Tracking the Deployment of the Integrated Metropolitan ITS Infrastructure in San Francisco, Oakland, San Jose

FY99 Results

For additional information, please contact:

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Table of Contents

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

[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 San Francisco, Oakland, San Jose 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 San Francisco, Oakland, San Jose region was 83% in 1997 and 80% 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 San Francisco, Oakland, San Jose and the same indicators at the national level. These are judged to be the single best representative of a component and are being used as summary indicator for component. The summary indicators are expressed as a percentage; however, because deployment goals have yet to be established, these indicators should not be read as a comparison of what is deployed versus eventual deployment goals. Instead, they only reflect what is deployed compared to full market saturation (i.e., opportunity for deployment).

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

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

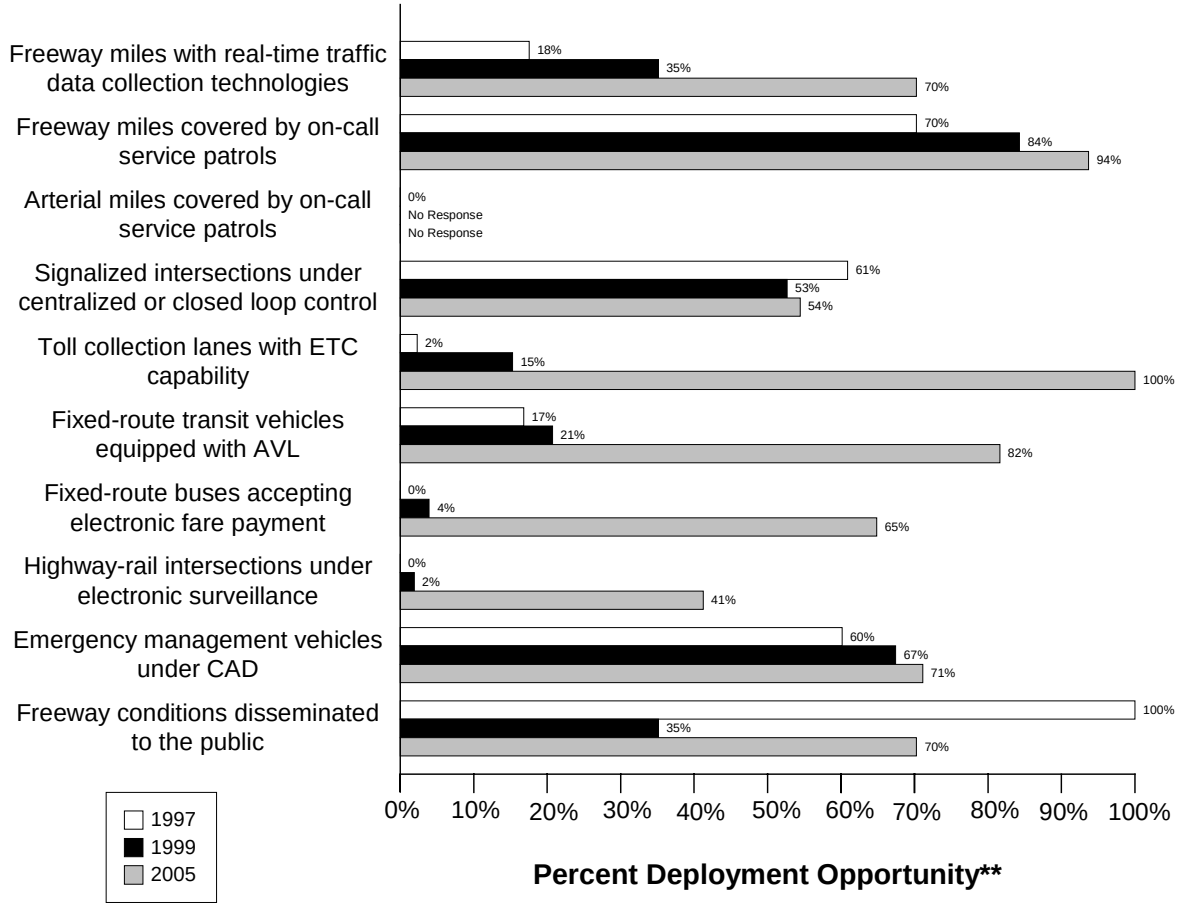
As with the component indicators, definitions for inter- and intra-component integration were developed for each component, and indicators, derived from these definitions, were produced for each component. A total of 34 individual integration indicators was specified and is portrayed in the third figure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

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

Data as of 5/1/00

San Francisco, Oakland, San Jose

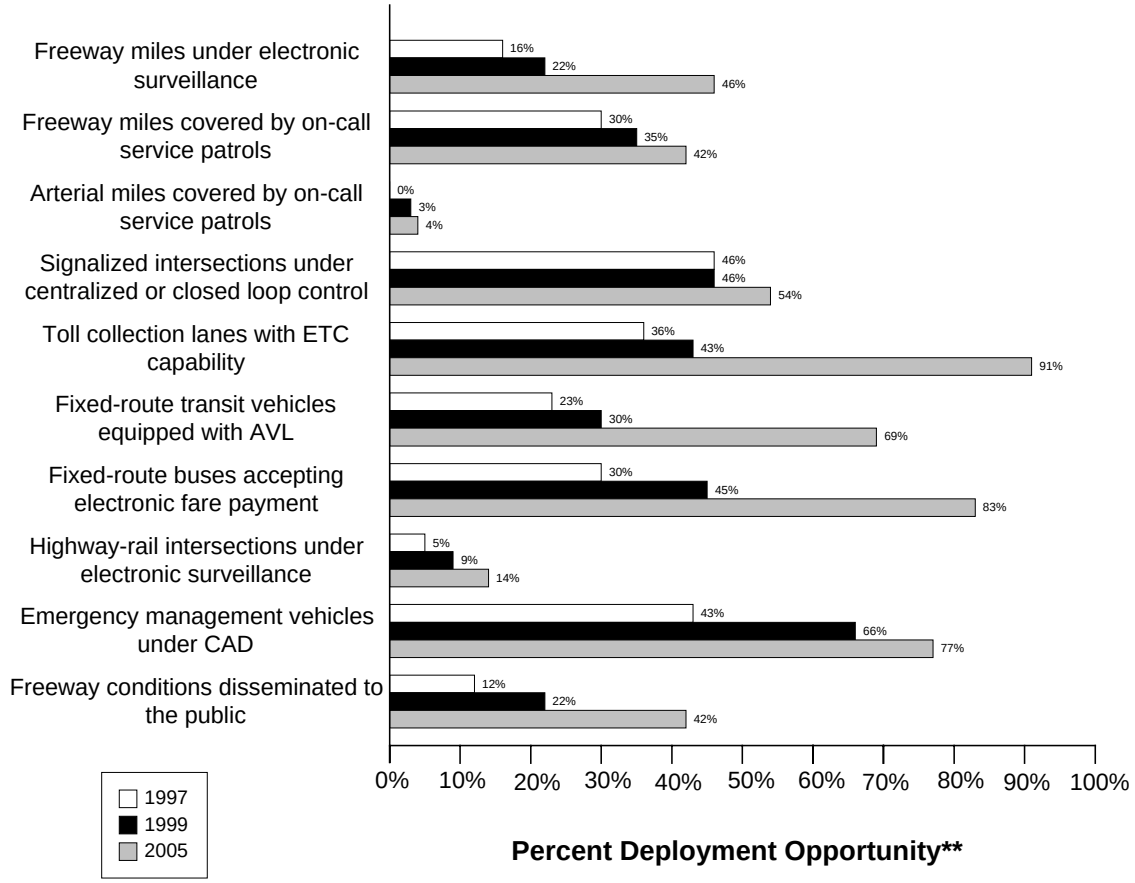
Summary Indicators*



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

Data as of 5/1/00

National
Summary Indicators*



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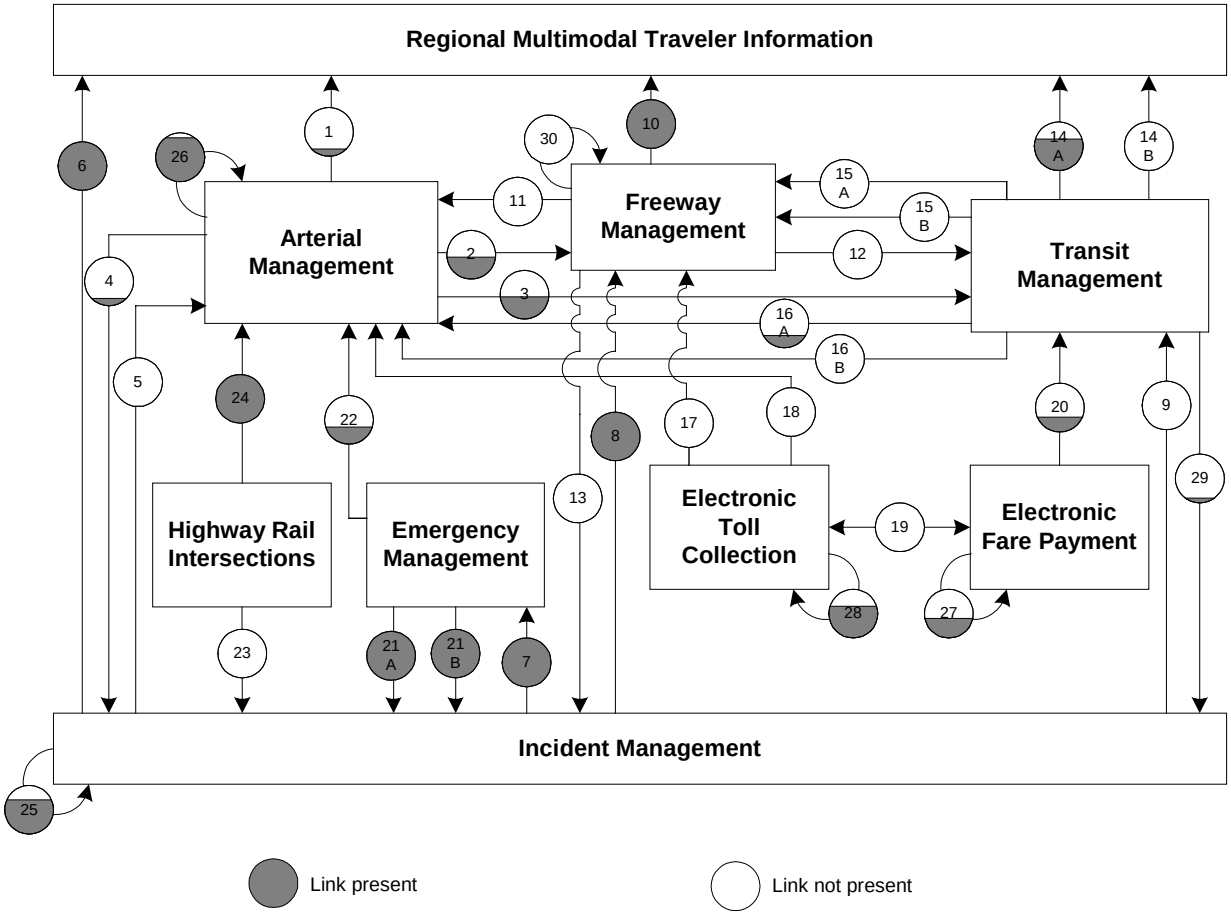
San Francisco, Oakland, San Jose Integration Links



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

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

Link	Description	Link	Description
13	Freeway Management to Incident Management	14a 14b	Transit Management to Regional Multimodal Traveler Information (static route information) Transit Management to Regional Multimodal Traveler Information (schedule adherence information)
15a 15b	Transit Management to Freeway Management Transit Management to Freeway Management (transit vehicle probes)	16a 16b	Transit Management to Arterial Management 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 21b	Emergency Management to Incident Management (incident notification) Emergency Management to Incident Management (incident clearance)	22	Emergency Management to Arterial Management
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 San Francisco, Oakland, San Jose metropolitan area. The figures summarizing the component indicators consist of a bar chart portraying the deployment levels for 1997, 1999, and 2005 accompanied by detailed tables of the data used to calculate each component indicator value (*Num* stands for numerator and *Den* stands for denominator; blank space indicates that no response was received.)

Example: Calculating Component Indicators for Freeway Management

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

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

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

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

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

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

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

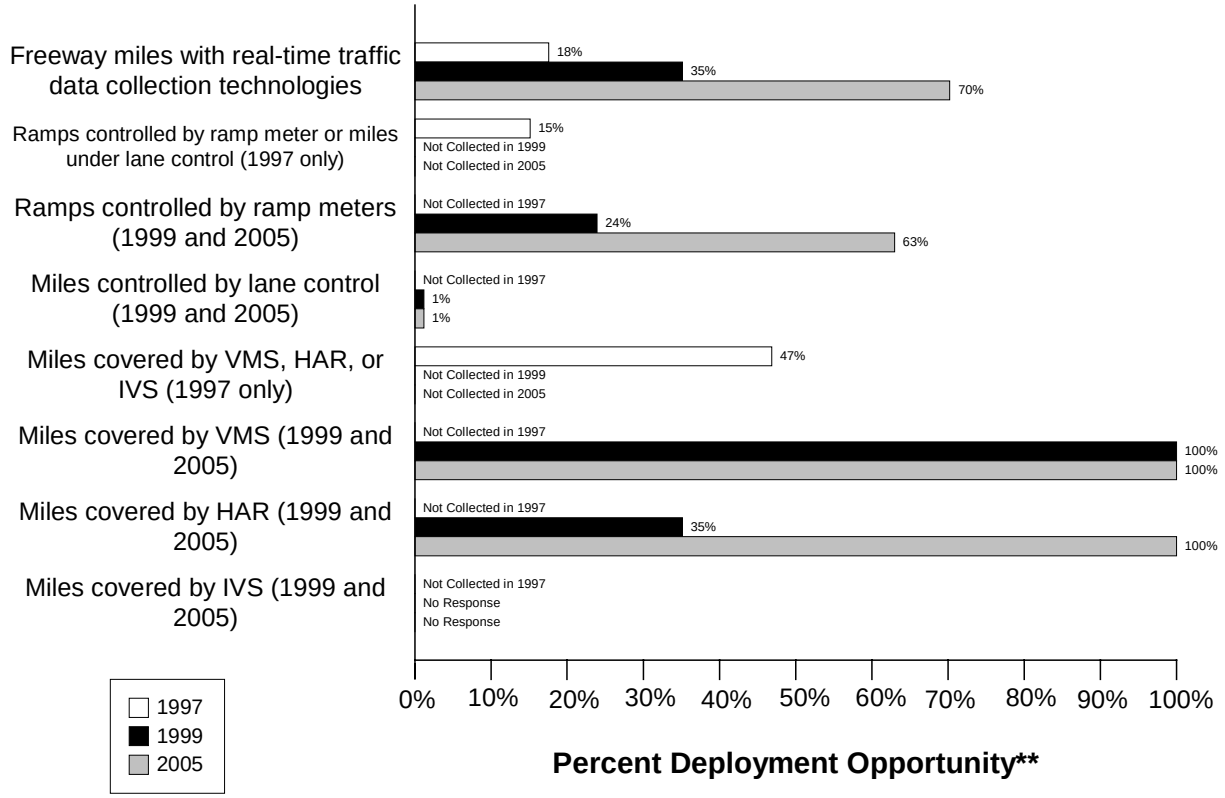
Consider a metropolitan area with three arterial management agencies. One out of three provides information to the public using a Regional Multimodal Traveler Information Media (e.g., internet, kiosk, pager, etc...). The integration indicator is 1/3 or 33%.

Freeway Management Component Indicators

Data as of 5/1/00

San Francisco, Oakland, San Jose

Freeway Management*



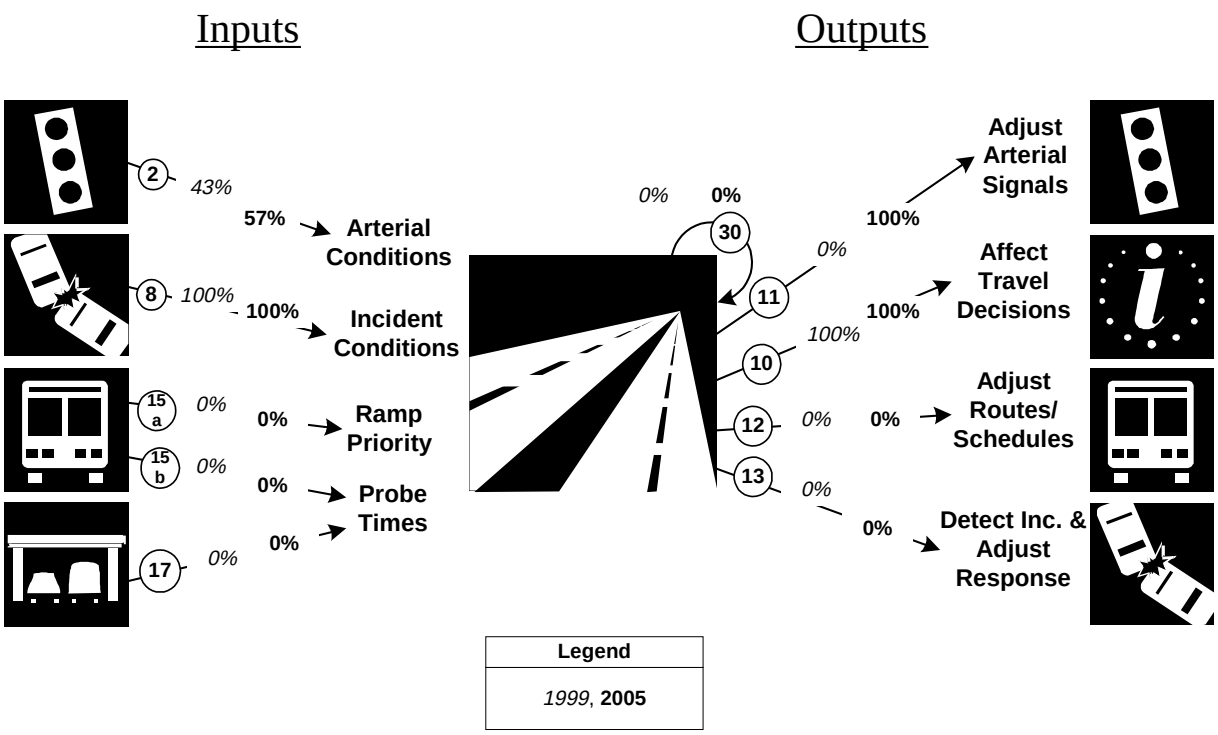
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Freeway centerline miles are under electronic surveillance for monitoring traffic flow	75	427	18%	150	427	35%	300	427	70%
Freeway entrance ramps are controlled by ramp meters or miles under lane control	120	794	15%						

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway entrance ramps are controlled by ramp meters				190	794	24%	500	794	63%
Freeway centerline miles will be controlled by lane control				5	427	1%	5	427	1%
Freeway miles are covered by VMS, HAR, or IVS	200	427	47%						
Freeway miles are covered by VMS				427	427	100%	427	427	100%
Freeway miles are covered by HAR				150	427	35%	427	427	100%
Freeway miles are covered by IVS					427			427	

Freeway Management Integration Indicators

San Francisco, Oakland, San Jose
Freeway Management Integration*



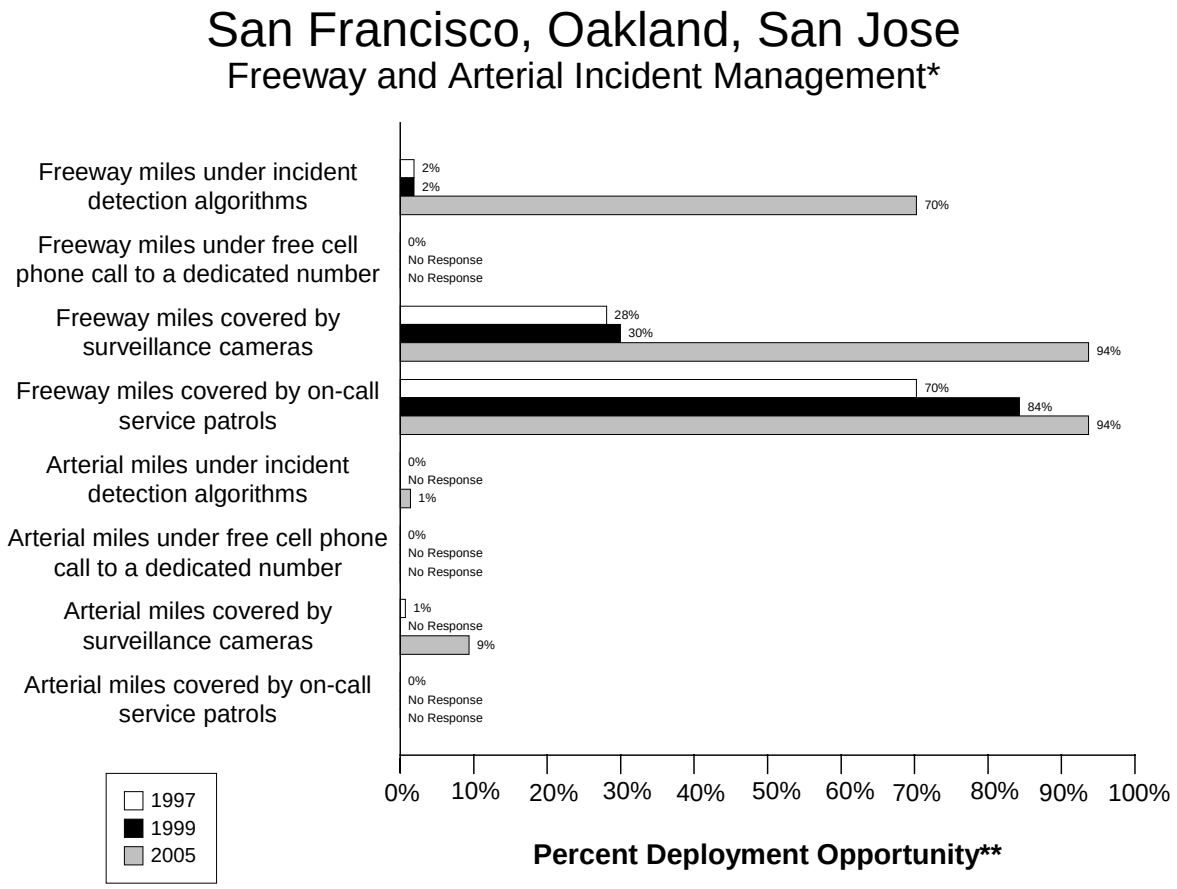
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
2. Arterial Management agencies sending information to Freeway Management	(3/ 7) 43%	(4/ 7) 57%
8. Incident Management agencies sending information to Freeway Management	(1/ 1) 100%	(1/ 1) 100%
15a. Transit management agencies with vehicles equipped with ramp meter priority	(0/ 14) 0%	(0/ 14) 0%
15b. Transit Management agencies with vehicles equipped as probes	(0/ 14) 0%	(0/ 14) 0%
17. Freeway Management agencies receiving freeway conditions from vehicle probes	(0/ 1) 0%	(0/ 1) 0%
30. Freeway Management agencies sending information to another Freeway Management agency	(0/ 1) 0%	(0/ 1) 0%
11. Freeway Management agencies sending information to Arterial Management	(0/ 1) 0%	(1/ 1) 100%

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

Incident Management Component Indicators

Data as of 5/1/00



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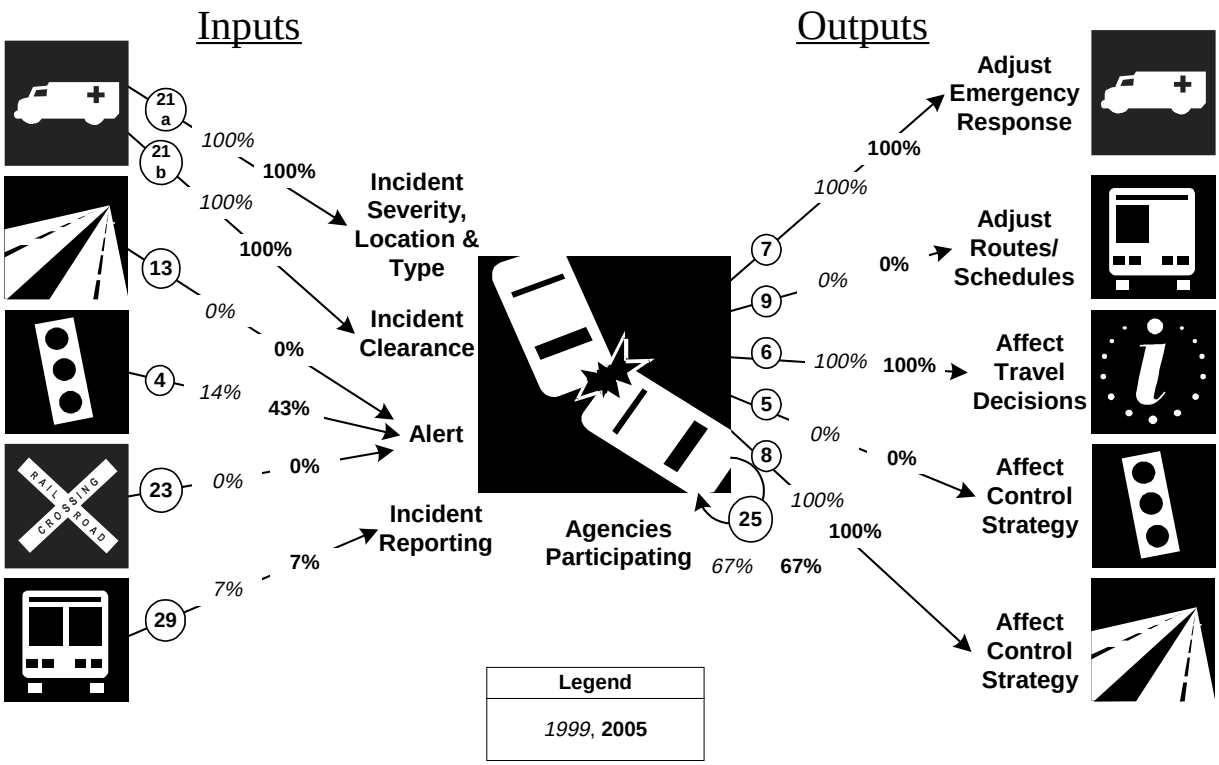
	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by incident detection algorithms	8	427	2%	8	427	2%	300	427	70%
Freeway miles are covered by free cellular phone calls to a dedicated number	0	427	0%		427			427	
Freeway miles are covered by surveillance cameras.	120	427	28%	128	427	30%	400	427	94%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by on-call publicly-sponsored service patrol or towing services.	300	427	70%	360	427	84%	400	427	94%
Arterial miles are covered by incident detection algorithms	0	2507	0%		2507		35	2507	1%
Arterial miles are covered by free cellular phone calls to a dedicated number	0	2507	0%		2507			2507	
Arterial miles are covered by surveillance cameras	18	2507	1%		2507		235	2507	9%
Arterial miles are covered by on-call publicly-sponsored service patrol or towing services	0	2507	0%		2507			2507	

Incident Management Integration Indicators

San Francisco, Oakland, San Jose

Incident Management Integration*



* 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	(1/ 1) 100%	(1/ 1) 100%
21b. Incident management agencies receiving incident clearance activities from Emergency Management	(1/ 1) 100%	(1/ 1) 100%
13. Freeway Management agencies sending freeway conditions to Incident Management	(0/ 1) 0%	(0/ 1) 0%
4. Arterial Management agencies sending arterial conditions to Incident Management	(1/ 7) 14%	(3/ 7) 43%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(0/ 7) 0%	(0/ 7) 0%
29. Transit Management agencies report traffic incidents as part of an organized regional incident management program	(1/ 14) 7%	(1/ 14) 7%

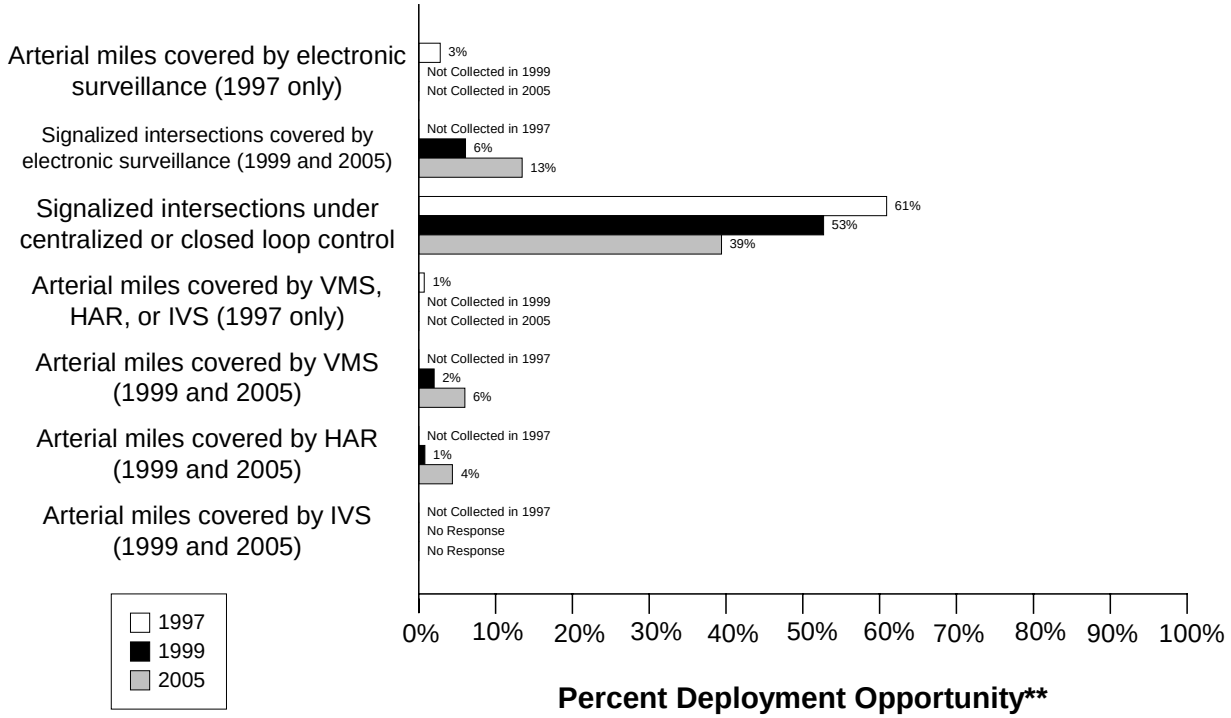
Link Description	1999	2005
7. Incident management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	(1/ 1) 100%	(1/ 1) 100%
9. Incident Management agencies transfer information describing incident severity, location, and type to Transit Management agencies	(0/ 1) 0%	(0/ 1) 0%
6. Incident Management agencies disseminate information describing incident severity, location, and type to the public	(1/ 1) 100%	(1/ 1) 100%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management agencies	(0/ 1) 0%	(0/ 1) 0%
8. Incident Management agencies transfer information describing incident severity, location, and type to Freeway Management agencies	(1/ 1) 100%	(1/ 1) 100%
25. Police, fire, and EMS agencies participating in a formal incident management plan/team	(6/ 9) 67%	(6/ 9) 67%

Arterial Management Component Indicators

Data as of 5/1/00

San Francisco, Oakland, San Jose

Arterial Management*



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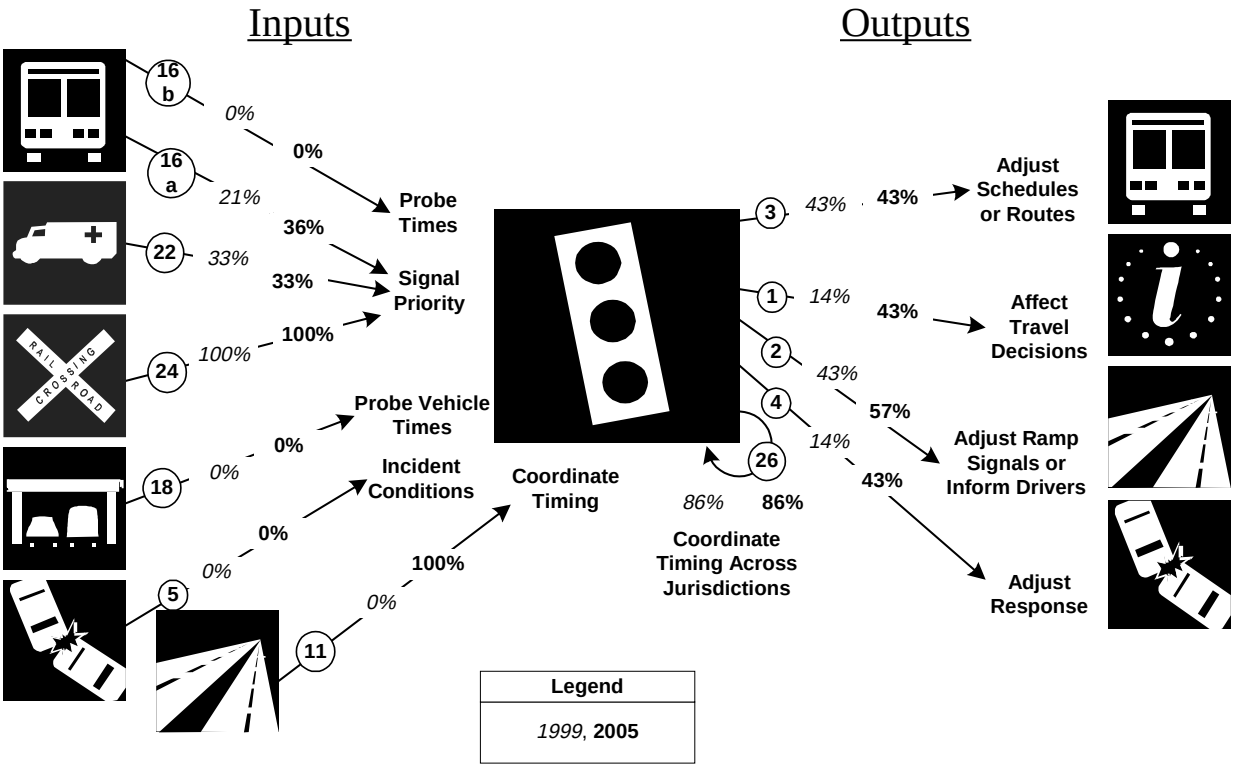
	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles covered by electronic surveillance	70	2507	3%						
Signalized intersections are covered by electronic surveillance for monitoring traffic flow				223	3668	6%	376	2791	13%
Signalized intersections are under centralized or closed loop control	1752	2877	61%	1932	3668	53%	1099	2791	39%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles are covered by VMS, HAR, or IVS	18	2507	1%						
Arterial miles are covered by VMS				50	2507	2%	150	2507	6%
Arterial miles are covered by HAR				20	2507	1%	110	2507	4%
Arterial miles are covered by IVS					2507			2507	

Arterial Management Integration Indicators

San Francisco, Oakland, San Jose
Arterial Management Integration*



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

Link Description	1999	2005
16a. Transit management agencies with vehicles equipped with traffic signal priority	(3/ 14) 21%	(5/ 14) 36%
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0/ 14) 0%	(0/ 14) 0%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(3/ 9) 33%	(3/ 9) 33%
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	(7/ 7) 100%	(7/ 7) 100%
18. Number of Arterial Management agencies receiving information from vehicle probes	(0/ 7) 0%	(0/ 7) 0%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management	(0/ 1) 0%	(0/ 1) 0%
11. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Arterial Management agencies	(0/ 1) 0%	(1/ 1) 100%

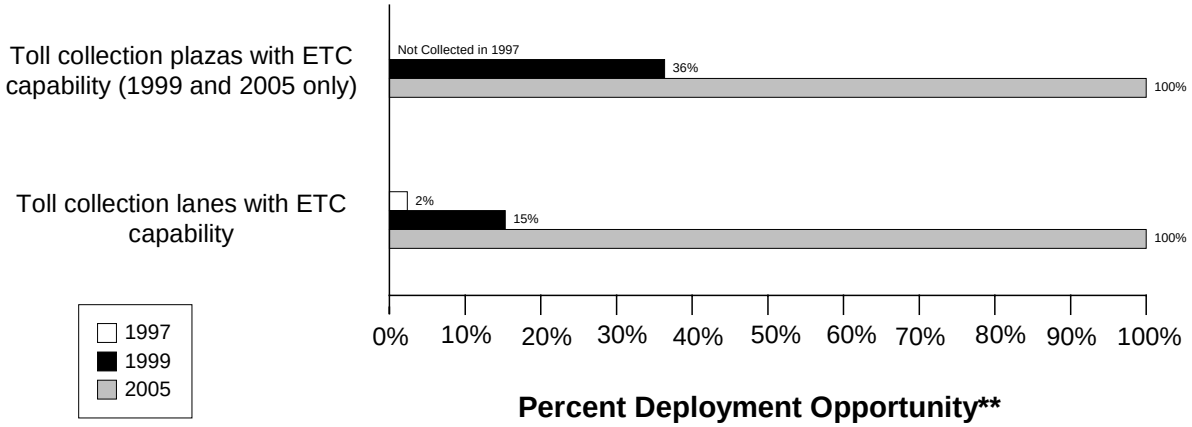
Link Description	1999	2005
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(3/ 7) 43%	(3/ 7) 43%
1. Arterial Management agencies disseminate arterial travel times, speeds, and conditions to the public	(1/ 7) 14%	(3/ 7) 43%
2. Arterial Management agencies send traffic condition information to Freeway Management	(3/ 7) 43%	(4/ 7) 57%
4. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Incident Management	(1/ 7) 14%	(3/ 7) 43%
26. Arterial Management agencies under cooperative agreement to share traffic signal timing for coordinated response	(6/ 7) 86%	(6/ 7) 86%

Electronic Toll Collection Component Indicators

Data as of 5/1/00

San Francisco, Oakland, San Jose

Electronic Toll Collection*



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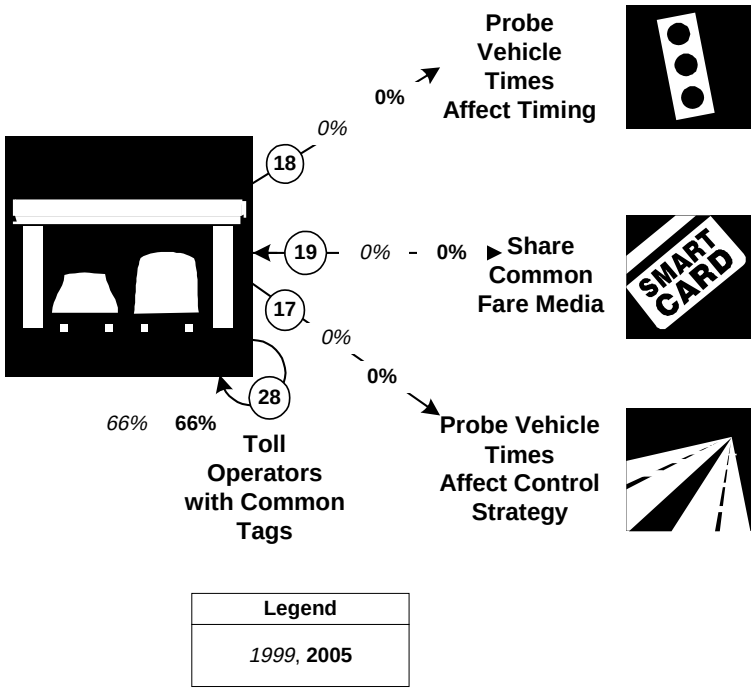
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Toll collection plazas with ETC capability				4	11	36%	11	11	100%
Toll collection lanes with ETC capability	2	86	2%	15	98	15%	98	98	100%

Electronic Toll Collection Integration Indicators

San Francisco, Oakland, San Jose
Electronic Toll Collection Integration*



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

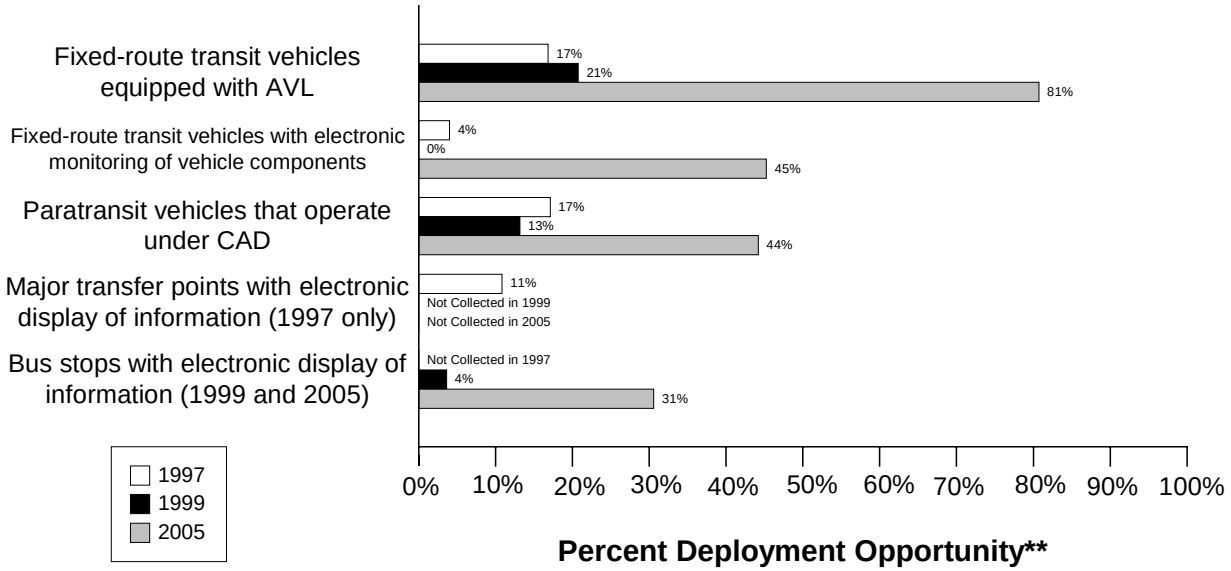
Link Description	1999	2005
18. Number of Arterial Management agencies receiving information from vehicle probes	(0/ 7) 0%	(0/ 7) 0%
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	(0/ 14) 0%	(0/ 14) 0%
17. Freeway Management agencies receiving information from vehicle probes	(0/ 1) 0%	(0/ 1) 0%
28. Toll operators using common toll tag technology	(2/ 3) 66%	(2/ 3) 66%

Transit Management Component Indicators

Data as of 5/1/00

San Francisco, Oakland, San Jose

Transit Management*



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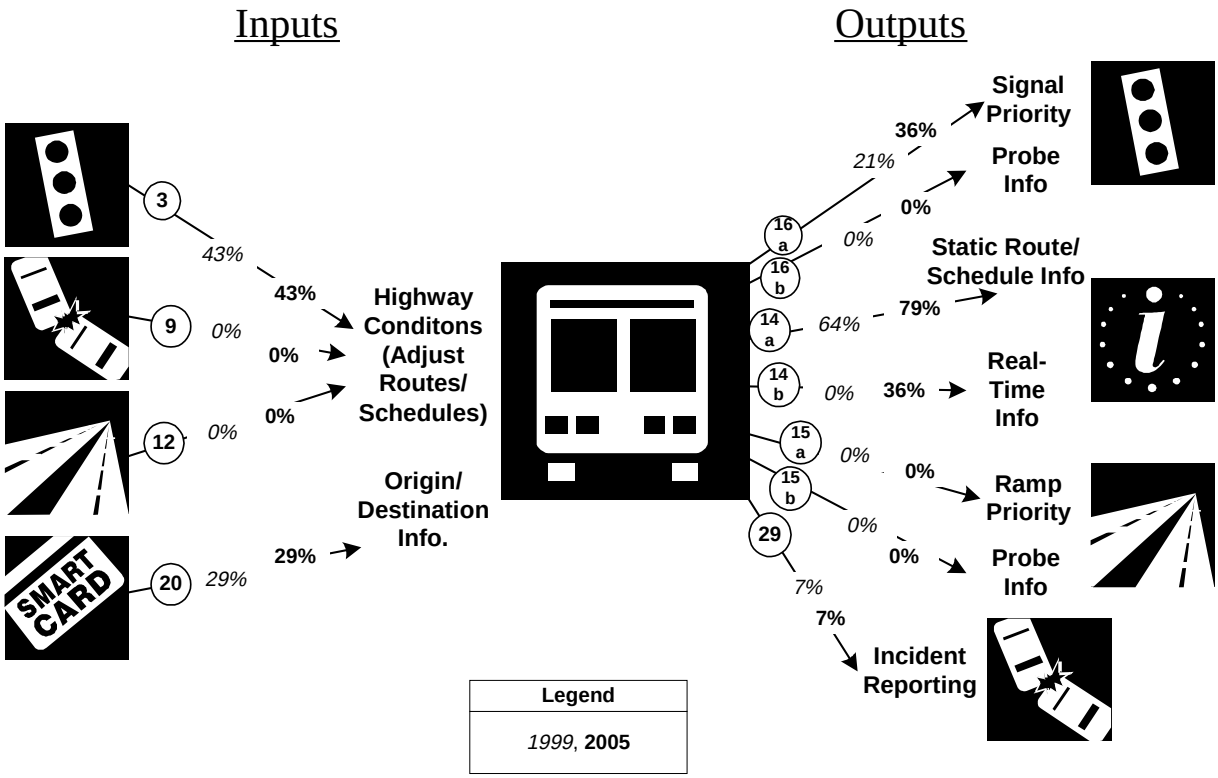
	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles are equipped with AVL	503	2992	17%	416	2005	21%	1511	1872	81%
Fixed-route transit vehicles are equipped with electronic monitoring of vehicle component	112	2787	4%	0	2005	0%	847	1872	45%
Paratransit vehicles operate under computer-aided dispatch	61	356	17%	32	243	13%	99	224	44%
Percent fixed-route transfer locations with electronic display of information	10	92	11%						
Bus stops display information to the public				716	19660	4%	1675	5475	31%

Transit Management Integration Indicators

San Francisco, Oakland, San Jose
Transit Management Integration*



* 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	(3/ 7) 43%	(3/ 7) 43%
9. Incident management agencies transfer information describing incident severity, location, and type to Transit Management	(0/ 1) 0%	(0/ 1) 0%
12. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Transit Management	(0/ 1) 0%	(0/ 1) 0%
20. Transit Management agencies using Electronic Fare Payment data in transit service planning	(4/ 14) 29%	(4/ 14) 29%
16a. Transit Management agencies have vehicles equipped with traffic signal priority capability	(3/ 14) 21%	(5/ 14) 36%
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0/ 14) 0%	(0/ 14) 0%
14a. Transit Management agencies disseminate information describing transit routes, schedules, and fares to travelers	(9/ 14) 64%	(11/ 14) 79%

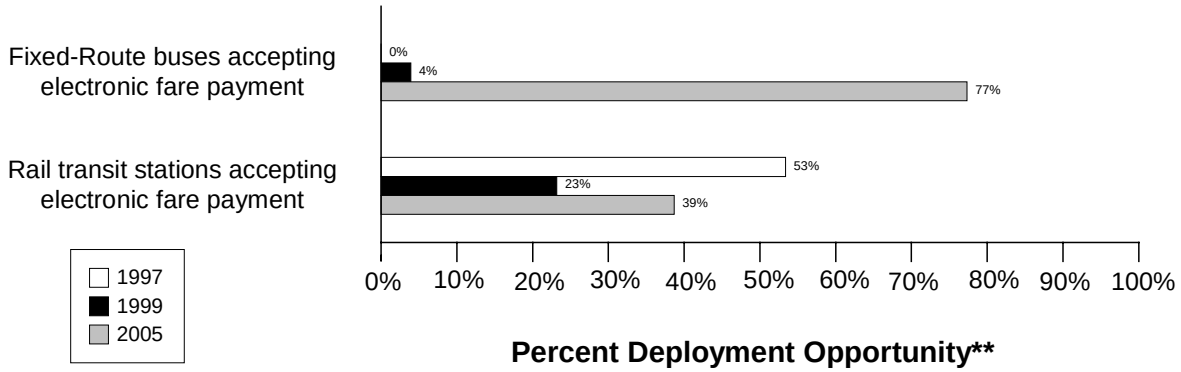
Link Description	1999	2005
14b. Transit Management agencies disseminate information describing schedule/route adherence to travelers	(0/ 14) 0%	(5/ 14) 36%
15a. Transit Management agencies have vehicles equipped with ramp meter priority capability	(0/ 14) 0%	(0/ 14) 0%
15b. Transit Management agencies have vehicles equipped as probes on freeways	(0/ 14) 0%	(0/ 14) 0%
29. Transit Management agencies that report traffic incidents as part of an organized regional Incident Management program	(1/ 14) 7%	(1/ 14) 7%

Electronic Fare Payment Component Indicators

Data as of 5/1/00

San Francisco, Oakland, San Jose

Electronic Fare Payment*



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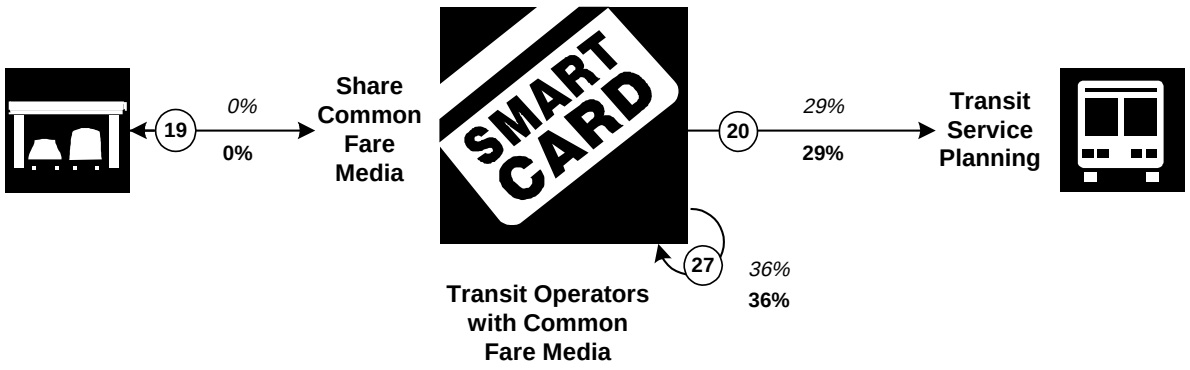
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles that accept electronic payment	0	2992	0%	79	2005	4%	1448	1872	77%
Rail transit stations that accept electronic payment	39	73	53%	39	168	23%	79	204	39%

Electronic Fare Payment Integration Indicators

San Francisco, Oakland, San Jose
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

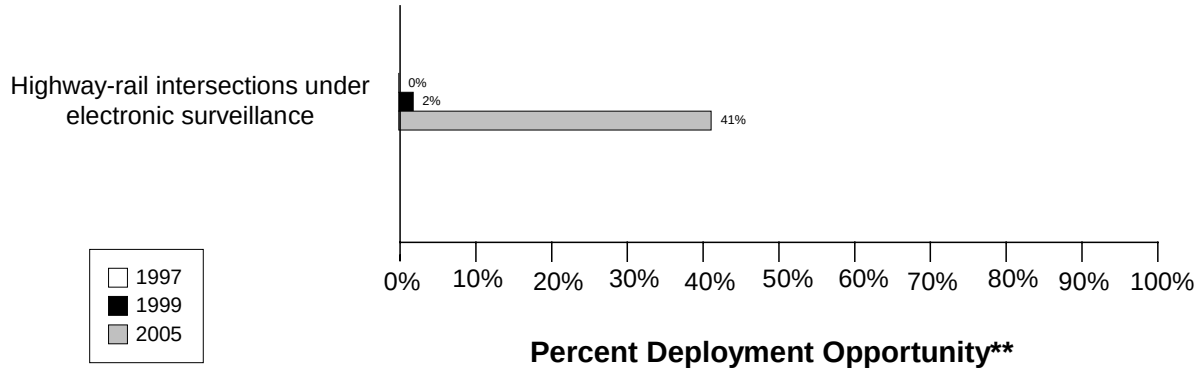
Link Description	**1999**	**2005**
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	(0/ 14) 0%	(0/ 14) 0%
20. Transit Management agencies use Electronic Fare Payment data in transit service planning	(4/ 14) 29%	(4/ 14) 29%
27. Transit Management agencies that use the same electronic payment system	(5/ 14) 36%	(5/ 14) 36%

Highway Rail Intersection Component Indicators

Data as of 5/1/00

San Francisco, Oakland, San Jose

Highway-Rail Intersections*



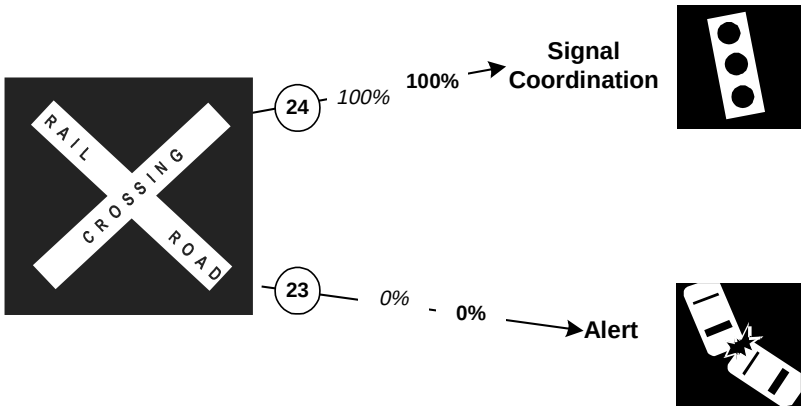
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Highway-rail intersections are under electronic surveillance	0	42	0%	8	422	2%	174	422	41%

Highway Rail Intersection Integration Indicators

San Francisco, Oakland, San Jose
Highway Rail Intersections Integration*

Inputs Outputs



Legend
1999, **2005**

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

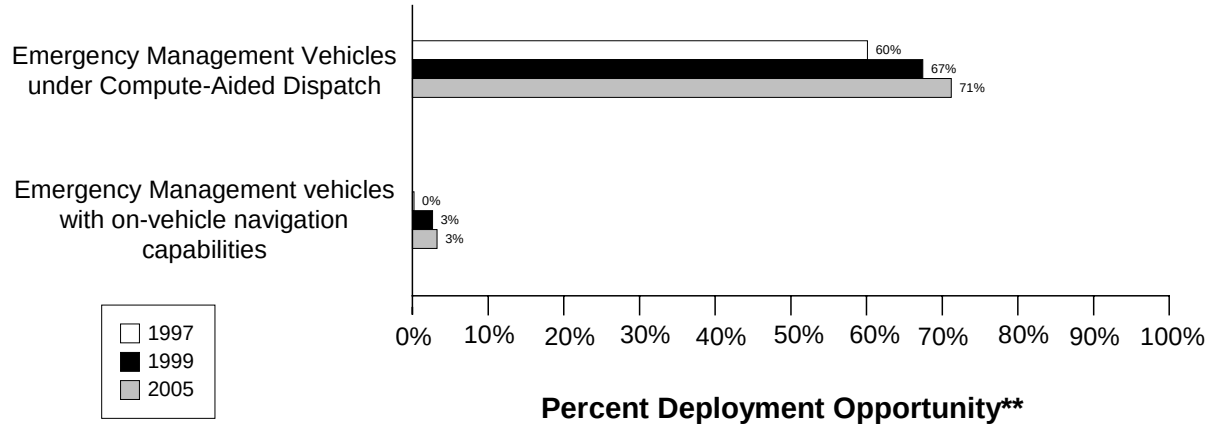
Link Description	**1999**	**2005**
24. Arterial Management agencies with traffic signals within 200 feet of a highway rail intersection with the capability of having their signal timing adjusted in response to a train crossing	(7/ 7) 100%	(7/ 7) 100%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(0/ 7) 0%	(0/ 7) 0%

Emergency Management Component Indicators

Data as of 5/1/00

San Francisco, Oakland, San Jose

Emergency Management*



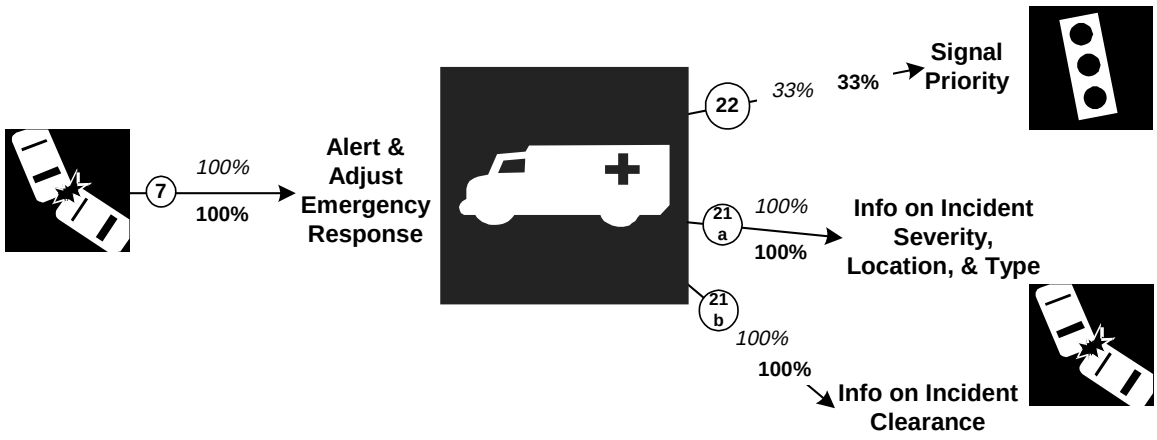
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Public sector emergency vehicles that operate under computer-aided dispatch	1149	1911	60%	1602	2376	67%	1737	2440	71%
Public sector emergency vehicles that have in-vehicle route guidance capability	4	1911	0%	63	2376	3%	79	2440	3%

Emergency Management Integration Indicators

San Francisco, Oakland, San Jose
Emergency Management Integration*

Inputs Outputs



Legend
1999, **2005**

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

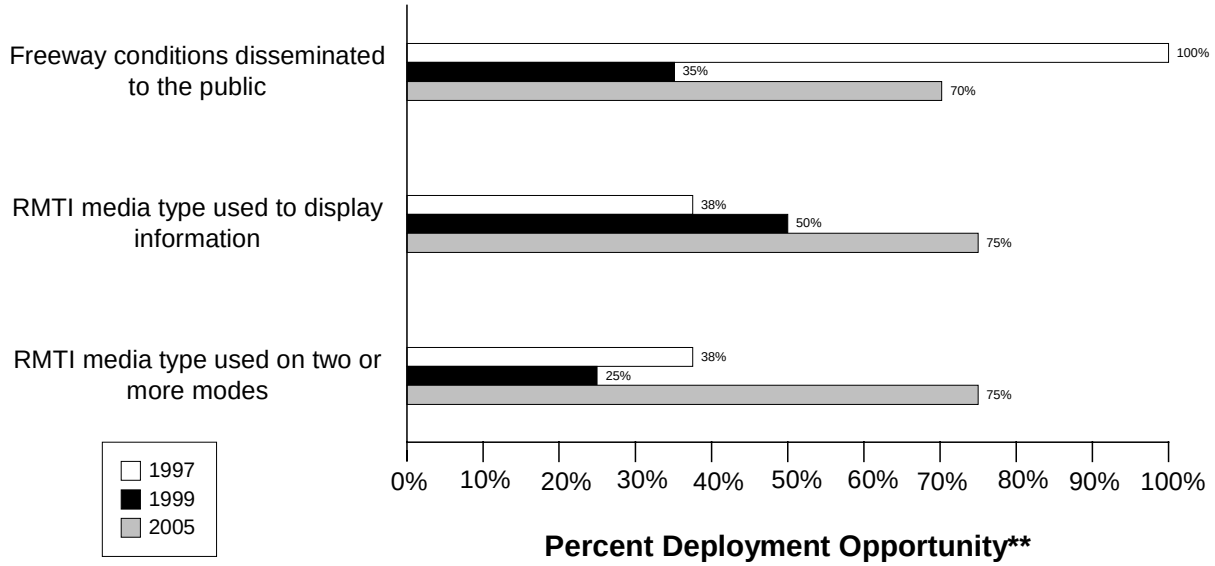
Link Description	**1999**	**2005**
7. Freeway Management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	(1/ 1) 100%	(1/ 1) 100%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(3/ 9) 33%	(3/ 9) 33%
21a. Freeway Management agencies receive incident severity, location, and type data from Emergency Management agencies	(1/ 1) 100%	(1/ 1) 100%
21b. Freeway Management agencies receive incident clearance activities information from Emergency Management agencies	(1/ 1) 100%	(1/ 1) 100%

Regional Multimodal Traveler Information Component Indicators

Data as of 5/1/00

San Francisco, Oakland, San Jose

Regional Multimodal Traveler Information*

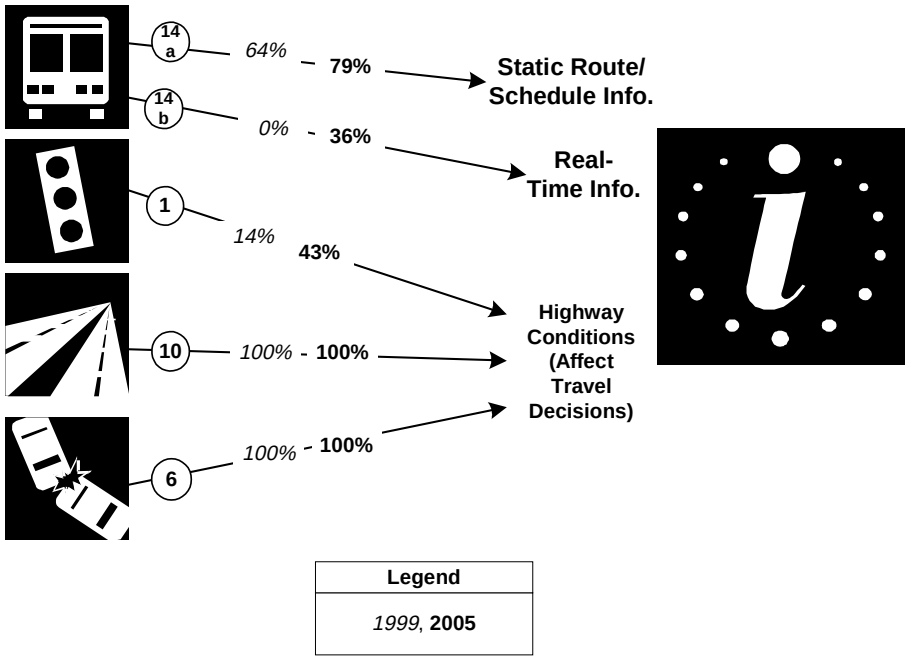


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Freeway conditions disseminated to travelers	427	427	100%	150	427	35%	300	427	70%
Possible RMTI media types are used to display information to travelers	3	8	38%	4	8	50%	6	8	75%
Possible RMTI media are used to display information on *two or more modes* to travelers	3	8	38%	2	8	25%	6	8	75%

Regional Multimodal Traveler Information Integration Indicators

San Francisco, Oakland, San Jose
Regional Multimodal Traveler Information Integration*

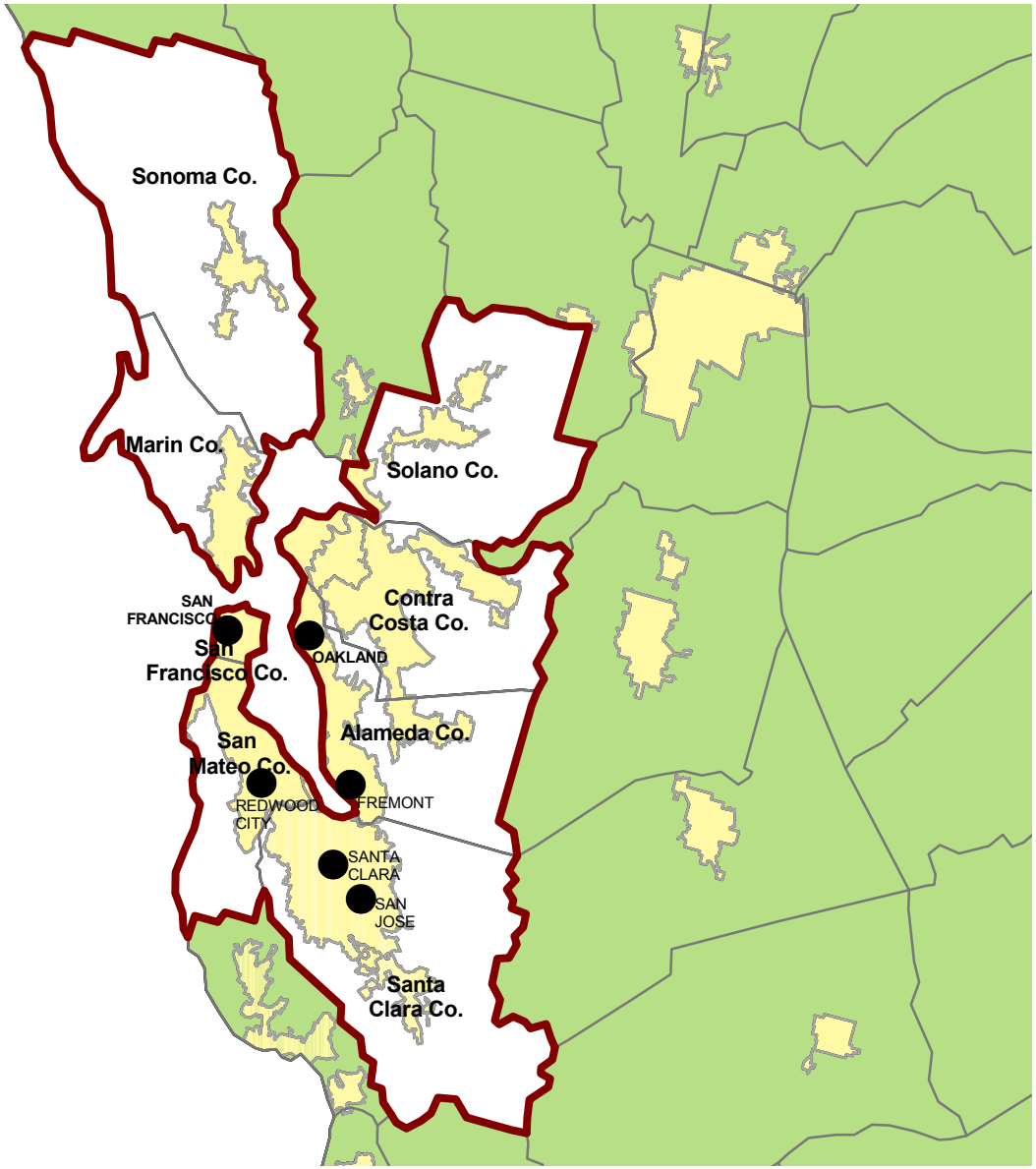


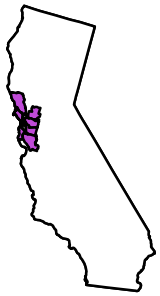
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
14a. Transit Management agencies that disseminate information describing transit routes, schedules, and fares to travelers	(9/ 14) 64%	(11/ 14) 79%
14b. Transit Management agencies that disseminate information describing schedule/route adherence to travelers	(0/ 14) 0%	(5/ 14) 36%
1. Arterial Management agencies that disseminate arterial travel times, speeds, and conditions to the public	(1/ 7) 14%	(3/ 7) 43%
10. Freeway Management agencies that disseminate freeway travel times, speeds, and conditions to travelers	(1/ 1) 100%	(1/ 1) 100%
6. Incident Management agencies that disseminate information describing incident severity, location, and type to the public	(1/ 1) 100%	(1/ 1) 100%

Appendix A
Survey Coverage Area

METROPOLITAN TRANSPORTATION COMMISSION, CA





City Included in Surveys

Metropolitan Planning Area Boundary

County Boundary

Urbanized Area

Outside Survey Area

Percentage on the Map Represents Percentage of County Population Included within MPO Boundary

Appendix B
Surveyed Agencies

Surveyed Agencies

Agency Name	Phone	Fax	1999		1997	
			Out	In	Out	In
SAN FRANCISCO, OAKLAND, SAN JOSE						
Arterial Management						
Oakland City	(510) 238-3466	(510) 238-7415	8/12/1999	10/11/1999	9/18/1997	
Santa Clara County	(408) 494-1336	408-	8/5/1999	10/18/1999	9/18/1997	9/30/1997
San Francisco City & County	(415) 554-2307	(415) 554-2352	8/5/1999	10/4/1999	9/18/1997	9/30/1997
Redwood City	(650) 780-7377	(650) 780-7309	8/5/1999	10/4/1999	9/18/1997	
Fremont City	(510) 494-4514	(510) 494-4645	8/5/1999	10/11/1999	2/1/1998	3/9/1998
Caltrans District 4	510-286-4802	(510) 286-4773	8/5/1999	10/13/1999	9/18/1997	6/30/1998
San Jose City	(408) 277-3070	(408) 277-3162	8/5/1999	8/23/1999	9/18/1997	10/15/1997
Electronic Toll Collection						
Caltrans Headquarters-9 Bridges	(916) 653-4552	(916) 653-3053	6/30/1999	7/28/1999	9/18/1997	9/18/1997
Golden Gate Bridge District	(415) 921-5858	(415) 923-2012	6/30/1999	7/7/1999	9/18/1997	9/19/1997
Caltrans Headquarters-Carquinez Bridge	(916) 653-4552	(916) 653-3053	6/30/1999	7/28/1999	9/18/1997	9/18/1997
Emergency Management						
Freeway Service Patrol-Caltrans District 4	510-286-4802	(510) 286-4773	6/26/1999	9/17/1999	9/18/1997	8/7/1998
Redwood City Fire Department	(650) 780-7400	(650) 780-7461	6/26/1999	7/26/1999	6/18/1998	6/18/1998
San Francisco City Police Department	415-553-1101	415-553-1104	6/29/1999	8/2/1999	8/17/1998	8/17/1998
San Jose City Police Department	(408) 277-3070	(408) 277-3162	6/26/1999	7/8/1999	9/18/1997	10/15/1997
San Jose City Fire Department	(408) 277-3070	(408) 277-3162	6/28/1999	7/8/1999	9/18/1997	10/15/1997
Oakland City Police Department	510-238-3365	510-238-2251	9/21/1999		9/18/1997	
Redwood City Police Department	(650) 780-7186	(650) 780-7149	6/26/1999	7/8/1999	6/18/1998	6/18/1998
California Highway Patrol	510-286-6916	510-286-6026	8/16/1999	8/25/1999		
Fremont City Fire Department	(510) 494-4851	510-494-4822	6/26/1999	6/29/1999	8/31/1998	8/31/1998
Fremont City Police Department	(510) 790-6681	510-790-6679	6/26/1999	7/6/1999	8/31/1998	8/31/1998
Freeway Management						
Caltrans District 4	510-286-4802	(510) 286-4773	8/5/1999	9/23/1999	9/18/1997	8/7/1998
MPO						
Metropolitan Transportation Commission	(510) 464-7760	(510) 464-7848	7/16/1999	9/14/1999		
Transit Management						
Monterey-Salinas Transit	(831) 899-2558	(831) 899-3954	8/11/1999	9/7/1999	7/18/1997	7/21/1997
Livermore/Amador Valley Transit	(925) 455-7555	(925) 443-1375	8/11/1999	8/24/1999	7/18/1997	7/22/1997
Napa County Transit	(707) 257-9520	707-257-9522	8/11/1999	1/10/2000	7/18/1997	7/18/1997
Fairfield City, Fairfield Transit System	(707) 428-7641	(707) 428-7607	8/11/1999	8/30/1999	7/18/1997	10/24/1997
Muni	(415) 759-4360	(415) 759-4375	8/11/1999		7/21/1997	8/12/1998

Agency Name	Phone	Fax	1999		1997	
			Out	In	Out	In
Bay Area Rapid Transit District	(510) 464-6140	(510) 287-4760	8/11/1999	10/10/1999	8/29/1997	9/16/1997
Alameda Ferry Services	(510) 749-5840	(510) 749-5867	8/11/1999		7/18/1997	
AC Transit	(510) 891-4801	(510) 891-7157	8/11/1999	10/19/1999	7/18/1997	11/6/1997
Central Contra Costa	(925) 676-1976	(925) 686-2630	8/11/1999		7/18/1997	7/22/1997
CalTrain	(650) 508-6420	(650) 508-6373	8/11/1999	9/7/1999		
Santa Rosa City	(707) 543-3335	(707) 543-3326	8/11/1999	8/30/1999	7/21/1997	7/28/1997
Santa Clara County Transit	(408) 321-7583	(408) 321-7580	8/11/1999	9/13/1999	7/21/1997	10/20/1997
Santa Cruz Metropolitan Transit	(831) 426-6080	(831) 426-6117	8/11/1999	8/26/1999	7/18/1997	7/22/1997
Sonoma County Transit	(707) 585-7516	(707) 585-7713	8/11/1999	9/14/1999	7/21/1997	
Vallejo Transit & San Francisco Ferry	(707) 649-3408	(707) 648-4691	8/11/1999	12/2/1999	8/29/1997	
Western Contra Costa Transit	(510) 724-3331	(510) 724-5551	8/11/1999	9/21/1999	7/18/1997	7/22/1997
San Mateo County Transit District (SamTrans)	(650) 508-6420	(650) 508-6373	8/11/1999	12/1/1999	7/21/1997	10/10/1997

Appendix C
Freeway Management Components

Freeway Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Caltrans District 4	
	1999	**2005**
Agency Returned Survey?	Yes	
FREEWAY MANAGEMENT SECTION		
Number of freeway centerline miles that agency owns or maintains	500	
Number of freeway centerline miles that is used for planning	500	
Number of freeway entrance ramps that agency owns, operates or maintains	1,000	
Number of freeway entrance ramps that is used for planning	1,000	
Type of facilities used to conduct freeway/incident management activities		
Activities housed in a free-standing dedicated building?	No	
Activities housed in a building shared with other activities?	Yes	
Activities conducted in a dedicated control room?	Yes	
Control room contains operator console(s)?	Yes	
Control room contains electronic wall map?	Yes	
Control room contains CCTV display(s)?	Yes	
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes	
Facilities are electronically linked to other transportation mgt facilities?	Yes	
Staffing and hours of operation of freeway/incident management activities		
Number of full-time agency staff members	14	
Number of full time contractor staff members	0	
Number of part-time agency staff members	0	
Number of part-time contractor staff members	0	
Staffed 24 hours day by agency staff or by others	agency	
Staffed during peak hours only by agency staff or by others	NR	
Staffed by others during off-peak hours	Yes	
Agency staff perform transportation management as an ancillary duty	No	
Agency staff dedicated to transportation management duty	Yes	
Types of operations conducted for freeway/incident management		
Incident detection and management?	Yes	
This metropolitan area?	Yes	
Other metropolitan area?	No	
Statewide?	No	
Monitoring and troubleshooting status of system components?	Yes	
Manual override of ramp metering rates at freeway on-ramps?	Yes	
Operating transportation management roadside devices?	Yes	
Radio communications with other agencies?	Yes	
Exchange of electronic data with other agencies such as computer aided dispatch?	Yes	
Real-Time Traffic Data Collection Technologies		
Total number of miles under surveillance with real-time data collection tech.	150	300

	Caltrans District 4	
	1999	**2005**
Number of Stations with data collection technologies		
Loop detectors	300	600
Video imaging detectors	0	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	20
Microwave radar	20	50
Other (e.g., acoustic detectors)	0	0
Number of Miles covered with data collection technologies		
Loop detectors	140	270
Video imaging detectors	0	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	10
Microwave radar	10	20
Other (e.g., acoustic detectors)	0	0
Variable Message Signs (VMS) on Freeways		
Candidate locations for deployment of VMS where VMS has been deployed	175	175
Candidate locations for deployment of VMS	70	110
Roadside Technologies used to Distribute Traveler Information		
Total number of miles where information is distributed	150	500
Number deployed		
Highway advisory radio	17	37
In-vehicle signing	0	0
Portable variable message signs	14	14
Other	0	0
Miles covered		
Highway advisory radio	150	500
In-vehicle signing	0	0
Portable variable message signs	NR	NR
Other	0	0
Ramp Meters on Freeways		
Number of entrance ramp meters operated under isolated control	140	0
Number of entrance ramp meters operated under central control	50	500
Number of entrance ramp meters that provide preemption for emergency vehicles	0	0
Number of entrance ramp meters that provide priority for transit vehicles	50	150
Total number of metered ramps	190	500
Freeway centerline miles under lane control	5	5
Communication Links		
Freeway centerline miles covered by the following type of communication		
Twisted pair cable	10	10
Coaxial cable	10	10
Fiber-optic cable	20	150
Microwave radio	10	50
Other	150	300
ITS Standards Used Related to Freeway Management		

	Caltrans District 4	
	1999	**2005**
ATMS Data Dictionary Sections 1 and 2 (ITE TM 1.01)	No	
ATMS Data Dictionary Sections 3 and 4 (ITE TM 1.02)	No	
Message Set for External TMC Communication (ITE-9604-1)	No	
NTCIP Class B Profile (AASHTO TS 3.3)	No	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No	
NTCIP Object Definitions for Environmental Sensor Stations (AASHTO TS 3.7)	No	
NTICP Object Definitions for Dynamic Message Signs (AASHTO TS 3.6)	No	
NTICP Object Definitions for Highway Advisory Radio (AASHTO TS 3.HAR)	No	
NTICP Object Definitions for Ramp Meter Control (AASHTO TS 3.RMC)	No	
NTICP Object Definitions for Transportation Sensor Systems (AASHTO TS 3.TSS)	No	
NTICP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No	
Would agency be willing to participate in testing of ITS Standards?	Yes	
Have agreements in place with other agencies to use similar hardware		
and software to aid maintenance and interoperability?	No	
INCIDENT MANAGEMENT SECTION		
Use of Service Patrols to Assist in Detection and Response to Incidents		
Publicly operated service patrol vehicles	Yes	
Privately operated service patrol vehicles operated under public contract	Yes	
Total number of freeway miles patrolled by these services	360	400
Miles Covered by Methods to Detect and Verify Incidents		
Free cellular phone call to a dedicated phone number other than 911	NR	NR
Police patrols	500	500
Computer algorithms linked to traffic surveillance equipment	8	300
CCTV	128	400
Private sector sources (e.g., Shadow Traffic, SmartRoutes)	NR	NR
Other (e.g., free cell phone call to an area radio system, etc.)	NR	NR
Procedures in place for Freeway Incident Response?		
Working agreement(s)/arrangement(s) with other agencies	Yes	
Inter-agency incident management admin. team that meets regularly	No	
Major incident response team that responds to major incidents	Yes	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	Yes	
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	Yes	
The central focal point is a Police, Fire or joint dispatch center	Yes	
The central focal point is another center	Yes	
Methods of Communication Used On-Site at an Incident		
Police		
Two-way radio	Yes	
800 MHz trunked radio	No	
Cellular telephone	Yes	

	Caltrans District 4	
	1999	**2005**
Hand-held (i.e., walkie-talkie)	Yes	
Automated data systems (i.e., CAD)	Yes	
Fire		
Two-way radio	Yes	
800 MHz trunked radio	No	
Cellular telephone	No	
Hand-held (i.e., walkie-talkie)	No	
Automated data systems (i.e., CAD)	Yes	
DOT		
Two-way radio	Yes	
800 MHz trunked radio	Yes	
Cellular telephone	Yes	
Hand-held (i.e., walkie-talkie)	Yes	
Automated data systems (i.e., CAD)	Yes	
Towing		
Two-way radio	Yes	
800 MHz trunked radio	No	
Cellular telephone	Yes	
Hand-held (i.e., walkie-talkie)	No	
Automated data systems (i.e., CAD)	Yes	
Which police agencies typically respond to incidents on freeways?		
State Police	Yes	
County Police or Sheriff	No	
City Police	No	
Who provides on-site emergency medical response?		
Fire	Yes	
Emergency Management Service Agency	No	
Private hospital	Yes	
Has a multi-agency contact list been developed in area containing the		
names, phone numbers, etc. for the appropriate response personnel?	No	
Is the Incident Command System used to manage incident scenes?	Yes	
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?	Yes	
Formal agreement?	Yes	
Not specified or don't know?	No	
On-scene command post used to manage activities of responding agencies?	Yes	
Are there communication linkages to a communications traffic/freeway mgt center?	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?	Yes	
Respondents protected through law or court opinion for liability claims		

	Caltrans District 4	
	1999	**2005**
for damages to vehicles or cargoes during clearance activities?	DK	
Are overturned tank trucks, which are intact and not leaking, uprighted		
without first off-loading?	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?	No	
Have laws or policies regarding the removal of stalled/abandoned vehicles		
from freeway shoulders?	Yes	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	0-24	
Have policies or procedures for quick removal of vehicles?	Yes	
Is Total Station equipment used to investigate major incidents?	Yes	
Handling of Towing Responses to Incidents		
Formal contract based on qualifications?	Yes	
Rotation with companies under contract?	Yes	
Separate lists kept for light and heavy response and for specialty recovery?	Yes	
Rotation list with minimal qualifications?	No	
In towing qualifications, do you require towers to be certified under the		
Towing and Recovery Ass. of America's National Drivers Cert. Program?	Yes	
_____		
DK: Don't know		
NR: No Response		
Leg: Legislation or action being planned		

Appendix D
Freeway Management Integration

Agency Name	Caltrans District 4	
	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	California Highway Patrol (CHP), TRAVINFO, Silicon Valley Smart Corridor	California Highway Patrol (CHP)
Share Infrastructure	California Highway Patrol (CHP), TRAVINFO, Silicon Valley Smart Corridor	California Highway Patrol (CHP)
Coordinate Operation	California Highway Patrol (CHP), TRAVINFO	California Highway Patrol (CHP), Silicon Valley Smart Corridor
Incident Management Agencies		
Provide Information	California Highway Patrol (CHP), TRAVINFO	California Highway Patrol (CHP)
Share Infrastructure	California Highway Patrol (CHP), TRAVINFO	California Highway Patrol (CHP)
Coordinate Operation	California Highway Patrol (CHP), TRAVINFO	California Highway Patrol (CHP)
Arterial Management Agencies		
Provide Information	None listed	San Francisco City Department of Public Works, Silicon Valley Smart Corridor
Share Infrastructure	None listed	San Francisco City Department of Public Works, Silicon Valley Smart Corridor
Coordinate Operation	None listed	San Francisco City Department of Public Works, Silicon Valley Smart Corridor
Public Transit Operators		
Provide Information	None listed	TRAVINFO
Share Infrastructure	None listed	TRAVINFO
Coordinate Operation	None listed	TRAVINFO
Receiving real-time information via electronic means from others		
Incident Management agencies from which your agency receives		
incident severity, location, and type information	California Highway Patrol (CHP), Silicon Valley Smart Corridor	None listed
Arterial Management agencies from which your agency receives		
arterial travel times, speeds, and conditions	Silicon Valley Smart Corridor	San Francisco City TMC

Freeway Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Caltrans District 4	
	1999	**2005**
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	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
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Emergency Management Agencies		
Provide Information	California Highway Patrol	None listed
Share Infrastructure	California Highway Patrol	None listed
Coordinate Operation	California Highway Patrol	None listed
Freeway Management Agencies		
Provide Information	Caltrans District 4, California Highway Patrol (CHP)	None listed
Share Infrastructure	California Highway Patrol (CHP)	None listed
Coordinate Operation	California Highway Patrol (CHP)	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		
incident clearance and/or incident severity and type		
Receive Arterial Incident Clearance Information	California Highway Patrol	San Francisco City Police Department, Silicon Valley Smart Corridor
Receive Arterial Incident Severity Information	California Highway Patrol	San Francisco City Police Department, Silicon Valley Smart Corridor
Arterial Management agencies from which your agency receives		
arterial travel times, speeds, and conditions	None listed	San Francisco City Department of Public Works, Silicon Valley Smart Corridor
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.

Appendix E
Freeway Management Information Collection and Dissemination

Data Collection and Dissemination: Freeway Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Caltrans District 4	
	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, Route designations (snow emergency, etc.), Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information	Probe vehicles
Archived by your agency	Traffic volumes, Vehicle classification, Route designations (snow emergency, etc.)	Traffic speeds, Lane occupancy, Probe vehicles, Ramp queues, Metering rate, Road conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information
Transferred to another agency by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Incidents	Ramp queues, Metering rate, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information
Importance of making information available to the public		
Ranked High	Traffic volumes, Traffic speeds, Lane occupancy, Ramp queues, Metering rate, Road conditions, Route designations (snow emergency, etc.), Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information	
Ranked Medium	Probe vehicles	
Ranked Low	Vehicle classification, Ramp meter preemption's, Intermodal (air, rail, water) connections	
Groups that make requests for the data	Universities, State DOT personnel, MPOs, Consultants	
What is the data used for?	Traffic analysis, Construction impact determination, Planning, Dissemination to the public	
Methods used to disseminate freeway information to the public		
Technologies your agency uses to disseminate:	Telephone system, Internet Web sites	NR
Technologies your agency (through another agency or org.) uses to disseminate:	TRAVINFO	NR
Internet web site reporting freeway conditions	www.kpix.com www.bayinsider.com www.hiway17.com www.video.dot.ca.gov/cttv_2	
Telephone system for reporting freeway information to the public	1-800-427-ROAD	

Data Collection and Dissemination: Freeway Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Caltrans District 4	
	1999	**2005**
Organizations your agency sends information for dissemination to the public	Regional Traveler Information Service (TRAVINFO)	
Freeway Incident Management Section		
Methods used to distribute incident location and severity information		
to the public		
Technologies your agency uses to disseminate:	Telephone system, Internet Web sites	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR
Internet web site reporting incident information	chp.ca.gov travinfo.org	
Telephone system for reporting incident information to the public	817-1717 for all Bay Area's Area Codes.	
Organizations your agency sends information for dissemination to the public	All interested print/broadcast media TRAVINFO	

Appendix F
Arterial Management Components

Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Caltrans District 4		Fremont City		Oakland City		Redwood City	
	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	NR		NR		NR		NR	
Number of arterial miles that is used for planning	NR		NR		NR		NR	
Number of highway-rail intersections that agency maintains	NR		9		NR		NR	
Number of highway-rail intersections that is used for planning	NR		NR		NR		NR	
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		No	
Activities conducted in a dedicated control room?	Yes		No		No		No	
Control room contains operator console(s)?	No		No		No		No	
Control room contains electronic wall map?	No		No		No		No	
Control room contains CCTV display(s)?	No		No		No		No	
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes		No		No		No	
Facilities are electronically linked to other transportation mgt facilities?	Yes		No		No		No	
Staffing and hours of operation of arterial management activities								
Number of full-time agency staff members	13		NR		NR		NR	
Number of full time contractor staff members	NR		NR		NR		NR	
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		NR		NR	
Staffed by others during off-peak hours	No		No		No		No	
Agency staff perform transportation management as an ancillary duty	No		No		No		Yes	
Agency staff dedicated to transportation management duty	No		No		No		No	
Types of operations conducted for arterial management								
Incident detection and management?	No		No		No		No	
This metropolitan area?	No		No		No		No	
Other metropolitan area?	No		No		No		No	
Monitoring and troubleshooting status of system components?	Yes		No		No		Yes	
Radio communications with other agencies?	No		No		No		No	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		No		No		No	
Manual override of traffic signal timing plans	No		No		No		No	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No		No		No		No	
Describe agency's role in traffic signal control	State routes only		NR		NR		All roads in county except state routes	
Traffic Signals Operated by Agency								

	Caltrans District 4		Fremont City		Oakland City		Redwood City	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Number of signalized intersections operated and owned by agency	835	900	NR	NR	NR	NR	59	63
Number of signalized intersections operated by agency but owned by another	34	50	NR	NR	NR	NR	NR	NR
Total number of signalized intersections operated by agency	869	950	132	160	540	560	59	63
Characteristics of signalized intersections that agency operates								
Under closed loop or central system control	0	0	132	160	0	46	59	63
Under real-time traffic adaptive control using advanced software	0	0	0	5	0	NR	0	0
Using SCOOT	No		No		No		No	
Using SCATS	No		No		No		No	
Name of software	NR		NR		NR		NR	
Allow signal preemption for emergency vehicles	176	230	3	15	4	4	10	10
Allow signal priority for transit vehicles	0	NR	0	0	0	NR	0	0
Within 200 feet of a highway-rail intersection	35	40	3	0	23	23	2	2
Within 200 feet of a highway-rail intersection that adjust signal timing	35	40	3	3	20	21	2	2
Software used to control the signals agency operates								
Date of last upgrade to traffic signal control system software?	NR		NR		NR		1999/Icon	
How often do you update signal timing?	as often as necessary		NR		NR		New	
Software used and number of signalized intersections under control (1999, 2005)	NR		NR		NR		ECONOLITE ICON/Gardner Systems, NR, NR	
Controllers used to control signals								
NEMA	0	0	0	0	0	0	59	63
170/179	869	950	0	0	0	0	0	0
2070 controller	0	500	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	NR	NR
Highway-Rail intersection capapbilities								
Video surveillance	0	0	0	0	0	0	0	0
Electronic surveillance other than video	0	0	0	0	0	0	0	0
Ability to predict train arrival electronically	0	0	0	0	0	0	0	0
Equipped with electronic traffic violator devices	0	0	0	0	0	0	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	5	NR	NR	NR	NR	NR	1	8
Number of signalized intersections with data collection technologies								
Loop detectors	0	0	0	0	0	0	NR	6
Video detection cameras	5	NR	0	0	0	0	1	2
Probe readers reading toll tags	0	0	0	0	0	0	0	0
Probe readers reading license plates	0	0	0	0	0	0	0	0

	Caltrans District 4		Fremont City		Oakland City		Redwood City	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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	NR	NR
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	NR	NR
VMS controlling parking access	NR	NR	NR	NR	NR	NR	NR	NR
Miles covered								
Highway Advisory Radio	NR	NR	NR	NR	NR	NR	NR	NR
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	NR	NR	NR	NR	NR	NR	NR
Candidate locations for deployment of VMS	NR	NR	NR	NR	NR	NR	NR	NR
Communication Technologies								
Signalized intersections communicated with by each type of communication								
Twisted pair cable	230	NR	0	0	0	0	35	35
Coaxial cable	0	0	0	0	0	0	0	0
Fiber-optic cable	5	NR	0	0	0	0	0	0
Other (e.g., wireless, dial-up modems, leased lines, etc.)	82	950	0	0	0	0	24	28
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)	Yes		No		No		Yes	
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)	Yes		No		No		No	
Would agency be willing to participate in testing of ITS Standards?	Yes		NR		NR		No	
Have agreements in place with other agencies to use similar hardware								
and software to aid maintenance and interoperability?	No		NR		NR		No	
INCIDENT MANAGEMENT ON ARTERIAL STREETS								
Receive information on highway-rail intersection crossing blockages for								
the purpose of managing incident response?	No		No		No		No	
Use of Service Patrols to Assist in Detection and Response to Incidents								
Publicly operated service patrol vehicles	No		No		No		No	
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	NR	NR
Miles Covered by Methods to Detect and Verify Incidents								
Free cellular phone call to a dedicated phone number other than 911	0	0	0	0	0	0	0	0
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	0	0

Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Caltrans District 4		Fremont City		Oakland City		Redwood City	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Computer algorithms linked to traffic surveillance equipment	0	0	0	0	0	0	0	0
CCTV	0	0	0	0	0	0	0	0
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Procedures in place for Arterial Incident Response?								
Working agreement(s)/arrangement(s) with other agencies	No		No		No		No	
Inter-agency incident management admin. team that meets regularly	No		No		No		No	
Major incident response team that responds to major incidents	No		No		No		No	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		No		No		No	
Methods of Communication Used On-Site at an Incident								
Police								
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	
Fire								
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	
DOT								
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	
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?								
State Police	No		No		No		No	

	Caltrans District 4		Fremont City		Oakland City		Redwood City	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
County Police or Sheriff	No		No		No		No	
City Police	No		No		No		No	
Who provides on-site emergency medical response?								
Fire	No		No		No		No	
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		NR	
Is the Incident Command System used to manage incident scenes?	NR		NR		NR		NR	
Is there a legal specification by state law or formal agreement as to who								
is "in charge" at the incident scene?								
Specified by state law?	No		No		No		No	
Formal agreement?	No		No		No		No	
Not specified or don't know?	No		No		No		No	
On-scene command post used to manage activities of responding agencies?	NR		NR		NR		NR	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		NR		NR		NR	
Plan developed and adopted by responding agencies for staging and parking								
response vehicles and equip. at incident site that minimizes lane blockage								
and facilitates the re-opening of lanes?	NR		NR		NR		NR	
Respondents protected through law or court opinion for liability claims								
for damages to vehicles or cargoes during clearance activities?	NR		NR		NR		NR	
Are overturned tank trucks, which are intact and not leaking, uprighted								
without first off-loading?	NR		NR		NR		NR	
Does your state or local jurisdiction have a law that requires drivers								
involved in property-damage-only accidents to move the vehicles								
from travel lanes to a safe location to exchange info and wait for police?	NR		NR		NR		NR	
Have laws or policies regarding the removal of stalled/abandoned vehicles								
from freeway shoulders?	NR		NR		NR		NR	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	NR		NR		NR		NR	
Have policies or procedures for quick removal of vehicles?	NR		NR		NR		NR	
Is Total Station equipment used to investigate major incidents?	NR		NR		NR		NR	
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		No	
In towing qualifications, do you require towers to be certified under the								
Towing and Recovery Ass. of America's National Drivers Cert. Program?	NR		NR		NR		NR	
_____								
DK: Don't know								
NR: No Response								
Leg: Legislation or action being planned								

Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	San Francisco City & County		San Jose City		Santa Clara County		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes		Yes		7	
ARTERIAL MANAGEMENT SECTION								
Number of arterial miles that agency owns or maintains	850		282		183		1315	
Number of arterial miles that is used for planning	850		282		183		1315	
Number of highway-rail intersections that agency maintains	333		80		NR		422	
Number of highway-rail intersections that is used for planning	30		57		NR		87	
Type of facilities used to conduct arterial management activities								
Activities housed in a free-standing dedicated building?	No		No		No		0	
Activities housed in a building shared with other activities?	Yes		Yes		Yes		4	
Activities conducted in a dedicated control room?	No		Yes		Yes		3	
Control room contains operator console(s)?	No		Yes		Yes		2	
Control room contains electronic wall map?	No		Yes		Yes		2	
Control room contains CCTV display(s)?	No		Yes		Yes		2	
Activities conducted in a room containing workstations or PCs that manage traffic?	No		Yes		Yes		3	
Facilities are electronically linked to other transportation mgt facilities?	No		Yes		Yes		3	
Staffing and hours of operation of arterial management activities								
Number of full-time agency staff members	NR		3		10		26	
Number of full time contractor staff members	NR		0		NR		0	
Number of part-time agency staff members	NR		2		NR		2	
Number of part-time contractor staff members	NR		0		NR		0	
Staffed 24 hours day by agency staff or by others	NR		NR		NR		0	
Staffed during peak hours only by agency staff or by others	NR		agency		NR		0	
Staffed by others during off-peak hours	No		No		No		0	
Agency staff perform transportation management as an ancillary duty	Yes		Yes		Yes		4	
Agency staff dedicated to transportation management duty	No		No		No		0	
Types of operations conducted for arterial management								
Incident detection and management?	No		Yes		Yes		2	
This metropolitan area?	No		Yes		Yes		2	
Other metropolitan area?	No		No		No		0	
Monitoring and troubleshooting status of system components?	Yes		Yes		Yes		5	
Radio communications with other agencies?	No		Yes		No		1	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		Yes		Yes		2	
Manual override of traffic signal timing plans	No		Yes		Yes		2	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No		Yes		Yes		2	
Describe agency's role in traffic signal control	All roads in county		All roads in county		County routes only			
Traffic Signals Operated by Agency								

Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	San Francisco City & County		San Jose City		Santa Clara County		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Number of signalized intersections operated and owned by agency	1,127	NR	700	810	145	149	2866	1922
Number of signalized intersections operated by agency but owned by another	9	NR	80	90	7	9	130	149
Total number of signalized intersections operated by agency	1,136	NR	780	900	152	158	3668	2791
Characteristics of signalized intersections that agency operates								
Under closed loop or central system control	1,038	NR	577	700	126	130	1932	1099
Under real-time traffic adaptive control using advanced software	0	NR	0	0	0	3	0	8
Using SCOOT	No		No		No		0	
Using SCATS	No		No		No		0	
Name of software	NR		NR		NR			
Allow signal preemption for emergency vehicles	0	NR	30	90	57	57		
Allow signal priority for transit vehicles	51	NR	60	75	6	7		
Within 200 feet of a highway-rail intersection	4	NR	30	50	6	7		
Within 200 feet of a highway-rail intersection that adjust signal timing	3	NR	30	50	6	7		
Software used to control the signals agency operates								
Date of last upgrade to traffic signal control system software?	none to update		8/11/99		1997			
How often do you update signal timing?	NR		5 years		once every 6 months or as			
Software used and number of signalized intersections under control (1999, 2005)	NR		CSC-Light Rail, NR, NR Gardnor System Icons, 57, 80 TransCore Series 2000, 520, 620		Streetwise, 152, 158			
Controllers used to control signals								
NEMA	20	NR	740	820	152	158	971	1041
170/179	0	0	40	40	0	0	909	990
2070 controller	0	0	NR	40	0	0	0	540
Other	1116	0	0	0	0	0	1116	0
Technologies Associated with Highway-Rail Intersections								
Total number of highway-rail intersections under electronic surveillance	NR	NR	0	40	8	134	8	174
Highway-Rail intersection capapbilities								
Video surveillance	0	0	0	0	8	134	8	134
Electronic surveillance other than video	0	0	NR	40	0	0	0	40
Ability to predict train arrival electronically	0	0	NR	40	0	0	0	40
Equipped with electronic traffic violator devices	0	0	NR	40	0	0	0	40
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	1	30	64	180	152	158	223	376
Number of signalized intersections with data collection technologies								
Loop detectors	NR	20	50	100	152	158	202	284
Video detection cameras	1	10	12	20	3	3	22	35
Probe readers reading toll tags	0	0	0	0	0	0	0	0
Probe readers reading license plates	0	0	NR	40	0	0	0	40

	San Francisco City & County		San Jose City		Santa Clara County		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Other	0	0	2	20	0	0	2	20
Roadside Technologies used to Distribute Traveler Information								
Number deployed								
Highway Advisory Radio	NR	NR	1	3	0	4	1	7
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	0	0
VMS controlling parking access	0	3	15	30	NR	NR	15	33
Miles covered								
Highway Advisory Radio	NR	NR	20	60	0	50	20	110
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	0	0
Variable Message Signs (VMS) on Arterials								
Candidate locations for deployment of VMS where VMS has been deployed	3	15	15	30	2	15	20	60
Candidate locations for deployment of VMS	60	60	30	30	4	48	94	138
Communication Technologies								
Signalized intersections communicated with by each type of communication								
Twisted pair cable	0	0	447	480	78	0	790	515
Coaxial cable	0	0	0	0	0	0	0	0
Fiber-optic cable	0	0	60	100	50	128	115	228
Other (e.g., wireless, dial-up modems, leased lines, etc.)	0	0	90	120	0	0	196	1098
Does agency convey information on highway-rail intersection crossing								
status to travelers via roadside media such as VMS or HAR?	No		No		No		0	
ITS Standards Used Related to Traffic Signal Control								
Advanced Transportation Controller (ATC) Software Application Interface (ITE 9603-1)	No		No		No		0	
ATC Physical Cabinet Functional Design (ITE-9603-2)	No		No		No		0	
ATC Functionality and Interface Definitions (ITE-9603-3)	No		No		No		0	
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	No		No		Yes		3	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		No		Yes		1	
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		Yes		1	
NTCIP Object Definitions for Actuated Traffic Signal Controller Units (AASHTO TS 3.5)	No		No		Yes		2	
Would agency be willing to participate in testing of ITS Standards?	Yes		Yes		Yes		4	
Have agreements in place with other agencies to use similar hardware								
and software to aid maintenance and interoperability?	No		Yes		Yes		2	
INCIDENT MANAGEMENT ON ARTERIAL STREETS								
Receive information on highway-rail intersection crossing blockages for								
the purpose of managing incident response?	No		No		No		0	
Use of Service Patrols to Assist in Detection and Response to Incidents								
Publicly operated service patrol vehicles	No		No		Yes		1	
Privately operated service patrol vehicles operated under public contract	No		No		No		0	
Total number of arterial miles patrolled by these services	NR	NR	NR	NR	NR	NR	0	0
Miles Covered by Methods to Detect and Verify Incidents								
Free cellular phone call to a dedicated phone number other than 911	0	0	0	0	0	0	0	0
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	0	0

	San Francisco City & County		San Jose City		Santa Clara County		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Computer algorithms linked to traffic surveillance equipment	0	0	NR	35	0	0	0	35
CCTV	NR	200	NR	35	0	0	0	235
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	35	NR	0	0	35	0
Other	0	0	15	60	0	0	15	60
Procedures in place for Arterial Incident Response?								
Working agreement(s)/arrangement(s) with other agencies	No		Yes		Yes		2	
Inter-agency incident management admin. team that meets regularly	No		Yes		No		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		Yes		Yes		2	
Methods of Communication Used On-Site at an Incident								
Police								
Two-way radio	No		No		Yes		1	
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	
Other	No		No		No		0	
Fire								
Two-way radio	No		No		Yes		1	
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	
Other	No		No		No		0	
DOT								
Two-way radio	No		No		Yes		1	
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	
Other	No		No		No		0	
Towing								
Two-way radio	No		No		Yes		1	
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	
Other	No		No		No		0	
Which police agencies typically respond to incidents on arterials?								
State Police	No		No		Yes		1	

Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	San Francisco City & County		San Jose City		Santa Clara County		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
County Police or Sheriff	No		No		No		0	
City Police	Yes		Yes		Yes		3	
Who provides on-site emergency medical response?								
Fire	No		Yes		Yes		2	
Emergency Management Service Agency	No		Yes		Yes		2	
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		Yes		Yes		2	
Is the Incident Command System used to manage incident scenes?	NR		No		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		No		No		0	
Formal agreement?	No		No		No		0	
Not specified or don't know?	No		Yes		No		1	
On-scene command post used to manage activities of responding agencies?	NR		No		NR		0	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		NR		NR		0	
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		No		NR		0	
Respondents protected through law or court opinion for liability claims								
for damages to vehicles or cargoes during clearance activities?	NR		DK		NR		0	
Are overturned tank trucks, which are intact and not leaking, uprighted								
without first off-loading?	NR		NR		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		Yes		Yes		2	
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		DK		>36		0	
Have policies or procedures for quick removal of vehicles?	NR		No		NR		0	
Is Total Station equipment used to investigate major incidents?	NR		Yes		No		1	
Handling of Towing Responses to Incidents								
Formal contract based on qualifications?	No		No		No		0	
Rotation with companies under contract?	No		No		No		0	
Separate lists kept for light and heavy response and for specialty recovery?	NR		NR		NR		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		NR		0	
DK: Don't know								
NR: No Response								
Leg: Legislation or action being planned								

Appendix G
Arterial Management Integration

Agency Name	Caltrans District 4		Fremont City		Oakland City	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes		Yes	
Arterial Management Section						
Arterial Mgt. agencies in metropolitan area with which you share info.						
Share Timing Plans Information	None listed	None listed	short survey	None listed	short survey	None listed
Coordinate Changes to Timing Plans	None listed	None listed	short survey	None listed	short survey	None listed
Turn over Control of Signals	None listed	None listed	short survey	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	None listed	None listed	short survey	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed
Incident Management Agencies						
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed
Public Transit Operators Agencies						
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed
Arterial Management Agencies						

Agency Name	Caltrans District 4		Fremont City		Oakland City	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	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	None listed	None listed	short survey	None listed	None listed	None listed
Public Transit operators from which your agency receives						
arterial travel times derived from vehicle probes	None listed	None listed	None listed	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	None listed	None listed	None listed	None listed	None listed	None listed
Receive information on Incident Severity, Location, and Type	None listed	None listed	None listed	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	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	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed

Arterial Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Caltrans District 4		Fremont City		Oakland City	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Freeway Management Agencies						
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed
Public Transit Operators						
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	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						
arterial incident clearance and/or arterial incident severity						
Receive Arterial Incident Clearance Information	None listed	None listed	None listed	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed	None listed	None listed
Arterial Management agencies from which your agency receives						
arterial travel times, speeds, and conditions	None listed	None listed	short survey	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	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	Redwood City		San Francisco City & 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	Caltrans District 4	Caltrans District 4	Caltrans District 4, San Francisco City & County	None listed
Coordinate Changes to Timing Plans	None listed	None listed	Caltrans District 4	None listed
Turn over Control of Signals	None listed	None listed	Caltrans District 4	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	None listed	Caltrans District 4, TravInfo
Share Infrastructure	None listed	None listed	None listed	Caltrans District 4, TravInfo
Coordinate Operation	None listed	None listed	None listed	Caltrans District 4
Incident Management Agencies				
Provide Information	None listed	None listed	Muni	Caltrans District 4, TravInfo
Share Infrastructure	None listed	None listed	Muni	Caltrans District 4
Coordinate Operation	None listed	None listed	Muni	Caltrans District 4
Public Transit Operators Agencies				
Provide Information	None listed	None listed	AC Transit, Muni	Bay Area Rapid Transit District, San Mateo County Transit District
Share Infrastructure	None listed	None listed	None listed	Muni
Coordinate Operation	None listed	None listed	None listed	AC Transit, Bay Area Rapid Transit District, Muni, San Mateo County Transit District
Arterial Management Agencies				

Agency Name	Redwood City		San Francisco City & County	
	1999	**2005**	**1999**	**2005**
Provide Information	None listed	None listed	None listed	Caltrans District 4, TravInfo
Share Infrastructure	None listed	None listed	None listed	Caltrans District 4
Coordinate Operation	None listed	None listed	None listed	Caltrans District 4
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	None listed	Caltrans District 4
Public Transit operators from which your agency receives				
arterial travel times derived from vehicle probes	None listed	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	None listed	None listed	None listed	Caltrans District 4
Receive information on Incident Severity, Location, and Type	None listed	None listed	None listed	Caltrans District 4
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
Coordinate Operation	None listed	None listed	None listed	None listed

Arterial Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Redwood City		San Francisco City & County	
	1999	**2005**	**1999**	**2005**
Freeway Management Agencies				
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
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				
arterial incident clearance and/or arterial incident severity				
Receive Arterial Incident Clearance Information	None listed	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed
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.

Agency Name	San Jose City		Santa Clara 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	Caltrans District 4, Santa Clara County, Silicon Valley Partners	Cupertino, Sunnyvale	Caltrans District 4, San Jose City, Campbell City	None listed
Coordinate Changes to Timing Plans	Caltrans District 4, Fremont City, Santa Clara County	None listed	Campbell City	Caltrans District 4, San Jose City, Campbell City
Turn over Control of Signals	Caltrans District 4, Santa Clara County	None listed	None listed	San Jose City
Agencies your agency provides arterial travel times, speeds, and				
conditions information, share infrastructure or coordinates operation				
Freeway Management Agencies				
Provide Information	Caltrans District 4	None listed	Caltrans District 4, Smart Corridor Team	None listed
Share Infrastructure	Caltrans District 4	None listed	Caltrans District 4, Smart Corridor Team	Caltrans District 4, Smart Corridor Team
Coordinate Operation	Caltrans District 4	None listed	None listed	Smart Corridor Team
Incident Management Agencies				
Provide Information	Caltrans District 4	None listed	None listed	Caltrans District 4
Share Infrastructure	Caltrans District 4	None listed	Smart Corridor Team	Smart Corridor Team
Coordinate Operation	Caltrans District 4	None listed	Smart Corridor Team	Smart Corridor Team
Public Transit Operators Agencies				
Provide Information	Santa Clara County Transit	None listed	Santa Clara County Transit	None listed
Share Infrastructure	Santa Clara County Transit	None listed	Santa Clara County Transit	Santa Clara County Transit
Coordinate Operation	Santa Clara County Transit	None listed	None listed	Santa Clara County Transit
Arterial Management Agencies				

Agency Name	San Jose City		Santa Clara County	
	1999	**2005**	**1999**	**2005**
Provide Information	Caltrans District 4, Fremont City, San Jose City, Santa Clara County	None listed	Caltrans District 4, San Jose City, Campbell City, Milpitas City, Los Gatos City	None listed
Share Infrastructure	Caltrans District 4, Fremont City, San Jose City, Santa Clara County	None listed	San Jose City, Campbell City, Milpitas City	Caltrans District 4, San Jose City, Campbell City, Milpitas City, Los Gatos City
Coordinate Operation	Caltrans District 4, Fremont City, San Jose City, Santa Clara County	None listed	None listed	Caltrans District 4, San Jose City, Santa Clara County, Campbell City, Milpitas City, Los Gatos City
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	Caltrans District 4, Silicon Valley Partners	None listed	None listed	None listed
Public Transit operators from which your agency receives				
arterial travel times derived from vehicle probes	None listed	Santa Clara County Transit	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	Caltrans District 4, TravInfo	None listed	None listed	None listed
Receive information on Incident Severity, Location, and Type	None listed	Caltrans District 4, TravInfo	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
Coordinate Operation	None listed	None listed	None listed	None listed

Arterial Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	San Jose City		Santa Clara County	
	1999	**2005**	**1999**	**2005**
Freeway Management Agencies				
Provide Information	Caltrans District 4	None listed	None listed	None listed
Share Infrastructure	Caltrans District 4	None listed	None listed	None listed
Coordinate Operation	Caltrans District 4	None listed	None listed	None listed
Public Transit Operators				
Provide Information	Santa Clara County Transit	None listed	None listed	None listed
Share Infrastructure	Santa Clara County Transit	None listed	None listed	None listed
Coordinate Operation	Santa Clara County Transit	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	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions	Caltrans District 4, San Jose City, Santa Clara County, Silicon Valley Partners	Fremont City	None listed	None listed
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	Caltrans District 4	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: San Francisco, Oakland, San Jose

Agency Name	Caltrans District 4		Fremont City	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	NR	NR	NR	NR
Archived by your agency	NR	NR	NR	NR

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Caltrans District 4		Fremont City	
	1999	**2005**	**1999**	**2005**
Transferred to another agency by your agency	NR	NR	NR	NR
Importance of making information available to the public				
Ranked High	NR		NR	
Ranked Medium	NR		NR	
Ranked Low	NR		NR	
Groups that make requests for the data	Insurance Companies, Lawyers		NR	
What is the data used for?	Law Suits		NR	
Methods used to disseminate arterial information to the public				

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Caltrans District 4		Fremont City	
	1999	**2005**	**1999**	**2005**
Technologies your agency uses to disseminate:	NR	NR	NR	Internet Web sites
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting arterial conditions	NR		NR	
Telephone system for reporting arterial information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information				
to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting incident information	NR		NR	
Telephone system for reporting incident information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Oakland City		Redwood City	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	NR	NR	NR	Traffic volumes
Archived by your agency	NR	NR	NR	NR

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Oakland City		Redwood City	
	1999	**2005**	**1999**	**2005**
Transferred to another agency by your agency	NR	NR	NR	NR
Importance of making information available to the public				
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 arterial information to the public				

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Oakland City		Redwood City	
	1999	**2005**	**1999**	**2005**
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting arterial conditions	NR		NR	
Telephone system for reporting arterial information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information				
to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting incident information	NR		NR	
Telephone system for reporting incident information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	San Francisco City & County		San Jose City	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Vehicle classification, Road conditions, Transit vehicle signal priority, Current work zones, Scheduled work zones	Traffic volumes, Lane occupancy, Turning movements, Queues, Phasing/cycle lengths, Road conditions, Transit vehicle signal priority, Route designations (snow emergency, etc.), Incidents, Intermodal (air, rail, water) connections, Emergency/evacuation routes and procedures, Highway operations coordination information, Traffic speeds	Traffic volumes, Traffic speeds, Lane occupancy, Turning movements, Phasing/cycle lengths	Probe vehicles, Road conditions, Emergency vehicle signal preemption, Weather conditions, Incidents, Current work zones, Scheduled work zones, Intermodal (air, rail, water) connections, Highway operations coordination information
Archived by your agency	Transit vehicle signal priority	Traffic volumes, Lane occupancy, Turning movements, Phasing/cycle lengths, Road conditions, Route designations (snow emergency, etc.), Incidents, Current work zones, Scheduled work zones, Intermodal (air, rail, water) connections, Emergency/evacuation routes and procedures, Highway operations coordination information	Traffic volumes, Traffic speeds, Lane occupancy, Turning movements	Probe vehicles, Phasing/cycle lengths, Road conditions, Emergency vehicle signal preemption, Weather conditions, Incidents, Current work zones, Scheduled work zones, Intermodal (air, rail, water) connections, Highway operations coordination information

Agency Name	San Francisco City & County		San Jose City	
	1999	**2005**	**1999**	**2005**
Transferred to another agency by your agency	NR	Traffic volumes, Lane occupancy, Road conditions, Route designations (snow emergency, etc.), Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information, Traffic speeds	Traffic volumes, Traffic speeds, Lane occupancy, Phasing/cycle lengths	Probe vehicles, Road conditions, Emergency vehicle signal preemption, Weather conditions, Incidents, Current work zones, Scheduled work zones, Intermodal (air, rail, water) connections, Highway operations coordination information
Importance of making information available to the public				
Ranked High	Traffic volumes, Phasing/cycle lengths, Road conditions, Route designations (snow emergency, etc.), Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information		Traffic volumes, Traffic speeds, Road conditions, Incidents, Current work zones, Scheduled work zones	
Ranked Medium	Intermodal (air, rail, water) connections		Weather conditions, Intermodal (air, rail, water) connections, Highway operations coordination information	
Ranked Low	Lane occupancy, Vehicle classification, Turning movements, Traffic speeds		Lane occupancy, Vehicle classification, Probe vehicles, Turning movements, Queues, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority, Route designations (snow emergency, etc.), Emergency/evacuation	
Groups that make requests for the data	State DOT personnel, MPOs, Consultants		Universities, State DOT personnel, Federal DOT personnel, Media (I.e., TV stations, radio stations), MPOs, Consultants, Advanced Traveler Information Systems (ATIS) provi, citizens	
What is the data used for?	Traffic analysis, Construction impact determination, Dissemination to the public		Traffic analysis, Planning, Roadway impact analysis, Accident prediction models, Dissemination to the public	
Methods used to disseminate arterial information to the public				

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	San Francisco City & County		San Jose City	
	1999	**2005**	**1999**	**2005**
Technologies your agency uses to disseminate:	NR	Telephone system, Internet Web sites, Pagers or personal data assistants, Kiosks	Internet Web sites	Kiosks, E-mail or other direct PC communication
Technologies your agency (through another agency or org.) uses to disseminate:	Telephone system	NR	Dedicated cable TV, Telephone system, Internet Web sites, Pagers or personal data assistants, Cell phone/voice	Interactive TV, Kiosks, E-mail or other direct PC communication, In-vehicle navigation systems, Cell phone/data, Facsimile
Internet web site reporting arterial conditions	NR		www.ci.san-jose.ca.us/traffic/	
Telephone system for reporting arterial information to the public	NR		we are working cooperatively with travinfo to share our surface street data. Travinfo also collects and distributes freeway data by phone.	
Organizations your agency sends information for dissemination to the public	Currently, we do not send information for dissemination to the public, however, we plan to use TravInfo's telephone hotline for this purpose.		KMTP-Channel 32 and TravInfo	
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	Internet Web sites, Kiosks, E-mail or other direct PC communication
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	Telephone system, Internet Web sites	Pagers or personal data assistants, Cell phone/voice, Cell phone/data
Internet web site reporting incident information	NR		www.ci.san-jose.ca.us/signalcontrol/	
Telephone system for reporting incident information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Santa Clara County	
	1999	**2005**
Agency Returned Survey?	Yes	
Arterial Management Section		
Data collected, archived, and/or transferred to another agency		
Collected by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Turning movements, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority	NR
Archived by your agency	NR	NR

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Santa Clara County	
	1999	**2005**
Transferred to another agency by your agency	Traffic volumes, Traffic speeds, Turning movements	NR
Importance of making information available to the public		
Ranked High	NR	
Ranked Medium	Traffic volumes, Traffic speeds, Turning movements	
Ranked Low	NR	
Groups that make requests for the data	State DOT personnel, MPOs, Advanced Traveler Information Systems (ATIS) provi	
What is the data used for?	Traffic analysis, Construction impact determination, Planning, Roadway impact analysis	
Methods used to disseminate arterial information to the public		

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Santa Clara County	
	1999	**2005**
Technologies your agency uses to disseminate:	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	Telephone system, Internet Web sites, Kiosks
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	Travinfo, MTC	
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	
Organizations your agency sends information for dissemination to the public	NR	

Appendix I
Transit Management Components

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	AC Transit		Bay Area Rapid Transit District		CalTrain		Fairfield City, Fairfield Transit System	
	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	708	800	0	0	NR	NR	26	37
Heavy or Rapid Rail	NR	NR	669	669	0	0	0	0
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	35	35	NR	NR	NR	NR	13	17
Commuter Rail	NR	NR	NR	NR	73	93	NR	NR
Ferry Boat	NR	NR	NR	NR	NR	NR	NR	NR
Have of plan to have an Automated Vehicle Location System?	Yes		Yes		Yes		Yes	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	No	No	No	No	No	Yes	No	Yes
Sign/Odometer	No	No	No	No	Yes	No	No	Yes
Dead-Reckoning	No	No	No	No	No	Yes	No	No
LORAN C	No	No	No	No	No	No	No	No
Other	No	Yes	Yes	No	No	Yes	No	No
Backup Technologies								
GPS	No	No	No	No	No	Yes	No	Yes
Sign/Odometer	No	No	No	No	No	No	No	Yes
Dead-Reckoning	No	Yes	No	No	No	No	No	No
LORAN C	No	No	No	No	No	No	No	No
Other	No	No	No	No	No	Yes	No	No
Number of Vehicles Equipped with AVL								
Fixed Route Bus	25	800	NR	NR	NR	NR	0	37
Heavy or Rapid Rail	NR	NR	10	286	NR	NR	0	0
Light Rail	NR	NR	NR	NR	NR	NR	0	0
Demand Responsive	0	35	NR	NR	NR	NR	0	17
Commuter Rail	NR	NR	NR	NR	0	23	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		No		No		No	
Have Automated Traveler Information System?	Yes		Yes		Yes		Yes	
Services Automated Traveler Info. System Applies:								

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	AC Transit		Bay Area Rapid Transit District		CalTrain		Fairfield City, Fairfield Transit System	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Fixed Route	Yes		No		Yes		Yes	
Heavy Rail	No		Yes		No		Yes	
Light Rail	No		No		No		No	
Demand Responsive	No		No		Yes		No	
Commuter Rail	No		No		Yes		No	
Ferry	No		No		No		Yes	
Locations where traveler information is displayed to public								
Number of bus stops on fixed transit routes	8,000	NR	NR	NR	3,250	NR	NR	NR
Bus stops on fixed transit routes that display traveler info to the public	NR	1,500	NR	NR	290	NR	NR	NR
Number of rail stations	21	21	39	43	35	35	NR	1
Number of rail stations that display traveler information	21	21	39	43	35	35	NR	1
Number of other locations that display traveler information to public	1	1	NR	NR	200	250	NR	4
Number of vehicles the traveler information system has available								
Fixed Route Bus	0	750	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
Demand Responsive	0	35	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
Deployment of Communications Technology								
Attributes of Radio System:								
Digital?	No		Yes		No		No	
Analog?	Yes		No		Yes		Yes	
Trunked?	No		Yes		Yes		No	
Regular?	Yes		No		No		Yes	
Services that use a Digital or Trunked Radio System								
Digital Only								
Fixed Route Bus	No	No	No	No	No	No	No	Yes
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	Yes
Commuter Rail	No	No	No	No	No	No	No	No
Ferry Boat	No	No	No	No	No	No	No	Yes
Trunked Only								
Fixed Route Bus	No	Yes	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	Yes	No	No	No	No	No	No

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	AC Transit		Bay Area Rapid Transit District		CalTrain		Fairfield City, Fairfield Transit System	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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)?	Yes		No		No		No	
Methods used to count passengers								
Treadle Mats	No		No		No		No	
Infrared Beams	No		No		No		No	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	No	No	No	No	No	No	No	No
Differential GPS	No	Yes	No	No	No	No	No	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	Yes	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 with APCs								
Fixed Route Bus	25	300	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
Demand Responsive	NR	NR	NR	NR	NR	NR	NR	NR
Commuter Rail	NR	NR	NR	NR	0	23	NR	NR
Ferry Boat	NR	NR	NR	NR	NR	NR	NR	NR
Remote Real-Time Monitoring and Computer Assisted Dispatching								
Remote Real-Time Monitoring								
Fixed Route Bus	0	750	NR	NR	NR	NR	NR	37
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	35	NR	NR	NR	NR	NR	17
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	0	750	NR	NR	NR	NR	0	37

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	AC Transit		Bay Area Rapid Transit District		CalTrain		Fairfield City, Fairfield Transit System	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Heavy or Rapid Rail	NR	NR	669	669	NR	NR	NR	NR
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	0	35	NR	NR	NR	NR	NR	17
Commuter Rail	NR	NR	NR	NR	0	23	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?	Yes		No		No		No	
Is there or will there be a Transportation Management Center								
(TMC) in the region that controls transit and highway modes?	No		No		Yes		No	
Modes that TMC currently controls:								
Highways	No	No	No	No	No	No	No	No
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
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	NR
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
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 Boad 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	

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	AC Transit		Bay Area Rapid Transit District		CalTrain		Fairfield City, Fairfield Transit System	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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)	Yes		No		No		No	
Would agency be willing to participate in testing of ITS Standards?	Yes		No		Yes		Yes	
Have agreements in place with other agencies to use similar hardware								
and software to aid maintenance and interoperability?	Yes		Yes		No		Yes	
Electronic Fare Payment								
Have full operational Electronic Fare Payment System?	Yes		Yes		Yes		Yes	
Methods of Fare Payment								
Stored value card with fare deducted for each trip								
Magnetic Stripe	Yes		Yes		No		No	
Smart Card	Yes		No		Yes		No	
Debit Card	No		No		Yes		Yes	
Billed by the month for trips taken								
Magnetic Stripe	No		No		No		No	
Smart Card	No		No		No		No	
Credit Card	No		No		Yes		No	
Monthly Pass								
Magnetic Stripe	Yes		No		No		No	
Smart Card	Yes		No		Yes		No	
Vehicles/Stations Equipped with Automated Payment Mechanism								
Magnetic Stripe Readers								
Fixed Route Bus Vehicles	NR	750	NR	NR	NR	NR	NR	NR
Heavy or Rapid Rail Stations	NR	NR	39	43	NR	NR	NR	NR
Light Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive Vehicles	NR	35	NR	NR	NR	NR	NR	NR
Commuter Rail Stations	NR	NR	NR	NR	0	36	NR	NR
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
Smart Card Readers								
Fixed Route Bus Vehicles	NR	750	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	35	NR	NR	NR	NR	NR	NR
Commuter Rail Stations	NR	NR	NR	NR	0	NR	NR	NR

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	AC Transit		Bay Area Rapid Transit District		CalTrain		Fairfield City, Fairfield Transit System	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
Credit Card								
Fixed Route Bus Vehicles	NR	1	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	7	NR	NR	NR
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
Debit Card								
Fixed Route Bus Vehicles	NR	1	NR	NR	NR	NR	NR	37
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	7	NR	NR	NR
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
_____								
NR: No Response								

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Livermore/Amador Valley Transit		Monterey-Salinas Transit		Napa County Transit		San Mateo County Transit District (SamTrans)	
	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	60	60	78	78	19	24	362	NR
Heavy or Rapid Rail	NR	NR	0	0	NR	NR	NR	NR
Light Rail	NR	NR	0	0	NR	NR	NR	NR
Demand Responsive	17	17	25	28	15	16	48	NR
Commuter Rail	NR	NR	0	0	NR	NR	73	93
Ferry Boat	NR	NR	0	0	NR	NR	NR	NR
Have of plan to have an Automated Vehicle Location System?	No		No		Yes		Yes	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	No	No	No	No	Yes	Yes	No	Yes
Sign/Odometer	No	No	No	No	No	No	Yes	No
Dead-Reckoning	No	No	No	No	No	No	No	Yes
LORAN C	No	No	No	No	No	No	No	No
Other	No	No	No	No	No	No	No	Yes
Backup Technologies								
GPS	No	No	No	No	Yes	Yes	No	Yes
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	Yes
Number of Vehicles Equipped with AVL								
Fixed Route Bus	60	60	NR	NR	19	24	312	NR
Heavy or Rapid Rail	0	0	NR	NR	NR	NR	NR	NR
Light Rail	0	0	NR	NR	NR	NR	NR	NR
Demand Responsive	17	17	NR	NR	0	0	NR	NR
Commuter Rail	NR	NR	NR	NR	NR	NR	0	23
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		No	
Have Automated Traveler Information System?	Yes		No		Yes		Yes	
Services Automated Traveler Info. System Applies:								

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Livermore/Amador Valley Transit		Monterey-Salinas Transit		Napa County Transit		San Mateo County Transit District (SamTrans)	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Fixed Route	Yes		No		Yes		Yes	
Heavy Rail	No		No		No		No	
Light Rail	No		No		No		No	
Demand Responsive	Yes		No		Yes		Yes	
Commuter Rail	No		No		No		Yes	
Ferry	No		No		No		No	
Locations where traveler information is displayed to public								
Number of bus stops on fixed transit routes	NR	NR	NR	NR	NR	NR	3,250	NR
Bus stops on fixed transit routes that display traveler info to the public	NR	NR	NR	NR	100	100	290	NR
Number of rail stations	4	4	NR	NR	NR	NR	35	35
Number of rail stations that display traveler information	4	4	NR	NR	1	1	35	35
Number of other locations that display traveler information to public	NR	NR	NR	NR	1	1	200	250
Number of vehicles the traveler information system has available								
Fixed Route Bus	48	60	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
Demand Responsive	4	4	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
Deployment of Communications Technology								
Attributes of Radio System:								
Digital?	No		No		No		No	
Analog?	Yes		Yes		Yes		Yes	
Trunked?	Yes		No		No		No	
Regular?	No		Yes		Yes		Yes	
Services that use a Digital or Trunked Radio System								
Digital Only								
Fixed Route Bus	No	No	No	Yes	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								
Fixed Route Bus	No	No	No	No	No	No	No	Yes
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	Yes

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Livermore/Amador Valley Transit		Monterey-Salinas Transit		Napa County Transit		San Mateo County Transit District (SamTrans)	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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)?	Yes		No		No		Yes	
Methods used to count passengers								
Treadle Mats	No		No		No		No	
Infrared Beams	Yes		No		No		No	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	No	Yes	No	No	No	No	No	Yes
Differential GPS	No	No	No	No	No	No	No	Yes
Signpost/Odometer	No	No	No	No	No	No	Yes	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	Yes	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	No	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	0	60	NR	NR	NR	NR	0	31
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	0	17	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
Remote Real-Time Monitoring and Computer Assisted Dispatching								
Remote Real-Time Monitoring								
Fixed Route Bus	0	60	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
Demand Responsive	0	17	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	0	60	NR	NR	19	24	312	312

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Livermore/Amador Valley Transit		Monterey-Salinas Transit		Napa County Transit		San Mateo County Transit District (SamTrans)	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	17	17	NR	NR	15	16	NR	NR
Commuter Rail	NR	NR	NR	NR	NR	NR	0	0
Ferry Boat	NR	NR	NR	NR	NR	NR	NR	NR
Coordinate or plan to coordinate travel request and vehicle								
dispatching for multiple agencies?	No		No		No		No	
Is there or will there be a Transportation Management Center								
(TMC) in the region that controls transit and highway modes?	No		No		NR		Yes	
Modes that TMC currently controls:								
Highways	No	No	No	No	No	No	No	No
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
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	19	24	NR	NR
Light Rail	NR	NR	NR	NR	NR	NR	NR	NR
Demand Responsive	NR	NR	NR	NR	0	0	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	0	60	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
Demand Responsive	2	17	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 Boad Objects (TCIP-OB)	No		No		No		Yes	
TCIP Traffic Management Objects (TCIP-TM)	No		No		No		No	
TCIP Common Public Transportation Objects (TCIP-CPT)	No		No		No		No	

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Livermore/Amador Valley Transit		Monterey-Salinas Transit		Napa County Transit		San Mateo County Transit District (SamTrans)	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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?	Yes		No		Yes		Yes	
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?	Yes		No		Yes		Yes	
Methods of Fare Payment								
Stored value card with fare deducted for each trip								
Magnetic Stripe	No		No		No		No	
Smart Card	Yes		No		Yes		No	
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		Yes		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	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
Smart Card Readers								
Fixed Route Bus Vehicles	0	60	NR	NR	NR	24	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	0	17	NR	NR	NR	NR	NR	NR
Commuter Rail Stations	NR	NR	NR	NR	NR	NR	0	7

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Livermore/Amador Valley Transit		Monterey-Salinas Transit		Napa County Transit		San Mateo County Transit District (SamTrans)	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Ferry Boat Landings	NR	NR	NR	NR	NR	NR	NR	NR
Credit Card								
Fixed Route Bus Vehicles	NR	NR	NR	NR	NR	24	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	24	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								

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Santa Clara County Transit		Santa Cruz Metropolitan Transit		Santa Rosa City		Sonoma County Transit	
	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	515	590	79	99	21	24	52	62
Heavy or Rapid Rail	0	0	0	0	NR	NR	0	0
Light Rail	50	80	0	0	NR	NR	0	0
Demand Responsive	NR	NR	51	70	10	NR	7	15
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?	Yes		No		No		No	
Primary and Secondary Location Technologies Used								
Primary 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	Yes	No	No	No	No	No	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	590	NR	NR	NR	NR	NR	NR
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail	NR	80	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
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		No		No		No	
Have Automated Traveler Information System?	Yes		Yes		No		Yes	
Services Automated Traveler Info. System Applies:								

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Santa Clara County Transit		Santa Cruz Metropolitan Transit		Santa Rosa City		Sonoma County Transit	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Fixed Route	Yes		Yes		No		Yes	
Heavy Rail	No		No		No		No	
Light Rail	Yes		No		No		No	
Demand Responsive	No		No		No		No	
Commuter Rail	No		No		No		No	
Ferry	No		No		No		No	
Locations where traveler information is displayed to public								
Number of bus stops on fixed transit routes	4,600	4,900	NR	NR	NR	NR	60	75
Bus stops on fixed transit routes that display traveler info to the public	1	15	NR	NR	NR	NR	5	10
Number of rail stations	34	65	NR	NR	NR	NR	NR	NR
Number of rail stations that display traveler information	6	22	NR	NR	NR	NR	NR	NR
Number of other locations that display traveler information to public	NR	NR	NR	NR	NR	NR	NR	NR
Number of vehicles the traveler information system has available								
Fixed Route Bus	NR	NR	NR	NR	NR	NR	52	62
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	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
Deployment of Communications Technology								
Attributes of Radio System:								
Digital?	No		Yes		Yes		No	
Analog?	Yes		No		No		Yes	
Trunked?	No		No		No		No	
Regular?	Yes		Yes		Yes		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								
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

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Santa Clara County Transit		Santa Cruz Metropolitan Transit		Santa Rosa City		Sonoma County Transit	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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)?	Yes		No		No		No	
Methods used to count passengers								
Treadle Mats	No		No		No		No	
Infrared Beams	Yes		No		No		No	
Primary and Secondary Location Technologies Used								
Primary Technologies								
GPS	No	No	No	No	No	No	No	No
Differential GPS	No	Yes	No	No	No	No	No	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	No	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	0	100	NR	NR	NR	NR	NR	NR
Heavy or Rapid Rail	0	0	NR	NR	NR	NR	NR	NR
Light Rail	0	20	NR	NR	NR	NR	NR	NR
Demand Responsive	0	0	NR	NR	NR	NR	NR	NR
Commuter Rail	0	0	NR	NR	NR	NR	NR	NR
Ferry Boat	0	0	NR	NR	NR	NR	NR	NR
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
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	0	590	NR	NR	NR	NR	NR	NR

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Santa Clara County Transit		Santa Cruz Metropolitan Transit		Santa Rosa City		Sonoma County Transit	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Heavy or Rapid Rail	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail	0	80	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
Coordinate or plan to coordinate travel request and vehicle								
dispatching for multiple agencies?	No		No		No		No	
Is there or will there be a Transportation Management Center								
(TMC) in the region that controls transit and highway modes?	NR		No		No		No	
Modes that TMC currently controls:								
Highways	No	No	No	No	No	No	No	No
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
Other	No	No	No	No	No	No	No	No
Priority at Traffic Signals and Ramp Meter Priority								
Priority at Traffic Signals								
Fixed Route Bus	0	0	NR	NR	NR	24	6	20
Light Rail	50	80	NR	NR	NR	NR	NR	NR
Demand Responsive	NR	NR	NR	NR	NR	24	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
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 Boad 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	

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Santa Clara County Transit		Santa Cruz Metropolitan Transit		Santa Rosa City		Sonoma County Transit	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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)	Yes		No		No		No	
Would agency be willing to participate in testing of ITS Standards?	No		NR		No		Yes	
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?	Yes		Yes		Yes		No	
Methods of Fare Payment								
Stored value card with fare deducted for each trip								
Magnetic Stripe	No		No		No		No	
Smart Card	Yes		No		Yes		No	
Debit Card	No		No		No		No	
Billed by the month for trips taken								
Magnetic Stripe	No		Yes		No		No	
Smart Card	No		No		No		No	
Credit Card	No		No		No		No	
Monthly Pass								
Magnetic Stripe	No		Yes		No		No	
Smart Card	Yes		No		No		No	
Vehicles/Stations Equipped with Automated Payment Mechanism								
Magnetic Stripe Readers								
Fixed Route Bus Vehicles	0	0	79	99	NR	NR	NR	NR
Heavy or Rapid Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail Stations	0	0	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	0	590	NR	NR	NR	24	NR	NR
Heavy or Rapid Rail Stations	NR	NR	NR	NR	NR	NR	NR	NR
Light Rail Stations	0	65	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

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Santa Clara County Transit		Santa Cruz Metropolitan Transit		Santa Rosa City		Sonoma County Transit	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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	0	65	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	0	65	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								

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes		14	
Number of vehicles used in revenue service						
Fixed Route Bus	52	63	33	35	2,005	1,872
Heavy or Rapid Rail	NR	NR	0	0	669	669
Light Rail	NR	NR	0	0	50	80
Demand Responsive	10	12	12	14	243	224
Commuter Rail	NR	NR	0	0	146	186
Ferry Boat	3	4	0	0	3	4
Have of plan to have an Automated Vehicle Location System?	No		No		7	
Primary and Secondary Location Technologies Used						
Primary Technologies						
GPS	No	No	No	No	1	4
Sign/Odometer	No	No	No	No	2	1
Dead-Reckoning	No	No	No	No	0	2
LORAN C	No	No	No	No	0	0
Other	No	No	No	No	1	4
Backup Technologies						
GPS	No	No	No	No	1	4
Sign/Odometer	No	No	No	No	0	1
Dead-Reckoning	No	No	No	No	0	1
LORAN C	No	No	No	No	0	0
Other	No	No	No	No	0	2
Number of Vehicles Equipped with AVL						
Fixed Route Bus	NR	NR	NR	NR	416	1,511
Heavy or Rapid Rail	NR	NR	NR	NR	10	286
Light Rail	NR	NR	NR	NR	0	80
Demand Responsive	NR	NR	NR	NR	17	69
Commuter Rail	NR	NR	NR	NR	0	46
Ferry Boat	NR	NR	NR	NR	0	0
Motor Buses Operated as Vehicle Probes						
Number of Motor Buses equipped as probes on freeways?	NR		NR		0	
Number of Motor Buses equipped as probes on arterials?	NR		NR		0	
Have Organized Regional Incident Management Program?	No		No		1	
Have Automated Traveler Information System?	Yes		No		11	
Services Automated Traveler Info. System Applies:						

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Fixed Route	No		No		9	
Heavy Rail	No		No		2	
Light Rail	No		No		1	
Demand Responsive	No		No		4	
Commuter Rail	No		No		2	
Ferry	Yes		No		2	
Locations where traveler information is displayed to public						
Number of bus stops on fixed transit routes	500	500	NR	NR	19,660	5,475
Bus stops on fixed transit routes that display traveler info to the public	30	50	NR	NR	716	1,675
Number of rail stations	NR	NR	NR	NR	168	204
Number of rail stations that display traveler information	NR	NR	NR	NR	141	162
Number of other locations that display traveler information to public	NR	NR	NR	NR	402	506
Number of vehicles the traveler information system has available						
Fixed Route Bus	52	63	NR	NR	152	935
Heavy or Rapid Rail	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	0	0
Demand Responsive	10	12	NR	NR	14	51
Commuter Rail	NR	NR	NR	NR	0	0
Ferry Boat	3	4	NR	NR	3	4
Deployment of Communications Technology						
Attributes of Radio System:						
Digital?	No		Yes		4	
Analog?	Yes		No		10	
Trunked?	No		No		3	
Regular?	Yes		Yes		11	
Services that use a Digital or Trunked Radio System						
Digital Only						
Fixed Route Bus	No	No	No	No	0	2
Heavy or Rapid Rail	No	No	No	No	0	0
Light Rail	No	No	No	No	0	0
Demand Responsive	No	No	No	No	0	1
Commuter Rail	No	No	No	No	0	0
Ferry Boat	No	No	No	No	0	1
Trunked Only						
Fixed Route Bus	No	No	No	No	0	2
Heavy or Rapid Rail	No	No	No	No	0	0
Light Rail	No	No	No	No	0	0
Demand Responsive	No	No	No	No	0	2

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Commuter Rail	No	No	No	No	0	0
Ferry Boat	No	No	No	No	0	0
Have of plan to have Automatic Passenger Counters (APCs)?	No		No		4	
Methods used to count passengers						
Treadle Mats	No		No		0	
Infrared Beams	No		No		2	
Primary and Secondary Location Technologies Used						
Primary Technologies						
GPS	No	No	No	No	0	2
Differential GPS	No	No	No	No	0	3
Signpost/Odometer	No	No	No	No	1	0
Dead_Reckoning	No	No	No	No	0	0
LORAN C	No	No	No	No	0	0
Other	No	No	No	No	0	0
Backup Technologies						
GPS	No	No	No	No	0	1
Differential GPS	No	No	No	No	0	0
Signpost/Odometer	No	No	No	No	0	0
Dead_Reckoning	No	No	No	No	0	1
LORAN C	No	No	No	No	0	0
Other	No	No	No	No	0	0
Number of Vehicles with APCs						
Fixed Route Bus	NR	NR	NR	NR	25	491
Heavy or Rapid Rail	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	0	20
Demand Responsive	NR	NR	NR	NR	0	17
Commuter Rail	NR	NR	NR	NR	0	23
Ferry Boat	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	847
Heavy or Rapid Rail	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	0	69
Commuter Rail	NR	NR	NR	NR	0	0
Ferry Boat	NR	NR	NR	NR	0	0
Automated Dispatching or Control Software						
Fixed Route Bus	NR	NR	NR	35	331	1,808

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Heavy or Rapid Rail	NR	NR	NR	NR	669	669
Light Rail	NR	NR	NR	NR	0	80
Demand Responsive	NR	NR	NR	14	32	99
Commuter Rail	NR	NR	NR	NR	0	23
Ferry Boat	NR	NR	NR	NR	0	0
Coordinate or plan to coordinate travel request and vehicle						
dispatching for multiple agencies?	No		No		1	
Is there or will there be a Transportation Management Center						
(TMC) in the region that controls transit and highway modes?	No		NR		2	
Modes that TMC currently controls:						
Highways	No	No	No	No	0	0
Fixed Route Bus	No	No	No	No	0	0
Heavy or Rapid Rail	No	No	No	No	0	0
Light Rail	No	No	No	No	0	0
Demand Responsive	No	No	No	No	0	0
Commuter Rail	No	No	No	No	0	0
Ferry Boat	No	No	No	No	0	0
Other	No	No	No	No	0	0
Priority at Traffic Signals and Ramp Meter Priority						
Priority at Traffic Signals						
Fixed Route Bus	NR	NR	NR	35	25	103
Light Rail	NR	NR	NR	NR	50	80
Demand Responsive	NR	NR	NR	NR	0	24
Ramp Meter Priority						
Fixed Route Bus	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	0	0
Number of Vehicles Equipped with Navigation Aids						
Fixed Route Bus	NR	NR	NR	NR	0	60
Heavy or Rapid Rail	NR	NR	NR	NR	0	0
Light Rail	NR	NR	NR	NR	0	0
Demand Responsive	NR	NR	NR	NR	2	17
Commuter Rail	NR	NR	NR	NR	0	0
Ferry Boat	3	4	NR	NR	3	4
ITS Standards Used Related to Transit Management						
TCIP On Boad Objects (TCIP-OB)	No		No		1	
TCIP Traffic Management Objects (TCIP-TM)	No		No		0	
TCIP Common Public Transportation Objects (TCIP-CPT)	No		No		0	

	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
TCIP Passenger Information Objects (TCIP-PI)	No		No		0	
TCIP Incident Management Objects (TCIP-IM)	No		No		0	
TCIP Fare Collection Objects (TCIP-FC)	No		No		0	
TCIP Spatial Representation Objects (TCIP-SP)	No		No		0	
TCIP Control Center Objects (TCIP-CC)	No		No		0	
TCIP Scheduling/Runcutting Objects (TCIP-SCH)	No		No		0	
Send data communication between micro computer and heavy duty						
vehicle applications (SAE J1708)	No		No		2	
Would agency be willing to participate in testing of ITS Standards?	No		No		7	
Have agreements in place with other agencies to use similar hardware						
and software to aid maintenance and interoperability?	No		No		3	
Electronic Fare Payment						
Have full operational Electronic Fare Payment System?	Yes		No		11	
Methods of Fare Payment						
Stored value card with fare deducted for each trip						
Magnetic Stripe	Yes		No		3	
Smart Card	No		No		6	
Debit Card	No		No		2	
Billed by the month for trips taken						
Magnetic Stripe	No		No		1	
Smart Card	No		No		0	
Credit Card	No		No		1	
Monthly Pass						
Magnetic Stripe	No		No		2	
Smart Card	No		No		4	
Vehicles/Stations Equipped with Automated Payment Mechanism						
Magnetic Stripe Readers						
Fixed Route Bus Vehicles	NR	63	NR	NR	79	912
Heavy or Rapid Rail Stations	NR	NR	NR	NR	39	43
Light Rail Stations	NR	NR	NR	NR	0	0
Demand Responsive Vehicles	NR	NR	NR	NR	0	35
Commuter Rail Stations	NR	NR	NR	NR	0	36
Ferry Boat Landings	NR	4	NR	NR	0	4
Smart Card Readers						
Fixed Route Bus Vehicles	NR	NR	NR	NR	0	1,448
Heavy or Rapid Rail Stations	NR	NR	NR	NR	0	0
Light Rail Stations	NR	NR	NR	NR	0	65
Demand Responsive Vehicles	NR	NR	NR	NR	0	52
Commuter Rail Stations	NR	NR	NR	NR	0	7

Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Ferry Boat Landings	NR	NR	NR	NR	0	0
Credit Card						
Fixed Route Bus Vehicles	NR	NR	NR	NR	0	25
Heavy or Rapid Rail Stations	NR	NR	NR	NR	0	0
Light Rail Stations	NR	NR	NR	NR	0	65
Demand Responsive Vehicles	NR	NR	NR	NR	0	0
Commuter Rail Stations	NR	NR	NR	NR	7	0
Ferry Boat Landings	NR	NR	NR	NR	0	0
Debit Card						
Fixed Route Bus Vehicles	NR	NR	NR	NR	0	62
Heavy or Rapid Rail Stations	NR	NR	NR	NR	0	0
Light Rail Stations	NR	NR	NR	NR	0	65
Demand Responsive Vehicles	NR	NR	NR	NR	0	0
Commuter Rail Stations	NR	NR	NR	NR	7	0
Ferry Boat Landings	NR	NR	NR	NR	0	0
_____						
NR: No Response						

Appendix J
Transit Management Integration

Transit Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	AC Transit		Bay Area Rapid Transit District	
	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	Caltrans District 4	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	Caltrans District 4	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	Caltrans District 4	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed

Transit Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	CalTrain		Fairfield City, Fairfield Transit System	
	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	Caltrans District 4
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	Caltrans District 4
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	Caltrans District 4
Share Infrastructure	None listed	None listed	None listed	None listed

Agency Name	Livermore/Amador Valley Transit		Monterey-Salinas Transit	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Transit operators in the region that use the same electronic payment system	All		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

Transit Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Napa County Transit		San Mateo County Transit District (SamTrans)	
	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	Santa Clara County Transit		Santa Cruz Metropolitan Transit	
	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	Caltrans District 4	None listed	None listed
Share Infrastructure	None listed	Caltrans District 4	None listed	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions				
Receive Information	None listed	SV-ITS Program Partners	None listed	None listed
Share Infrastructure	SV-ITS Program Partners	None listed	None listed	None listed
Incident Management agencies from which your agency receives				
incident severity, location, and type				
Receive Information	None listed	SV-ITS Program Partners	None listed	None listed
Share Infrastructure	None listed	SV-ITS Program Partners	None listed	None listed

Transit Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Santa Rosa City		Sonoma County Transit	
	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	Caltrans District 4
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	Caltrans District 4
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	Caltrans District 4
Share Infrastructure	None listed	None listed	None listed	None listed

Transit Management Integration
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit	
	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	Caltrans District 4
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	Caltrans District 4
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

Appendix K
Transit Management Information Collection and Dissemination

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	AC Transit		Bay Area Rapid Transit District	
	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	Internet Web Sites, Telephone System	Monitors/VMS (not in vehicle), In-vehicle navigation systems, E-mail or other direct PC communication, Kiosks	Monitors/VMS (not in vehicle), Internet Web Sites, Telephone System, Facsimile	NR
Real-time transit schedule adherence or arrival and departure times	NR	Monitors/VMS (not in vehicle), In-vehicle navigation systems, Kiosks, 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	Internet Web Sites	Kiosks, Telephone System	Kiosks, Internet Web Sites, Telephone System	NR

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	AC Transit		Bay Area Rapid Transit District	
	1999	**2005**	**1999**	**2005**
Real-time transit schedule adherence or arrival and departure times	NR	Kiosks, Internet Web Sites, Telephone System	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	WWW.ACTRANSIT.ORG WWW.TRANSITINFO.ORG		www.bart.gov	
Telephone system for reporting transit information to the public	510.817.1717 X 1111 510.839.2931 1-800-448-9790 510.477.0192 510.891.4700		510-464-6000 BART Operator 510-817-1717 TravInfo	
Organizations your agency sends information for dissemination to the public	Bay Area Media Numerous Community Organizations Throughout District Bay Area Transportation - Related Agencies District Wide Local Officials and City Governments in 13 Cities Bay Area Transit Information Project		NR	
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Passenger count	Transit operations coordination information, Intermodal (air, rail, water) conditions, Incidents, Transit vehicle signal priority, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	Transit operations coordination information, Incidents, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	NR

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	AC Transit		Bay Area Rapid Transit District	
	1999	**2005**	**1999**	**2005**
Archived by your agency	Passenger count	Transit operations coordination information, Intermodal (air, rail, water) conditions, Incidents, Transit vehicle signal priority, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	Transit operations coordination information, Incidents, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	NR
Transferred to another agency by your agency	NR	Transit operations coordination information, Intermodal (air, rail, water) conditions, Incidents, Transit vehicle signal priority, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	Transit operations coordination information, Incidents, Vehicle time and location	NR
Importance of making information available to the public				
Ranked High	Transit operations coordination information, Intermodal (air, rail, water) conditions, Incidents, Transit vehicle signal priority, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location		Transit operations coordination information, Incidents, Vehicle time and location	
Ranked Medium	NR		NR	

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	AC Transit		Bay Area Rapid Transit District	
	1999	**2005**	**1999**	**2005**
Ranked Low	NR		NR	
Groups that make requests for the data	Advanced Traveler Information Systems (ATIS) providers, Federal DOT personnel, State DOT personnel		Advanced Traveler Information Systems (ATIS) providers, Consultants, 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, Planning		Dissemination to the public, Planning, Construction impact determination, Traffic analysis	

NR: No Response

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	CalTrain		Fairfield City, Fairfield Transit System	
	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	Audible Enunciators, Cell phone/voice, Internet Web Sites, Telephone System	Kiosks, Audible Enunciators, Monitors/VMS (not in vehicle), Cell phone/voice, Internet Web Sites, Telephone System	NR	Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), In-vehicle navigation systems, E-mail or other direct PC communication, Kiosks, Internet Web Sites
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), In-vehicle navigation systems, E-mail or other direct PC communication, Kiosks, Internet Web Sites
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	NR	NR	NR	Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), In-vehicle navigation systems, E-mail or other direct PC communication, Kiosks, Internet Web Sites

Agency Name	CalTrain		Fairfield City, Fairfield Transit System	
	1999	**2005**	**1999**	**2005**
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), In-vehicle navigation systems, E-mail or other direct PC communication, Kiosks, Internet Web Sites
Internet web site reporting transit routes, schedules and fare, etc.	www.caltrain.com www.samtrans.com		www.e-v.com/fairfiled/government/publi-works/traffic.htm	
Telephone system for reporting transit information to the public	800-660-4287		NR	
Organizations your agency sends information for dissemination to the public	Metropolitan Transportation Commission for Transitinfo and Traveinfo Projects		NR	
Data collected, archived, and/or transferred to another agency				
Collected by your agency	NR	NR	Passenger count, Passenger information (e.g., surveys, O/D), Vehicle time and location, Incidents	Passenger count, Passenger information (e.g., surveys, O/D), Vehicle time and location, Incidents

Agency Name	CalTrain		Fairfield City, Fairfield Transit System	
	1999	**2005**	**1999**	**2005**
Archived by your agency	NR	NR	Passenger count, Passenger information (e.g., surveys, O/D), Vehicle time and location, Incidents	Passenger count, Passenger information (e.g., surveys, O/D), Vehicle time and location, Incidents
Transferred to another agency by your agency	NR	NR	Passenger count, Incidents	Passenger count, Incidents
Importance of making information available to the public				
Ranked High	NR		Vehicle time and location, Transit operations coordination information, Incidents, Current roadway work zones for transit, Scheduled roadway work zones for transit, Intermodal (air, rail, water) conditions, Emergency/evacuation routes and procedures, Highway operations coordination information	
Ranked Medium	NR		Weather conditions, Road conditions, Route designations (snow emergency, etc)	

Agency Name	CalTrain		Fairfield City, Fairfield Transit System	
	1999	**2005**	**1999**	**2005**
Ranked Low	NR		Passenger count, Trip itinerary planning records, Passenger information (e.g., surveys, O/D), Vehicle monitoring status, Emergency vehicle signal preemption, Transit vehicle signal priority	
Groups that make requests for the data	NR		Consultants, MPOs, Media (I.e., TV stations, radio stations), Federal DOT personnel	
What is the data used for?	NR		Dissemination to the public, Planning, Traffic analysis	

NR: No Response

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Livermore/Amador Valley Transit		Monterey-Salinas Transit	
	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	Audible Enunciators, Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), In-vehicle navigation systems, Kiosks, Pagers or personal data assistants, Internet Web Sites, Telephone System, Dedicated cable TV	NR	NR
Real-time transit schedule adherence or arrival and departure times	NR	Audible Enunciators, Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), In-vehicle navigation systems, Kiosks, Pagers or personal data assistants, Internet Web Sites, Telephone System, Dedicated cable TV	NR	NR
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	NR	NR	NR	NR

Agency Name	Livermore/Amador Valley Transit		Monterey-Salinas Transit	
	1999	**2005**	**1999**	**2005**
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		NR	
Telephone system for reporting transit information to the public	510-817-1717		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Weather conditions, Passenger count, Passenger information (e.g., surveys, O/D), Vehicle monitoring status, Incidents, Current roadway work zones for transit, Intermodal (air, rail, water) conditions	Weather conditions, Trip itinerary planning records, Passenger information (e.g., surveys, O/D), Vehicle monitoring status, Road conditions, Vehicle time and location, Incidents, Current roadway work zones for transit, Intermodal (air, rail, water) conditions	Passenger information (e.g., surveys, O/D), Passenger count	Transit vehicle signal priority

	Livermore/Amador Valley Transit		Monterey-Salinas Transit	
Agency Name	**1999**	**2005**	**1999**	**2005**
Archived by your agency	Weather conditions, Passenger count, Passenger information (e.g., surveys, O/D), Vehicle monitoring status, Incidents	Weather conditions, Passenger count, Trip itinerary planning records, Passenger information (e.g., surveys, O/D), Vehicle monitoring status, Incidents	Passenger information (e.g., surveys, O/D), Passenger count	Transit vehicle signal priority
Transferred to another agency by your agency	Passenger count	Passenger count	Passenger information (e.g., surveys, O/D), Passenger count	Transit vehicle signal priority
Importance of making information available to the public				
Ranked High	Passenger count, Trip itinerary planning records, Passenger information (e.g., surveys, O/D), Vehicle time and location, Transit operations coordination information, Incidents, Highway operations coordination information, Transit vehicle signal priority		Passenger information (e.g., surveys, O/D), Passenger count	
Ranked Medium	Weather conditions, Vehicle monitoring status, Road conditions, Current roadway work zones for transit, Scheduled roadway work zones for transit, Intermodal (air, rail, water) conditions, Emergency/evacuation routes and procedures		Transit vehicle signal priority	

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Livermore/Amador Valley Transit		Monterey-Salinas Transit	
	1999	**2005**	**1999**	**2005**
Ranked Low	Emergency vehicle signal preemption, Route designations (snow emergency, etc)		NR	
Groups that make requests for the data	Consultants, MPOs, Federal DOT personnel, State DOT personnel, Universities		MPOs, Media (I.e., TV stations, radio stations), Federal DOT personnel, State DOT personnel, Universities	
What is the data used for?	Do not know		Dissemination to the public, Planning, Traffic analysis	

NR: No Response

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Napa County Transit		San Mateo County Transit District (SamTrans)	
	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	Internet Web Sites, Telephone System	Internet Web Sites, Telephone System	Internet Web Sites, Telephone System	Monitors/VMS (not in vehicle), Kiosks
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	NR
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	Kiosks	NR	NR	NR

Agency Name	Napa County Transit		San Mateo County Transit District (SamTrans)	
	1999	**2005**	**1999**	**2005**
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	MTC has a web page with all transit agencies included - I believe it is www.transitinfo.org. City of Napa has web page with transit info. At www.cityofnapa.org		www.caltrain.com www.samtrans.com	
Telephone system for reporting transit information to the public	Rideline 1-800-696-6443		1-800-660-4287	
Organizations your agency sends information for dissemination to the public	Hotels, Chamber of Commerce, Libraries, Visitors Bureau, City Halls, tec. Vallejo Ferry Terminal, Bart Stations (Vallejo & SF)		Metropolitan Transportation Commission for Transitinfo and Travinfo Projects	
Data collected, archived, and/or transferred to another agency				
Collected by your agency	NR	NR	Vehicle time and location	Transit operations coordination information, Passenger count, Vehicle time and location

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Napa County Transit		San Mateo County Transit District (SamTrans)	
	1999	**2005**	**1999**	**2005**
Archived by your agency	NR	NR	NR	Transit operations coordination information, 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	NR		NR	
Ranked Medium	NR		Transit operations coordination information, Passenger count, Vehicle time and location	

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Napa County Transit		San Mateo County Transit District (SamTrans)	
	1999	**2005**	**1999**	**2005**
Ranked Low	NR		NR	
Groups that make requests for the data	NR		Advanced Traveler Information Systems (ATIS) providers, Media (I.e., TV stations, radio stations), Universities	
What is the data used for?	NR		Do not know	

NR: No Response

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Santa Clara County Transit		Santa Cruz Metropolitan Transit	
	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	Audible Enunciators, Monitors/VMS (not in vehicle), Internet Web Sites, Telephone System	Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), Kiosks	Internet Web Sites	NR
Real-time transit schedule adherence or arrival and departure times	NR	Audible Enunciators, Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), Kiosks, Internet Web Sites, Telephone System	NR	NR
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	Internet Web Sites, Telephone System	Monitors/VMS (not in vehicle), Kiosks	NR	NR

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Santa Clara County Transit		Santa Cruz Metropolitan Transit	
	1999	**2005**	**1999**	**2005**
Real-time transit schedule adherence or arrival and departure times	NR	Monitors/VMS (not in vehicle), Kiosks, Internet Web Sites, Telephone System	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	www.vta.org and Travinfo		www.scmtd.com	
Telephone system for reporting transit information to the public	408-321-2300 408-817-1717 (Travinfo)		NR	
Organizations your agency sends information for dissemination to the public	MTC/Travinfo		NR	
Data collected, archived, and/or transferred to another agency				
Collected by your agency	NR	Transit vehicle signal priority, Passenger count, Vehicle time and location	NR	NR

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Santa Clara County Transit		Santa Cruz Metropolitan Transit	
Agency Name	**1999**	**2005**	**1999**	**2005**
Archived by your agency	NR	Transit vehicle signal priority, Passenger count, Vehicle time and location	NR	NR
Transferred to another agency by your agency	NR	Vehicle time and location	NR	NR
Importance of making information available to the public				
Ranked High	Vehicle time and location		NR	
Ranked Medium	NR		NR	

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Santa Clara County Transit		Santa Cruz Metropolitan Transit	
	1999	**2005**	**1999**	**2005**
Ranked Low	NR		NR	
Groups that make requests for the data	Advanced Traveler Information Systems (ATIS) providers, MPOs		MPOs, State DOT personnel, Universities	
What is the data used for?	Dissemination to the public, Planning		Planning, Traffic analysis	

NR: No Response

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Santa Rosa City		Sonoma County Transit	
	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	Cell phone/voice, E-mail or other direct PC communication, Kiosks, Internet Web Sites	Monitors/VMS (not in vehicle)
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	Monitors/VMS (not in vehicle), In-vehicle navigation systems, Pagers or personal data assistants, Internet Web Sites
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	NR	NR	NR	NR

Agency Name	Santa Rosa City		Sonoma County Transit	
	1999	**2005**	**1999**	**2005**
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.sctransit.com	
Telephone system for reporting transit information to the public	NR		800-345-7433	
Organizations your agency sends information for dissemination to the public	NR		Metropolitan Transportation Commission, Oakland, CA	
Data collected, archived, and/or transferred to another agency				
Collected by your agency	NR	NR	Transit vehicle signal priority, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	NR

Agency Name	Santa Rosa City		Sonoma County Transit	
	1999	**2005**	**1999**	**2005**
Archived by your agency	NR	NR	NR	NR
Transferred to another agency by your agency	NR	NR	NR	Passenger information (e.g., surveys, O/D), Vehicle time and location
Importance of making information available to the public				
Ranked High	NR		Vehicle time and location	
Ranked Medium	NR		Vehicle monitoring status, Passenger information (e.g., surveys, O/D)	

Agency Name	Santa Rosa City		Sonoma County Transit	
	1999	**2005**	**1999**	**2005**
Ranked Low	NR		Passenger count	
Groups that make requests for the data	NR		Media (I.e., TV stations, radio stations)	
What is the data used for?	NR		Accident prediction models	

NR: No Response

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit	
	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	E-mail or other direct PC communication, Internet Web Sites, Telephone System	E-mail or other direct PC communication, Internet Web Sites, Telephone System	NR	NR
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	NR
Technologies employed by other organization receiving your data				
Transit routes, schedules and fares	NR	NR	NR	NR

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit	
	1999	**2005**	**1999**	**2005**
Real-time transit schedule adherence or arrival and departure times	NR	NR	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	www.baylinkferry.com		NR	
Telephone system for reporting transit information to the public	none		NR	
Organizations your agency sends information for dissemination to the public	Travinfo - Caltrnas & MTC Solano Commuter Information (SCI) Transit Info.org		NR	
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Emergency/evacuation routes and procedures, Intermodal (air, rail, water) conditions, Incidents, Passenger information (e.g., surveys, O/D), Passenger count	NR	Passenger information (e.g., surveys, O/D), Passenger count	Transit vehicle signal priority, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location

Agency Name	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit	
	1999	**2005**	**1999**	**2005**
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				
Ranked High	NR		NR	
Ranked Medium	NR		Passenger information (e.g., surveys, O/D), Passenger count, Vehicle time and location	

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

Agency Name	Vallejo Transit & San Francisco Ferry		Western Contra Costa Transit	
	1999	**2005**	**1999**	**2005**
Ranked Low	NR		Transit vehicle signal priority, Vehicle monitoring status	
Groups that make requests for the data	MPOs, Consultants, Federal DOT personnel, Media (I.e., TV stations, radio stations), State DOT personnel, Universities		Consultants	
What is the data used for?	Planning, Do not know		Dissemination to the public, Planning	

NR: No Response

Appendix L
Emergency Management

	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
Agency Name	1999	2005	1999	2005	1999	2005	1999	2005	1999	2005	1999	2005			
California Highway Patrol	544	598	0	NR	6	7	544	598	383	421	0	0	Yes	Yes	California Department of Transportation-TMC
Freeway Service Patrol-Caltrans District 4	63	79	63	79	61	76	61	76	61	76	0	0	Yes	Yes	None listed
Fremont City Fire Department	32	32	0	NR	0	NR	32	32	0	NR	4	18	Yes	Yes	California State Fire Marshal
Fremont City Police Department	58	60	0	0	0	0	58	60	58	60	0	0	NR	NR	None listed
Redwood City Fire Department	19	NR	0	NR	0	NR	12	NR	2	NR	12	NR	Yes	Yes	California State Fire Marshal, County of San Mateo Service Area 8, County of San Mateo ALS, County of San Mateo Fire Investigation Unit
Redwood City Police Department	30	30	0	0	0	30	0	30	0	30	0	0	No	No	None listed
San Francisco City Police Department	1,150	1,150	0	0	0	0	415	450	415	450	0	0	Yes	No	None listed
San Jose City Fire Department	79	81	0	0	0	0	79	81	7	NR	7	10	No	No	None listed
San Jose City Police Department	401	410	0	NR	0	0	401	410	400	410	0	0	Yes	Yes	None listed

Appendix M
Electronic Toll Collection

Electronic Toll Collection
Agencies for Metropolitan Area: San Francisco, Oakland, San Jose

	Caltrans Headquarters-9 Bridges		Caltrans Headquarters-Carquinez Bridge		Golden Gate Bridge District		Totals	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes		Yes		3	
Number of toll Collection Plazas operated	9	9	1	1	1	1	11	11
Number of toll collection plazas with dedicated ETC	1	9	1	1	0	0	2	10
Number of toll collection plazas with both manual and ETC	1	9	1	1	0	1	2	11
Number of toll collection lanes operated	75	75	12	12	11	11	98	98
Number of toll collection lanes with dedicated ETC	1	10	1	1	0	0	2	11
Number of toll collection lanes with both manual and ETC	1	75	12	12	0	11	13	98
Number of toll collection tags issued	10,000	0	10,000	0	0	90,000	20,000	90,000
Antennae Location Technologies								
In-Pavement?	No		No		No		0	
Focused Beam?	No		No		Yes		1	
Distributed Overhead?	Yes		Yes		No		2	
In-Vehicle Equipment Technologies								
Tag-based?	Yes		Yes		Yes		3	
Integrated circuit card-based?	No		No		No		0	
Are toll tags used by other toll operations in metro area?	Yes		Yes		No		2	
List of toll operators that use tags	None		Golden Gate Bridge District		None			
Are toll tags used by operators of public transit to pay transit fares								
in metro area?	No		No		No		0	
List of transit operators that use tags	None		None		None			
_____								
NR: No Response								