

APPENDIX B: LONG-TERM PROJECT DEPLOYMENTS

LT-01: I-476 ITS DEPLOYMENT (I-95 TO PA TURNPIKE)

PROJECT DESCRIPTION AND SCOPE: Project will address gaps in ITS device coverage on I-476 between the I-95 interchange and the Pennsylvania Turnpike. Project includes the deployment of:

- 9 CCTV Cameras
- 8 DMS
- 35 Vehicle Detectors

PROJECT LEAD: PennDOT District 6-0

PERTINENT TSOP PROJECTS: TSOP-03

ESTIMATED SCHEDULE: 3-4 yrs
Study: N/A
Design: 1-2yrs
Deployment: 2-3 yrs

ESTIMATED COSTS:
Capital: \$8,000,000
Annual O&M: \$300,000

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Complex

TECHNOLOGY COMPONENTS (if applicable): CCTV, DMS, vehicle detection, fiber-optic communications

PREREQUISITES AND DEPENDENCIES: Completion of the statewide Interstate ITS Deployment Plan.

PERFORMANCE MEASURES: % of lane-miles of facilities (by classification) covered by CCTV, detection devices, etc.; reduction in non-recurring delay.

BENEFITS: Improved surveillance, detection, verification and notification of incidents and emergencies along I-476.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-02: I-95 ITS DEPLOYMENT (ISLAND AVENUE TO VINE STREET)

PROJECT DESCRIPTION AND SCOPE: Project will address gaps in ITS device coverage on I-95 through Philadelphia. Project includes the deployment of:

- 6 CCTV Cameras
- 2 DMS
- 20 Vehicle Detectors

PROJECT LEAD: PennDOT District 6-0

PERTINENT TSOP PROJECTS: TSOP-03

ESTIMATED SCHEDULE: 3-4 yrs
Study: N/A
Design: 1-2yrs
Deployment: 2-3 yrs

ESTIMATED COSTS:
Capital: \$3,600,000
Annual O&M: \$150,000

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Complex

TECHNOLOGY COMPONENTS (if applicable): CCTV, DMS, vehicle detection, fiber-optic communications

PREREQUISITES AND DEPENDENCIES: Completion of the statewide Interstate ITS Deployment Plan.

PERFORMANCE MEASURES: % of lane-miles of facilities (by classification) covered by CCTV, detection devices, etc.; reduction in non-recurring delay.

BENEFITS: Improved surveillance, detection, verification and notification of incidents and emergencies along I-95.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-03: I-95 ITS DEPLOYMENT (BUSINESS ROUTE 1 TO NEW JERSEY)

PROJECT DESCRIPTION AND SCOPE: Project will address gaps in ITS device coverage in Bucks County north of the limits of the I-95/PA Turnpike interchange project. Project includes deployment of:

- 9 CCTV Cameras
- 8 DMS
- 40 Vehicle Detectors

PROJECT LEAD: PennDOT District 6-0

PERTINENT TSOP PROJECTS: TSOP-03

ESTIMATED SCHEDULE: 3-4 yrs
Study: N/A
Design: 1-2yrs
Deployment: 2-3 yrs

ESTIMATED COSTS:
Capital: \$5,200,000
Annual O&M: \$210,000

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Complex

TECHNOLOGY COMPONENTS (if applicable): CCTV, DMS, vehicle detection, fiber-optic communications

PREREQUISITES AND DEPENDENCIES: Completion of the statewide Interstate ITS Deployment Plan.

PERFORMANCE MEASURES: % of lane-miles of facilities (by classification) covered by CCTV, detection devices, etc.; reduction in non-recurring delay.

BENEFITS: Improved surveillance, detection, verification and notification of incidents and emergencies along I-95.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-04: SERVICE PATROL COVERAGE PHASE II

PROJECT DESCRIPTION AND SCOPE: Phase II of the ROP Service Patrol Coverage project includes the following elements to be implemented in the next 3-4 years:

- Expand system-wide weekday coverage on all interstates to 16 hours/day
- Deploy limited 16 hours/day weekend coverage to interstates
- Deploy limited overnight coverage to interstates
- Establish rush hour coverage on US-202 (US-30 to West Chester), Woodhaven Expressway, US-1 (PA-63 to New Jersey), US-30 (US-202 to PA-10)
- Consideration and planning for additional arterial coverage

PROJECT LEAD: PennDOT District 6-0

PERTINENT TSOP PROJECTS: TSOP-03

ESTIMATED SCHEDULE: 3-4 yrs
Study: N/A
Design: 1-2yrs
Deployment: 2-3 yrs

ESTIMATED COSTS:
Capital: N/A
Annual O&M: \$3,500,000

PROJECT TYPE: Program Development

LEVEL OF EFFORT: Complex

TECHNOLOGY COMPONENTS (if applicable):

PREREQUISITES AND DEPENDENCIES: Implementation of ROP ST-09: Service Patrol Coverage Phase I.

PERFORMANCE MEASURES: Number of service patrol vehicles in service, number of motorists served and reduction in time necessary to clear incidents.

BENEFITS: Will expand upon hours of service patrol coverage on the region's interstates and establish rush hour coverage on many major arterials. Service Patrol coverage helps to keep corridors safe and reduce delay resulting from incidents.

OTHER CONSIDERATIONS AND ISSUES: Annual operations costs vary as they are driven by the fluctuations in costs for fuel and insurance.

LT-05: FIBER CONNECTION TO SELECT PENNSYLVANIA STATE POLICE BARRACKS

PROJECT DESCRIPTION AND SCOPE: Construction of a fiber connection and deployment of additional software and equipment to Pennsylvania State Police (PSP) Dispatch Centers located at Avondale, Media, Philadelphia, Skippack, and Trevose. Appropriate locations for connection will be evaluated on a station by station basis.

CO-LEAD AGENCIES: PSP, PennDOT 6-0

PERTINENT TSOP PROJECTS: TSOP-01, TSOP-13

ESTIMATED SCHEDULE: 3-4 yrs
Study: N/A
Design: N/A
Deployment: 3-4 yrs

ESTIMATED COSTS:
Capital: \$250,000
Annual O&M: \$15,000

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Fiber-optic communications, video-sharing equipment and software.

PREREQUISITES AND DEPENDENCIES: None

PERFORMANCE MEASURES: Improvement in incident response times.

BENEFITS: Access to video footage and other information will help to enhance the PSP's ability to respond to incidents.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-06: CONSTRUCTION OF OPERATIONS CENTER FOR CITY OF PHILADELPHIA

PROJECT DESCRIPTION AND SCOPE: Construction of primary and secondary Operations Centers with fiber connection to the District 6-0 TMC at the Philadelphia Department of Streets facility located at G St. and Ramona St. Location of backup center TBD. Fiber connection to G and Ramona St. can be made at 9th St. and tied into future deployment as part of I-76 ITS project.

PROJECT LEAD: Philadelphia Department of Streets
OTHER STAKEHOLDERS: PennDOT 6-0

PERTINENT TSOP PROJECTS: TSOP-09

ESTIMATED SCHEDULE: 3-4 yrs
Study: 0-1 yrs
Design: 1-2 yrs
Deployment: 1-2 yrs

ESTIMATED COSTS:
Capital: TBD
Annual O&M: TBD

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Complex

TECHNOLOGY COMPONENTS (if applicable): Transportation Operations Center, fiber-optic communications

PREREQUISITES AND DEPENDENCIES: None

PERFORMANCE MEASURES: Enhanced transportation and incident management capabilities for the Philadelphia Department of Streets.

BENEFITS: Will allow for enhanced control of ITS/Operations and traffic signals for the Philadelphia Department of Streets.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-07: FIBER CONNECTION TO NJDOT

PROJECT DESCRIPTION AND SCOPE: Project includes the construction of a fiber connection and integration to the New Jersey Department of Transportation. The connection can be made through fiber to be installed as part of I-95/PA Turnpike Interchange Construction Project, or through DPRA facilities.

PROJECT LEAD: PennDOT 6-0
OTHER STAKEHOLDERS: NJDOT

PERTINENT TSOP PROJECTS: TSOP-13

ESTIMATED SCHEDULE: 3-4 yrs
Study: N/A
Design: N/A
Deployment: 3-4 yrs

ESTIMATED COSTS:
Capital: \$250,000
Annual O&M: \$15,000

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Fiber-optic communications

PREREQUISITES AND DEPENDENCIES: Selection of an appropriate connection location.

PERFORMANCE MEASURES: Improved traveler information across state borders; Reduction in delay resulting from major incidents.

BENEFITS: Will allow for better response to and coordination of incidents that impact both New Jersey and Pennsylvania crossing the Delaware River.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-08: CONSTRUCTION OF DRPA OPERATIONS CENTER

PROJECT DESCRIPTION AND SCOPE: Construction of an Operations Center with fiber connection to the District 6-0 TMC at a DRPA facility with a location to be determined.

PROJECT LEAD: DRPA
OTHER STAKEHOLDERS: PennDOT 6-0

PERTINENT TSOP PROJECTS: TSOP-09

ESTIMATED SCHEDULE: 3-4 yrs
Study: 0-1 yrs
Design: 1-2 yrs
Deployment: 1-2 yrs

ESTIMATED COSTS:
To be determined following DRPA plan for complexity of construction.

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Complex

TECHNOLOGY COMPONENTS (if applicable): Transportation Operations Center, fiber-optic communications

PREREQUISITES AND DEPENDENCIES: DRPA plan for complexity of construction as well as location and deployment timetable.

PERFORMANCE MEASURES: Enhanced transportation operations and incident management capabilities for the DRPA.

BENEFITS: Will allow for DRPA to have increased capabilities in the operations of their facilities as well as share information with PennDOT.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-09: PARKING MANAGEMENT SYSTEM FOR SELECT SEPTA FACILITIES

PROJECT DESCRIPTION AND SCOPE: Under this project deployment, a parking management system would be developed for select SEPTA facilities. Displaying parking information online or on DMS can help entice commuters to use public transit more frequently during incidences of roadway congestion. Potential Locations include Cornwells Heights (I-95).

PROJECT LEAD: SEPTA
OTHER STAKEHOLDERS: PennDOT 6-0

PERTINENT TSOP PROJECTS: None

ESTIMATED SCHEDULE: 3-4 yrs
Study: 0-1 yrs
Design: 1-2 yrs
Deployment: 1-2 yrs

ESTIMATED COSTS:
Capital: \$100,000/location
Annual O&M: \$10,000/location

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Parking Management System, DMS

PREREQUISITES AND DEPENDENCIES: Construction of a fiber connection between SEPTA and PennDOT 6-0.

PERFORMANCE MEASURES: Travel time for locating parking; Customer satisfaction.

BENEFITS: Parking management system will help to alleviate alert travelers to parking information at SEPTA facilities and encourage them to use transit services as an alternative.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-10: PARKING MANAGEMENT SYSTEM FOR PHILADELPHIA INTERNATIONAL AIRPORT

PROJECT DESCRIPTION AND SCOPE: Deployment of a parking management system for the Philadelphia International Airport for both long- and short-term parking and cell phone lots. PennDOT can display parking information on area DMS. Having en-route information on parking will help travelers better plan their trips and seek out alternate arrangements if parking is limited or unavailable. This will decrease the amount of confusion and related congestion once travelers arrive at the Airport.

PROJECT LEAD: Philadelphia International Airport
OTHER STAKEHOLDERS: PennDOT 6-0

PERTINENT TSOP PROJECTS: None

ESTIMATED SCHEDULE: 3-4 yrs
Study: 0-1 yrs
Design: 1-2 yrs
Deployment: 1-2 yrs

ESTIMATED COSTS:
Capital: \$600,000
Annual O&M: \$50,000

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Parking management system, DMS

PREREQUISITES AND DEPENDENCIES: None

PERFORMANCE MEASURES: Travel time for locating parking; Customer satisfaction.

BENEFITS: Parking management system will help to alleviate congestion in and around the airport and assist travels in finding appropriate parking.

OTHER CONSIDERATIONS AND ISSUES: N/A

LT-11: DEPLOYMENT OF FUTURE I-76 TSM COMPONENT PROJECTS

PROJECT DESCRIPTION AND SCOPE: This project includes the programming of all I-76 Transportation System Management (TSM) projects yet to be implemented. As it is the prototype integrated corridor management project in the region, all components of the I-76 TSM plan should be implemented and used as a benchmark for future integrated corridor projects. All corridor-related projects are to be incorporated into "Strategic Corridor Investment Plan". This project also includes a prioritization of future TSM projects yet to be programmed which include:

- Incident Clearance Tools
- Retractable Barriers
- Real-time Communications Improvements
- Cell Phone GPS
- Incident Diversion Strategies
- Improved Travel Awareness
- Incident Data Capture
- Staggered Work Times
- Commercial Vehicle Restrictions
- Realignment of EMS Responsibilities
- Automated Speed Enforcement
- Creation of a Signal Systems Operator Position
- Enhanced Communications Between 911 Centers

**Note: This project supports ongoing programming efforts as part of the I-76 TSM, no new deployments have been recommended for programming through the ROP effort, reflected by the lower ranking. However, all of these deployments are of high regional priority.*

PROJECT LEAD: PennDOT 6-0

OTHER STAKEHOLDERS: DVRPC, SETPA, Montgomery County, City of Philadelphia

PERTINENT TSOP PROJECTS: TSOP-03

ESTIMATED SCHEDULE: 3-4 yrs

ESTIMATED COSTS: Varies Project to Project

PROJECT TYPE: Planning and Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Varies project-to-project

PREREQUISITES AND DEPENDENCIES: Prioritization of projects yet-to-be programmed.

PERFORMANCE MEASURES: Placement of all I-76 TSM component projects on DVRPC Long Range Transportation Plan.

BENEFITS: With the completion of the TSM projects, I-76 will be the first integrated corridor in the District 6-0 Region and can be used as a model for similar corridor projects.

LT-12: TRAVELER INFORMATION DEPLOYMENT TO TOURIST/INTERMODAL FACILITIES

PROJECT DESCRIPTION AND SCOPE: Evaluation of current traveler information systems currently initiated including kiosks and CastNET. Expanded deployments at highly trafficked locations to include:

- 30th St. Station
- King of Prussia Mall
- Philadelphia International Airport
- Philadelphia Convention Center

PROJECT LEAD: PennDOT BHSTE
OTHER STAKEHOLDERS: PennDOT 6-0, Philadelphia International Airport, King of Prussia Mall, Pennsylvania Convention Center, SEPTA

PERTINENT TSOP PROJECTS: TSOP-04

ESTIMATED SCHEDULE: 3-4 yrs Study: 1-2 yrs Design: 0-1 yrs Deployment: 1-2 yrs	ESTIMATED COSTS: Capital: TBD Annual O&M: TBD
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PROJECT TYPE: Planning and Deployment **LEVEL OF EFFORT:** Moderate

TECHNOLOGY COMPONENTS *(if applicable):* CastNET System, Information Kiosks

PREREQUISITES AND DEPENDENCIES: Evaluation of existing traveler information systems.

PERFORMANCE MEASURES: Improve traveler’s awareness to traffic conditions; Customer satisfaction

BENEFITS: Enhanced access to regional traffic information at large multi-modal centers will assist out-of town / unfamiliar travelers in route planning.

OTHER CONSIDERATIONS AND ISSUES:

LT-13: PARKING MANAGEMENT SYSTEM FOR PHILADELPHIA SPORTS COMPLEX

PROJECT DESCRIPTION AND SCOPE: Deployment of a parking management system for the entire Sports Complex. As there are many different lots and parking options, a unified system, letting travelers know where spots are available will help to alleviate some of the confusion and related congestion during large events. Project includes deployment of DMS to Broad St. and Pattison Avenue.

PROJECT LEAD: Philadelphia Sports Complex
OTHER STAKEHOLDERS: PennDOT 6-0

PERTINENT TSOP PROJECTS: None

ESTIMATED SCHEDULE: 3-4 yrs
Study: 1-2 yrs
Design: 0-1 yrs
Deployment: 1-2 yrs

ESTIMATED COSTS:
Capital: \$500,000
Annual O&M: \$50,000

PROJECT TYPE: Planning and Deployment **LEVEL OF EFFORT:** Moderate

TECHNOLOGY COMPONENTS (if applicable): Parking Management System, DMS

PREREQUISITES AND DEPENDENCIES: None

PERFORMANCE MEASURES: Travel time for locating parking; Customer satisfaction.

BENEFITS: Parking management system will help to alleviate congestion in and around the sports complex during large events.

OTHER CONSIDERATIONS AND ISSUES: N/A