Tracking the Deployment of the Integrated Metropolitan ITS Infrastructure in Kansas City

FY99 Results

For additional information, please contact:

Joseph I. Peters, Ph.D.
ITS Program Assessment Coordinator
ITS Joint Program Office, Room 3416
400 Seventh St., S.W.
Washington, D.C. 20590
(202) 366-2202
FAX: (202) 493-2027
E-mail: joe.peters@fhwa.dot.gov

Table of Contents

Part 1 - Background and Purpose 1

Part 2 - Summary 1999 Survey Results 3

Part 3 - Detailed 1999 Survey Results 7
- Freeway Management Component Indicators 9
- Freeway Management Integration Indicators 11
- Incident Management Component Indicators 13
- Incident Management Integration Indicators 15
- Arterial Management Component Indicators 17
- Arterial Management Integration Indicators 19
- Electronic Toll Collection Component Indicators 21
- Electronic Toll Collection Integration Indicators 22
- Transit Management Component Indicators 23
- Transit Management Integration Indicators 24
- Electronic Fare Payment Component Indicators 26
- Electronic Fare Payment Integration Indicators 27
- Highway-Rail Intersection Component Indicators 28
- Highway-Rail Intersection Integration Indicators 29
- Emergency Management Component Indicators 30
- Emergency Management Integration Indicators 31
- Regional Multimodal Traveler Information Component Indicators 32
- Regional Multimodal Traveler Information Integration Indicators 33

Appendix A. Survey Coverage Area A.1
Appendix B. Surveyed Agencies B.1
Appendix C. Freeway Management Components C.1
Appendix D. Freeway Management Integration D.1
Appendix E. Freeway Management Information Collection and Dissemination E.1
Appendix F. Arterial Management Components F.1
Appendix G. Arterial Management Integration G.1
Appendix H. Arterial Management Information Collection and Dissemination H.1
Appendix I. Transit Management Components I.1
Appendix J. Transit Management Integration J.1
Appendix K. Transit Management Information Collection and Dissemination K.1
Appendix L. Emergency Management L.1

Part 1 - Background and Purpose

In January 1996, Secretary Peña set a goal of deploying the integrated metropolitan Intelligent Transportation System (ITS) infrastructure in 75[1] of the nation's largest metropolitan areas by 2006:

> *"I'm setting a national goal: to build an intelligent transportation infrastructure across the United States to save time and lives, and improve the quality of life for Americans. I believe that what we do, we must measure . . . Let us set a very tangible target that will focus our attention . . . I want 75 of our largest metropolitan areas outfitted with a complete intelligent transportation infrastructure in 10 years."*[2]
>
> -- *Secretary Peña, 1996*

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

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

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

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

the methodology are explained elsewhere.[3]

During the summer and fall of 1999, the U.S. DOT undertook a new data collection effort for the purpose of examining ITS deployment progress in the nation's largest metropolitan areas. The Kansas City 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 Kansas City region was 85% in 1997 and 71% 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:

Steve Gordon
Oak Ridge National Laboratory
P.O. Box 2008, 4500N, MS-6207
Oak Ridge, TN 37831-6207
(865) 576-8416 (voice)
(865) 574-3895 (fax)
gordonsr@ornl.gov

Jeff Trombly
Science Applications International Corporation
301 Laboratory Road
Oak Ridge, TN 37831-2501
(865) 481-8563 (voice)
(865) 481-2941 (fax)
jeffrey.w.trombly@saic.com

[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 Kansas City 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).

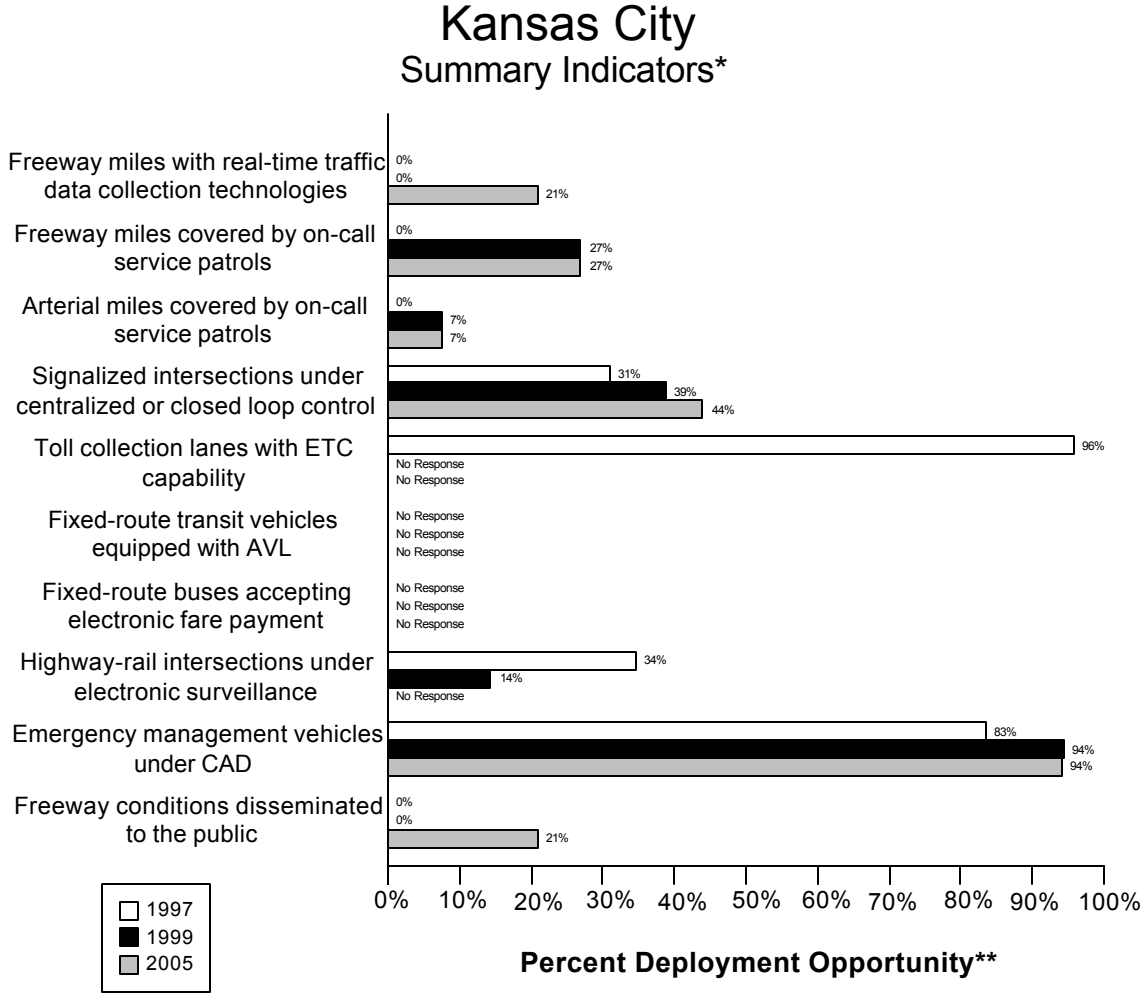
Each component indicator was selected to reflect a critical function of the individual components. For example, in the case of Freeway Management, three basic functions were defined: surveillance, traffic control, and information display. The three indicators developed to reflect these functions are: 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

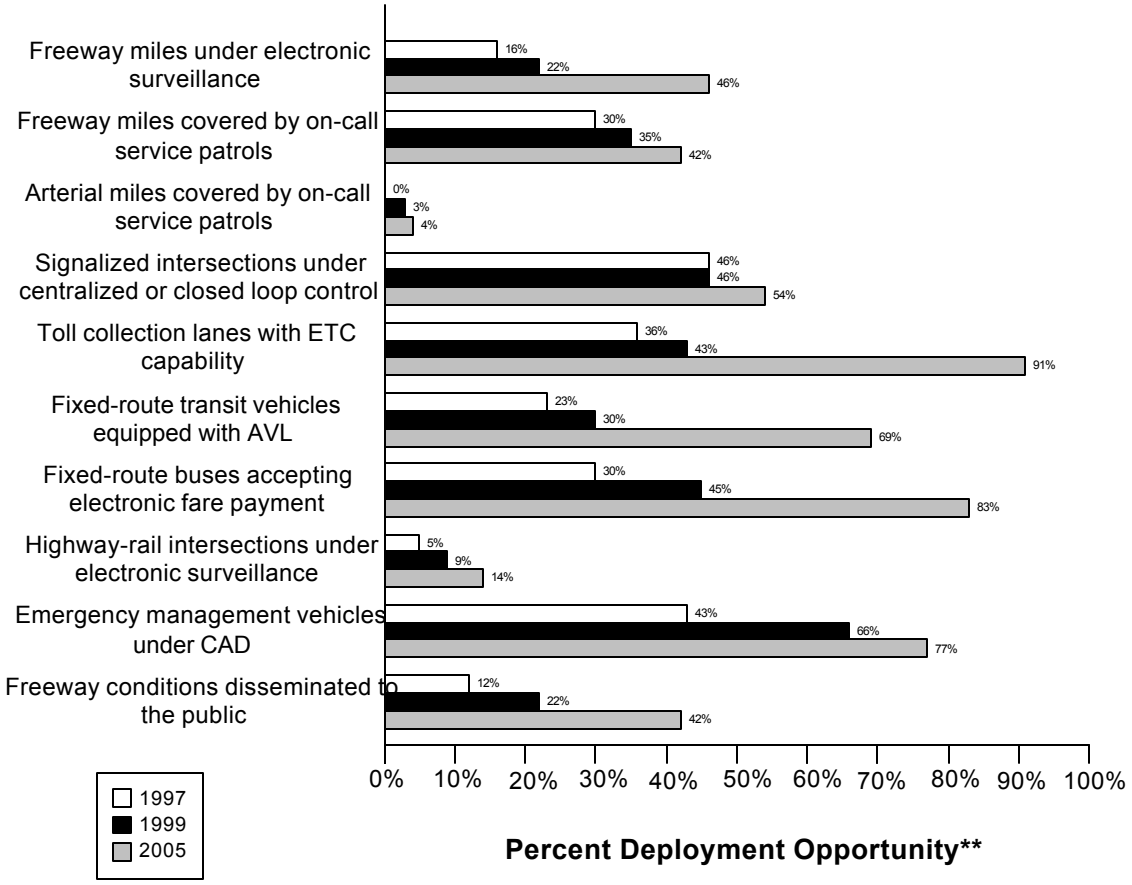


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Data as of 5/1/00

National

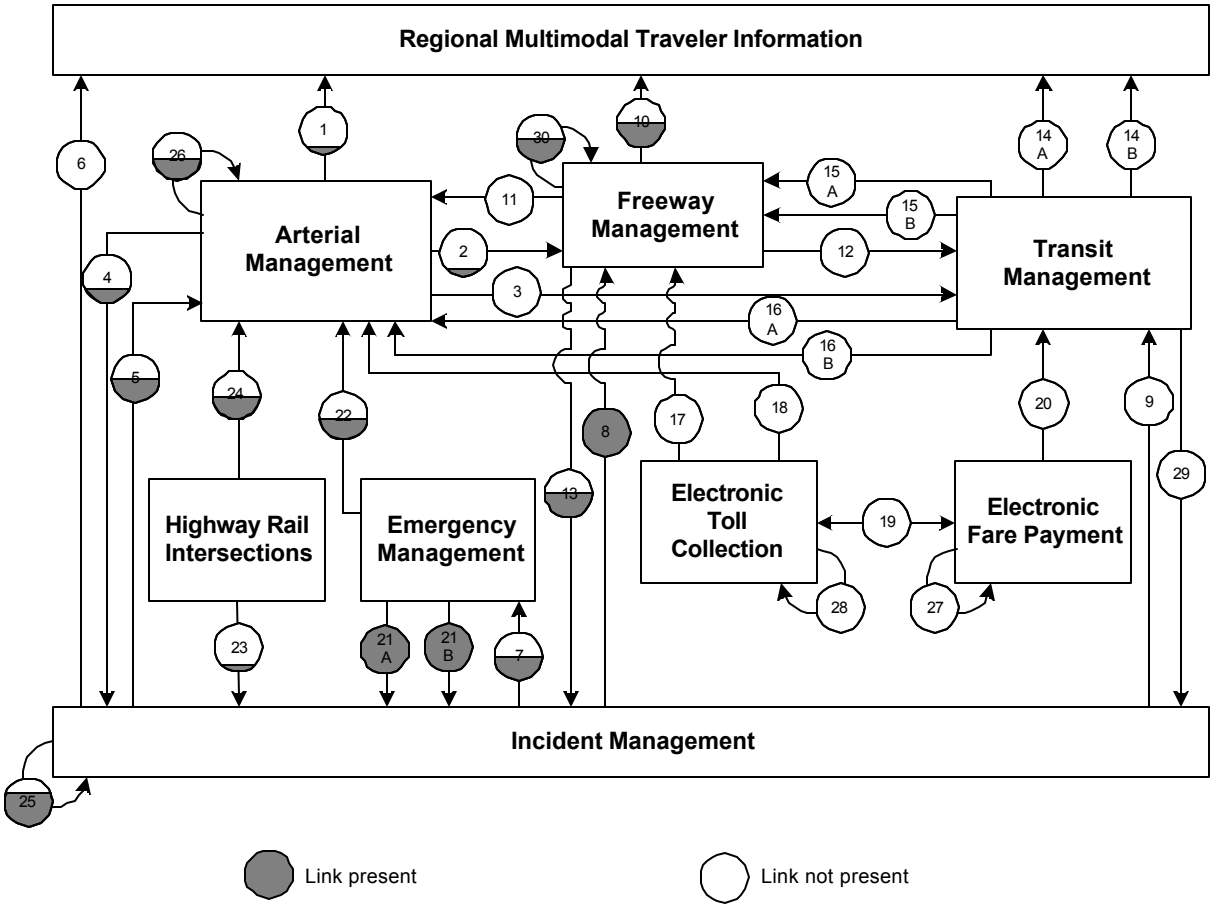
Summary Indicators*



* 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

Kansas City Integration Links



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

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

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

Part 3 - Detailed 1999 Survey Results

The following figures and tables summarize the complete set of component and integration indicators developed for the Kansas City 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%.

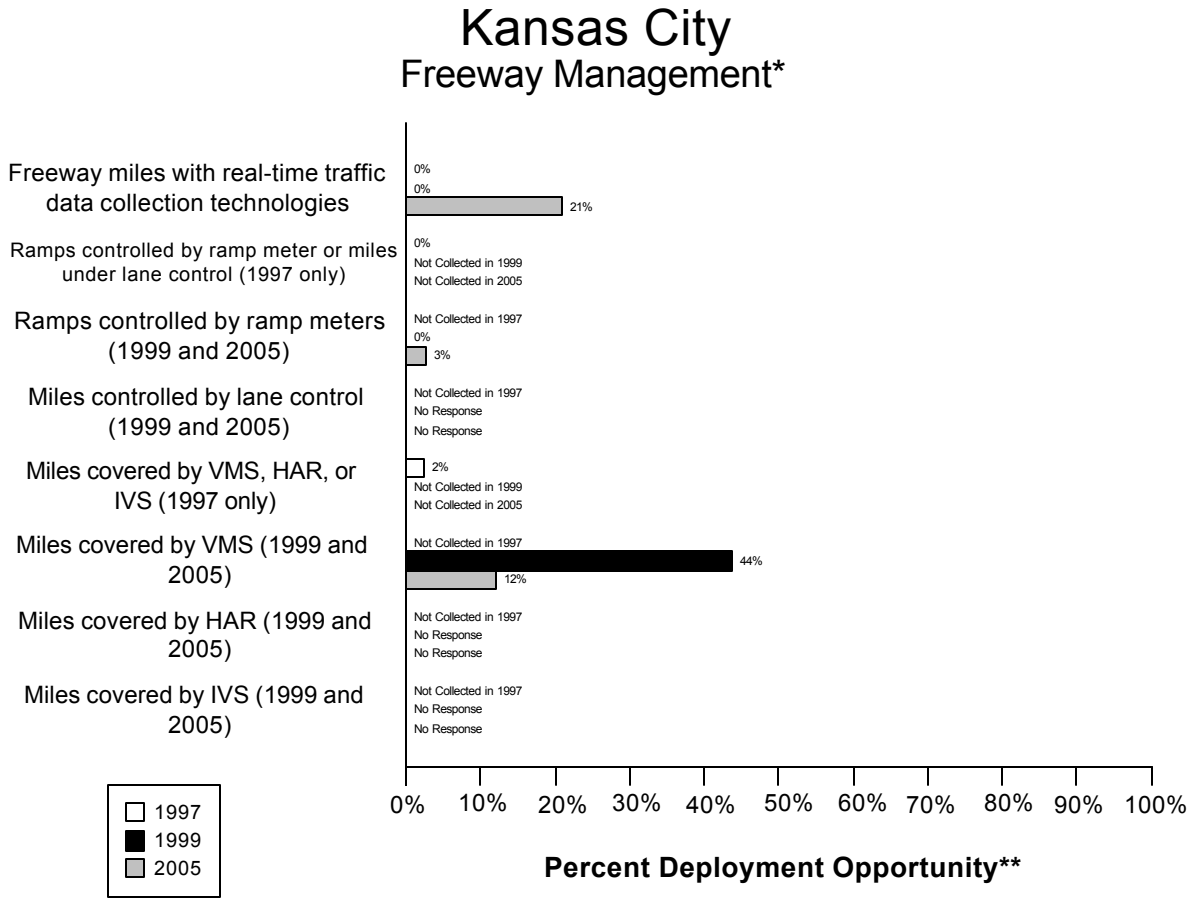
The figures summarizing the integration indicators consist of a diagram for each of the nine metropolitan ITS components portraying the integration level for 1999 (*italic*) and 2005 (**bold**), accompanied by tables providing an explanation of the data and calculations performed to develop each integration 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



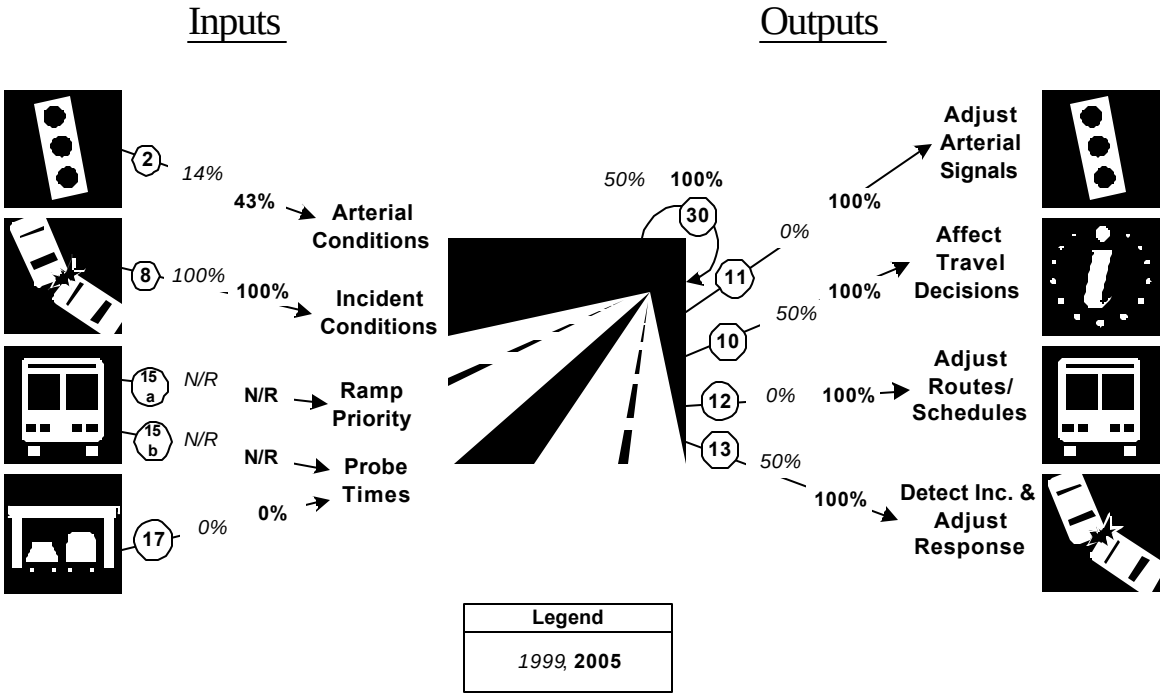
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway centerline miles are under electronic surveillance for monitoring traffic flow	0	416	0%	0	416	0%	87	416	21%
Freeway entrance ramps are controlled by ramp meters or miles under lane control	0	416	0%						

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway entrance ramps are controlled by ramp meters				0	546	0%	15	546	3%
Freeway centerline miles will be controlled by lane control					416			416	
Freeway miles are covered by VMS, HAR, or IVS	10	416	2%						
Freeway miles are covered by VMS				182	416	44%	50	416	12%
Freeway miles are covered by HAR					416			416	
Freeway miles are covered by IVS					416			416	

Freeway Management Integration Indicators

Kansas City
Freeway Management Integration*



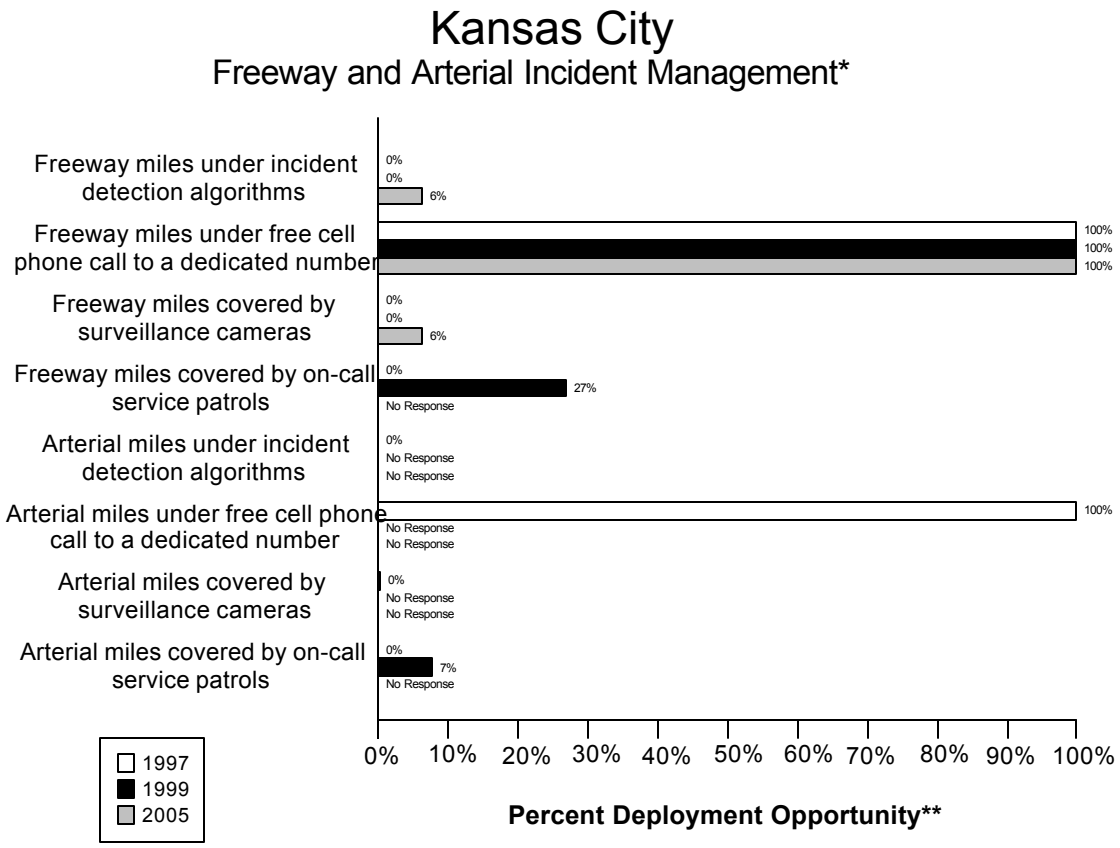
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
2. Arterial Management agencies sending information to Freeway Management	(1/ 7) 14%	(3/ 7) 43%
8. Incident Management agencies sending information to Freeway Management	(2/ 2) 100%	(2/ 2) 100%
15a. Transit management agencies with vehicles equipped with ramp meter priority	(0/)	(0/)
15b. Transit Management agencies with vehicles equipped as probes	(0/)	(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	(1/ 2) 50%	(2/ 2) 100%
11. Freeway Management agencies sending information to Arterial Management	(0/ 2) 0%	(2/ 2) 100%

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

Incident Management Component Indicators

Data as of 5/1/00



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

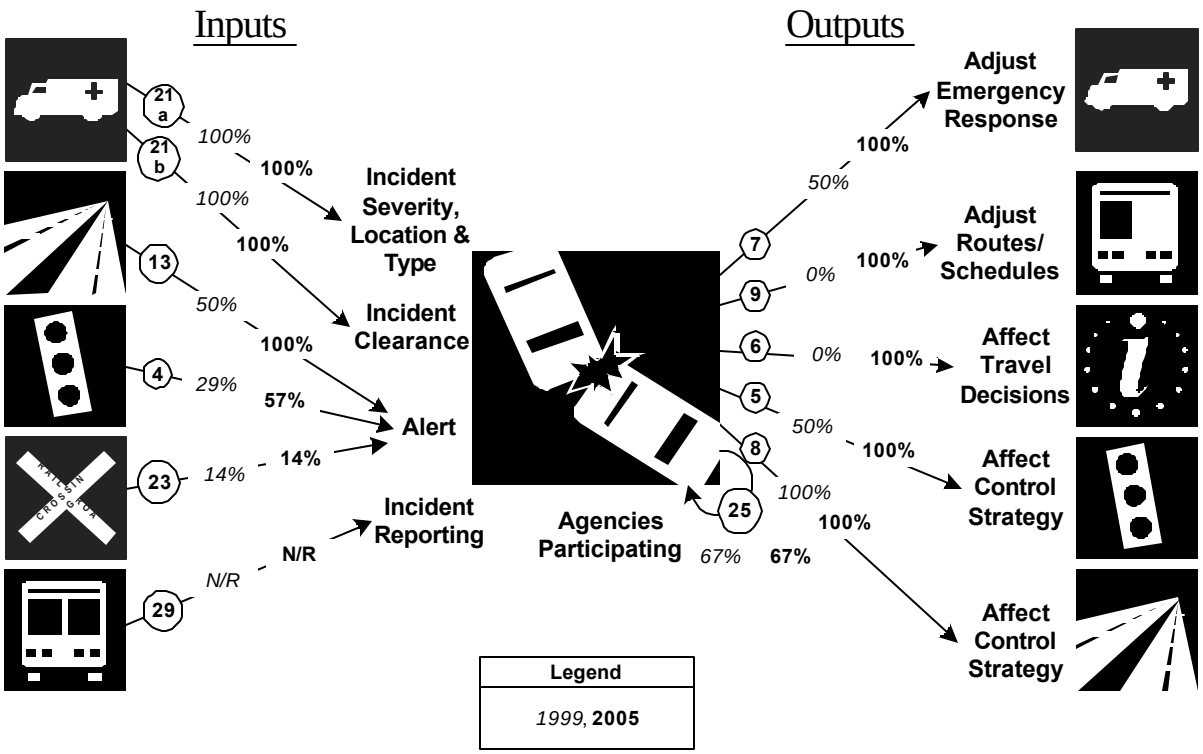
	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by incident detection algorithms	0	416	0%	0	416	0%	25	416	6%
Freeway miles are covered by free cellular phone calls to a dedicated number	416	416	100%	416	416	100 %	416	416	100%
Freeway miles are covered by surveillance cameras.	0	416	0%	0	416	0%	25	416	6%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by on-call publicly-sponsored service patrol or towing services.	0	416	0%	112	416	27%		416	
Arterial miles are covered by incident detection algorithms	0	1338	0%		1338			1338	
Arterial miles are covered by free cellular phone calls to a dedicated number	1338	1338	100%		1338			1338	
Arterial miles are covered by surveillance cameras	1	1338	0%		1338			1338	
Arterial miles are covered by on-call publicly-sponsored service patrol or towing services	0	1338	0%	100	1338	7%		1338	

Incident Management Integration Indicators

Kansas City

Incident Management Integration*



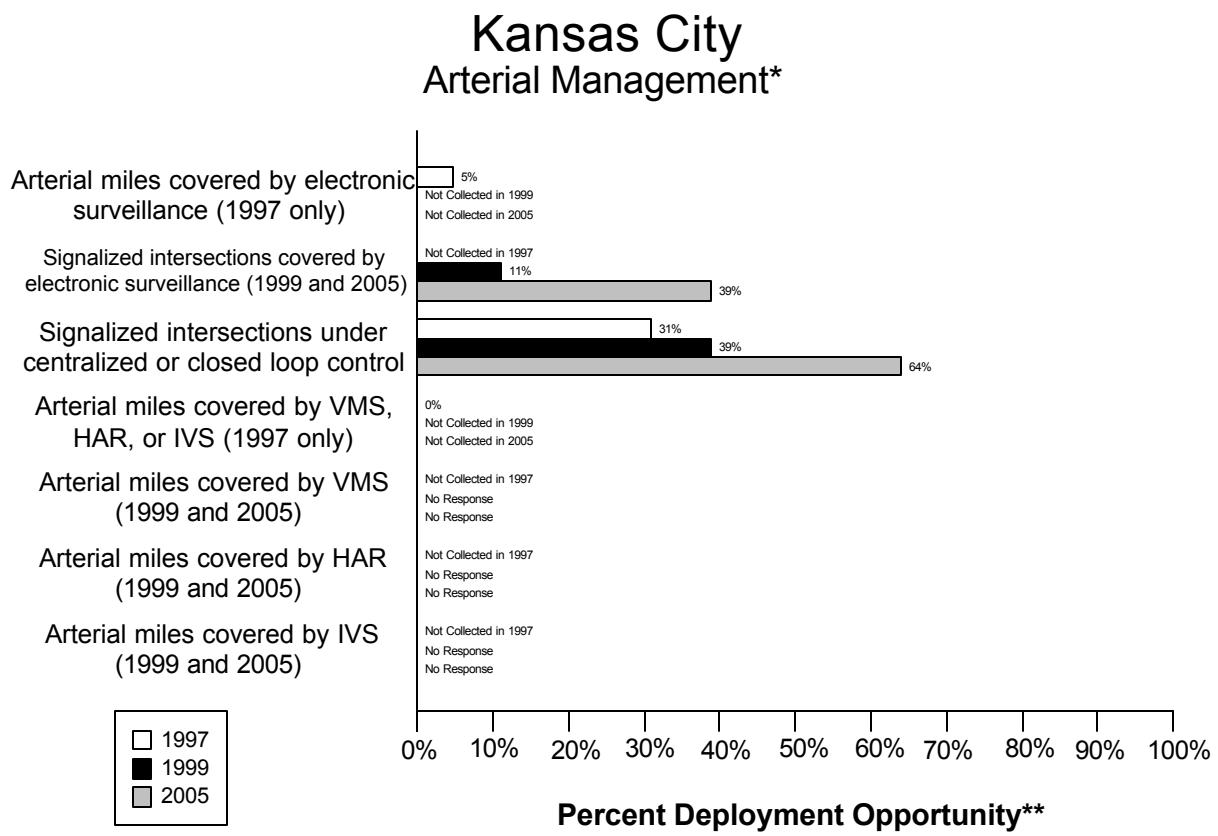
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
21a. Incident management agencies receiving incident severity from Emergency Management	(2/ 2) 100%	(2/ 2) 100%
21b. Incident management agencies receiving incident clearance activities from Emergency Management	(2/ 2) 100%	(2/ 2) 100%
13. Freeway Management agencies sending freeway conditions to Incident Management	(1/ 2) 50%	(2/ 2) 100%
4. Arterial Management agencies sending arterial conditions to Incident Management	(2/ 7) 29%	(4/ 7) 57%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(1/ 7) 14%	(1/ 7) 14%
29. Transit Management agencies report traffic incidents as part of an organized regional incident management program	(0/)	(0/)

Link Description	1999	2005
7. Incident management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	(1/ 2) 50%	(2/ 2) 100%
9. Incident Management agencies transfer information describing incident severity, location, and type to Transit Management agencies	(0/ 2) 0%	(2/ 2) 100%
6. Incident Management agencies disseminate information describing incident severity, location, and type to the public	(0/ 2) 0%	(2/ 2) 100%
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	(2/ 2) 100%	(2/ 2) 100%
25. Police, fire, and EMS agencies participating in a formal incident management plan/team	(8/ 12) 67%	(8/ 12) 67%

Arterial Management Component Indicators

Data as of 5/1/00



* 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.

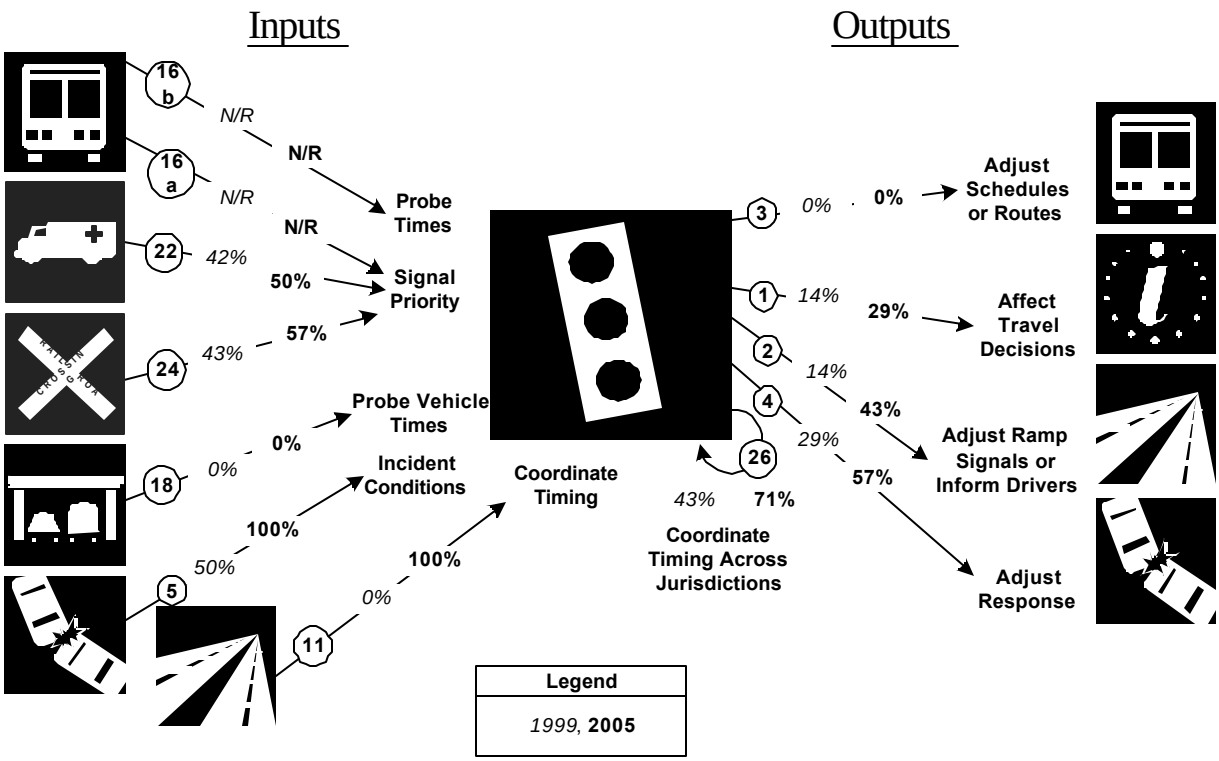
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles covered by electronic surveillance	65	1338	5%						
Signalized intersections are covered by electronic surveillance for monitoring traffic flow				177	1589	11%	252	650	39%
Signalized intersections are under centralized or closed loop control	469	1521	31%	618	1589	39%	415	650	64%

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles are covered by VMS, HAR, or IVS	0	1338	0%						
Arterial miles are covered by VMS					1338			1338	
Arterial miles are covered by HAR					1338			1338	
Arterial miles are covered by IVS					1338			1338	

Arterial Management Integration Indicators

Kansas City

Arterial Management Integration*



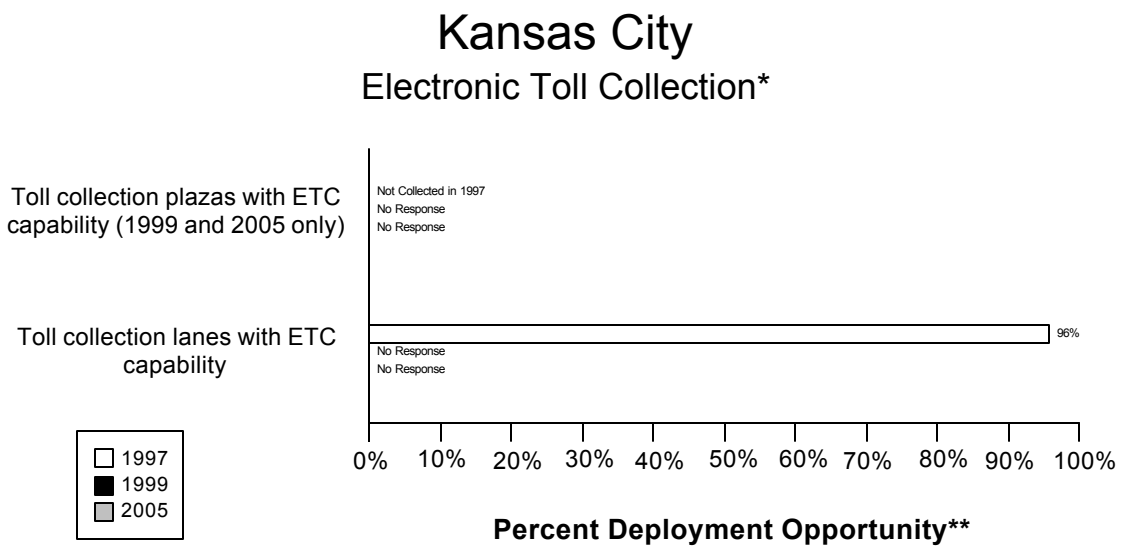
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
16a. Transit management agencies with vehicles equipped with traffic signal priority	(0/)	(0/)
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0/)	(0/)
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(5/ 12) 42%	(6/ 12) 50%
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	(3/ 7) 43%	(4/ 7) 57%
18. Number of Arterial Management agencies receiving information from vehicle probes	(0/ 7) 0%	(0/ 7) 0%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management	(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	(0/ 2) 0%	(2/ 2) 100%
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(0/ 7) 0%	(0/ 7) 0%
1. Arterial Management agencies disseminate arterial travel times, speeds, and conditions to the public	(1/ 7) 14%	(2/ 7) 29%
2. Arterial Management agencies send traffic condition information to Freeway Management	(1/ 7) 14%	(3/ 7) 43%
4. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Incident Management	(2/ 7) 29%	(4/ 7) 57%
26. Arterial Management agencies under cooperative agreement to share traffic signal timing for coordinated response	(3/ 7) 43%	(5/ 7) 71%

Electronic Toll Collection Component Indicators

Data as of 5/1/00

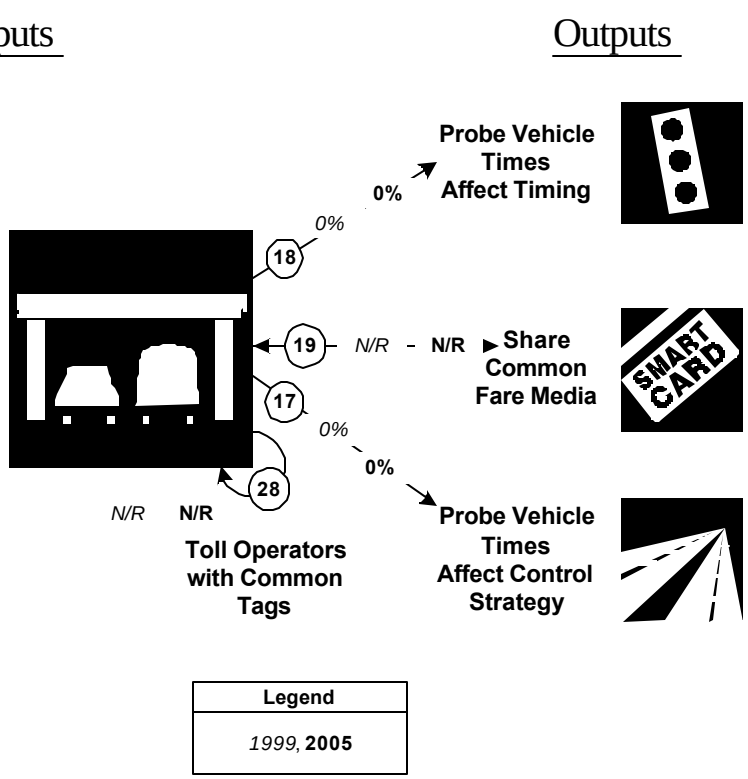


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Toll collection plazas with ETC capability									
Toll collection lanes with ETC capability	45	47	96%						

Electronic Toll Collection Integration Indicators

Kansas City
Electronic Toll Collection Integration*

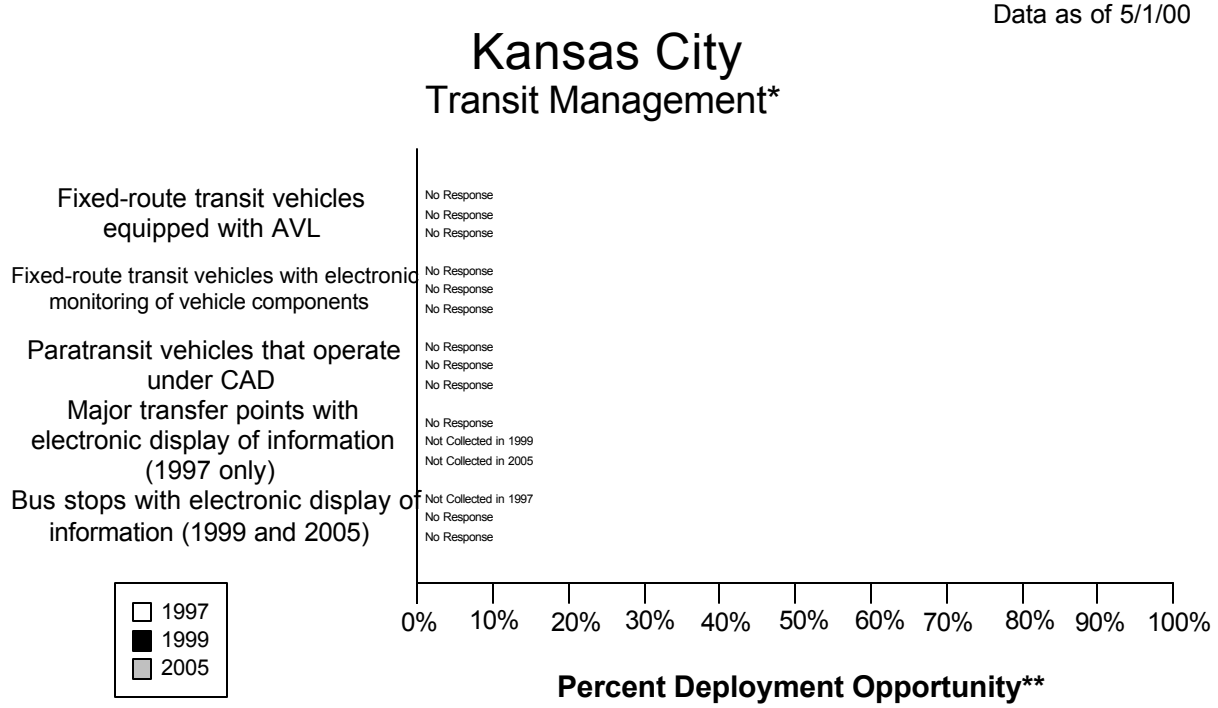


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
18. Number of Arterial Management agencies receiving information from vehicle probes	(0/ 7) 0%	(0/ 7) 0%
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	(0/)	(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

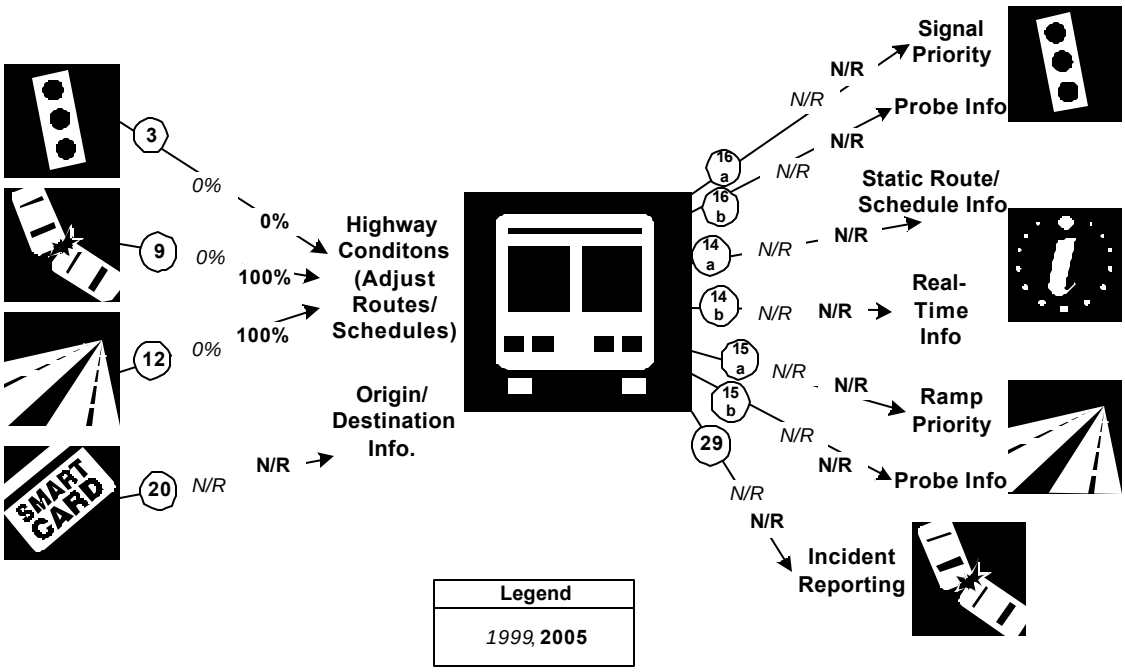


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

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

Transit Management Integration Indicators

Kansas City
Transit Management Integration*



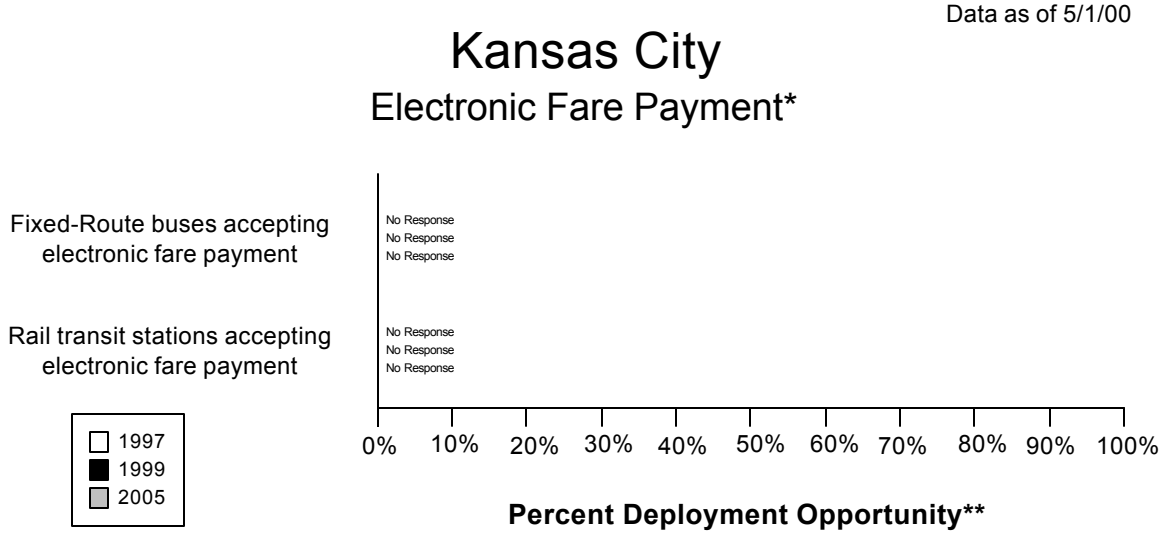
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	(0/ 7) 0%	(0/ 7) 0%
9. Incident management agencies transfer information describing incident severity, location, and type to Transit Management	(0/ 2) 0%	(2/ 2) 100%
12. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Transit Management	(0/ 2) 0%	(2/ 2) 100%
20. Transit Management agencies using Electronic Fare Payment data in transit service planning	(0/)	(0/)
16a. Transit Management agencies have vehicles equipped with traffic signal priority capability	(0/)	(0/)
16b. Transit Management agencies have vehicles equipped as probes on arterials	(0/)	(0/)
14a. Transit Management agencies disseminate information describing transit routes, schedules, and fares to travelers	(0/)	(0/)

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

Electronic Fare Payment Component Indicators

Data as of 5/1/00



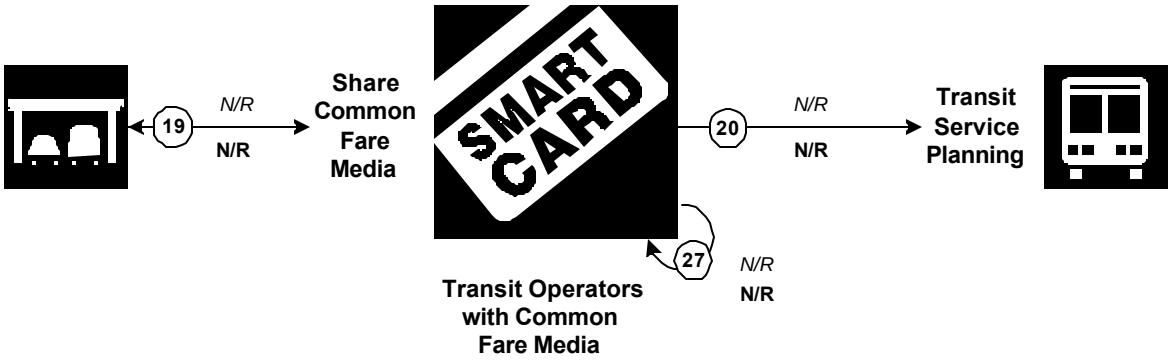
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

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

Electronic Fare Payment Integration Indicators

Kansas City
Electronic Fare Payment Integration*

Inputs Outputs



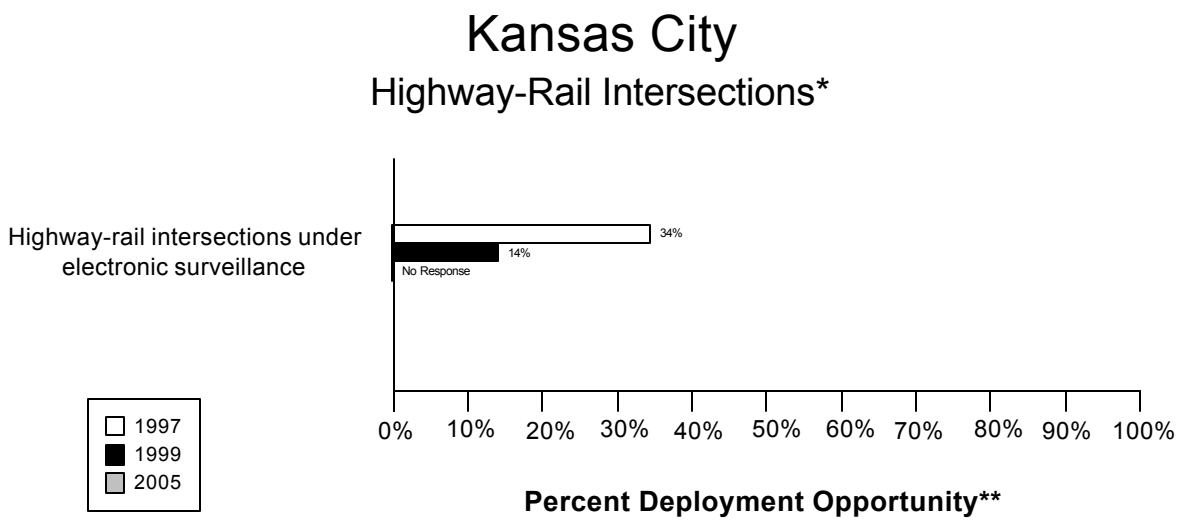
Legend
1999
2005

* 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/)	(0/)
20. Transit Management agencies use Electronic Fare Payment data in transit service planning	(0/)	(0/)
27. Transit Management agencies that use the same electronic payment system	(0/)	(0/)

Highway Rail Intersection Component Indicators

Data as of 5/1/00



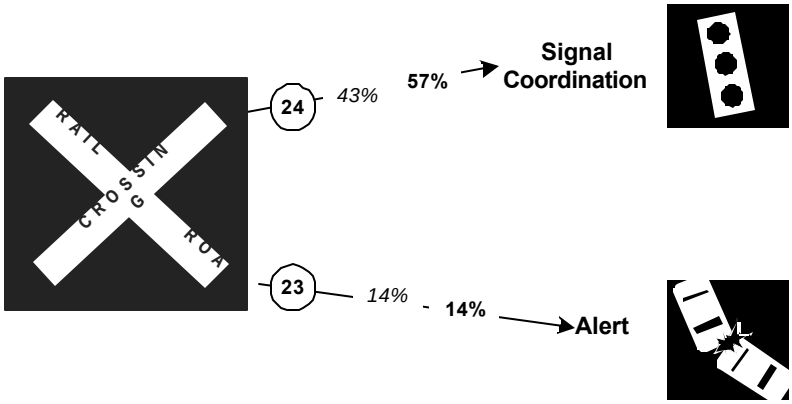
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Highway-rail intersections are under electronic surveillance	10	29	34%	2	14	14%		14	

Highway Rail Intersection Integration Indicators

Kansas City
Highway Rail Intersections Integration*

Inputs Outputs

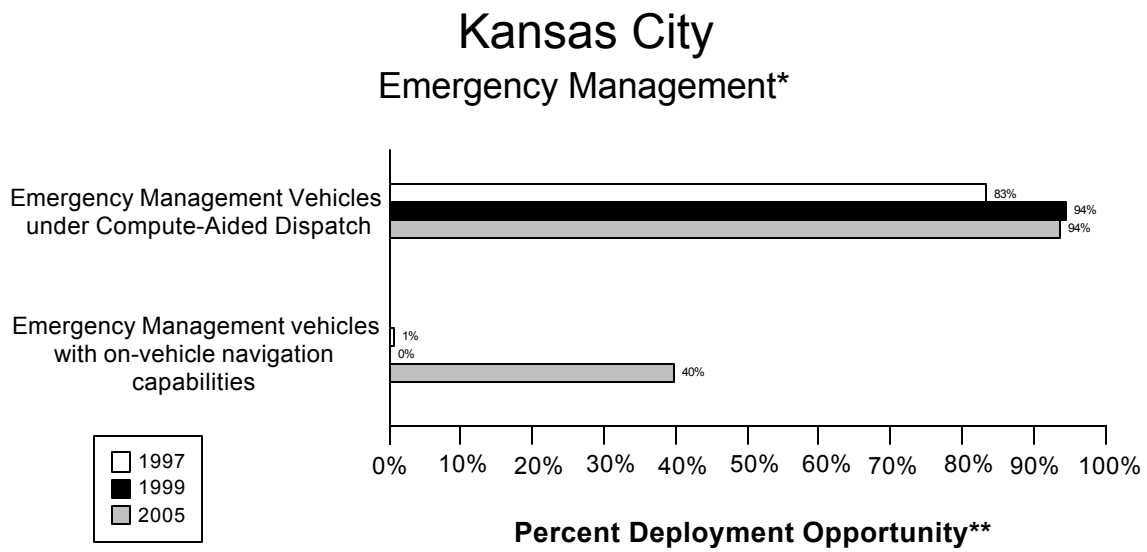


* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

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	(3/ 7) 43%	(4/ 7) 57%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	(1/ 7) 14%	(1/ 7) 14%

Emergency Management Component Indicators

Data as of 5/1/00



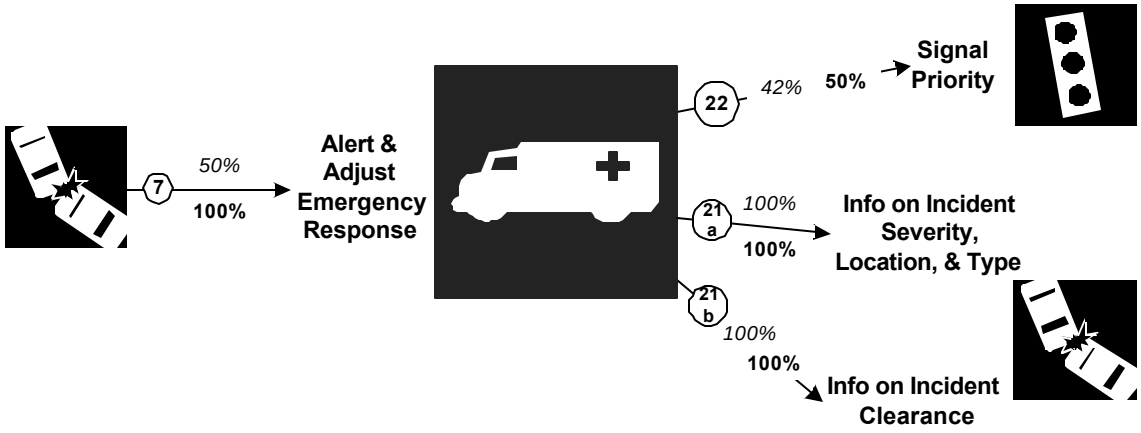
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Public sector emergency vehicles that operate under computer-aided dispatch	227	272	83%	456	483	94%	120	128	94%
Public sector emergency vehicles that have in-vehicle route guidance capability	2	272	1%	0	483	0%	51	128	40%

Emergency Management Integration Indicators

Kansas City
Emergency Management Integration*

Inputs Outputs



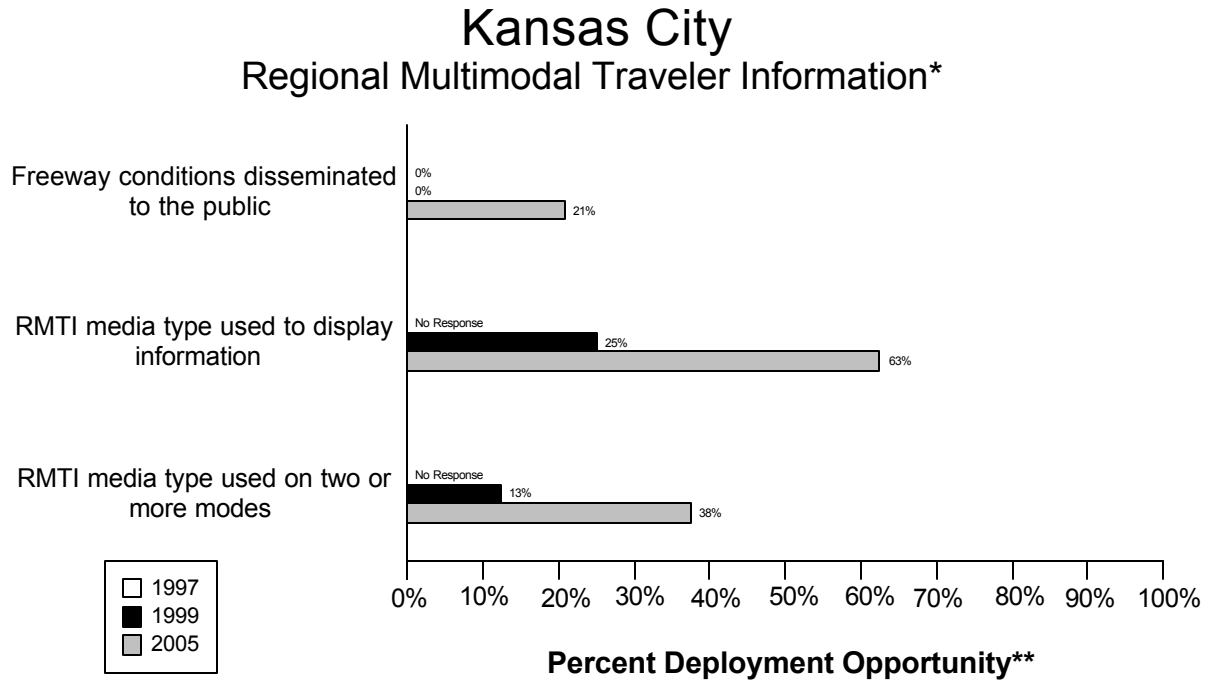
Legend
1999, **2005**

* 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%	(2/ 2) 100%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	(5/ 12) 42%	(6/ 12) 50%
21a. Freeway Management agencies receive incident severity, location, and type data from Emergency Management agencies	(2/ 2) 100%	(2/ 2) 100%
21b. Freeway Management agencies receive incident clearance activities information from Emergency Management agencies	(2/ 2) 100%	(2/ 2) 100%

Regional Multimodal Traveler Information Component Indicators

Data as of 5/1/00



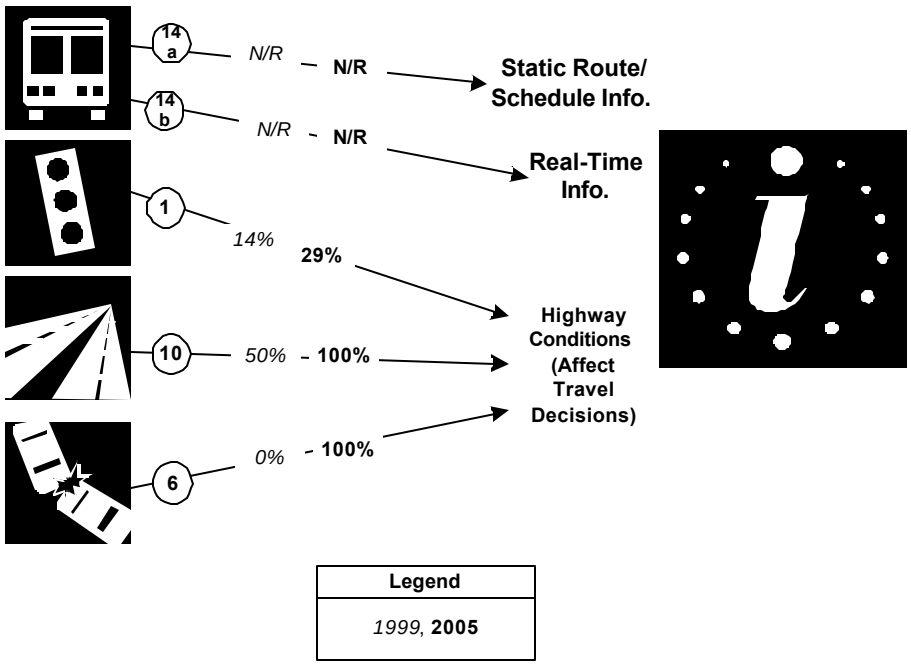
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

	1997			1999			2005		
Description	Num	Den	%	Num	Den	%	Num	Den	%
Freeway conditions disseminated to travelers	0	416	0%	0	416	0%	87	416	21%
Possible RMTI media types are used to display information to travelers				2	8	25%	5	8	63%
Possible RMTI media are used to display information on *two or more modes* to travelers				1	8	13%	3	8	38%

Regional Multimodal Traveler Information Integration Indicators

Kansas City
Regional Multimodal Traveler Information Integration*

Inputs Outputs

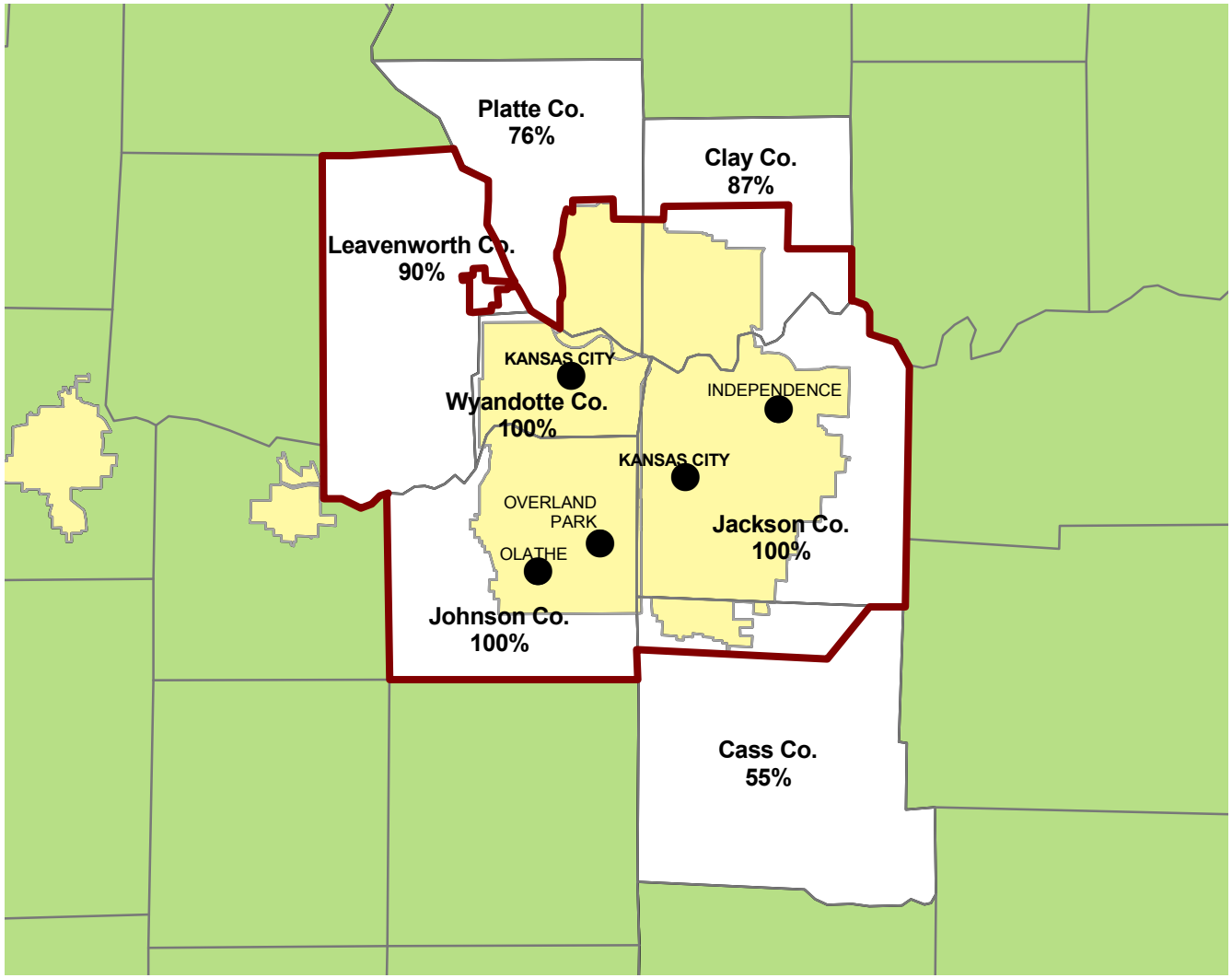


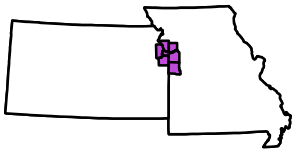
* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
14a. Transit Management agencies that disseminate information describing transit routes, schedules, and fares to travelers	(0/)	(0/)
14b. Transit Management agencies that disseminate information describing schedule/route adherence to travelers	(0/)	(0/)
1. Arterial Management agencies that disseminate arterial travel times, speeds, and conditions to the public	(1/ 7) 14%	(2/ 7) 29%
10. Freeway Management agencies that disseminate freeway travel times, speeds, and conditions to travelers	(1/ 2) 50%	(2/ 2) 100%
6. Incident Management agencies that disseminate information describing incident severity, location, and type to the public	(0/ 2) 0%	(2/ 2) 100%

Appendix A
Survey Coverage Area

MID AMERICA
REGIONAL COUNCIL, KS-MO





City Included in Surveys

Metropolitan Planning Area Boundary

County Boundary

Urbanlized Area

Outside Survey Area

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

Appendix B
Surveyed Agencies

Surveyed Agencies

Agency Name	Phone	Fax	1999		1997	
			Out	In	Out	In
KANSAS CITY						
Arterial Management						
Missouri Department of Transportation	(816) 889-6450	(816) 889-6449	7/29/1999	10/25/1999	7/30/1997	10/24/1997
Clay County	(816) 792-7733	(816) 792-1553	8/5/1999	9/20/1999	7/28/1997	
Overland Park City	(913) 895-6040	(913) 895-5055	8/5/1999	9/2/1999	7/28/1997	10/31/1997
Olathe City	(913) 393-6205	(913) 393-6204	8/5/1999	10/12/1999	7/28/1997	9/25/1997
Kansas City - Missouri DPW	(816) 274-2364	(816) 274-2369	8/5/1999	8/23/1999	7/28/1997	8/18/1997
Independence City	(816) 325-7601	(816) 325-7603	8/5/1999	10/29/1999	7/28/1997	10/27/1997
Kansas City - Kansas DPW	(913) 573-5770	(913) 573-5727	8/12/1999	11/12/1999		
Wyandotte County	(913)573-2876				7/28/1997	
Jackson County	(816) 881-4447	(816) 881-4448	8/5/1999		7/28/1997	
Emergency Management						
Olathe City Police Department	(913) 782-2600	(913) 397-5257	6/28/1999	7/1/1999	9/1/1997	10/20/1997
Johnson County Sheriffs Department	(913) 791-5207	(913) 791-5182	6/28/1999	8/12/1999	7/28/1997	9/2/1997
Leavenworth City Fire & EMS Department	(913) 682-3346	913-682-3874	6/28/1999	8/17/1999	7/28/1997	9/2/1997
Overland Park City Fire Department	(913) 888-6066	(913) 888-8348	6/28/1999	6/30/1999		
Leavenworth City Police Department	(913) 651-2260	913-	6/28/1999	8/11/1999	7/28/1997	9/2/1997
Leavenworth County Medical Services	(913) 250-8000	(913) 250-0063	6/28/1999	7/11/1999	7/28/1997	8/25/1997
Kansas Highway Patrol	(913) 782-8100		6/28/1999	8/11/1999	7/28/1997	8/27/1997
Wyandotte County Sheriffs Office	(913) 573-2861	(913) 573-2972	6/29/1999		7/28/1997	8/265/1997
Kansas City Kansas Fire Department	913-573-5550	913-342-9610	6/29/1999	7/9/1999	7/28/1997	8/29/1997
Olathe City Fire Department	(913) 782-4500	913-397-5282	6/28/1999	8/13/1999	9/1/1997	9/23/1997
Johnson County Med-Act	(913) 715-5000	(913) 715-1959	6/28/1999	8/26/1999	7/28/1997	8/27/1997
Kansas City Kansas Police Department	913-573-6116	913-573-6016	6/29/1999	9/7/1999		
Sedgwick County Emergency Medical Service	316-383-7994	316-383-7338			7/28/1997	8/28/1997
Overland Park City Fire Department (Emergency	(913) 888-6066	(913) 888-8348	6/28/1999	6/30/1999	7/28/1997	9/25/1997
Kansas City Missouri Fire Department	816-274-1393	816-274-2699	8/13/1999			
Kansas City Missouri Emergency Medical	816-274-1393	816-274-2699	8/13/1999			
Kansas City Missouri Police Department	816-234-5000	816-234-5010	9/21/1999			
Freeway Management						
Kansas Department of Transportation	(785) 296-3841	(785) 296-8168	7/29/1999	9/20/1999	7/28/1997	8/18/1997
Missouri Department of Transportation	(816) 889-6450	(816) 889-6449	7/29/1999	10/25/1999	7/30/1997	10/24/1997
MPO						
Mid-America Regional Council	(816) 474-4240	(816) 421-7758	7/15/1999	10/4/1999		

Agency Name	Phone	Fax	1999		1997	
			Out	In	Out	In
Transit Management						
Kansas City Area Transit Authority	(816) 346-0238	(816) 346-0305	8/9/1999		7/17/1997	

Appendix C
Freeway Management Components

Freeway Management
Agencies for Metropolitan Area: Kansas City

	Kansas Department of Transportation		Missouri Department of Transportation		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	112		NR		112	
Number of freeway centerline miles that is used for planning	112		NR		112	
Number of freeway entrance ramps that agency owns, operates or maintains	168		NR		168	
Number of freeway entrance ramps that is used for planning	168		NR		168	
Type of facilities used to conduct freeway/incident management activities						
Activities housed in a free-standing dedicated building?	No		No		0	
Activities housed in a building shared with other activities?	No		Yes		1	
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						
Number of full-time agency staff members	NR		NR		0	
Number of full time contractor staff members	NR		NR		0	
Number of part-time agency staff members	NR		NR		0	
Number of part-time contractor staff members	NR		NR		0	
Staffed 24 hours day by agency staff or by others	agency		agency		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		0	
Agency staff dedicated to transportation management duty	No		Yes		1	
Types of operations conducted for freeway/incident management						
Incident detection and management?	Yes		Yes		2	
This metropolitan area?	Yes		Yes		2	
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		Yes		1	
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						
Total number of miles under surveillance with real-time data collection tech.	0	25	0	62	0	87

Freeway Management
Agencies for Metropolitan Area: Kansas City

	Kansas Department of Transportation		Missouri Department of Transportation		Totals	
	1999	2005	1999	2005	1999	2005
Number of Stations with data collection technologies						
Loop detectors	0	50	NR	NR	0	50
Video imaging detectors	0	0	NR	NR	0	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	0	0	0	0	0
Microwave radar	0	0	0	0	0	0
Other (e.g., acoustic detectors)	0	0	0	0	0	0
Number of Miles covered with data collection technologies						
Loop detectors	0	25	NR	NR	0	25
Video imaging detectors	0	0	NR	NR	0	0
Probe readers (elec. toll tags, transit vehicles, other technology)	0	0	0	0	0	0
Microwave radar	0	0	0	0	0	0
Other (e.g., acoustic detectors)	0	0	0	0	0	0
Variable Message Signs (VMS) on Freeways						
Candidate locations for deployment of VMS where VMS has been deployed	20	20	53	NR	73	20
Candidate locations for deployment of VMS	15	15	53	NR	68	15
Roadside Technologies used to Distribute Traveler Information						
Total number of miles where information is distributed	NR	NR	NR	NR	0	0
Number deployed						
Highway advisory radio	0	0	10	10	10	10
In-vehicle signing	0	0	0	0	0	0
Portable variable message signs	9	NR	0	0	9	0
Other	0	0	0	0	0	0
Miles covered						
Highway advisory radio	0	0	NR	NR	0	0
In-vehicle signing	0	0	0	0	0	0
Portable variable message signs	NR	NR	0	0	0	0
Other	0	0	0	0	0	0
Ramp Meters on Freeways						
Number of entrance ramp meters operated under isolated control	NR	NR	0	0	0	0
Number of entrance ramp meters operated under central control	NR	5	0	10	0	15
Number of entrance ramp meters that provide preemption for emergency vehicles	NR	NR	0	10	0	10
Number of entrance ramp meters that provide priority for transit vehicles	NR	NR	0	10	0	10
Total number of metered ramps	NR	5	0	10	0	15
Freeway centerline miles under lane control	NR	NR	NR	NR	0	0
Communication Links						
Freeway centerline miles covered by the following type of communication						
Twisted pair cable	0	0	0	0	0	0
Coaxial cable	0	0	0	0	0	0
Fiber-optic cable	0	150	0	65	0	215
Microwave radio	0	0	0	0	0	0
Other	0	0	0	0	0	0
ITS Standards Used Related to Freeway Management						

Freeway Management
Agencies for Metropolitan Area: Kansas City

	Kansas Department of Transportation		Missouri Department of Transportation		Totals	
	1999	2005	1999	2005	1999	2005
ATMS Data Dictionary Sections 1 and 2 (ITE TM 1.01)	Yes		Yes		2	
ATMS Data Dictionary Sections 3 and 4 (ITE TM 1.02)	Yes		Yes		2	
Message Set for External TMC Communication (ITE-9604-1)	Yes		Yes		2	
NTCIP Class B Profile (AASHTO TS 3.3)	Yes		Yes		2	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	Yes		Yes		2	
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)	Yes		Yes		2	
NTICP Object Definitions for Highway Advisory Radio (AASHTO TS 3.HAR)	No		Yes		1	
NTICP Object Definitions for Ramp Meter Control (AASHTO TS 3.RMC)	Yes		Yes		2	
NTICP Object Definitions for Transportation Sensor Systems (AASHTO TS 3.TSS)	Yes		Yes		2	
NTICP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	Yes		Yes		2	
Would agency be willing to participate in testing of ITS Standards?	Yes		Yes			
Have agreements in place with other agencies to use similar hardware						
and software to aid maintenance and interoperability?	Yes		Yes		2	
INCIDENT MANAGEMENT SECTION						
Use of Service Patrols to Assist in Detection and Response to Incidents						
Publicly operated service patrol vehicles	Yes		Yes		2	
Privately operated service patrol vehicles operated under public contract	No		No		0	
Total number of freeway miles patrolled by these services	112	NR	NR	NR	112	0
Miles Covered by Methods to Detect and Verify Incidents						
Free cellular phone call to a dedicated phone number other than 911	300	300	NR	NR	300	300
Police patrols	NR	NR	NR	NR	0	0
Computer algorithms linked to traffic surveillance equipment	0	25	NR	NR	0	25
CCTV	0	25	NR	NR	0	25
Private sector sources (e.g., Shadow Traffic, SmartRoutes)	NR	NR	NR	NR	0	0
Other (e.g., free cell phone call to an area radio system, etc.)	NR	NR	NR	NR	0	0
Procedures in place for Freeway Incident Response?						
Working agreement(s)/arrangement(s) with other agencies	Yes		No		1	
Inter-agency incident management admin. team that meets regularly	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	Yes		Yes		2	
Central focal point for facilitating the two-way flow of information						
among agencies responding to an incident?						
The central focal point is a Freeway or Traffic Management Center	No		No		0	
The central focal point is a Police, Fire or joint dispatch center	Yes		No		1	
The central focal point is another center	No		No		0	
Methods of Communication Used On-Site at an Incident						
Police						
Two-way radio	No		Yes		1	

Freeway Management
Agencies for Metropolitan Area: Kansas City

	Kansas Department of Transportation		Missouri Department of Transportation		Totals	
	1999	2005	1999	2005	1999	2005
800 MHz trunked radio	Yes		Yes		2	
Cellular telephone	No		Yes		1	
Hand-held (i.e., walkie-talkie)	No		No		0	
Automated data systems (i.e., CAD)	No		Yes		1	
Fire						
Two-way radio	No		Yes		1	
800 MHz trunked radio	Yes		No		1	
Cellular telephone	No		No		0	
Hand-held (i.e., walkie-talkie)	No		No		0	
Automated data systems (i.e., CAD)	No		Yes		1	
DOT						
Two-way radio	No		Yes		1	
800 MHz trunked radio	Yes		No		1	
Cellular telephone	No		Yes		1	
Hand-held (i.e., walkie-talkie)	No		No		0	
Automated data systems (i.e., CAD)	No		No		0	
Towing						
Two-way radio	No		Yes		1	
800 MHz trunked radio	No		No		0	
Cellular telephone	No		Yes		1	
Hand-held (i.e., walkie-talkie)	No		No		0	
Automated data systems (i.e., CAD)	No		No		0	
Which police agencies typically respond to incidents on freeways?						
State Police	Yes		Yes		2	
County Police or Sheriff	No		No		0	
City Police	Yes		Yes		2	
Who provides on-site emergency medical response?						
Fire	Yes		Yes		2	
Emergency Management Service Agency	No		Yes		1	
Private hospital	No		No		0	
Has a multi-agency contact list been developed in area containing the						
names, phone numbers, etc. for the appropriate response personnel?	DK		Yes		1	
Is the Incident Command System used to manage incident scenes?	NR		DK		0	
Is there a legal specification by state law or formal agreement as to who						
is "in charge" at the incident scene?						
Specified by state law?	No		No		0	
Formal agreement?	Yes		No		1	
Not specified or don't know?	No		Yes		1	

Freeway Management
Agencies for Metropolitan Area: Kansas City

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

Appendix D
Freeway Management Integration

Freeway Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	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	Missouri Department of Transportation - D04, Local Cities	None listed	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Share Infrastructure	Missouri Department of Transportation - D04, Local Cities	None listed	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Coordinate Operation	Missouri Department of Transportation - D04, Local Cities	None listed	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Incident Management Agencies				
Provide Information	Missouri Department of Transportation - D04, Local Cities, Emergency Responders	None listed	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Share Infrastructure	Missouri Department of Transportation - D04, Local Cities, Emergency Responders	None listed	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Coordinate Operation	Missouri Department of Transportation - D04, Local Cities, Emergency Responders	None listed	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Arterial Management Agencies				
Provide Information	None listed	Missouri Department of Transportation - D04, Olathe City Engineering Division, Kansas City - Kansas DPW	None listed	Independence City, Kansas City - Kansas DPW, Kansas Department of Transportation, Missouri Department of Transportation, Olathe City, Overland Park City

Freeway Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	1999	**2005**	**1999**	**2005**
Share Infrastructure	None listed	Missouri Department of Transportation - D04, Olathe City Engineering Division, Kansas City - Kansas DPW	None listed	None listed
Coordinate Operation	None listed	Missouri Department of Transportation - D04, Olathe City Engineering Division, Kansas City - Kansas DPW	None listed	Independence City, Kansas City - Kansas DPW, Kansas Department of Transportation, Missouri Department of Transportation, Olathe City, Overland Park City
Public Transit Operators				
Provide Information	None listed	Kansas City Area Transit Authority, Johnson County Transit	None listed	Kansas City Area Transit Authority
Share Infrastructure	None listed	Kansas City Area Transit Authority, Johnson County Transit	None listed	None listed
Coordinate Operation	None listed	Kansas City Area Transit Authority, Johnson County Transit	None listed	Kansas City Area 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	Missouri Department of Transportation - D04, Kansas Highway Patrol, Local Law Enforcement	None listed	None listed	Kansas Department of Transportation
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions	None listed	Missouri Department of Transportation - D04, Olathe City Engineering Division, Kansas City - Kansas DPW	None listed	Kansas City - Kansas DPW, Overland Park City
Public Transit operators from which your agency receives				
freeway travel times derived from vehicle probes	None listed	None listed	None listed	Kansas City Area Transit Authority
Toll Collection agencies from which your agency receives freeway travel				
times derived from vehicles probes	None listed	None listed	None listed	None listed
Freeway Incident Management Section				
Agencies your agency provides incident severity, location, and type info.				
and/or shares infrastructure and/or coordinates operation				

Freeway Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	1999	2005	1999	2005
Arterial Management Agencies				
Provide Information	None listed	Missouri Department of Transportation - D04, Olathe City Engineering Division, Overland Park City, Kansas City - Kansas DPW	Missouri Department of Transportation	Clay County, Independence City, Kansas City - Kansas DPW, Kansas Department of Transportation, Missouri Department of Transportation, Overland Park City
Share Infrastructure	None listed	None listed	Missouri Department of Transportation	Missouri Department of Transportation
Coordinate Operation	None listed	None listed	Independence City, Kansas City - Kansas DPW	Independence City, Kansas City - Kansas DPW, Overland Park City
Emergency Management Agencies				
Provide Information	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas City Kansas Fire Department, Kansas City Kansas Police Department, Kansas City Missouri Fire Department, Kansas City Missouri Police Department, Kansas Highway Patrol, Leavenworth City Fire & EMS Department, Leavenworth City Police Department, Leavenworth County Medical Services, Olathe Fire Department, Olathe Police Department, Overland Park Fire Department, Wyandotte County Sheriffs Office	None listed	None listed	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas City Kansas Fire Department, Kansas City Kansas Police Department, Kansas Highway Patrol, Leavenworth City Fire & EMS Department, Olathe City Fire Department, Olathe City Police Department, Overland Park City Fire Department, Wyandotte County Sheriffs Office, MAST

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	1999	2005	1999	2005
Share Infrastructure	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas City Kansas Fire Department, Kansas City Kansas Police Department, Kansas City Missouri Fire Department, Kansas City Missouri Police Department, Kansas Highway Patrol, Leavenworth City Fire & EMS Department, Leavenworth City Police Department, Leavenworth County Medical Services,	None listed	None listed	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas City Kansas Fire Department, Kansas City Kansas Police Department, Kansas Highway Patrol, Olathe City Fire Department, Olathe City Police Department, Overland Park City Fire Department, MAST
Coordinate Operation	None listed	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas City Kansas Fire Department, Kansas City Kansas Police Department, Kansas City Missouri Fire Department, Kansas City Missouri Police Department, Kansas Highway Patrol, Leavenworth City Fire & EMS Department, Leavenworth City Police Department, Leavenworth County Medical Services, Olathe Fire Department, Olathe Police Department, Overland Park Fire Department, Wyandotte County Sheriffs Office	None listed	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas City Kansas Fire Department, Kansas City Kansas Police Department, Kansas Highway Patrol, Leavenworth County Medical Services, Leavenworth City Fire & EMS Department, Olathe City Fire Department, Olathe City Police Department, Overland Park City Fire Department, Wyandotte County Sheriffs Office, MAST
Freeway Management Agencies				
Provide Information	Missouri Department of Transportation - D04	None listed	Kansas Department of Transportation, Missouri Department of Transportation	Kansas Department of Transportation, Missouri Department of Transportation

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	1999	**2005**	**1999**	**2005**
Share Infrastructure	None listed	None listed	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Coordinate Operation	Missouri Department of Transportation - D04	None listed	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Public Transit Operators				
Provide Information	None listed	Kansas City Area Transit Authority	None listed	Kansas City Area Transit Authority, Johnson County Transit, The Bus-Wyandotte County
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	Kansas City Area Transit Authority, Johnson County Transit, The Bus-Wyandotte County
Receiving real-time information via electronic means from others				
Emergency Management agencies from which your agency receives				
incident clearance and/or incident severity and type				
Receive Arterial Incident Clearance Information	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas City Kansas Fire Department, Kansas City Kansas Police Department, Kansas City Missouri Fire Department, Kansas City Missouri Police Department, Kansas Highway Patrol, Leavenworth City Fire & EMS Department, Leavenworth County Medical Services, Olathe Fire Department, Olathe Police Department, Overland Park Fire Department, Wyandotte County Sheriffs Office	None listed	Kansas City Kansas Police Department	Johnson County Sheriffs Department, Kansas Highway Patrol, Leavenworth City Police Department, Leavenworth City Fire & EMS Department, Olathe City Police Department, Overland Park City Fire Department, Wyandotte County Sheriffs Office

Freeway Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	1999	**2005**	**1999**	**2005**
Receive Arterial Incident Severity Information	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas City Kansas Fire Department, Kansas City Kansas Police Department, Kansas City Missouri Fire Department, Kansas City Missouri Police Department, Kansas Highway Patrol, Leavenworth City Fire & EMS Department, Leavenworth County Medical Services, Olathe Fire Department, Olathe Police Department, Overland Park Fire Department, Wyandotte County Sheriffs Office	None listed	Kansas City Kansas Police Department	Johnson County Med-Act, Johnson County Sheriffs Department, Kansas Highway Patrol, Leavenworth City Police Department, Leavenworth City Fire & EMS Department, Olathe City Police Department, Overland Park City Fire Department, Wyandotte County Sheriffs Office
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions	None listed	None listed	None listed	Independence City, Kansas City - Kansas DPW, Missouri Department of Transportation, Overland Park City
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	Missouri Department of Transportation - D04	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 E
Freeway Management Information Collection and Dissemination

Data Collection and Dissemination: Freeway Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Freeway Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Road conditions, Weather conditions, Weather conditions, Current work zones, Scheduled work zones, Highway operations coordination information	Ramp queues, Ramp meter preemption's, Metering rate	Traffic volumes, Traffic speeds, Vehicle classification, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Emergency/evacuation routes and procedures, Highway operations coordination information	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Probe vehicles, Ramp queues, Ramp meter preemption's, Metering rate, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Intermodal (air, rail, water) connections, Emergency/evacuation routes and procedures, Highway operations coordination information
Archived by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Road conditions, Weather conditions, Weather conditions, Current work zones, Scheduled work zones, Highway operations coordination information	Metering rate	Traffic volumes, Traffic speeds, Vehicle classification, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Emergency/evacuation routes and procedures, Highway operations coordination information	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Probe vehicles, Ramp queues, Ramp meter preemption's, Metering rate, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information

Data Collection and Dissemination: Freeway Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	1999	**2005**	**1999**	**2005**
Transferred to another agency by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Road conditions, Weather conditions, Current work zones, Scheduled work zones, Highway operations coordination information	NR	Traffic volumes, Traffic speeds, Road conditions, Route designations (snow emergency, etc.), Emergency/evacuation routes and procedures, Highway operations coordination information	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Probe vehicles, Ramp queues, Ramp meter preemption's, Road conditions, Route designations (snow emergency, etc.), Incidents, 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	Road conditions, Weather conditions, Weather conditions, Current work zones, Scheduled work zones		Traffic speeds, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures	
Ranked Medium	Ramp queues		Traffic volumes, Probe vehicles, Metering rate, Intermodal (air, rail, water) connections, Highway operations coordination information	
Ranked Low	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Ramp meter preemption's, Metering rate, Highway operations coordination information		Lane occupancy, Vehicle classification, Ramp queues, Ramp meter preemption's	
Groups that make requests for the data	Universities, State DOT personnel, Federal DOT personnel, Media (I.e., TV stations, radio stations), MPOs, Consultants, Consultants		Universities, State DOT personnel, MPOs, Consultants, General Public	
What is the data used for?	Traffic analysis, Construction impact determination, Planning, Dissemination to the public		Traffic analysis, Construction impact determination, Planning, Roadway impact analysis, Accident prediction models, Dissemination to the public	
Methods used to disseminate freeway information to the public				

Data Collection and Dissemination: Freeway Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas Department of Transportation		Missouri Department of Transportation	
	1999	**2005**	**1999**	**2005**
Technologies your agency uses to disseminate:	Telephone system, Internet Web sites, Facsimile	Kiosks	NR	Internet Web sites, Kiosks, E-mail or other direct PC communication, In-vehicle navigation systems, Facsimile
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting freeway conditions	NR		NR	
Telephone system for reporting freeway information to the public	1-800-585-ROAD		NR	
Organizations your agency sends information for dissemination to the public	Metro Networks		Metro Networks Local Media	
Freeway Incident Management Section				
Methods used to distribute incident location and severity information				
to the public				
Technologies your agency uses to disseminate:	NR	Telephone system, Internet Web sites, Kiosks	NR	Dedicated cable TV, Telephone system, Internet Web sites, Kiosks, E-mail or other direct PC communication, Cell phone/voice, Facsimile
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	1-800-585-ROAD		NR	
Organizations your agency sends information for dissemination to the public	Metro Networks		NR	

Appendix F
Arterial Management Components

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Clay County		Independence City		Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	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	376		40		NR		600	
Number of arterial miles that is used for planning	200		10		0		NR	
Number of highway-rail intersections that agency maintains	8		6		NR		NR	
Number of highway-rail intersections that is used for planning	5		6		0		NR	
Type of facilities used to conduct arterial management activities								
Activities housed in a free-standing dedicated building?	No		No		No		No	
Activities housed in a building shared with other activities?	No		No		Yes		No	
Activities conducted in a dedicated control room?	No		No		No		No	
Control room contains operator console(s)?	No		No		No		No	
Control room contains electronic wall map?	No		No		No		No	
Control room contains CCTV display(s)?	No		No		No		No	
Activities conducted in a room containing workstations or PCs that manage traffic?	No		Yes		No		No	
Facilities are electronically linked to other transportation mgt facilities?	No		No		No		No	
Staffing and hours of operation of arterial management activities								
Number of full-time agency staff members	NR		NR		4		NR	
Number of full time contractor staff members	NR		NR		NR		NR	
Number of part-time agency staff members	NR		NR		NR		NR	
Number of part-time contractor staff members	NR		NR		NR		NR	
Staffed 24 hours day by agency staff or by others	NR		NR		NR		NR	
Staffed during peak hours only by agency staff or by others	NR		NR		NR		NR	
Staffed by others during off-peak hours	No		No		No		No	
Agency staff perform transportation management as an ancillary duty	Yes		Yes		No		No	
Agency staff dedicated to transportation management duty	No		Yes		No		No	
Types of operations conducted for arterial management								
Incident detection and management?	No		No		No		No	
This metropolitan area?	No		No		No		No	
Other metropolitan area?	No		No		No		No	
Monitoring and troubleshooting status of system components?	No		Yes		Yes		Yes	
Radio communications with other agencies?	No		No		No		No	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		No		No		No	
Manual override of traffic signal timing plans	No		Yes		No		No	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No		No		No		No	

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Clay County		Independence City		Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Describe agency's role in traffic signal control	Do not operate		All roads in incorporated area except state routes		Operate traffic signals within Kansas City, KS corporate limits.		All roads in incorporated area except state routes	
Traffic Signals Operated by Agency								
Number of signalized intersections operated and owned by agency	NR	NR	43	50	187	200	NR	NR
Number of signalized intersections operated by agency but owned by another	NR	NR	0	0	0	0	NR	NR
Total number of signalized intersections operated by agency	NR	NR	43	50	187	200	651	NR
Characteristics of signalized intersections that agency operates								
Under closed loop or central system control	NR	NR	3	25	98	120	144	NR
Under real-time traffic adaptive control using advanced software	NR	NR	0	0	0	0	NR	NR
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	NR	NR	0	20	0	0	10	NR
Allow signal priority for transit vehicles	NR	NR	0	0	0	0	NR	NR
Within 200 feet of a highway-rail intersection	NR	NR	5	7	1	5	5	NR
Within 200 feet of a highway-rail intersection that adjust signal timing	NR	NR	0	1	1	5	3	NR
Software used to control the signals agency operates								
Date of last upgrade to traffic signal control system software?	NR		Marc Software 10/99		Multisonics-1993/Eagle-2000		NR	
How often do you update signal timing?	NR		no regular basis		10 years		NR	
Software used and number of signalized intersections under control (1999, 2005)	NR		MARC Software, 35, 50		TCT/Peek, 4, NR Eagle Monarch, 0, NR Eagle MARC, 23, NR IDC/Multisonics, 110, NR		NR	
Controllers used to control signals								
NEMA	0	0	43	50	187	200	0	0
170/179	0	0	0	0	0	0	229	330
2070 controller	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	422	321
Technologies Associated with Highway-Rail Intersections								
Total number of highway-rail intersections under electronic surveillance	NR	NR	NR	NR	NR	NR	2	NR
Highway-Rail intersection capapbilities								
Video surveillance	0	0	0	0	0	0	0	0
Electronic surveillance other than video	0	0	0	0	0	0	2	NR
Ability to predict train arrival electronically	0	0	0	0	0	0	0	0
Equipped with electronic traffic violator devices	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Clay County		Independence City		Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Real-Time Electronic Traffic Data Collection Technologies								
Total number of signalized intersections covered by electronic surveillance	NR	NR	NR	15	145	161	NR	NR
Number of signalized intersections with data collection technologies								
Loop detectors	0	0	0	10	142	155	0	0
Video detection cameras	0	0	0	5	3	6	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								
Number deployed								
Highway Advisory Radio	NR	NR	NR	NR	NR	NR	NR	NR
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	NR	NR
VMS controlling parking access	NR	NR	NR	NR	NR	NR	NR	NR
Miles covered								
Highway Advisory Radio	NR	NR	NR	NR	NR	NR	NR	NR
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	NR	NR
Variable Message Signs (VMS) on Arterials								
Candidate locations for deployment of VMS where VMS has been deployed	NR	NR	NR	NR	NR	NR	NR	NR
Candidate locations for deployment of VMS	NR	NR	NR	NR	NR	NR	NR	NR
Communication Technologies								
Signalized intersections communicated with by each type of communication								
Twisted pair cable	0	0	0	0	90	NR	0	0
Coaxial cable	0	0	0	0	0	0	0	0
Fiber-optic cable	0	0	0	0	0	0	0	0
Other (e.g., wireless, dial-up modems, leased lines, etc.)	0	0	0	2	8	0	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)	No		No		No		No	
ATC Physical Cabinet Functional Design (ITE-9603-2)	No		No		No		No	
ATC Functionality and Interface Definitions (ITE-9603-3)	No		No		No		No	
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	No		No		No		No	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		No		No		No	
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		No		No	
NTCIP Object Definitions for Actuated Traffic Signal Controller Units (AASHTO TS 3.5)	No		No		No		No	
Would agency be willing to participate in testing of ITS Standards?	No		Yes		No		No	
Have agreements in place with other agencies to use similar hardware								
and software to aid maintenance and interoperability?	NR		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	
Use of Service Patrols to Assist in Detection and Response to Incidents								

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Clay County		Independence City		Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
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	0	0
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Procedures in place for Arterial Incident Response?								
Working agreement(s)/arrangement(s) with other agencies	No		No		Yes		No	
Inter-agency incident management admin. team that meets regularly	No		No		Yes		No	
Major incident response team that responds to major incidents	No		No		Yes		No	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	No		No		No		No	
Methods of Communication Used On-Site at an Incident								
Police								
Two-way radio	No		No		Yes		No	
800 MHz trunked radio	No		No		Yes		No	
Cellular telephone	No		No		Yes		No	
Hand-held (i.e., walkie-talkie)	No		No		Yes		No	
Automated data systems (i.e., CAD)	No		No		Yes		No	
Other	No		No		No		No	
Fire								
Two-way radio	No		No		Yes		No	
800 MHz trunked radio	No		No		Yes		No	
Cellular telephone	No		No		Yes		No	
Hand-held (i.e., walkie-talkie)	No		No		Yes		No	
Automated data systems (i.e., CAD)	No		No		Yes		No	
Other	No		No		No		No	
DOT								
Two-way radio	No		No		No		No	
800 MHz trunked radio	No		No		Yes		No	
Cellular telephone	No		No		Yes		No	
Hand-held (i.e., walkie-talkie)	No		No		No		No	
Automated data systems (i.e., CAD)	No		No		No		No	
Other	No		No		No		No	
Towing								
Two-way radio	No		No		Yes		No	

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Clay County		Independence City		Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
800 MHz trunked radio	No		No		No		No	
Cellular telephone	No		No		Yes		No	
Hand-held (i.e., walkie-talkie)	No		No		Yes		No	
Automated data systems (i.e., CAD)	No		No		No		No	
Other	No		No		No		No	
Which police agencies typically respond to incidents on arterials?								
State Police	No		No		Yes		No	
County Police or Sheriff	No		No		Yes		No	
City Police	No		No		Yes		No	
Who provides on-site emergency medical response?								
Fire	No		No		Yes		No	
Emergency Management Service Agency	No		No		Yes		No	
Private hospital	No		No		No		No	
Has a multi-agency contact list been developed in area containing the								
names, phone numbers, etc. for the appropriate response personnel?	NR		NR		Yes		NR	
Is the Incident Command System used to manage incident scenes?	NR		NR		Yes		NR	
Is there a legal specification by state law or formal agreement as to who								
is "in charge" at the incident scene?								
Specified by state law?	No		No		No		No	
Formal agreement?	No		No		No		No	
Not specified or don't know?	No		No		Yes		No	
On-scene command post used to manage activities of responding agencies?	NR		NR		Yes		NR	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		NR		Yes		NR	
Plan developed and adopted by responding agencies for staging and parking								
response vehicles and equip. at incident site that minimizes lane blockage								
and facilitates the re-opening of lanes?	NR		NR		Yes		NR	
Respondents protected through law or court opinion for liability claims								
for damages to vehicles or cargoes during clearance activities?	NR		NR		No		NR	
Are overturned tank trucks, which are intact and not leaking, uprighted								
without first off-loading?	NR		NR		No		NR	
Does your state or local jurisdiction have a law that requires drivers								
involved in property-damage-only accidents to move the vehicles								
from travel lanes to a safe location to exchange info and wait for police?	NR		NR		No		NR	
Have laws or policies regarding the removal of stalled/abandoned vehicles								
from freeway shoulders?	NR		NR		Yes		NR	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	NR		NR		>36		NR	
Have policies or procedures for quick removal of vehicles?	NR		NR		Yes		NR	
Is Total Station equipment used to investigate major incidents?	NR		NR		Yes		NR	
Handling of Towing Responses to Incidents								
Formal contract based on qualifications?	No		No		No		No	
Rotation with companies under contract?	No		No		No		No	
Separate lists kept for light and heavy response and for specialty recovery?	NR		NR		NR		NR	

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Clay County		Independence City		Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Rotation list with minimal qualifications?	No		No		No		No	
In towing qualifications, do you require towers to be certified under the								
Towing and Recovery Ass. of America's National Drivers Cert. Program?	NR		NR		DK		NR	
_____								
DK: Don't know								
NR: No Response								
Leg: Legislation or action being planned								

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Missouri Department of Transportation		Olathe City		Overland Park City		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes		Yes		7	
ARTERIAL MANAGEMENT SECTION								
Number of arterial miles that agency owns or maintains	NR		95		115		1,226	
Number of arterial miles that is used for planning	NR		48		30		288	
Number of highway-rail intersections that agency maintains	0		0		0		14	
Number of highway-rail intersections that is used for planning	0		2		0		13	
Type of facilities used to conduct arterial management activities								
Activities housed in a free-standing dedicated building?	No		No		No		0	
Activities housed in a building shared with other activities?	No		Yes		Yes		3	
Activities conducted in a dedicated control room?	No		No		Yes		1	
Control room contains operator console(s)?	No		No		Yes		1	
Control room contains electronic wall map?	No		No		No		0	
Control room contains CCTV display(s)?	No		No		No		0	
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes		Yes		Yes		4	
Facilities are electronically linked to other transportation mgt facilities?	No		No		No		0	
Staffing and hours of operation of arterial management activities								
Number of full-time agency staff members	NR		4		1		9	
Number of full time contractor staff members	NR		0		0		0	
Number of part-time agency staff members	NR		NR		1		1	
Number of part-time contractor staff members	NR		NR		0		0	
Staffed 24 hours day by agency staff or by others	NR		NR		NR		0	
Staffed during peak hours only by agency staff or by others	agency		NR		NR		0	
Staffed by others during off-peak hours	No		No		No		0	
Agency staff perform transportation management as an ancillary duty	No		No		No		2	
Agency staff dedicated to transportation management duty	No		No		Yes		2	
Types of operations conducted for arterial management								
Incident detection and management?	No		No		No		0	
This metropolitan area?	No		No		No		0	
Other metropolitan area?	No		No		No		0	
Monitoring and troubleshooting status of system components?	Yes		Yes		Yes		6	
Radio communications with other agencies?	No		Yes		No		1	
Exchange of electronic data with other agencies such as computer aided dispatch?	No		No		No		0	
Manual override of traffic signal timing plans	No		No		Yes		2	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No		No		No		0	

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Missouri Department of Transportation		Olathe City		Overland Park City		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Describe agency's role in traffic signal control	State routes only		All roads in incorporated area		All roads in incorporated area			
Traffic Signals Operated by Agency								
Number of signalized intersections operated and owned by agency	NR	NR	83	120	200	280	513	650
Number of signalized intersections operated by agency but owned by another	NR	NR	0	0	0	0	0	0
Total number of signalized intersections operated by agency	425	NR	83	120	200	280	1,589	650
Characteristics of signalized intersections that agency operates								
Under closed loop or central system control	200	NR	33	120	140	150	618	415
Under real-time traffic adaptive control using advanced software	0	NR	0	120	0	0	0	120
Using SCOOT	No		No		No		0	
Using SCATS	No		No		No		0	
Name of software	NR		NR		NR			
Allow signal preemption for emergency vehicles	30	NR	83	120	75	90	198	230
Allow signal priority for transit vehicles	0	NR	83	120	0	0	83	120
Within 200 feet of a highway-rail intersection	0	NR	1	1	0	0	12	13
Within 200 feet of a highway-rail intersection that adjust signal timing	0	NR	1	1	0	0	5	7
Software used to control the signals agency operates								
Date of last upgrade to traffic signal control system software?	10/1/99		1980-currenlty reviewing new software		12/98			
How often do you update signal timing?	2 years		every 6 to 12 months		review every 3 years			
Software used and number of signalized intersections under control (1999, 2005)	Multisonic, NR, NR ECONOLITE, NR, NR Peek, NR, NR Traffic View, NR, NR MARC Systems, NR, NR		TCS II, NR, 120 TRANSLINK, 83, 0 TRAFFIC VIEW, 83, 0 WAPIDI, 83, 0		WAPITI, 109, 120			
Controllers used to control signals								
NEMA	350	NR	0	0	0	0	580	250
170/179	50	NR	83	NR	200	270	562	600
2070 controller	0	0	0	0	0	10	0	10
Other	25	0	0	0	0	0	447	321
Technologies Associated with Highway-Rail Intersections								
Total number of highway-rail intersections under electronic surveillance	NR	NR	NR	NR	NR	NR	2	0
Highway-Rail intersection capapbilities								
Video surveillance	0	0	0	0	0	0	0	0
Electronic surveillance other than video	0	0	0	0	0	0	2	0
Ability to predict train arrival electronically	0	0	0	0	0	0	0	0
Equipped with electronic traffic violator devices	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Missouri Department of Transportation		Olathe City		Overland Park City		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Real-Time Electronic Traffic Data Collection Technologies								
Total number of signalized intersections covered by electronic surveillance	1	NR	0	40	31	36	177	252
Number of signalized intersections with data collection technologies								
Loop detectors	0	0	79	110	31	35	252	310
Video detection cameras	2	NR	3	10	1	10	9	31
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	1	0	0	0	1	0
Roadside Technologies used to Distribute Traveler Information								
Number deployed								
Highway Advisory Radio	NR	NR	NR	2	NR	NR	0	2
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	0	0
VMS controlling parking access	NR	NR	NR	NR	NR	NR	0	0
Miles covered								
Highway Advisory Radio	NR	NR	NR	NR	NR	NR	0	0
In-Vehicle Signing (IVS)	NR	NR	NR	NR	NR	NR	0	0
Variable Message Signs (VMS) on Arterials								
Candidate locations for deployment of VMS where VMS has been deployed	NR	NR	NR	NR	NR	NR	0	0
Candidate locations for deployment of VMS	NR	NR	NR	NR	NR	NR	0	0
Communication Technologies								
Signalized intersections communicated with by each type of communication								
Twisted pair cable	198	NR	0	0	0	0	288	0
Coaxial cable	0	0	0	0	135	150	135	150
Fiber-optic cable	2	NR	33	120	0	10	35	130
Other (e.g., wireless, dial-up modems, leased lines, etc.)	76	0	33	120	5	20	122	142
Does agency convey information on highway-rail intersection crossing								
status to travelers via roadside media such as VMS or HAR?	No		No		No		0	
ITS Standards Used Related to Traffic Signal Control								
Advanced Transportation Controller (ATC) Software Application Interface (ITE 9603-1)	No		No		No		0	
ATC Physical Cabinet Functional Design (ITE-9603-2)	No		No		No		0	
ATC Functionality and Interface Definitions (ITE-9603-3)	No		No		No		0	
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	No		No		No		0	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No		No		No		0	
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No		No		No		0	
NTCIP Object Definitions for Actuated Traffic Signal Controller Units (AASHTO TS 3.5)	No		No		No		0	
Would agency be willing to participate in testing of ITS Standards?	Yes		Yes		NR		3	
Have agreements in place with other agencies to use similar hardware								
and software to aid maintenance and interoperability?	Yes		No		Yes		3	
INCIDENT MANAGEMENT ON ARTERIAL STREETS								
Receive information on highway-rail intersection crossing blockages for								
the purpose of managing incident response?	Yes		No		No		1	
Use of Service Patrols to Assist in Detection and Response to Incidents								

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Missouri Department of Transportation		Olathe City		Overland Park City		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Publicly operated service patrol vehicles	Yes		No		No		1	
Privately operated service patrol vehicles operated under public contract	No		No		No		0	
Total number of arterial miles patrolled by these services	100	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	0	0
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Procedures in place for Arterial Incident Response?								
Working agreement(s)/arrangement(s) with other agencies	No		No		No		1	
Inter-agency incident management admin. team that meets regularly	No		No		No		1	
Major incident response team that responds to major incidents	No		No		No		1	
Set of goals/objectives for incident mgt that has been adopted by agencies in region	Yes		No		No		1	
Methods of Communication Used On-Site at an Incident								
Police								
Two-way radio	No		Yes		Yes		3	
800 MHz trunked radio	No		No		No		1	
Cellular telephone	No		No		No		1	
Hand-held (i.e., walkie-talkie)	No		Yes		No		2	
Automated data systems (i.e., CAD)	No		No		No		1	
Other	No		No		No		0	
Fire								
Two-way radio	No		Yes		Yes		3	
800 MHz trunked radio	No		No		No		1	
Cellular telephone	No		No		No		1	
Hand-held (i.e., walkie-talkie)	No		Yes		No		2	
Automated data systems (i.e., CAD)	No		No		No		1	
Other	No		No		No		0	
DOT								
Two-way radio	Yes		No		No		1	
800 MHz trunked radio	No		No		No		1	
Cellular telephone	Yes		No		No		2	
Hand-held (i.e., walkie-talkie)	No		No		No		0	
Automated data systems (i.e., CAD)	No		No		No		0	
Other	No		No		No		0	
Towing								
Two-way radio	No		No		No		1	

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Missouri Department of Transportation		Olathe City		Overland Park City		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
800 MHz trunked radio	No		No		No		0	
Cellular telephone	No		No		No		1	
Hand-held (i.e., walkie-talkie)	No		No		No		1	
Automated data systems (i.e., CAD)	No		No		No		0	
Other	No		No		No		0	
Which police agencies typically respond to incidents on arterials?								
State Police	Yes		No		No		2	
County Police or Sheriff	No		No		No		1	
City Police	Yes		Yes		Yes		4	
Who provides on-site emergency medical response?								
Fire	Yes		Yes		Yes		4	
Emergency Management Service Agency	Yes		Yes		No		3	
Private hospital	No		No		No		0	
Has a multi-agency contact list been developed in area containing the								
names, phone numbers, etc. for the appropriate response personnel?	Yes		DK		NR		2	
Is the Incident Command System used to manage incident scenes?	No		DK		NR		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		No		No		0	
Formal agreement?	No		No		No		0	
Not specified or don't know?	Yes		Yes		No		3	
On-scene command post used to manage activities of responding agencies?	DK		DK		NR		1	
Are there communication linkages to a communications traffic/freeway mgt center?	NR		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?	DK		DK		NR		1	
Respondents protected through law or court opinion for liability claims								
for damages to vehicles or cargoes during clearance activities?	DK		DK		NR		0	
Are overturned tank trucks, which are intact and not leaking, uprighted								
without first off-loading?	NR		No		NR		0	
Does your state or local jurisdiction have a law that requires drivers								
involved in property-damage-only accidents to move the vehicles								
from travel lanes to a safe location to exchange info and wait for police?	NR		No		NR		0	
Have laws or policies regarding the removal of stalled/abandoned vehicles								
from freeway shoulders?	NR		Yes		NR		2	
Hours abandoned vehicles are allowed to remain on a freeway shoulder?	DK		0-24		NR		0	
Have policies or procedures for quick removal of vehicles?	Yes		No		NR		2	
Is Total Station equipment used to investigate major incidents?	No		Yes		NR		2	
Handling of Towing Responses to Incidents								
Formal contract based on qualifications?	No		No		No		0	
Rotation with companies under contract?	Yes		No		No		1	
Separate lists kept for light and heavy response and for specialty recovery?	Yes		NR		NR		1	

Arterial Management
Agencies for Metropolitan Area: Kansas City

	Missouri Department of Transportation		Olathe City		Overland Park City		**Totals**	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**	**1999**	**2005**
Rotation list with minimal qualifications?	No		No		No		0	
In towing qualifications, do you require towers to be certified under the								
Towing and Recovery Ass. of America's National Drivers Cert. Program?	Yes		DK		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: Kansas City

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

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Clay County		Independence City	
	1999	**2005**	**1999**	**2005**
Coordinate Operation	None listed	None listed	None listed	None listed
Public Transit Operators Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Arterial Management Agencies				
Provide Information	None listed	None listed	Missouri Department of Transportation	Missouri Department of Transportation
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				
freeway travel times, speeds, and conditions	None listed	None listed	None listed	None listed
Public Transit operators from which your agency receives				
arterial travel times derived from vehicle probes	None listed	None listed	None listed	None listed
Incident Management agencies from which your agency receives				
incident clearance and/or incident severity, location, and type information				
Receive information on Incident Clearance	None listed	None listed	None listed	None listed
Receive information on Incident Severity, Location, and Type	None listed	None listed	None listed	None listed
Toll Collection agencies from which your agency receives arterial travel				

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Clay County		Independence City	
	1999	**2005**	**1999**	**2005**
times derived from vehicles probes	None listed	None listed	None listed	None listed
Arterial Incident Management Section				
Agencies your agency provides incident severity, location, and type info.				
and/or shares infrastructure and/or coordinates operation				
Emergency Management Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Freeway Management Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Public Transit Operators				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Receiving real-time information via electronic means from others				
Emergency Management agencies from which your agency receives				
arterial incident clearance and/or arterial incident severity				
Receive Arterial Incident Clearance Information	None listed	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions	None listed	None listed	None listed	None listed
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	None listed	None listed	None listed	None listed

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

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

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

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**
Coordinate Operation	None listed	None listed	None listed	None listed
Public Transit Operators Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Arterial Management Agencies				
Provide Information	Kansas Department of Transportation	Kansas City - Missouri DPW, Kansas Department of Transportation	None listed	None listed
Share Infrastructure	Kansas Department of Transportation	Kansas City - Missouri DPW, Kansas Department of Transportation	None listed	None listed
Coordinate Operation	Kansas Department of Transportation	Kansas City - Missouri DPW, Kansas Department of Transportation	None listed	None listed
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	None listed	None listed	None listed	None listed
Public Transit operators from which your agency receives				
arterial travel times derived from vehicle probes	None listed	None listed	None listed	None listed
Incident Management agencies from which your agency receives				
incident clearance and/or incident severity, location, and type information				
Receive information on Incident Clearance	None listed	None listed	None listed	None listed
Receive information on Incident Severity, Location, and Type	None listed	None listed	None listed	None listed
Toll Collection agencies from which your agency receives arterial travel				

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**
times derived from vehicles probes	None listed	None listed	None listed	None listed
Arterial Incident Management Section				
Agencies your agency provides incident severity, location, and type info.				
and/or shares infrastructure and/or coordinates operation				
Emergency Management Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Freeway Management Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Public Transit Operators				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Receiving real-time information via electronic means from others				
Emergency Management agencies from which your agency receives				
arterial incident clearance and/or arterial incident severity				
Receive Arterial Incident Clearance Information	None listed	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions	None listed	None listed	None listed	None listed
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	None listed	None listed	None listed	None listed

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

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Missouri Department of Transportation		Olathe City	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Arterial Mgt. agencies in metropolitan area with which you share info.				
Share Timing Plans Information	Independence City, Kansas City - Missouri DPW, Blue Springs, Lee's Summit	None listed	None listed	Overland Park City
Coordinate Changes to Timing Plans	Independence City, Kansas City - Missouri DPW, Blue Springs, Lee's Summit	None listed	None listed	Kansas Department of Transportation, Overland Park City
Turn over Control of Signals	None listed	None listed	None listed	Kansas Department of Transportation, Overland Park City
Agencies your agency provides arterial travel times, speeds, and				
conditions information, share infrastructure or coordinates operation				
Freeway Management Agencies				
Provide Information	None listed	None listed	None listed	Kansas Department of Transportation, Lenexa City to North, Overland Park City
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	Kansas Department of Transportation, Lenexa City to North, Overland Park City
Incident Management Agencies				
Provide Information	Kansas Department of Transportation	None listed	None listed	Kansas Department of Transportation, Lenexa, Overland Park City
Share Infrastructure	None listed	None listed	None listed	None listed

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Missouri Department of Transportation		Olathe City	
	1999	2005	1999	2005
Coordinate Operation	None listed	None listed	None listed	Kansas Department of Transportation, Lenexa, Overland Park City
Public Transit Operators Agencies				
Provide Information	None listed	None listed	None listed	Johnson County Transit
Share Infrastructure	None listed	None listed	None listed	Johnson County Transit
Coordinate Operation	None listed	None listed	None listed	Johnson County Transit
Arterial Management Agencies				
Provide Information	None listed	None listed	Olathe City	Olathe City, Overland Park City, Lenexa
Share Infrastructure	None listed	None listed	Olathe City	Olathe City
Coordinate Operation	None listed	None listed	Olathe City	Olathe City, Overland Park City, Lenexa
Receiving real-time information via electronic means from others				
Freeway Management agencies from which your agency receives				
freeway travel times, speeds, and conditions	None listed	None listed	None listed	Kansas Department of Transportation
Public Transit operators from which your agency receives				
arterial travel times derived from vehicle probes	None listed	None listed	None listed	Johnson County Transit
Incident Management agencies from which your agency receives				
incident clearance and/or incident severity, location, and type information				
Receive information on Incident Clearance	None listed	None listed	None listed	Kansas Department of Transportation, Olathe City Police Department
Receive information on Incident Severity, Location, and Type	None listed	None listed	None listed	Kansas Department of Transportation, Olathe City Police Department
Toll Collection agencies from which your agency receives arterial travel				

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Missouri Department of Transportation		Olathe City	
	1999	**2005**	**1999**	**2005**
times derived from vehicles probes	None listed	None listed	None listed	None listed
Arterial Incident Management Section				
Agencies your agency provides incident severity, location, and type info.				
and/or shares infrastructure and/or coordinates operation				
Emergency Management Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Freeway Management Agencies				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Public Transit Operators				
Provide Information	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed
Receiving real-time information via electronic means from others				
Emergency Management agencies from which your agency receives				
arterial incident clearance and/or arterial incident severity				
Receive Arterial Incident Clearance Information	None listed	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed
Arterial Management agencies from which your agency receives				
arterial travel times, speeds, and conditions	Kansas City - Kansas DPW	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.

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

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

Agency Name	Overland Park City	
	1999	**2005**
Coordinate Operation	None listed	Kansas Department of Transportation, Missouri Department of Transportation
Public Transit Operators Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Arterial Management Agencies		
Provide Information	Lenexa City	Kansas Department of Transportation
Share Infrastructure	None listed	Kansas Department of Transportation
Coordinate Operation	None listed	Kansas Department of Transportation
Receiving real-time information via electronic means from others		
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	None listed	Kansas City Scout
Public Transit operators from which your agency receives		
arterial travel times derived from vehicle probes	None listed	None listed
Incident Management agencies from which your agency receives		
incident clearance and/or incident severity, location, and type information		
Receive information on Incident Clearance	None listed	Kansas City Scout
Receive information on Incident Severity, Location, and Type	None listed	Kansas City Scout
Toll Collection agencies from which your agency receives arterial travel		

Arterial Management Integration
Agencies for Metropolitan Area: Kansas City

Agency Name	Overland Park City	
	1999	**2005**
times derived from vehicles probes	None listed	None listed
Arterial Incident Management Section		
Agencies your agency provides incident severity, location, and type info.		
and/or shares infrastructure and/or coordinates operation		
Emergency Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Freeway Management Agencies		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Public Transit Operators		
Provide Information	None listed	None listed
Share Infrastructure	None listed	None listed
Coordinate Operation	None listed	None listed
Receiving real-time information via electronic means from others		
Emergency Management agencies from which your agency receives		
arterial incident clearance and/or arterial incident severity		
Receive Arterial Incident Clearance Information	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed
Arterial Management agencies from which your agency receives		
arterial travel times, speeds, and conditions	None listed	None listed
Freeway Management agencies from which your agency receives		
freeway travel times, speeds, and conditions	None listed	None listed

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

Appendix H
Arterial Management Information Collection and Dissemination

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Clay County		Independence City	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Traffic volumes, Road conditions, Weather conditions, Current work zones, Scheduled work zones	NR	Phasing/cycle lengths, Route designations (snow emergency, etc.), Incidents, Intermodal (air, rail, water) connections, Emergency/evacuation routes and procedures	Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Vehicle classification, Turning movements, Queues, Phasing/cycle lengths, Road conditions, Emergency vehicle signal preemption, Route designations (snow emergency, etc.), Incidents, Intermodal (air, rail, water) connections, Emergency/evacuation routes and procedures
Archived by your agency	Traffic volumes, Road conditions, Weather conditions, Current work zones, Scheduled work zones	NR	Route designations (snow emergency, etc.)	NR
Transferred to another agency by your agency	NR	NR	NR	NR
Importance of making information available to the public				
Ranked High	Traffic volumes, Traffic speeds, Turning movements, Road conditions, Route designations (snow emergency, etc.), Weather conditions, Current work zones, Scheduled work zones		NR	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Clay County		Independence City	
	1999	**2005**	**1999**	**2005**
Ranked Medium	Lane occupancy, Vehicle classification, Probe vehicles, Queues		Traffic volumes, Traffic speeds, Emergency/evacuation routes and procedures	
Ranked Low	NR		Lane occupancy, Vehicle classification, Vehicle classification, Turning movements, Queues, Phasing/cycle lengths, Road conditions, Emergency vehicle signal preemption, Route designations (snow emergency, etc.), Incidents, Intermodal (air, rail, water) connections	
Groups that make requests for the data	State DOT personnel, Federal DOT personnel, Consultants, Marc		State DOT personnel, Consultants	
What is the data used for?	Traffic analysis, Planning, Roadway impact analysis		Traffic analysis, Planning, Accident prediction models	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting arterial conditions	NR		NR	
Telephone system for reporting arterial information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information				
to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting incident information	NR		NR	
Telephone system for reporting incident information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	NR	NR	Traffic volumes, Turning movements, Road conditions	NR
Archived by your agency	NR	NR	NR	NR
Transferred to another agency by your agency	NR	NR	NR	NR
Importance of making information available to the public				
Ranked High	Traffic volumes, Road conditions, Transit vehicle signal priority, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures		NR	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Kansas City - Kansas DPW		Kansas City - Missouri DPW	
	1999	**2005**	**1999**	**2005**
Ranked Medium	Queues, Intermodal (air, rail, water) connections		NR	
Ranked Low	Traffic speeds, Lane occupancy, Vehicle classification, Probe vehicles, Turning movements, Phasing/cycle lengths, Emergency vehicle signal preemption, Highway operations coordination information		NR	
Groups that make requests for the data	Realtors		Consultants, Attorneys	
What is the data used for?	Site Development		Traffic analysis, Planning, Roadway impact analysis, Accident prediction models	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting arterial conditions	NR		NR	
Telephone system for reporting arterial information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information				
to the public				
Technologies your agency uses to disseminate:	NR	NR	NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting incident information	NR		NR	
Telephone system for reporting incident information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		NR	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Missouri Department of Transportation		Olathe City	
	1999	**2005**	**1999**	**2005**
Agency Returned Survey?	Yes		Yes	
Arterial Management Section				
Data collected, archived, and/or transferred to another agency				
Collected by your agency	Traffic volumes, Traffic speeds, Vehicle classification, Turning movements, Phasing/cycle lengths, Road conditions, Weather conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information	Traffic volumes, Traffic speeds, Lane occupancy, Turning movements, Phasing/cycle lengths, Road conditions, Weather conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information	Traffic volumes, Traffic speeds	Lane occupancy
Archived by your agency	Traffic volumes, Traffic speeds, Turning movements, Phasing/cycle lengths, Road conditions, Weather conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information	Traffic volumes, Traffic speeds, Lane occupancy, Turning movements, Phasing/cycle lengths, Road conditions, Weather conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures, Highway operations coordination information	Traffic volumes, Traffic speeds	NR
Transferred to another agency by your agency	NR	NR	NR	NR
Importance of making information available to the public				
Ranked High	Traffic volumes, Road conditions, Weather conditions, Current work zones, Scheduled work zones		Road conditions, Route designations (snow emergency, etc.), Weather conditions, Incidents, Current work zones, Scheduled work zones, Highway operations coordination information	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Missouri Department of Transportation		Olathe City	
	1999	**2005**	**1999**	**2005**
Ranked Medium	Traffic speeds, Lane occupancy, Turning movements, Phasing/cycle lengths, Incidents, Intermodal (air, rail, water) connections, Emergency/evacuation routes and procedures, Highway operations coordination information		Traffic volumes, Traffic speeds, Emergency/evacuation routes and procedures	
Ranked Low	Vehicle classification, Emergency vehicle signal preemption		Lane occupancy, Vehicle classification, Probe vehicles, Turning movements, Queues, Phasing/cycle lengths, Emergency vehicle signal preemption, Transit vehicle signal priority, Intermodal (air, rail, water) connections	
Groups that make requests for the data	Universities, State DOT personnel, Media (I.e., TV stations, radio stations), MPOs, Consultants, Legal Staff and Insurance Companies		State DOT personnel, MPOs, Consultants, Developers	
What is the data used for?	Do not know, Traffic analysis, Planning, Accident prediction models		Traffic analysis, Planning, Dissemination to the public	
Methods used to disseminate arterial information to the public				
Technologies your agency uses to disseminate:	NR	NR	Facsimile	Internet Web sites, Kiosks, Facsimile
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR	NR
Internet web site reporting arterial conditions	NR		not yet	
Telephone system for reporting arterial information to the public	NR		NR	
Organizations your agency sends information for dissemination to the public	NR		MPO- Mid-America Regional Council State-Kansas Department of Transportation	
Arterial Incident Management Section				
Methods used to distribute incident location and severity information				
to the public				
Technologies your agency uses to disseminate:	Telephone system, Cell phone/voice	NR	NR	Internet Web sites, Kiosks
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		state	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Overland Park City	
	1999	**2005**
Agency Returned Survey?	Yes	
Arterial Management Section		
Data collected, archived, and/or transferred to another agency		
Collected by your agency	Traffic volumes, Turning movements	Traffic volumes, Turning movements, Road conditions, Incidents, Current work zones, Scheduled work zones
Archived by your agency	NR	NR
Transferred to another agency by your agency	NR	NR
Importance of making information available to the public		
Ranked High	Traffic speeds, Road conditions, Incidents, Current work zones, Scheduled work zones	

Data Collection and Dissemination: Arterial Management
Agencies for Metropolitan Area: Kansas City

Agency Name	Overland Park City	
	1999	**2005**
Ranked Medium	Traffic volumes	
Ranked Low	Turning movements	
Groups that make requests for the data	State DOT personnel, Media (I.e., TV stations, radio stations), MPOs, Consultants	
What is the data used for?	Traffic analysis, Planning, Dissemination to the public	
Methods used to disseminate arterial information to the public		
Technologies your agency uses to disseminate:	NR	Internet Web sites, Kiosks
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

Appendix J
Transit Management Integration

Appendix K
Transit Management Information Collection and Dissemination

Appendix L
Emergency Management

Emergency Management Agencies for Metropolitan Area: Kansas City

	Total Vehicles		Navigation Capabilities		AVL		CAD		CAD Equipped with Mobile Data Terminal		Vehicles Equipped with Preemption		Participate in Formal Incident Mgt Program	Send Incident Info to other agencies	List of agencies receiving data
Agency Name	1999	2005	1999	2005	1999	2005	1999	2005	1999	2005	1999	2005			
Johnson County Med-Act	23	NR	0	NR	23	NR	23	NR	0	NR	17	NR	Yes	No	None listed
Johnson County Sheriffs Department	16	20	0	0	0	0	16	20	10	15	0	0	Yes	No	None listed
Kansas City Kansas Fire Department	33	NR	0	NR	NR	NR	33	NR	NR	NR	0	NR	Yes	Yes	Kansas City Kansas Police Department, Kansas City Kansas Building Inspection, Kansas City Kansas Code Enforcement
Kansas City Kansas Police Department	280	NR	0	NR	0	NR	280	NR	46	NR	0	NR	No	No	None listed
Kansas Highway Patrol	25	NR	0	NR	0	NR	0	NR	0	NR	0	NR	No	No	None listed
Leavenworth City Fire & EMS Department	12	14	0	3	0	6	12	14	0	12	12	14	Yes	No	None listed
Leavenworth City Police Department	16	18	0	0	0	18	18	18	0	18	0	0	Yes	No	None listed
Leavenworth County Medical Services	8	8	0	0	0	0	0	0	0	4	0	0	No	No	None listed
Olathe City Fire Department	16	20	0	NR	1	14	16	20	0	NR	13	17	No	No	None listed
Olathe City Police Department	34	48	0	48	0	48	34	48	0	48	0	10	Yes	No	None listed
Overland Park City Fire Department	15	NR	0	NR	15	NR	19	NR	0	NR	19	NR	Yes	Yes	Kansas Highway Patrol, Kansas City MO Fire, Overland Park Police Department, Kansas Department of Transportation
Overland Park City Fire Department (Emergency Medical)	5	NR	0	NR	5	NR	5	NR	0	NR	5	NR	Yes	Yes	None listed