02)	No		No		No		0	
Message Set for External TMC Communication (ITE-9604-1)	No		No		No		0	
NTCIP Class B Profile (AASHTO TS 3.3)	No		No		No		0	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		No		No		0	
NTCIP Object Definitions for Environmental Sensor Stations (AASHTO TS 3.7)	No		No		No		0	
NTICP Object Definitions for Dynamic Message Signs (AASHTO TS 3.6)	No		No		Yes		1	
NTICP Object Definitions for Highway Advisory Radio (AASHTO TS 3.HAR)	No		No		No		0	
NTICP Object Definitions for Ramp Meter Control (AASHTO TS 3.RMC)	No		No		No		0	
NTICP Object Definitions for Transportation Sensor Systems (AASHTO TS 3.TSS)	No		No		No		0	
NTICP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		No		0	
Would agency be willing to participate in testing of ITS Standards?	NR		NR		Yes		1	
Have agreements in place with other agencies to use similar hardware								
and software to aid maintenance and interoperability?	NR		NR		No		0	
INCIDENT MANAGEMENT SECTION								
Use of Service Patrols to Assist in Detection and Response to Incidents								
Publicly operated service patrol vehicles	No		Yes		Yes		2	
Privately operated service patrol vehicles operated under public contract	No		No		Yes		1	
Total number of freeway miles patrolled by these services	NR	NR	150	150	81	81	231	231
Miles Covered by Methods to Detect and Verify Incidents								
Free cellular phone call to a dedicated phone number other than 911	6	6	300	300	NR	NR	306	306
Police patrols	NR	NR	NR	NR	NR	NR	0	0
Computer algorithms linked to traffic surveillance equipment	NR	6	0	300	70	100	70	406
CCTV	2	6	40	90	70	100	112	196
Private sector sources (e.g., Shadow Traffic, SmartRoutes)	NR	NR	NR	NR	70	100	70	100
Other (e.g., free cell phone call to an area radio system, etc.)	NR	NR	NR	NR	NR	NR	0	0
Procedures in place for Freeway Incident Response?								
Working agreement(s)/arrangement(s) with other agencies	No		No		Yes		1	
Inter-agency incident management admin. team that meets regularly	No		No		Yes		1	
Major incident response team that responds to major incidents	No		No		No		0	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		No		Yes		1	
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		Yes		1	
The central focal point is a Police, Fire or joint dispatch center	No		No		No		0	
The central focal point is another center	No		No		No		0	
Methods of Communication Used On-Site at an Incident								
Police								
Two-way radio	No		No		Yes		1	
800 MHz trunked radio	No		No		Yes		1	

	District of Columbia		Maryland State Highway Administration		Virginia Department of Transportation		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Cellular telephone	No		No		Yes		1	
Hand-held (i.e., walkie-talkie)	No		No		No		0	
Automated data systems (i.e., CAD)	No		No		No		0	
Fire								
Two-way radio	No		No		No		0	
800 MHz trunked radio	No		No		No		0	
Cellular telephone	No		No		No		0	
Hand-held (i.e., walkie-talkie)	No		No		No		0	
Automated data systems (i.e., CAD)	No		No		No		0	
DOT								
Two-way radio	No		No		Yes		1	
800 MHz trunked radio	No		No		Yes		1	
Cellular telephone	No		No		Yes		1	
Hand-held (i.e., walkie-talkie)	No		No		No		0	
Automated data systems (i.e., CAD)	No		No		No		0	
Towing								
Two-way radio	No		No		No		0	
800 MHz trunked radio	No		No		No		0	
Cellular telephone	No		No		No		0	
Hand-held (i.e., walkie-talkie)	No		No		No		0	
Automated data systems (i.e., CAD)	No		No		No		0	
Which police agencies typically respond to incidents on freeways?								
State Police	No		No		Yes		1	
County Police or Sheriff	No		No		No		0	
City Police	No		No		No		0	
Who provides on-site emergency medical response?								
Fire	No		No		Yes		1	
Emergency Management Service Agency	No		No		No		0	
Private hospital	No		No		No		0	
Has a multi-agency contact list been developed in area containing the								
names, phone numbers, etc. for the appropriate response personnel?	NR		NR		Yes		1	
Is the Incident Command System used to manage incident scenes?	NR		NR		DK		0	
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		Yes		1	
Formal agreement?	No		No		No		0	
Not specified or don't know?	No		No		No		0	
On-scene command post used to manage activities of responding agencies?	NR		NR		Yes		1	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		NR		No		0	
Plan developed and adopted by responding agencies for staging and parking								
response vehicles and equip. at incident site that minimizes lane blockage								

	District of Columbia		Maryland State Highway Administration		Virginia Department of Transportation		Totals	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
and facilitates the re-opening of lanes?	NR		NR		DK		0	
Respondents protected through law or court opinion for liability claims								
for damages to vehicles or cargoes during clearance activities?	NR		NR		DK		0	
Are overturned tank trucks, which are intact and not leaking, uprighted								
without first off-loading?	NR		NR		No		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?	NR		NR		Yes		1	
Have laws or policies regarding the removal of stalled/abandoned vehicles								
from freeway shoulders?	NR		NR		Yes		1	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	NR		NR		0-24		0	
Have policies or procedures for quick removal of vehicles?	NR		NR		No		0	
Is Total Station equipment used to investigate major incidents?	NR		NR		Yes		1	
Handling of Towing Responses to Incidents								
Formal contract based on qualifications?	No		No		No		0	
Rotation with companies under contract?	No		No		Yes		1	
Separate lists kept for light and heavy response and for specialty recovery?	NR		NR		No		0	
Rotation list with minimal qualifications?	No		No		No		0	
In towing qualifications, do you require towers to be certified under the								
Towing and Recovery Ass. of America's National Drivers Cert. Program?	NR		NR		DK		0	
_____								
DK: Don't know								
NR: No Response								
Leg: Legislation or action being planned								

**Appendix D
Freeway Management Integration**

Agency Name	District of Columbia		Maryland State Highway Administration	
	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				
Freeway Management Agencies				
Provide Information	None listed	None listed	short survey	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Incident Management Agencies				
Provide Information	None listed	None listed	short survey	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Arterial Management Agencies				
Provide Information	None listed	None listed	short survey	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed

Agency Name	District of Columbia		Maryland State Highway Administration	
	1999	**2005**	**1999**	**2005**
Public Transit Operators				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Receiving real-time information via electronic means from others				
Incident Management agencies from which your agency receives				
incident severity, location, and type information	short survey	None listed	short survey	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions	None listed	None listed	short survey	None listed
Public Transit operators from which your agency receives				
freeway travel times derived from vehicle probes	None listed	None listed	None listed	None listed
Toll Collection agencies from which your agency receives freeway travel				
times derived from vehicles probes	None listed	None listed	None listed	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	None listed	short survey	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Emergency Management Agencies				

Agency Name	District of Columbia		Maryland State Highway Administration	
	1999	**2005**	**1999**	**2005**
Provide Information	None listed	None listed	short survey	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Freeway Management Agencies				
Provide Information	None listed	None listed	short survey	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Public Transit Operators				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	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				

Agency Name	District of Columbia		Maryland State Highway Administration	
	1999	**2005**	**1999**	**2005**
Receive Arterial Incident Clearance Information	short survey	None listed	short survey	None listed
Receive Arterial Incident Severity Information	None listed	None listed	short survey	None listed
Arterial Management agencies from which your agency receives				

Agency Name	District of Columbia		Maryland State Highway Administration	
	1999	**2005**	**1999**	**2005**
arterial travel times, speeds, and conditions	None listed	None listed	None listed	None listed
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	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.

Agency Name	Virginia Department of Transportation	
	1999	**2005**
Agency Returned Survey?	Yes	
Freeway Management Section		
Agencies your agency provides freeway travel times, speeds, and		
conditions information, share infrastructure or coordinates operation		
Freeway Management Agencies		
Provide Information	District of Columbia Department of Public Works, Maryland State Highway Administration	None listed
Share Infrastructure	None listed	District of Columbia Department of Public Works, Maryland State Highway Administration
Coordinate Operation	None listed	District of Columbia Department of Public Works, Maryland State Highway Administration
Incident Management Agencies		
Provide Information	District of Columbia Department of Public Works, Maryland State Highway Administration	None listed
Share Infrastructure	None listed	District of Columbia Department of Public Works, Maryland State Highway Administration
Coordinate Operation	None listed	District of Columbia Department of Public Works, Maryland State Highway Administration
Arterial Management Agencies		
Provide Information	Alexandria City, Arlington County, District of Columbia Department of Public Works	None listed
Share Infrastructure	None listed	Alexandria City, Arlington County
Coordinate Operation	None listed	Alexandria City, Arlington County

Agency Name	Virginia Department of Transportation	
	1999	**2005**
Public Transit Operators		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Receiving real-time information via electronic means from others		
Incident Management agencies from which your agency receives		
incident severity, location, and type information	None listed	District of Columbia Department of Public Works, Maryland State Highway Administration
Arterial Management agencies from which your agency receives		
arterial travel times, speeds, and conditions	None listed	Alexandria City, Arlington County, District of Columbia Department of Public Works, Maryland State Highway Administration, Montgomery County
Public Transit operators from which your agency receives		
freeway travel times derived from vehicle probes	None listed	None listed
Toll Collection agencies from which your agency receives freeway travel		
times derived from vehicles probes	None listed	Dulles Greenway, Virginia Department of Transportation Dulles Toll
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	Alexandria City, Arlington County, District of Columbia Department of Public Works, Maryland State Highway Administration	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Emergency Management Agencies		

| Agency Name | Virginia Department of Transportation | |
	1999	2005
Provide Information	Alexandria City Police Department, Arlington County Police Department, Fairfax County Police Department	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Freeway Management Agencies		
Provide Information	District of Columbia Department of Public Works, Maryland State Highway Administration	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Public Transit Operators		
Provide Information	Potomac and Rappahannock Transportation Commission	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	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		

Agency Name	Virginia Department of Transportation	
	1999	**2005**
Receive Arterial Incident Clearance Information	None listed	Alexandria City Emergency Medical Services, Alexandria City Fire Department, Alexandria City Police Department, Arlington County Fire & EMS Department, Arlington County Police Department, DC Fire Department (EMS), DC Metropolitan Police Department, Fairfax County Fire & Rescue Department, Fairfax County Police Department, Montgomery County Police Department, Prince George County Sheriff Department, Virginia State Police
Receive Arterial Incident Severity Information	None listed	Alexandria City Emergency Medical Services, Alexandria City Fire Department, Alexandria City Police Department, Arlington County Fire & EMS Department, Arlington County Police Department, DC Fire Department (EMS), DC Metropolitan Police Department, Fairfax County Fire & Rescue Department, Fairfax County Police Department, Montgomery County Police Department, Prince George County Sheriff Department, Virginia State Police
Arterial Management agencies from which your agency receives		

Agency Name	Virginia Department of Transportation	
	1999	**2005**
arterial travel times, speeds, and conditions	None listed	Alexandria City, Arlington County, District of Columbia Department of Public Works, Maryland State Highway Administration, Montgomery County, Prince Georges County, Virginia Department of Transportation
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	None listed	District of Columbia Department of Public Works, Maryland State Highway Administration, Virginia Department of Transportation

*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

Agency Name	District of Columbia		Maryland State Highway Administration	
	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				
	NR	NR	NR	NR
Archived by your agency				
	NR	NR	NR	NR
Transferred to another agency by your agency				
	NR	NR	NR	NR
Importance of making information available to the public				

Agency Name	District of Columbia		Maryland State Highway Administration	
	1999	**2005**	**1999**	**2005**
Ranked High				
	NR		NR	
Ranked Medium				
	NR		NR	
Ranked Low				
	NR		NR	
Groups that make requests for the data				
	NR		NR	
What is the data used for?				
	NR		NR	
Methods used to disseminate freeway information to the public				
Technologies your agency uses to disseminate:				Telephone system, Internet Web sites, Pagers or personal data assistants, Kiosks, E-mail or other direct PC communication, In-vehicle navigation systems
	NR	Telephone system, Internet Web sites, Kiosks	Telephone system, Internet Web sites	
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting freeway conditions	NR		NR	
Telephone system for reporting freeway information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	
Freeway Incident Management Section				
Methods used to distribute incident location and severity information				
to the public				

Agency Name	District of Columbia		Maryland State Highway Administration	
	1999	**2005**	**1999**	**2005**
Technologies your agency uses to disseminate:	NR	NR	Telephone system, Internet Web sites	Telephone system, Internet Web sites, Pagers or personal data assistants, Kiosks, E-mail or other direct PC communication, In-vehicle navigation systems
Technologies your agency (through another agency or org.) uses to disseminate:	NR	Telephone system, Internet Web sites, Kiosks	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	

Agency Name	Virginia Department of Transportation	
	1999	**2005**
Agency Returned Survey?	Yes	
Freeway Management Section		
Data collected, archived, and/or transferred to another agency		
Collected by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Ramp queues, Metering rate, Road conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic volumes, Traffic speeds
Archived by your agency	NR	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Ramp queues, Metering rate, Road conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information
Transferred to another agency by your agency	NR	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Ramp queues, Metering rate, Road conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information
Importance of making information available to the public		

Agency Name	Virginia Department of Transportation	
	1999	**2005**
Ranked High		Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Ramp queues, Metering rate, Road conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information
Ranked Medium		NR
Ranked Low		NR
Groups that make requests for the data		Universities, State DOT personnel, Media (I.e., TV stations, radio stations), Advanced Traveler Information Systems (ATIS) provi
What is the data used for?		Traffic analysis, Construction impact determination, Incident detection algorithm development
Methods used to disseminate freeway information to the public		
Technologies your agency uses to disseminate:	Telephone system	Internet Web sites, E-mail or other direct PC communication
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR
Internet web site reporting freeway conditions	NR	
Telephone system for reporting freeway information to the public	NR	
Organizations your agency sends information for dissemination to the public	NR	
Freeway Incident Management Section		
Methods used to distribute incident location and severity information		
to the public		

Agency Name	Virginia Department of Transportation	
	1999	**2005**
Technologies your agency uses to disseminate:	Telephone system, Interactive TV, Cell phone/voice, Cell phone/data	Internet Web sites, Kiosks, E-mail or other direct PC communication
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR
Internet web site reporting incident information	NR	
Telephone system for reporting incident information to the public	NR	
Organizations your agency sends information for dissemination to the public	NR	

Appendix F
Arterial Management Components

Arterial Management
Agencies for Metropolitan Area: Washington

	Alexandria City		Arlington County		District of Columbia		Montgomery County	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes		Yes		Yes	
ARTERIAL MANAGEMENT SECTION								
Number of arterial miles that agency owns or maintains	25		56		1,100		150	
Number of arterial miles that is used for planning	15		98		NR		200	
Number of highway-rail intersections that agency maintains	0		0		NR		5	
Number of highway-rail intersections that is used for planning	0		0		NR		0	
Type of facilities used to conduct arterial management activities								
Activities housed in a free-standing dedicated building?	No		No		No		No	
Activities housed in a building shared with other activities?	Yes		No		No		Yes	
Activities conducted in a dedicated control room?	No		Yes		No		Yes	
Control room contains operator console(s)?	Yes		Yes		No		Yes	
Control room contains electronic wall map?	No		No		No		No	
Control room contains CCTV display(s)?	Yes		No		No		Yes	
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes		Yes		No		No	
Facilities are electronically linked to other transportation mgt facilities?	Yes		No		No		Yes	
Staffing and hours of operation of arterial management activities								
Number of full-time agency staff members	3		3		10		8	
Number of full time contractor staff members	NR		NR		NR		0	
Number of part-time agency staff members	NR		NR		NR		NR	
Number of part-time contractor staff members	NR		NR		NR		NR	
Staffed 24 hours day by agency staff or by others	NR		NR		NR		NR	
Staffed during peak hours only by agency staff or by others	agency		NR		agency		NR	
Staffed by others during off-peak hours	No		No		No		No	
Agency staff perform transportation management as an ancillary duty	Yes		Yes		No		No	
Agency staff dedicated to transportation management duty	No		No		Yes		Yes	
Types of operations conducted for arterial management								
Incident detection and management?	Yes		No		No		Yes	
This metropolitan area?	Yes		No		No		Yes	
Other metropolitan area?	No		No		No		No	
Monitoring and troubleshooting status of system components?	Yes		Yes		Yes		Yes	
Radio communications with other agencies?	No		No		No		Yes	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		No		No		No	
Manual override of traffic signal timing plans	Yes		Yes		Yes		Yes	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	Yes		No		No		Yes	
Describe agency's role in traffic signal control	All roads in incorporated area		All roads in county		Operate Traffic Signals in Urban, Washington, D.C.		All roads in county	
Traffic Signals Operated by Agency								

	Alexandria City		Arlington County		District of Columbia		Montgomery County	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Number of signalized intersections operated and owned by agency	219	229	115	125	1,500	NR	260	290
Number of signalized intersections operated by agency but owned by another	NR	NR	118	120	NR	NR	470	530
Total number of signalized intersections operated by agency	219	229	233	245	NR	NR	730	820
Characteristics of signalized intersections that agency operates								
Under closed loop or central system control	155	200	233	245	NR	NR	730	820
Under real-time traffic adaptive control using advanced software	NR	NR	65	100	NR	NR	0	NR
Using SCOOT	No		Yes		No		No	
Using SCATS	No		No		No		No	
Name of software	NR		NR		NR		NR	
Allow signal preemption for emergency vehicles	2	2	11	100	NR	NR	26	28
Allow signal priority for transit vehicles	NR	NR	0	20	NR	NR	0	200
Within 200 feet of a highway-rail intersection	NR	NR	0	0	NR	NR	6	6
Within 200 feet of a highway-rail intersection that adjust signal timing	NR	NR	0	0	NR	NR	3	3
Software used to control the signals agency operates								
Date of last upgrade to traffic signal control system software?	April 1999		July 1999		1999		11/98 Y2K patches	
How often do you update signal timing?	System wide about 7 years		as needed		Random		as needed basis	
Software used and number of signalized intersections under control (1999, 2005)	None, 64, 29 Eagle MONARC, 155, 200 UTCS, NR, NR		SCOOT-Traffic Adaptive Software, 65, 100 Monarc-Eagle Traffic Control Software, 233, 245 Urban Traffic Control System-UTCS, 233, NR		Looking for alternative, NR, 1,500 QuicNet for Y2K, 1,500, NR UTCS, NR, NR		Eagle Comtrac, 730, 820	
Controllers used to control signals								
NEMA	219	229	233	245	0	0	730	820
170/179	0	0	0	0	1,500	1,600	0	0
2070 controller	0	0	0	0	0	0	0	0
Other	0	0	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	0	3
Highway-Rail intersection capapbilities								
Video surveillance	1	12	0	0	NR	300	0	3
Electronic surveillance other than video	0	0	0	0	NR	300	0	0
Ability to predict train arrival electronically	0	0	0	0	0	0	0	0
Equipped with electronic traffic violator devices	3	6	0	0	40	200	0	0
Other	0	0	0	0	0	0	0	0
Real-Time Electronic Traffic Data Collection Technologies								
Total number of signalized intersections covered by electronic surveillance	3	27	1	1	NR	300	200	500
Number of signalized intersections with data collection technologies								
Loop detectors	2	15	190	195	200	500	200	500

	Alexandria City		Arlington County		District of Columbia		Montgomery County	
	1999	2005	1999	2005	1999	2005	1999	2005
Video detection cameras	1	12	1	5	NR	300	85	200
Probe readers reading toll tags	0	0	0	0	0	0	0	0
Probe readers reading license plates	0	0	0	0	40	200	0	0
Other	0	0	0	0	0	0	0	0
Roadside Technologies used to Distribute Traveler Information								
Number deployed								
Highway Advisory Radio	NR	NR	NR	NR	NR	NR	12	12
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	0	0
VMS controlling parking access	NR	NR	NR	NR	NR	NR	0	0
Miles covered								
Highway Advisory Radio	NR	NR	NR	NR	NR	NR	50	50
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	NR	NR
Variable Message Signs (VMS) on Arterials								
Candidate locations for deployment of VMS where VMS has been deployed	NR	5	NR	5	3	100	NR	NR
Candidate locations for deployment of VMS	NR	NR	NR	5	3	100	NR	NR
Communication Technologies								
Signalized intersections communicated with by each type of communication								
Twisted pair cable	155	160	233	245	1,500	1,600	671	570
Coaxial cable	0	0	0	0	0	0	0	0
Fiber-optic cable	NR	40	NR	245	NR	1,600	16	200
Other (e.g., wireless, dial-up modems, leased lines, etc.)	0	0	0	0	0	0	43	50
Does agency convey information on highway-rail intersection crossing								
status to travelers via roadside media such as VMS or HAR?	No		No		No		No	
ITS Standards Used Related to Traffic Signal Control								
Advanced Transportation Controller (ATC) Software Application Interface (ITE 9603-1)	No		No		No		No	
ATC Physical Cabinet Functional Design (ITE-9603-2)	No		No		No		No	
ATC Functionality and Interface Definitions (ITE-9603-3)	No		No		No		No	
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	No		No		No		No	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		No		No		No	
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		No		No	
NTCIP Object Definitions for Actuated Traffic Signal Controller Units (AASHTO TS 3.5)	No		No		No		No	
Would agency be willing to participate in testing of ITS Standards?	Yes		Yes		NR		No	
Have agreements in place with other agencies to use similar hardware								
and software to aid maintenance and interoperability?	No		No		No		Yes	
INCIDENT MANAGEMENT ON ARTERIAL STREETS								
Receive information on highway-rail intersection crossing blockages for								
the purpose of managing incident response?	No		No		No		Yes	
Use of Service Patrols to Assist in Detection and Response to Incidents								
Publicly operated service patrol vehicles	No		No		No		Yes	
Privately operated service patrol vehicles operated under public contract	No		No		No		No	
Total number of arterial miles patrolled by these services	NR	NR	NR	NR	NR	NR	0	50
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	0	0

	Alexandria City		Arlington County		District of Columbia		Montgomery County	
	1999	2005	1999	2005	1999	2005	1999	2005
Free cellular phone call to an area radio station	0	0	0	0	0	0	0	0
Police patrols	0	0	0	0	0	0	200	200
Computer algorithms linked to traffic surveillance equipment	0	0	0	0	0	0	50	150
CCTV	NR	15	0	0	0	0	85	200
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	0	0	0	0	200	200
Other	0	0	0	0	0	0	200	200
Procedures in place for Arterial Incident Response?								
Working agreement(s)/arrangement(s) with other agencies	No		No		No		Yes	
Inter-agency incident management admin. team that meets regularly	No		No		No		Yes	
Major incident response team that responds to major incidents	No		No		No		Yes	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		No		No		Yes	
Methods of Communication Used On-Site at an Incident								
Police								
Two-way radio	No		No		No		Yes	
800 MHz trunked radio	No		No		No		No	
Cellular telephone	No		No		No		Yes	
Hand-held (i.e., walkie-talkie)	No		No		No		No	
Automated data systems (i.e., CAD)	No		No		No		No	
Other	No		No		No		Yes	
Fire								
Two-way radio	No		No		No		Yes	
800 MHz trunked radio	No		No		No		No	
Cellular telephone	No		No		No		No	
Hand-held (i.e., walkie-talkie)	No		No		No		No	
Automated data systems (i.e., CAD)	No		No		No		No	
Other	No		No		No		Yes	
DOT								
Two-way radio	No		No		No		Yes	
800 MHz trunked radio	No		No		No		No	
Cellular telephone	No		No		No		Yes	
Hand-held (i.e., walkie-talkie)	No		No		No		No	
Automated data systems (i.e., CAD)	No		No		No		No	
Other	No		No		No		Yes	
Towing								
Two-way radio	No		No		No		No	
800 MHz trunked radio	No		No		No		No	
Cellular telephone	No		No		No		No	
Hand-held (i.e., walkie-talkie)	No		No		No		No	
Automated data systems (i.e., CAD)	No		No		No		No	
Other	No		No		No		No	
Which police agencies typically respond to incidents on arterials?								

	Alexandria City		Arlington County		District of Columbia		Montgomery County	
	1999	2005	1999	2005	1999	2005	1999	2005
State Police	No		No		No		No	
County Police or Sheriff	No		No		No		Yes	
City Police	No		No		No		No	
Who provides on-site emergency medical response?								
Fire	No		No		No		Yes	
Emergency Management Service Agency	No		No		No		No	
Private hospital	No		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		NR		NR		DK	
Is the Incident Command System used to manage incident scenes?	NR		NR		NR		DK	
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		No	
Formal agreement?	No		No		No		No	
Not specified or don't know?	No		No		No		Yes	
On-scene command post used to manage activities of responding agencies?	NR		NR		NR		Yes	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		NR		NR		Yes	
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		NR		NR		Yes	
Respondents protected through law or court opinion for liability claims								
for damages to vehicles or cargoes during clearance activities?	NR		NR		NR		DK	
Are overturned tank trucks, which are intact and not leaking, uprighted								
without first off-loading?	NR		NR		NR		No	
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		NR		NR		No	
Have laws or policies regarding the removal of stalled/abandoned vehicles								
from freeway shoulders?	NR		NR		NR		Yes	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	NR		NR		NR		0-24	
Have policies or procedures for quick removal of vehicles?	NR		NR		NR		Yes	
Is Total Station equipment used to investigate major incidents?	NR		NR		NR		Yes	
Handling of Towing Responses to Incidents								
Formal contract based on qualifications?	No		No		No		No	
Rotation with companies under contract?	No		No		No		No	
Separate lists kept for light and heavy response and for specialty recovery?	NR		NR		NR		NR	
Rotation list with minimal qualifications?	No		No		No		Yes	
In towing qualifications, do you require towers to be certified under the								
Towing and Recovery Ass. of America's National Drivers Cert. Program?	NR		NR		NR		No	
DK: Don't know								
NR: No Response								
Leg: Legislation or action being planned								

	Prince Georges County		Totals	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		5	
ARTERIAL MANAGEMENT SECTION				
Number of arterial miles that agency owns or maintains	NR		1331	
Number of arterial miles that is used for planning	NR		313	
Number of highway-rail intersections that agency maintains	30		35	
Number of highway-rail intersections that is used for planning	NR		0	
Type of facilities used to conduct arterial management activities				
Activities housed in a free-standing dedicated building?	No		0	
Activities housed in a building shared with other activities?	No		2	
Activities conducted in a dedicated control room?	No		2	
Control room contains operator console(s)?	No		3	
Control room contains electronic wall map?	No		0	
Control room contains CCTV display(s)?	No		2	
Activities conducted in a room containing workstations or PCs that manage traffic?	No		2	
Facilities are electronically linked to other transportation mgt facilities?	No		2	
Staffing and hours of operation of arterial management activities				
Number of full-time agency staff members	NR		24	
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	No		2	
Agency staff dedicated to transportation management duty	No		2	
Types of operations conducted for arterial management				
Incident detection and management?	No		2	
This metropolitan area?	No		2	
Other metropolitan area?	No		0	
Monitoring and troubleshooting status of system components?	No		4	
Radio communications with other agencies?	No		1	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		0	
Manual override of traffic signal timing plans	No		4	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No		2	
Describe agency's role in traffic signal control	NR			
Traffic Signals Operated by Agency				

	Prince Georges County		Totals	
	1999	**2005**	**1999**	**2005**
Number of signalized intersections operated and owned by agency	NR	NR	2094	644
Number of signalized intersections operated by agency but owned by another	NR	NR	588	650
Total number of signalized intersections operated by agency	139	155	1321	1449
Characteristics of signalized intersections that agency operates				
Under closed loop or central system control	124	155	1242	1420
Under real-time traffic adaptive control using advanced software	0	NR	65	100
Using SCOOT	No		1	
Using SCATS	No		0	
Name of software	NR			
Allow signal preemption for emergency vehicles	0	NR	39	130
Allow signal priority for transit vehicles	0	NR	0	220
Within 200 feet of a highway-rail intersection	1	1	7	7
Within 200 feet of a highway-rail intersection that adjust signal timing	1	1	4	4
Software used to control the signals agency operates				
Date of last upgrade to traffic signal control system software?	NR			
How often do you update signal timing?	NR			
Software used and number of signalized intersections under control (1999, 2005)	NR			
Controllers used to control signals				
NEMA	0	0	1182	1294
170/179	0	0	1500	1600
2070 controller	0	0	0	0
Other	0	0	0	0
Technologies Associated with Highway-Rail Intersections				
Total number of highway-rail intersections under electronic surveillance	NR	NR	0	3
Highway-Rail intersection capapbilities				
Video surveillance	0	0	1	315
Electronic surveillance other than video	0	0	0	300
Ability to predict train arrival electronically	0	0	0	0
Equipped with electronic traffic violator devices	0	0	43	206
Other	0	0	0	0
Real-Time Electronic Traffic Data Collection Technologies				
Total number of signalized intersections covered by electronic surveillance	NR	NR	204	828
Number of signalized intersections with data collection technologies				
Loop detectors	0	0	592	1210

	Prince Georges County		Totals	
	1999	**2005**	**1999**	**2005**
Video detection cameras	0	0	87	517
Probe readers reading toll tags	0	0	0	0
Probe readers reading license plates	0	0	40	200
Other	0	0	0	0
Roadside Technologies used to Distribute Traveler Information				
Number deployed				
Highway Advisory Radio	NR	NR	12	12
In-Vehicle Signing (IVS)	NR	NR	0	0
VMS controlling parking access	NR	NR	0	0
Miles covered				
Highway Advisory Radio	NR	NR	50	50
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	10	NR	13	110
Candidate locations for deployment of VMS	10	NR	13	105
Communication Technologies				
Signalized intersections communicated with by each type of communication				
Twisted pair cable	0	0	2559	2575
Coaxial cable	0	0	0	0
Fiber-optic cable	0	0	16	2085
Other (e.g., wireless, dial-up modems, leased lines, etc.)	0	0	43	50
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?	NR		2	
Have agreements in place with other agencies to use similar hardware				
and software to aid maintenance and interoperability?	NR		1	
INCIDENT MANAGEMENT ON ARTERIAL STREETS				
Receive information on highway-rail intersection crossing blockages for				
the purpose of managing incident response?	No		1	
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	50
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

	Prince Georges County		Totals	
	1999	**2005**	**1999**	**2005**
Free cellular phone call to an area radio station	0	0	0	0
Police patrols	0	0	200	200
Computer algorithms linked to traffic surveillance equipment	0	0	50	150
CCTV	0	0	85	215
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	200	200
Other	0	0	200	200
Procedures in place for Arterial Incident Response?				
Working agreement(s)/arrangement(s) with other agencies	No		1	
Inter-agency incident management admin. team that meets regularly	No		1	
Major incident response team that responds to major incidents	No		1	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		1	
Methods of Communication Used On-Site at an Incident				
Police				
Two-way radio	No		1	
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	
Other	No		1	
Fire				
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		1	
DOT				
Two-way radio	No		1	
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	
Other	No		1	
Towing				
Two-way radio	No		0	
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?				

	Prince Georges County		Totals	
	1999	2005	1999	2005
State Police	No		0	
County Police or Sheriff	No		1	
City Police	No		0	
Who provides on-site emergency medical response?				
Fire	No		1	
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?	NR		0	
Is the Incident Command System used to manage incident scenes?	NR		0	
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?	No		1	
On-scene command post used to manage activities of responding agencies?	NR		1	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		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?	NR		1	
Respondents protected through law or court opinion for liability claims				
for damages to vehicles or cargoes during clearance activities?	NR		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?	NR		0	
Have laws or policies regarding the removal of stalled/abandoned vehicles				
from freeway shoulders?	NR		1	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	NR		0	
Have policies or procedures for quick removal of vehicles?	NR		1	
Is Total Station equipment used to investigate major incidents?	NR		1	
Handling of Towing Responses to Incidents				
Formal contract based on qualifications?	No		0	
Rotation with companies under contract?	No		0	
Separate lists kept for light and heavy response and for specialty recovery?	NR		0	
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?	NR		0	
_____				
DK: Don't know				
NR: No Response				
Leg: Legislation or action being planned				

**Appendix G
Arterial Management Integration**

Agency Name	Alexandria City	
	1999	**2005**
Agency Returned Survey?	Yes	
Arterial Management Section		
Arterial Mgt. agencies in metropolitan area with which you share info.		
Share Timing Plans Information	Arlington County	Virginia Department of Transportation
Coordinate Changes to Timing Plans	None listed	Arlington County, Virginia Department of Transportation
Turn over Control of Signals	None listed	None listed
Agencies your agency provides arterial travel times, speeds, and		
conditions information, share infrastructure or coordinates operation		
Freeway Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Incident Management Agencies		
Provide Information	None listed	Virginia Department of Transportation
Share Infrastructure	None listed	None listed

Agency Name	Alexandria City	
	1999	**2005**
Coordinate Operation	None listed	Virginia Department of Transportation
Public Transit Operators Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Arterial Management Agencies		
Provide Information	None listed	Arlington County, Virginia Department of Transportation
Share Infrastructure	None listed	None listed

Agency Name	Alexandria City	
	1999	2005
Coordinate Operation	None listed	Arlington County, Virginia Department of Transportation
Receiving real-time information via electronic means from others		
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	None listed	None listed
Public Transit operators from which your agency receives		
arterial travel times derived from vehicle probes	None listed	None listed
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
Receive information on Incident Severity, Location, and Type	None listed	None listed
Toll Collection agencies from which your agency receives arterial travel		
times derived from vehicles probes	None listed	None listed
Arterial Incident Management Section		
Agencies your agency provides incident severity, location, and type info.		
and/or shares infrastructure and/or coordinates operation		
Emergency Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed

Agency Name	Alexandria City	
	1999	**2005**
Coordinate Operation	None listed	None listed
Freeway Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Public Transit Operators		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Receiving real-time information via electronic means from others		
Emergency Management agencies from which your agency receives		
arterial incident clearance and/or arterial incident severity		
Receive Arterial Incident Clearance Information	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed
Arterial Management agencies from which your agency receives		
arterial travel times, speeds, and conditions	None listed	None listed
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	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.

Agency Name	Arlington County	
	1999	**2005**
Agency Returned Survey?	Yes	
Arterial Management Section		
Arterial Mgt. agencies in metropolitan area with which you share info.		
Share Timing Plans Information	Alexandria City, Virginia Department of Transportation	Falls Church City
Coordinate Changes to Timing Plans	None listed	Alexandria City, District of Columbia, Virginia Department of Transportation, Falls Church City
Turn over Control of Signals	None listed	None listed
Agencies your agency provides arterial travel times, speeds, and		
conditions information, share infrastructure or coordinates operation		
Freeway Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Incident Management Agencies		
Provide Information	None listed	Virginia Department of Transportation
Share Infrastructure	None listed	None listed

Agency Name	Arlington County	
	1999	**2005**
Coordinate Operation	None listed	Virginia Department of Transportation
Public Transit Operators Agencies		
Provide Information	None listed	Northern Virginia Transportation Commission (NVTC), Washington Metropolitan Area Transit Authority
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	Washington Metropolitan Area Transit Authority
Arterial Management Agencies		
Provide Information	None listed	Virginia Department of Transportation
Share Infrastructure	None listed	None listed

Agency Name	Arlington County	
	1999	2005
Coordinate Operation	None listed	Virginia Department of Transportation
Receiving real-time information via electronic means from others		
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	None listed	None listed
Public Transit operators from which your agency receives		
arterial travel times derived from vehicle probes	None listed	None listed
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
Receive information on Incident Severity, Location, and Type	None listed	None listed
Toll Collection agencies from which your agency receives arterial travel		
times derived from vehicles probes	None listed	None listed
Arterial Incident Management Section		
Agencies your agency provides incident severity, location, and type info.		
and/or shares infrastructure and/or coordinates operation		
Emergency Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed

Agency Name	Arlington County	
	1999	**2005**
Coordinate Operation	None listed	None listed
Freeway Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Public Transit Operators		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Receiving real-time information via electronic means from others		
Emergency Management agencies from which your agency receives		
arterial incident clearance and/or arterial incident severity		
Receive Arterial Incident Clearance Information	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed
Arterial Management agencies from which your agency receives		
arterial travel times, speeds, and conditions	None listed	None listed
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	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.

Agency Name	District of Columbia	
	1999	**2005**
Agency Returned Survey?	Yes	
Arterial Management Section		
Arterial Mgt. agencies in metropolitan area with which you share info.		
Share Timing Plans Information	District of Columbia	Virginia Department of Transportation
Coordinate Changes to Timing Plans	District of Columbia	Alexandria City, Arlington County, District of Columbia, Maryland State Highway Administration, Montgomery County, Prince George's County, Virginia Department of Transportation
Turn over Control of Signals	None listed	None listed
Agencies your agency provides arterial travel times, speeds, and		
conditions information, share infrastructure or coordinates operation		
Freeway Management Agencies		
Provide Information	None listed	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Share Infrastructure	None listed	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Coordinate Operation	None listed	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Incident Management Agencies		
Provide Information	District of Columbia	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Share Infrastructure	None listed	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation

Agency Name	District of Columbia	
	1999	**2005**
Coordinate Operation	None listed	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Public Transit Operators Agencies		
Provide Information	None listed	Montgomery County - Ride On, Northern Virginia Transportation Commission (NVTC), Washington Metropolitan Area Transit Authority
Share Infrastructure	None listed	Montgomery County - Ride On, Northern Virginia Transportation Commission (NVTC), Washington Metropolitan Area Transit Authority
Coordinate Operation	None listed	Montgomery County - Ride On, Northern Virginia Transportation Commission (NVTC), Washington Metropolitan Area Transit Authority
Arterial Management Agencies		
Provide Information	District of Columbia	Alexandria City, Arlington County, Maryland State Highway Administration, Montgomery County, Prince George's County, Virginia Department of Transportation
Share Infrastructure	None listed	Alexandria City, Arlington County, District of Columbia, Maryland State Highway Administration, Montgomery County, Prince George's County, Virginia Department of Transportation

Agency Name	District of Columbia	
	1999	**2005**
Coordinate Operation	None listed	Alexandria City, Arlington County, District of Columbia, Maryland State Highway Administration, Montgomery County, Prince George's County, Virginia Department of Transportation
Receiving real-time information via electronic means from others		
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	None listed	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Public Transit operators from which your agency receives		
arterial travel times derived from vehicle probes	None listed	Montgomery County - Ride On, Northern Virginia Transportation Commission (NVTC), Washington Metropolitan Area Transit Authority
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	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Receive information on Incident Severity, Location, and Type	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Toll Collection agencies from which your agency receives arterial travel		
times derived from vehicles probes	None listed	None listed
Arterial Incident Management Section		
Agencies your agency provides incident severity, location, and type info.		
and/or shares infrastructure and/or coordinates operation		
Emergency Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed

Agency Name	District of Columbia	
	1999	**2005**
Coordinate Operation	None listed	None listed
Freeway Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Public Transit Operators		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Receiving real-time information via electronic means from others		
Emergency Management agencies from which your agency receives		
arterial incident clearance and/or arterial incident severity		
Receive Arterial Incident Clearance Information	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed
Arterial Management agencies from which your agency receives		
arterial travel times, speeds, and conditions	None listed	None listed
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	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.

Agency Name	Montgomery County		Prince Georges County	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Arterial Mgt. agencies in metropolitan area with which you share info.				
Share Timing Plans Information	None listed	None listed	None listed	None listed
Coordinate Changes to Timing Plans	Maryland State Highway Administration	None listed	None listed	None listed
Turn over Control of Signals	None listed	None listed	None listed	None listed
Agencies your agency provides arterial travel times, speeds, and				
conditions information, share infrastructure or coordinates operation				
Freeway Management Agencies				
Provide Information	Maryland State Highway Administration	None listed	None listed	None listed
Share Infrastructure	Maryland State Highway Administration	None listed	None listed	None listed
Coordinate Operation	Maryland State Highway Administration	None listed	None listed	None listed
Incident Management Agencies				
Provide Information	Maryland State Highway Administration	None listed	None listed	None listed
Share Infrastructure	Maryland State Highway Administration	None listed	None listed	None listed

Agency Name	Montgomery County		Prince Georges County	
	1999	**2005**	**1999**	**2005**
Coordinate Operation	Maryland State Highway Administration	None listed	None listed	None listed
Public Transit Operators Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	Washington Metropolitan Area Transit Authority	None listed	None listed	None listed
Arterial Management Agencies				
Provide Information	Maryland State Highway Administration	None listed	None listed	None listed
Share Infrastructure	Maryland State Highway Administration	None listed	None listed	None listed

Agency Name	Montgomery County		Prince Georges County	
	1999	**2005**	**1999**	**2005**
Coordinate Operation	Maryland State Highway Administration	None listed	None listed	None listed
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	Maryland State Highway Administration, Partners in Motion	None listed	None listed	None listed
Public Transit operators from which your agency receives				
arterial travel times derived from vehicle probes	Montgomery County - Ride On	None listed	None listed	None listed
Incident Management agencies from which your agency receives				
incident clearance and/or incident severity, location, and type information				
Receive information on Incident Clearance	Maryland State Highway Administration	None listed	None listed	None listed
Receive information on Incident Severity, Location, and Type	Maryland State Highway Administration	None listed	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.				
and/or shares infrastructure and/or coordinates operation				
Emergency Management Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed

Agency Name	Montgomery County		Prince Georges County	
	1999	**2005**	**1999**	**2005**
Coordinate Operation	Prince George County Sheriff Department, Maryland State Police	None listed	None listed	None listed
Freeway Management Agencies				
Provide Information	Maryland State Highway Administration	None listed	None listed	None listed
Share Infrastructure	Maryland State Highway Administration	None listed	None listed	None listed
Coordinate Operation	Maryland State Highway Administration	None listed	None listed	None listed
Public Transit Operators				
Provide Information	Montgomery County - Ride On	None listed	None listed	None listed
Share Infrastructure	Montgomery County - Ride On	None listed	None listed	None listed
Coordinate Operation	Montgomery County-Ride On	None listed	None listed	None listed
Receiving real-time information via electronic means from others				
Emergency Management agencies from which your agency receives				
arterial incident clearance and/or arterial incident severity				
Receive Arterial Incident Clearance Information	None listed	Montgomery County Police Department, Prince George County Sheriff Department	None listed	None listed
Receive Arterial Incident Severity Information	None listed	Montgomery County Police Department, Prince George County Sheriff Department	None listed	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions	None listed	None listed	None listed	None listed
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	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: Washington

Agency Name	Alexandria City		Arlington County	
	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, Queues, Phasing/cycle lengths	Traffic volumes, Traffic speeds, Lane occupancy, Turning movements, Queues, Phasing/cycle lengths	Traffic volumes, Phasing/cycle lengths	Traffic volumes, Traffic speeds, Phasing/cycle lengths
Archived by your agency	Traffic volumes	Traffic volumes	Traffic volumes, Phasing/cycle lengths	Traffic volumes, Traffic speeds, Phasing/cycle lengths
Transferred to another agency by your agency	NR	NR	Traffic volumes, Phasing/cycle lengths	Traffic volumes, Traffic speeds, Phasing/cycle lengths
Importance of making information available to the public				
Ranked High	Traffic volumes, Phasing/cycle lengths		NR	
Ranked Medium	NR		Traffic speeds	
Ranked Low	NR		Traffic volumes, Phasing/cycle lengths	
Groups that make requests for the data	Consultants, Law firms, citizens		Universities, State DOT personnel, Federal DOT personnel, Consultants, Advanced Traveler Information Systems (ATIS) provi, Attorneys	

Agency Name	Alexandria City		Arlington County	
	1999	**2005**	**1999**	**2005**
What is the data used for?	Traffic analysis, Construction impact determination, Planning, Dissemination to the public, legal documentation		Traffic analysis, Construction impact determination, Planning, Incident detection algorithm development, Roadway impact analysis, Accident prediction models, Dissemination to the public, Court Cases	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	Dedicated cable TV, Internet Web sites, Kiosks, E-mail or other direct PC communication
Technologies your agency (through another agency or org.) uses to disseminate:	Telephone system	Telephone system, Internet Web sites	NR	Dedicated cable TV, Internet Web sites, Kiosks, E-mail or other direct PC communication
Internet web site reporting arterial conditions	NR		none	
Telephone system for reporting arterial information to the public	NR		none	
Organizations your agency sends information for dissemination to the public	We participate in the Partners in Motion project.		none	
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	

Agency Name	Alexandria City		Arlington County	
	1999	**2005**	**1999**	**2005**
Organizations your agency sends information for dissemination to the public	NR		NR	

Agency Name	District of Columbia		Montgomery County	
	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	NR	NR	Traffic volumes, Probe vehicles, Road conditions, Incidents, Current work zones, Scheduled work zones	NR
Archived by your agency	NR	NR	Traffic volumes, Probe vehicles, Road conditions, Incidents, Current work zones, Scheduled work zones	NR
Transferred to another agency by your agency	NR	NR	Traffic volumes, Incidents, Current work zones, Scheduled work zones	NR
Importance of making information available to the public				
Ranked High	Phasing/cycle lengths, Route designations (snow emergency, etc.)		Road conditions, Incidents, Current work zones, Scheduled work zones	
Ranked Medium	Traffic volumes, Lane occupancy, Turning movements, Queues, Road conditions, Emergency vehicle signal preemption, Weather conditions, Incidents, Current work zones, Scheduled work zones		Probe vehicles	
Ranked Low	Traffic speeds, Vehicle classification, Probe vehicles, Transit vehicle signal priority, Intermodal (air, rail, water) connections, Emergency/evacuation routes and procedures, Highway operations coordination information		Traffic volumes	
Groups that make requests for the data	Federal DOT personnel, Media (I.e., TV stations, radio stations), MPOs, Consultants		State DOT personnel, Media (I.e., TV stations, radio stations), Advanced Traveler Information Systems (ATIS) provi	

Agency Name	District of Columbia		Montgomery County	
	1999	**2005**	**1999**	**2005**
What is the data used for?	Traffic analysis, Construction impact determination, Planning, Dissemination to the public		Traffic analysis, Planning, Dissemination to the public	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	NR	Dedicated cable TV, Internet Web sites, Kiosks, E-mail or other direct PC communication, In-vehicle navigation systems, Cell phone/data, Facsimile	Dedicated cable TV, Internet Web sites, Kiosks	Telephone system
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	Pagers or personal data assistants, Interactive TV, E-mail or other direct PC communication
Internet web site reporting arterial conditions	NR		www.dpwt.com www.smarttraveler.com	
Telephone system for reporting arterial information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		Metro Traffic Shadow Traffic Partners in Motion Local TV Stations	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information				
to the public				
Technologies your agency uses to disseminate:	NR	NR	Dedicated cable TV, Internet Web sites, Kiosks	Telephone system
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	Dedicated cable TV, Telephone system, Internet Web sites	Pagers or personal data assistants, E-mail or other direct PC communication
Internet web site reporting incident information	NR		www.dpwt.com www.smarttraveler.com	
Telephone system for reporting incident information to the public	NR		partners in motion	

Agency Name	District of Columbia		Montgomery County	
	1999	**2005**	**1999**	**2005**
Organizations your agency sends information for dissemination to the public	NR		Metro Traffic Shadow Traffic Partners in Motion Local TV Stations	

Agency Name	Prince Georges County	
	1999	**2005**
Agency Returned Survey?	Yes	
Arterial Management Section		
Data collected, archived, and/or transferred to another agency		
Collected by your agency	NR	NR
Archived by your agency	NR	NR
Transferred to another agency by your agency	NR	NR
Importance of making information available to the public		
Ranked High	NR	
Ranked Medium	NR	
Ranked Low	NR	
Groups that make requests for the data	NR	

Agency Name	Prince Georges County	
	1999	**2005**
What is the data used for?		
	NR	
Methods used to disseminate arterial information to the public		
Technologies your agency uses to disseminate:		
	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:		
	NR	NR
Internet web site reporting arterial conditions		
	NR	
Telephone system for reporting arterial information to the public	NR	
Organizations your agency sends information for dissemination to the public		
	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
Technologies your agency (through another agency or org.) uses to disseminate:		
	NR	NR
Internet web site reporting incident information		
	NR	
Telephone system for reporting incident information to the public	NR	

Agency Name	Prince Georges County	
	1999	**2005**
Organizations your agency sends information for dissemination to the public	NR	

Appendix I
Transit Management Components

Transit Management
Agencies for Metropolitan Area: Washington

	Fairfax Connector Bus System		FASTRAN		Frederick County Transit		Montgomery County - Ride On	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes		Yes		Yes	
Number of vehicles used in revenue service								
Fixed Route Bus	143	NR	NR	NR	11	22	276	303
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	10	NR	124	150	22	26	NR	NR
Commuter Rail	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat	NR	NR	NR	NR	NR	NR	NR	NR
Have of plan to have an Automated Vehicle Location System?	No		No		No		Yes	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	No	No	No	Yes	No	No	No	No
Sign/Odometer	No	No	No	No	No	No	No	No
Dead-Reckoning	No	No	No	No	No	No	Yes	No
LORAN C	No	No	No	No	No	No	No	No
Other	No	No	No	No	No	No	Yes	No
Backup Technologies								
GPS	No	No	No	No	No	No	No	No
Sign/Odometer	No	No	No	No	No	No	No	No
Dead-Reckoning	No	No	No	No	No	No	No	No
LORAN C	No	No	No	No	No	No	No	No
Other	No	No	No	No	No	No	No	No
Number of Vehicles Equipped with AVL								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	96	303
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	NR	NR	NR	150	NR	NR	NR	NR
Commuter Rail	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat	NR	NR	NR	NR	NR	NR	NR	NR
Motor Buses Operated as Vehicle Probes								
Number of Motor Buses equipped as probes on freeways?	NR		NR		NR		NR	
Number of Motor Buses equipped as probes on arterials?	NR		NR		NR		NR	
Have Organized Regional Incident Management Program?	No		Yes		No		Yes	

Transit Management
Agencies for Metropolitan Area: Washington

	Fairfax Connector Bus System		FASTRAN		Frederick County Transit		Montgomery County - Ride On	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Have Automated Traveler Information System?	Yes		No		No		Yes	
Services Automated Traveler Info. System Applies:								
Fixed Route	Yes		No		No		Yes	
Heavy Rail	Yes		No		No		No	
Light Rail	No		No		No		No	
Demand Responsive	No		No		No		No	
Commuter Rail	Yes		No		No		No	
Ferry	No		No	N/A	No		No	
Locations where traveler information is displayed to public								
Number of bus stops on fixed transit routes	NR	NR	NR	NR	NR	NR	4,718	5,000
Bus stops on fixed transit routes that display traveler info to the public	NR	NR	NR	NR	NR	NR	3	50
Number of rail stations	6	NR	NR	NR	NR	NR	12	12
Number of rail stations that display traveler information	6	NR	NR	NR	NR	NR	0	2
Number of other locations that display traveler information to public	3	NR	NR	NR	NR	NR	1	5
Number of vehicles the traveler information system has available								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	0	100
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail	NR	NR	NR	NR	NR	NR	0	0
Ferry Boat	NR	NR	NR	NR	NR	NR	0	0
Deployment of Communications Technology								
Attributes of Radio System:								
Digital?	No		No		No		No	
Analog?	No		Yes		Yes		Yes	
Trunked?	No		Yes		Yes		No	
Regular?	No		No		No		Yes	
Services that use a Digital or Trunked Radio System								
Digital Only								
Fixed Route Bus	No	No	No	No	No	No	No	No
Heavy or Rapid Rail	No	No	No	No	No	No	No	No
Light Rail	No	No	No	No	No	No	No	No
Demand Responsive	No	No	No	No	No	No	No	No
Commuter Rail	No	No	No	No	No	No	No	No
Ferry Boat	No	No	No	No	No	No	No	No
Trunked Only								

Transit Management
Agencies for Metropolitan Area: Washington

	Fairfax Connector Bus System		FASTRAN		Frederick County Transit		Montgomery County - Ride On	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Fixed Route Bus	No	No	No	No	No	No	No	No
Heavy or Rapid Rail	No	No	No	No	No	No	No	No
Light Rail	No	No	No	No	No	No	No	No
Demand Responsive	No	No	No	No	No	No	No	No
Commuter Rail	No	No	No	No	No	No	No	No
Ferry Boat	No	No	No	No	No	No	No	No
Have of plan to have Automatic Passenger Counters (APCs)?	No		No		No		Yes	
Methods used to count passengers								
Treadle Mats	No		No		No		No	
Infrared Beams	No		No		No		Yes	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	No	No	No	No	No	No	No	No
Differential GPS	No	No	No	No	No	No	Yes	No
Signpost/Odometer	No	No	No	No	No	No	No	No
Dead_Reckoning	No	No	No	No	No	No	No	No
LORAN C	No	No	No	No	No	No	No	No
Other	No	No	No	No	No	No	No	No
Backup Technologies								
GPS	No	No	No	No	No	No	No	No
Differential GPS	No	No	No	No	No	No	No	No
Signpost/Odometer	No	No	No	No	No	No	No	No
Dead_Reckoning	No	No	No	No	No	No	Yes	No
LORAN C	No	No	No	No	No	No	No	No
Other	No	No	No	No	No	No	No	No
Number of Vehicles with APCs								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	0	25
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail	NR	NR	NR	NR	NR	NR	0	0
Ferry Boat	NR	NR	NR	NR	NR	NR	0	0
Remote Real-Time Monitoring and Computer Assisted Dispatching								
Remote Real-Time Monitoring								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	NR	NR
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR

Transit Management
Agencies for Metropolitan Area: Washington

	Fairfax Connector Bus System		FASTRAN		Frederick County Transit		Montgomery County - Ride On	
	1999	2005	1999	2005	1999	2005	1999	2005
Demand Responsive	NR	NR	NR	NR	NR	NR	NR	NR
Commuter Rail	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat	NR	NR	NR	NR	NR	NR	NR	NR
Automated Dispatching or Control Software								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	96	238
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	NR	NR	124	150	NR	NR	NR	NR
Commuter Rail	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat	NR	NR	NR	NR	NR	NR	NR	NR
Coordinate or plan to coordinate travel request and vehicle								
dispatching for multiple agencies?	No		NR		NR		No	
Is there or will there be a Transportation Management Center								
(TMC) in the region that controls transit and highway modes?	Yes		NR		No		Yes	
Modes that TMC currently controls:								
Highways	Yes	No	No	No	No	No	Yes	No
Fixed Route Bus	Yes	No	No	No	No	No	Yes	No
Heavy or Rapid Rail	Yes	No	No	No	No	No	No	No
Light Rail	No	No	No	No	No	No	No	No
Demand Responsive	No	No	No	No	No	No	No	No
Commuter Rail	Yes	No	No	No	No	No	No	No
Ferry Boat	No	No	No	No	No	No	No	No
Other	No	No	No	No	No	No	No	No
Priority at Traffic Signals and Ramp Meter Priority								
Priority at Traffic Signals								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	NR	160
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	NR	NR	NR	NR	NR	NR	NR	NR
Ramp Meter Priority								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	NR	NR	NR	NR	NR	NR	NR	NR
Number of Vehicles Equipped with Navigation Aids								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	NR	NR
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR

	Fairfax Connector Bus System		FASTRAN		Frederick County Transit		Montgomery County - Ride On	
	1999	2005	1999	2005	1999	2005	1999	2005
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	NR	NR	NR	NR	NR	NR	NR	NR
Commuter Rail	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat	NR	NR	NR	NR	NR	NR	NR	NR
ITS Standards Used Related to Transit Management								
TCIP On Board Objects (TCIP-OB)	No		No		No		No	
TCIP Traffic Management Objects (TCIP-TM)	No		No		No		No	
TCIP Common Public Transportation Objects (TCIP-CPT)	No		No		No		No	
TCIP Passenger Information Objects (TCIP-PI)	No		No		No		No	
TCIP Incident Management Objects (TCIP-IM)	No		No		No		No	
TCIP Fare Collection Objects (TCIP-FC)	No		No		No		No	
TCIP Spatial Representation Objects (TCIP-SP)	No		No		No		No	
TCIP Control Center Objects (TCIP-CC)	No		No		No		No	
TCIP Scheduling/Runcutting Objects (TCIP-SCH)	No		No		No		No	
Send data communication between micro computer and heavy duty vehicle applications (SAE J1708)	No		No		No		No	
Would agency be willing to participate in testing of ITS Standards?	No		No		No		No	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	No		No		No		No	
Electronic Fare Payment								
Have full operational Electronic Fare Payment System?	No		No		No		Yes	
Methods of Fare Payment								
Stored value card with fare deducted for each trip								
Magnetic Stripe	No		No		No		No	
Smart Card	No		No		No		Yes	
Debit Card	No		No		No		No	
Billed by the month for trips taken								
Magnetic Stripe	No		No		No		No	
Smart Card	No		No		No		No	
Credit Card	No		No		No		No	
Monthly Pass								
Magnetic Stripe	No		No		No		No	
Smart Card	No		No		No		No	
Vehicles/Stations Equipped with Automated Payment Mechanism								
Magnetic Stripe Readers								
Fixed Route Bus Vehicles	NR	NR	NR	NR	NR	NR	NR	NR
Heavy or Rapid Rail Stations	6	NR	NR	NR	NR	NR	NR	NR

	Fairfax Connector Bus System		FASTRAN		Frederick County Transit		Montgomery County - Ride On	
	1999	2005	1999	2005	1999	2005	1999	2005
Light Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive Vehicles	NR	NR	NR	NR	NR	NR	NR	NR
Commuter Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
Smart Card Readers								
Fixed Route Bus Vehicles	NR	NR	NR	NR	NR	NR	NR	238
Heavy or Rapid Rail Stations	6	NR	NR	NR	NR	NR	NR	NR
Light Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive Vehicles	NR	NR	NR	NR	NR	NR	NR	NR
Commuter Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
Credit Card								
Fixed Route Bus Vehicles	NR	NR	NR	NR	NR	NR	NR	NR
Heavy or Rapid Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive Vehicles	NR	NR	NR	NR	NR	NR	NR	NR
Commuter Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
Debit Card								
Fixed Route Bus Vehicles	NR	NR	NR	NR	NR	NR	NR	NR
Heavy or Rapid Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive Vehicles	NR	NR	NR	NR	NR	NR	NR	NR
Commuter Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
_____								
NR: No Response								

	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission		Washington Metropolitan Area Transit Authority		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes		Yes		7	
Number of vehicles used in revenue service								
Fixed Route Bus	NR	NR	53	NR	1,341	NR	1,824	325
Heavy or Rapid Rail	NR	NR	0	NR	764	956	764	956
Light Rail	NR	NR	0	NR	NR	NR	0	0
Demand Responsive	NR	NR	22	NR	NR	NR	178	176
Commuter Rail	62	70	NR	NR	NR	NR	62	70
Ferry Boat	NR	NR	NR	NR	NR	NR		
Have of plan to have an Automated Vehicle Location System?	Yes		Yes		Yes		4	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	Yes	No	Yes	No	No	No	2	1
Sign/Odometer	No	No	No	No	Yes	No	1	0
Dead-Reckoning	No	No	No	No	No	No	1	0
LORAN C	No	No	No	No	No	No	0	0
Other	No	No	No	No	No	Yes	1	1
Backup Technologies								
GPS	No	No	Yes	No	No	No	1	0
Sign/Odometer	No	No	No	No	No	No	0	0
Dead-Reckoning	No	No	No	No	No	Yes	0	1
LORAN C	No	No	No	No	No	No	0	0
Other	No	No	No	No	No	No	0	0
Number of Vehicles Equipped with AVL								
Fixed Route Bus	NR	NR	22	NR	0	200	118	503
Heavy or Rapid Rail	NR	NR	NR	NR	764	956	764	956
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	0	50	0	200
Commuter Rail	12	16	NR	NR	NR	NR	12	16
Ferry Boat	NR	NR	NR	NR	NR	NR	0	0
Motor Buses Operated as Vehicle Probes								
Number of Motor Buses equipped as probes on freeways?	NR		NR		NR		0	
Number of Motor Buses equipped as probes on arterials?	NR		NR		NR		0	
Have Organized Regional Incident Management Program?	No		Yes		No		3	

Transit Management
Agencies for Metropolitan Area: Washington

	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission		Washington Metropolitan Area Transit Authority		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Have Automated Traveler Information System?	Yes		No		Yes		4	
Services Automated Traveler Info. System Applies:								
Fixed Route	No		No		Yes		3	
Heavy Rail	No		No		Yes		2	
Light Rail	No		No		No		0	
Demand Responsive	No		No		No		0	
Commuter Rail	Yes		No		No		2	
Ferry	No		No		No		0	
Locations where traveler information is displayed to public								
Number of bus stops on fixed transit routes	NR	NR	NR	NR	12,000	12,000	16,718	17,000
Bus stops on fixed transit routes that display traveler info to the public	NR	NR	NR	NR	4,373	6,400	4,376	6,450
Number of rail stations	18	NR	NR	NR	78	83	114	95
Number of rail stations that display traveler information	NR	NR	NR	NR	0	83	6	85
Number of other locations that display traveler information to public	NR	NR	NR	NR	NR	NR	4	5
Number of vehicles the traveler information system has available								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	0	100
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail	12	16	NR	NR	NR	NR	12	16
Ferry Boat	NR	NR	NR	NR	NR	NR	0	0
Deployment of Communications Technology								
Attributes of Radio System:								
Digital?	No		Yes		No		1	
Analog?	No		No		Yes		4	
Trunked?	No		Yes		No		3	
Regular?	No		No		Yes		2	
Services that use a Digital or Trunked Radio System								
Digital Only								
Fixed Route Bus	No	No	Yes	Yes	No	Yes	1	2
Heavy or Rapid Rail	No	No	No	No	No	Yes	0	1
Light Rail	No	No	No	No	No	No	0	0
Demand Responsive	No	No	Yes	Yes	No	No	1	1
Commuter Rail	No	No	No	No	No	No	0	0
Ferry Boat	No	No	No	No	No	No	0	0
Trunked Only								

Transit Management
Agencies for Metropolitan Area: Washington

	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission		Washington Metropolitan Area Transit Authority		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Fixed Route Bus	No	No	Yes	Yes	No	Yes	1	2
Heavy or Rapid Rail	No	No	No	No	No	Yes	0	1
Light Rail	No	No	No	No	No	No	0	0
Demand Responsive	No	No	Yes	Yes	No	No	1	1
Commuter Rail	No	No	No	No	No	No	0	0
Ferry Boat	No	No	No	No	No	No	0	0
Have of plan to have Automatic Passenger Counters (APCs)?	No		No		Yes		2	
Methods used to count passengers								
Treadle Mats	No		No		No		0	
Infrared Beams	No		No		No		1	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	No	No	No	No	Yes	No	1	0
Differential GPS	No	No	No	No	No	No	1	0
Signpost/Odometer	No	No	No	No	No	No	0	0
Dead_Reckoning	No	No	No	No	No	No	0	0
LORAN C	No	No	No	No	No	No	0	0
Other	No	No	No	No	No	No	0	0
Backup Technologies								
GPS	No	No	No	No	No	No	0	0
Differential GPS	No	No	No	No	No	No	0	0
Signpost/Odometer	No	No	No	No	No	No	0	0
Dead_Reckoning	No	No	No	No	No	Yes	1	1
LORAN C	No	No	No	No	No	No	0	0
Other	No	No	No	No	No	No	0	0
Number of Vehicles with APCs								
Fixed Route Bus	NR	NR	NR	NR	0	100	0	125
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail	NR	NR	NR	NR	NR	NR	0	0
Ferry Boat	NR	NR	NR	NR	NR	NR	0	0
Remote Real-Time Monitoring and Computer Assisted Dispatching								
Remote Real-Time Monitoring								
Fixed Route Bus	NR	NR	NR	NR	0	1,341	0	1341
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	NR	NR	0	0

Transit Management
Agencies for Metropolitan Area: Washington

	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission		Washington Metropolitan Area Transit Authority		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Demand Responsive	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail	12	16	NR	NR	NR	NR	12	16
Ferry Boat	NR	NR	NR	NR	NR	NR	0	0
Automated Dispatching or Control Software								
Fixed Route Bus	NR	NR	22	NR	0	250	118	488
Heavy or Rapid Rail	NR	NR	NR	NR	764	956	764	956
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	NR	NR	124	150
Commuter Rail	NR	NR	NR	NR	NR	NR	0	0
Ferry Boat	NR	NR	NR	NR	NR	NR	0	0
Coordinate or plan to coordinate travel request and vehicle								
dispatching for multiple agencies?	No		No		Yes		1	
Is there or will there be a Transportation Management Center								
(TMC) in the region that controls transit and highway modes?	NR		No		No		2	
Modes that TMC currently controls:								
Highways	No	No	No	No	No	No	2	0
Fixed Route Bus	No	No	No	No	No	No	2	0
Heavy or Rapid Rail	No	No	No	No	No	No	1	0
Light Rail	No	No	No	No	No	No	0	0
Demand Responsive	No	No	No	No	No	No	0	0
Commuter Rail	No	No	No	No	No	No	1	0
Ferry Boat	No	No	No	No	No	No	0	0
Other	No	No	No	No	No	No	0	0
Priority at Traffic Signals and Ramp Meter Priority								
Priority at Traffic Signals								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	0	160
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	NR	NR	0	0
Ramp Meter Priority								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	NR	NR	0	0
Number of Vehicles Equipped with Navigation Aids								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	0	0
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	0	0

	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission		Washington Metropolitan Area Transit Authority		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail	NR	NR	NR	NR	NR	NR	0	0
Ferry Boat	NR	NR	NR	NR	NR	NR	0	0
ITS Standards Used Related to Transit Management								
TCIP On Board Objects (TCIP-OB)	No		No		No		0	
TCIP Traffic Management Objects (TCIP-TM)	No		No		No		0	
TCIP Common Public Transportation Objects (TCIP-CPT)	No		No		No		0	
TCIP Passenger Information Objects (TCIP-PI)	No		No		No		0	
TCIP Incident Management Objects (TCIP-IM)	No		No		No		0	
TCIP Fare Collection Objects (TCIP-FC)	No		No		No		0	
TCIP Spatial Representation Objects (TCIP-SP)	No		No		No		0	
TCIP Control Center Objects (TCIP-CC)	No		No		No		0	
TCIP Scheduling/Runcutting Objects (TCIP-SCH)	No		No		No		0	
Send data communication between micro computer and heavy duty vehicle applications (SAE J1708)	No		No		No		0	
Would agency be willing to participate in testing of ITS Standards?	Yes		No		Yes		2	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	No		No		No		0	
Electronic Fare Payment								
Have full operational Electronic Fare Payment System?	Yes		Yes		Yes		4	
Methods of Fare Payment								
Stored value card with fare deducted for each trip								
Magnetic Stripe	No		No		Yes		1	
Smart Card	No		No		Yes		2	
Debit Card	Yes		No		Yes		2	
Billed by the month for trips taken								
Magnetic Stripe	No		No		No		0	
Smart Card	No		No		Yes		1	
Credit Card	Yes		No		Yes		2	
Monthly Pass								
Magnetic Stripe	No		No		Yes		1	
Smart Card	No		No		Yes		1	
Vehicles/Stations Equipped with Automated Payment Mechanism								
Magnetic Stripe Readers								
Fixed Route Bus Vehicles	NR	NR	NR	NR	0	1,400	0	1,400
Heavy or Rapid Rail Stations	NR	NR	NR	NR	78	83	84	83

Transit Management
Agencies for Metropolitan Area: Washington

	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission		Washington Metropolitan Area Transit Authority		Totals	
	1999	2005	1999	2005	1999	2005	1999	2005
Light Rail Stations	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive Vehicles	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail Stations	NR	NR	NR	NR	NR	NR	0	0
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	0	0
Smart Card Readers								
Fixed Route Bus Vehicles	NR	NR	NR	NR	0	1,400	0	1,638
Heavy or Rapid Rail Stations	NR	NR	NR	NR	78	83	84	83
Light Rail Stations	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive Vehicles	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail Stations	NR	NR	NR	NR	NR	NR	0	0
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	0	0
Credit Card								
Fixed Route Bus Vehicles	NR	NR	NR	NR	0	0	0	0
Heavy or Rapid Rail Stations	NR	NR	NR	NR	78	83	78	83
Light Rail Stations	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive Vehicles	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail Stations	18	NR	NR	NR	NR	NR	18	0
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	0	0
Debit Card								
Fixed Route Bus Vehicles	NR	NR	NR	NR	0	0	0	0
Heavy or Rapid Rail Stations	NR	NR	NR	NR	0	0	0	0
Light Rail Stations	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive Vehicles	NR	NR	NR	NR	NR	NR	0	0
Commuter Rail Stations	18	NR	NR	NR	NR	NR	18	0
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	0	0
_____								

NR: No Response

**Appendix J
Transit Management Integration**

Agency Name	Fairfax Connector Bus System		FASTRAN	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Transit operators in the region that use the same electronic payment system	None listed		None listed	
Toll operators from whom you accept electronic payment of transit				
fare through the use of ETC media	None listed		None listed	
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions				
Receive Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions				
Receive Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Incident Management agencies from which your agency receives				
incident severity, location, and type				
Receive Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed

Agency Name	Frederick County Transit		Montgomery County - Ride On	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Transit operators in the region that use the same electronic payment system	None listed		Washington Metropolitan Area Transit Authority	
Toll operators from whom you accept electronic payment of transit				
fare through the use of ETC media	None listed		None listed	
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions				
Receive Information	None listed	None listed	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation	None listed
Share Infrastructure	None listed	None listed	Maryland State Highway Administration	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions				
Receive Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Incident Management agencies from which your agency receives				
incident severity, location, and type				
Receive Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed

Agency Name	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Transit operators in the region that use the same electronic payment system	None listed		None listed	
Toll operators from whom you accept electronic payment of transit				
fare through the use of ETC media	None listed		None listed	
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions				
Receive Information	None listed	None listed	None listed	Smartraveler
Share Infrastructure	None listed	None listed	None listed	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions				
Receive Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Incident Management agencies from which your agency receives				
incident severity, location, and type				
Receive Information	None listed	Virginia Department of Transportation	Smartraveler	Smartraveler
Share Infrastructure	None listed	None listed	None listed	None listed

Agency Name	Washington Metropolitan Area Transit Authority	
	1999	**2005**
Agency Returned Survey?	Yes	
Transit operators in the region that use the same electronic payment system	None listed	
Toll operators from whom you accept electronic payment of transit		
fare through the use of ETC media	None listed	
Receiving real-time information via electronic means from others		
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions		
Receive Information	None listed	District of Columbia, Maryland State Highway Administration, Virginia Department of Transportation
Share Infrastructure	None listed	None listed
Arterial Management agencies from which your agency receives		
arterial travel times, speeds, and conditions		
Receive Information	None listed	None listed
Share Infrastructure	None listed	None listed
Incident Management agencies from which your agency receives		
incident severity, location, and type		
Receive Information	None listed	None listed
Share Infrastructure	None listed	None listed

Appendix K
Transit Management Information Collection and Dissemination

Agency Name	Fairfax Connector Bus System		FASTRAN	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Methods used to disseminate transit information to the public				
Technologies your agency uses to disseminate:				
Transit routes, schedules and fares	Facsimile, Kiosks, Internet Web Sites, Telephone System	Facsimile, E-mail or other direct PC communication, Kiosks, Internet Web Sites, Telephone System	NR	NR
Real-time transit schedule adherence or arrival and departure times	Facsimile, Kiosks, Internet Web Sites, Telephone System	Facsimile, E-mail or other direct PC communication, Kiosks, Internet Web Sites	NR	NR
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	Facsimile, E-mail or other direct PC communication, Kiosks, Internet Web Sites	Facsimile, E-mail or other direct PC communication, Kiosks, Internet Web Sites	NR	NR
Real-time transit schedule adherence or arrival and departure times	Facsimile, E-mail or other direct PC communication, Kiosks, Internet Web Sites	Facsimile, E-mail or other direct PC communication, Kiosks, Internet Web Sites	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	www.co.fairfax.va.us/comm/trans/connect.htm refer to attachment page numbered		NR	
Telephone system for reporting transit information to the public	703-339-7200		NR	
Organizations your agency sends information for dissemination to the public	Numerous agencies, too many to list. State, Regional, MPO, TMAs, other county government, Regional Transit Authority, other local transit operators.		NR	
Data collected, archived, and/or transferred to another agency				

Agency Name	Fairfax Connector Bus System		FASTRAN	
	1999	**2005**	**1999**	**2005**
Collected by your agency	Route designations (snow emergency, etc), Vehicle monitoring status, Passenger count, Vehicle time and location	NR	Incidents, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	Incidents, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location
Archived by your agency	Route designations (snow emergency, etc), Vehicle monitoring status, Passenger count, Vehicle time and location	NR	Incidents, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	Incidents, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location
Transferred to another agency by your agency	NR	NR	NR	NR
Importance of making information available to the public				
Ranked High	Route designations (snow emergency, etc)		NR	
Ranked Medium	NR		NR	
Ranked Low	Vehicle monitoring status, Passenger count, Vehicle time and location		NR	
Groups that make requests for the data	Consultants, MPOs, Federal DOT personnel, State DOT personnel		Personal Injury Lawyers-Every Two Years	
What is the data used for?	Dissemination to the public, Planning		Lawsuits	

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NR: No Response

Agency Name	Frederick County Transit		Montgomery County - Ride On	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Methods used to disseminate transit information to the public				
Technologies your agency uses to disseminate:				
Transit routes, schedules and fares	NR	NR	Kiosks, Internet Web Sites	NR
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	Monitors/VMS (not in vehicle), Audible Enunciators, Variable Message Signs (in vehicle), Kiosks, Internet Web Sites
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	NR	NR	NR	NR
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	NR		www.dpwt.com/rideon	
Telephone system for reporting transit information to the public	NR		240-777-7433	
Organizations your agency sends information for dissemination to the public	NR		Partners in Motion WMATA	
Data collected, archived, and/or transferred to another agency				

Agency Name	Frederick County Transit		Montgomery County - Ride On	
	1999	**2005**	**1999**	**2005**
Collected by your agency	NR	NR	Incidents, Road conditions, Passenger information (e.g., surveys, O/D), Vehicle time and location	Highway operations coordination information, Scheduled roadway work zones for transit, Current roadway work zones for transit, Passenger count
Archived by your agency	NR	NR	Incidents, Road conditions	Scheduled roadway work z
Transferred to another agency by your agency	NR	NR	Road conditions	Highway operations coordi
Importance of making information available to the public				
Ranked High	NR		Highway operations coordination information, Scheduled roadway work zones for transit, Current roadway work zones for transit, Incidents, Road conditions, Vehicle time and location	
Ranked Medium	NR		Passenger information (e.g., surveys, O/D)	
Ranked Low	NR		Passenger count	
Groups that make requests for the data	NR		Advanced Traveler Information Systems (ATIS) providers, Consultants, Media (I.e., TV stations, radio stations), Federal DOT personnel, State DOT personnel, Universities	
What is the data used for?	NR		Dissemination to the public, Planning	

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NR: No Response

Agency Name	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Methods used to disseminate transit information to the public				
Technologies your agency uses to disseminate:				
Transit routes, schedules and fares	Variable Message Signs as platforms, Facsimile, Internet Web Sites, Telephone System	Variable Message Signs as platforms, Facsimile, Variable Message Signs (in vehicle), Internet Web Sites, Telephone System	NR	NR
Real-time transit schedule adherence or arrival and departure times	Pagers or personal data assistants, Telephone System	Pagers or personal data assistants, Internet Web Sites, Telephone System	NR	NR
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	Telephone System	Telephone System	NR	NR
Real-time transit schedule adherence or arrival and departure times	Telephone System	Telephone System	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	www.vre.org		NR	
Telephone system for reporting transit information to the public	1-800-RIDE-VRE		NR	
Organizations your agency sends information for dissemination to the public	Smartraveler Channel 7 Channel 9 Metro Traffic Shadow Broadcast News		NR	
Data collected, archived, and/or transferred to another agency				

Agency Name	Northern Virginia Transportation Commission (NVTC)		Potomac and Rappahannock Transportation Commission	
	1999	**2005**	**1999**	**2005**
Collected by your agency	Transit operations coordination information, Incidents, Passenger information (e.g., surveys, O/D), Vehicle time and location	NR	Passenger information (e.g., surveys, O/D)	Passenger count, Trip itinerary planning records, Vehicle time and location
Archived by your agency	NR	NR	NR	Passenger count, Trip itinerary planning records, Vehicle time and location
Transferred to another agency by your agency	NR	NR	NR	NR
Importance of making information available to the public				
Ranked High	NR		vehicle signal preemption, Vehicle time and location, Route designations (snow emergency, etc), Transit operations coordination information, Current roadway work zones for transit, Incidents, Scheduled roadway	
Ranked Medium	NR		Passenger count, Trip itinerary planning records, Passenger information (e.g., surveys, O/D), Intermodal (air, rail, water) conditions, Highway operations coordination information	
Ranked Low	NR		Vehicle monitoring status	
Groups that make requests for the data				
	NR		Consultants, MPOs, Media (I.e., TV stations, radio stations), Federal DOT personnel, State DOT personnel, Universities	
What is the data used for?				
	Subsidy Payment Calculations, Dissemination to the public		Report and Seminar development, Planning, Construction impact determination, Traffic analysis	

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NR: No Response

Agency Name	Washington Metropolitan Area Transit Authority	
	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	IUR, E-mail or other direct PC communication, Internet Web Sites, Telephone System	Monitors/VMS (not in vehicle), Interactive TV, Dedicated cable TV
Real-time transit schedule adherence or arrival and departure times	NR	Monitors/VMS (not in vehicle), Interactive TV, Dedicated cable TV
Technologies employed by other organization receiving your data		
Transit routes, schedules and fares	NR	NR
Real-time transit schedule adherence or arrival and departure times	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	www.wmata.com	
Telephone system for reporting transit information to the public	202-637-7000	
Organizations your agency sends information for dissemination to the public	Partners in Motion/Smartraveler	
Data collected, archived, and/or transferred to another agency		

Agency Name	Washington Metropolitan Area Transit Authority	
	1999	**2005**
Collected by your agency	Passenger information (e.g., surveys, O/D), Trip itinerary planning records, Vehicle time and location-Rail ONLY, Transit operations coordination information, Incidents	Passenger count, Vehicle time and location-Rail ONLY, Vehicle Time and location-BUS, Transit vehicle signal priority, Vehicle monitoring status
Archived by your agency	Passenger information (e.g., surveys, O/D), Trip itinerary planning records, Transit operations coordination information, Incidents, Weather conditions	Passenger count, Vehicle time and location-Rail ONLY, Vehicle Time and location-BUS, Transit vehicle signal priority, Vehicle monitoring status
Transferred to another agency by your agency	Passenger information (e.g., surveys, O/D), Transit operations coordination information, Incidents	Transit vehicle signal priority
Importance of making information available to the public		
Ranked High	Rail ONLY, Vehicle Time and location-BUS, Transit operations coordination information, Incidents	
Ranked Medium	Passenger information (e.g., surveys, O/D)	
Ranked Low	Trip itinerary planning records, Passenger count, Vehicle monitoring status	
Groups that make requests for the data	Consultants, Advanced Traveler Information Systems (ATIS) providers, MPOs, Media (I.e., TV stations, radio stations), Federal DOT personnel, State DOT personnel, Universities	
What is the data used for?	Dissemination to the public, Accident prediction models, Incident detection algorithm development, Planning, Traffic analysis	

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NR: No Response

Appendix L
Emergency Management

Agency Name	Total Vehicles		Navigation Capabilities		AVL		CAD		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			
Alexandria City Emergency Medical Services	7	7	0	0	0	7	7	7	0	7	0	0	Yes	Yes	Virginia State Police, Virginia Department of Transportation, Alexandria City Police Department
Alexandria City Emergency Medical Services (Other)	27	28	0	28	0	28	27	28	0	28	0	0	Yes	No	None listed
Alexandria City Fire Department	22	23	0	23	0	23	0	23	0	23	0	0	Yes	No	None listed
Alexandria City Police Department	188	NR	2	NR	2	NR	112	NR	112	NR	0	NR	Yes	No	None listed
Arlington County Fire & EMS Department	44	44	0	NR	0	NR	44	44	0	NR	0	NR	Yes	Yes	None listed
Arlington County Fire & EMS Department (EMS)	10	11	0	NR	0	NR	10	11	0	NR	0	NR	Yes	Yes	None listed
Arlington County Police Department	238	250	0	140	0	140	238	250	80	140	0	0	Yes	No	None listed
DC Fire Department (EMS)	54	60	0	60	0	60	0	60	0	60	5	NR	Yes	No	None listed
DC Fire Department (Fire)	91	91	0	91	0	91	0	91	0	91	0	NR	Yes	No	None listed
DC Metropolitan Police Department	525	550	0	0	0	0	467	490	175	225	0	0	No	No	None listed
Fairfax County Fire & Rescue Department (EMS)	70	75	0	0	0	75	70	75	70	75	0	0	Yes	Yes	Virginia State Police
Fairfax County Fire & Rescue Department (Fire)	151	160	0	0	0	160	151	160	151	160	35	NR	Yes	Yes	Virginia State Police
Fairfax County Fire & Rescue Department (Other)	33	40	0	0	0	40	33	40	12	40	2	NR	Yes	Yes	Virginia State Police
Montgomery County Police Department	NR	1,000	0	500	0	500	100	800	900	900	0	NR	Yes	No	None listed
Prince George County Sheriff Department	210	NR	0	NR	NR	NR	0	NR	NR	NR	0	NR	No	No	None listed
Virginia State Police	137	160	0	0	0	0	137	160	0	0	0	0	Yes	Yes	Virginia Department of Transportation

Appendix M
Electronic Toll Collection

Electronic Toll Collection
Agencies for Metropolitan Area: Washington

	Dulles Greenway		Virginia Department of Transportation Dulles Toll Road		Totals	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes		2	
Number of toll Collection Plazas operated	11	0	19	20	30	20
Number of toll collection plazas with dedicated ETC	9	0	19	20	28	20
Number of toll collection plazas with both manual and ETC	11	0	19	20	30	20
Number of toll collection lanes operated	28	0	57	59	85	59
Number of toll collection lanes with dedicated ETC	12	0	6	14	18	14
Number of toll collection lanes with both manual and ETC	16	0	56	59	72	59
Number of toll collection tags issued	170,000	0	110,000	200,000	280,000	200,000
Antennae Location Technologies						
In-Pavement?	No		No		0	
Focused Beam?	No		Yes		1	
Distributed Overhead?	Yes		No		1	
In-Vehicle Equipment Technologies						
Tag-based?	Yes		Yes		2	
Integrated circuit card-based?	No		No		0	
Are toll tags used by other toll operations in metro area?	Yes		Yes		2	
List of toll operators that use tags	Virginia Department of Transportation Dulles Toll , Coleman Bridge Facility-VDOT-Gloucester Point, VA, Powhite Parkway Facility-VDOT-Richmond, VA		Dulles Greenway			
Are toll tags used by operators of public transit to pay transit fares						
in metro area?	No		No		0	
List of transit operators that use tags	None		None			
_____						
NR: No Response						