



The Pennsylvania Department of Transportation (PennDOT District 2-0) has commissioned this program, Regional Intelligent Transportation Systems Architecture Development Program, with the aim of addressing major transportation issues in the region, creating a framework to identify transportation system components and interconnections, improving communications, and identifying integration opportunities as defined in the National ITS Architecture.

A key element for the success of this program is input from local residents, transportation agencies, and non-transportation agencies about major transportation issues affecting your local area.

Please take a few minutes to complete this questionnaire. The information received from this questionnaire will be compiled in a database and used to inventory ITS technologies and services currently deployed in the region. It will also help us identify and prioritize transportation needs in your local area.

If you have any questions, please contact the project manager on (215) 735-1932 or email him at kcaglar@orth-roddgers.com.

Thank you for your cooperation.

Traffic Signal Control Systems

Local Area: _____ Date Completed: _____
Name: _____ Title: _____
Organization: _____
Street: _____
City: _____ State: _____ Zip: _____
Phone Number: _____ Fax Number: _____
Email: _____

Technical questions can be directed to:

Please return completed questionnaire to:

1. Please identify the geographical and/or jurisdictional areas to which your answers to this survey apply (e.g., all freeways within the region, or freeways only within certain counties). Area of geographical or jurisdictional coverage:



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THE FOLLOWING QUESTIONS CONCERN TRAFFIC SIGNALS. THESE QUESTIONS DISTINGUISH BETWEEN TRAFFIC SIGNALS LOCATED ON ALL STREETS WITHIN THE CENTRAL BUSINESS DISTRICT(S) (QUESTION 2) AND ON ARTERIALS LOCATED OUTSIDE THE CENTRAL BUSINESS DISTRICT(S) (QUESTION 3).

2. Traffic Signals located within the Central Business District(s)

- a. Total number of signalized intersections: _____
- b. Total number of signalized intersections under closed loop control: _____
- c. Total number of signalized intersections under centralized control: _____
- d. Total number of signalized intersections with real-time traffic adaptive control using SCOOT/SCATS or similar advanced software: _____
- e. Year of last upgrade of traffic signal control system software: _____
- f. Total number of signalized intersections that allow signal preemption or priority by emergency vehicles: _____
- g. Total number of signalized intersections that allow signal preemption or priority by transit vehicles: _____
- h. Please summarize the approximate age for each signal controllers located within the Central Business District by completing the table below.

<i>Type of Signal Controller</i>	Number of Controllers by Age (years)				
	<i>0-5</i>	<i>6-10</i>	<i>11-15</i>	<i>16-20</i>	<i>21+</i>
NEMA					
170/179					
2070					
Other (specify)					
Other (specify)					

3. Traffic Signals located on arterial streets outside the Central Business District(s)

- a. Total number of signalized intersections: _____
- b. Total number of signalized intersections under closed loop control: _____
- c. Total number of signalized intersections under centralized control: _____
- d. Total number of signalized intersections with real-time traffic adaptive control using SCOOT/SCATS or similar advanced software: _____
- e. Date of last upgrade of traffic signal control system software: _____
- f. Total number of signalized intersections that allow signal preemption or priority by emergency vehicles: _____
- g. Total number of signalized intersections that allow signal preemption or priority by transit vehicles: _____



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3. Continued

h. Please summarize the approximate age for each signal controllers located within the Central Business District by completing the table below.

<i>Type of Signal Controller</i>	Number of Controllers by Age (years)				
	<i>0-5</i>	<i>6-10</i>	<i>11-15</i>	<i>16-20</i>	<i>21+</i>
NEMA					
170/179					
2070					
Other (specify)					
Other (specify)					

4. Does your agency operate a Centralized Traffic Signal Control Center?

- No
- Yes, as of what date? _____
- Yes, planned to begin on what date? _____

If yes, please answer the following:

What is the name of this center?: _____
 Number of management, maintenance, and operations personnel: _____
 Latest year when this center was upgraded: _____
 What is the name of the system developer? _____
 What is the make/model of the central computer that controls the system? _____
 What system software is used to control the system? _____

What type of communications is used by this system (check all that apply and indicate the number of arterial centerline miles affected)?

- Twisted pair cable _____ Arterial centerline miles
- Coaxial cable _____ Arterial centerline miles
- Fiber optic cable _____ Arterial centerline miles
- Microwave radio _____ Arterial centerline miles
- Other: _____ Arterial centerline miles



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THE FOLLOWING QUESTIONS ARE DESIGNED TO DETERMINE WHETHER YOUR AGENCY HAS ESTABLISHED EITHER FORMAL OR INFORMAL WORKING AGREEMENTS TO SHARE TRAFFIC SIGNAL TIMING PLANS OR COORDINATE TRAFFIC SIGNAL CONTROL ON ARTERIALS WITH ANOTHER AGENCY.

5. Does your agency share information describing fixed timing plans with other agencies in order to maintain progression on an arterial route that includes signals maintained by both of your agencies?

a. Total number of adjacent jurisdictions that share an arterial route with you: _____

b. No, do not share information. Go to Question 6.

Yes, information is shared.

If yes, what are the names of these agencies? _____

Comments: _____

6. Does your agency coordinate changes to fixed timing plans with other agencies in order to maintain progression on an arterial route that includes signals maintained by both of your agencies?

No, go to Question 7.

Yes

If yes, how is this response accomplished (check all that apply)?

shift to traffic responsive at same time G rely on automated dynamic response

What are the name of the agencies? _____

Comments: _____

7. Does your agency ever turn over control of traffic signals normally maintained by your agency to another agency to manage special events, emergencies, or other short term time periods?

No, go to Question 8.

Yes

If yes, what are the name of the agencies? _____

Comments: _____

THE FOLLOWING QUESTIONS ARE DESIGNED TO DETERMINE THE NATURE OF ARTERIAL ROADWAY SURVEILLANCE ACTIVITIES . THESE QUESTIONS DISTINGUISH BETWEEN ARTERIAL ROADWAYS LOCATED WITHIN THE CENTRAL BUSINESS DISTRICT(S) (QUESTION 8) AND ARTERIAL ROADWAYS LOCATED OUTSIDE THE CENTRAL BUSINESS DISTRICT(S) (QUESTION 9).



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8. All streets located within the Central Business District(s)

a. Number of centerline miles with real-time electronic traffic data collection capabilities (e.g., loop detectors that provide volume and speed data at midblock locations; this excludes actuators on intersection approaches):

Miles covered: _____

Technologies used: _____

b. Number of dynamic message signs on mainline streets: _____

c. Number of miles covered by Highway Advisory Radio: _____

d. Number of dynamic message signs controlling parking access: _____

e. Number of in-vehicle signing transmitter locations: _____

f. Number of CCTV cameras deployed: _____

How much of an arterial can be viewed by a single camera (on average): _____ miles

9. Arterial streets located outside the Central Business District(s)

a. Number of centerline miles with real-time electronic traffic data collection capabilities (e.g., loop detectors that provide volume and speed data at midblock locations; this excludes actuators on intersection approaches):

Miles covered: _____

Technologies used: _____

b. Number of dynamic message signs on mainline streets: _____

c. Number of miles covered by Highway Advisory Radio: _____

d. Number of variable message signs controlling parking access: _____

e. Number of in-vehicle signing transmitter locations: _____

f. Number of CCTV cameras deployed: _____

How much of an arterial can be viewed by a single camera (on average): _____ miles



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THE FOLLOWING QUESTIONS RELATE TO THE USE OF VEHICLE PROBES TO MEASURE TRAVEL TIMES ON ARTERIAL ROADWAY SEGMENTS. A SEGMENT IS DEFINED AS A SECTION OF HIGHWAY BOUNDED ON EITHER END BY A PROBE READER LOCATION. TRAVEL TIMES OVER THIS SEGMENT ARE DERIVED FROM DATA OBTAINED FROM PROBEVEHICLES PASSING OVER THE SEGMENT.

10. Does your agency maintain probe readers to estimate travel times on arterial roadway segments?

- No, go to Question 11.
- Yes

If yes, please answer the following questions.

- a. How many arterial roadway segments are covered by probe readers over which travel times are developed?

- b. What is the average length of these segments? _____ miles
- c. Approximately how many probe vehicles exist in the regional fleet of vehicles? _____
- d. How many arterial centerline miles covered by probe vehicles sensing are also covered by electronic traffic data collection equipment (e.g., mid-block sensors)? _____ miles
- e. How many probe vehicles are typically counted during a five-minute period during peak travel times? _____

Comments: _____

THE FOLLOWING QUESTIONS ARE DESIGNED TO DETERMINE WHETHER YOUR AGENCY COMMUNICATES INFORMATION DESCRIBING ARTERIAL TRAVEL TIMES, SPEEDS, OR CONDITIONS IN REAL-TIME, IN TIME INTERVALS NO LARGER THAN 5 MINUTES, AND BY ELECTRONIC MEANS TO OTHER TRANSPORTATION MANAGEMENT AGENCIES AND ORGANIZATIONS.

11. Do you electronically transfer information describing arterial travel times, speeds, or conditions, in real-time to any organization responsible for any of the following activities (check all that apply):

- Freeway management
Name of organization, agency, or group: _____
Number of signalized plus CBD street centerline miles covered by the transfer: _____ miles.
- Method used to transfer data (Check one):
 - Transfer between separate computer system
 - A common shared database
 - Other: Please describe: _____



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11. Continued.

- Freeway or arterial incident management

Name of organization, agency, or group: _____

Number of signalized plus CBD street centerline miles covered by the transfer: _____ miles.

Method used to transfer data (Check one):

Transfer between separate computer system

A common shared database

Other: Please describe: _____

- Public transit operations

Name of organization, agency, or group: _____

Number of signalized plus CBD street centerline miles covered by the transfer: _____ miles.

Method used to transfer data (Check one):

Transfer between separate computer system

A common shared database

Other: Please describe: _____

- Traveler information service provider (e.g., Regional Multimodal Traveler Information Center, private Information Service Provider [ISP])

Name of organization, agency, or group: _____

Number of signalized plus CBD street centerline miles covered by the transfer: _____ miles.

Method used to transfer data (Check one):

Transfer between separate computer system

A common shared database

Other: Please describe: _____

Do not electronically share information.



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THE FOLLOWING QUESTIONS ARE USED TO DETERMINE WHETHER YOUR AGENCY RECEIVES, IN REAL-TIME VIA ELECTRONIC MEANS, DATA FROM OTHER GROUPS, AGENCIES OR ORGANIZATIONS.

12. Does your agency receive, in real-time via electronic means, data on freeway travel times, speeds, or conditions from a freeway management organization?

- No; go to Question 13.
 Yes

If yes,

What is the name of the organization, agency or group providing these data?: _____

How much of the freeway system is covered by this transfer?: _____ miles

How are these data used by your agency to manage the traffic signal system (check all that apply)?:

- Adjust signal timing
 Convey information to travelers via arterial roadside media such as DMS or HAR
 Other, please describe: _____

13. Does your agency receive, in real-time via electronic means, data on freeway and arterial incident severity, location, and type from the organization or group operating a freeway or arterial incident management program?

- No; go to Question 14.
 Yes

If yes,

What is the name of the organization, agency or group providing these data?: _____

How much of the freeway or arterial system is covered by this transfer?: _____ miles

How are these data used by your agency to manage the traffic signal system (check all that apply)?:

- Adjust signal timing
 Convey information to travelers via arterial roadside media such as DMS or HAR
 Other, please describe: _____

14. Does your agency receive, in real-time via electronic means, data on arterial travel times derived from vehicle probes from an agency, organization, or group operating an electronic toll collection program?

- No; go to Question 15.
 Yes



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14. Continued

If yes,

What is the name of the organization, agency or group providing these data?: _____

How many arterial miles have travel time measured with this probe data?: _____ miles

How are these data used by your agency to manage the traffic signal system (check all that apply)?:

- Adjust signal timing
- Convey information to travelers via arterial roadside media such as DMS or HAR
- Other, please describe: _____

15. Does your agency receive, in real-time via electronic means, data on arterial travel times derived from vehicle probes from an agency, organization, or group operating a public transit service?

- No; go to Question 16.
- Yes

If yes,

What is the name of the organization, agency or group providing these data?: _____

How many arterial miles have travel times measured with these probe data?: _____ miles

How are these data used by your agency to manage the traffic signal system (check all that apply)?:

- Adjust signal timing
- Convey information to travelers via arterial roadside media such as DMS or HAR
- Other, please describe: _____

16. Does your agency receive, in real-time via electronic means, data on highway-rail intersection crossing status (e.g., train presence or scheduled closing) derived from an agency, organization, or group operating a highway rail intersection?

- No
- Yes

If yes,

What is the name of the organization, agency or group providing these data?: _____

How many highway rail intersections are included in this information?: _____ crossings

How are these data used by your agency to manage the traffic signal system (check all that apply)?:

- Adjust signal timing
- Convey information to travelers via arterial roadside media such as DMS or HAR
- Other, please describe: _____



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Additional Comments: