# Tracking the Deployment of the Integrated Metropolitan ITS Infrastructure in Pittsburgh, Beaver Valley

## FY99 Results


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## Part 1 - Background and Purpose

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

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

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

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

[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 Pittsburgh, Beaver Valley 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 Pittsburgh, Beaver Valley region was 74% in 1997 and 86% in 1999.

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

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

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

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

## Part 2 - Summary 1999 Survey Results

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

The following two figures portray the surrogate indicators for each of the nine components in Pittsburgh, Beaver Valley 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).

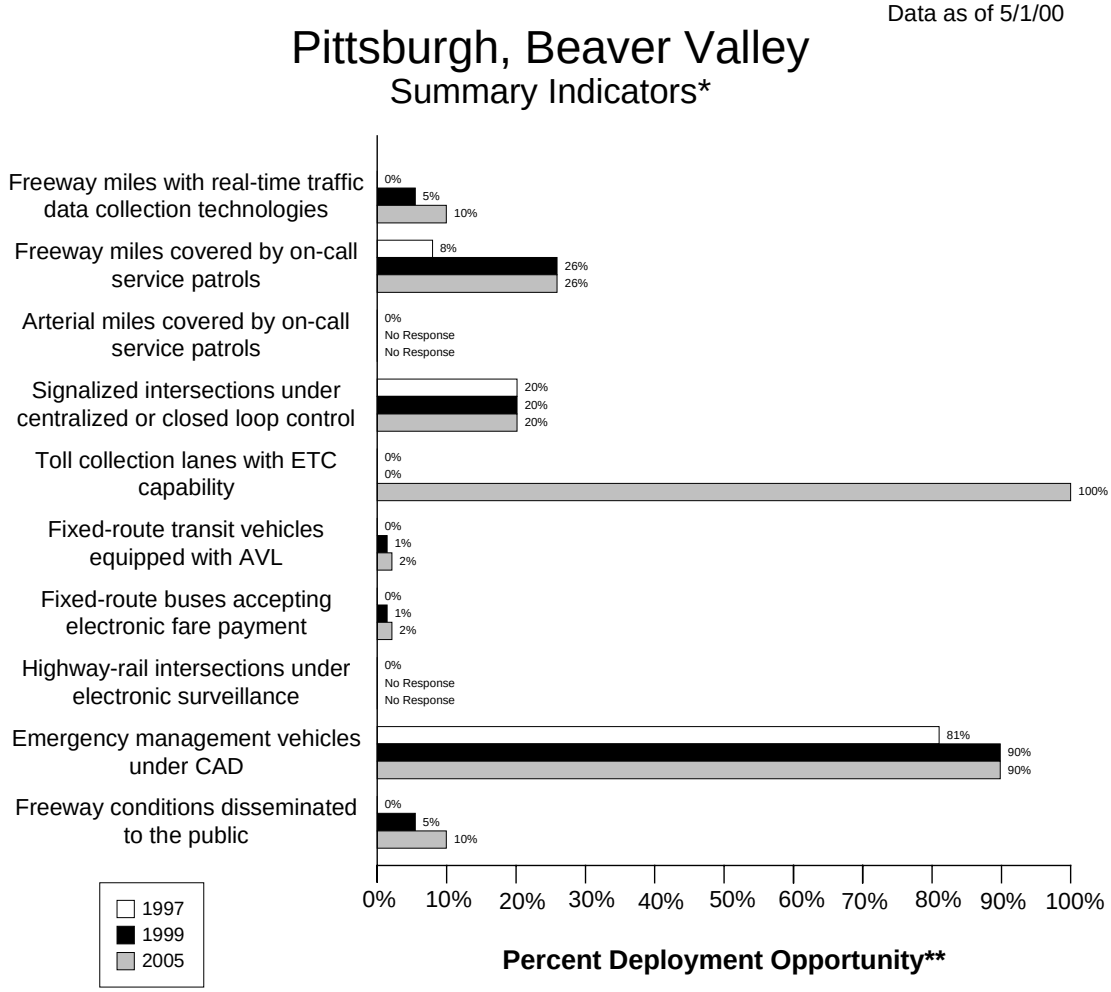
Each component indicator was selected to reflect a critical function of the individual components. For example, in the case of Freeway Management, three basic functions were defined: surveillance, traffic control, and information display. The three indicators developed to reflect these functions are: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

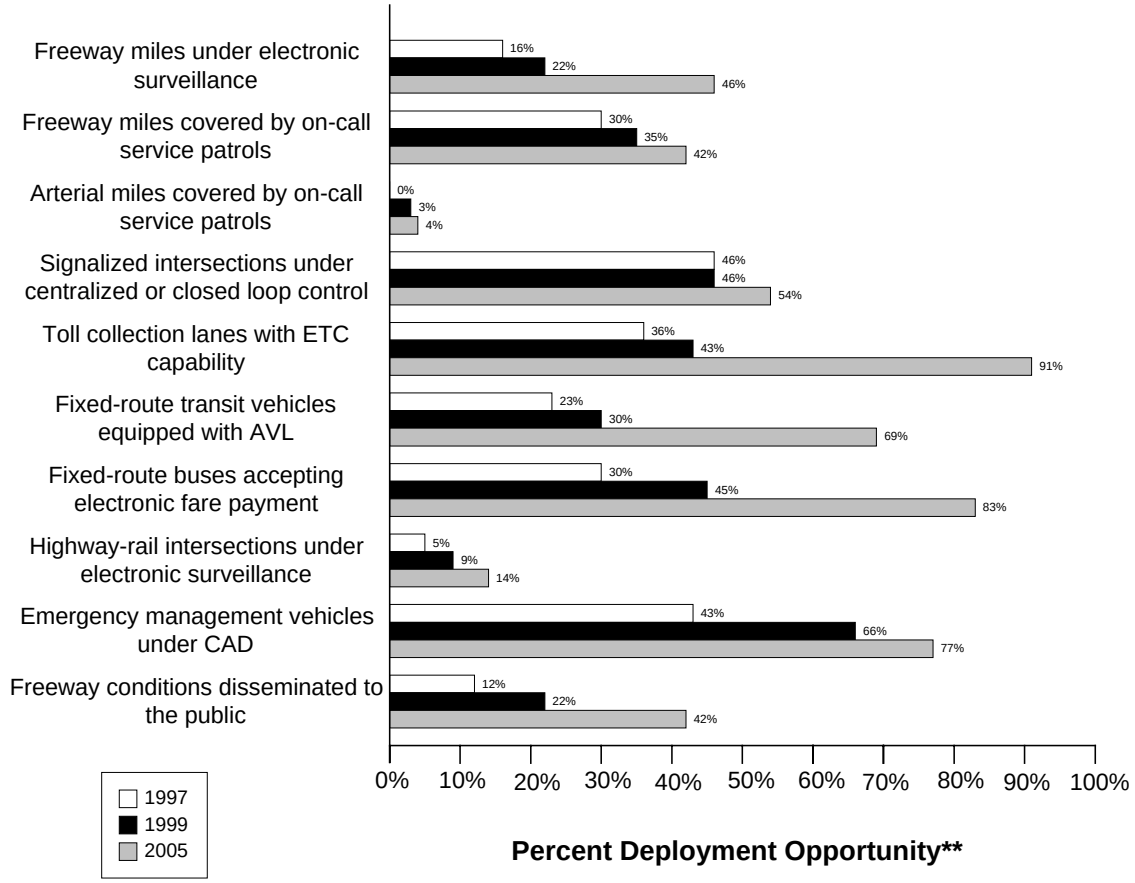
Data as of 5/1/00




* 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*

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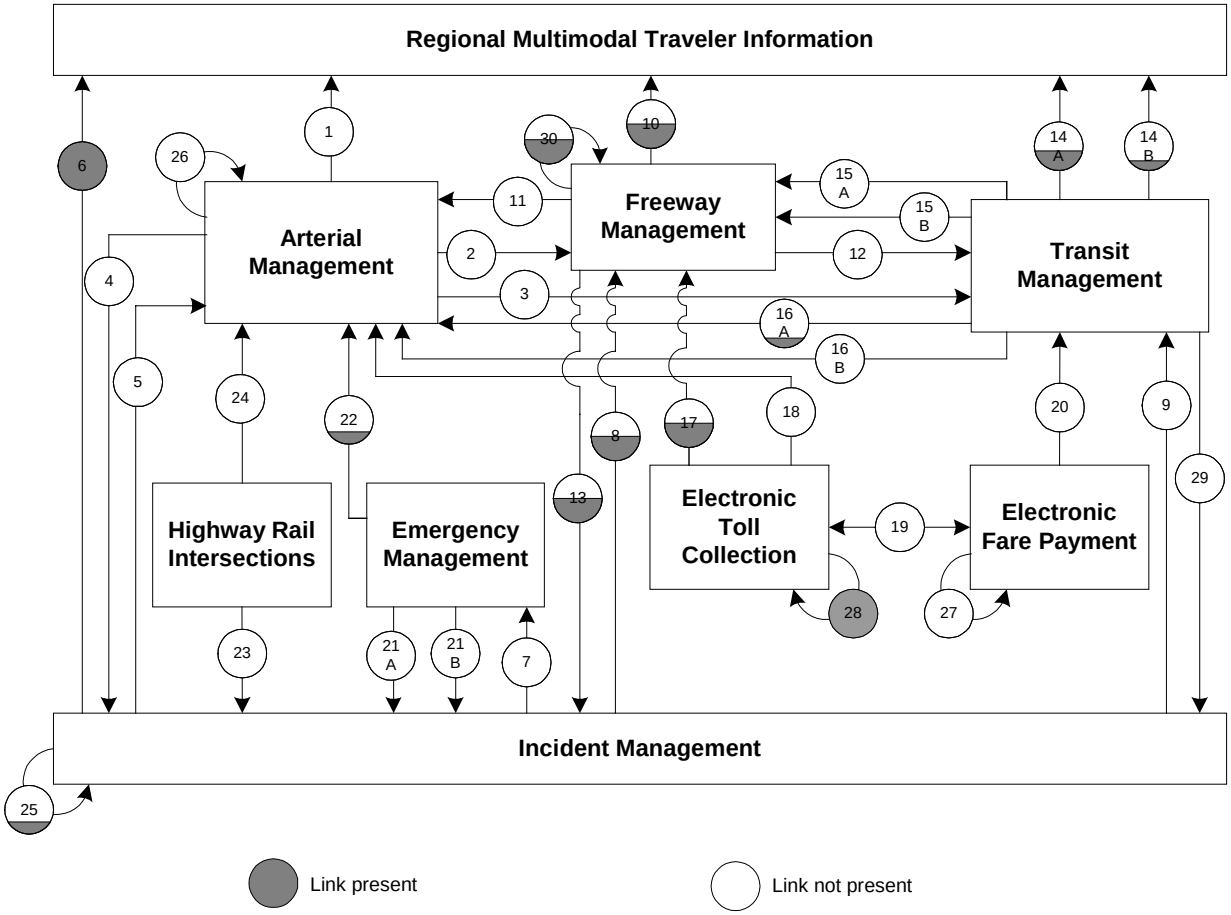
# Pittsburgh, Beaver Valley Integration Links




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<br><br><br><br>14b | Transit Management to Regional Multimodal Traveler Information (static route information)<br>Transit Management to Regional Multimodal Traveler Information (schedule adherence information) |
| 15a<br><br>15b | Transit Management to Freeway Management<br>Transit Management to Freeway Management (transit vehicle probes) | 16a<br><br>16b | Transit Management to Arterial Management<br>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<br><br>21b | Emergency Management to Incident Management (incident notification)<br>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 Pittsburgh, Beaver Valley 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%.

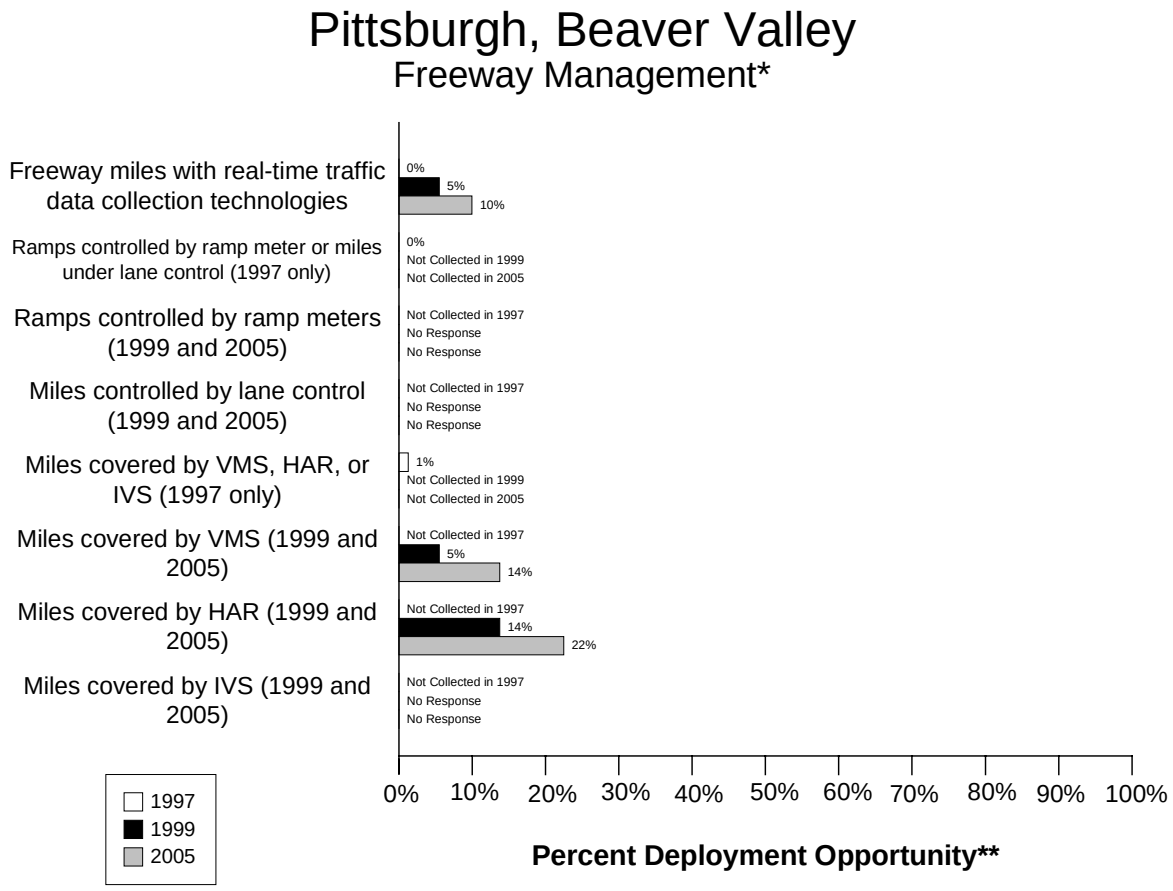
The figures summarizing the integration indicators consist of a diagram for each of the nine metropolitan ITS components portraying the integration level for 1999 (*italic*) and 2005 (**bold**), accompanied by tables providing an explanation of the data and calculations performed to develop each integration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



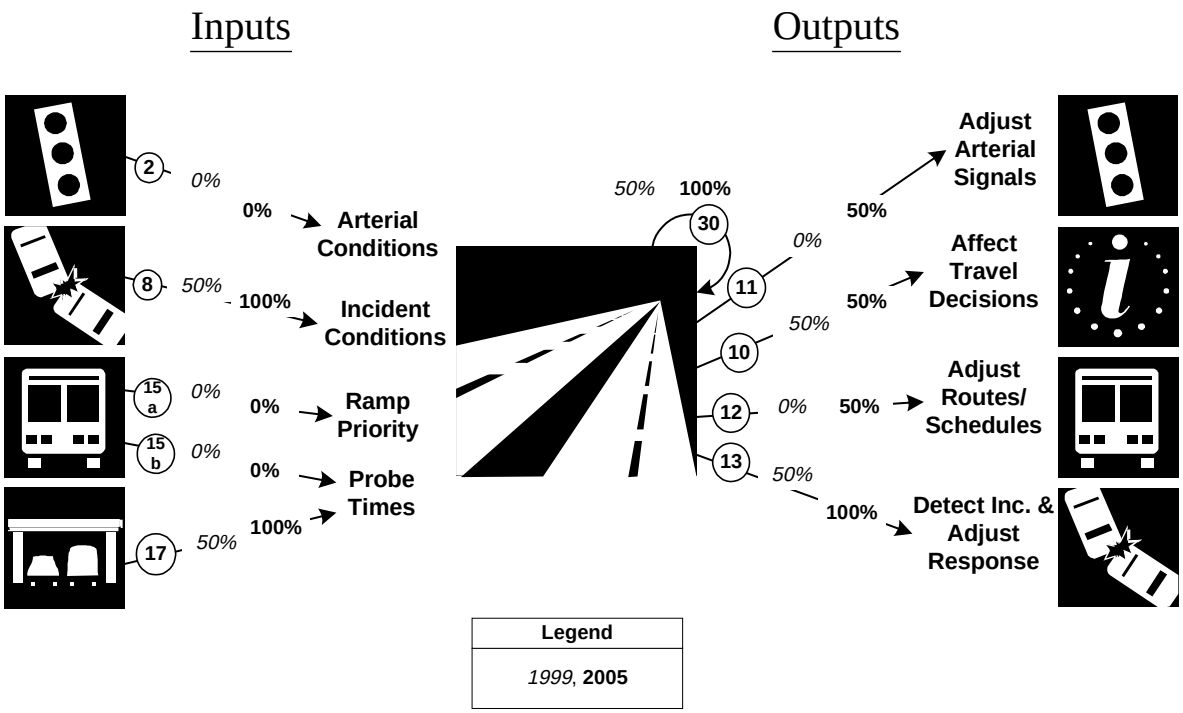

* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

| | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | Num | Den | % | Num | Den | % | Num | Den | % |
| Freeway centerline miles are under electronic surveillance for monitoring traffic flow | 0 | 401 | 0% | 22 | 401 | 5% | 40 | 401 | 10% |
| Freeway entrance ramps are controlled by ramp meters or miles under lane control | 0 | 401 | 0% | | | | | | |
| Freeway entrance ramps are controlled by ramp meters | | | | | 426 | | | 426 | |

| Description | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Num | Den | % | Num | Den | % | Num | Den | % |
| Freeway centerline miles will be controlled by lane control | | | | | 401 | | | 401 | |
| Freeway miles are covered by VMS, HAR, or IVS | 5 | 401 | 1% | | | | | | |
| Freeway miles are covered by VMS | | | | 22 | 401 | 5% | 55 | 401 | 14% |
| Freeway miles are covered by HAR | | | | 55 | 401 | 14% | 90 | 401 | 22% |
| Freeway miles are covered by IVS | | | | | 401 | | | 401 | |

**Freeway Management Integration Indicators**

# Pittsburgh, Beaver Valley
# 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 | ( 0/ 3)<br>0% | ( 0/ 3)<br>0% |
| 8. Incident Management agencies sending information to Freeway Management | ( 1/ 2)<br>50% | ( 2/ 2)<br>100% |
| 15a. Transit management agencies with vehicles equipped with ramp meter priority | ( 0/ 5)<br>0% | ( 0/ 5)<br>0% |
| 15b. Transit Management agencies with vehicles equipped as probes | ( 0/ 5)<br>0% | ( 0/ 5)<br>0% |
| 17. Freeway Management agencies receiving freeway conditions from vehicle probes | ( 1/ 2)<br>50% | ( 2/ 2)<br>100% |
| 30. Freeway Management agencies sending information to another Freeway Management agency | ( 1/ 2)<br>50% | ( 2/ 2)<br>100% |
| 11. Freeway Management agencies sending information to Arterial Management | ( 0/ 2)<br>0% | ( 1/ 2)<br>50% |

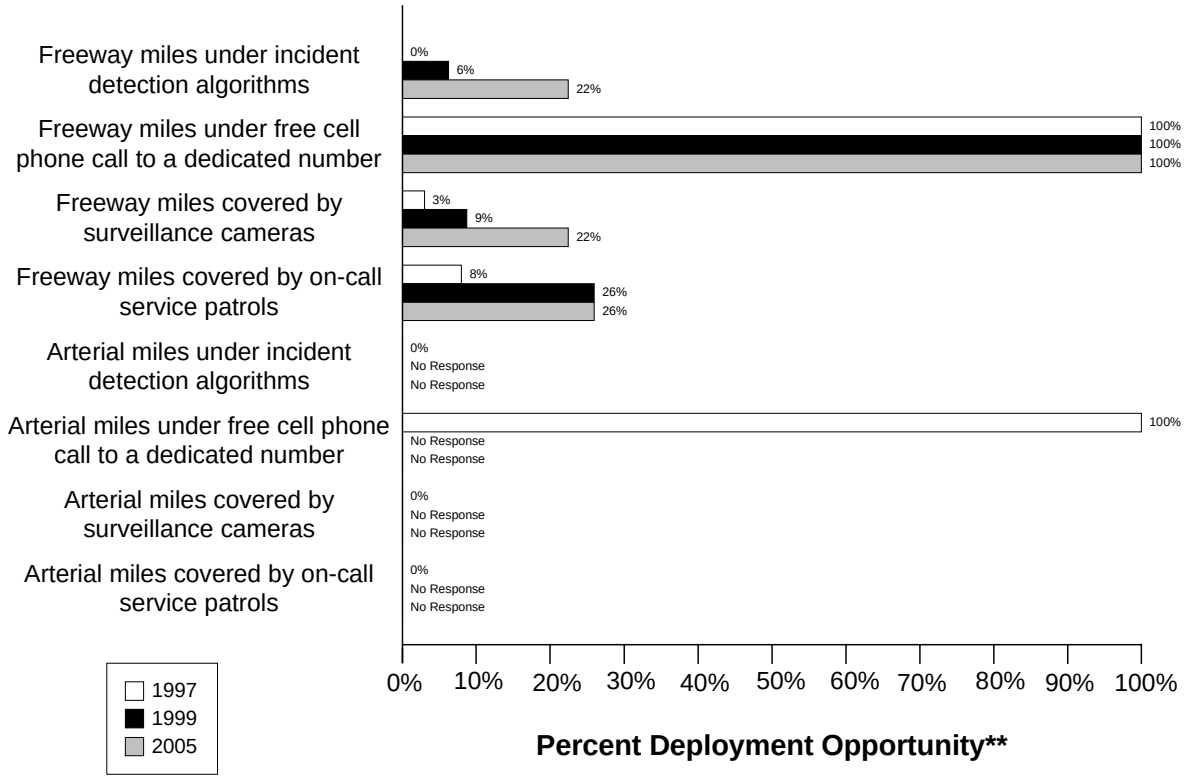
| Link Description | 1999 | 2005 |
|---|---|---|
| 10. Freeway Management agencies disseminating freeway conditions to the public | ( 1/ 2) 50% | ( 1/ 2) 50% |
| 12. Freeway Management agencies sending freeway conditions to Transit Management | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 13. Freeway Management agencies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

**Incident Management Component Indicators**

Data as of 5/1/00

# Pittsburgh, Beaver Valley

## Freeway and Arterial Incident Management*

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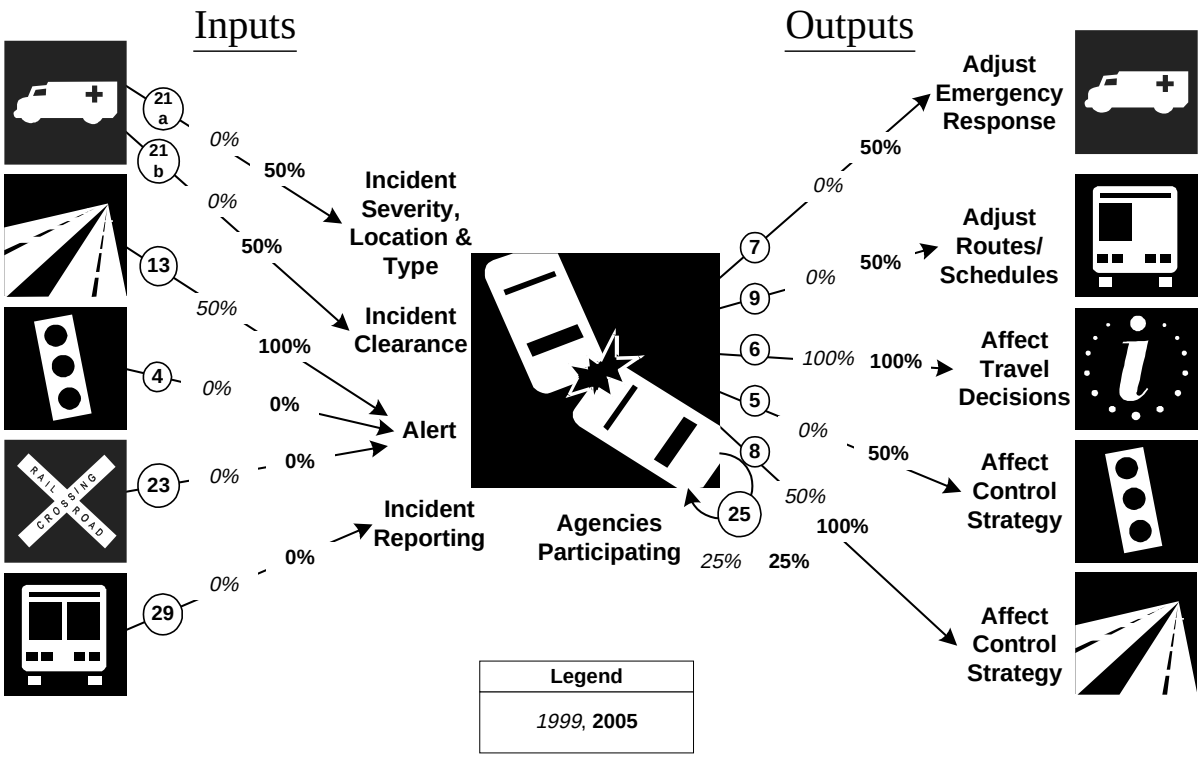
| Description | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Num | Den | % | Num | Den | % | Num | Den | % |
| Freeway miles are covered by incident detection algorithms | 0 | 401 | 0% | 25 | 401 | 6% | 90 | 401 | 22% |
| Freeway miles are covered by free cellular phone calls to a dedicated number | 401 | 401 | 100% | 401 | 401 | 100% | 401 | 401 | 100% |
| Freeway miles are covered by surveillance cameras. | 12 | 401 | 3% | 35 | 401 | 9% | 90 | 401 | 22% |

| Description | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Num | Den | % | Num | Den | % | Num | Den | % |
| Freeway miles are covered by on-call publicly-sponsored service patrol or towing services. | 32 | 401 | 8% | 104 | 401 | 26% | 104 | 401 | 26% |
| Arterial miles are covered by incident detection algorithms | 0 | 1967 | 0% | | 1967 | | | 1967 | |
| Arterial miles are covered by free cellular phone calls to a dedicated number | 1967 | 1967 | 100% | | 1967 | | | 1967 | |
| Arterial miles are covered by surveillance cameras | 0 | 1967 | 0% | | 1967 | | | 1967 | |
| Arterial miles are covered by on-call publicly-sponsored service patrol or towing services | 0 | 1967 | 0% | | 1967 | | | 1967 | |

**Incident Management Integration Indicators**

# Pittsburgh, Beaver Valley

# Incident Management Integration*



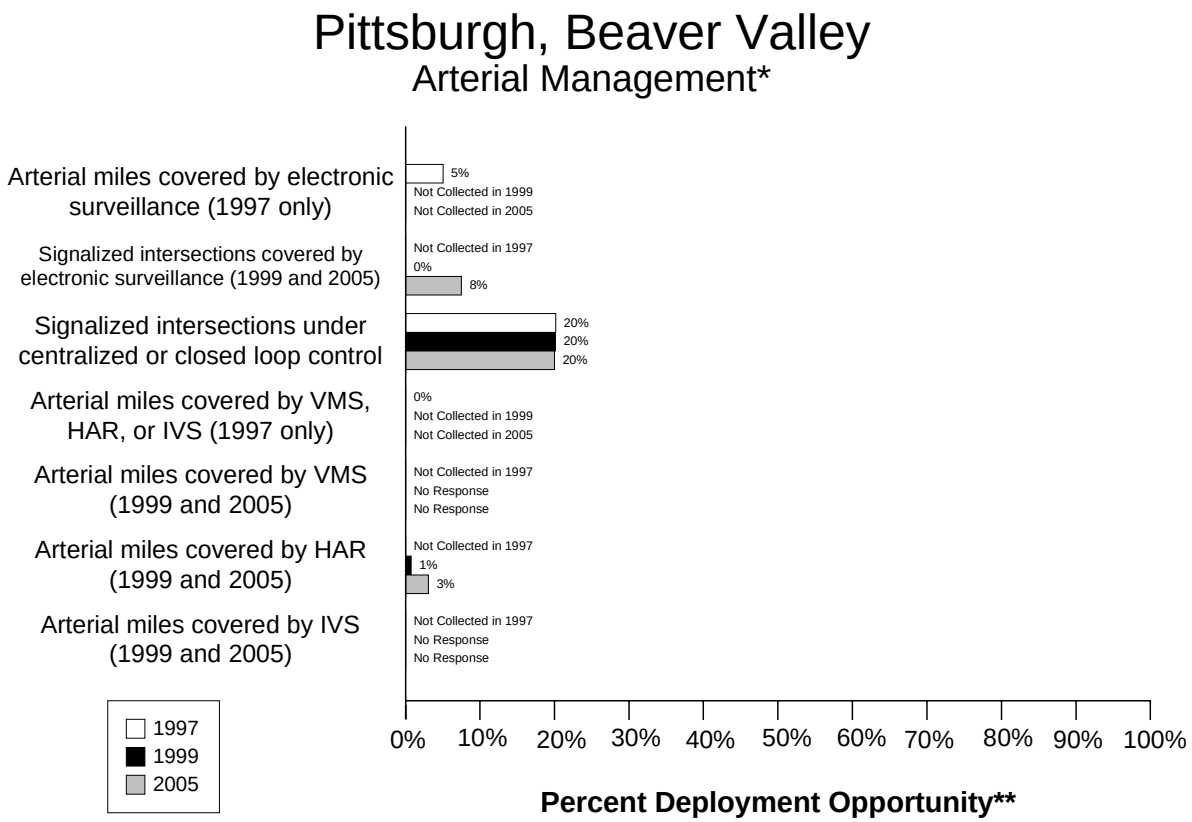

* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

| Link Description | 1999 | 2005 |
|---|---|---|
| 21a. Incident management agencies receiving incident severity from Emergency Management | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 21b. Incident management agencies receiving incident clearance activities from Emergency Management | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 13. Freeway Management agencies sending freeway conditions to Incident Management | ( 1/ 2) 50% | ( 2/ 2) 100% |
| 4. Arterial Management agencies sending arterial conditions to Incident Management | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 29. Transit Management agencies report traffic incidents as part of an organized regional incident management program | ( 0/ 5) 0% | ( 0/ 5) 0% |

| Link Description | 1999 | 2005 |
|---|---|---|
| 7. Incident management agencies transfer information describing incident severity, location, and type to Emergency Management agencies | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 9. Incident Management agencies transfer information describing incident severity, location, and type to Transit Management agencies | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 6. Incident Management agencies disseminate information describing incident severity, location, and type to the public | ( 2/ 2) 100% | ( 2/ 2) 100% |
| 5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management agencies | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 8. Incident Management agencies transfer information describing incident severity, location, and type to Freeway Management agencies | ( 1/ 2) 50% | ( 2/ 2) 100% |
| 25. Police, fire, and EMS agencies participating in a formal incident management plan/team | ( 1/ 4) 25% | ( 1/ 4) 25% |

**Arterial Management Component Indicators**

Data as of 5/1/00

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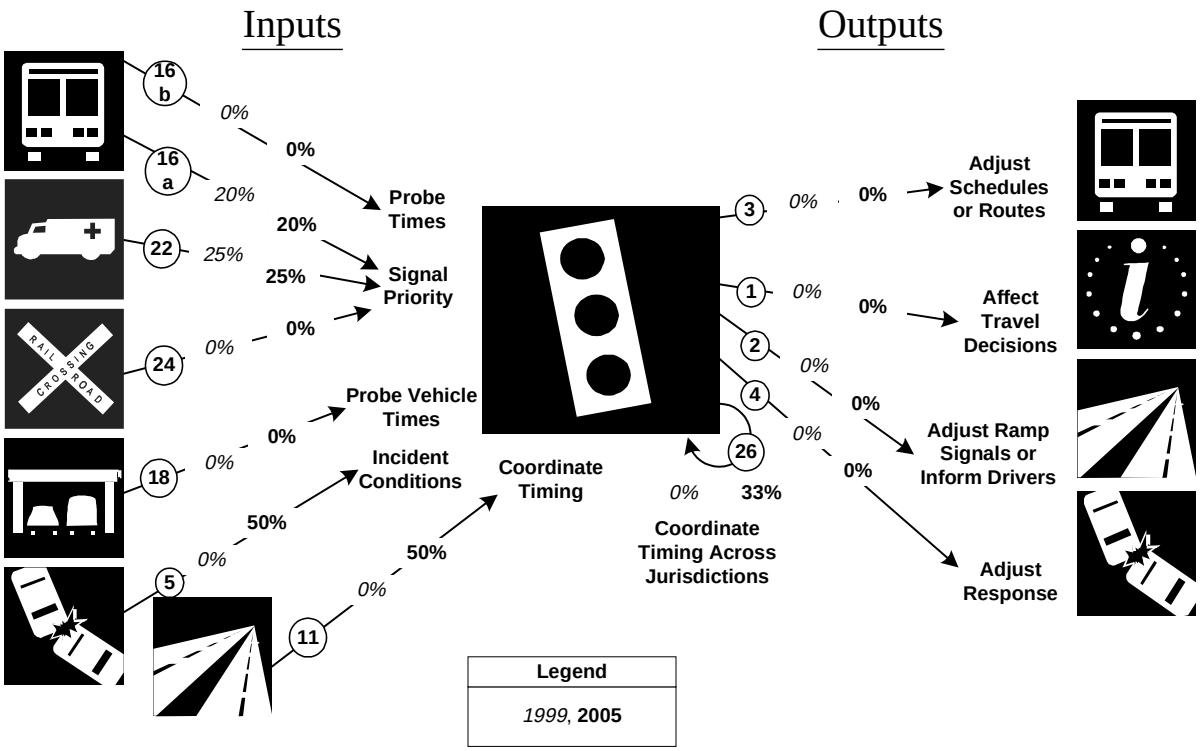
| | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | Num | Den | % | Num | Den | % | Num | Den | % |
| Arterial miles covered by electronic surveillance | 99 | 1967 | 5% | | | | | | |
| Signalized intersections are covered by electronic surveillance for monitoring traffic flow | | | | 0 | 591 | 0% | 45 | 591 | 8% |
| Signalized intersections are under centralized or closed loop control | 119 | 590 | 20% | 119 | 591 | 20% | 119 | 591 | 20% |

| Description | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Num | Den | % | Num | Den | % | Num | Den | % |
| Arterial miles are covered by VMS, HAR, or IVS | 0 | 1967 | 0% | | | | | | |
| Arterial miles are covered by VMS | | | | | 1967 | | | 1967 | |
| Arterial miles are covered by HAR | | | | 15 | 1967 | 1% | 60 | 1967 | 3% |
| Arterial miles are covered by IVS | | | | | 1967 | | | 1967 | |

**Arterial Management Integration Indicators**

# Pittsburgh, Beaver Valley

## 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 | ( 1/ 5) 20% | ( 1/ 5) 20% |
| 16b. Transit Management agencies have vehicles equipped as probes on arterials | ( 0/ 5) 0% | ( 0/ 5) 0% |
| 22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability | ( 1/ 4) 25% | ( 1/ 4) 25% |
| 24. Arterial Management agencies have traffic signals within 200 feet of a highway rail intersection with the capability of having their signal timing adjusted in response to a train crossing | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 18. Number of Arterial Management agencies receiving information from vehicle probes | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management | ( 0/ 2) 0% | ( 1/ 2) 50% |

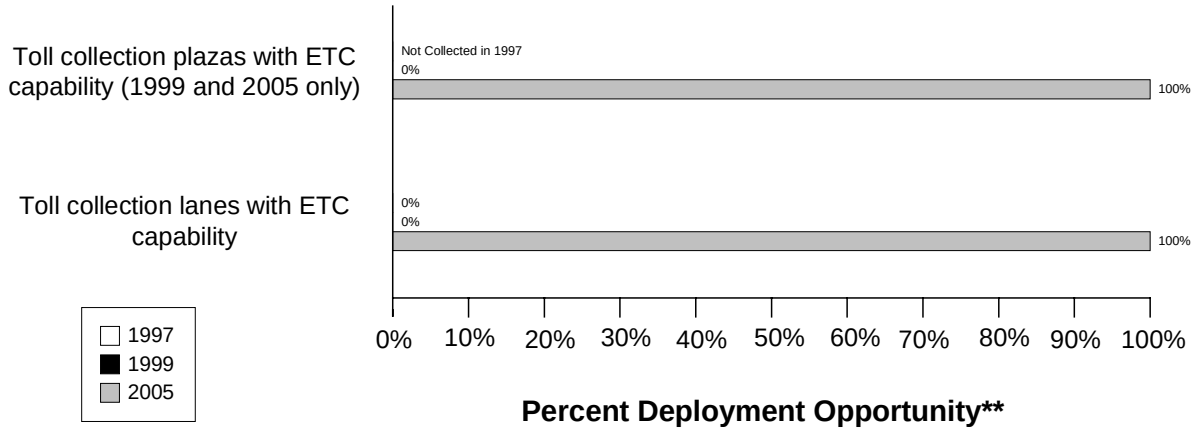
| Link Description | 1999 | 2005 |
|---|---|---|
| 11. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Arterial Management agencies | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 1. Arterial Management agencies disseminate arterial travel times, speeds, and conditions to the public | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 2. Arterial Management agencies send traffic condition information to Freeway Management | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 4. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Incident Management | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 26. Arterial Management agencies under cooperative agreement to share traffic signal timing for coordinated response | ( 0/ 3) 0% | ( 1/ 3) 33% |

**Electronic Toll Collection Component Indicators**

Data as of 5/1/00

# Pittsburgh, Beaver Valley

## Electronic Toll Collection*

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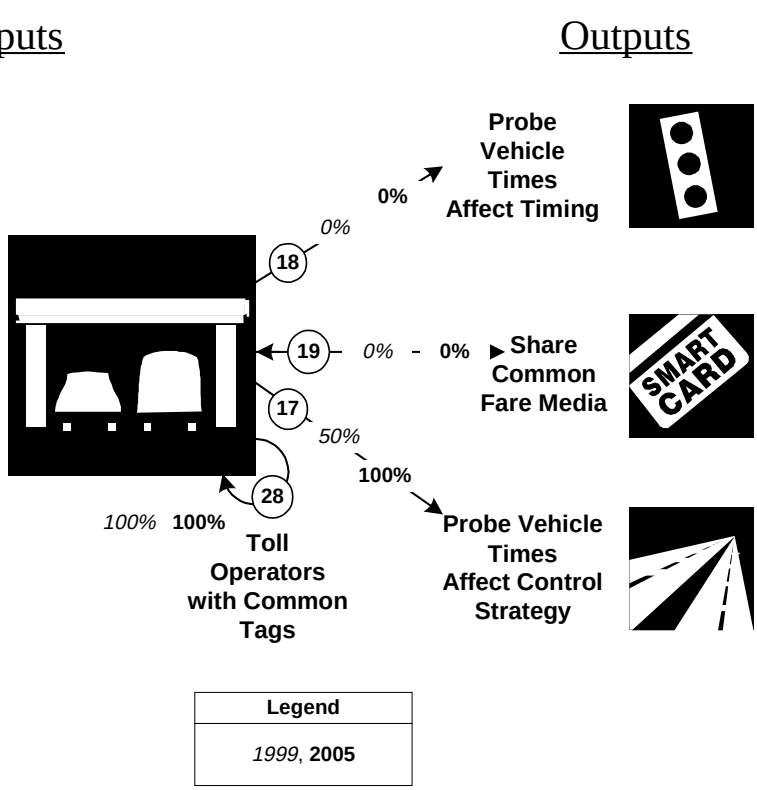
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

| | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | Num | Den | % | Num | Den | % | Num | Den | % |
| Toll collection plazas with ETC capability | | | | 0 | 51 | 0% | 51 | 51 | 100% |
| Toll collection lanes with ETC capability | 0 | 325 | 0% | 0 | 325 | 0% | 325 | 325 | 100% |

**Electronic Toll Collection Integration Indicators**

# Pittsburgh, Beaver Valley
# Electronic Toll Collection Integration*

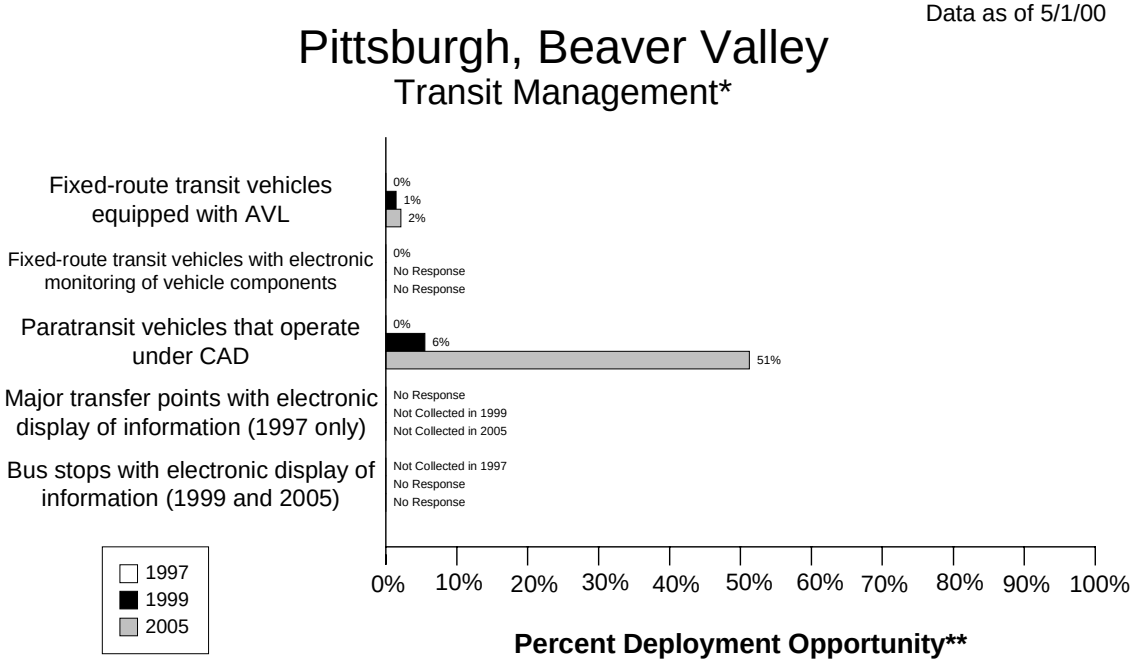



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

| Link Description | 1999 | 2005 |
|---|---|---|
| 18. Number of Arterial Management agencies receiving information from vehicle probes | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 19. Transit agencies that accept electronic payment through the use of electronic toll collection media | ( 0/ 5) 0% | ( 0/ 5) 0% |
| 17. Freeway Management agencies receiving information from vehicle probes | ( 1/ 2) 50% | ( 2/ 2) 100% |
| 28. Toll operators using common toll tag technology | ( 1/ 1) 100% | ( 1/ 1) 100% |

## Transit Management Component Indicators

Data as of 5/1/00

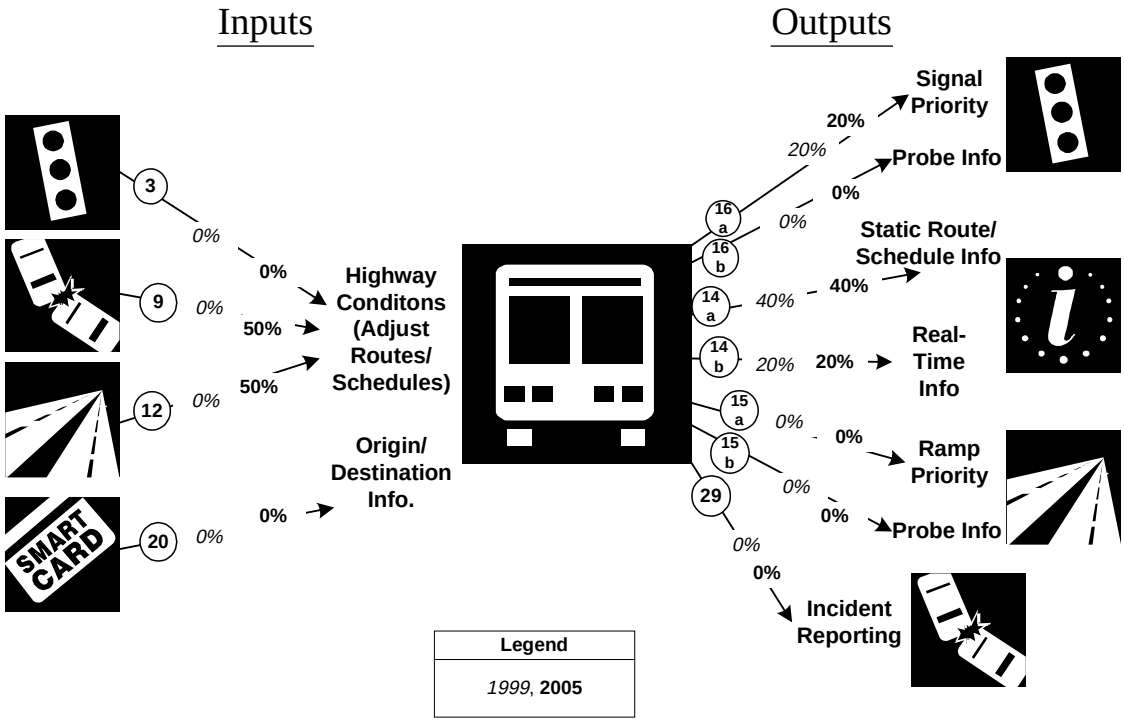



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

| Description | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Num | Den | % | Num | Den | % | Num | Den | % |
| Fixed-route transit vehicles are equipped with AVL | 0 | 977 | 0% | 14 | 985 | 1% | 22 | 1045 | 2% |
| Fixed-route transit vehicles are equipped with electronic monitoring of vehicle component | 0 | 917 | 0% | | 985 | | | 1045 | |
| Paratransit vehicles operate under computer-aided dispatch | 0 | 507 | 0% | 12 | 218 | 6% | 122 | 238 | 51% |
| Percent fixed-route transfer locations with electronic display of information | 0 | 0 | | | | | | | |
| Bus stops display information to the public | | | | | | | | | |

**Transit Management Integration Indicators**

# Pittsburgh, Beaver Valley
# 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/ 3) 0% | ( 0/ 3) 0% |
| 9. Incident management agencies transfer information describing incident severity, location, and type to Transit Management | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 12. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Transit Management | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 20. Transit Management agencies using Electronic Fare Payment data in transit service planning | ( 0/ 5) 0% | ( 0/ 5) 0% |
| 16a. Transit Management agencies have vehicles equipped with traffic signal priority capability | ( 1/ 5) 20% | ( 1/ 5) 20% |
| 16b. Transit Management agencies have vehicles equipped as probes on arterials | ( 0/ 5) 0% | ( 0/ 5) 0% |
| 14a. Transit Management agencies disseminate information describing transit routes, schedules, and fares to travelers | ( 2/ 5) 40% | ( 2/ 5) 40% |

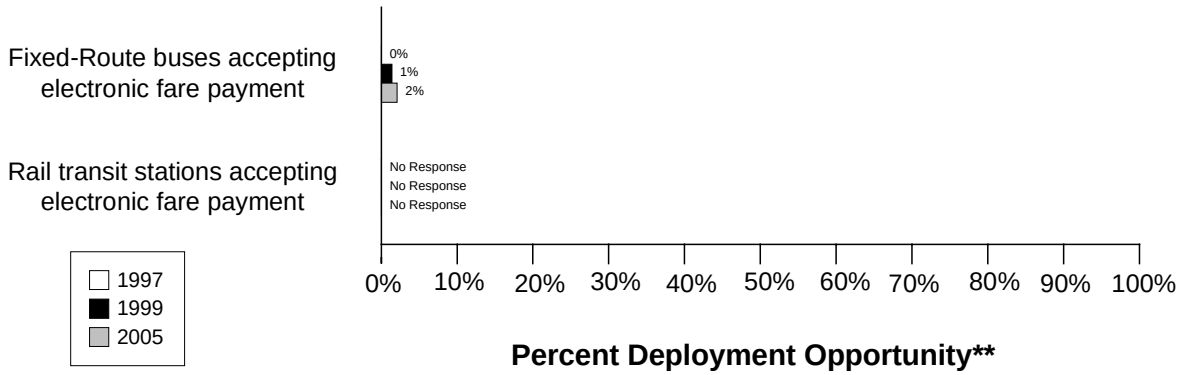
| Link Description | 1999 | 2005 |
|---|---|---|
| 14b. Transit Management agencies disseminate information describing schedule/route adherence to travelers | ( 1/ 5) 20% | ( 1/ 5) 20% |
| 15a. Transit Management agencies have vehicles equipped with ramp meter priority capability | ( 0/ 5) 0% | ( 0/ 5) 0% |
| 15b. Transit Management agencies have vehicles equipped as probes on freeways | ( 0/ 5) 0% | ( 0/ 5) 0% |
| 29. Transit Management agencies that report traffic incidents as part of an organized regional Incident Management program | ( 0/ 5) 0% | ( 0/ 5) 0% |

**Electronic Fare Payment Component Indicators**

Data as of 5/1/00

# Pittsburgh, Beaver Valley

## Electronic Fare Payment*



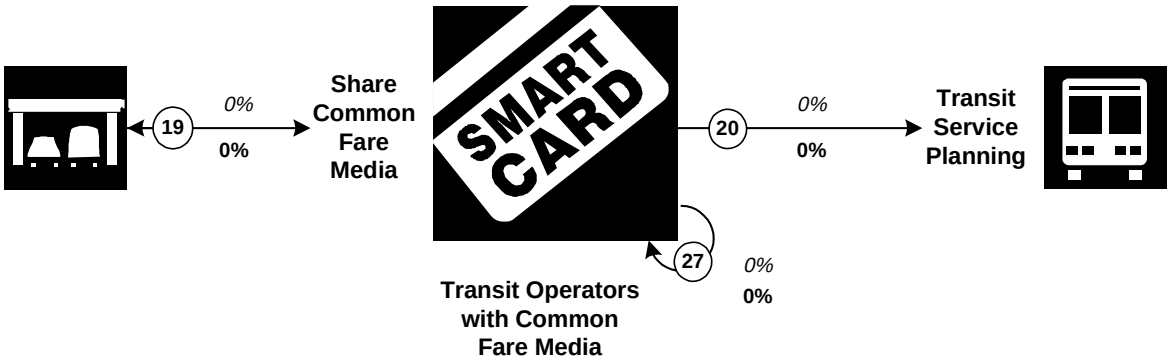

* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

| Description | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Num | Den | % | Num | Den | % | Num | Den | % |
| Fixed-route transit vehicles that accept electronic payment | 0 | 977 | 0% | 14 | 985 | 1% | 22 | 1045 | 2% |
| Rail transit stations that accept electronic payment | 0 | 0 | | | | | | 11 | |

**Electronic Fare Payment Integration Indicators**

# Pittsburgh, Beaver Valley
# 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

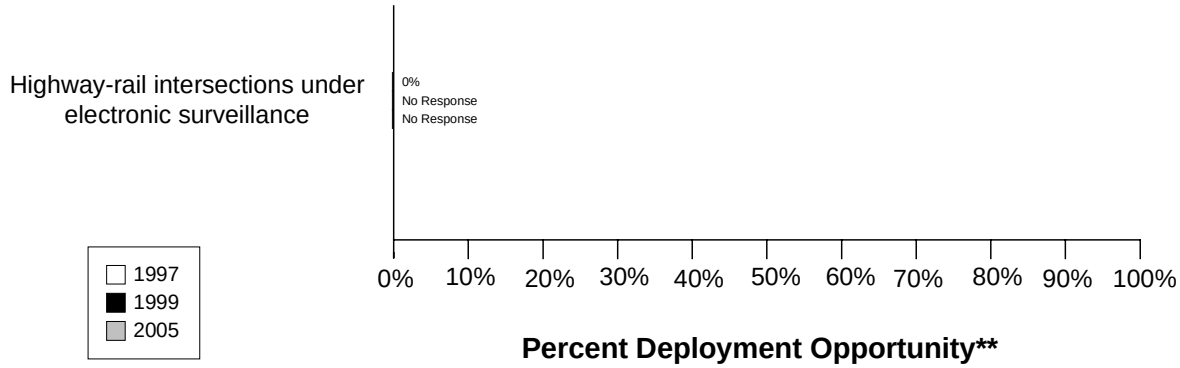
| Link Description | 1999 | 2005 |
|---|---|---|
| 19. Transit agencies that accept electronic payment through the use of electronic toll collection media | ( 0/ 5) 0% | ( 0/ 5) 0% |
| 20. Transit Management agencies use Electronic Fare Payment data in transit service planning | ( 0/ 5) 0% | ( 0/ 5)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

**Highway Rail Intersection Component Indicators**

Data as of 5/1/00

# Pittsburgh, Beaver Valley

## Highway-Rail Intersections*



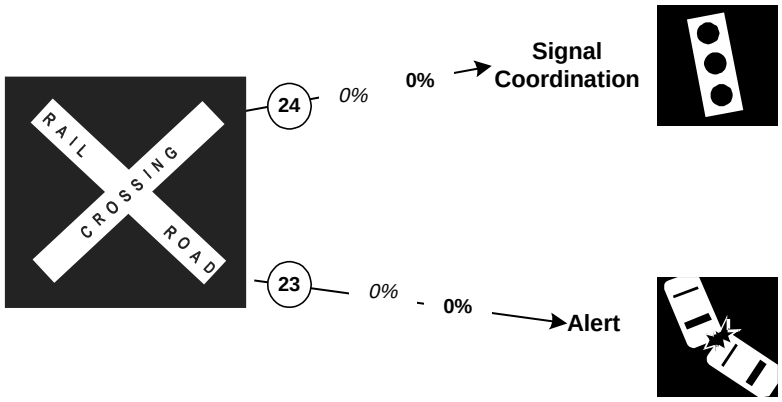

* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

| | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | Num | Den | % | Num | Den | % | Num | Den | % |
| Highway-rail intersections are under electronic surveillance | 0 | 50 | 0% | | 20 | | | 20 | |

**Highway Rail Intersection Integration Indicators**

# Pittsburgh, Beaver Valley
# Highway Rail Intersections Integration*

Inputs Outputs




| Legend |
|---|
| *1999*, **2005** |

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

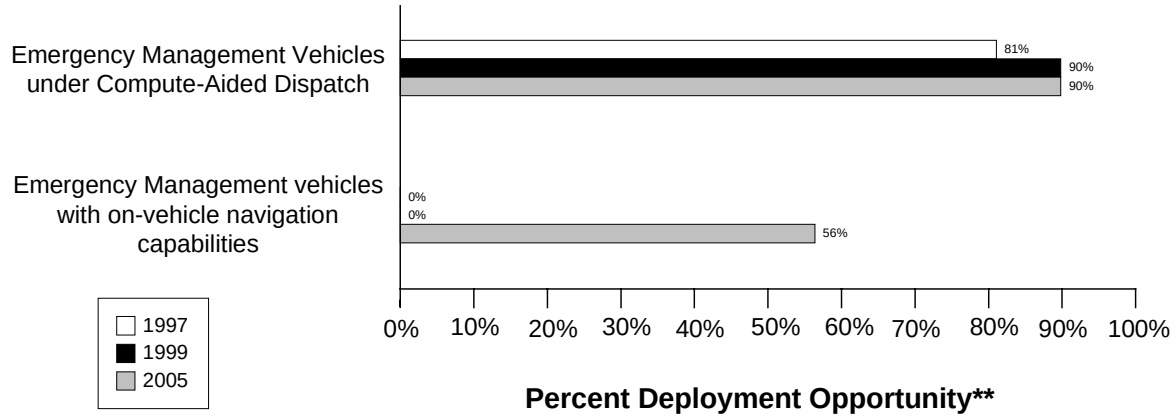
| Link Description | 1999 | 2005 |
|---|---|---|
| 24. Arterial Management agencies with traffic signals within 200 feet of a highway rail intersection with the capability of having their signal timing adjusted in response to a train crossing | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response | ( 0/ 3) 0% | ( 0/ 3) 0% |

**Emergency Management Component Indicators**

Data as of 5/1/00

# Pittsburgh, Beaver Valley

## Emergency Management*

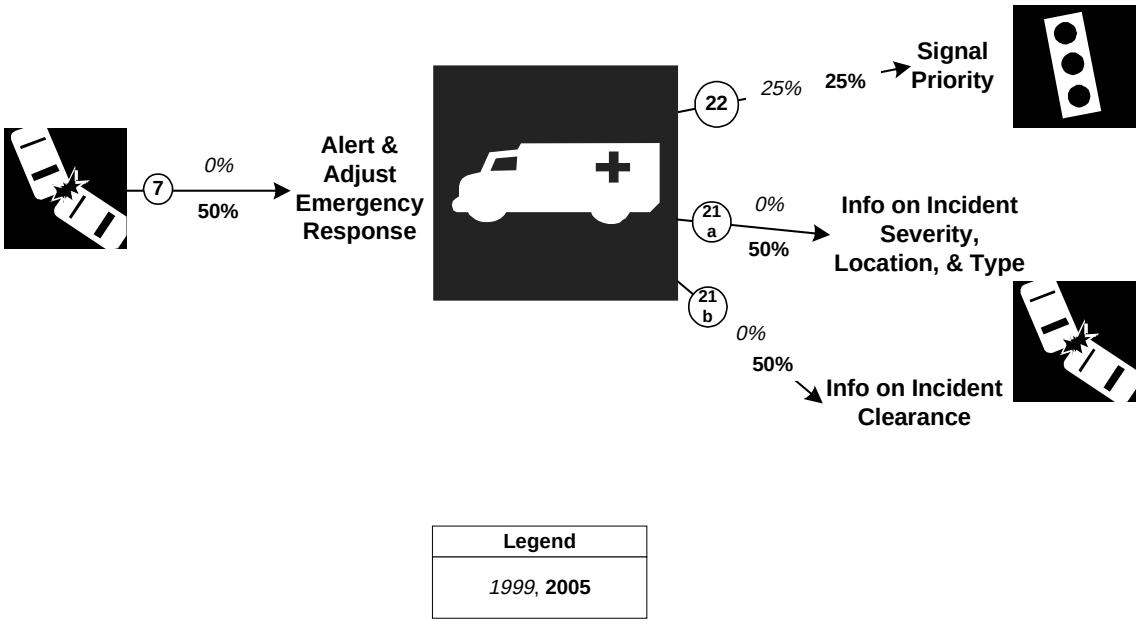



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

| | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | Num | Den | % | Num | Den | % | Num | Den | % |
| Public sector emergency vehicles that operate under computer-aided dispatch | 184 | 227 | 81% | 212 | 236 | 90% | 212 | 236 | 90% |
| Public sector emergency vehicles that have in-vehicle route guidance capability | 0 | 227 | 0% | 0 | 236 | 0% | 133 | 236 | 56% |

**Emergency Management Integration Indicators**

# Pittsburgh, Beaver Valley
# Emergency Management Integration*




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

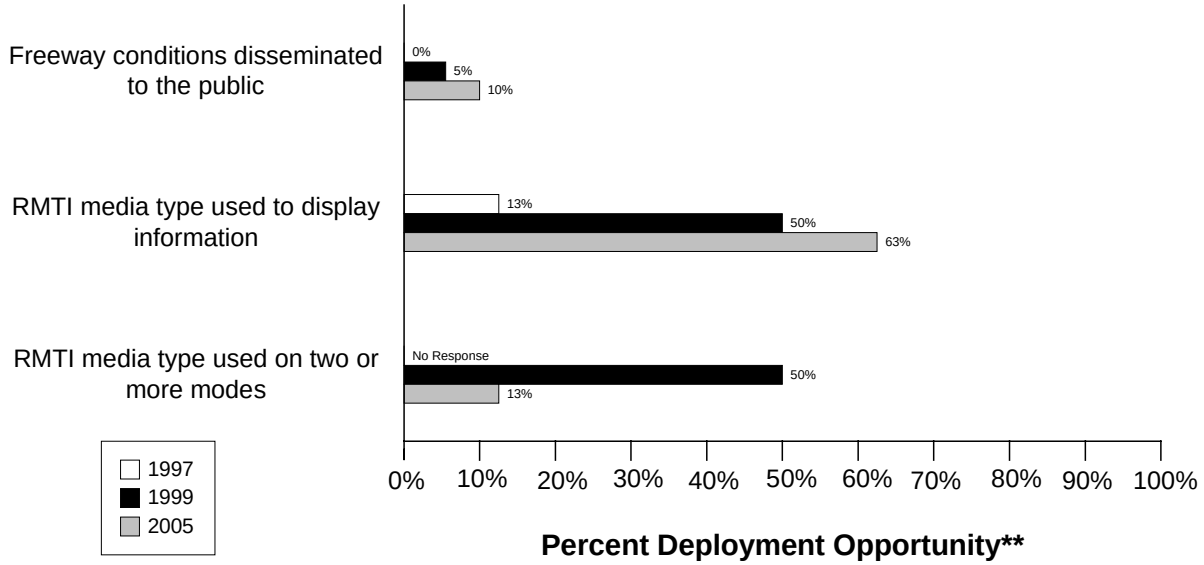
| Link Description | 1999 | 2005 |
|---|---|---|
| 7. Freeway Management agencies transfer information describing incident severity, location, and type to Emergency Management agencies | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability | ( 1/ 4) 25% | ( 1/ 4) 25% |
| 21a. Freeway Management agencies receive incident severity, location, and type data from Emergency Management agencies | ( 0/ 2) 0% | ( 1/ 2) 50% |
| 21b. Freeway Management agencies receive incident clearance activities information from Emergency Management agencies | ( 0/ 2) 0% | ( 1/ 2) 50% |

**Regional Multimodal Traveler Information Component Indicators**

Data as of 5/1/00

# Pittsburgh, Beaver Valley

## Regional Multimodal Traveler Information*

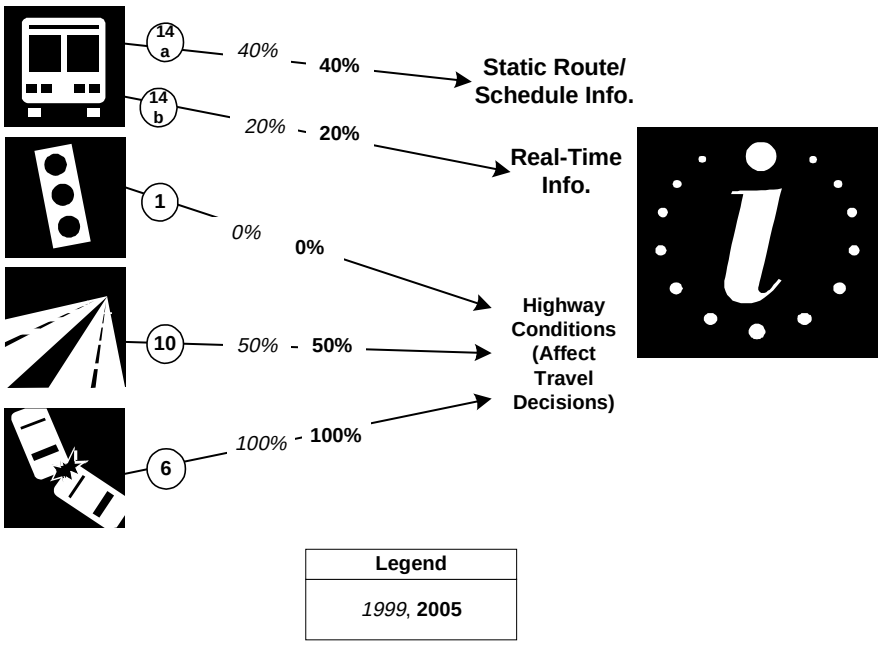



* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.
** Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

| | 1997 | | | 1999 | | | 2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | Num | Den | % | Num | Den | % | Num | Den | % |
| Freeway conditions disseminated to travelers | 0 | 401 | 0% | 22 | 401 | 5% | 40 | 401 | 10% |
| Possible RMTI media types are used to display information to travelers | 1 | 8 | 13% | 4 | 8 | 50% | 5 | 8 | 63% |
| Possible RMTI media are used to display information on *two or more modes* to travelers | | | | 4 | 8 | 50% | 1 | 8 | 13% |

**Regional Multimodal Traveler Information Integration Indicators**

# Pittsburgh, Beaver Valley
# Regional Multimodal Traveler Information Integration*

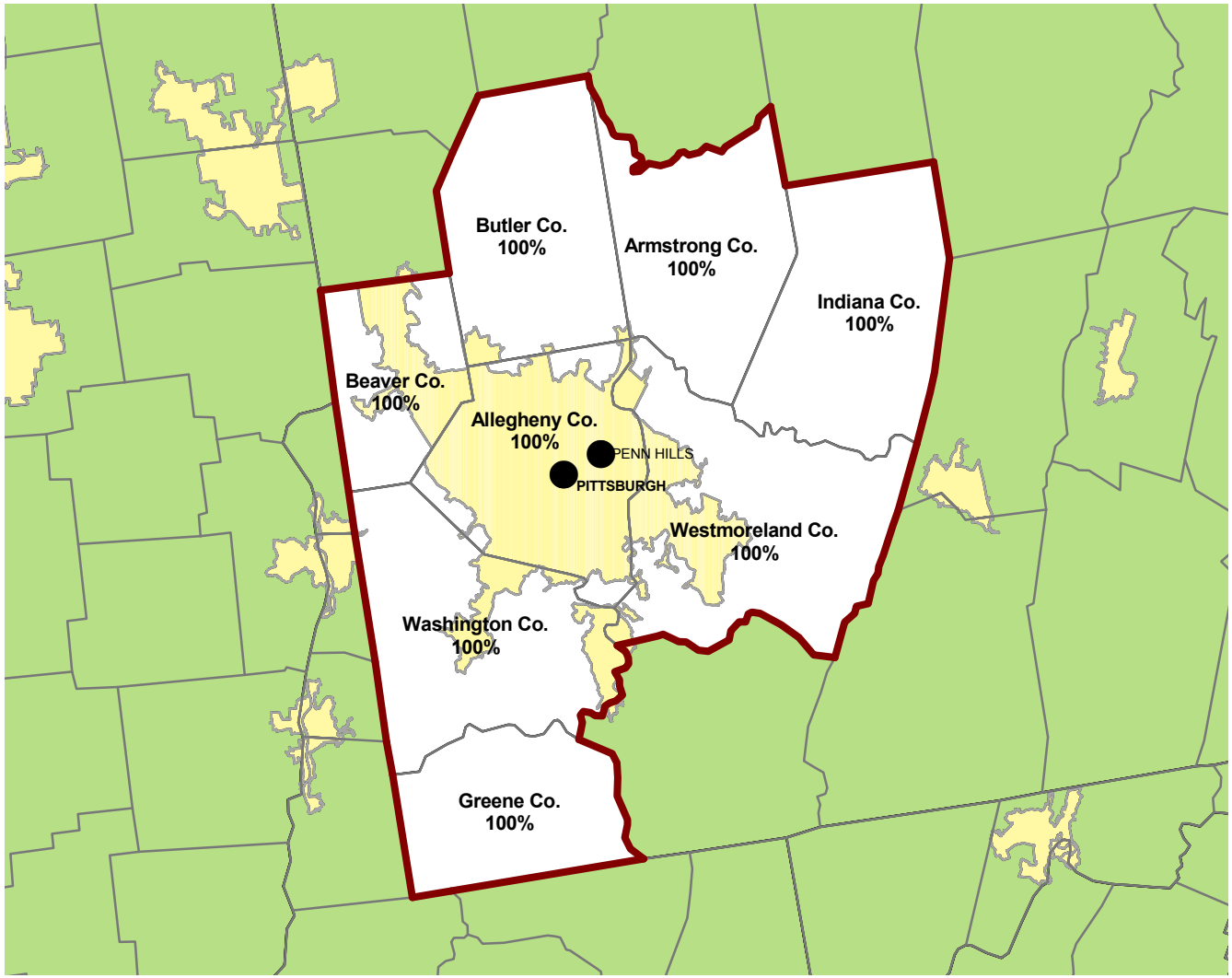


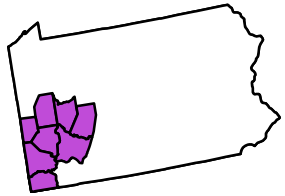

* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

| Link Description | 1999 | 2005 |
|---|---|---|
| 14a. Transit Management agencies that disseminate information describing transit routes, schedules, and fares to travelers | ( 2/ 5) 40% | ( 2/ 5) 40% |
| 14b. Transit Management agencies that disseminate information describing schedule/route adherence to travelers | ( 1/ 5) 20% | ( 1/ 5) 20% |
| 1. Arterial Management agencies that disseminate arterial travel times, speeds, and conditions to the public | ( 0/ 3) 0% | ( 0/ 3) 0% |
| 10. Freeway Management agencies that disseminate freeway travel times, speeds, and conditions to travelers | ( 1/ 2) 50% | ( 1/ 2) 50% |
| 6. Incident Management agencies that disseminate information describing incident severity, location, and type to the public | ( 2/ 2) 100% | ( 2/ 2) 100% |

# Appendix A
# Survey Coverage Area

# SOUTHWESTERN PENNSYLVANIA
# REGIONAL TRANSPORTATION COMMISSION, PA



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 |
| **PITTSBURGH, BEAVER VALLEY** | | | | | | |
| **Arterial Management** | | | | | | |
| Beaver County | 724-847-1205 | 724-847-1058 | | | 8/5/1997 | |
| Pennsylvania Department of Transportation | (412) 429-4969 | (412) 429-5069 | 8/4/1999 | 8/30/1999 | 8/5/1997 | |
| Westmoreland County | (724) 830-3966 | (724) 830-3969 | 8/5/1999 | 10/12/1999 | 8/5/1997 | 8/12/1998 |
| Pittsburgh City | (412) 255-2513 | (412) 255-8847 | 8/5/1999 | 8/27/1999 | 8/5/1997 | 8/18/1997 |
| **Electronic Toll Collection** | | | | | | |
| Pennsylvania Turnpike Commission-Entire PA | (717) 939-9551 | (717) 986-9645 | 6/30/1999 | 7/1/1999 | 8/5/1997 | 11/10/1997 |
| **Emergency Management** | | | | | | |
| Beaver County | 724-847-1205 | 724-847-1058 | | | 8/7/1997 | |
| Pittsburgh Police Department | (412) 255-2916 | (412) 255-4721 | 6/23/1999 | 8/23/1999 | 6/16/1998 | 6/16/1998 |
| Pennsylvania Hills Police Department | (412) 798-2019 | (412) 798-2036 | 6/23/1999 | 8/23/1999 | 6/16/1998 | 6/161998 |
| Pittsburgh Fire Department | (412) 255-2839 | 412-255-8839 | 6/23/1999 | 6/30/1999 | 6/22/1998 | 6/22/1998 |
| Pennsylvania Hills Fire Department | (412) 798-2121 | (412) 798-2123 | 6/23/1999 | 7/9/1999 | 6/23/1998 | 6/23/1998 |
| **Freeway Management** | | | | | | |
| Pennsylvania Turnpike Commission | (717) 939-9551 | (717) 986-9645 | 7/29/1999 | 8/16/1999 | 8/5/1997 | |
| Pennsylvania Department of Transportation | (412) 429-4969 | (412) 429-5069 | 8/5/1999 | 8/30/1999 | 8/5/1997 | 11/10/1997 |
| **MPO** | | | | | | |
| Southwestern Pennsylvania Regional Planning | (412) 391-5590 | (412) 391-9160 | 7/15/1999 | 8/9/1999 | | |
| **Transit Management** | | | | | | |
| G G & C Bus Company Incorporated | (724) 222-2320 | (724) 228-3030 | 8/9/1999 | 10/1/1999 | 7/7/1997 | 7/15/1997 |
| Port Authority of Allegheny County | (412) 237-7225 | (412) 237-7433 | 8/9/1999 | 12/3/1999 | 7/7/1997 | 7/15/1997 |
| Beaver County Transit Authority | (724) 728-4255 | (724) 728-8333 | 8/9/1999 | 9/23/1999 | 7/7/1997 | |
| Access Transportation Systems Incorporated | (412) 562-5380 | (412) 391-0594 | 8/9/1999 | 12/10/1999 | 7/7/1997 | 7/15/1997 |
| Westmoreland County Transit | (724) 832-2705 | (724) 834-9494 | 8/9/1999 | 10/4/1999 | 7/7/1997 | 11/4/1997 |

# Appendix C
# Freeway Management Components

Freeway Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | | **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 | NR | | 60 | | 60 | |
| Number of freeway centerline miles that is used for planning | NR | | 60 | | 60 | |
| Number of freeway entrance ramps that agency owns, operates or maintains | NR | | 9 | | 9 | |
| Number of freeway entrance ramps that is used for planning | NR | | 9 | | 9 | |
| **Type of facilities used to conduct freeway/incident management activities** | | | | | | |
| Activities housed in a free-standing dedicated building? | Yes | | Yes | | 2 | |
| Activities housed in a building shared with other activities? | No | | No | | 0 | |
| Activities conducted in a dedicated control room? | Yes | | No | | 1 | |
| Control room contains operator console(s)? | Yes | | No | | 1 | |
| Control room contains electronic wall map? | Yes | | No | | 1 | |
| Control room contains CCTV display(s)? | Yes | | No | | 1 | |
| Activities conducted in a room containing workstations or PCs that manage traffic? | Yes | | No | | 1 | |
| Facilities are electronically linked to other transportation mgt facilities? | No | | No | | 0 | |
| **Staffing and hours of operation of freeway/incident management activities** | | | | | | |
| Number of full-time agency staff members | 2 | | 13 | | 15 | |
| 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 | NR | | agency | | 0 | |
| Staffed during peak hours only by agency staff or by others | agency | | NR | | 0 | |
| Staffed by others during off-peak hours | No | | No | | 0 | |
| Agency staff perform transportation management as an ancillary duty | No | | No | | 0 | |
| Agency staff dedicated to transportation management duty | Yes | | No | | 1 | |
| **Types of operations conducted for freeway/incident management** | | | | | | |
| Incident detection and management? | Yes | | Yes | | 2 | |
| This metropolitan area? | Yes | | No | | 1 | |
| Other metropolitan area? | No | | No | | 0 | |
| Statewide? | No | | Yes | | 1 | |
| Monitoring and troubleshooting status of system components? | Yes | | Yes | | 2 | |
| Manual override of ramp metering rates at freeway on-ramps? | No | | No | | 0 | |
| Operating transportation management roadside devices? | Yes | | Yes | | 2 | |
| Radio communications with other agencies? | Yes | | Yes | | 2 | |
| Exchange of electronic data with other agencies such as computer aided dispatch? | No | | Yes | | 1 | |
| **Real-Time Traffic Data Collection Technologies** | | | | | | |

Freeway Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | | **Totals** | |
|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| Total number of miles under surveillance with real-time data collection tech. | 22 | 35 | 0 | 5 | 22 | 40 |
| *Number of Stations with data collection technologies* | | | | | | |
| Loop detectors | 0 | 0 | 0 | 0 | 0 | 0 |
| Video imaging detectors | 0 | 0 | 0 | 0 | 0 | 0 |
| Probe readers (elec. toll tags, transit vehicles, other technology) | 0 | 0 | NR | 1 | 0 | 1 |
| Microwave radar | 33 | 60 | 0 | 0 | 33 | 60 |
| Other (e.g., acoustic detectors) | 0 | 0 | 0 | 0 | 0 | 0 |
| *Number of Miles covered with data collection technologies* | | | | | | |
| Loop detectors | 0 | 0 | 0 | 0 | 0 | 0 |
| Video imaging detectors | 0 | 0 | 0 | 0 | 0 | 0 |
| Probe readers (elec. toll tags, transit vehicles, other technology) | 0 | 0 | NR | 25 | 0 | 25 |
| Microwave radar | 22 | 35 | 0 | 0 | 22 | 35 |
| 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 | 9 | 20 | NR | 2 | 9 | 22 |
| Candidate locations for deployment of VMS | 9 | 20 | NR | 2 | 9 | 22 |
| **Roadside Technologies used to Distribute Traveler Information** | | | | | | |
| Total number of miles where information is distributed | 45 | 80 | 10 | 10 | 55 | 90 |
| *Number deployed* | | | | | | |
| Highway advisory radio | 5 | 10 | 1 | 1 | 6 | 11 |
| In-vehicle signing | 0 | 0 | 0 | 0 | 0 | 0 |
| Portable variable message signs | 3 | NR | 0 | 0 | 3 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 |
| *Miles covered* | | | | | | |
| Highway advisory radio | 45 | 80 | 10 | 10 | 55 | 90 |
| In-vehicle signing | 0 | 0 | 0 | 0 | 0 | 0 |
| Portable variable message signs | NR | NR | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ramp Meters on Freeways** | | | | | | |
| Number of entrance ramp meters operated under isolated control | NR | NR | NR | NR | 0 | 0 |
| Number of entrance ramp meters operated under central control | NR | NR | NR | NR | 0 | 0 |
| Number of entrance ramp meters that provide preemption for emergency vehicles | NR | NR | NR | NR | 0 | 0 |
| Number of entrance ramp meters that provide priority for transit vehicles | NR | NR | NR | NR | 0 | 0 |
| Total number of metered ramps | NR | NR | NR | NR | 0 | 0 |
| **Freeway centerline miles under lane control** | NR | NR | NR | NR | 0 | 0 |
| **Communication Links** | | | | | | |
| *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 | 28 | 40 | 0 | 26 | 28 | 66 |
| Microwave radio | 0 | 0 | 26 | 26 | 26 | 26 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 |

Freeway Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | | Totals | |
|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| **ITS Standards Used Related to Freeway Management** | | | | | | |
| ATMS Data Dictionary Sections 1 and 2 (ITE TM 1.01) | No | | No | | 0 | |
| ATMS Data Dictionary Sections 3 and 4 (ITE TM 1.02) | No | | No | | 0 | |
| Message Set for External TMC Communication (ITE-9604-1) | No | | No | | 0 | |
| NTCIP Class B Profile (AASHTO TS 3.3) | No | | No | | 0 | |
| NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM) | No | | No | | 0 | |
| NTCIP Object Definitions for Environmental Sensor Stations (AASHTO TS 3.7) | No | | No | | 0 | |
| NTICP Object Definitions for Dynamic Message Signs (AASHTO TS 3.6) | 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) | No | | No | | 0 | |
| NTICP Object Definitions for Transportation Sensor Systems (AASHTO TS 3.TSS) | No | | No | | 0 | |
| NTICP Object Definitions for Video Camera Control (AASHTO TS 3.VCC) | No | | Yes | | 1 | |
| Would agency be willing to participate in testing of ITS Standards? | Yes | | Yes | | 2 | |
| **Have agreements in place with other agencies to use similar hardware** | | | | | | |
| **and software to aid maintenance and interoperability?** | No | | Yes | | 1 | |
| **INCIDENT MANAGEMENT SECTION** | | | | | | |
| **Use of Service Patrols to Assist in Detection and Response to Incidents** | | | | | | |
| Publicly operated service patrol vehicles | Yes | | Yes | | 2 | |
| Privately operated service patrol vehicles operated under public contract | Yes | | No | | 1 | |
| Total number of freeway miles patrolled by these services | 44 | 44 | 60 | 60 | 104 | 104 |
| **Miles Covered by Methods to Detect and Verify Incidents** | | | | | | |
| Free cellular phone call to a dedicated phone number other than 911 | NR | NR | 60 | 60 | 60 | 60 |
| Police patrols | NR | NR | 60 | 60 | 60 | 60 |
| Computer algorithms linked to traffic surveillance equipment | 25 | 40 | 0 | 50 | 25 | 90 |
| CCTV | 25 | 40 | 10 | 50 | 35 | 90 |
| Private sector sources (e.g., Shadow Traffic, SmartRoutes) | NR | NR | 100 | 300 | 100 | 300 |
| 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 | | Yes | | 2 | |
| Inter-agency incident management admin. team that meets regularly | Yes | | Yes | | 2 | |
| Major incident response team that responds to major incidents | Yes | | No | | 1 | |
| 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 | | Yes | | 1 | |
| The central focal point is a Police, Fire or joint dispatch center | No | | No | | 0 | |
| The central focal point is another center | No | | No | | 0 | |
| **Methods of Communication Used On-Site at an Incident** | | | | | | |
| *Police* | | | | | | |
| Two-way radio | Yes | | Yes | | 2 | |
| 800 MHz trunked radio | No | | No | | 0 | |

Freeway Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

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

Freeway Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | | **Totals** | |
|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| **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 | | Yes | | 2 | |
| **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?** | Yes | | NR | | 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?** | >36 | | >36 | | 0 | |
| **Have policies or procedures for quick removal of vehicles?** | Yes | | Yes | | 2 | |
| **Is Total Station equipment used to investigate major incidents?** | DK | | Yes | | 1 | |
| **Handling of Towing Responses to Incidents** | | | | | | |
| Formal contract based on qualifications? | No | | Yes | | 1 | |
| Rotation with companies under contract? | Yes | | No | | 1 | |
| Separate lists kept for light and heavy response and for specialty recovery? | Yes | | NR | | 1 | |
| Rotation list with minimal qualifications? | Yes | | No | | 1 | |
| **In towing qualifications, do you require towers to be certified under the** | | | | | | |
| **Towing and Recovery Ass. of America's National Drivers Cert. Program?** | 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: Pittsburgh, Beaver Valley

| Agency Name | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| | | | | |
| | | | | |
| Agency Returned Survey? | Yes | | Yes | |
| **Freeway Management Section** | | | | |
| **Agencies your agency provides freeway travel times, speeds, and** | | | | |
| **conditions information, share infrastructure or coordinates operation** | | | | |
| ***Freeway Management Agencies*** | | | | |
| Provide Information | None listed | Pennsylvania Turnpike Commission, Pittsburgh City | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| Share Infrastructure | None listed | None listed | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| Coordinate Operation | None listed | Pittsburgh City | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| ***Incident Management Agencies*** | | | | |
| Provide Information | None listed | Pennsylvania Turnpike Commission, Pittsburgh City | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| Share Infrastructure | None listed | None listed | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| Coordinate Operation | None listed | Pittsburgh City | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| ***Arterial Management Agencies*** | | | | |
| Provide Information | None listed | Pittsburgh City | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | Pittsburgh City | None listed | None listed |

| Agency Name | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| ***Public Transit Operators*** | | | | |
| Provide Information | None listed | Beaver County Transit Authority, Port Authority of Allegheny County | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | None listed | None listed | None listed |
| **Receiving real-time information via electronic means from others** | | | | |
| ***Incident Management agencies from which your agency receives*** | | | | |
| ***incident severity, location, and type information*** | None listed | Pennsylvania Turnpike Commission | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| ***Arterial Management agencies from which your agency receives*** | | | | |
| ***arterial travel times, speeds, and conditions*** | None listed | Pittsburgh City | None listed | None listed |
| ***Public Transit operators from which your agency receives*** | | | | |
| ***freeway travel times derived from vehicle probes*** | None listed | Beaver County Transit Authority, Port Authority of Allegheny County | None listed | None listed |
| ***Toll Collection agencies from which your agency receives freeway travel*** | | | | |
| ***times derived from vehicles probes*** | None listed | Pennsylvania Turnpike Commission-Entire PA Turnpik | Pennsylvania Turnpike Commission-Entire PA Turnpik | Pennsylvania Turnpike Commission-Entire PA Turnpik |
| **Freeway Incident Management Section** | | | | |
| **Agencies your agency provides incident severity, location, and type info.** | | | | |
| **and/or shares infrastructure and/or coordinates operation** | | | | |
| ***Arterial Management Agencies*** | | | | |
| Provide Information | None listed | Pittsburgh City | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | Pittsburgh City | None listed | None listed |
| ***Emergency Management Agencies*** | | | | |
| Provide Information | None listed | Pittsburgh Fire Department, Pittsburgh Police Department | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | Pittsburgh Fire Department, Pittsburgh Police Department | None listed | None listed |

Freeway Management Integration
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| ***Freeway Management Agencies*** | | | | |
| Provide Information | None listed | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| Share Infrastructure | None listed | None listed | Pennsylvania Turnpike Commission | Pennsylvania Turnpike Commission |
| Coordinate Operation | None listed | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |
| ***Public Transit Operators*** | | | | |
| Provide Information | None listed | Beaver County Transit Authority, Port Authority of Allegheny County | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | Beaver County Transit Authority, Port Authority of Allegheny County | None listed | None listed |
| **Receiving real-time information via electronic means from others** | | | | |
| ***Emergency Management agencies from which your agency receives*** | | | | |
| ***incident clearance and/or incident severity and type*** | | | | |
| Receive Arterial Incident Clearance Information | None listed | Pittsburgh Police Department | None listed | None listed |
| Receive Arterial Incident Severity Information | None listed | Pittsburgh Police Department | None listed | None listed |
| ***Arterial Management agencies from which your agency receives*** | | | | |
| ***arterial travel times, speeds, and conditions*** | None listed | Pittsburgh City | None listed | None listed |
| ***Freeway Management agencies from which your agency receives*** | | | | |
| ***freeway travel times, speeds, and conditions*** | None listed | Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission | Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission |

*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: Pittsburgh, Beaver Valley

| Agency Name | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | |
|---|---|---|---|---|
| | **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, Incidents, Current work zones, Scheduled work zones | Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Incidents, Current work zones, Scheduled work zones | Traffic volumes, Vehicle classification, Incidents, Current work zones, Scheduled work zones | Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Probe vehicles, Road conditions, Weather conditions, Incidents, Current work zones, Scheduled work zones |
| Archived by your agency | Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Incidents, Current work zones, Scheduled work zones | Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Incidents, Current work zones, Scheduled work zones | Traffic volumes, Vehicle classification, Incidents, Current work zones, Scheduled work zones | Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Probe vehicles, Road conditions, Weather conditions, Incidents, Current work zones, Scheduled work zones |
| Transferred to another agency by your agency | Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Incidents, Current work zones, Scheduled work zones | Traffic volumes, Traffic speeds, Lane occupancy, Vehicle classification, Incidents, Current work zones, Scheduled work zones | Traffic volumes | Traffic volumes |
| **Importance of making information available to the public** | | | | |
| Ranked High | Traffic speeds, Lane occupancy, Incidents, Current work zones, Scheduled work zones | | Traffic volumes, Traffic speeds, Road conditions, Incidents, Current work zones, Scheduled work zones | |
| Ranked Medium | Traffic volumes, Vehicle classification | | Lane occupancy, Route designations (snow emergency, etc.), Weather conditions, Emergency/evacuation routes and procedures | |

Data Collection and Dissemination: Freeway Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Pennsylvania Department of Transportation | | Pennsylvania Turnpike Commission | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| Ranked Low | NR | | Vehicle classification, Probe vehicles, Ramp queues, Ramp meter preemption's, Metering rate, Intermodal (air, rail, water) connections, Highway operations coordination information | |
| **Groups that make requests for the data** | Media (I.e., TV stations, radio stations), MPOs, Advanced Traveler Information Systems (ATIS) provi | | State DOT personnel, Media (I.e., TV stations, radio stations), Advanced Traveler Information Systems (ATIS) provi | |
| **What is the data used for?** | Incident detection algorithm development, Dissemination to the public | | Dissemination to the public | |
| **Methods used to disseminate freeway information to the public** | | | | |
| Technologies your agency uses to disseminate: | Internet Web sites, Pagers or personal data assistants, Facsimile | Kiosks | NR | NR |
| Technologies your agency (through another agency or org.) uses to disseminate: | NR | NR | NR | NR |
| **Internet web site reporting freeway conditions** | website currently under development | | NR | |
| **Telephone system for reporting freeway information to the public** | NR | | NR | |
| **Organizations your agency sends information for dissemination to the public** | Argus networks inc. ISP | | NR | |
| **Freeway Incident Management Section** | | | | |
| **Methods used to distribute incident location and severity information** | | | | |
| **to the public** | | | | |
| Technologies your agency uses to disseminate: | Pagers or personal data assistants, Cell phone/data, Facsimile | Internet Web sites, Kiosks | Pagers or personal data assistants, E-mail or other direct PC communication, Facsimile | Pagers or personal data assistants, E-mail or other direct PC communication, Facsimile |
| Technologies your agency (through another agency or org.) uses to disseminate: | NR | NR | E-mail or other direct PC communication, Facsimile | E-mail or other direct PC communication, Facsimile |
| **Internet web site reporting incident information** | under design-to be implemented early 2000 | | NR | |
| **Telephone system for reporting incident information to the public** | under design | | NR | |
| **Organizations your agency sends information for dissemination to the public** | Argus Networks - ISP | | I-95, PEMA, PennDOT | |

# Appendix F
# Arterial Management Components

Arterial Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Pennsylvania Department of Transportation | | Pittsburgh City | | Westmoreland County | | **Totals** | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| | | | | | | | | |
| Agency Returned Survey? | Yes | | Yes | | Yes | | 3 | |
| **ARTERIAL MANAGEMENT SECTION** | | | | | | | | |
| Number of arterial miles that agency owns or maintains | NR | | 100 | | NR | | 100 | |
| Number of arterial miles that is used for planning | NR | | 100 | | NR | | 100 | |
| Number of highway-rail intersections that agency maintains | NR | | 20 | | NR | | 20 | |
| Number of highway-rail intersections that is used for planning | NR | | 20 | | NR | | 20 | |
| **Type of facilities used to conduct arterial management activities** | | | | | | | | |
| Activities housed in a free-standing dedicated building? | Yes | | No | | No | | 1 | |
| Activities housed in a building shared with other activities? | No | | No | | No | | 0 | |
| Activities conducted in a dedicated control room? | Yes | | No | | No | | 1 | |
| Control room contains operator console(s)? | Yes | | No | | No | | 1 | |
| Control room contains electronic wall map? | Yes | | No | | No | | 1 | |
| Control room contains CCTV display(s)? | Yes | | No | | No | | 1 | |
| Activities conducted in a room containing workstations or PCs that manage traffic? | Yes | | No | | No | | 1 | |
| Facilities are electronically linked to other transportation mgt facilities? | Yes | | No | | No | | 1 | |
| **Staffing and hours of operation of arterial management activities** | | | | | | | | |
| Number of full-time agency staff members | 2 | | NR | | NR | | 0 | |
| Number of full time contractor staff members | NR | | NR | | NR | | 0 | |
| Number of part-time agency staff members | NR | | NR | | NR | | 0 | |
| Number of part-time contractor staff members | NR | | NR | | NR | | 0 | |
| Staffed 24 hours day by agency staff or by others | NR | | NR | | 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 | | 0 | |
| Agency staff dedicated to transportation management duty | Yes | | No | | No | | 1 | |
| **Types of operations conducted for arterial management** | | | | | | | | |
| Incident detection and management? | Yes | | No | | No | | 1 | |
| This metropolitan area? | Yes | | No | | No | | 1 | |
| Other metropolitan area? | No | | No | | No | | 0 | |
| Monitoring and troubleshooting status of system components? | No | | No | | No | | 0 | |
| Radio communications with other agencies? | Yes | | No | | 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 | Yes | | No | | No | | 1 | |
| Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.) | Yes | | No | | No | | 1 | |
| **Describe agency's role in traffic signal control** | Do not operate | | All roads in incorporated area | | NR | | | |
| **Traffic Signals Operated by Agency** | | | | | | | | |

Arterial Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Pennsylvania Department of Transportation | | Pittsburgh City | | Westmoreland County | | **Totals** | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| Number of signalized intersections operated and owned by agency | NR | NR | NR | NR | NR | NR | 0 | 0 |
| Number of signalized intersections operated by agency but owned by another | NR | NR | NR | NR | NR | NR | 0 | 0 |
| Total number of signalized intersections operated by agency | NR | NR | 589 | NR | 2 | 2 | 591 | 2 |
| *Characteristics of signalized intersections that agency operates* | | | | | | | | |
| Under closed loop or central system control | NR | NR | 117 | NR | 2 | 2 | 119 | 2 |
| Under real-time traffic adaptive control using advanced software | NR | NR | 0 | NR | 0 | 0 | 0 | 0 |
| Using SCOOT | No | | No | | No | | 0 | |
| Using SCATS | No | | No | | No | | 0 | |
| Name of software | NR | | NR | | NR | | | |
| Allow signal preemption for emergency vehicles | NR | NR | 0 | NR | 0 | 0 | 0 | 0 |
| Allow signal priority for transit vehicles | NR | NR | 5 | NR | 0 | 0 | 5 | 0 |
| Within 200 feet of a highway-rail intersection | NR | NR | 0 | NR | 0 | 0 | 0 | 0 |
| Within 200 feet of a highway-rail intersection that adjust signal timing | NR | NR | 0 | NR | 0 | 0 | 0 | 0 |
| **Software used to control the signals agency operates** | | | | | | | | |
| Date of last upgrade to traffic signal control system software? | NR | | NR | | NR | | | |
| How often do you update signal timing? | NR | | NR | | NR | | | |
| Software used and number of signalized intersections under control (1999, 2005) | NR | | NR | | NR | | | |
| **Controllers used to control signals** | | | | | | | | |
| NEMA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 170/179 | 0 | 0 | 250 | NR | 0 | 0 | 250 | 0 |
| 2070 controller | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 330 | 0 | 0 | 0 | 330 | 0 |
| **Technologies Associated with Highway-Rail Intersections** | | | | | | | | |
| Total number of highway-rail intersections under electronic surveillance | NR | NR | NR | NR | NR | NR | 0 | 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 | 0 | 0 |
| Ability to predict train arrival electronically | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Equipped with electronic traffic violator devices | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Real-Time Electronic Traffic Data Collection Technologies** | | | | | | | | |
| Total number of signalized intersections covered by electronic surveillance | NR | NR | 0 | 45 | NR | NR | 0 | 45 |
| *Number of signalized intersections with data collection technologies* | | | | | | | | |
| Loop detectors | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 45 |
| Video detection cameras | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Probe readers reading toll tags | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Probe readers reading license plates | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Roadside Technologies used to Distribute Traveler Information** | | | | | | | | |
| *Number deployed* | | | | | | | | |
| Highway Advisory Radio | 3 | 7 | NR | NR | NR | NR | 3 | 7 |

Arterial Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Pennsylvania Department of Transportation | | Pittsburgh City | | Westmoreland County | | **Totals** | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| 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 | 15 | 60 | NR | NR | NR | NR | 15 | 60 |
| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Coaxial cable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fiber-optic cable | 0 | 0 | 93 | 93 | 0 | 0 | 93 | 93 |
| Other (e.g., wireless, dial-up modems, leased lines, etc.) | 0 | 0 | 20 | 20 | 0 | 0 | 20 | 20 |
| **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 | | No | | NR | | 1 | |
| **Have agreements in place with other agencies to use similar hardware** | | | | | | | | |
| **and software to aid maintenance and interoperability?** | No | | No | | NR | | 0 | |
| **INCIDENT MANAGEMENT ON ARTERIAL STREETS** | | | | | | | | |
| **Receive information on highway-rail intersection crossing blockages for** | | | | | | | | |
| **the purpose of managing incident response?** | No | | No | | No | | 0 | |
| **Use of Service Patrols to Assist in Detection and Response to Incidents** | | | | | | | | |
| Publicly operated service patrol vehicles | No | | No | | No | | 0 | |
| Privately operated service patrol vehicles operated under public contract | No | | No | | No | | 0 | |
| Total number of arterial miles patrolled by these services | NR | NR | NR | NR | NR | NR | 0 | 0 |
| **Miles Covered by Methods to Detect and Verify Incidents** | | | | | | | | |
| Free cellular phone call to a dedicated phone number other than 911 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Free cellular phone call to an area radio station | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Police patrols | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Computer algorithms linked to traffic surveillance equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CCTV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Pennsylvania Department of Transportation | | Pittsburgh City | | Westmoreland County | | **Totals** | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| Private sector sources (e.g., Shadow Traffic, Smart Routes) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 3 | 5 | 0 | 0 | 0 | 0 | 3 | 5 |
| **Procedures in place for Arterial Incident Response?** | | | | | | | | |
| Working agreement(s)/arrangement(s) with other agencies | No | | No | | No | | 0 | |
| Inter-agency incident management admin. team that meets regularly | No | | No | | No | | 0 | |
| Major incident response team that responds to major incidents | No | | No | | No | | 0 | |
| Set of goals/objectives for incident mgt that has been adopted by agencies in region | No | | No | | No | | 0 | |
| **Methods of Communication Used On-Site at an Incident** | | | | | | | | |
| *Police* | | | | | | | | |
| Two-way radio | No | | No | | No | | 0 | |
| 800 MHz trunked radio | No | | No | | No | | 0 | |
| Cellular telephone | No | | No | | No | | 0 | |
| Hand-held (i.e., walkie-talkie) | No | | No | | No | | 0 | |
| Automated data systems (i.e., CAD) | No | | No | | No | | 0 | |
| Other | No | | No | | No | | 0 | |
| *Fire* | | | | | | | | |
| Two-way radio | No | | No | | No | | 0 | |
| 800 MHz trunked radio | No | | No | | No | | 0 | |
| Cellular telephone | No | | No | | No | | 0 | |
| Hand-held (i.e., walkie-talkie) | No | | No | | No | | 0 | |
| Automated data systems (i.e., CAD) | No | | No | | No | | 0 | |
| Other | No | | No | | No | | 0 | |
| *DOT* | | | | | | | | |
| Two-way radio | No | | No | | No | | 0 | |
| 800 MHz trunked radio | No | | No | | No | | 0 | |
| Cellular telephone | No | | No | | No | | 0 | |
| Hand-held (i.e., walkie-talkie) | No | | No | | No | | 0 | |
| Automated data systems (i.e., CAD) | No | | No | | No | | 0 | |
| Other | No | | No | | No | | 0 | |
| *Towing* | | | | | | | | |
| Two-way radio | No | | No | | No | | 0 | |
| 800 MHz trunked radio | No | | No | | No | | 0 | |
| Cellular telephone | No | | No | | No | | 0 | |
| Hand-held (i.e., walkie-talkie) | No | | No | | No | | 0 | |
| Automated data systems (i.e., CAD) | No | | No | | No | | 0 | |
| Other | No | | No | | No | | 0 | |
| **Which police agencies typically respond to incidents on arterials?** | | | | | | | | |
| State Police | No | | No | | No | | 0 | |

Arterial Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

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

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

# Appendix G
# Arterial Management Integration

Arterial Management Integration
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Pennsylvania Department of Transportation | | Pittsburgh City | | Westmoreland County | |
|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| Agency Returned Survey? | Yes | | Yes | | Yes | |
| **Arterial Management Section** | | | | | | |
| **Arterial Mgt. agencies in metropolitan area with which you share info.** | | | | | | |
| Share Timing Plans Information | None listed | Pittsburgh City | None listed | None listed | None listed | None listed |
| Coordinate Changes to Timing Plans | None listed | Pittsburgh City | None listed | None listed | None listed | None listed |
| Turn over Control of Signals | None listed | None listed | 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 | None listed | None listed | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | None listed | None listed | None listed | None listed | None listed |
| ***Incident Management Agencies*** | | | | | | |
| Provide Information | None listed | None listed | None listed | None listed | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | None listed | None listed | None listed | None listed | None listed |
| ***Public Transit Operators Agencies*** | | | | | | |
| Provide Information | None listed | None listed | None listed | None listed | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | None listed | None listed | None listed | None listed | None listed |
| ***Arterial Management Agencies*** | | | | | | |
| Provide Information | None listed | Pittsburgh City | None listed | None listed | None listed | None listed |
| Share Infrastructure | None listed | Pittsburgh City | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | Pittsburgh City | 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 | None listed | None listed |
| ***Public Transit operators from which your agency receives*** | | | | | | |
| ***arterial travel times derived from vehicle probes*** | None listed | None listed | None listed | None listed | None listed | None listed |
| ***Incident Management agencies from which your agency receives*** | | | | | | |
| ***incident clearance and/or incident severity, location, and type information*** | | | | | | |
| Receive information on Incident Clearance | None listed | None listed | None listed | None listed | None listed | None listed |
| Receive information on Incident Severity, Location, and Type | None listed | None listed | None listed | None listed | None listed | None listed |
| ***Toll Collection agencies from which your agency receives arterial travel*** | | | | | | |
| ***times derived from vehicles probes*** | None listed | None listed | None listed | None listed | None listed | None listed |
| **Arterial Incident Management Section** | | | | | | |
| **Agencies your agency provides incident severity, location, and type info.** | | | | | | |
| **and/or shares infrastructure and/or coordinates operation** | | | | | | |

Arterial Management Integration
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Pennsylvania Department of Transportation | | Pittsburgh City | | Westmoreland County | |
|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| ***Emergency Management Agencies*** | | | | | | |
| Provide Information | None listed | None listed | None listed | None listed | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | None listed | None listed | None listed | None listed | None listed |
| ***Freeway Management Agencies*** | | | | | | |
| Provide Information | None listed | None listed | None listed | None listed | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | None listed | None listed | None listed | None listed | None listed |
| ***Public Transit Operators*** | | | | | | |
| Provide Information | None listed | None listed | None listed | None listed | None listed | None listed |
| Share Infrastructure | None listed | None listed | None listed | None listed | None listed | None listed |
| Coordinate Operation | None listed | None listed | None listed | None listed | None listed | None listed |
| **Receiving real-time information via electronic means from others** | | | | | | |
| ***Emergency Management agencies from which your agency receives*** | | | | | | |
| ***arterial incident clearance and/or arterial incident severity*** | | | | | | |
| Receive Arterial Incident Clearance Information | None listed | None listed | None listed | None listed | None listed | None listed |
| Receive Arterial Incident Severity Information | None listed | None listed | None listed | None listed | None listed | None listed |
| ***Arterial Management agencies from which your agency receives*** | | | | | | |
| ***arterial travel times, speeds, and conditions*** | None listed | None listed | 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 | 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: Pittsburgh, Beaver Valley

| Agency Name | Pennsylvania Department of Transportation | | Pittsburgh City | | Westmoreland County | |
|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| | | | | | | |
| Agency Returned Survey? | Yes | | Yes | | Yes | |
| **Arterial Management Section** | | | | | | |
| **Data collected, archived, and/or transferred to another agency** | | | | | | |
| Collected by your agency | NR | NR | Traffic volumes, Current work zones, Scheduled work zones | NR | NR | NR |
| Archived by your agency | NR | NR | Current work zones, Scheduled work zones | NR | NR | NR |
| Transferred to another agency by your agency | NR | NR | NR | NR | NR | NR |
| **Importance of making information available to the public** | | | | | | |
| Ranked High | NR | | NR | | NR | |
| Ranked Medium | NR | | Current work zones, Scheduled work zones | | NR | |
| Ranked Low | NR | | Traffic volumes | | NR | |
| **Groups that make requests for the data** | NR | | State DOT personnel, Media (I.e., TV stations, radio stations), Consultants, Developers | | NR | |
| **What is the data used for?** | NR | | Traffic analysis, Planning, Dissemination to the public | | NR | |
| **Methods used to disseminate arterial information to the public** | | | | | | |
| Technologies your agency uses to disseminate: | NR | NR | NR | NR | NR | NR |
| Technologies your agency (through another agency or org.) uses to disseminate: | NR | NR | NR | NR | NR | NR |
| **Internet web site reporting arterial conditions** | NR | | NR | | NR | |
| **Telephone system for reporting arterial information to the public** | NR | | NR | | NR | |
| **Organizations your agency sends information for dissemination to the public** | NR | | 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 | NR | NR |
| Technologies your agency (through another agency or org.) uses to disseminate: | NR | NR | NR | NR | NR | NR |
| **Internet web site reporting incident information** | NR | | NR | | NR | |
| **Telephone system for reporting incident information to the public** | NR | | NR | | NR | |
| **Organizations your agency sends information for dissemination to the public** | NR | | NR | | NR | |

# Appendix I
# Transit Management Components

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Access Transportation Systems Incorporated | | Beaver County Transit Authority | | G G & C Bus Company Incorporated | | Port Authority of Allegheny County | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| **Agency Returned Survey?** | Yes | | Yes | | Yes | | Yes | |
| **Number of vehicles used in revenue service** | | | | | | | | |
| Fixed Route Bus | NR | NR | 14 | 22 | 4 | 5 | 940 | 985 |
| Heavy or Rapid Rail | NR | NR | 0 | 0 | 0 | 0 | 0 | 0 |
| Light Rail | NR | NR | 0 | 0 | 0 | 0 | 59 | 83 |
| Demand Responsive | NR | NR | 25 | 30 | 19 | 22 | 170 | 180 |
| Commuter Rail | NR | NR | 0 | 0 | NR | NR | 0 | 0 |
| Ferry Boat | NR | NR | 0 | 0 | NR | NR | 0 | 0 |
| **Have of plan to have an Automated Vehicle Location System?** | Yes | | Yes | | No | | No | |
| **Primary and Secondary Location Technologies Used** | | | | | | | | |
| *Primary Technologies* | | | | | | | | |
| GPS | No | No | No | No | No | No | No | No |
| Sign/Odometer | No | No | No | No | No | No | No | No |
| Dead-Reckoning | No | No | No | No | No | No | No | No |
| LORAN C | No | No | Yes | No | No | No | No | No |
| Other | Yes | No | No | Yes | No | No | No | No |
| *Backup Technologies* | | | | | | | | |
| GPS | No | No | No | No | No | No | No | No |
| Sign/Odometer | No | No | No | No | No | No | No | No |
| Dead-Reckoning | No | No | No | Yes | No | No | No | No |
| LORAN C | No | No | No | No | No | No | No | No |
| Other | Yes | No | No | No | No | No | No | No |
| **Number of Vehicles Equipped with AVL** | | | | | | | | |
| Fixed Route Bus | NR | NR | 14 | 22 | NR | NR | NR | NR |
| Heavy or Rapid Rail | NR | NR | 0 | 0 | NR | NR | NR | NR |
| Light Rail | NR | NR | 0 | 0 | NR | NR | NR | NR |
| Demand Responsive | 6 | 100 | 0 | 30 | NR | NR | NR | NR |
| Commuter Rail | NR | NR | 0 | 0 | NR | NR | NR | NR |
| Ferry Boat | NR | NR | 0 | 0 | NR | NR | NR | NR |
| **Motor Buses Operated as Vehicle Probes** | | | | | | | | |
| Number of Motor Buses equipped as probes on freeways? | NR | | NR | | NR | | NR | |
| Number of Motor Buses equipped as probes on arterials? | NR | | NR | | NR | | NR | |
| **Have Organized Regional Incident Management Program?** | No | | No | | No | | No | |
| **Have Automated Traveler Information System?** | No | | No | | No | | Yes | |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Access Transportation Systems Incorporated | | Beaver County Transit Authority | | G G & C Bus Company Incorporated | | Port Authority of Allegheny County | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| *Services Automated Traveler Info. System Applies:* | | | | | | | | |
| Fixed Route | No | | No | | No | | Yes | |
| Heavy Rail | No | | No | | No | | No | |
| Light Rail | No | | No | | No | | Yes | |
| Demand Responsive | No | | No | | No | | No | |
| Commuter Rail | No | | No | | No | | No | |
| Ferry | No | | No | | No | | No | |
| **Locations where traveler information is displayed to public** | | | | | | | | |
| Number of bus stops on fixed transit routes | NR | NR | NR | NR | NR | NR | NR | NR |
| Bus stops on fixed transit routes that display traveler info to the public | NR | NR | NR | NR | NR | NR | NR | NR |
| Number of rail stations | NR | NR | NR | NR | NR | NR | NR | 11 |
| Number of rail stations that display traveler information | NR | NR | NR | NR | NR | NR | 11 | NR |
| Number of other locations that display traveler information to public | NR | NR | NR | NR | NR | NR | NR | 11 |
| **Number of vehicles the traveler information system has available** | | | | | | | | |
| Fixed Route Bus | NR | NR | NR | NR | NR | NR | NR | NR |
| Heavy or Rapid Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive | NR | NR | NR | NR | NR | NR | NR | NR |
| Commuter Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat | NR | NR | NR | NR | NR | NR | NR | NR |
| **Deployment of Communications Technology** | | | | | | | | |
| *Attributes of Radio System:* | | | | | | | | |
| Digital? | No | | No | | No | | No | |
| Analog? | Yes | | Yes | | Yes | | Yes | |
| Trunked? | No | | No | | No | | No | |
| Regular? | Yes | | Yes | | Yes | | Yes | |
| **Services that use a Digital or Trunked Radio System** | | | | | | | | |
| *Digital Only* | | | | | | | | |
| Fixed Route Bus | No | No | No | No | No | No | No | No |
| Heavy or Rapid Rail | No | No | No | No | No | No | No | No |
| Light Rail | No | No | No | No | No | No | No | No |
| Demand Responsive | No | No | No | No | No | No | No | No |
| Commuter Rail | No | No | No | No | No | No | No | No |
| Ferry Boat | No | No | No | No | No | No | No | No |
| *Trunked Only* | | | | | | | | |
| Fixed Route Bus | No | No | No | No | No | No | No | No |
| Heavy or Rapid Rail | No | No | No | No | No | No | No | No |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Access Transportation Systems Incorporated | | Beaver County Transit Authority | | G G & C Bus Company Incorporated | | Port Authority of Allegheny County | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| Light Rail | No | No | No | No | No | No | No | No |
| Demand Responsive | No | No | No | No | No | No | No | No |
| Commuter Rail | No | No | No | No | No | No | No | No |
| Ferry Boat | No | No | No | No | No | No | No | No |
| **Have of plan to have Automatic Passenger Counters (APCs)?** | No | | No | | No | | No | |
| **Methods used to count passengers** | | | | | | | | |
| Treadle Mats | No | | No | | No | | No | |
| Infrared Beams | No | | No | | No | | No | |
| **Primary and Secondary Location Technologies Used** | | | | | | | | |
| *Primary Technologies* | | | | | | | | |
| GPS | No | No | No | No | No | No | No | No |
| Differential GPS | No | No | No | No | No | No | No | No |
| Signpost/Odometer | No | No | No | No | No | No | No | No |
| Dead_Reckoning | No | No | No | No | No | No | No | No |
| LORAN C | No | No | No | No | No | No | No | No |
| Other | No | No | No | No | No | No | No | No |
| *Backup Technologies* | | | | | | | | |
| GPS | No | No | No | No | No | No | No | No |
| Differential GPS | No | No | No | No | No | No | No | No |
| Signpost/Odometer | No | No | No | No | No | No | No | No |
| Dead_Reckoning | No | No | No | No | No | No | No | No |
| LORAN C | No | No | No | No | No | No | No | No |
| Other | No | No | No | No | No | No | No | No |
| **Number of Vehicles with APCs** | | | | | | | | |
| Fixed Route Bus | NR | NR | NR | NR | NR | NR | NR | NR |
| Heavy or Rapid Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive | NR | NR | NR | NR | NR | NR | NR | NR |
| Commuter Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat | NR | NR | NR | NR | NR | NR | NR | NR |
| **Remote Real-Time Monitoring and Computer Assisted Dispatching** | | | | | | | | |
| *Remote Real-Time Monitoring* | | | | | | | | |
| Fixed Route Bus | NR | NR | NR | NR | NR | NR | NR | NR |
| Heavy or Rapid Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive | NR | NR | NR | NR | NR | NR | NR | NR |
| Commuter Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat | NR | NR | NR | NR | NR | NR | NR | NR |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Access Transportation Systems Incorporated | | Beaver County Transit Authority | | G G & C Bus Company Incorporated | | Port Authority of Allegheny County | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| *Automated Dispatching or Control Software* | | | | | | | | |
| Fixed Route Bus | NR | NR | NR | NR | NR | 5 | NR | NR |
| Heavy or Rapid Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive | 12 | 100 | NR | NR | NR | 22 | NR | NR |
| Commuter Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat | NR | NR | NR | NR | NR | NR | NR | NR |
| **Coordinate or plan to coordinate travel request and vehicle** | | | | | | | | |
| **dispatching for multiple agencies?** | Yes | | No | | No | | No | |
| **Is there or will there be a Transportation Management Center** | | | | | | | | |
| **(TMC) in the region that controls transit and highway modes?** | NR | | NR | | NR | | Yes | |
| Modes that TMC currently controls: | | | | | | | | |
| Highways | No | No | No | No | No | No | No | Yes |
| Fixed Route Bus | No | No | No | No | No | No | No | No |
| Heavy or Rapid Rail | No | No | No | No | No | No | No | No |
| Light Rail | No | No | No | No | No | No | No | No |
| Demand Responsive | No | No | No | No | No | No | No | No |
| Commuter Rail | No | No | No | No | No | No | No | No |
| Ferry Boat | No | No | No | No | No | No | No | No |
| Other | No | No | No | No | No | No | No | No |
| **Priority at Traffic Signals and Ramp Meter Priority** | | | | | | | | |
| *Priority at Traffic Signals* | | | | | | | | |
| Fixed Route Bus | NR | NR | NR | NR | NR | NR | 28 | NR |
| Light Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive | NR | NR | NR | NR | NR | NR | NR | NR |
| *Ramp Meter Priority* | | | | | | | | |
| Fixed Route Bus | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive | NR | NR | NR | NR | NR | NR | NR | NR |
| **Number of Vehicles Equipped with Navigation Aids** | | | | | | | | |
| Fixed Route Bus | NR | NR | NR | NR | NR | NR | NR | NR |
| Heavy or Rapid Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive | NR | NR | NR | NR | NR | NR | NR | NR |
| Commuter Rail | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat | NR | NR | NR | NR | NR | NR | NR | NR |
| **ITS Standards Used Related to Transit Management** | | | | | | | | |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Access Transportation Systems Incorporated | | Beaver County Transit Authority | | G G & C Bus Company Incorporated | | Port Authority of Allegheny County | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| TCIP On Boad Objects (TCIP-OB) | No | | No | | No | | Yes | |
| TCIP Traffic Management Objects (TCIP-TM) | No | | No | | No | | No | |
| TCIP Common Public Transportation Objects (TCIP-CPT) | No | | No | | No | | Yes | |
| TCIP Passenger Information Objects (TCIP-PI) | No | | No | | No | | Yes | |
| TCIP Incident Management Objects (TCIP-IM) | No | | No | | No | | Yes | |
| TCIP Fare Collection Objects (TCIP-FC) | No | | No | | No | | No | |
| TCIP Spatial Representation Objects (TCIP-SP) | No | | No | | No | | Yes | |
| TCIP Control Center Objects (TCIP-CC) | No | | No | | No | | No | |
| TCIP Scheduling/Runcutting Objects (TCIP-SCH) | No | | No | | No | | Yes | |
| Send data communication between micro computer and heavy duty | | | | | | | | |
| vehicle applications (SAE J1708) | No | | No | | No | | No | |
| Would agency be willing to participate in testing of ITS Standards? | Yes | | Yes | | No | | Yes | |
| Have agreements in place with other agencies to use similar hardware | | | | | | | | |
| and software to aid maintenance and interoperability? | No | | No | | No | | Yes | |
| **Electronic Fare Payment** | | | | | | | | |
| **Have full operational Electronic Fare Payment System?** | No | | Yes | | No | | No | |
| Methods of Fare Payment | | | | | | | | |
| *Stored value card with fare deducted for each trip* | | | | | | | | |
| Magnetic Stripe | No | | Yes | | No | | No | |
| Smart Card | No | | No | | No | | No | |
| Debit Card | No | | No | | No | | No | |
| *Billed by the month for trips taken* | | | | | | | | |
| Magnetic Stripe | No | | No | | No | | No | |
| Smart Card | No | | No | | No | | No | |
| Credit Card | No | | No | | No | | No | |
| *Monthly Pass* | | | | | | | | |
| Magnetic Stripe | No | | No | | No | | No | |
| Smart Card | No | | No | | No | | No | |
| Vehicles/Stations Equipped with Automated Payment Mechanism | | | | | | | | |
| *Magnetic Stripe Readers* | | | | | | | | |
| Fixed Route Bus Vehicles | NR | NR | 14 | 22 | NR | NR | NR | NR |
| Heavy or Rapid Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive Vehicles | NR | NR | NR | NR | NR | NR | NR | NR |
| Commuter Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat Landings | NR | NR | NR | NR | NR | NR | NR | NR |
| *Smart Card Readers* | | | | | | | | |
| Fixed Route Bus Vehicles | NR | NR | 0 | 22 | NR | NR | NR | NR |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Access Transportation Systems Incorporated | | Beaver County Transit Authority | | G G & C Bus Company Incorporated | | Port Authority of Allegheny County | |
|---|---|---|---|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** | **1999** | **2005** |
| Heavy or Rapid Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive Vehicles | NR | NR | NR | NR | NR | NR | NR | NR |
| Commuter Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat Landings | NR | NR | NR | NR | NR | NR | NR | NR |
| *Credit Card* | | | | | | | | |
| Fixed Route Bus Vehicles | NR | NR | NR | NR | NR | NR | NR | NR |
| Heavy or Rapid Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive Vehicles | NR | NR | NR | NR | NR | NR | NR | NR |
| Commuter Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat Landings | NR | NR | NR | NR | NR | NR | NR | NR |
| *Debit Card* | | | | | | | | |
| Fixed Route Bus Vehicles | NR | NR | NR | NR | NR | NR | NR | NR |
| Heavy or Rapid Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Light Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Demand Responsive Vehicles | NR | NR | NR | NR | NR | NR | NR | NR |
| Commuter Rail Stations | NR | NR | NR | NR | NR | NR | NR | NR |
| Ferry Boat Landings | NR | NR | NR | NR | NR | NR | NR | NR |
| | | | | | | | | |
| _____ | | | | | | | | |
| NR: No Response | | | | | | | | |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Westmoreland County Transit | | Totals | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| **Agency Returned Survey?** | Yes | | 5 | |
| **Number of vehicles used in revenue service** | | | | |
| Fixed Route Bus | 27 | 33 | 985 | 1045 |
| Heavy or Rapid Rail | 0 | 0 | 0 | 0 |
| Light Rail | 0 | 0 | 59 | 83 |
| Demand Responsive | 4 | 6 | 218 | 238 |
| Commuter Rail | NR | NR | 0 | 0 |
| Ferry Boat | NR | NR | 0 | 0 |
| **Have of plan to have an Automated Vehicle Location System?** | No | | 2 | |
| **Primary and Secondary Location Technologies Used** | | | | |
| *Primary Technologies* | | | | |
| GPS | No | No | 0 | 0 |
| Sign/Odometer | No | No | 0 | 0 |
| Dead-Reckoning | No | No | 0 | 0 |
| LORAN C | No | No | 1 | 0 |
| Other | No | No | 1 | 1 |
| *Backup Technologies* | | | | |
| GPS | No | No | 0 | 0 |
| Sign/Odometer | No | No | 0 | 0 |
| Dead-Reckoning | No | No | 0 | 1 |
| LORAN C | No | No | 0 | 0 |
| Other | No | No | 1 | 0 |
| **Number of Vehicles Equipped with AVL** | | | | |
| Fixed Route Bus | NR | NR | 14 | 22 |
| Heavy or Rapid Rail | NR | NR | 0 | 0 |
| Light Rail | NR | NR | 0 | 0 |
| Demand Responsive | NR | NR | 6 | 130 |
| Commuter Rail | NR | NR | 0 | 0 |
| Ferry Boat | NR | NR | 0 | 0 |
| **Motor Buses Operated as Vehicle Probes** | | | | |
| Number of Motor Buses equipped as probes on freeways? | NR | | 0 | |
| Number of Motor Buses equipped as probes on arterials? | NR | | 0 | |
| **Have Organized Regional Incident Management Program?** | No | | 0 | |
| **Have Automated Traveler Information System?** | No | | 1 | |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Westmoreland County Transit | | Totals | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| *Services Automated Traveler Info. System Applies:* | | | | |
| Fixed Route | No | | 1 | |
| Heavy Rail | No | | 0 | |
| Light Rail | No | | 1 | |
| Demand Responsive | No | | 0 | |
| Commuter Rail | No | | 0 | |
| Ferry | No | | 0 | |
| **Locations where traveler information is displayed to public** | | | | |
| Number of bus stops on fixed transit routes | NR | NR | 0 | 0 |
| Bus stops on fixed transit routes that display traveler info to the public | NR | NR | 0 | 0 |
| Number of rail stations | NR | NR | 0 | 11 |
| Number of rail stations that display traveler information | NR | NR | 11 | 0 |
| Number of other locations that display traveler information to public | NR | NR | 0 | 11 |
| **Number of vehicles the traveler information system has available** | | | | |
| Fixed Route Bus | NR | NR | 0 | 0 |
| Heavy or Rapid Rail | NR | NR | 0 | 0 |
| Light Rail | NR | NR | 0 | 0 |
| Demand Responsive | NR | NR | 0 | 0 |
| Commuter Rail | NR | NR | 0 | 0 |
| Ferry Boat | NR | NR | 0 | 0 |
| **Deployment of Communications Technology** | | | | |
| *Attributes of Radio System:* | | | | |
| Digital? | No | | 0 | |
| Analog? | No | | 4 | |
| Trunked? | No | | 0 | |
| Regular? | No | | 4 | |
| **Services that use a Digital or Trunked Radio System** | | | | |
| *Digital Only* | | | | |
| Fixed Route Bus | No | No | 0 | 0 |
| Heavy or Rapid Rail | No | No | 0 | 0 |
| Light Rail | No | No | 0 | 0 |
| Demand Responsive | No | No | 0 | 0 |
| Commuter Rail | No | No | 0 | 0 |
| Ferry Boat | No | No | 0 | 0 |
| *Trunked Only* | | | | |
| Fixed Route Bus | No | No | 0 | 0 |
| Heavy or Rapid Rail | No | No | 0 | 0 |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

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

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Westmoreland County Transit | | Totals | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| *Automated Dispatching or Control Software* | | | | |
| Fixed Route Bus | NR | NR | 0 | 5 |
| Heavy or Rapid Rail | NR | NR | 0 | 0 |
| Light Rail | NR | NR | 0 | 0 |
| Demand Responsive | NR | NR | 12 | 122 |
| Commuter Rail | NR | NR | 0 | 0 |
| Ferry Boat | NR | NR | 0 | 0 |
| **Coordinate or plan to coordinate travel request and vehicle** | | | | |
| **dispatching for multiple agencies?** | No | | 1 | |
| **Is there or will there be a Transportation Management Center** | | | | |
| **(TMC) in the region that controls transit and highway modes?** | NR | | 1 | |
| Modes that TMC currently controls: | | | | |
| Highways | No | No | 0 | 1 |
| Fixed Route Bus | No | No | 0 | 0 |
| Heavy or Rapid Rail | No | No | 0 | 0 |
| Light Rail | No | No | 0 | 0 |
| Demand Responsive | No | No | 0 | 0 |
| Commuter Rail | No | No | 0 | 0 |
| Ferry Boat | No | No | 0 | 0 |
| Other | No | No | 0 | 0 |
| **Priority at Traffic Signals and Ramp Meter Priority** | | | | |
| *Priority at Traffic Signals* | | | | |
| Fixed Route Bus | NR | NR | 28 | 0 |
| Light Rail | NR | NR | 0 | 0 |
| Demand Responsive | NR | NR | 0 | 0 |
| *Ramp Meter Priority* | | | | |
| Fixed Route Bus | NR | NR | 0 | 0 |
| Demand Responsive | NR | NR | 0 | 0 |
| **Number of Vehicles Equipped with Navigation Aids** | | | | |
| Fixed Route Bus | NR | NR | 0 | 0 |
| Heavy or Rapid Rail | NR | NR | 0 | 0 |
| Light Rail | NR | NR | 0 | 0 |
| Demand Responsive | NR | NR | 0 | 0 |
| Commuter Rail | NR | NR | 0 | 0 |
| Ferry Boat | NR | NR | 0 | 0 |
| **ITS Standards Used Related to Transit Management** | | | | |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Westmoreland County Transit | | Totals | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| TCIP On Boad Objects (TCIP-OB) | No | | 1 | |
| TCIP Traffic Management Objects (TCIP-TM) | No | | 0 | |
| TCIP Common Public Transportation Objects (TCIP-CPT) | No | | 1 | |
| TCIP Passenger Information Objects (TCIP-PI) | No | | 1 | |
| TCIP Incident Management Objects (TCIP-IM) | No | | 1 | |
| TCIP Fare Collection Objects (TCIP-FC) | No | | 0 | |
| TCIP Spatial Representation Objects (TCIP-SP) | No | | 1 | |
| TCIP Control Center Objects (TCIP-CC) | No | | 0 | |
| TCIP Scheduling/Runcutting Objects (TCIP-SCH) | No | | 1 | |
| Send data communication between micro computer and heavy duty | | | | |
| vehicle applications (SAE J1708) | No | | 0 | |
| Would agency be willing to participate in testing of ITS Standards? | No | | 3 | |
| Have agreements in place with other agencies to use similar hardware | | | | |
| and software to aid maintenance and interoperability? | No | | 1 | |
| **Electronic Fare Payment** | | | | |
| **Have full operational Electronic Fare Payment System?** | No | | 1 | |
| Methods of Fare Payment | | | | |
| *Stored value card with fare deducted for each trip* | | | | |
| Magnetic Stripe | No | | 1 | |
| Smart Card | No | | 0 | |
| Debit Card | No | | 0 | |
| *Billed by the month for trips taken* | | | | |
| Magnetic Stripe | No | | 0 | |
| Smart Card | No | | 0 | |
| Credit Card | No | | 0 | |
| *Monthly Pass* | | | | |
| Magnetic Stripe | No | | 0 | |
| Smart Card | No | | 0 | |
| Vehicles/Stations Equipped with Automated Payment Mechanism | | | | |
| *Magnetic Stripe Readers* | | | | |
| Fixed Route Bus Vehicles | NR | NR | 14 | 22 |
| Heavy or Rapid Rail Stations | NR | NR | 0 | 0 |
| Light Rail Stations | NR | NR | 0 | 0 |
| Demand Responsive Vehicles | NR | NR | 0 | 0 |
| Commuter Rail Stations | NR | NR | 0 | 0 |
| Ferry Boat Landings | NR | NR | 0 | 0 |
| *Smart Card Readers* | | | | |
| Fixed Route Bus Vehicles | NR | NR | 0 | 22 |

Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Westmoreland County Transit | | Totals | |
|---|---|---|---|---|
| | **1999** | **2005** | **1999** | **2005** |
| Heavy or Rapid Rail Stations | NR | NR | 0 | 0 |
| Light Rail Stations | NR | NR | 0 | 0 |
| Demand Responsive Vehicles | NR | NR | 0 | 0 |
| Commuter Rail Stations | NR | NR | 0 | 0 |
| Ferry Boat Landings | NR | NR | 0 | 0 |
| *Credit Card* | | | | |
| Fixed Route Bus Vehicles | NR | NR | 0 | 0 |
| Heavy or Rapid Rail Stations | NR | NR | 0 | 0 |
| Light Rail Stations | NR | NR | 0 | 0 |
| Demand Responsive Vehicles | NR | NR | 0 | 0 |
| Commuter Rail Stations | NR | NR | 0 | 0 |
| Ferry Boat Landings | NR | NR | 0 | 0 |
| *Debit Card* | | | | |
| Fixed Route Bus Vehicles | NR | NR | 0 | 0 |
| Heavy or Rapid Rail Stations | NR | NR | 0 | 0 |
| Light Rail Stations | NR | NR | 0 | 0 |
| Demand Responsive Vehicles | NR | NR | 0 | 0 |
| Commuter Rail Stations | NR | NR | 0 | 0 |
| Ferry Boat Landings | NR | NR | 0 | 0 |
| | | | | |
| _____ | | | | |
| NR: No Response | | | | |

# Appendix J
# Transit Management Integration

Transit Management Integration
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

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

Transit Management Integration
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

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

Transit Management Integration
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

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

# Appendix K
# Transit Management Information Collection and Dissemination

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Access Transportation Systems Incorporated | |
|---|---|---|
| | **1999** | **2005** |
| | | |
| Agency Returned Survey? | Yes | |
| **Methods used to disseminate transit information to the public** | | |
| **Technologies your agency uses to disseminate:** | | |
| Transit routes, schedules and fares | NR | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| **Technologies employed by other organization receiving your data** | | |
| Transit routes, schedules and fares | NR | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| Internet web site reporting transit routes, schedules and fare, etc. | NR | |
| Telephone system for reporting transit information to the public | NR | |
| **Organizations your agency sends information for dissemination to the public** | NR | |
| **Data collected, archived, and/or transferred to another agency** | | |
| Collected by your agency | Passenger count, Passenger information (e.g., surveys, O/D), Incidents | NR |
| Archived by your agency | NR | NR |

| Agency Name | Access Transportation Systems Incorporated | |
|---|---|---|
| | **1999** | **2005** |
| Transferred to another agency by your agency | NR | NR |
| **Importance of making information available to the public** | | |
| Ranked High | NR | |
| Ranked Medium | Passenger count, Passenger information (e.g., surveys, O/D), Incidents | |
| Ranked Low | Weather conditions, Trip itinerary planning records, Vehicle monitoring status, Road conditions, Emergency vehicle signal preemption, Vehicle time and location, Route designations (snow emergency, etc), Transit operations coordination information, Current | |
| **Groups that make requests for the data** | Federal DOT personnel, State DOT personnel | |
| **What is the data used for?** | Funding | |

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Beaver County Transit Authority | |
|---|---|---|
| | **1999** | **2005** |
| | | |
| Agency Returned Survey? | Yes | |
| **Methods used to disseminate transit information to the public** | | |
| **Technologies your agency uses to disseminate:** | | |
| Transit routes, schedules and fares | Facsimile, E-mail or other direct PC communication, Internet Web Sites, Telephone System | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| **Technologies employed by other organization receiving your data** | | |
| Transit routes, schedules and fares | NR | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| Internet web site reporting transit routes, schedules and fare, etc. | NR | |
| Telephone system for reporting transit information to the public | 724-728-8600 | |
| **Organizations your agency sends information for dissemination to the public** | NR | |
| **Data collected, archived, and/or transferred to another agency** | | |
| Collected by your agency | Scheduled roadway work zones for transit, Incidents, Passenger information (e.g., surveys, O/D), Trip itinerary planning records, Vehicle time and location | Emergency/evacuation routes and procedures, Transit operations coordination information, Intermodal (air, rail, water) conditions, Current roadway work zones for transit, Weather conditions, Transit vehicle signal priority, Road conditions, Vehicle monitoring status, Passenger count |
| Archived by your agency | Incidents, Passenger information (e.g., surveys, O/D), Vehicle time and location | Emergency/evacuation routes and procedures, Transit operations coordination information, Intermodal (air, rail, water) conditions, Scheduled roadway work zones for transit, Current roadway work zones for transit, Weather conditions, Transit vehicle signal priority, Road conditions, Vehicle monitoring status, Trip itinerary planning records, Passenger count, Vehicle time and location |

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Beaver County Transit Authority | |
|---|---|---|
| | **1999** | **2005** |
| Transferred to another agency by your agency | NR | Emergency/evacuation routes and procedures, Transit operations coordination information, Scheduled roadway work zones for transit, Current roadway work zones for transit, Weather conditions, Road conditions, Vehicle time and location |
| **Importance of making information available to the public** | | |
| Ranked High | Emergency/evacuation routes and procedures, Intermodal (air, rail, water) conditions, Scheduled roadway work zones for transit, Current roadway work zones for transit, Weather conditions, Vehicle time and location | |
| Ranked Medium | Transit operations coordination information, Road conditions | |
| Ranked Low | Emergency vehicle signal preemption, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Trip itinerary planning records, Passenger count | |
| **Groups that make requests for the data** | Consultants, MPOs, Media (I.e., TV stations, radio stations), Federal DOT personnel, State DOT personnel | |
| **What is the data used for?** | Dissemination to the public, Planning | |

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | G G & C Bus Company Incorporated | |
|---|---|---|
| | **1999** | **2005** |
| | | |
| Agency Returned Survey? | Yes | |
| **Methods used to disseminate transit information to the public** | | |
| **Technologies your agency uses to disseminate:** | | |
| Transit routes, schedules and fares | NR | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| **Technologies employed by other organization receiving your data** | | |
| Transit routes, schedules and fares | NR | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| Internet web site reporting transit routes, schedules and fare, etc. | NR | |
| Telephone system for reporting transit information to the public | NR | |
| **Organizations your agency sends information for dissemination to the public** | NR | |
| **Data collected, archived, and/or transferred to another agency** | | |
| Collected by your agency | Passenger count, Trip itinerary planning records | NR |
| Archived by your agency | NR | NR |

| Agency Name | G G & C Bus Company Incorporated | |
|---|---|---|
| | **1999** | **2005** |
| Transferred to another agency by your agency | NR | NR |
| **Importance of making information available to the public** | | |
| Ranked High | Vehicle time and location, Route designations (snow emergency, etc), Current roadway work zones for transit, Scheduled roadway work zones for transit | |
| Ranked Medium | Weather conditions, Passenger count, Trip itinerary planning records, Passenger information (e.g., surveys, O/D), Road conditions, Emergency vehicle signal preemption, Transit operations coordination information, Incidents, Intermodal (air, rail, water) conditions, Highway operations coordination information, Emergency/evacuation routes and procedures, Transit vehicle signal priority | |
| Ranked Low | Vehicle monitoring status | |
| **Groups that make requests for the data** | MPOs, Media (I.e., TV stations, radio stations), Federal DOT personnel, State DOT personnel, Universities | |
| **What is the data used for?** | Planning, Traffic analysis, Do not know | |

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Port Authority of Allegheny County | |
|---|---|---|
| | **1999** | **2005** |
| | | |
| Agency Returned Survey? | Yes | |
| **Methods used to disseminate transit information to the public** | | |
| **Technologies your agency uses to disseminate:** | | |
| Transit routes, schedules and fares | Facsimile, Audible Enunciators, Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle), E-mail or other direct PC communication, Internet Web Sites, Telephone System | Kiosks, Telephone System |
| Real-time transit schedule adherence or arrival and departure times | Facsimile, Cell phone/voice, E-mail or other direct PC communication, Telephone System | Monitors/VMS (not in vehicle), Variable Message Signs (in vehicle) |
| **Technologies employed by other organization receiving your data** | | |
| Transit routes, schedules and fares | NR | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| Internet web site reporting transit routes, schedules and fare, etc. | www.ridegold.com | |
| Telephone system for reporting transit information to the public | 412-442-2000 | |
| **Organizations your agency sends information for dissemination to the public** | Schedule and Fare Mechanism Distribution Outlets Municipality Officials, Governmental Agencies, Large Business, Colleges, Universities | |
| **Data collected, archived, and/or transferred to another agency** | | |
| Collected by your agency | Transit operations coordination information, Emergency/evacuation routes and procedures, Intermodal (air, rail, water) conditions, Scheduled roadway work zones for transit, Current roadway work zones for transit, Incidents, Weather conditions, Route designations (snow emergency, etc), Road conditions, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count | Trip itinerary planning records, Vehicle time and location |
| Archived by your agency | Transit operations coordination information, Emergency/evacuation routes and procedures, Intermodal (air, rail, water) conditions, Scheduled roadway work zones for transit, Current roadway work zones for transit, Incidents, Weather conditions, Route designations (snow emergency, etc), Road conditions, Vehicle monitoring status, Passenger information (e.g., surveys, O/D), Passenger count | Vehicle time and location |

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Port Authority of Allegheny County | |
|---|---|---|
| | **1999** | **2005** |
| Transferred to another agency by your agency | Transit operations coordination information, Emergency/evacuation routes and procedures, Incidents, Passenger count | NR |
| **Importance of making information available to the public** | | |
| Ranked High | Transit operations coordination information, Emergency/evacuation routes and procedures, Intermodal (air, rail, water) conditions, Scheduled roadway work zones for transit, Current roadway work zones for transit, Incidents, Route designations (snow emergency, etc), Trip itinerary planning records, Passenger count, Vehicle time and location | |
| Ranked Medium | NR | |
| Ranked Low | Weather conditions, Road conditions, Vehicle monitoring status, Passenger information (e.g., surveys, O/D) | |
| **Groups that make requests for the data** | Consultants, MPOs, Media (I.e., TV stations, radio stations), Federal DOT personnel, State DOT personnel, Universities | |
| **What is the data used for?** | Dissemination to the public, Roadway impact analysis, Incident detection algorithm development, Planning, Construction impact determination | |

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Westmoreland County Transit | |
|---|---|---|
| | **1999** | **2005** |
| | | |
| Agency Returned Survey? | Yes | |
| **Methods used to disseminate transit information to the public** | | |
| **Technologies your agency uses to disseminate:** | | |
| Transit routes, schedules and fares | NR | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| **Technologies employed by other organization receiving your data** | | |
| Transit routes, schedules and fares | NR | NR |
| Real-time transit schedule adherence or arrival and departure times | NR | NR |
| Internet web site reporting transit routes, schedules and fare, etc. | NR | |
| Telephone system for reporting transit information to the public | NR | |
| **Organizations your agency sends information for dissemination to the public** | NR | |
| **Data collected, archived, and/or transferred to another agency** | | |
| Collected by your agency | Incidents, Passenger count, Vehicle time and location | Incidents, Passenger count, Vehicle time and location |
| Archived by your agency | Incidents, Passenger count | Incidents, Passenger count |

Data Collection and Dissemination: Transit Management
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| Agency Name | Westmoreland County Transit | |
|---|---|---|
| | **1999** | **2005** |
| Transferred to another agency by your agency | Incidents, Passenger count | Incidents, Passenger count |
| **Importance of making information available to the public** | | |
| Ranked High | Incidents, Passenger count, Vehicle time and location | |
| Ranked Medium | NR | |
| Ranked Low | NR | |
| **Groups that make requests for the data** | MPOs, Federal DOT personnel, State DOT personnel | |
| **What is the data used for?** | Dissemination to the public, Planning, Do not know | |

# Appendix L
# Emergency Management

Emergency Management Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | 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 | | | |
| Penn Hills Fire Department | 24 | 24 | 0 | 0 | 0 | 0 | NR | NR | 20 | 20 | 35 | 35 | No | No | None listed |
| Penn Hills Police Department | 28 | 28 | 0 | 0 | 0 | 0 | 28 | 28 | 18 | 18 | 0 | 0 | No | Yes | Pennsylvania State Police |
| Pittsburgh Fire Department | 51 | 51 | 0 | 0 | 0 | 0 | 51 | 51 | 0 | 0 | 0 | 0 | Yes | No | None listed |
| Pittsburgh Police Department | 133 | 133 | 0 | 133 | 0 | 133 | 133 | 133 | 0 | 133 | 0 | 0 | No | Yes | Pennsylvania State, Pittsburgh County |

# Appendix M
# Electronic Toll Collection

Electronic Toll Collection
Agencies for Metropolitan Area: Pittsburgh, Beaver Valley

| | Pennsylvania Turnpike Commission-Entire PA Turnpike | |
|---|---|---|
| | **1999** | **2005** |
| | | |
| Agency Returned Survey? | Yes | |
| **Number of toll Collection Plazas operated** | 51 | 51 |
| **Number of toll collection plazas with dedicated ETC** | 0 | 51 |
| **Number of toll collection plazas with both manual and ETC** | 0 | 51 |
| **Number of toll collection lanes operated** | 325 | 325 |
| **Number of toll collection lanes with dedicated ETC** | 0 | 160 |
| **Number of toll collection lanes with both manual and ETC** | 0 | 325 |
| **Number of toll collection tags issued** | 0 | 0 |
| **Antennae Location Technologies** | | |
| In-Pavement? | No | |
| Focused Beam? | No | |
| Distributed Overhead? | Yes | |
| **In-Vehicle Equipment Technologies** | | |
| Tag-based? | Yes | |
| Integrated circuit card-based? | No | |
| **Are toll tags used by other toll operations in metro area?** | Yes | |
| List of toll operators that use tags | None | |
| **Are toll tags used by operators of public transit to pay transit fares** | | |
| **in metro area?** | No | |
| List of transit operators that use tags | None | |
| | | |
| _____ | | |
| NR: No Response | | |
| | | |
| | | |