

Tracking the Deployment of the Integrated Metropolitan ITS Infrastructure in Salt Lake City, Ogden

FY99 Results

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Part 1 - Background and Purpose

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

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

-- Secretary Peña, 1996

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

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

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

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

the methodology are explained elsewhere.³

During the summer and fall of 1999, the U.S. DOT undertook a new data collection effort for the purpose of examining ITS deployment progress in the nation's largest metropolitan areas. The Salt Lake City, Ogden 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 Salt Lake City, Ogden region was 91% in 1997 and 57% 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 Salt Lake City, Ogden 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.

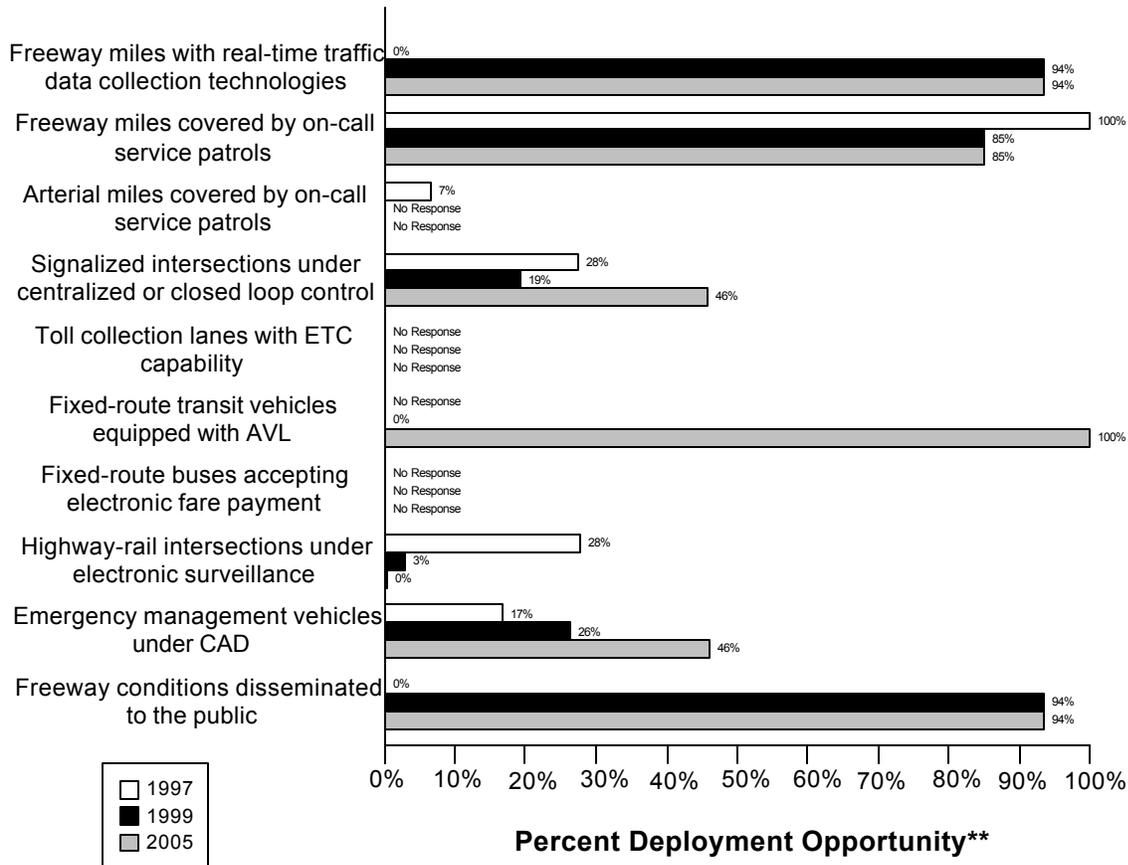
A critical aspect of ITS that provides much of its capability is the integration of individual components to form a unified regional traffic control system. Individual ITS components routinely collect information that is used for purposes internal to that component. For example, the Arterial Management 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

Salt Lake City, Ogden Summary Indicators*

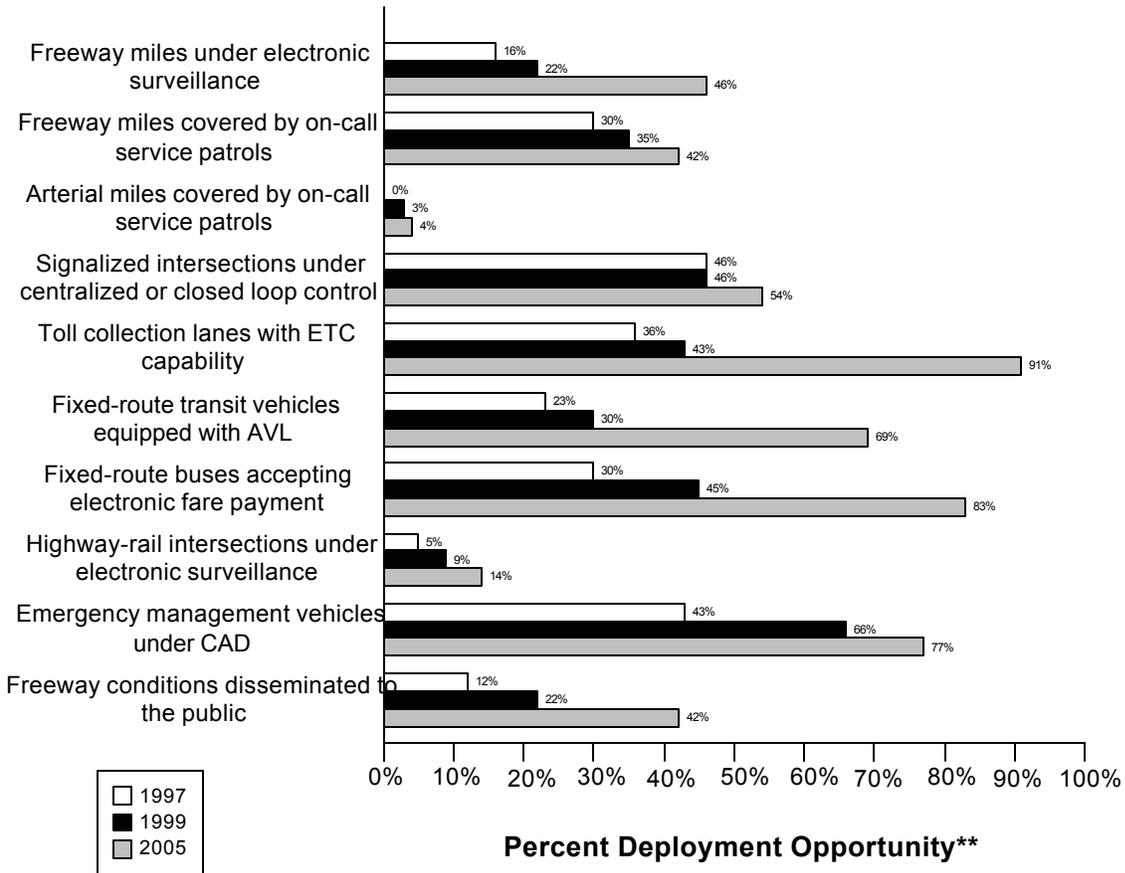


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

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

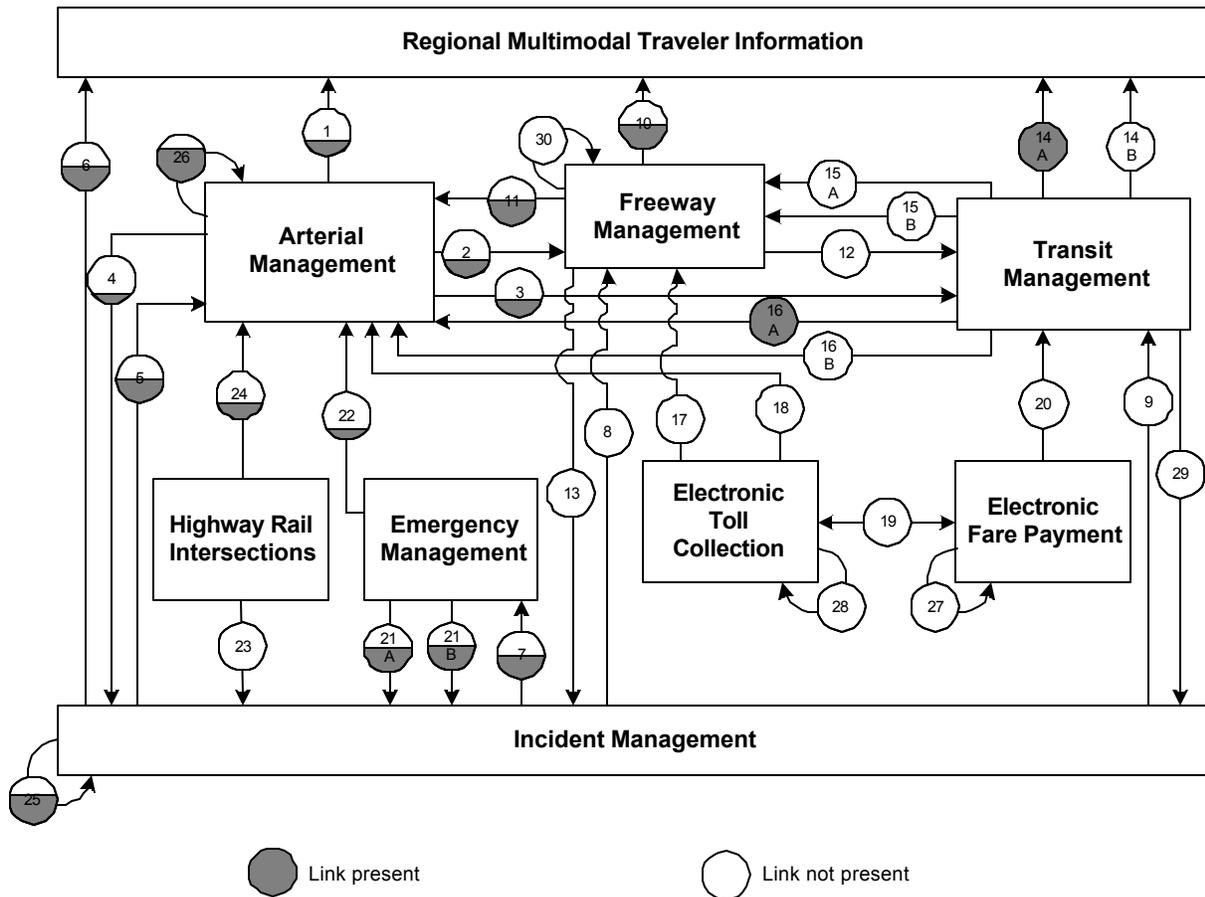
National Summary Indicators*

Data as of 5/1/00



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Salt Lake City, Ogden Integration Links



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

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

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

Part 3 - Detailed 1999 Survey Results

The following figures and tables summarize the complete set of component and integration indicators developed for the Salt Lake City, Ogden 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).

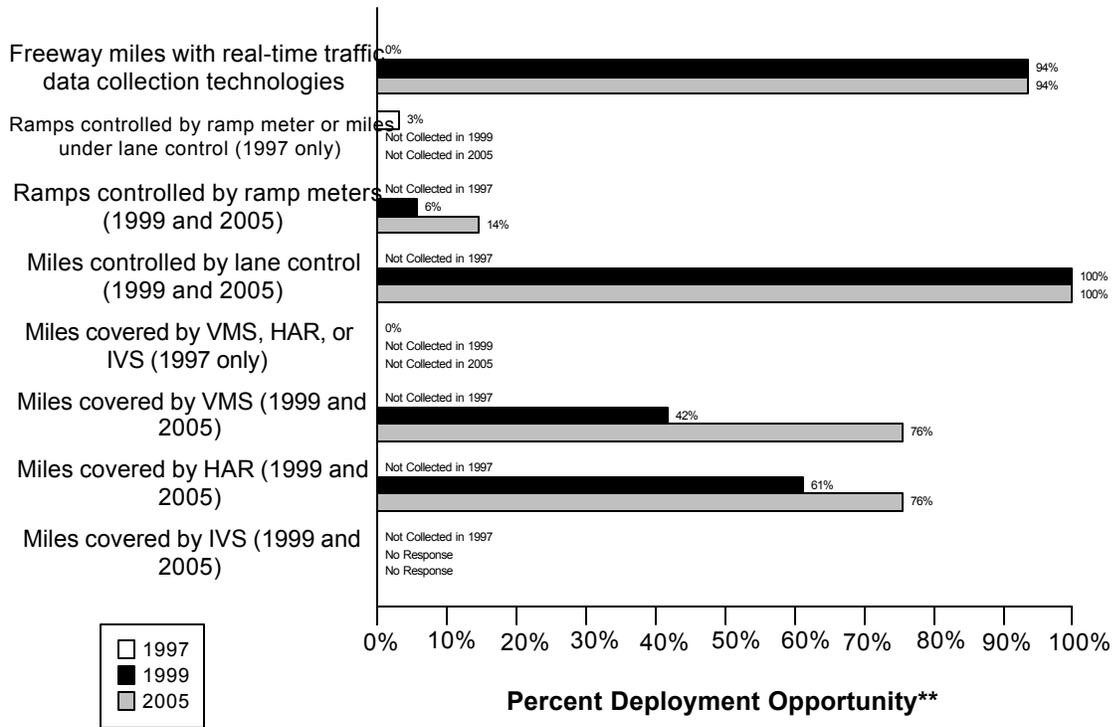
Example: Calculating Integration between Arterial Management and Regional Multimodal Traveler Information

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

Salt Lake City, Ogden Freeway Management*



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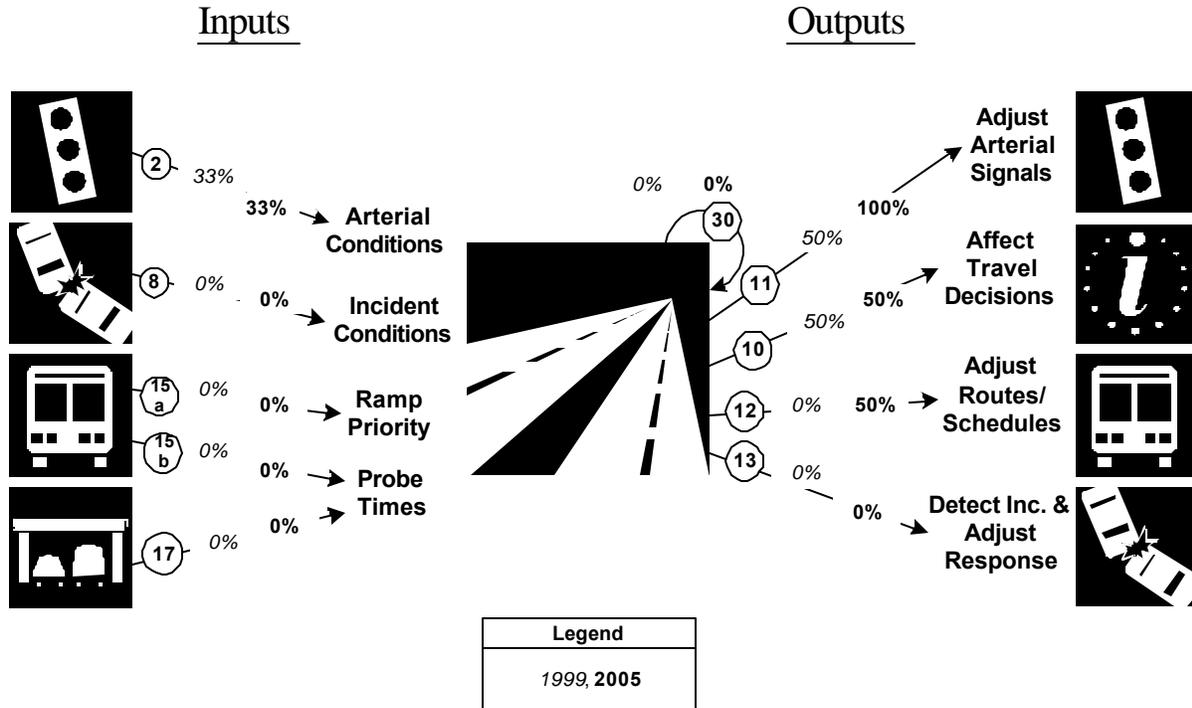
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway centerline miles are under electronic surveillance for monitoring traffic flow	0	139	0%	130	139	94%	130	139	94%
Freeway entrance ramps are controlled by ramp meters or miles under lane control	5	160	3%						
Freeway entrance ramps are controlled by ramp meters				9	160	6%	23	160	14%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway centerline miles will be controlled by lane control				139	139	100%	139	139	100%
Freeway miles are covered by VMS, HAR, or IVS	0	139	0%						
Freeway miles are covered by VMS				58	139	42%	105	139	76%
Freeway miles are covered by HAR				85	139	61%	105	139	76%
Freeway miles are covered by IVS					139			139	

Freeway Management Integration Indicators

Salt Lake City, Ogden

Freeway Management Integration*



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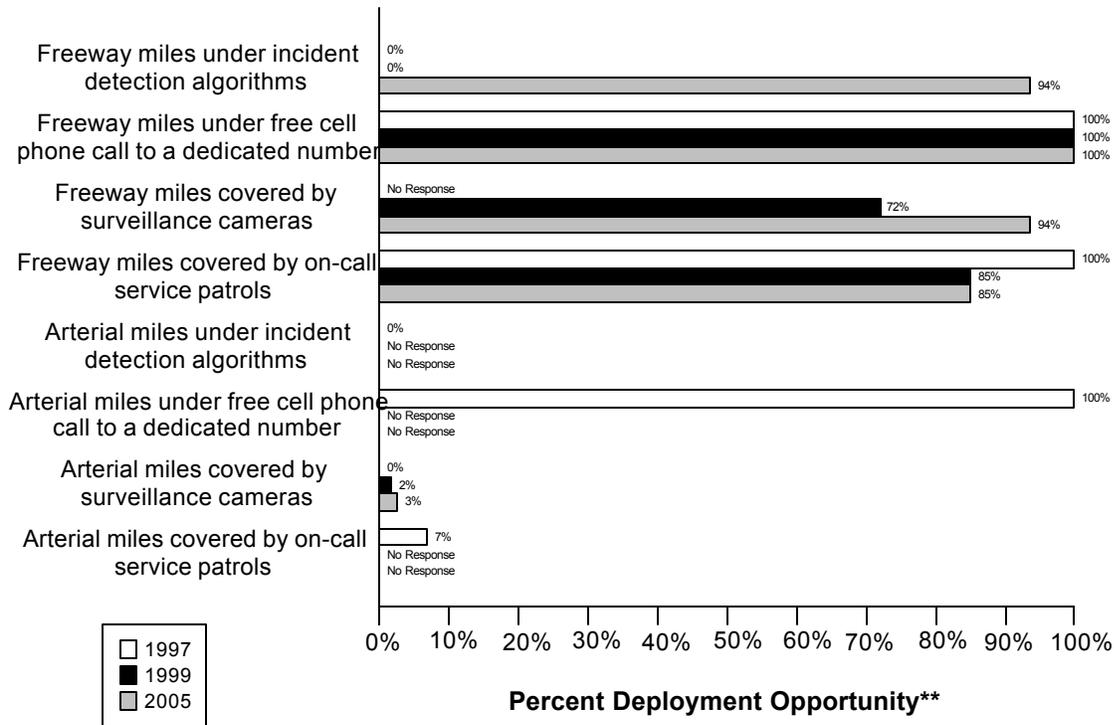
Link Description	1999	2005
2. Arterial Management agencies sending information to Freeway Management	(2/ 6) 33%	(2/ 6) 33%
8. Incident Management agencies sending information to Freeway Management	(0/ 2) 0%	(0/ 2) 0%
15a. Transit management agencies with vehicles equipped with ramp meter priority	(0/ 1) 0%	(0/ 1) 0%
15b. Transit Management agencies with vehicles equipped as probes	(0/ 1) 0%	(0/ 1) 0%
17. Freeway Management agencies receiving freeway conditions from vehicle probes	(0/ 2) 0%	(0/ 2) 0%
30. Freeway Management agencies sending information to another Freeway Management agency	(0/ 2) 0%	(0/ 2) 0%
11. Freeway Management agencies sending information to Arterial Management	(1/ 2) 50%	(2/ 2) 100%

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

Incident Management Component Indicators

Data as of 5/1/00

Salt Lake City, Ogden Freeway and Arterial Incident Management*



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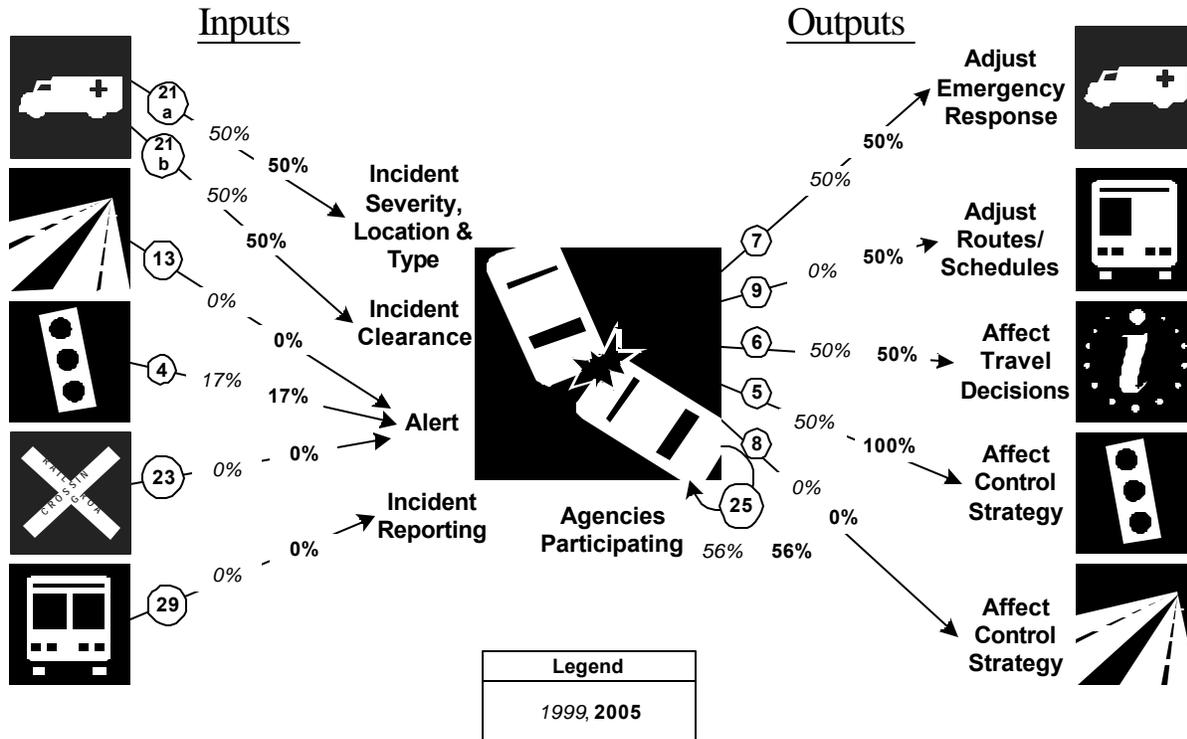
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by incident detection algorithms	0	139	0%	0	139	0%	130	139	94%
Freeway miles are covered by free cellular phone calls to a dedicated number	139	139	100%	139	139	100%	139	139	100%
Freeway miles are covered by surveillance cameras.		139		100	139	72%	130	139	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.	139	139	100%	118	139	85%	118	139	85%
Arterial miles are covered by incident detection algorithms	0	598	0%		598			598	
Arterial miles are covered by free cellular phone calls to a dedicated number	598	598	100%		598			598	
Arterial miles are covered by surveillance cameras	0	598	0%	10	598	2%	15	598	3%
Arterial miles are covered by on-call publicly-sponsored service patrol or towing services	40	598	7%		598			598	

Incident Management Integration Indicators

Salt Lake City, Ogden

Incident Management Integration*



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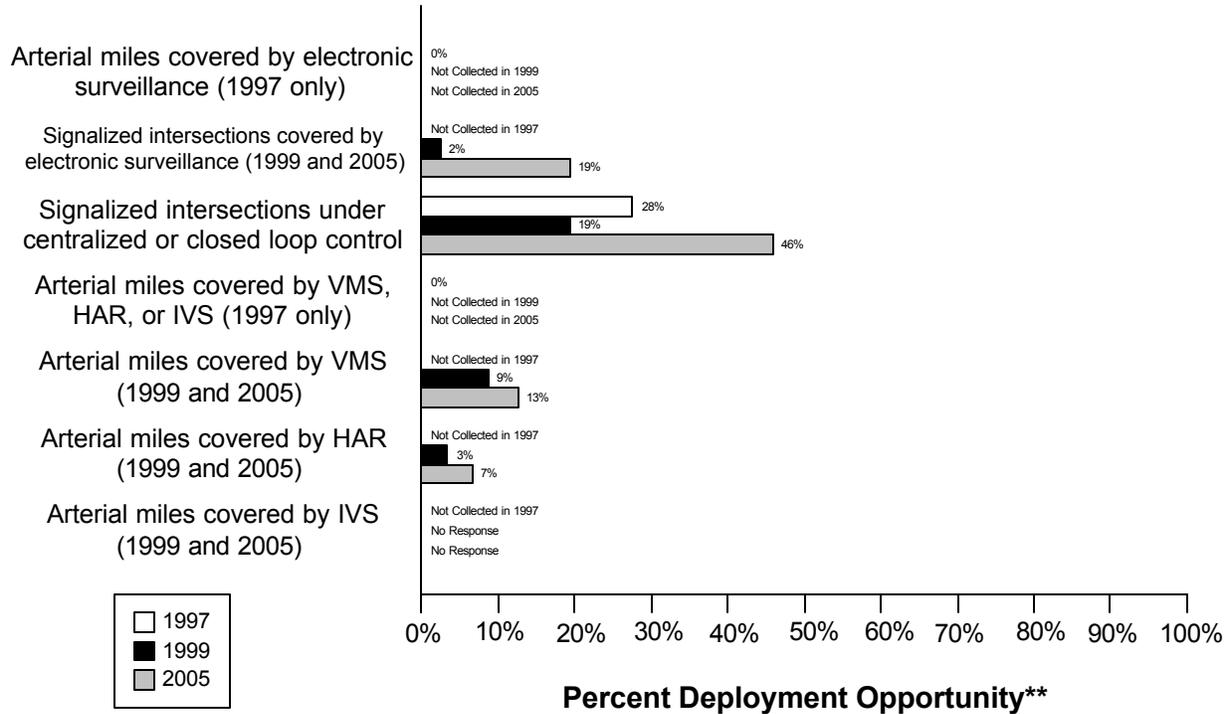
Link Description	1999	2005
21a. Incident management agencies receiving incident severity from Emergency Management	(1 / 2) 50%	(1 / 2) 50%
21b. Incident management agencies receiving incident clearance activities from Emergency Management	(1 / 2) 50%	(1 / 2) 50%
13. Freeway Management agencies sending freeway conditions to Incident Management	(0 / 2) 0%	(0 / 2) 0%
4. Arterial Management agencies sending arterial conditions to Incident Management	(1 / 6) 17%	(1 / 6) 17%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(0 / 6) 0%	(0 / 6) 0%
29. Transit Management agencies report traffic incidents as part of an organized regional incident management program	(0 / 1) 0%	(0 / 1) 0%

Link Description	1999	2005
7. Incident management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	(1/ 2) 50%	(1/ 2) 50%
9. Incident Management agencies transfer information describing incident severity, location, and type to Transit Management agencies	(0/ 2) 0%	(1/ 2) 50%
6. Incident Management agencies disseminate information describing incident severity, location, and type to the public	(1/ 2) 50%	(1/ 2) 50%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management agencies	(1/ 2) 50%	(2/ 2) 100%
8. Incident Management agencies transfer information describing incident severity, location, and type to Freeway Management agencies	(0/ 2) 0%	(0/ 2) 0%
25. Police, fire, and EMS agencies participating in a formal incident management plan/team	(5/ 9) 56%	(5/ 9) 56%

Arterial Management Component Indicators

Data as of 5/1/00

Salt Lake City, Ogden Arterial Management*



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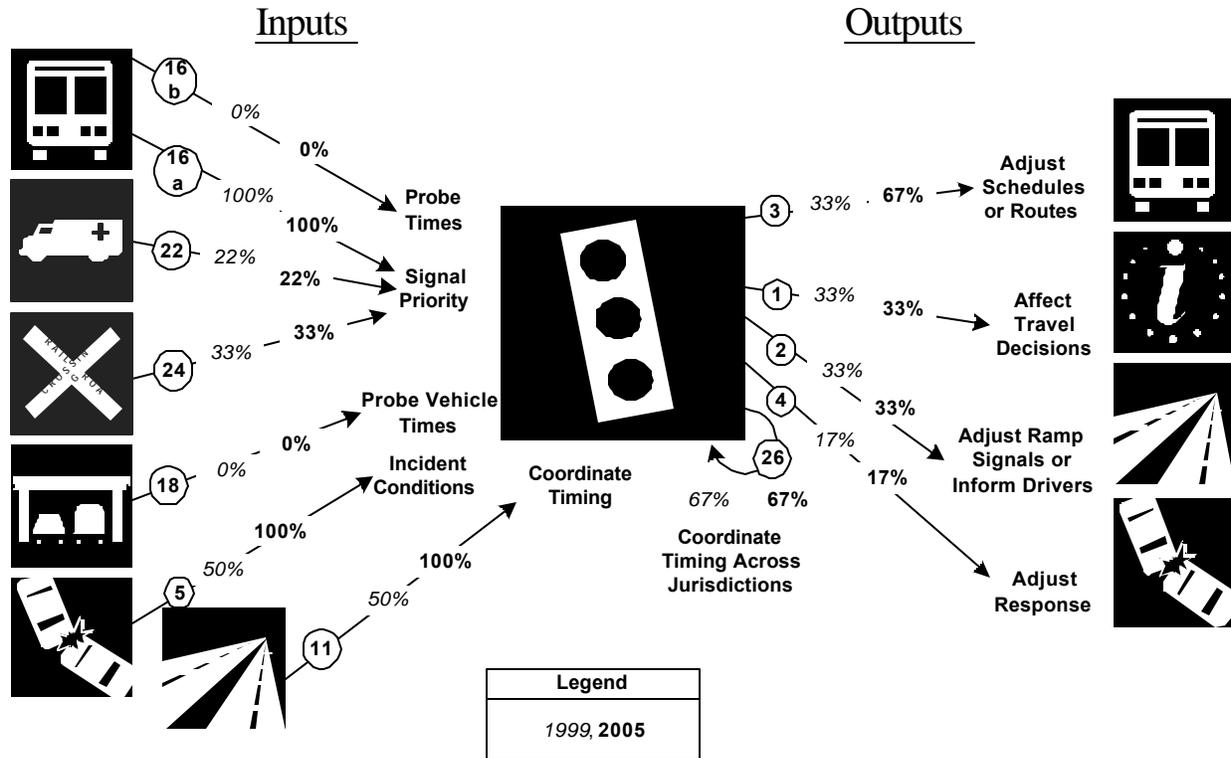
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles covered by electronic surveillance	0	598	0%						
Signalized intersections are covered by electronic surveillance for monitoring traffic flow				21	852	2%	189	980	19%
Signalized intersections are under centralized or closed loop control	226	820	28%	165	852	19%	450	980	46%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles are covered by VMS, HAR, or IVS	0	598	0%						
Arterial miles are covered by VMS				52	598	9%	75	598	13%
Arterial miles are covered by HAR				20	598	3%	40	598	7%
Arterial miles are covered by IVS					598			598	

Arterial Management Integration Indicators

Salt Lake City, Ogden

Arterial Management Integration*



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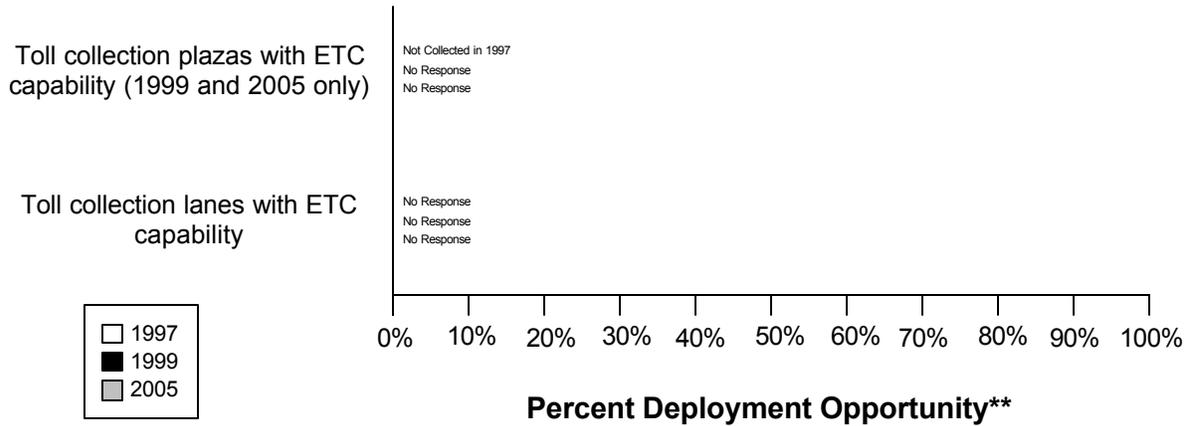
Link Description	1999	2005
16a. Transit management agencies with vehicles equipped with traffic signal priority	(1 / 1) 100%	(1 / 1) 100%
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0 / 1) 0%	(0 / 1) 0%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(2 / 9) 22%	(2 / 9) 22%
24. Arterial Management agencies have traffic signals within 200 feet of a highway rail intersection with the capability of having their signal timing adjusted in response to a train crossing	(2 / 6) 33%	(2 / 6) 33%
18. Number of Arterial Management agencies receiving information from vehicle probes	(0 / 6) 0%	(0 / 6) 0%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management	(1 / 2) 50%	(2 / 2) 100%

Link Description	1999	2005
11. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Arterial Management agencies	(1/ 2) 50%	(2/ 2) 100%
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(2/ 6) 33%	(4/ 6) 67%
1. Arterial Management agencies disseminate arterial travel times, speeds, and conditions to the public	(2/ 6) 33%	(2/ 6) 33%
2. Arterial Management agencies send traffic condition information to Freeway Management	(2/ 6) 33%	(2/ 6) 33%
4. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Incident Management	(1/ 6) 17%	(1/ 6) 17%
26. Arterial Management agencies under cooperative agreement to share traffic signal timing for coordinated response	(4/ 6) 67%	(4/ 6) 67%

Electronic Toll Collection Component Indicators

Data as of 5/1/00

**Salt Lake City, Ogden
Electronic Toll Collection***



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Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Toll collection plazas with ETC capability									
Toll collection lanes with ETC capability									

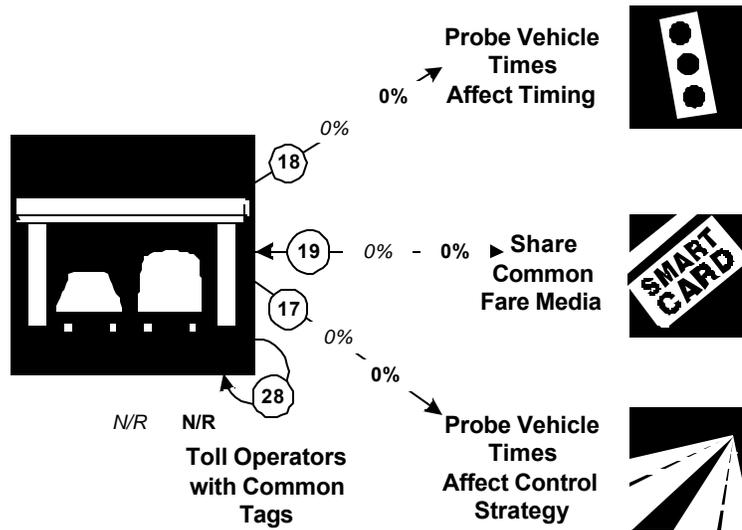
Electronic Toll Collection Integration Indicators

Salt Lake City, Ogden

Electronic Toll Collection Integration*

Inputs

Outputs



Legend
1999, 2005

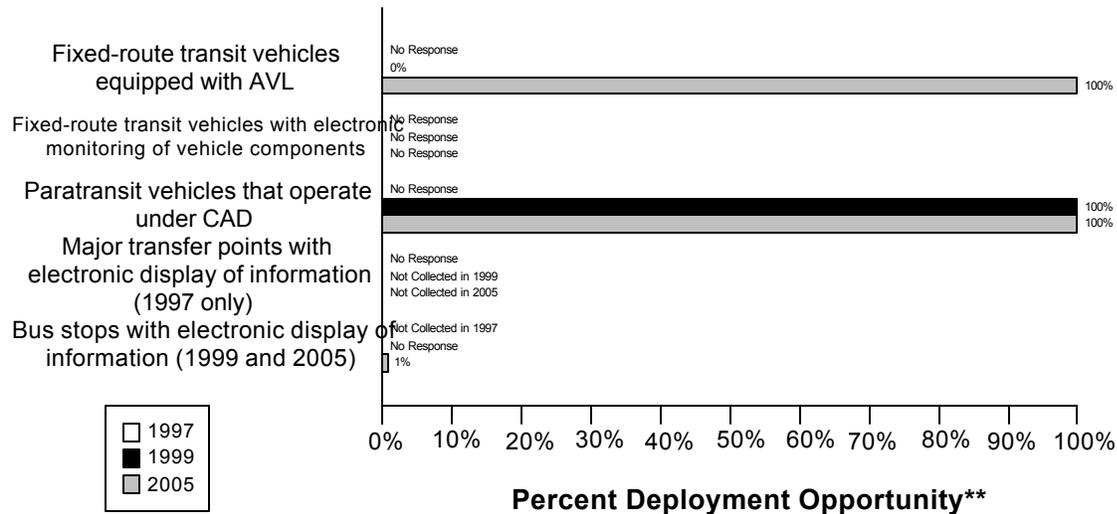
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
18. Number of Arterial Management agencies receiving information from vehicle probes	(0/ 6) 0%	(0/ 6) 0%
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	(0/ 1) 0%	(0/ 1) 0%
17. Freeway Management agencies receiving information from vehicle probes	(0/ 2) 0%	(0/ 2) 0%
28. Toll operators using common toll tag technology	(0/)	(0/)

Transit Management Component Indicators

Data as of 5/1/00

Salt Lake City, Ogden Transit Management*

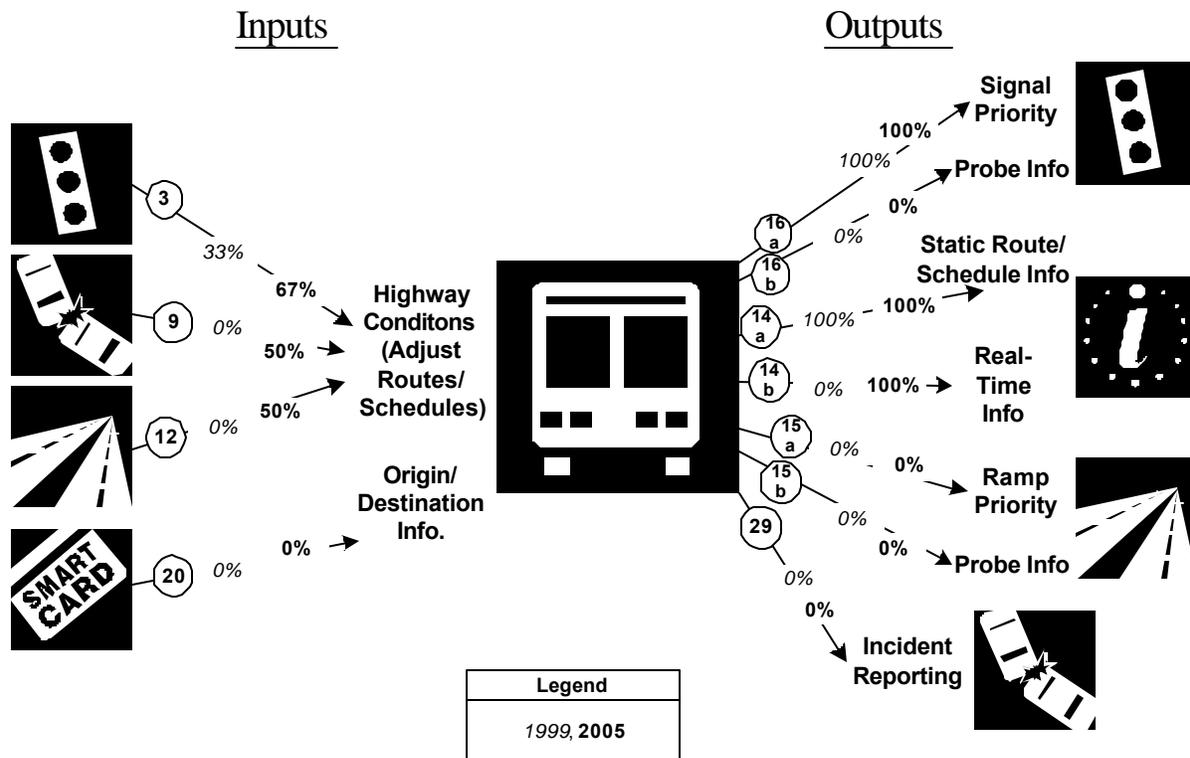


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 ** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles are equipped with AVL				0	530	0%	600	600	100%
Fixed-route transit vehicles are equipped with electronic monitoring of vehicle component					530			600	
Paratransit vehicles operate under computer-aided dispatch				90	90	100%	100	100	100%
Percent fixed-route transfer locations with electronic display of information									
Bus stops display information to the public					9000		50	9000	1%

Transit Management Integration Indicators

Salt Lake City, Ogden Transit Management Integration*



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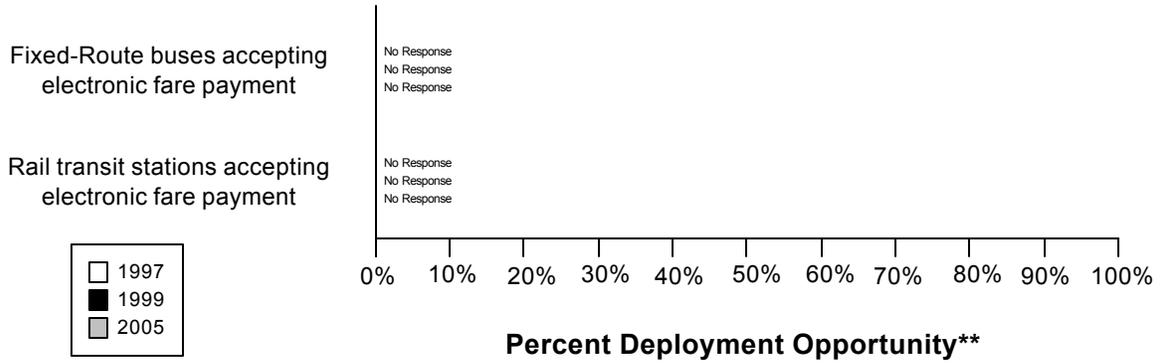
Link Description	1999	2005
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(2 / 6) 33%	(4 / 6) 67%
9. Incident management agencies transfer information describing incident severity, location, and type to Transit Management	(0 / 2) 0%	(1 / 2) 50%
12. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Transit Management	(0 / 2) 0%	(1 / 2) 50%
20. Transit Management agencies using Electronic Fare Payment data in transit service planning	(0 / 1) 0%	(0 / 1) 0%
16a. Transit Management agencies have vehicles equipped with traffic signal priority capability	(1 / 1) 100%	(1 / 1) 100%
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0 / 1) 0%	(0 / 1) 0%
14a. Transit Management agencies disseminate information describing transit routes, schedules, and fares to travelers	(1 / 1) 100%	(1 / 1) 100%

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

Electronic Fare Payment Component Indicators

Data as of 5/1/00

**Salt Lake City, Ogden
Electronic Fare Payment***



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Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles that accept electronic payment					530			600	
Rail transit stations that accept electronic payment					14			20	

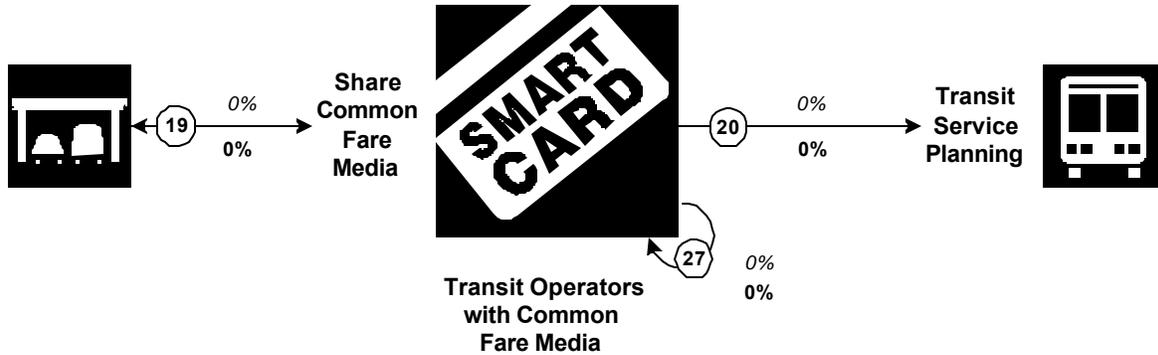
Electronic Fare Payment Integration Indicators

Salt Lake City, Ogden

Electronic Fare Payment Integration*

Inputs

Outputs



Legend
1999
2005

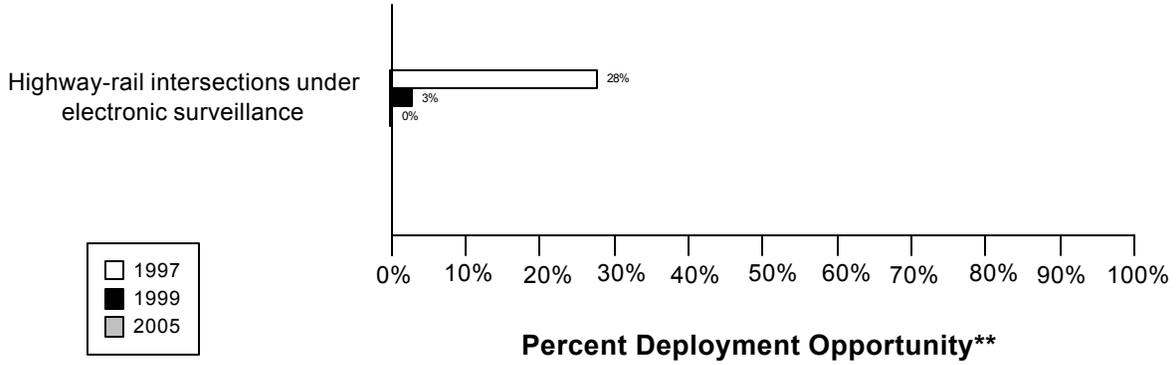
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

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

Highway Rail Intersection Component Indicators

Data as of 5/1/00

Salt Lake City, Ogden Highway-Rail Intersections*



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

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

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Highway-rail intersections are under electronic surveillance	5	18	28%	10	344	3%	1	344	0%

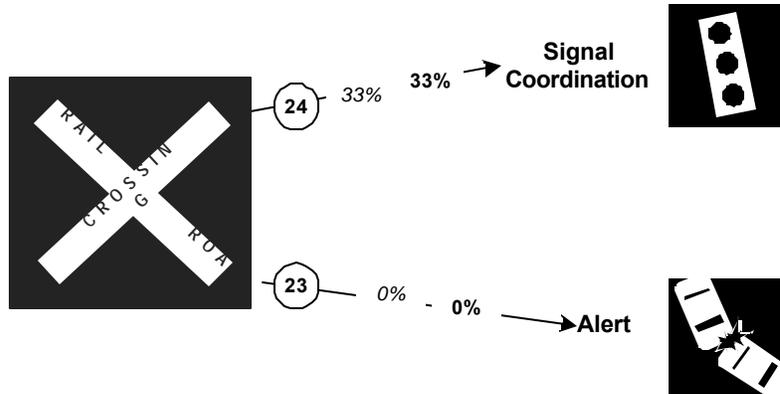
Highway Rail Intersection Integration Indicators

Salt Lake City, Ogden

Highway Rail Intersections Integration*

Inputs

Outputs



Legend
1999, 2005

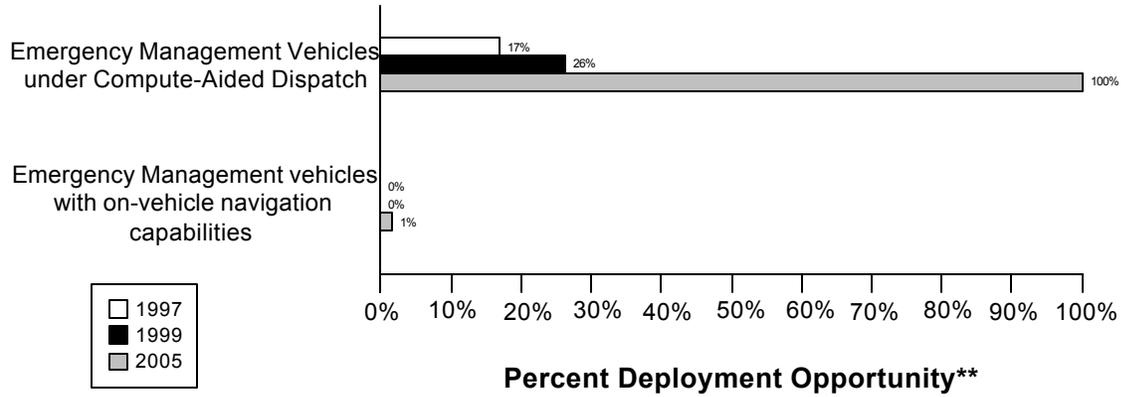
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

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	(2/ 6) 33%	(2/ 6) 33%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(0/ 6) 0%	(0/ 6) 0%

Emergency Management Component Indicators

Data as of 5/1/00

Salt Lake City, Ogden Emergency Management*



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

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

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Public sector emergency vehicles that operate under computer-aided dispatch	220	1306	17%	330	1250	26%	402	402	100%
Public sector emergency vehicles that have in-vehicle route guidance capability	0	1306	0%	0	1250	0%	6	402	1%

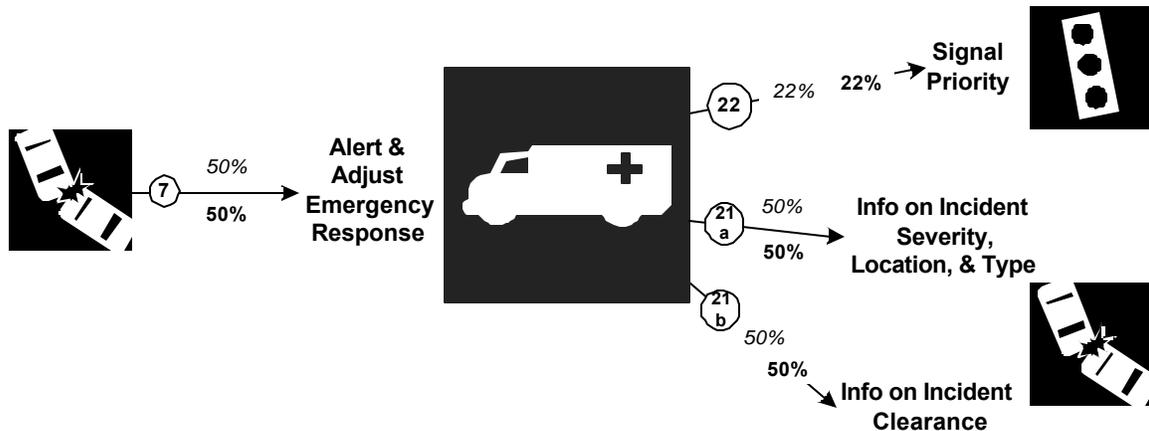
Emergency Management Integration Indicators

Salt Lake City, Ogden

Emergency Management Integration*

Inputs

Outputs



Legend
1999, 2005

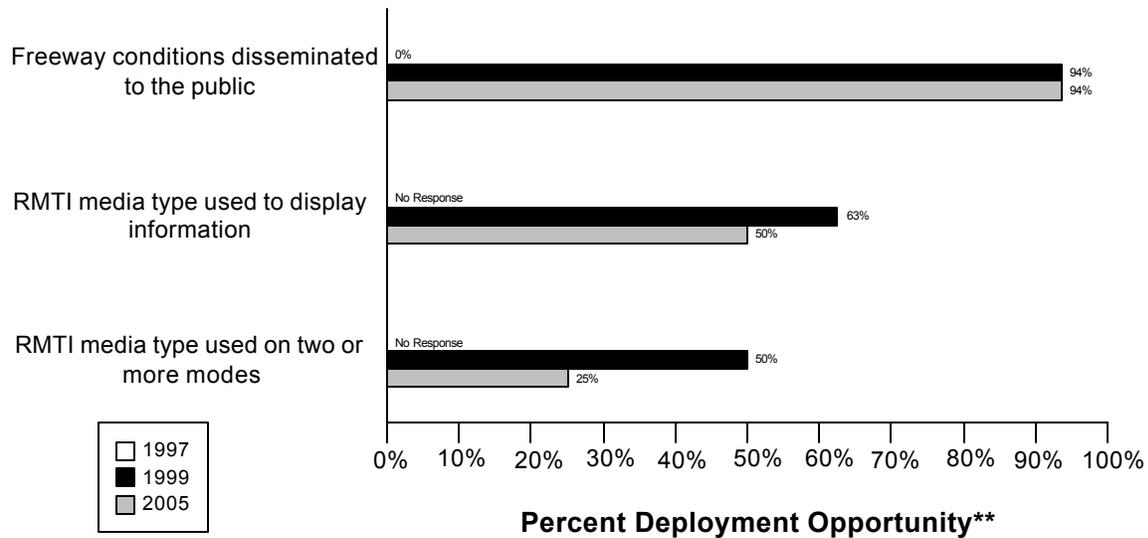
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
7. Freeway Management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	(1 / 2) 50%	(1 / 2) 50%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(2 / 9) 22%	(2 / 9) 22%
21a. Freeway Management agencies receive incident severity, location, and type data from Emergency Management agencies	(1 / 2) 50%	(1 / 2) 50%
21b. Freeway Management agencies receive incident clearance activities information from Emergency Management agencies	(1 / 2) 50%	(1 / 2) 50%

Regional Multimodal Traveler Information Component Indicators

Data as of 5/1/00

Salt Lake City, Ogden Regional Multimodal Traveler Information*



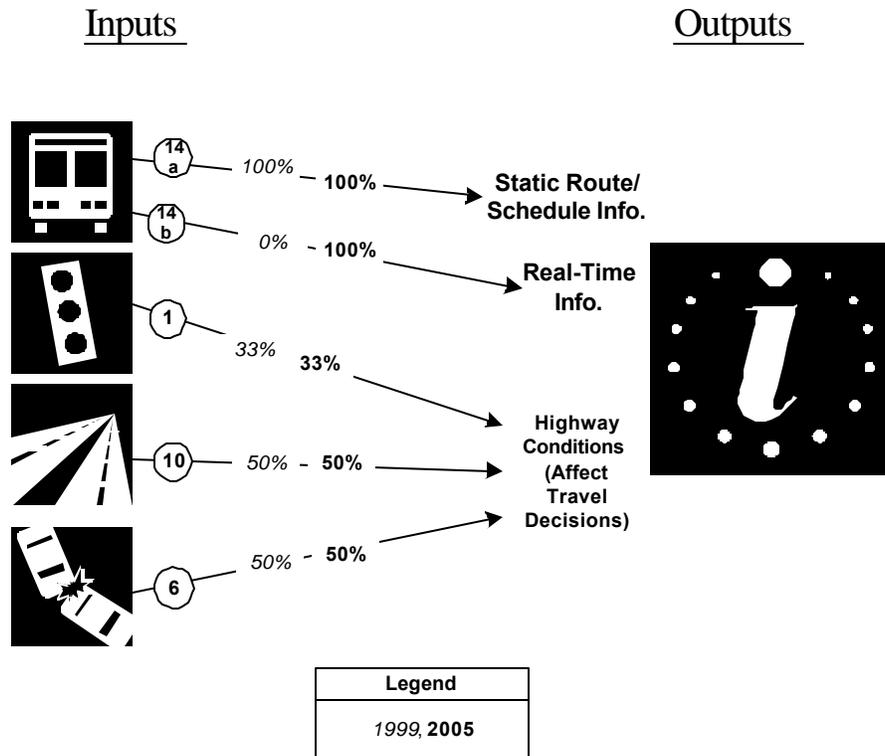
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
 ** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway conditions disseminated to travelers	0	139	0%	130	139	94%	130	139	94%
Possible RMTI media types are used to display information to travelers				5	8	63%	4	8	50%
Possible RMTI media are used to display information on <i>two or more modes</i> to travelers				4	8	50%	2	8	25%

Regional Multimodal Traveler Information Integration Indicators

Salt Lake City, Ogden

Regional Multimodal Traveler Information Integration*

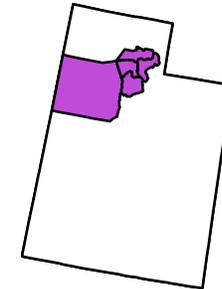
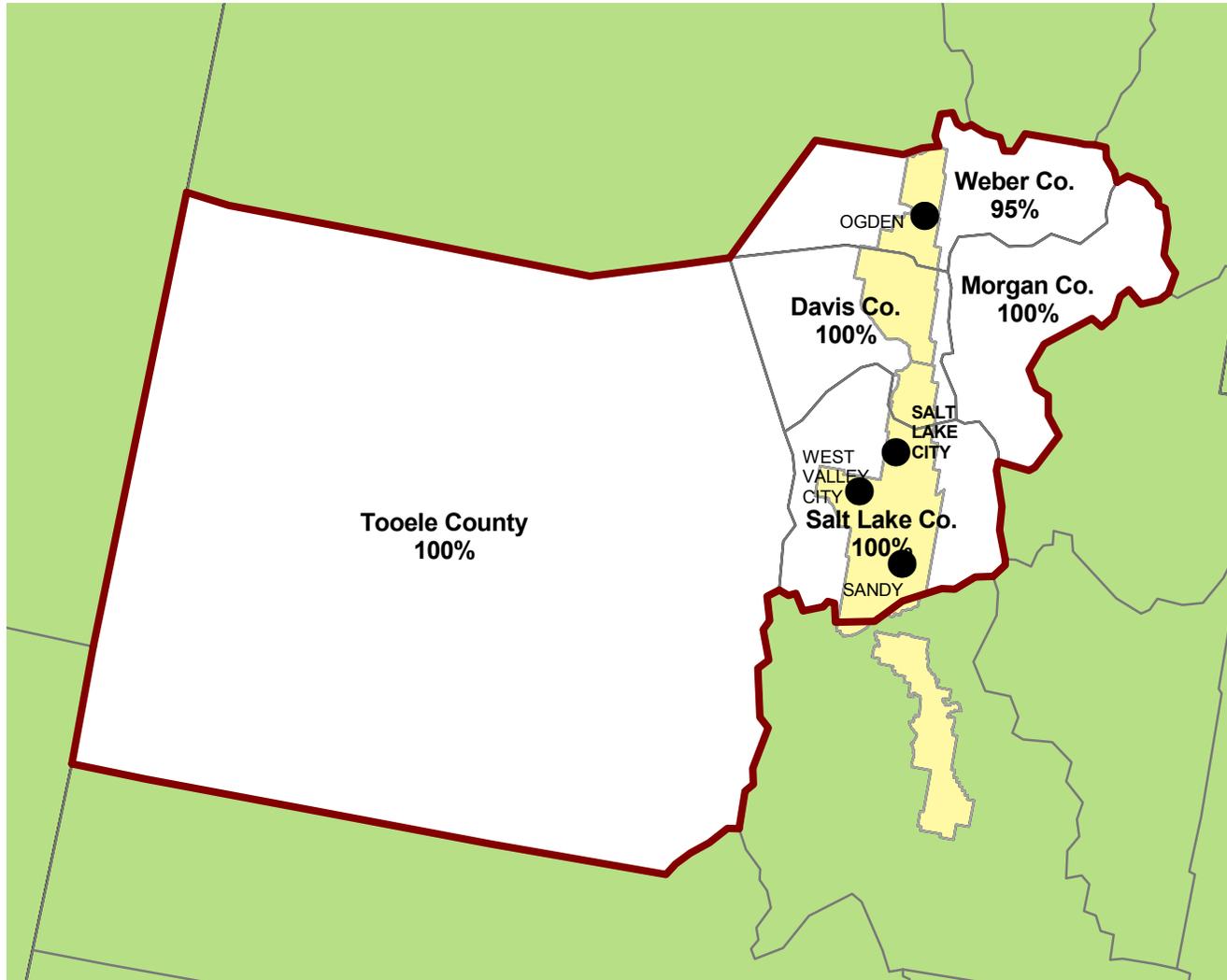


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
14a. Transit Management agencies that disseminate information describing transit routes, schedules, and fares to travelers	(1 / 1) 100%	(1 / 1) 100%
14b. Transit Management agencies that disseminate information describing schedule/route adherence to travelers	(0 / 1) 0%	(1 / 1) 100%
1. Arterial Management agencies that disseminate arterial travel times, speeds, and conditions to the public	(2 / 6) 33%	(2 / 6) 33%
10. Freeway Management agencies that disseminate freeway travel times, speeds, and conditions to travelers	(1 / 2) 50%	(1 / 2) 50%
6. Incident Management agencies that disseminate information describing incident severity, location, and type to the public	(1 / 2) 50%	(1 / 2) 50%

Appendix A
Survey Coverage Area

WASATCH FRONT REGIONAL COUNCIL, UT



- 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
SALT LAKE CITY, OGDEN						
Arterial Management						
Sandy City	801-568-2981	801-562-1312			7/18/1997	8/21/1997
Salt Lake County	801-965-4894	801-965-4338	8/5/1999	12/28/1999	5/5/1998	5/5/1998
Weber County	(801) 399-8371	(801) 399-8862	8/5/1999	8/11/1999	7/18/1997	9/22/1997
Salt Lake City	801-965-4894	801-965-4338	8/5/1999	12/28/1999	5/5/1998	5/5/1998
Utah Department of Transportation-Region 2	801-965-4894	801-965-4338	8/5/1999	12/28/1999	7/18/1997	5/5/1998
Utah Department of Transportation-Region 1	801-965-4894	801-965-4338	8/5/1999	12/28/1999	5/5/1998	5/5/1998
West Valley City	(801) 963-3205	(801) 963-3540	8/5/1999	10/15/1999	7/18/1997	8/21/1997
Emergency Management						
Davis County Sheriff Department	(801) 451-4116	(801) 451-4167	6/26/1999		8/12/1998	8/12/1998
Ogden City Fire & EMS Department	(801) 629-8311	(801) 629-8065	6/26/1999	6/28/1999	7/18/1997	7/21/1997
Ogden City Police Department	(801) 629-821	(801) 629-8086	6/26/1999	8/3/1999	7/18/1997	7/23/1997
Salt Lake Fire Department	(801) 799-4103	(801) 799-3038	6/26/1999	8/20/1999	7/18/1997	9/25/1997
Salt Lake Police Department	(801) 799-3000	(801) 535-6988	6/26/1999		7/18/1997	
Sandy Fire Department	(801) 568-2987	(801) 568-1312	6/26/1999	7/1/1999	7/18/1997	7/20/1998
Sandy Police Department	(801) 568-2987	(801) 568-1312	6/26/1999	7/1/1999	7/18/1997	7/20/1998
Weber County Sheriff Department	(801) 399-8424	(801) 399-8302	6/28/1999		8/7/1998	8/7/1998
West Valley City Police Department	(801) 963-3275	(801) 963-3555	6/28/1999	7/12/1999	7/18/1997	7/10/1998
Salt Lake County Sheriffs Office	(801) 535-5844	(801) 535-5845	6/26/1999	7/6/1999	7/20/1998	7/20/1998
Tooele County Sheriff	(435) 882-5600	(435) 882-6417	6/26/1999	7/22/1999	7/20/1998	7/20/1998
West Valley City Fire & EMS Department	(801) 963-3336	(801) 966-8455	6/28/1999	7/28/1999	7/18/1997	8/25/1997
Freeway Management						
Utah Department of Transportation-Region 2	801-965-4894	801-965-4338	8/5/1999	12/28/1999	7/18/1997	10/3/1997
Utah Department of Transportation-Region 1	801-965-4894	801-965-4338	8/5/1999	12/28/1999	7/18/1997	10/3/1997
MPO						
Wasatch Front Regional Council	(801) 292-4469	(801) 299-5724	7/15/1999	7/28/1999		
Transit Management						
Utah Transit Authority	(801) 262-5626	(801) 287-4622	8/9/1999	9/30/1999	7/17/1997	

Appendix C
Freeway Management Components

Freeway Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2		Totals	
	1999	2005	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes		2	
FREEWAY MANAGEMENT SECTION						
Number of freeway centerline miles that agency owns or maintains	153		118		271	
Number of freeway centerline miles that is used for planning	153		130		283	
Number of freeway entrance ramps that agency owns, operates or maintains	104		90		194	
Number of freeway entrance ramps that is used for planning	104		100		204	
Type of facilities used to conduct freeway/incident management activities						
Activities housed in a free-standing dedicated building?	No		Yes		1	
Activities housed in a building shared with other activities?	No		No		0	
Activities conducted in a dedicated control room?	No		Yes		1	
Control room contains operator console(s)?	No		Yes		1	
Control room contains electronic wall map?	No		Yes		1	
Control room contains CCTV display(s)?	No		Yes		1	
Activities conducted in a room containing workstations or PCs that manage traffic?	No		Yes		1	
Facilities are electronically linked to other transportation mgt facilities?	No		Yes		1	
Staffing and hours of operation of freeway/incident management activities					0	
Number of full-time agency staff members	NR		8		8	
Number of full time contractor staff members	NR		3		3	
Number of part-time agency staff members	NR		0		0	
Number of part-time contractor staff members	NR		3		3	
Staffed 24 hours day by agency staff or by others	NR		NR		0	
Staffed during peak hours only by agency staff or by others	NR		agency		0	
Staffed by others during off-peak hours	No		Yes		1	
Agency staff perform transportation management as an ancillary duty	No		No		0	
Agency staff dedicated to transportation management duty	No		No		0	
Types of operations conducted for freeway/incident management						
Incident detection and management?	No		Yes		1	
This metropolitan area?	No		Yes		1	
Other metropolitan area?	No		No		0	
Statewide?	No		No		0	
Monitoring and troubleshooting status of system components?	No		Yes		1	
Manual override of ramp metering rates at freeway on-ramps?	No		No		0	
Operating transportation management roadside devices?	No		Yes		1	
Radio communications with other agencies?	No		Yes		1	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		Yes		1	
Real-Time Traffic Data Collection Technologies						

Freeway Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2		Totals	
	1999	2005	1999	2005	1999	2005
Total number of miles under surveillance with real-time data collection tech.	0	0	130	130	130	130
<i>Number of Stations with data collection technologies</i>						
Loop detectors	0	0	140	300	140	300
Video imaging detectors	0	0	3	0	3	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	0	0	5	0	5
Microwave radar	0	0	5	5	5	5
Other (e.g., acoustic detectors)	0	0	0	0	0	0
<i>Number of Miles covered with data collection technologies</i>						
Loop detectors	0	0	75	130	75	130
Video imaging detectors	0	0	3	0	3	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	0	0	20	0	20
Microwave radar	0	0	5	5	5	5
Other (e.g., acoustic detectors)	0	0	0	0	0	0
Variable Message Signs (VMS) on Freeways						
Candidate locations for deployment of VMS where VMS has been deployed	0	4	23	38	23	42
Candidate locations for deployment of VMS	4	4	34	11	38	15
Roadside Technologies used to Distribute Traveler Information						
Total number of miles where information is distributed	5	5	80	100	85	105
<i>Number deployed</i>						
Highway advisory radio	1	1	4	5	5	6
In-vehicle signing	0	0	0	0	0	0
Portable variable message signs	0	0	8	NR	8	0
Other	0	0	0	0	0	0
<i>Miles covered</i>						
Highway advisory radio	5	5	80	100	85	105
In-vehicle signing	0	0	0	0	0	0
Portable variable message signs	0	0	NR	NR	0	0
Other	0	0	0	0	0	0
Ramp Meters on Freeways						
Number of entrance ramp meters operated under isolated control	NR	NR	9	23	9	23
Number of entrance ramp meters operated under central control	NR	NR	0	23	0	23
Number of entrance ramp meters that provide preemption for emergency vehicles	NR	NR	0	23	0	23
Number of entrance ramp meters that provide priority for transit vehicles	NR	NR	0	23	0	23
Total number of metered ramps	NR	NR	9	23	9	23
Freeway centerline miles under lane control	153	153	0	2	153	155
Communication Links						
<i>Freeway centerline miles covered by the following type of communication</i>						
Twisted pair cable	0	0	0	0	0	0
Coaxial cable	0	0	0	0	0	0
Fiber-optic cable	0	0	120	130	120	130
Microwave radio	0	0	0	0	0	0
Other	0	0	0	0	0	0

Freeway Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2		Totals	
	1999	2005	1999	2005	1999	2005
ITS Standards Used Related to Freeway Management						
ATMS Data Dictionary Sections 1 and 2 (ITE TM 1.01)	No		Yes		1	
ATMS Data Dictionary Sections 3 and 4 (ITE TM 1.02)	No		Yes		1	
Message Set for External TMC Communication (ITE-9604-1)	No		Yes		1	
NTCIP Class B Profile (AASHTO TS 3.3)	No		Yes		1	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		Yes		1	
NTCIP Object Definitions for Environmental Sensor Stations (AASHTO TS 3.7)	No		No		0	
NTICP Object Definitions for Dynamic Message Signs (AASHTO TS 3.6)	No		No		0	
NTICP Object Definitions for Highway Advisory Radio (AASHTO TS 3.HAR)	No		No		0	
NTICP Object Definitions for Ramp Meter Control (AASHTO TS 3.RMC)	No		No		0	
NTICP Object Definitions for Transportation Sensor Systems (AASHTO TS 3.TSS)	No		No		0	
NTICP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		0	
Would agency be willing to participate in testing of ITS Standards?	Yes		Yes		2	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?						
	No		Yes		1	
INCIDENT MANAGEMENT SECTION						
Use of Service Patrols to Assist in Detection and Response to Incidents						
Publicly operated service patrol vehicles	No		Yes		1	
Privately operated service patrol vehicles operated under public contract	No		Yes		1	
Total number of freeway miles patrolled by these services	NR	NR	118	118	118	118
Miles Covered by Methods to Detect and Verify Incidents						
Free cellular phone call to a dedicated phone number other than 911	NR	NR	130	130	130	130
Police patrols	NR	NR	130	130	130	130
Computer algorithms linked to traffic surveillance equipment	NR	NR	0	130	0	130
CCTV	NR	NR	100	130	100	130
Private sector sources (e.g., Shadow Traffic, SmartRoutes)	NR	NR	130	130	130	130
Other (e.g., free cell phone call to an area radio system, etc.)	NR	NR	130	130	130	130
Procedures in place for Freeway Incident Response?						
Working agreement(s)/arrangement(s) with other agencies	Yes		Yes		2	
Inter-agency incident management admin. team that meets regularly	No		Yes		1	
Major incident response team that responds to major incidents	No		Yes		1	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		Yes		1	
Central focal point for facilitating the two-way flow of information among agencies responding to an incident?						
The central focal point is a Freeway or Traffic Management Center	No		Yes		1	
The central focal point is a Police, Fire or joint dispatch center	No		No		0	
The central focal point is another center	No		No		0	
Methods of Communication Used On-Site at an Incident						
<u>Police</u>						
Two-way radio	Yes		Yes		2	
800 MHz trunked radio	Yes		Yes		2	

Freeway Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2		Totals	
	1999	2005	1999	2005	1999	2005
Cellular telephone	Yes		Yes		2	
Hand-held (i.e., walkie-talkie)	Yes		Yes		2	
Automated data systems (i.e., CAD)	Yes		Yes		2	
<u>Fire</u>						
Two-way radio	Yes		Yes		2	
800 MHz trunked radio	Yes		Yes		2	
Cellular telephone	Yes		Yes		2	
Hand-held (i.e., walkie-talkie)	Yes		Yes		2	
Automated data systems (i.e., CAD)	Yes		Yes		2	
<u>DOT</u>						
Two-way radio	Yes		Yes		2	
800 MHz trunked radio	Yes		Yes		2	
Cellular telephone	Yes		Yes		2	
Hand-held (i.e., walkie-talkie)	Yes		Yes		2	
Automated data systems (i.e., CAD)	Yes		Yes		2	
<u>Towing</u>						
Two-way radio	No		No		0	
800 MHz trunked radio	No		No		0	
Cellular telephone	Yes		Yes		2	
Hand-held (i.e., walkie-talkie)	Yes		Yes		2	
Automated data systems (i.e., CAD)	No		No		0	
Which police agencies typically respond to incidents on freeways?						
State Police	Yes		Yes		2	
County Police or Sheriff	Yes		No		1	
City Police	No		No		0	
Who provides on-site emergency medical response?						
Fire	Yes		Yes		2	
Emergency Management Service Agency	Yes		Yes		2	
Private hospital	No		Yes		1	
Has a multi-agency contact list been developed in area containing the names, phone numbers, etc. for the appropriate response personnel?						
	DK		Yes		1	
Is the Incident Command System used to manage incident scenes?						
	DK		Yes		1	
Is there a legal specification by state law or formal agreement as to who is "in charge" at the incident scene?						
Specified by state law?	No		Yes		1	
Formal agreement?	No		No		0	
Not specified or don't know?	Yes		No		1	
On-scene command post used to manage activities of responding agencies?						
	No		Yes		1	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		Yes		1	
Plan developed and adopted by responding agencies for staging and parking response vehicles and equip. at incident site that minimizes lane blockage						

Freeway Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2		Totals	
	1999	2005	1999	2005	1999	2005
and facilitates the re-opening of lanes?	No		No		0	
Respondents protected through law or court opinion for liability claims for damages to vehicles or cargoes during clearance activities?	No		No		0	
Are overturned tank trucks, which are intact and not leaking, uprighted without first off-loading?	Yes		Yes		2	
Does your state or local jurisdiction have a law that requires drivers involved in property-damage-only accidents to move the vehicles from travel lanes to a safe location to exchange info and wait for police?	No		No		0	
Have laws or policies regarding the removal of stalled/abandoned vehicles from freeway shoulders?	Yes		Yes		2	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	0-24		0-24		0	
Have policies or procedures for quick removal of vehicles?	Yes		Yes		2	
Is Total Station equipment used to investigate major incidents?	Yes		Yes		2	
Handling of Towing Responses to Incidents						
Formal contract based on qualifications?	No		No		0	
Rotation with companies under contract?	No		No		0	
Separate lists kept for light and heavy response and for specialty recovery?	NR		NR			
Rotation list with minimal qualifications?	Yes		Yes		2	
In towing qualifications, do you require towers to be certified under the Towing and Recovery Ass. of America's National Drivers Cert. Program?	DK		Yes		1	
DK: Don't know						
NR: No Response						
Leg: Legislation or action being planned						

Appendix D
Freeway Management Integration

Freeway Management Integration
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Freeway Management Section				
Agencies your agency provides freeway travel times, speeds, and conditions information, share infrastructure or coordinates operation				
Freeway Management Agencies				
Provide Information	None listed	None listed	None listed	Utah Department of Transportation-Region 1, Utah Department of Transportation-Region 3
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	Utah Department of Transportation-Region 1, Utah Department of Transportation-Region 3
Incident Management Agencies				
Provide Information	None listed	None listed	Department of Public Safety	None listed
Share Infrastructure	None listed	None listed	Department of Public Safety	None listed
Coordinate Operation	None listed	None listed	Department of Public Safety	None listed
Arterial Management Agencies				
Provide Information	Ogden City, Weber County	Roy City	None listed	Salt Lake City, Salt Lake County
Share Infrastructure	Ogden City	None listed	None listed	Salt Lake City, Salt Lake County
Coordinate Operation	Ogden City, Weber County	Roy City	None listed	Salt Lake City, Salt Lake County
Public Transit Operators				
Provide Information	None listed	None listed	None listed	Utah Transit Authority
Share Infrastructure	None listed	None listed	None listed	Utah Transit Authority
Coordinate Operation	None listed	None listed	None listed	Utah Transit Authority
Receiving real-time information via electronic means from others				
Incident Management agencies from which your agency receives incident severity, location, and type information				
	None listed	None listed	Department of Public Safety	Utah Department of Transportation-Region 1, Utah Department of Transportation-Region 3
Arterial Management agencies from which your agency receives				

Freeway Management Integration
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
<i>arterial travel times, speeds, and conditions</i>	None listed	None listed	None listed	Salt Lake City, Salt Lake County
<i>Public Transit operators from which your agency receives freeway travel times derived from vehicle probes</i>	None listed	None listed	None listed	Utah Transit Authority
<i>Toll Collection agencies from which your agency receives freeway travel times derived from vehicles probes</i>	None listed	None listed	None listed	None listed
Freeway Incident Management Section				
Agencies your agency provides incident severity, location, and type info. and/or shares infrastructure and/or coordinates operation				
Arterial Management Agencies				
Provide Information	Weber County	Roy City	None listed	Salt Lake City, Salt Lake County
Share Infrastructure	Ogden City	None listed	None listed	Salt Lake City, Salt Lake County
Coordinate Operation	Weber County	Roy City	None listed	Salt Lake City, Salt Lake County
Emergency Management Agencies				
Provide Information	None listed	None listed	Davis County Sheriff Department, Department of Public Safety	Salt Lake County Sheriffs Office
Share Infrastructure	None listed	None listed	Department of Public Safety	None listed
Coordinate Operation	None listed	None listed	Davis County Sheriff Department, Department of Public Safety	Salt Lake County Sheriffs Office
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	Utah Transit Authority
Share Infrastructure	None listed	None listed	None listed	Utah Transit Authority
Coordinate Operation	None listed	None listed	None listed	Utah Transit Authority
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				

Freeway Management Integration
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Receive Arterial Incident Clearance Information	None listed	None listed	Davis County Sheriff Department, Department of Public Safety	Salt Lake County Sheriffs Office
Receive Arterial Incident Severity Information	None listed	None listed	Davis County Sheriff Department, Department of Public Safety	Salt Lake County Sheriffs Office
<i>Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions</i>				
	None listed	None listed	None listed	Salt Lake City, Salt Lake County
<i>Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions</i>				
	None listed	None listed	None listed	Utah Department of Transportation-Region 2, Utah Department of Transportation-Region 1, Utah Department of Transportation-Region 3

*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: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Freeway Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Weather conditions	Traffic volumes, Lane occupancy	Traffic volumes, Lane occupancy, Vehicle classification, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic speeds, Probe vehicles, Metering rate
Archived by your agency	Weather conditions	Traffic volumes, Lane occupancy	Traffic volumes, Lane occupancy, Vehicle classification, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic speeds, Probe vehicles, Metering rate
Transferred to another agency by your agency	Weather conditions	Traffic volumes, Lane occupancy	Traffic volumes, Lane occupancy, Vehicle classification, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	Traffic speeds, Probe vehicles, Metering rate

Data Collection and Dissemination: Freeway Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Importance of making information available to the public				
Ranked High	Weather conditions		Traffic speeds, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	
Ranked Medium	NR		Traffic volumes	
Ranked Low	Traffic volumes, Lane occupancy		Lane occupancy, Vehicle classification, Probe vehicles, Metering rate	
Groups that make requests for the data	State DOT personnel, Real Estate Developers		Universities, State DOT personnel, Federal DOT personnel, Media (i.e., TV stations, radio stations), MPOs, Consultants, Advanced Traveler Information Systems (ATIS) provi	
What is the data used for?	Traffic analysis, Road Maintenance, Business Locating		Traffic analysis, Construction impact determination, Planning, Incident detection algorithm development, Dissemination to the public	
Methods used to disseminate freeway information to the public				
Technologies your agency uses to disseminate:	NR	NR	Telephone system, Internet Web sites, Pagers or personal data assistants, E-mail or other direct PC communication	Dedicated cable TV, Kiosks
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	Dedicated cable TV	NR
Internet web site reporting freeway conditions	NR		UDOT website: www.utahcommuterlink.com	
Telephone system for reporting freeway information to the public	NR		UDOT Traveler Advisory Telephone: 801-533-2109	
Organizations your agency sends information for dissemination to the public	NR		Clear Channel Communications - Commercial Radio Jaycorp Communications - Commercial Radio	

Data Collection and Dissemination: Freeway Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Freeway Incident Management Section				
Methods used to distribute incident location and severity information to the public				
Technologies your agency uses to disseminate:	NR	NR	Telephone system, Internet Web sites, Pagers or personal data assistants, E-mail or other direct PC communication	Dedicated cable TV, Kiosks
Technologies your agency (through another agency or org.) uses to disseminate:	Telephone system, Internet Web sites, Pagers or personal data assistants, E-mail or other direct PC communication	Dedicated cable TV, Kiosks	Dedicated cable TV	NR
Internet web site reporting incident information	UDOT Website: www.utahcommuterlink.com		UDOT website: www.utahcommuterlink.com	
Telephone system for reporting incident information to the public	UDOT Traveler Advisory Telephone: 801-533-2109		UDOT Traveler Advisory Telephone: 801-533-2109	
Organizations your agency sends information for dissemination to the public	None		Clear channel communications - commercial radio JayCorp Communications - commercial radio	

Appendix F
Arterial Management Components

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Salt Lake City		Salt Lake County		Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	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	65		84		202		245	
Number of arterial miles that is used for planning	65		84		202		245	
Number of highway-rail intersections that agency maintains	20		15		NR		300	
Number of highway-rail intersections that is used for planning	22		15		NR		300	
Type of facilities used to conduct arterial management activities								
Activities housed in a free-standing dedicated building?	Yes		No		No		No	
Activities housed in a building shared with other activities?	No		Yes		Yes		Yes	
Activities conducted in a dedicated control room?	Yes		No		No		Yes	
Control room contains operator console(s)?	Yes		No		No		Yes	
Control room contains electronic wall map?	Yes		No		No		Yes	
Control room contains CCTV display(s)?	Yes		No		No		Yes	
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes		No		Yes		Yes	
Facilities are electronically linked to other transportation mgt facilities?	Yes		No		Yes		Yes	
Staffing and hours of operation of arterial management activities								
Number of full-time agency staff members	2		1		3		10	
Number of full time contractor staff members	0		0		0		3	
Number of part-time agency staff members	NR		0		NR		2	
Number of part-time contractor staff members	NR		0		NR		3	
Staffed 24 hours day by agency staff or by others	NR		NR		NR		others	
Staffed during peak hours only by agency staff or by others	agency		agency		agency		NR	
Staffed by others during off-peak hours	No		No		No		No	
Agency staff perform transportation management as an ancillary duty	No		No		Yes		No	
Agency staff dedicated to transportation management duty	Yes		Yes		Yes		Yes	
Types of operations conducted for arterial management								
Incident detection and management?	Yes		No		No		Yes	
This metropolitan area?	Yes		No		No		Yes	
Other metropolitan area?	No		No		No		No	
Monitoring and troubleshooting status of system components?	Yes		Yes		Yes		Yes	
Radio communications with other agencies?	Yes		No		Yes		Yes	
Exchange of electronic data with other agencies such as computer aided dispatch?	Yes		No		No		Yes	
Manual override of traffic signal timing plans	No		No		Yes		No	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	Yes		No		No		Yes	

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Salt Lake City		Salt Lake County		Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005	1999	2005	1999	2005
Describe agency's role in traffic signal control	All roads in incorporated area except state routes		Operate & Maintain all signals within county boundaries except those owned by UDOT or Salt Lake City.		Operate and maintain all state and municipal owned signals within the study area.		State routes only	
Traffic Signals Operated by Agency								
Number of signalized intersections operated and owned by agency	151	170	134	150	205	250	276	300
Number of signalized intersections operated by agency but owned by another	0	0	138	160	15	20	0	0
Total number of signalized intersections operated by agency	151	170	172	200	220	270	276	300
<u>Characteristics of signalized intersections that agency operates</u>								
Under closed loop or central system control	0	0	0	0	82	110	50	300
Under real-time traffic adaptive control using advanced software	0	0	0	0	0	0	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	3	10	17	25	10	20	0	20
Allow signal priority for transit vehicles	0	20	0	0	0	0	0	20
Within 200 feet of a highway-rail intersection	20	20	1	1	3	5	0	0
Within 200 feet of a highway-rail intersection that adjust signal timing	20	20	1	1	0	0	0	0
Software used to control the signals agency operates								
Date of last upgrade to traffic signal control system software?	October 1999		1995		1999		1999	
How often do you update signal timing?	6 month intervals		Every 5 years		as needed		every 2 years	
Software used and number of signalized intersections under control (1999, 2005)	Icons, 151, 170 COMPUTRAN, 0, 0		SYNCHRO, 0, 130 Passer II, 70, 0		MARC, 20, 30 MONARC, 200, 240		MONARC, 0, 0 ICONS, 150, 300 MARC, 0, 0	
Controllers used to control signals								
NEMA	140	159	172	200	220	270	276	300
170/179	0	0	0	0	0	0	0	0
2070 controller	11	11	0	0	0	0	3	NR
Other	0	0	0	0	0	0	0	0
Technologies Associated with Highway-Rail Intersections								
Total number of highway-rail intersections under electronic surveillance	10	NR	0	1	NR	NR	NR	NR
<u>Highway-Rail intersection capabilities</u>								
Video surveillance	1	NR	0	0	0	0	0	0
Electronic surveillance other than video	0	0	0	1	0	0	0	0
Ability to predict train arrival electronically	10	NR	0	0	0	0	0	0
Equipped with electronic traffic violator devices	0	0	0	0	0	0	0	0

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Salt Lake City		Salt Lake County		Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005	1999	2005	1999	2005
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	10	0	8	20	30	0	141
<i>Number of signalized intersections with data collection technologies</i>								
Loop detectors	0	0	0	8	20	30	0	141
Video detection cameras	1	10	0	0	0	0	0	0
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
Other	0	0	0	0	0	0	0	0
Roadside Technologies used to Distribute Traveler Information								
<i>Number deployed</i>								
Highway Advisory Radio	NR	NR	NR	NR	NR	NR	5	10
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	NR	NR
VMS controlling parking access	NR	NR	NR	NR	NR	NR	NR	NR
<i>Miles covered</i>								
Highway Advisory Radio	NR	NR	NR	NR	NR	NR	20	40
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	1	3	NR	NR	15	17
Candidate locations for deployment of VMS	NR	NR	1	3	NR	NR	17	17
Communication Technologies								
<i>Signalized intersections communicated with by each type of communication</i>								
Twisted pair cable	0	0	0	0	15	15	0	0
Coaxial cable	0	0	0	0	0	0	0	0
Fiber-optic cable	151	160	0	100	82	110	200	300
Other (e.g., wireless, dial-up modems, leased lines, etc.)	0	0	25	30	4	4	0	0
Does agency convey information on highway-rail intersection crossing status to travelers via roadside media such as VMS or HAR?	No		No		No		No	
ITS Standards Used Related to Traffic Signal Control								
Advanced Transportation Controller (ATC) Software Application Interface (ITE 9603-1)	Yes		Yes		No		Yes	
ATC Physical Cabinet Functional Design (ITE-9603-2)	Yes		Yes		No		Yes	
ATC Functionality and Interface Definitions (ITE-9603-3)	Yes		Yes		No		Yes	
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	Yes		Yes		No		Yes	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	Yes		Yes		No		Yes	
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		Yes		No		Yes	
Would agency be willing to participate in testing of ITS Standards?	Yes		No		No		Yes	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	Yes		Yes		No		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	

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Salt Lake City		Salt Lake County		Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005	1999	2005	1999	2005
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
Computer algorithms linked to traffic surveillance equipment	0	0	0	0	0	0	0	0
CCTV	0	0	0	0	0	0	10	10
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								
<u>Police</u>								
Two-way radio	No		No		No		Yes	
800 MHz trunked radio	No		No		No		Yes	
Cellular telephone	No		No		No		Yes	
Hand-held (i.e., walkie-talkie)	No		No		No		Yes	
Automated data systems (i.e., CAD)	No		No		No		Yes	
Other	No		No		No		No	
<u>Fire</u>								
Two-way radio	No		No		No		Yes	
800 MHz trunked radio	No		No		No		Yes	
Cellular telephone	No		No		No		Yes	
Hand-held (i.e., walkie-talkie)	No		No		No		Yes	
Automated data systems (i.e., CAD)	No		No		No		Yes	
Other	No		No		No		No	
<u>DOT</u>								
Two-way radio	No		No		No		Yes	
800 MHz trunked radio	No		No		No		Yes	
Cellular telephone	No		No		No		Yes	
Hand-held (i.e., walkie-talkie)	No		No		No		Yes	
Automated data systems (i.e., CAD)	No		No		No		Yes	
Other	No		No		No		No	
<u>Towing</u>								

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Salt Lake City		Salt Lake County		Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005	1999	2005	1999	2005
Two-way radio	No		No		No		No	
800 MHz trunked radio	No		No		No		No	
Cellular telephone	No		No		No		Yes	
Hand-held (i.e., walkie-talkie)	No		No		No		Yes	
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	
County Police or Sheriff	No		No		No		Yes	
City Police	No		No		No		Yes	
Who provides on-site emergency medical response?								
Fire	No		No		No		Yes	
Emergency Management Service Agency	No		No		No		No	
Private hospital	No		No		No		Yes	
Has a multi-agency contact list been developed in area containing the names, phone numbers, etc. for the appropriate response personnel?	NR		NR		NR		Yes	
Is the Incident Command System used to manage incident scenes?	NR		NR		NR		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?	No		No		No		No	
Formal agreement?	No		No		No		No	
Not specified or don't know?	No		No		No		Yes	
On-scene command post used to manage activities of responding agencies?	NR		NR		NR		Yes	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		NR		NR		Yes	
Plan developed and adopted by responding agencies for staging and parking response vehicles and equip. at incident site that minimizes lane blockage and facilitates the re-opening of lanes?	NR		NR		NR		Yes	
Respondents protected through law or court opinion for liability claims for damages to vehicles or cargoes during clearance activities?	NR		NR		NR		DK	
Are overturned tank trucks, which are intact and not leaking, uprighted without first off-loading?	NR		NR		NR		Yes	
Does your state or local jurisdiction have a law that requires drivers involved in property-damage-only accidents to move the vehicles from travel lanes to a safe location to exchange info and wait for police?	NR		NR		NR		No	
Have laws or policies regarding the removal of stalled/abandoned vehicles from freeway shoulders?	NR		NR		NR		Yes	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	NR		NR		NR		0-24	
Have policies or procedures for quick removal of vehicles?	NR		NR		NR		Yes	
Is Total Station equipment used to investigate major incidents?	NR		NR		NR		Yes	
Handling of Towing Responses to Incidents								
Formal contract based on qualifications?	No		No		No		No	
Rotation with companies under contract?	No		No		No		No	

Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

	Salt Lake City		Salt Lake County		Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005	1999	2005	1999	2005
Separate lists kept for light and heavy response and for specialty recovery?	NR		NR		NR		NR	
Rotation list with minimal qualifications?	No		No		No		Yes	
In towing qualifications, do you require towers to be certified under the								
Towing and Recovery Ass. of America's National Drivers Cert. Program?	NR		NR		NR		Yes	
DK: Don't know								
NR: No Response								
Leg: Legislation or action being planned								

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Weber County		West Valley City		Totals	
	1999	2005	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes		6	
ARTERIAL MANAGEMENT SECTION						
Number of arterial miles that agency owns or maintains	30		NR		626	
Number of arterial miles that is used for planning	60		NR		656	
Number of highway-rail intersections that agency maintains	7		2		344	
Number of highway-rail intersections that is used for planning	7		NR		344	
Type of facilities used to conduct arterial management activities						
Activities housed in a free-standing dedicated building?	No		No		1	
Activities housed in a building shared with other activities?	Yes		No		4	
Activities conducted in a dedicated control room?	No		No		2	
Control room contains operator console(s)?	No		No		2	
Control room contains electronic wall map?	No		No		2	
Control room contains CCTV display(s)?	No		No		2	
Activities conducted in a room containing workstations or PCs that manage traffic?	No		No		3	
Facilities are electronically linked to other transportation mgt facilities?	No		No		3	
Staffing and hours of operation of arterial management activities						
Number of full-time agency staff members	NR		NR		16	
Number of full time contractor staff members	NR		NR		3	
Number of part-time agency staff members	NR		NR		2	
Number of part-time contractor staff members	NR		NR		0	
Staffed 24 hours day by agency staff or by others	NR		NR		0	
Staffed during peak hours only by agency staff or by others	NR		NR		0	
Staffed by others during off-peak hours	No		No		0	
Agency staff perform transportation management as an ancillary duty	No		No		1	
Agency staff dedicated to transportation management duty	No		No		4	
Types of operations conducted for arterial management						
Incident detection and management?	No		No		2	
This metropolitan area?	No		No		2	
Other metropolitan area?	No		No		0	
Monitoring and troubleshooting status of system components?	No		No		4	
Radio communications with other agencies?	No		No		3	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		No		2	
Manual override of traffic signal timing plans	No		No		1	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No		No		2	

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Weber County		West Valley City		Totals	
	1999	2005	1999	2005	1999	2005
Describe agency's role in traffic signal control	Do not operate		NR			
Traffic Signals Operated by Agency						
Number of signalized intersections operated and owned by agency	NR	NR	NR	NR	766	870
Number of signalized intersections operated by agency but owned by another	NR	NR	NR	NR	153	180
Total number of signalized intersections operated by agency	NR	NR	33	40	852	980
<i>Characteristics of signalized intersections that agency operates</i>						
Under closed loop or central system control	NR	NR	33	40	165	450
Under real-time traffic adaptive control using advanced software	NR	NR	0	5	0	5
Using SCOOT	No		No		0	
Using SCATS	No		No		0	
Name of software	NR		NR			
Allow signal preemption for emergency vehicles	NR	NR	7	10	37	85
Allow signal priority for transit vehicles	NR	NR	0	0	0	40
Within 200 feet of a highway-rail intersection	NR	NR	0	0	24	26
Within 200 feet of a highway-rail intersection that adjust signal timing	NR	NR	0	0	21	21
Software used to control the signals agency operates						
Date of last upgrade to traffic signal control system software?	NR		NR			
How often do you update signal timing?	NR		NR			
Software used and number of signalized intersections under control (1999, 2005)	NR		NR			
Controllers used to control signals						
NEMA	0	0	0	0	808	929
170/179	0	0	0	0	0	0
2070 controller	0	0	0	0	14	11
Other	0	0	0	0	0	0
Technologies Associated with Highway-Rail Intersections						
Total number of highway-rail intersections under electronic surveillance	NR	NR	NR	NR	10	1
<i>Highway-Rail intersection capabilities</i>						
Video surveillance	0	0	0	0	1	0
Electronic surveillance other than video	0	0	0	0	0	1
Ability to predict train arrival electronically	0	0	0	0	10	0
Equipped with electronic traffic violator devices	0	0	0	0	0	0

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Weber County		West Valley City		Totals	
	1999	2005	1999	2005	1999	2005
Other	0	0	0	0	0	0
Real-Time Electronic Traffic Data Collection Technologies						
Total number of signalized intersections covered by electronic surveillance	NR	NR	NR	NR	21	189
<i>Number of signalized intersections with data collection technologies</i>						
Loop detectors	0	0	0	0	20	179
Video detection cameras	0	0	0	0	1	10
Probe readers reading toll tags	0	0	0	0	0	0
Probe readers reading license plates	0	0	0	0	0	0
Other	0	0	0	0	0	0
Roadside Technologies used to Distribute Traveler Information						
<i>Number deployed</i>						
Highway Advisory Radio	NR	NR	NR	NR	5	10
In-Vehicle Signing (IVS)	NR	NR	NR	NR	0	0
VMS controlling parking access	NR	NR	NR	NR	0	0
<i>Miles covered</i>						
Highway Advisory Radio	NR	NR	NR	NR	20	40
In-Vehicle Signing (IVS)	NR	NR	NR	NR	0	0
Variable Message Signs (VMS) on Arterials						
Candidate locations for deployment of VMS where VMS has been deployed	NR	NR	5	10	21	30
Candidate locations for deployment of VMS	NR	NR	5	10	23	30
Communication Technologies						
<i>Signalized intersections communicated with by each type of communication</i>						
Twisted pair cable	0	0	0	0	15	15
Coaxial cable	0	0	0	0	0	0
Fiber-optic cable	0	0	0	0	433	670
Other (e.g., wireless, dial-up modems, leased lines, etc.)	0	0	0	0	29	34
Does agency convey information on highway-rail intersection crossing status to travelers via roadside media such as VMS or HAR?	No		No		0	
ITS Standards Used Related to Traffic Signal Control						
Advanced Transportation Controller (ATC) Software Application Interface (ITE 9603-1)	No		No		3	
ATC Physical Cabinet Functional Design (ITE-9603-2)	No		No		3	
ATC Functionality and Interface Definitions (ITE-9603-3)	No		No		3	
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	No		No		3	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		No		3	
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		0	
NTCIP Object Definitions for Actuated Traffic Signal Controller Units (AASHTO TS 3.5)	No		No		3	
Would agency be willing to participate in testing of ITS Standards?	No		NR		2	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	No		NR		2	
INCIDENT MANAGEMENT ON ARTERIAL STREETS						
Receive information on highway-rail intersection crossing blockages for the purpose of managing incident response?	No		No		0	

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Weber County		West Valley City		Totals	
	1999	2005	1999	2005	1999	2005
Use of Service Patrols to Assist in Detection and Response to Incidents						
Publicly operated service patrol vehicles	No		No		0	
Privately operated service patrol vehicles operated under public contract	No		No		0	
Total number of arterial miles patrolled by these services	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
Free cellular phone call to an area radio station	0	0	0	0	0	0
Police patrols	0	0	0	0	0	0
Computer algorithms linked to traffic surveillance equipment	0	0	0	0	0	0
CCTV	0	0	0	5	10	15
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	0	0	0	0
Other	0	0	0	0	0	0
Procedures in place for Arterial Incident Response?						
Working agreement(s)/arrangement(s) with other agencies	No		No		0	
Inter-agency incident management admin. team that meets regularly	No		No		0	
Major incident response team that responds to major incidents	No		No		0	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		No		0	
Methods of Communication Used On-Site at an Incident						
<u>Police</u>						
Two-way radio	No		No		1	
800 MHz trunked radio	No		No		1	
Cellular telephone	No		No		1	
Hand-held (i.e., walkie-talkie)	No		No		1	
Automated data systems (i.e., CAD)	No		No		1	
Other	No		No		0	
<u>Fire</u>						
Two-way radio	No		No		1	
800 MHz trunked radio	No		No		1	
Cellular telephone	No		No		1	
Hand-held (i.e., walkie-talkie)	No		No		1	
Automated data systems (i.e., CAD)	No		No		1	
Other	No		No		0	
<u>DOT</u>						
Two-way radio	No		No		1	
800 MHz trunked radio	No		No		1	
Cellular telephone	No		No		1	
Hand-held (i.e., walkie-talkie)	No		No		1	
Automated data systems (i.e., CAD)	No		No		1	
Other	No		No		0	
<u>Towing</u>						

Arterial Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

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

Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

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

Appendix G
Arterial Management Integration

Arterial Management Integration
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Salt Lake City		Salt Lake County	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
<u>Arterial Mgt. agencies in metropolitan area with which you share info.</u>				
Share Timing Plans Information	Utah Department of Transportation, Salt Lake County, West Valley City, South Salt Lake	None listed	Sandy City, Utah Department of Transportation, Salt Lake City, West Valley City	Murray
Coordinate Changes to Timing Plans	Utah Department of Transportation, Salt Lake County, West Valley City, South Salt Lake	None listed	Sandy City, Utah Department of Transportation, Salt Lake City, West Valley City	South Salt Lake, West Jordan, South Jordan, Midvale, Draper, Cottonwood, Taylorsville, Murray
Turn over Control of Signals	Utah Department of Transportation, Salt Lake County, West Valley City, South Salt Lake	None listed	Sandy City, Utah Department of Transportation, Salt Lake City, West Valley City	South Salt Lake, West Jordan, South Jordan, Midvale, Draper, Cottonwood, Taylorsville, Murray
Agencies your agency provides arterial travel times, speeds, and conditions information, share infrastructure or coordinates operation				
<i>Freeway Management Agencies</i>				
Provide Information	None listed	None listed	None listed	Utah Department of Transportation
Share Infrastructure	None listed	None listed	None listed	Utah Department of Transportation
Coordinate Operation	None listed	None listed	None listed	Utah Department of Transportation
<i>Incident Management Agencies</i>				
Provide Information	None listed	Salt Lake Fire Department, Salt Lake Police Department	None listed	None listed

Arterial Management Integration
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Salt Lake City		Salt Lake County	
	1999	2005	1999	2005
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	Salt Lake Fire Department, Salt Lake Police Department	None listed	None listed
Public Transit Operators Agencies				
Provide Information	Utah Transit Authority	None listed	None listed	Utah Transit Authority
Share Infrastructure	Utah Transit Authority	None listed	Utah Transit Authority	None listed
Coordinate Operation	Utah Transit Authority	None listed	Utah Transit Authority	None listed
Arterial Management Agencies				
Provide Information	Utah Department of Transportation, Salt Lake County, West Valley City, South Salt Lake	None listed	Sandy City, Utah Department of Transportation, Salt Lake City, West Valley City	South Salt Lake, South Jordan, Cottonwood, Taylorsville, Midvale, Draper, Murray, West Jordan
Share Infrastructure	Utah Department of Transportation, Salt Lake County, West Valley City, South Salt Lake	None listed	None listed	South Salt Lake, South Jordan, Cottonwood, Taylorsville, Midvale, Draper, Murray, West Jordan
Coordinate Operation	Utah Department of Transportation, Salt Lake County, West Valley City, South Salt Lake	None listed	None listed	South Salt Lake, South Jordan, Cottonwood, Taylorsville, Midvale, Draper, Murray, West Jordan
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				

Arterial Management Integration
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Salt Lake City		Salt Lake County	
	1999	2005	1999	2005
<i>freeway travel times, speeds, and conditions</i>	None listed	Utah Department of Transportation	None listed	Utah Department of Transportation
<i>Public Transit operators from which your agency receives</i>				
<i>arterial travel times derived from vehicle probes</i>	None listed	Utah Transit Authority	None listed	Utah Transit Authority
<i>Incident Management agencies from which your agency receives</i>				
<i>incident clearance and/or incident severity, location, and type information</i>				
Receive information on Incident Clearance	None listed	Utah Department of Transportation, Salt Lake Fire Department, Salt Lake Police Department	None listed	Utah Department of Transportation
Receive information on Incident Severity, Location, and Type	None listed	Utah Department of Transportation, Salt Lake Fire Department, Salt Lake Police Department	None listed	Utah Department of Transportation
<i>Toll Collection agencies from which your agency receives arterial travel times derived from vehicles probes</i>	None listed	None listed	None listed	None listed
Arterial Incident Management Section				
Agencies your agency provides incident severity, location, and type info. 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
Freeway Management Agencies				
Provide Information	None listed	None listed	None listed	None listed

Arterial Management Integration
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Salt Lake City		Salt Lake County	
	1999	2005	1999	2005
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				
Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions				
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.

Arterial Management Integration
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
<u>Arterial Mgt. agencies in metropolitan area with which you share info.</u>				
Share Timing Plans Information	None listed	None listed	Salt Lake City, Salt Lake County	Midvale
Coordinate Changes to Timing Plans	None listed	None listed	Salt Lake City, Salt Lake County	Sandy City, West Valley City, West Jordan, South Jordan, Cottonwood, Draper, Taylorsville, South Salt Lake, Murray, Midvale
Turn over Control of Signals	None listed	None listed	Salt Lake City, Salt Lake County	Sandy City, West Valley City, West Jordan, South Jordan, Cottonwood, Draper, Taylorsville, South Salt Lake, Murray, Midvale
Agencies your agency provides arterial travel times, speeds, and conditions information, share infrastructure or coordinates operation				
<i>Freeway Management Agencies</i>				
Provide Information	None listed	None listed	Utah Department of Transportation	None listed
Share Infrastructure	None listed	None listed	Utah Department of Transportation	None listed
Coordinate Operation	None listed	None listed	Utah Department of Transportation	None listed
<i>Incident Management Agencies</i>				
Provide Information	None listed	None listed	Utah Department of Transportation, Department of Public Safety, Salt Lake City, Salt Lake County	None listed

Arterial Management Integration
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Share Infrastructure	None listed	None listed	Utah Department of Transportation, Department of Public Safety, Salt Lake City, Salt Lake County	None listed
Coordinate Operation	None listed	None listed	Utah Department of Transportation, Department of Public Safety, Salt Lake City, Salt Lake County	None listed
Public Transit Operators Agencies				
Provide Information	None listed	None listed	None listed	Utah Transit Authority
Share Infrastructure	None listed	None listed	None listed	Utah Transit Authority
Coordinate Operation	None listed	None listed	None listed	Utah Transit Authority
Arterial Management Agencies				
Provide Information	None listed	None listed	Salt Lake City, Salt Lake County	Sandy City, West Valley City, West Jordan, South Jordan, Cottonwood, Draper, Taylorsville, South Salt Lake, Midvale, Murray
Share Infrastructure	None listed	None listed	Salt Lake City, Salt Lake County	Sandy City, West Valley City, West Jordan, South Jordan, Cottonwood, Draper, Taylorsville, South Salt Lake, Midvale, Murray
Coordinate Operation	None listed	None listed	Salt Lake City, Salt Lake County	Sandy City, West Valley City, West Jordan, South Jordan, Cottonwood, Draper, Taylorsville, South Salt Lake, Midvale, Murray
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				

Arterial Management Integration
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
<i>freeway travel times, speeds, and conditions</i>	None listed	None listed	Utah Department of Transportation	None listed
<i>Public Transit operators from which your agency receives</i>				
<i>arterial travel times derived from vehicle probes</i>	None listed	None listed	None listed	Utah Transit Authority
<i>Incident Management agencies from which your agency receives</i>				
<i>incident clearance and/or incident severity, location, and type information</i>				
Receive information on Incident Clearance	None listed	None listed	Utah Department of Transportation, Department of Public Safety, Salt Lake City, Salt Lake County	None listed
Receive information on Incident Severity, Location, and Type	None listed	None listed	Utah Department of Transportation, Department of Public Safety, Salt Lake City, Salt Lake County	None listed
<i>Toll Collection agencies from which your agency receives arterial travel</i>				
<i>times derived from vehicles probes</i>	None listed	None listed	None listed	None listed
Arterial Incident Management Section				
Agencies your agency provides incident severity, location, and type info.				
<u>and/or shares infrastructure and/or coordinates operation</u>				
<i>Emergency Management Agencies</i>				
Provide Information	None listed	None listed	Department of Public Safety	Davis County Sheriff Department, Salt Lake County Sheriffs Office
Share Infrastructure	None listed	None listed	Department of Public Safety	Davis County Sheriff Department, Salt Lake County Sheriffs Office
Coordinate Operation	None listed	None listed	Department of Public Safety	Davis County Sheriff Department, Salt Lake County Sheriffs Office
<i>Freeway Management Agencies</i>				
Provide Information	None listed	None listed	Utah Department of Transportation	None listed

Arterial Management Integration
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Share Infrastructure	None listed	None listed	Utah Department of Transportation	None listed
Coordinate Operation	None listed	None listed	Utah Department of Transportation	None listed
Public Transit Operators				
Provide Information	None listed	None listed	None listed	Utah Transit Authority
Share Infrastructure	None listed	None listed	None listed	Utah Transit Authority
Coordinate Operation	None listed	None listed	None listed	Utah Transit Authority
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	Department of Public Safety	Davis County Sheriff Department, Salt Lake County Sheriffs Office
Receive Arterial Incident Severity Information	None listed	None listed	Department of Public Safety	Davis County Sheriff Department, Salt Lake County Sheriffs Office
Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions				
Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions	None listed	None listed	None listed	Salt Lake County, Salt Lake City
Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions				
Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions	None listed	None listed	Utah Department of Transportation	None listed

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

Arterial Management Integration
 Agencies for Metropolitan Area: Salt Lake City, Ogden

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

Arterial Management Integration
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Weber County		West Valley City	
	1999	2005	1999	2005
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Public Transit Operators Agencies				
Provide Information	Utah Transit Authority	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 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
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				

Arterial Management Integration
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Weber County		West Valley City	
	1999	2005	1999	2005
<i>freeway travel times, speeds, and conditions</i>	Utah Department of Transportation	None listed	short survey	None listed
<i>Public Transit operators from which your agency receives</i>				
<i>arterial travel times derived from vehicle probes</i>	None listed	None listed	None listed	None listed
<i>Incident Management agencies from which your agency receives</i>				
<i>incident clearance and/or incident severity, location, and type information</i>				
Receive information on Incident Clearance	None listed	None listed	short survey	None listed
Receive information on Incident Severity, Location, and Type	None listed	None listed	None listed	None listed
<i>Toll Collection agencies from which your agency receives arterial travel</i>				
<i>times derived from vehicles probes</i>	None listed	None listed	None listed	None listed
Arterial Incident Management Section				
Agencies your agency provides incident severity, location, and type info.				
<u>and/or shares infrastructure and/or coordinates operation</u>				
<i>Emergency Management Agencies</i>				
Provide Information	Ogden City Fire & EMS Department, Ogden Police Department, Weber County Sheriff Department	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
<i>Freeway Management Agencies</i>				
Provide Information				
	None listed	None listed	None listed	None listed

Arterial Management Integration
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Weber County		West Valley City	
	1999	2005	1999	2005
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	short survey	None listed
Receive Arterial Incident Severity Information	None listed	None listed	short survey	None listed
Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions	None listed	None listed	None listed	None listed
Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions	None listed	None listed	None listed	None listed

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

Appendix H
Arterial Management Information Collection and Dissemination

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

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

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Salt Lake City		Salt Lake County	
	1999	2005	1999	2005
Transferred to another agency by your agency	Traffic volumes, Vehicle classification, Turning movements, Phasing/cycle lengths, Emergency vehicle signal preemption	Traffic speeds, Queues, Current work zones, Scheduled work zones, Intermodal (air, rail, water) connections	NR	Traffic volumes, Traffic speeds, Lane occupancy, Queues, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority, Route designations (snow emergency, etc.), 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		Intermodal (air, rail, water) connections	NR	
Ranked Medium		Current work zones, Scheduled work zones	Traffic volumes, Traffic speeds, Lane occupancy, Queues, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority, Route designations (snow emergency, etc.), Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information	
Ranked Low		NR	NR	
Groups that make requests for the data	Universities, State DOT personnel, MPOs, Consultants, Advanced Traveler Information Systems (ATIS) provi		Universities, State DOT personnel, Consultants	

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Salt Lake City		Salt Lake County	
	1999	2005	1999	2005
What is the data used for?	Traffic analysis, Construction impact determination, Planning, Dissemination to the public		Traffic analysis, Planning, Roadway impact analysis, Dissemination to the public	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	Dedicated cable TV	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	Telephone system, Internet Web sites, Pagers or personal data assistants, E-mail or other direct PC communication	Kiosks	Dedicated cable TV, Telephone system, Internet Web sites, Pagers or personal data assistants, E-mail or other direct PC communication	Kiosks
Internet web site reporting arterial conditions	UDOT website: www.utahcommuterlink.com Salt Lake City website: www.ci.slc.ut.us		UDOT website: www.utahcommuterlink.com	
Telephone system for reporting arterial information to the public	UDOT Traveler Advisory Telephone: 801-533-2109		UDOT Traveler Advisory Telephone: 801-533-2109	
Organizations your agency sends information for dissemination to the public	UDOT Salt Lake County Cable Television service provider		UDOT	
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: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	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	Traffic volumes, Lane occupancy	Traffic volumes, Traffic speeds, Vehicle classification, Turning movements, Phasing/cycle lengths, Road conditions, Weather conditions, Incidents, Current work zones, Current work zones	Lane occupancy, Probe vehicles, Emergency vehicle signal preemption, Transit vehicle signal priority, Route designations (snow emergency, etc.), Scheduled work zones, Intermodal (air, rail, water) connections, Highway operations coordination information
Archived by your agency	NR	Traffic volumes, Lane occupancy	Traffic volumes, Traffic speeds, Vehicle classification, Turning movements, Phasing/cycle lengths, Road conditions, Weather conditions, Incidents, Current work zones, Current work zones	Lane occupancy, Probe vehicles, Emergency vehicle signal preemption, Transit vehicle signal priority, Route designations (snow emergency, etc.), Scheduled work zones, Intermodal (air, rail, water) connections, Highway operations coordination information

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
Transferred to another agency by your agency			Traffic volumes, Traffic speeds, Vehicle classification, Turning movements, Phasing/cycle lengths, Road conditions, Weather conditions, Incidents, Current work zones, Current work zones	Lane occupancy, Probe vehicles, Emergency vehicle signal preemption, Transit vehicle signal priority, Route designations (snow emergency, etc.), Scheduled work zones, Intermodal (air, rail, water) connections, Highway operations coordination information
	NR	NR		
Importance of making information available to the public				
Ranked High			Traffic volumes, Road conditions, Weather conditions, Incidents, Current work zones, Current work zones, Scheduled work zones	
	NR			
Ranked Medium			Vehicle classification, Probe vehicles, Turning movements, Route designations (snow emergency, etc.), Highway operations coordination information	
	NR			
Ranked Low			Traffic speeds, Lane occupancy, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority, Intermodal (air, rail, water) connections	
	Traffic volumes, Lane occupancy			
Groups that make requests for the data				
	unknown		Universities, State DOT personnel, Consultants, Advanced Traveler Information Systems (ATIS) provi	

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Department of Transportation-Region 1		Utah Department of Transportation-Region 2	
	1999	2005	1999	2005
What is the data used for?	Do not know		Traffic analysis, Planning, Dissemination to the public	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	NR	NR	Telephone system, Internet Web sites, Pagers or personal data assistants, E-mail or other direct PC communication	Kiosks
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	Dedicated cable TV	Kiosks
Internet web site reporting arterial conditions	NR		UDOT Website: www.utahcommuterlink.com	
Telephone system for reporting arterial information to the public	NR		UDOT Traveler Advisory Telephone: 801-533-2109	
Organizations your agency sends information for dissemination to the public	NR		Clear Channel Communications - commercial radio JayCorp Broadcasting - commercial radio	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information to the public				
Technologies your agency uses to disseminate:	NR	NR	Telephone system, Internet Web sites, Pagers or personal data assistants, E-mail or other direct PC communication	Kiosks
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	Dedicated cable TV	Kiosks
Internet web site reporting incident information	NR		UDOT Website: www.utahcommuterlink.com	
Telephone system for reporting incident information to the public	NR		UDOT Traveler Advisory Telephone: 801-533-2109	
Organizations your agency sends information for dissemination to the public	NR		Clear Channel Communications- commercial radio JayCore Communications - commercial radio	

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Weber 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	NR
Archived by your agency	NR	NR

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Weber County	
	1999	2005
Transferred to another agency by your agency	NR	NR
Importance of making information available to the public		
Ranked High	NR	
Ranked Medium	NR	
Ranked Low	NR	
Groups that make requests for the data	Universities, State DOT personnel, Federal DOT personnel	

Data Collection and Dissemination: Arterial Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

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

Appendix I
Transit Management Components

Transit Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Transit Authority	
	1999	2005
Agency Returned Survey?	Yes	
Number of vehicles used in revenue service		
Fixed Route Bus	530	600
Heavy or Rapid Rail	0	0
Light Rail	23	43
Demand Responsive	90	100
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Have of plan to have an Automated Vehicle Location System?	Yes	
Primary and Secondary Location Technologies Used		
<i>Primary Technologies</i>		
GPS	No	No
Sign/Odometer	No	No
Dead-Reckoning	No	No
LORAN C	No	No
Other	No	Yes
<i>Backup Technologies</i>		
GPS	No	No
Sign/Odometer	No	Yes
Dead-Reckoning	No	No
LORAN C	No	No
Other	No	No
Number of Vehicles Equipped with AVL		
Fixed Route Bus	0	600
Heavy or Rapid Rail	NR	NR
Light Rail	0	43
Demand Responsive	0	100
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Motor Buses Operated as Vehicle Probes		
Number of Motor Buses equipped as probes on freeways?	NR	
Number of Motor Buses equipped as probes on arterials?	NR	
Have Organized Regional Incident Management Program?	No	
Have Automated Traveler Information System?	Yes	
<i>Services Automated Traveler Info. System Applies:</i>		

Transit Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Transit Authority	
	1999	2005
Fixed Route	Yes	
Heavy Rail	No	
Light Rail	Yes	
Demand Responsive	Yes	
Commuter Rail	No	
Ferry	No	
Locations where traveler information is displayed to public		
Number of bus stops on fixed transit routes	9,000	9,000
Bus stops on fixed transit routes that display traveler info to the public	NR	50
Number of rail stations	14	20
Number of rail stations that display traveler information	14	20
Number of other locations that display traveler information to public	NR	6
Number of vehicles the traveler information system has available		
Fixed Route Bus	0	100
Heavy or Rapid Rail	NR	NR
Light Rail	0	43
Demand Responsive	0	NR
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Deployment of Communications Technology		
<i>Attributes of Radio System:</i>		
Digital?	No	
Analog?	Yes	
Trunked?	Yes	
Regular?	No	
Services that use a Digital or Trunked Radio System		
<i>Digital Only</i>		
Fixed Route Bus	No	No
Heavy or Rapid Rail	No	No
Light Rail	No	No
Demand Responsive	No	No
Commuter Rail	No	No
Ferry Boat	No	No
<i>Trunked Only</i>		
Fixed Route Bus	Yes	Yes
Heavy or Rapid Rail	No	No
Light Rail	Yes	Yes
Demand Responsive	Yes	Yes
Commuter Rail	No	No

Transit Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Transit Authority	
	1999	2005
Ferry Boat	No	No
Have of plan to have Automatic Passenger Counters (APCs)?	Yes	
Methods used to count passengers		
Treadle Mats	No	
Infrared Beams	Yes	
Primary and Secondary Location Technologies Used		
<i>Primary Technologies</i>		
GPS	No	No
Differential GPS	Yes	No
Signpost/Odometer	No	No
Dead_Reckoning	No	No
LORAN C	No	No
Other	No	No
<i>Backup Technologies</i>		
GPS	No	No
Differential GPS	No	No
Signpost/Odometer	No	No
Dead_Reckoning	No	No
LORAN C	No	No
Other	No	No
Number of Vehicles with APCs		
Fixed Route Bus	8	100
Heavy or Rapid Rail	NR	NR
Light Rail	0	43
Demand Responsive	NR	NR
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Remote Real-Time Monitoring and Computer Assisted Dispatching		
<i>Remote Real-Time Monitoring</i>		
Fixed Route Bus	NR	NR
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	NR	NR
Commuter Rail	NR	NR
Ferry Boat	NR	NR
<i>Automated Dispatching or Control Software</i>		
Fixed Route Bus	530	600
Heavy or Rapid Rail	NR	NR
Light Rail	23	43

Transit Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

	Utah Transit Authority	
	1999	2005
Demand Responsive	90	100
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Coordinate or plan to coordinate travel request and vehicle dispatching for multiple agencies?	No	
Is there or will there be a Transportation Management Center (TMC) in the region that controls transit and highway modes?	Yes	
Modes that TMC currently controls:		
Highways	Yes	Yes
Fixed Route Bus	No	No
Heavy or Rapid Rail	No	No
Light Rail	No	No
Demand Responsive	No	No
Commuter Rail	No	No
Ferry Boat	No	No
Other	No	No
Priority at Traffic Signals and Ramp Meter Priority		
<i>Priority at Traffic Signals</i>		
Fixed Route Bus	0	10
Light Rail	23	43
Demand Responsive	0	NR
<i>Ramp Meter Priority</i>		
Fixed Route Bus	NR	NR
Demand Responsive	NR	NR
Number of Vehicles Equipped with Navigation Aids		
Fixed Route Bus	NR	NR
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	0	90
Commuter Rail	NR	NR
Ferry Boat	NR	NR
ITS Standards Used Related to Transit Management		
TCIP On Board Objects (TCIP-OB)	Yes	
TCIP Traffic Management Objects (TCIP-TM)	Yes	
TCIP Common Public Transportation Objects (TCIP-CPT)	Yes	
TCIP Passenger Information Objects (TCIP-PI)	Yes	
TCIP Incident Management Objects (TCIP-IM)	No	
TCIP Fare Collection Objects (TCIP-FC)	No	

Transit Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

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

Transit Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

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

Appendix J
Transit Management Integration

Transit Management Integration
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Transit Authority	
	1999	2005
Agency Returned Survey?	Yes	
<u>Transit operators in the region that use the same electronic payment system</u>	None listed	
<u>Toll operators from whom you accept electronic payment of transit fare through the use of ETC media</u>	None listed	
<u>Receiving real-time information via electronic means from others</u>		
<i>Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions</i>		
<i>Receive Information</i>	Utah Department of Transportation, Salt Lake City	Salt Lake County
<i>Share Infrastructure</i>	Salt Lake City, Salt Lake County	Utah Department of Transportation
<i>Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions</i>		
<i>Receive Information</i>	Salt Lake City, Utah Department of Transportation, Police & Sheriff, Fire	Ogden City, Salt Lake County, West Valley City
<i>Share Infrastructure</i>	Salt Lake City, Salt Lake County, Utah Department of Transportation	None listed
<i>Incident Management agencies from which your agency receives incident severity, location, and type</i>		
<i>Receive Information</i>	Utah Department of Transportation, Rest of ATMS participants, EMS	None listed
<i>Share Infrastructure</i>	Utah Department of Transportation, Rest of ATMS participants	None listed

Appendix K
Transit Management Information Collection and Dissemination

Data Collection and Dissemination: Transit Management
 Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Transit Authority	
	1999	2005
Agency Returned Survey?	Yes	
Methods used to disseminate transit information to the public		
Technologies your agency uses to disseminate:		
Transit routes, schedules and fares	Internet Web Sites, Telephone System	Audible Enunciators, Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle)
Real-time transit schedule adherence or arrival and departure times	NR	Audible Enunciators, Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), Internet Web Sites, Telephone System
Technologies employed by other organization receiving your data		
Transit routes, schedules and fares	Internet Web Sites	NR
Real-time transit schedule adherence or arrival and departure times	NR	Monitors/VMS (not in vehicle), Internet Web Sites, Telephone System, Dedicated cable TV
Internet web site reporting transit routes, schedules and fare, etc.	www.utabus.com <input type="checkbox"/> www.utahcommuterlink.com	
Telephone system for reporting transit information to the public	801-BUS-INFO <input type="checkbox"/> 1-888-RIDE UTA <input type="checkbox"/> 801-BUS RAIL	
Organizations your agency sends information for dissemination to the public	Utah DOT <input type="checkbox"/> Salt Lake City <input type="checkbox"/> Salt Lake County	
Data collected, archived, and/or transferred to another agency		
Collected by your agency	Incidents, Passenger count, Passenger information (e.g., surveys, O/D), Road conditions, Vehicle time and location, Weather conditions, Transit operations coordination information, Route designations (snow emergency, etc), Emergency/evacuation routes and procedures	Trip itinerary planning records, Vehicle monitoring status, Vehicle time and location, Current roadway work zones for transit, Scheduled roadway work zones for transit, Intermodal (air, rail, water) conditions, Transit vehicle signal priority

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Utah Transit Authority	
	1999	2005
Archived by your agency	Incidents, Passenger count, Passenger information (e.g., surveys, O/D), Vehicle time and location, Transit operations coordination information, Route designations (snow emergency, etc)	Transit vehicle signal priority
Transferred to another agency by your agency	Incidents, Transit operations coordination information	Passenger count, Vehicle time and location, Current roadway work zones for transit, Scheduled roadway work zones for transit, Route designations (snow emergency, etc), Intermodal (air, rail, water) conditions, Emergency/evacuation routes and procedures, Transit vehicle signal priority
Importance of making information available to the public		
Ranked High	Incidents, Passenger count, Passenger information (e.g., surveys, O/D), Road conditions, Vehicle time and location, Weather conditions, Transit operations coordination information, Current roadway work zones for transit, Scheduled roadway work zones for transit	
Ranked Medium	Trip itinerary planning records, Route designations (snow emergency, etc), Intermodal (air, rail, water) conditions, Emergency/evacuation routes and procedures, Highway operations coordination information, Transit vehicle signal priority	
Ranked Low	Vehicle monitoring status	
Groups that make requests for the data	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, Roadway impact analysis, Planning, Construction impact determination, Traffic analysis, Do not know	

Appendix L
Emergency Management

Emergency Management Agencies for Metropolitan Area: Salt Lake City, Ogden

Agency Name	Total Vehicles		Navigation Capabilities		AVL		CAD		CAD Equipped with Mobile Data Terminal		Vehicles Equipped with Preemption		Participate in Formal Incident Mgt Program	Send Incident Info to other agencies	List of agencies receiving data
	1999	2005	1999	2005	1999	2005	1999	2005	1999	2005	1999	2005			
Ogden City Fire & EMS Department	11	12	0	6	0	0	11	11	0	1	0	0	Yes	No	None listed
Ogden City Police Department	75	75	0	0	0	0	75	75	25	25	0	0	No	No	None listed
Salt Lake County Sheriffs Office	682	NR	0	NR	0	0	45	200	45	200	0	0	No	No	None listed
Salt Lake Fire Department	39	NR	0	NR	0	NR	39	NR	0	NR	3	NR	Yes	Yes	Utah State Fire Marshal, Utah Bureau of Emergency Medical Services
Sandy Fire Department	16	NR	NR	NR	NR	NR	NR	NR	NR	NR	9	NR	Yes	No	None listed
Sandy Police Department	128	NR	NR	NR	NR	NR	NR	NR	30	NR	NR	NR	Yes	No	None listed
Tooele County Sheriff	62	65	NR	0	NR	0	NR	65	NR	NR	NR	0	Yes	NR	None listed
West Valley City Fire & EMS Department	17	NR	NR	NR	NR	NR	NR	NR	NR	NR	0	NR	No	Yes	None listed
West Valley City Police Department	220	250	0	NR	0	NR	160	200	100	200	0	NR	No	Yes	State BCI