

**TECHNICAL PROVISIONS
FOR THE
AMTRAK STATION IMPROVEMENT PROJECT:
MIDDLETOWN STATION**

**VOLUME II OF III
OPERATIONS AND PROCEDURES MANUAL**

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A.1. Purpose of Manual

The purpose of this Manual (Volume II (2) of the III (3) Volume set of Operating Standards), is to provide guidelines and criteria to the Development Entity on the basic development and submission of the Operational Plans discussed in the respective Chapters. Each Plan must be created by the Development Entity to maintain constant operation of the Project of the highest quality, consistent with best practices and the terms and conditions of the Public-Private Transportation Partnership Agreement (PPA).

A.2. Staffing Identification

The Development Entity is solely responsible for each employee, Vendor, Contractor, Agent or Affiliate of the Development Entity and his/her actions while on the Project. The number of employees required shall be determined by the needs of the Development Entity to fulfill its maintenance, operation and contractual obligations consistent with the terms and conditions of the Public-Private Transportation Partnership Agreement (PPA).

The Project is a 24 hour-a-day, 365 days-per-year operation. For this reason, the Development Entity must recognize the need to have variable work shifts, employees, supervisors and personnel so as to maintain constant and consistent operations of the highest management practices and terms and conditions of the Public-Private Transportation Partnership Agreement (PPA).

A.2.1. Essential Staff

The Development Entity must identify which staff is essential to the operation of the Project. These persons may alternate based upon seasonal variations, operation requirements, weather conditions, etc. The essential staff personnel must be “response- ready” and contactable by the Department, if and when an event warrants.

A.2.2. Non-Essential Staff

The Development Entity must employ persons who perform job duties as needed, but may not respond to an event or situation. These employees, while important to the continual functionality of the Project, may be deemed as non-essential staff.

A.2.3. Shift Organization

The Development Entity must create work shifts that preserve the continual and consistent operation of the Project. Staff requirements must be based upon the actual and anticipated needs of the Project.

A.2.4. Essential Staff Personnel Matrix

The Development Entity must create, maintain, submit to the Department, and update as appropriate, a personnel matrix of the Development Entity’s essential staff that includes, but is not limited to, the following:

- Employee Name
- Title
- Position/Job Classification
- Basic Job Responsibilities
- Contact Information
 - Cell Phone; Mobile Phone; or Pager Number
 - E-Mail (if applicable)
 - Home Phone Number

A.3. Interagency Coordination

The Development Entity must be aware that the operation of the Project requires coordination with multiple agencies, including but not limited to, systems, departments, municipalities, counties, commissions and organizations (collectively for purposes of this Chapter “Agencies”). The Development Entity must make every attempt to establish, maintain and provide coordination with all Agencies that pass under, over, are adjacent to, or are impacted by the Project.

It is the Development Entity’s sole responsibility to coordinate with the Agencies so that the continual operation of the Project is not disrupted in any manner, and that the Development Entity’s operation of the Project does not unduly impact the Agencies. Minimally, the Development Entity must be aware of, and must incorporate accordingly into Plans, the following Agencies at a minimum:

A.3.1. Department Counties, Townships, Municipalities & Other Agencies

The Development Entity shall be aware that the Project resides within the limits Middletown Township, Dauphin County, District 8-0. Various state and local routes run adjacent and through the Project.

All improvements within the Project that modify or deviate in any way from the PPA, shall be coordinated and plans shared with the Department and Project Stakeholders listed in Chapter L.3.3 of these Technical Provisions.

A.3.2. Pennsylvania Department of Transportation (PennDOT)

The Development Entity shall be aware that the Project has elements which interface with U.S. Routes, State Routes, and Federal Interstates that are maintained and operated by the Pennsylvania Department of Transportation (PennDOT).

The Development Entity must coordinate its work efforts at all of those locations in accordance with all existing agreements and guidelines required by PennDOT. The Development Entity must be aware that it is responsible in filing and obtaining a “Highway Occupancy Permit” when the Development Entity’s work is within PennDOT Right-Of-Way.

All improvements within the Project that modify or deviate in any way from the PPA must be coordinated and approved by Department. In addition, all such improvements must be submitted so that applicable projects are included in the Department’s Transportation Improvement Plan.

A.3.3. *Railroads*

The Development Entity shall be aware that the Project is adjacent to and includes Rights-of-Way owned and operated by numerous Railroad Companies, in which those railroads retain certain rights. In addition, the Development Entity must also be aware that the Pennsylvania Public Utility Commission (PUC) holds sole jurisdictional rights over all rail-highway crossings. The Development Entity must coordinate its work efforts in those locations with the PUC and each particular Railroad Company. If the Development Entity's work requires entry onto Land owned or operated by a Railroad Company, the Development Entity must obtain the appropriate permission, right-of-entry, insurance certificates, or other matters as necessary and required.

Further, the Development Entity shall be aware that the Project includes areas over, beneath and adjacent to AMTRAK, which operates some of its system by use of a direct-current electrically powered overhead contact system that in some cases may be attached to the Project structure underside(s).

A.4. Submission and Approval of Plans

Chapters B through M of this Volume require the submission of Annual Plans and Reports by the Development Entity to the Department for Approval by the Department. The Development Entity must submit all such Plans to the Department for Approval no later than 120 days after the Closing Date, as defined in the PPA, unless otherwise agreed to by the Department and the Development Entity. The Development Entity must submit all such Plans and Reports annually for Approval by the Department, as required by Chapters B through M of this Volume. The Department shall Approve or deny each such Plan or Report within 120 days after submission by the Development Entity. If the Department returns a Plan or Report because it does not meet Approval, the Development Entity will have 30 days in which to revise and resubmit such Plan or Report to the Department.

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B.1. Definitions

American Society for Quality (ASQ): The U. S. National organization for standards that promotes quality in process, methods, and the environment.

Best-practice: A level of performance that is equal-to-or-better-than the performance commonly attributed to top-tier highway systems.

Continuous Improvement: The recurring activity employed to increase the ability to fulfill requirements of the asset and the Operating Standards.

International Organization for Standardization (ISO): The International organization for standards that promotes quality in process, methods and the environment. Complying organizations prepare written procedures according to an established model.

Level of service (LOS): As defined by the “Highway Capacity Manual” and “AASHTO - Geometric Design of Highways and Streets”, which lists the following levels of service: A = Free flow, B = Reasonably free flow, C = Stable flow, D = Approaching unstable flow, E = Unstable flow, and F = Forced or breakdown flow.

Stakeholder: Those entities or individuals, public or private, who care, directly or indirectly, about the quality of the Project’s operation.

Value Engineering (VE): A structured, guided team exercise aimed at developing the best solution for a problem. The team is usually led by a certified Value Engineer.

Zero defects: The attitude that operating defects are entirely preventable through training, procedures, planning, self monitoring, and peer observations.

Zero injuries: The attitude that injuries are entirely preventable through training, procedures, planning, self monitoring, and peer observations.

B.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Publication 10: “Design Manual, Part 1: Transportation Program Development and Project Delivery Process”, PennDOT.
- Publication 10A: “Design Manual Part 1A: Pre-TIP and TIP Program Development Procedures”, PennDOT.
- Publication 25: “Quality Assurance Manual”, PennDOT.
- Publication 615: “Scheduling Manual – Procedures For Design Schedules”, PennDOT.
- Strike-Off Letters”, PennDOT.
- ANSI/ISO/ASQ Q90002015 “Quality Management Systems – Fundamentals and Vocabulary”, ASQ.
- ANSI/ISO/ASQ Q90012015 “American National Standard: Quality Management Systems – Requirements”, ASQ.
- ANSI/ISO/ASQ E1400115 “American National Standard: Environmental Management Systems – Requirements with Guidance for Use”, ASQ.
- ANSI/ISO/ASQ E1400416 “American National Standard: Environmental Management Systems – General Guidelines on Implementation”, ASQ.
- “A Policy on Geometric Design of Highways and Streets”, AASHTO.
- “Highway Capacity Manual”, Transportation Research Board.
- “Traffic Engineering Handbook”, ITE.

B.3. Policy for Project Management Plan

B.3.1. Objective

The Project Management Plan (PMP) is the formal guide submitted to the Department that articulates the manner and specifics of how the Project will be operated and managed. The Development Entity shall administer and manage the execution of the Work described in these Technical Provisions and the PPA in accordance with the requirements in this Volume II of these Technical Provisions and the Project Documents. The Work will be implemented consistent with the PMP described in this Volume II. The PMP is a Discretionary Submittal which is subject to Department approval in its sole or absolute discretion. All component plans described in this Volume II are also Discretionary Submittals, with the exception of schedule-related submittals.

The PMP shall detail the Development Entity's organization, staffing, systems, strategies, approaches, procedures, and methods for the administration and management of the Work in accordance with the Project Documents, as further described in this Volume II. The PMP will be consistent with and build upon the Preliminary PMP submitted with the Proposal. There shall be only one PMP for the Development Entity and all Development Entity-Related Entities. The PMP is a collection of several plans as further described in this Volume II of the Technical Provisions. Each part of the PMP shall include details of internal and external auditing procedures.

The Department reserves the right to audit and monitor the activities described in the PMP to assess Development Entity performance and assess Noncompliance Points as set forth in Schedule 7 of the PPA. The Project Management Plan establishes the Development Entity's management approach used in its operations of the Project. The objective of the Project Management Plan is to describe the overall Project structure: deliverables; related management plans and procedures; and the methods utilized by the Development Entity to plan, monitor, control and improve the Project. The Project Management Plan is a "living" and dynamic document that is to be updated on an annual basis, or as required, and must reflect all organizational changes, lessons learned, and advances in the methodologies that occur on the Project throughout the life of the concession lease.

The PMP must:

- Establish the comprehensive operating expectations that the Department has of the Development Entity.
- Create a realistic plan to meet the administrative, technical and coordination requirements of operating the Project
- Establish a rigorous and orderly framework in accordance with sound business and management practices.
- Promote teamwork among the participants in the Project's operation.
- Act as a reference for the Development Entity's senior managers.
- Guide the actions of the Development Entity's staff, supervisors and managers.
- Provide the Department with a clear statement of the authority and responsibility of each member of the Development Entity's staff.
- Present the methodology by which the Development Entity will conduct non-normal operations.
- List the types of formal communications required between the Development Entity and the Department.
- Establish the criteria for strategic and capital planning.
- Develop a mechanism to inform the Department, in a timely manner, of significant problems that affect the patrons.

The Development Entity must conduct all of its work so that the Project is operated and managed in a safe, reliable and cost effective manner at all times. These characteristics are further defined as follows:

- Safe: All features of the Project place safety of its patrons and employees as a paramount concern at all times.
- Non-stop: The Project patron travels freely through the system without stoppages for construction or maintenance work necessary, temporary obstructions are thoughtfully planned.
- Free-flowing: The Project is operated in a continual condition that allows for unencumbered travel, within the posted speed limit, with reasonable ability for safe lane changes.
- Cost effective: The Project patron perceives that the value of the trip on the Project is worth the expense. The Development Entity must understand that the Project patron makes the multi-dimensional value judgment based on ease of access, time saved over alternate routes, fuel saved over alternate routes, customer amenities, reduced driving decisions over alternate routes, demeanor of employee-customer contacts, safety and visual interest enroute.
- Reliable travel and services: The Project patron must always expect that the services provided by the Development Entity are consistent and safe.

B.3.2. *Responsibility of the Development Entity*

It shall be the Development Entity's responsibility to develop, write and implement the Project Management Plan in accordance with the objectives outlined in B.3.1 of this Chapter. The Chapter and its contents have been provided as a preparation guideline that addresses the minimum required criteria and is not intended to be all inclusive. The Plan must be updated and submitted annually and must receive Approval from the Department and, as appropriate, from all other governing authorities.

The Development Entity must be aware in the creation, implementation and management of the Project Management Plan that the following goals are to be met:

- Average hourly traffic on the Project shall be maintained at LOS "C" or better.
- No part of the Project shall be permitted to reach a LOS "F".
- All phases of operations shall demonstrate active Projects that promote "Zero Injuries", "Zero Defects" and "Continuous Improvement".
- The quality of all Project patron amenities shall be best-practice.
- Project safety considerations must be best-practice.
- Project patron communication techniques shall be best-practice.
- Construction traffic adjustments must be safe, logical, unambiguous and the least disruptive to the travel experience.

B.3.3. Performance Time Frames

The following table establishes the minimum frequency that the Project Management Plan is to be written and updated by the Development Entity, submitted to the Department and Approved by the Department.

Plan	Minimum Frequency of Occurrence
Project Management Plan	Once Yearly

B.3.4. Acceptance Criteria

The Project Management Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, submitted to the Department and Approved by the Department.

B.4. Project Management Plan Preparation Requirements

The following is a general outline of the Development Entity's responsibilities that must be included and addressed when creating the Project Management Plan. The outline is not intended to be all-inclusive, but rather, contains the *minimum* items that should be included and addressed in the Project Management Plan.

The Project Management Plan must include provisions for annual and periodic updates, training and supervision of staff and adherence to all policies and procedures.

B.4.1. Introduction

This section is to contain an introduction to the Project Management Plan that includes a general description of the intent, vision and goals of the Plan implemented and utilized by the Development Entity.

At a minimum, this section is to contain the following sub-sections:

- Project Information
- Project Overview
- Key Project Events
- Objectives and Goals
- Vision Statement

B.4.2. Management Organizational Structure

This section of the Plan must describe the management and organizational structure of the Project. The organization includes Development Entity personnel, contractors, subcontractors, Patrons, and the Department. The description of each must include the role, involvement and interface of each entity into and within the Project.

This section must also describe the roles and responsibilities of the Project personnel, including, but not limited to:

- Project Executive (If different from the Project Manager)
- Project Manager
- Design Lead
- Operations and Maintenance Manager
- Operations Manager
- Parking Fee Collections and Operations Manager
- Project Chief Financial Manager
- Project Controller
- Safety and Training Manager
- Traffic Control Operations Manager
- Quality Assurance Manager.

This Section of the Plan must also establish and define:

- How the Project and Plan will be managed.
- What the organizational structure will be.
- What the distribution of authority and responsibility will be.

The Plan must also contain sections addressing, but are not limited to, the following:

- Management Approach: Definition of the basic management principles that will be used. Application of the principles of “Zero Injuries”, “Zero Defects”, and “Continuous Improvement” must be presented.
- Organizational Chart: Present an organization chart with enough detail to illustrate all staff levels and lines of communication.
- Function: Explain the functional responsibility for all major groups in the organization. Explain the responsibilities of key individuals by title.
- Audits: Explain the types of audits the Development Entity will perform and receive.
- Training: Explain the role of staff training in the Development Entity’s operation. Explain the level of the required training and how it will occur.

B.4.3. *Management Plans*

This Section of the Plan will address a variety of management plans that address specific functions that the Development Entity will conduct in its operation of the Project. The subsections include, but are not limited to, the following:

B.4.3.1. Communication

The intent of this section is to show the critical role communication, in its many dimensions, plays in a successful endeavor, and define the type of normal communication with the Department, stakeholders, and Patrons. This section must also describe generally how Plans will be implemented in cases of emergencies.

B.4.3.2. Quality

The intent of this section is to show the importance of Quality Assurance (QA) and Quality Control (QC) in the overall operation of the Project and to indicate the interface with the Quality Management Plan (QMP) required in Volume II, Chapter C.

This section must also explain whether the Project will seek ISO certification or registration.

B.4.3.3. Strategic and Capital Planning

The intent of this section is to show the importance of planning in the operation and continuous improvement of the Project. This Chapter must explain the processes, philosophies and criteria that will be employed in authoring the “Annual Capital Improvement Project Report”, that is described and required in Volume II, Chapter M, “Annual State of the Amtrak Station Improvement Project Report”.

The Plan must address and explain long-range goals in several categories, such as: roadway, facilities, tunnels, Parking Fee collection, major structures, maintenance, customer contact features, and technology, etc.

B.4.3.4. Project Management Controls

The intent of this section is to outline the Development Entity’s approach to the management of cost, scheduling, document control, and reporting. The primary purpose of Project Management Controls is to establish clear cost and schedule criteria for the Project, to monitor status, to propose corrective action when required, and to ensure that pertinent information is communicated. Where applicable, references should be made to the Quality Management Plan (QMP) required in Volume II, Chapter C.

Individual subsections must be included that describe the following:

- Work Breakdown Structure (WBS): Description of how various levels of information for the Project will be managed and reported.
- Schedule Control: Description of how the Project is scheduled by the Development Entity. Special attention should be given to construction schedules.
- Communication and Information Management: Description of how Project teams will communicate. Also, strategies and processes the Development Entity will employ such as: project status reports; requests for information; team directories; meeting minutes; design information; project documentation, etc.
- Document Control: Description of how the Development Entity will manage and administer the Project and Project documents.

B.4.3.5. Procurement

The intent of this section is to describe how the Development Entity will administer the procurement of materials, equipment, services, and consultants. The controlling regulations must be cited. This section must reference the applicable sections of the Quality Management Plan (QMP) required in Volume II, Chapter C and the requirements described in Volume II, Chapter L, “Design & Construction Requirements”.

Individual subsections must be included that describe the following:

- Procurement Cycle: Description of how the Development Entity will offer a procurement cycle, and discuss the functionality and responsible parties in the cycle.
- Change Orders: Description of how the Development Entity will address change orders, and who handles which part of the process.
- Dispute management: Description of how the Development Entity will manage project work in order to minimize the potential for disputes. In the event that a dispute arises, the Development Entity will comply with all applicable parts of the QMP Plan. Refer to Article 30 of the PPA for Dispute Resolution Procedures.

B.4.3.6. Design Management

The intent of this section is to describe the organization, responsibilities, criteria and functionality with the requirements of Volume II, Chapter L, “Design & Construction Requirements”.

Individual subsections must be included that describe the following:

- Organization: Description of how the Development Entity will address the design process from concept to construction documents to construction. Describe the functional titles within a design group and list the responsibilities of each title. State who establishes the design criteria and the budget. Describe how design is managed in general and, specifically, how designs are managed to a budget. Explain if peer reviews or constructability reviews will be performed.
- Design guidelines: Description of how the Development Entity will develop and use design guidelines and standard specifications.
- Value Engineering (VE): Description of how the Development Entity will employ value engineering into the Project.

B.4.3.7. Construction Management

The intent of this section is to describe the organization and responsibilities of the construction management function within the requirements of Volume II, Chapter L, “Design & Construction Requirements”.

Individual subsections must be included that describe the following:

- Organization: Description of how the Development Entity will address the construction management process from pre-construction to final acceptance. Describe the functional titles within a construction management group and list the responsibilities of each title.
- Construction Management Elements: List and briefly describe files, documentation, procurement, change order control, communications and correspondence, coordination, cost control, schedule control, disputes, alternates/substitutions, shop drawings, progress documentation, payouts, reporting, inspections, commissioning, acceptance, turnover, close-out, warranties, bonuses, and liquidated damages.

B.4.3.8. Technology Plan

The intent of this section is to: (1) describe how the Development Entity will apply existing technologies and methods to the initial structure of the Development Entity’s organization, and (2) present a plan on how to evaluate and apply future technologies and methods.

This section must be organized along the following technology groups: administrative; normal communication; emergency communication; revenue; parking structure maintenance; building maintenance; design; construction; and customer contact.

B.4.3.9. Risk Management

The intent of this section is to have the Development Entity explain how a risk profile is created, evaluated, and mitigated for the Project. Each risk profile should include, but not be limited to, the following risks: customer safety after construction, construction safety, construction cost, customer acceptance, obsolescence, and environmental.

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C.1. Definitions

American Society for Quality (ASQ): The U. S. National organization for standards that promotes quality in process, methods, and the environment.

Best-practice: A level of performance that is equal-to-or-better-than the performance commonly attributed to top-tier highway systems.

Continuous Improvement: The recurring activity employed to increase the ability to fulfill requirements of the asset and the Operating Standards.

Patron Satisfaction: The customer's (Patron) perception of the degree to which the customer's requirements have been fulfilled.

International Organization for Standardization (ISO): The international organization for standards that promotes quality in process, methods, and the environment. Complying organizations prepare written procedures according to an established model.

Program: The Development Entity's entire operation of the Pennsylvania Project.

Project: An isolated chain of events that have a beginning and an end. The result is a material improvement to the System.

Quality: The degree to which a set of inherent characteristics fulfills the requirements of the Operating Standards and the needs of the Project.

Quality Assurance: The portion of the Quality Management System that focuses on increasing the ability to fulfill quality requirements.

Quality Control: The portion of the Quality Management System that focuses on fulfilling the quality requirements.

Quality Management System (QMS): The process employed by the Development Entity to direct and control its work organization with regard to quality.

Quality Objective: Something sought, or aimed for, related to quality.

Quality Planning: The portion of the Quality Management System focused on setting quality objectives at the highest level.

Quality Policy: The overall intentions and direction of the Development Entity related to quality as formally expressed by Top Management.

Requirement: The need or expectation that is stated, generally implied or obligatory.

Stakeholder: Those entities or individuals, public or private, who care, directly or indirectly, about the quality of the Project's operation.

Top Management: The Development Entity's person or group of people that directs and controls the organization at the highest level.

Value Engineering (VE): A structured, guided team exercise aimed at developing the best solution for a problem. The team is usually led by a certified Value Engineer.

Zero defects: The attitude that operating defects are entirely preventable through training, procedures, planning, self-monitoring and peer observations.

Zero injuries: The attitude that injuries are entirely preventable through training, procedures, planning, self-monitoring and peer observations.

C.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Publication 8: “Construction Manual”, 2008 Edition, PennDOT.
- Publication 10: “Design Manual, Part 1: Transportation Program Development and Project Delivery Process”, PennDOT.
- Publication 10A: “Design Manual, Part 1A: Pre-TIP and TIP Program Development Procedures”, PennDOT.
- Publication 10B: “Design Manual, Part 1B: Post-TIP NEPA Procedures”, PennDOT.
- Publication 10B: “Design Manual, Part 1B: Post-TIP NEPA Procedures”, PennDOT.
- Publication 10C: “Design Manual, Part 1C: Transportation Engineering Procedures”, PennDOT
- Publication 10X: “Design Manual, Part 1X: Appendices to Design Manuals 1, 1A, 1B, and 1C”, PennDOT
- Publication 19: “Field and Laboratory Testing Manual”, PennDOT.
- Publication 25: “Quality Assurance Manual”, PennDOT.
- Publication 351: “Bituminous or Asphalt Technician Certification Program”, PennDOT.
- Publication 408: “Highway Construction Specifications”, PennDOT.
- “Strike-Off Letters”, PennDOT.
- ANSI/ISO/ASQ Q9000-2015 “Quality Management Systems – Fundamentals and Vocabulary”, ASQ.
- ANSI/ISO/ASQ Q9001-2015 “American National Standard: Quality Management Systems – Requirements”, ASQ.
- ANSI/ISO/ASQ Q9004-2009 “American National Standard: Quality Management Systems – Managing for the Sustained Success of an Organization”, ASQ.

C.3. Policy for Quality Management Plan

C.3.1. Objective

The objective of the Quality Management Plan (QMP) is to create, maintain, implement, follow and update a set of policies, processes and procedures required for planning and execution in the core business area of organization on an Annual basis. The Quality Management Plan must integrate the various internal processes within the Development Entity's organization and provide a process approach for project execution. The Quality Management Plan further enables the Development Entity to identify, measure, control, and improve the various core business processes that will ultimately lead to improved business performance and provide the Department a means to measure effectiveness of those processes, policies and procedures.

The Quality Management Plan (QMP) shall contain a complete description of the quality policies and objectives that Development Entity shall implement throughout its organization and in the execution of the Work. The policy shall demonstrate Development Entity senior management's commitment to implement and continually improve the quality management system for the Work.

The QMP shall be consistent with the preliminary QMP submitted with the Proposal and expand on the quality control procedures to verify, check, and review the quality of all Work and quality assurance procedures to confirm that the quality control procedures are being followed.

The objective of the Quality Management System (QMS) is to create, maintain, implement, follow and update a set of policies, processes and procedures required for planning and execution in the core business area of organization on an Annual basis. The Quality Management System Plan must integrate the various internal processes within the Development Entity's organization and provide a process approach for project execution. The Quality Management System Plan further enables the Development Entity to identify, measure, control and improve the various core business processes that will ultimately lead to improved business performance and provide the Department a means to measure the effectiveness of those processes, policies and procedures.

The Development Entity must understand that another main objective of the QMP is to establish "customer-related" processes in the form of policies and must implement processes and procedures for the following:

- Determination of requirements related to the products and services.
- Review of the requirements related to the product and services.
- Patron communication

The Development Entity must also make the objective of its Top Management commitment to the following:

- The Quality Policy is appropriate to the purpose of the Development Entity's organization.
- A commitment to comply with requirements and continually improve the effectiveness of the Quality Management System.
- Provide a framework for establishing and reviewing Quality Objectives.
- The QMP is communicated and understood within the Development Entity's organization.
- The Quality Management Plan is reviewed for continuing suitability.

The QMP shall contain detailed procedures for Development Entity's quality control and quality assurance activities for the Project in accordance with the Project Documents. Development Entity's quality process shall ensure that all performance requirements of these Technical Provisions are achieved throughout the Term and shall incorporate planned and systematic verifications and audits. Development Entity shall conduct all quality control, quality assurance and performance verification in accordance with the QMP and the requirements of the Project Documents.

The Quality Management Plan must establish a system to assure compliance with established performance requirements including, but not limited to:

- Supplies and services that will be controlled for conformance.
- Methods for the prevention and detection of discrepancies and the subsequent corrective action provided.
- Standardize and control processes for document generation, storage, retrieval, and distribution.
- Unification of all employees as members of the quality team.
- Promotion of innovation utilizing the idea of "Continuous Improvement".
- Reduction of errors in all phases of the Development Entity's operation by promoting the idea of "Zero Defects".

An ISO compliant QMS generally includes the following:

- Level 1 Documents - The commit of Top Management to the principles of ISO by establishing policies in the areas required by the standard in five (5) components:
 - Quality Management System
 - Management responsibility
 - Resource management
 - Product and service delivery
 - Measurement, analysis and improvement
- Level 2 Documents – Specific documented procedures in written procedures and/or process maps to implement all items included in Level 1 policies
- Level 3 Documents – Specific work instructions for performing the tasks involved to performing the Level 2 procedures
- Level 4 Documents - Specific forms, worksheets, checklists, etc. to record information and data providing "objective evidence" that the procedures and/or work instruction in the Level 2 and 3 documents were followed.

The Quality Management Plan developed by the Development Entity must include, at a minimum, all the points and requirements presented in this Chapter.

- Quality Management System Policy Manual (QMSPM): The purpose of this Section of the Plan is to establish the Level 1 Policy documents that provides Top Management's requirements for management of quality.
- Quality Procedures Manual: The purpose of this Section of the Plan is to implement policies in the QMSPM through documented procedures in the form of written procedures and/or process maps that include "key points of control", which is the Level 2 documents.

- **Training:** The purpose of this Section of the Plan is to present the specific and relevant training that everyone on the Development Entity’s staff and selected contractors will undergo regarding Quality Management.
- **Compliance Testing:** The purpose of this Section of the Plan is to present the management cadre to be initiated and implemented by the Development Entity in the Quality Management Plan. While the Development Entity’s Top Management team is the first-line compliance assessors (“auditors”), the Development Entity may elect to contract with independent outside auditors.

It is required that the Development Entity must be ISO certified in 9004 prior to submitting the Plan to the Department.

C.3.2. Responsibility of the Development Entity

The Development Entity’s Top Management of the organization must review the QMP Plan, at planned intervals, to ensure its continuing suitability, adequacy, and effectiveness. This review shall include assessing opportunities of improvement and the need for changes to the quality management system, including the quality policy and quality objectives.

It is the Development Entity’s responsibility to develop, write, and implement the Quality Management Plan and its components as denoted in Table C.3.3.a and Table C.3.3.b. The contents of this Chapter have been provided as a preparation guideline. This guidance addresses minimum required criteria and is not intended to be all- inclusive. The Quality Management Plan must be updated and submitted annually to the Department for Approval.

C.3.3. Performance Time Frames

The following table establishes the minimum frequency that the Quality Management Plan (QMP) is to be written and updated by the Development Entity, submitted to the Department and Approved by the Department.

Table C.3.3.a

Plan	Minimum Frequency of Occurrence
Quality Management Plan (QMP)	Once Yearly

In addition to the Quality Management Plan, the following table establishes the minimum frequency that audits to the QMP Plan must be performed by the denoted party, and as appropriate submitted to the Department for Approval.

Table C.3.3.b

Audit Plan	Minimum Frequency of Occurrence
External Conformance Audit of the QMP Plan by the Department (2 nd Party) or Independent Auditor (3 rd Party)	Every Third Year
Internal Audit performed by the Development Entity	Annually, 6 months after External Conformance or External Surveillance Audit
External Surveillance Audit by the Department (2 nd party) or Independent Auditor (3 rd Party)	Annually, the 1 st and 2 nd Year after External Conformance Audit

C.3.4. Acceptance Criteria

The Quality Management Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, and the Audits described in Table C.3.3.b have been submitted to the Department and Approved by the Department.

C.4. Quality Management Plan (QMP) Preparation Requirements

The following is a general outline of the Development Entity's responsibilities that must be included and addressed when creating the Quality Management Plan (QMP). The outline is not intended to be all-inclusive, but rather, contains the *minimum* items that should be included and addressed in the QMP.

The QMP must include provisions for annual and periodic updates, external audits, training and supervision of staff and adherence to all policies and procedures.

C.4.1. Quality Management System Policy Manual

The basic format of the Manual should follow the below outline:

1.1 Scope

This Section should contain the following elements, as a minimum:

- General Scope and outline of the Plan, including the purpose and Year of the Plan.

2.1 Introduction

This Section should contain the following elements, as a minimum:

- A statement that the Quality Assurance Manual is the top-tier document in the Quality System.
- A brief statement of the overall functional intent of the Manual.

3.1 Terms and Definitions

This Section should contain the following elements, as a minimum:

- Terms, definitions, abbreviations and acronyms found within the Plan.

4.1 Quality Management System

This Section should contain the following elements, as a minimum:

- This element must include controls of the Quality Assurance Manual with respect to issuance, revision control, and distribution.
- This element must include the Quality System that identifies, defines and documents policies, procedures, and controls employed by the Development Entity to ensure that the QMP Plan conforms to specified requirements and standards.
- This element must define the Quality System that will be utilized for the control of all documents. This shall include format, approval, issuance, revision, updates, and record retention.

- This element must outline the Quality System that will be utilized for data collection and analysis, including record retention; identify which records should be kept; establishment of responsibility for production and collection; and establishment of responsibility for indexing, filing, storage, maintenance and disposition of quality records.

5.1 Management Responsibility

This Section should contain the following elements, as a minimum:

- A statement of who on the Development Entity's staff has the authority to prepare the Quality Assurance Manual.
- This element must include the Development Entity's management responsibility and commitment as it relates to developing, maintaining and monitoring the effectiveness of the Quality Management Plan.

6.1 Resource Management

This Section should contain the following elements, as a minimum:

- This element must define how the Quality System establishes the training and indoctrination of personnel, particularly those in the direct performance of activities affecting quality.

7.1 Product and Service Delivery

This Section should contain the following elements, as a minimum:

- This element must include the outline of the Quality System that will be utilized for soliciting proposals, managing submittals thereof, and reviewing contracts.
- This element must describe the Quality System that will be utilized to assure that designs, design documents, and other work products fulfill regulatory requirements and contractual requirements. In addition, this section must also describe the System in preparing, reviewing, approving, issuing, and revising project documents.
- This element must outline and describe the Quality System that will be utilized for approving suppliers, reviewing contract documents, verifying purchased products or deliverables, and handling claims.
- This element must define the purpose of the Client-Support Control that will be employed to confirm and maintain the usefulness of products and data supplied by the Department, as applicable.
- This element must outline the procedures that will be employed in the identification and traceability of construction products and materials.
- This element must define the controls and standards that will be employed for inspection and testing equipment.

- This element must define how the Quality System establishes handling, storing, preserving and delivering materials.
- This element must define how the Quality System establishes a Project to manage the operational procedures of a contract.
- This element must define how the Quality System will develop plans for handling emergency situations. The element must include communications, traffic adjustments, media relations, customer relations, mitigation, materials, equipment, and repairs; and be develop by the class of emergency.
- This element must define how the Quality System establishes the need for maintenance, defines the scope of the maintenance, and manages the maintenance process.
- This element must define how the Quality System establishes the standards for all customer contact situations, informs customers of changes to expected patterns, elicits customer feedback and maintains a customer service function in various media. This includes the Project's website.
- This element must outline the Quality System will be established for setting the methods of customer payments, collecting customer payments in its various forms, banking, accounting, transfers, and audits.

8.1 Measurement, Analysis and Improvement

This Section should contain the following elements, as a minimum:

- This element must outline the process control activities that affect the quality of maintenance activities or construction.
- This element must outline the Quality System that will be utilized for ensuring all relevant maintenance and construction materials and products receive requisite inspection, testing, and reporting.
- This element must define the controls and reporting status that will be utilized during inspections.
- This element must outline the Quality System that will be utilized to control nonconforming materials or products.
- This element must define how the Quality System establishes corrective and preventive action mechanisms for correcting nonconforming situations as they pertain to products, materials and services.
- This element must define how the Quality System will establish performing internal quality audits.
- This element must define how statistical methods, in a manner similar to PennDOT Publication 408, will be developed to assess the development, progress and effectiveness of the Quality Management Plan.

C.4.2. *Quality Procedures Manual (QPM)*

The Quality Procedures Manual Section is the collection of finite, separate outlines of how to perform a task. The procedures mentioned in the Quality Management Systems Policy Manual, above, are top-level perspectives on the work. The procedures in the Quality Procedures Manual Section are the details of how to perform a task and its alternates; and are highly structured. The definition for each sub-section of the Quality Procedures Manual Section body should be in accordance with the following:

- 1.0 Summary: Briefing statement of what is covered in the procedure. This section lists and hazards of the task and any person protective equipment required.
- 2.0 References: Citations for academic, administrative, or regulatory precedent.
- 3.0 Equipment: Provide a detailed list.
- 4.0 Procedures: Broken-down phases or alternates which include detailed step-by- step instructions, and the utilization of process maps.
- 5.0 Documentation: Description of what must be recorded as a result of accomplishing or attempting to accomplish the task, including a list of task participants that may be part of the required documentation.
- 6.0 Attachments: List of the relevant project-specific attachments.

C.4.3. *Training*

Training is a major component of a Quality Management Plan. While most of this Section has specific details as described in the Quality Assurance Manual, this Section must present an overview and provide specific details on how the Development Entity will evaluate the needs, conduct and annually re-train the staff on the Quality Management Plan.

Training is an integral part of the quality management system and should not be treated as a stand-alone item by the Development Entity or its Top Management. It is important that all personnel performing work, affecting the Project quality, be competent on the basis of appropriate training, skills, and experience. In particular, the procedures must address, at a minimum, competence, awareness, and training in the following areas:

- Determine the necessary competence for personnel performing work affecting the Project.
- Provide training or take other actions to satisfy these needs.
- Evaluate the effectiveness of action taken.
- Ensure that personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives.
- Maintain appropriate records of education, training, skill and experience.

C.4.4. Compliance Testing

Compliance testing is also a major component of a Quality Management Plan. While most of this Section has specific details as described in the Quality Assurance Manual, this Section must present an overview, and provide specific details on how the Development Entity will conduct auditing in compliance with the Quality Management Plan.

Compliance Testing must be included and covered in the Level 2 documents with specific procedures under the specific paragraphs of Section 7.0 and Section 8.0 of the Quality management System Policy Manual. The Development Entity must pay particular attention to the Audit requirements stated in Table C.3.3.b.

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D.1. Definitions

Dynamic Message Signs (DMS): Signs which are capable of displaying a visual message by means of light bulbs, plastic tabs, etc., also known as Variable Message Signs (VMS) and Changeable Message Signs (CMS).

Emergency: An unforeseen occurrence or combination of circumstances which calls for immediate action or remedy.

Flashpoint: That lowest temperature at which a material gives off enough flammable vapor to ignite in the presence of a flame or spark.

Incident: An occurrence or event, natural or man-made, requiring a response to protect life or property.

Life Safety Systems: Devices and systems that are specifically designed and implemented to assist in the safety and preservation of human life. Examples include breathing apparatus, showers, first-aid kits, emergency call buttons, resuscitation/defibrillation equipment, etc.

Maintenance of Traffic (MOT): A plan for handling traffic through a work zone. The MOT may range in scope depending on the complexity of a project and resulting traffic interference.

Warning Sign: A sign that gives notice to road patrons of a potentially hazardous situation that might not be readily apparent. Examples include STOP AHEAD and LOW CLEARANCE signs.

Work Zone: The area of the Project in which maintenance or construction operations are taking place which may impinge on the number of lanes available to moving traffic or affect the operational characteristics of traffic flowing through the area.

Work Zone Sign: A sign that gives notice to road patrons of construction or maintenance activities and revised traffic conditions due to these activities. Work zone signs are required in advance of the site and must be erected through the work zone. Work zone signs include regulatory signs such as CONSTRUCTION SPEED LIMIT signs; warning signs such as FLAGGER or CONSTRUCTION ZONE AHEAD signs; and directional sign such as DETOUR or LANE CLOSURE signs.

D.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Occupational Health and Safety Act (OSHA) Guidelines
- OSHA Publications List via Catalog or Website, OSHA (Website: <http://www.osha.gov/pls/publications/pubindex.list>).
- “Guidelines for Public Sector Hazardous Materials Training”, U.S. Department of Transportation and Federal Emergency Management Agency.
- “NIOSH Pocket Guide to Chemical Hazards”, September 2007, NIOSH.
- Publication 8: “Construction Manual”, 2008 Edition, PennDOT.
- Publication 9: “Liquid Fuels Handbook”, PennDOT.
- Publication 19: “Field Test Manual”, October 2013 Edition, Change 6, PennDOT.
- Publication 23: “Maintenance Manual”, July 2013 Edition, PennDOT.
- Publication 25: “Quality Assurance Manual”, 2002 Edition, PennDOT.
- Publication 108: “Sign Foreman’s Manual”, 1996 Edition, PennDOT.
- Publication 111M: “Traffic Control Signing Standards TC-8700”, PennDOT.
- Publication 212: “2006 Official Traffic Control Devices”, PennDOT.
- Publication 213: “Work Zone Traffic Control Manual”, June 2014 Edition, PennDOT.
- Publication 234: “Flagging Handbook”, August 2012, PennDOT.
- Publication 238: “Bridge Safety Inspection Handbook”, March 2010 Edition, PennDOT.
- Publication 371: “Grade Crossing Manual”, December 2014 Edition, PennDOT.
- Publication 408: “Highway Specifications”, 2016 Edition, Change No. 3, PennDOT.
- Publication 611: “Waste Management Guidance”, November 2011, PennDOT.
- “Strike-Off Letters”, PennDOT.
- PennDOT Safety Inspection Bulletins.
- “Manual on Uniform Traffic Control Devices (MUTCD)”, 2009 Edition, FHWA.
- “A Policy on Geometric Design of Highways and Streets”, 2011 Edition, AASHTO.
- “Traffic Engineering Handbook, 7th Edition”, January 2016, ITE.

D.3. Policy for Safety Plan

D.3.1. Objective

The objective of the Safety Plan is to ensure that the Development Entity has considered, trained, addressed and planned for situations that could be deemed as creating an unsafe situation to the workers and public within or adjacent to the Project.

It is the Development Entity's focus, policy and purpose to conduct all work in the safest possible manner so as to protect its workers and the public at all times, under all conditions and in full conformance and consistent with all applicable laws, rules, codes and policies.

D.3.2. Responsibility of Development Entity

It is the Development Entity's responsibility to establish, write, and execute a comprehensive Safety Plan that addresses the protection of its workers and the public and to insure that its procedures are being implemented and enforced. This Chapter and its contents have been provided as a preparation guideline that addresses the minimum required criteria, and is not intended to be all inclusive. The Plan is to be updated and submitted annually and must receive approval from the Department and, as appropriate, from all other governing authorities.

The most important part of the Safety Plan is to protect the workers from traffic, and vice versa. This can be accomplished by including the following principles in the Safety Plan:

- Keeping motorists informed. This can be accomplished with signs, flags, barricades, cones, flashing amber lights, dynamic message signs and flashing arrow signs.
- Avoidance of the errant driver by workers. Face traffic; stay aware with your own eyes and ears or those of a look-out who will warn you. Plan an escape route.
- Utilization of protective equipment. Protective vehicles, truck mounted crash headrests, seat belts/shoulder harnesses, hard hats, safety vests, etc.
- Planning work such that it reduces and/or protects employees' exposure to traffic. This can be accomplished with the use of well conceived, developed, reviewed and approved Traffic Control and Work Zone plans and procedures.
- Immediate notification of all incidents. Development Entity's Safety Plan shall address procedures for immediately notifying the Department and the affected Transit Agency of all Incidents arising out of or in connection with the performance of the Work, whether on or adjacent to the Project.

The Development Entity must be sure that the Safety Plan includes, and all employees are aware of, and as applicable, trained in the requirements and standards of the Occupational Safety and Health Administration (OSHA), so that the proper levels of protection are fulfilled for the potential exposure.

This Chapter includes a general outline of the proposed Plan. This outline is intended only to provide guidance in the preparation of the Development Entity's Plan and must be modified, revised or changed, as appropriate, to address specific issues, needs or concerns related to the Project that develop over time.

D.3.3. *Performance Time Frames*

The following table establishes the minimum frequency that the Safety Plan is to be written and updated by the Development Entity, submitted to the Department, and approved by the Department.

Plan	Minimum Frequency of Occurrence
Safety Plan	Once Yearly

D.3.4. *Acceptance Criteria*

The Safety Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, submitted to the Department and Approved by the Department.

D.4. Safety Plan Preparation Requirements

The following is a general outline of the Development Entity's responsibilities that should be included and addressed when creating the Safety Plan. The outline is not intended to be all-inclusive, but rather, contains the *minimum* items that must be included and addressed in the Safety Plan.

The Safety Plan must include provisions for annual and periodic updates, training and supervision of staff, and adherence to all policies and procedures.

D.4.1. Introduction

This section is to contain a short introduction to the Safety Plan that includes a description of the persons or agencies involved in the preparation, a designated individual who is charged with the implementation and maintenance of the Safety Plan, and the overall goals and objectives of the Safety Plan. At a minimum, this section is to contain the following sub-sections:

- Purpose.
- Scope and applicability.
- The methodology used to develop and implement the Safety Plan.

D.4.2. System Location & Emergency Contact Protocol

This section is to provide an overview and system position location of the Project; a background of the anticipated work activities and hazards; and the protocol and procedures that must be followed during an event that results in an injury. At a minimum, this section is to contain the following:

- Location plan map of the Project and all designated Emergency Care Facilities.
- General description of the location of the Project including its entrance and exit features.
- Emergency/Contingency protocol and procedures.
- Emergency/Contingency Care Facility Information.
- Injury/Illness/Incident Reporting and Notification.

D.4.3. First-Aid and Medical Treatment

The Development Entity is responsible for maintaining a safe environment that may include the need for emergency medical attention. The Safety Plan should include sections that describe the provisions for first-aid and emergency medical treatment, at a minimum, as follows:

- Training for first-aid and emergency medical treatment.
- Emergency First Aid.
- Emergency Medical Treatment.

D.4.4. *Safety Roles and Responsibilities*

This section must identify the personnel and responsible staff which will implement, maintain, and enforce the Safety Plan rules and policies.

The Plan must include provisions to ensure that all employees are able to understand their specific assignment and any associated tasks with regards to the Safety Plan. Duties and responsibilities must be clearly defined for personnel within the Project, including the following positions:

- Health and Safety Manager
- Project Manager / Site Safety Manager
- Project Personnel
- Construction Foreman
- Contractor's Safety Representative

D.4.5. *Training*

This section must identify and include comprehensive provisions for the training of all persons working within the Project Limits, and must include the following at a minimum:

- The development of safety related training programs to ensure all employees receive regular direction.
 - General training to cover hazards basic to all places of employment.
 - Specific training to cover hazards that are unique to each employee's job assignment including, but not limited to, execution of work, materials application, and equipment operations.
 - New employee health and safety orientation and training.
 - New or updated process training for new or previously unrecognized hazards or when a new or previously unrecognized hazard is identified.
- Procedures to ensure that each employee understands and adheres to safe and healthy work practices and procedures.
- Recurring training programs to ensure that all employees remain abreast of safety and health regulations affecting the operations they are involved with or supervise.
- Policies that ensure each employee is provided with the equipment necessary to complete assigned tasks safely.
- Policies and procedures that address the counseling and training of employees so as to minimize the human factors that can contribute to injury or illness.

D.4.6. *Job Hazard & Safe Work Standards*

This section must identify, define the practices and procedures, and detail all hazards and their prevention which may be encountered while performing work within the Project Limits. Included in this section must be all anticipated activities (including maintenance, construction and operations), and all unanticipated activities (including Hazardous Material/Incident or Spills). At a minimum the Standards are to contain the following hazards:

- Anticipated Routine Physical Hazards
 - Abrasive Blasting
 - Aerial Lifts
 - Asbestos Operations
 - Back Injury Prevention
 - Cold Stress Recognition and Control
 - Corrosive and Reactive Materials
 - Confined Space Entry
 - Demolition Operations
 - Dust Control
 - Drilling Safety Guidelines
 - Electrical Safety
 - Environmental Material Compliance (MSDS & VOC)
 - Excavation & Trench Safety
 - Fall Protection
 - Fire Prevention
 - General Site Rules and Requirements
 - Flammable and Combustible Liquids and Gases
 - Hand and Portable Equipment
 - Heat Stress Recognition and Control
 - Heavy Equipment Operations
 - Housekeeping
 - Lead in Construction
 - Marine Safety and Boat Operation
 - Material Storage & Handling
 - Noise and Hearing Conservation
 - Nuclear Density Gauge Safety
 - Office Ergonomics
 - Portable Ladders

- Railroad On-Track Safety
- Respiratory Protection
- Rigging
- Scaffolding
- Subcontractor Health and Safety Requirements
- Utility Clearances and Isolation
- Vehicle Safety Program
- Work over Water
- Unanticipated Physical Hazards
 - Biological Hazards & Exposure
 - Chemical Hazards & Exposure
 - Environmental Waste Operations & Exposure
 - Explosive Atmospheres
 - Hazardous Materials/Dangerous Goods Shipping
 - Hazardous Material/Incident or Spills: The special procedures for notification, handling and removal of hazardous materials caused by incidents shall reference the specific portions of the Emergency Management and Operation Plans addressed in Volume II, Chapter K, “Emergency Management & Operations Plan”.
 - Radioactive Exposure
 - Testing and Sampling Practices

D.4.7. *Personal Safety*

This section must address the personal safety procedures that must be adhered to along with personal safety devices that must be provided to complete assigned tasks. Items considered for personal safety include personal protective equipment and include, but are not limited to, reflective vests, hard hats, protective clothing, protective footwear, hearing protection, vision protection, respiratory protection and any other necessary equipment as specified in the Safety Plan to protect the wellbeing of the worker on the Project. The Safety Plan must address the following for each article of personal safety:

- Situations that require the personal protective equipment.
- Limitations of the protective equipment.

D.4.8. *Decontamination Procedures*

This section must, in the event of a Hazardous Material/Incident or Spill, include directives for decontamination procedures. This section must incorporate the applicable and appropriate sections of Volume III – Environmental Management Manual, and must conform to and work in conjunction with the Environmental Management Plan. Items to be included must include, but are not limited to, the following tasks:

- Sanitation
- Decontamination – Medical Emergencies
- Decontamination of Tools & Equipment

D.4.9. *Work Zone & Site Safety*

This section must identify the tasks, procedures, and policies required for when Work Zones for construction and/or maintenance activities are present whether in the field or in a Project. The Safety Plan is to contain, at a minimum, sub-sections addressing the following issues:

- General Work Zone activities and requirements
 - Signs and Bulletin Boards
- Safety Regulations – Vehicles and Drivers
 - Drivers and Operators
 - Parking Vehicles
 - Backing Vehicles
 - Hand Signals
 - Vehicles or Equipment Breakdowns
 - Training
 - Licenses and Certifications
 - Construction Equipment and Vehicles
 - Protective Vehicles (shadow, barrier, and advance warning)
 - Field Equipment
 - Equipment Lights, Warning Signs and Flags
 - Towing and Safety Chains
 - Safety Equipment in Vehicles
- Transporting Equipment & Materials
- Handling Explosive and Flammable Materials
- Access to Median Work Zones
- Night Work
- Shop Equipment
 - Welding Equipment
 - Shop Tools

- Worker Exposure Reduction
 - Planning Work
 - Working Near Moving Traffic
 - Facing Traffic
 - Crowding of Workers
 - Crews Working Across From Each Other
 - Warning Systems - Signs
 - Warning Systems – Flashing Arrow Signs
 - Warning Systems – Flashing Amber Lights
 - Warning Systems - Lookouts
- Vehicle Intrusion Alarms

D.4.10. *Work Zone Traffic Control*

One of the most important items that must be addressed in the Safety Plan is the requirements, procedures, and policies for Traffic Control when work is proposed to occur on, adjacent to, or near areas where traffic is present. The Safety Plan must either solely address Traffic Control; or make specific reference to the applicable and appropriate sections of Volume II, Chapter I, “Traffic & Travel Management Plan”. The Safety Plan must include the requirement that each operation be reviewed and approved to determine the appropriate Traffic Control Plan prior to the start of work.

The following subsections address many of the parameters that should be included in the Safety Plan when discussing the requirements for work in or near traffic, but are not intended to be either representative or all inclusive:

- Traffic Control Plan documentation requirements
- Warning Signs
- Lanes Closures
- Exceptions to Lane Closure Procedures
 - Limited Work on the Traveled Way, Without Lane Closures
 - Pavement Marking and Re-lamping Operations
 - Moving Shoulder Operations
- Shoulder Closures
- Moving Lane Closures
- Delay of Vehicles
- Obscured Visibility
- Pedestrian Detour Routes

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E.1. Definitions

Flashing Arrow Board: Electronic device containing multiple lamps which are used to direct traffic in a selected direction. Must be capable of indicating change in direction, and varying intensity of the arrow when required.

Retro-reflective Tape: A material attached to vehicles and equipment to increase visibility of objects during both nighttime and low light conditions. Retro-reflection occurs when a surface returns a portion of directed light back to its source.

E.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Occupational Health and Safety Act (OSHA) Guidelines.
- OSHA Publications List via Catalog or Website, OSHA (Website: <http://www.osha.gov/pls/publications/pubindex.list>).
- Publication 8: “Construction Manual”, PennDOT.
- Publication 23: “Maintenance Manual”, PennDOT.
- Publication 212: “2006 Official Traffic Control Devices”, PennDOT.
- Publication 213: “Work Zone Traffic Control Manual”, PennDOT.
- Publication 238: “Bridge Safety Inspection Handbook”, PennDOT.
- Publication 408: “Highway Specifications”, PennDOT.
- “Strike-Off Letters”, PennDOT.
- PennDOT Safety Inspection Bulletins.
- “Manual on Uniform Traffic Control Devices (MUTCD)”, FHWA.
- “Pennsylvania Vehicle Code (Title 75)”, Department of Pennsylvania.

E.3. Policy for Equipment Plan

E.3.1. Objective

The objective of the Equipment Plan is to ensure that the Development Entity has addressed the responsibilities for identifying, planning, scheduling, supervising, maintaining, operating, and controlling of all equipment utilized within the Project via a written and approved Plan.

E.3.2. Responsibility of Development Entity

The Equipment Plan is a document to be developed, written and carried out by the Development Entity, and must indicate that the Development Entity is solely responsible for the management, operation and maintenance of all equipment that is required for work within the Project. Further, the Development Entity's responsibilities include, but are not limited to, the following:

- Equipment Policy Development
- Equipment Status and Inventory
- Warranty Claims
- Operator and Mechanic Training
- Licensing of Vehicles & Equipment
- Equipment, Vehicular and Operator Insurance
- Subcontractor Equipment Conformance
- Environmental Compliance

The Development Entity is responsible for ensuring that all equipment is operated and maintained in accordance with the manufacturer requirements, and with well-established policies and procedures.

The Development Entity and its subcontractors must obey all traffic laws including the posted speed limits when utilizing vehicles or other equipment.

This Chapter includes a general outline of the proposed Plan. This outline is intended only to provide guidance in the preparation of the Development Entity's Plan and must be modified, revised or changed, as appropriate, to address specific issues, needs or concerns related to the Department that develop over time.

E.3.3. *Performance Time Frames*

The following table establishes the minimum frequency that the Equipment Plan is to be written and updated by the Development Entity, submitted to the Department, and approved by the Department.

Plan	Minimum Frequency of Occurrence
Equipment Plan	Once Yearly

E.3.4. *Acceptance Criteria*

The Equipment Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, submitted to the Department and Approved by the Department.

E.4. Equipment Plan Requirements

The following is a general outline of the Development Entity's responsibilities that should be included and addressed when creating the Equipment Plan. The outline is not intended to be all-inclusive, but rather, contains the minimum items that must be included and addressed in the Equipment Plan.

The Equipment Plan must include provisions for annual and periodic updates, training and supervision of staff, and adherence to all policies and procedures.

E.4.1. Introduction

This section is to contain a short introduction to the Equipment Plan that includes a description of the equipment needs of the Project, and must address all of the maintenance and operational needs of the Project. In addition, this section should briefly state the overall goals and objectives of the Equipment Plan and discuss the duties and responsibilities of the Development Entity, the Equipment Manager, and the implementation and maintenance of the Plan.

E.4.2. Leased and Rented Equipment

The Development Entity is permitted to rent, lease, or outsource equipment and services, which must be defined in this section of the Equipment Plan. This section must also include the Development Entity's provisions and requirements for rented, leased, or outsourced equipment, including documentation the equipment conforms to all of the requirements stated in the Equipment Plan including demarcation, licensing, registration, and warning systems.

E.4.3. Operators Registration & Licensing

This section of the Equipment Plan must clearly indicate that equipment operators meet all current Department registration and licensing requirements and that all operators must possess valid operator's and driver's license with all special endorsements required for the specific type and classification of vehicle or equipment operated.

E.4.4. Equipment Licensing and Registration

This section of the Equipment Plan must clearly indicate that the licensing and registration for all vehicles and equipment (either owned by the Development Entity or by its Contractors) meets all current Department requirements stated in the Pennsylvania Vehicle Code (Title 75) for registration and licensing.

E.4.5. *Vehicle Safety Equipment*

The Equipment Plan must indicate the type, kinds, and amounts of vehicle safety equipment for all vehicles used within the Project. Vehicle safety equipment to be considered may include, but is not limited to, the following: fire extinguishers, pry bars, flares, special mirrors, fuel system protection, safety triangles or markers, slow moving vehicle/warning triangle emblems, and first-aid kits.

E.4.6. *Equipment Demarcation*

This section must include a demarcation description for all equipment, either owned by the Development Entity or its Contractors, that is utilized within the Project. The Development Entity must include demarcation information that addresses the following at a minimum:

- Vehicle color(s).
- Equipment numbering.
- Vehicle class and category.
- Operator decal placement and design.
- Retro-reflective application locations, sizes, etc.

All equipment used for the management, operation or maintenance within the Commonwealth Right-of-Way must be identified with an equipment number.

This section must include the demarcation present on all equipment types expected in the operation and maintenance of the Project, including but not limited to the following: Passenger vehicles, light-duty utility vehicles, heavy-duty truck vehicles, Street sweepers, Construction equipment, and other road equipment including rotary snow plows, snow plow blades, and trailers.

Miscellaneous small equipment such as mowers, snow blowers, etc. that are utilized within the Project are exempt from the demarcation requirements, but must always present a clean and professional appearance.

E.4.7. *Equipment Warning Systems*

E.4.7.1. Amber Warning Lights and Flashing Arrow Boards

This section must include the number, size, location, and type of all warning lights and flashing arrow boards attached to the equipment. The information must address all maintenance and management vehicles, snow removal equipment, and construction equipment. All vehicles which operate within the Project must be equipped with at least one amber warning light visible to traffic. The Equipment Plan must include the information for all other requirements for additional amber warning lights as applicable to Federal, State, and Local requirements.

E.4.7.2. Red & Blue Warning Lights

This section of the Equipment Plan should include the restriction of the use of red and/or blue warning lights, which are prohibited.

E.4.7.3. Back-Up Alarms

This section of the Equipment Plan must include information for the Back-up alarms, which are required on all of the Development Entity's vehicles that operate within the Project. These vehicles include, but are not limited to, pick-ups, vans, SUV's, trucks, construction equipment, etc.

E.4.8. *Training*

This section of the Equipment Plan must include the training requirements and certifications for all personnel (whether they are personnel of the Development Entity or its Contractors) whose duties include operation or supervision of equipment. In addition, this section must indicate that the personnel have completed the most current training, possess the proper and current license, and possess the current certification and qualifications to operate the particular equipment.

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F.1. Definitions

Electronic Parking Fee Collection: A Parking Fee collection system that is reliant upon transponders in vehicles, and receivers mounted at the Parking Fee Plazas, that electronically indicates, registers, and electronically reconciles the appropriate deduction for the proper Parking Fee incurred by the vehicle.

Parking Fee Collections and Operations: All activities related to revenue collection from vehicles utilizing the Project, and the recording, auditing and processing of that revenue, including lane operations.

Parking Fee Collection System(PFCS): The electrical and electronic equipment, information management, and system to record and verify the revenue and vehicle classification.

Uninterruptible Power Supply (UPS): Power supplies that operate in parallel with the electric utility sources and supply their load without interruption when and if the utility source fails. Such power supplies must be utilized to meet the operating needs of the computers and critical elements of the Parking Fee Collection System.

F.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Original Equipment Manufacturers (OEM) specifications, Maintenance Manuals, Handbooks, Procedures Guides, etc. as applicable for all installed equipment, systems and components.

F.3. Policy for Parking Fee Collection and Operations Plan

F.3.1. Objective

The objective of the Parking Fee Collection and Operations Plan is to ensure that the Development Entity has considered, trained, addressed, and planned for all Parking Fee operation activities and has established protocols, procedures, responsibilities, and guidelines to maintain and operate the Parking Fee Collection System (PFCS) in accordance with a written and Approved Plan.

F.3.2. Responsibility of Development Entity

The Parking Fee Collection and Operations Plan is to be developed, written, and executed by the Development Entity and must be consistent with all applicable Local, State, and Federal laws, codes and requirements governing the collection of parking fees. The Plan is to be updated and submitted annually and must receive approval from the Department.

The Parking Fee Collection and Operations Plan must indicate that the Development Entity provides administrative and operational services at all times, year-round. Technical support personnel must be available at all times to provide software maintenance and administration, hardware maintenance and/or component replacement, and data and system back-up maintenance.

All PFCS operational and technical support services provided must be in accordance with, and in strict adherence to, the approved PFCS user manuals, equipment manufacturer's recommendations and standard operating procedures for computer and network support services, as stated in the Reference Documents.

The PFCS and its data storage and archival capabilities must be operationally checked on a daily basis. The system components must be maintained and tested as required to ensure the PFCS continually remains fully operational. Redundant or replacement parts must be available on-site to facilitate immediate replacement of mal- functioning components.

The PFCS relies on computer hardware, peripheral equipment and operating system software which are continuously being advanced in technology. Accordingly, technical support services must include operational planning and upgrade installation of equipment components and operating systems software. The upgrade planning and installation shall include the transfer/recovery of archived data to new storage media, replacement of computer hardware and components systems and the component part inventory upgrade.

This Chapter includes a general outline of the proposed Plan. This outline is intended only to provide guidance in the preparation of the Development Entity's Plan and must be modified, revised or changed, as appropriate, to address specific issues, needs or concerns related to the Project that develop over time.

The Development Entity must include the following PFCS operations in the Parking Fee Collection and Operations Plan:

- Parking Fee Revenue Collection Equipment.
- Video-based facility surveillance system.
- Video image recording and retention.
- Parking Area Control and Monitoring from the Parking Fee Operations Control Center.
- Parking Fee Operations Control Center storage and back-up data systems.

- Uninterruptible power supplies (UPS).
- Security System.
- Remote data access, system reporting and back-up.
- Communication system.

F.3.3. Performance Time Frames

The following table establishes the minimum frequency that the Parking Fee Collection and Operations Plan is to be written and updated by the Development Entity, submitted to the Department and Approved by the Department.

Plan	Minimum Frequency of Occurrence
Parking Fee Collection and Operations Plan	Once Yearly

F.3.4. Acceptance Criteria

The Parking Fee Collection and Operations Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, submitted to the Department and Approved by the Department.

F.4. Parking Fee Collection and Operations Plan Requirements

The following is a general outline of the Development Entity's responsibilities that should be included and addressed when creating the Parking Fee Collection and Operations Plan. The outline is not intended to be all-inclusive, but rather, contains the minimum items that must be included and addressed in the Parking Fee Collection and Operations Plan.

The Parking Fee Collection and Operations Plan must include provisions for annual and periodic updates, training and supervision of staff and adherence to all policies and procedures. For parking rate structure, please refer to PPA, Schedule 8: Parking Fee Structure.

F.4.1. Introduction

This section should briefly introduce the purpose of the Parking Fee Collection and Operations Plan, and set out the overall goals and objectives of the Plan. The introduction should discuss the title, functions, roles, duties, and responsibilities of the each person that the Development Entity identifies as being involved with Parking Fee collection and operations.

F.4.2. Parking Fee Operations Control Center

The Parking Fee Operations Control Center shall be located on the Project. The Control Center provides the visual vantage point and information tools to assist the Development Entity manage and monitor Parking Fee collections on a continuous basis.

This section of the Plan must include a description of the function, equipment, personnel and physical layout of the Control Center, and the role each performs in Parking Fee collections and operations. The Plan must also include subsections on the following items, at a minimum:

- Video-Displays of Project Surveillance.
- CCTV Video Camera Monitor Station.
- Parking Fee Control Monitors.
- Parking Fee Collection System Computer Terminal.
- Parking Fee Open/Close Indicator Controls.
- Intercom Communications
- Emergency Response System Monitor and Communications.

F.4.3. Parking Fee Operations Data Center

The Parking Fee Operations Data Center shall be located on the Project. The Data Center houses the Parking Fee Collection System and UPS and provides the electronic storage, information, verification, power supply source, and computation tools to assist the Development Entity manage and monitor Parking Fee collections on a continuous basis; in a secure, humidity, and climate controlled setting.

This section of the Plan must also include subsections on the following items, at a minimum:

F.4.3.1. General Description and Layout

This section of the Plan must include a description of the function, equipment, personnel and physical layout of the Data Control Center and the role each performs in Parking Fee collections and operations.

F.4.3.2. Hardware

This section of the Plan must include a description and inventory of the computer hardware in the Data Center and the upgrade and maintenance procedures. The hardware descriptions consist of the network system, data and processing capabilities, and the failsafe backup and redundant systems. This section must also include procedures for data storage and the capabilities for secure remote access.

F.4.3.3. Software

This section of the Parking Fee Collection Plan must include the current version information of all software utilized by the Parking Fee Collection System, and all implemented and planned upgrades and maintenance procedures for such software.

This section must include the network operating system, server software, and the data collection processes used to produce traffic and financial reports.

This section must include the procedures and protocol for technical support, which must be provided on a continuous on-call basis.

F.4.3.4. UPS and Backup Storage Devices

This section of the Plan must include the description, frequency and protocol utilized for the uninterruptible power source (UPS), and the archival functions of the data collected. The section must include information and provide details on how the system functions when the permanent archive capabilities are employed. Additionally, the section must include the maintenance and operation procedures utilized to provide the UPS with continual operation, including during power failures.

F.4.4. *Attendant Operations*

This section of the Parking Fee Collection and Operations Plan must include the procedures employed and followed with regard to the work operations of the Parking Fee attendants. The Plan must address, without limitation, the following procedures, at a minimum:

- General items of responsibility.
- Attendant appearance.
- Shift management and supervision.
- Traffic queue supervision and management.
- General Parking Fee booth operations and appearance.
- Attendant safety.
- Attendant training.
- Patron service.
- Classification of vehicles.
- Non-revenue vehicles.
- Overweight/Oversized vehicles.
- Booth exit and entrance procedures.
- Lane collection deposit preparation.
- Project patron Parking Fee display operation.
- Transaction receipts/receipt printer operation.
- Payment verification.
- Cash handling.
- Change requests and receipting procedures.
- Insufficient funds transactions.
- Counterfeit money detection.
- Patrons requiring/requesting the need for assistance.
- Unusual occurrences.
- Disable vehicles/lane accident reporting.
- Lane run-through/violation procedures.
- Robbery/Hold-up reporting.
- Emergency procedures.

F.4.5. *Parking Fee Collection Administration*

This section of the Parking Fee Collection and Operations Plan must include the procedures employed and followed with regard to the collection of Parking Fees; the operations utilized within the counting room and the Safe; the facility protocol during armored car service; and all other administrative duties associated with Parking Fees. The Plan must address, without limitation, the following procedures, at a minimum:

- General items of responsibility.
- Non-revenue vehicles.
- Vehicle verification.
- Insufficient fund collection and balanced due.
- Violation reporting.
- Cash handling monitoring.
- Depository procedures.
- Project lock-down procedure for armored car transfers.
- Drawer reconciliation.
- Electronic Parking Fee collection.
- Parking Fee Collection System training and operation.
- Patron service reconciliation.
- Security.

F.4.6. *Parking Fee Accounting*

This section of the Parking Fee Collection and Operations Plan must include the procedures employed and followed with the accounting and reconciliation of the Parking Fees. The Plan must address, without limitation, the following procedures, at a minimum:

- Vehicle verification.
- Traffic volume, type and time reconciliation and reports.
- Non-revenue vehicle account.
- Vehicle verification.
- Banking errors.
- Audits.
- Funds reconciliation.
- Cost accounting.
- Deposit preparations and verification.
- Parking Fee Collection System operations and report generation.

F.4.7. *Parking Fee Incident Events*

This section of the Parking Fee Collection Plan must include procedures for addressing events and incidents associated with Parking Fee collections. The Plan must address, without limitation, the following procedures, at a minimum:

- Unusual occurrences.
- Disable vehicles
- Accidents
- Vehicle collisions
- Violation procedures
- Robbery/Hold-ups
- Drunk drivers
- Road rage
- Emergency procedures

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G.1. Definitions

Anti-Icer: A chemical freezing point depressor, used to prevent the formation of frost, snow or ice on a driving surface.

ATDs (Automatic Traction Devices): Equipment installed on some vehicles that are driver-deployed to improve the traction of the vehicle in adverse conditions.

Bare Pavement: A condition under which the entire driving surface has been cleared of all loose snow and ice. The driving surface may temporarily have small, isolated patches of snow or slush that, when treated with chemicals or abrasives or a combination of these, may be negotiated safely by the average driver at reduced speed.

Consulting Meteorologist: Contract service that provides periodic, frequent, and specific weather forecasts, and predictions, for use by the Development Entity, in order to determine the need for and locations of pre-positioned staff and equipment.

Deicer: Anyone of several common freezing point depressors, such as salt (sodium chloride), CMA (calcium magnesium acetate), liquid potassium acetate, and liquid magnesium chloride. Deicers are used to melt already formed frost, snow or ice, and reduce the temperature whereby reformation can occur.

Driving Surface: The traveled way of the Project, consisting of all mainline roadway lanes, and the entire width of all ramps. For the purpose of snow and ice control, the shoulders, medians, and curb and gutters of the Project mainline and ramps will not be counted as driving surface, but such areas must be cleared as the next priority. This definition does not relieve the Development Entity of any responsibility from insufficient or incomplete snow and ice control of any level surfaces adjoining the normal Project traveled way that can be encroached upon by an errant vehicle.

Maximum Accumulation: The maximum thickness of ice and/or new snowfall that will be permitted to temporarily build up on the driving surface before the next required snowplow removal pass. The maximum accumulation does not pertain to the depth of ice and/or snow that falls, blows or is plowed onto the shoulders or median of the Project mainline.

Pack: Refers to a temporary build-up of ice and/or snow on the driving surface, which accumulates between plowings due to continuing snowfall, blowing snow, etc.

RWIS (Road Weather Information System): An installed system of weather and pavement sensors that is used to monitor conditions at remote locations. Some RWIS can use historical data previously gathered to predict local weather as a decision making tool for maintenance and construction operations.

Snow Plow: A truck or vehicle that has been equipped with plow blade(s) device(s), deicing device(s), lights, radio and related features, that is acceptable to operate on the Project to plow snow and ice, and spread deicers.

G.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Publication 23: “Maintenance Manual”, PennDOT.
- “Guide for Snow and Ice Control”, AASHTO.
- “Roadside Design Guide”, AASHTO.
- “SHRP-H-320: Snow Fence Guide”, FHWA.
- “Manual of Practice for an Effective Anti-Icing Program”, FHWA.
- “SHRP-H-381: Design Guidelines for the Control of Blowing and Drifting Snow”, FHWA.
- “SHRP-H-385: Development of Anti-Icing Technology”, FHWA.
- “The Salt Storage Handbook”, Salt Institute.
- National Pollutant Discharge Elimination System Standards, NPDES.

G.3. Policy for Snow and Ice Control Plan

G.3.1. Objective

The objective of Snow and Ice Control operations is to ensure the expeditious removal and control of snow and ice in order to best facilitate traffic movement during and following inclement winter weather, and to best utilize resources to safeguard Patrons. The Development Entity must prepare and annually update its Snow and Ice Control Plan as outlined herein.

The Development Entity must perform all snow plowing, removal and ice control work within the Project Area. Snow and Ice Control tasks include, but are not limited to, the following general items of work:

- Snow Plowing.
- Snow Removal operations.
- Anti-Icer and deicer chemical application.
- Ice control and drift control.
- Snow and ice response planning.
- Public and agency communication Project.

G.3.2. Responsibility of Development Entity

A Snow and Ice Control Plan must be developed, written and carried out by the Development Entity, containing detailed operational procedures for performing the Snow and Ice Control work outlined in this Chapter. The Plan must incorporate the applicable and appropriate sections of Volume III – Environmental Management Manual and must conform to and work in conjunction with the Environmental Management Plan. The Plan must comply with all applicable Local, State and Federal laws, codes and regulations governing the operation of snow removal equipment on public highways, the requirements specified herein, and the unique needs of the Project.

The Development Entity must annually update and submit the Snow and Ice Control Plan to the Department prior to July 30 each year, and must incorporate any changes in strategy, equipment levels, etc. designed to rectify shortcomings in the Development Entity's snow and ice removal operations during the winter season just ended.

The Development Entity must assign a Snow and Ice Control Supervisor who will plan the equipment and staffing needs for each upcoming storm event, make all advance preparations, supervise the handling of each incident, and communicate information to the public, the press, the Department, PennDOT, outside agencies, and internal personnel. The Development Entity is also responsible for managing its efforts associated with providing all the required resources, stockpiling Anti-Icer and deicing chemicals, pre-positioning equipment, and establishing transportation to designated removed snow areas, in order that the Snow and Ice Control work will be handled on a proactive, rather than a reactive basis.

This Chapter includes a general outline of the proposed Plan. This outline is intended only to provide guidance in the preparation of the Development Entity's Plan and must be modified, revised or changed, as appropriate, to address specific issues, needs or concerns related to the Project that develop over time.

G.3.3. Performance Time Frames

The following table establishes the minimum frequency that the Snow and Ice Control Plan is to be written and updated by the Development Entity, submitted to the Department and Approved by the Department.

Plan	Minimum Frequency of Occurrence
Snow and Ice Control Plan	Once Yearly

G.3.4. Acceptance Criteria

The Snow and Ice Control Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, submitted to the Department and Approved by the Department.

In addition, the Operational Parameters set forth in the following table must be met or exceeded, and must be addressed in the Snow and Ice Control Plan for the snow and ice work and Plan to be considered acceptable.

Operational Parameter	Maximum Time Duration
Maximum allowable driving lane accumulation	1-1/2" (1.5 inches)
Maximum reaction time until first full snowplow pass	1 Hour
Maximum allowable driving lane snow pack time	1 Hour
Maximum time to bare-pavement condition after storm end	4 Hours
Maximum time to bare-shoulder condition after storm end	8 Hours

G.4. Snow and Ice Control Plan Preparation Requirements

The following is a general outline of the Development Entity's responsibilities that should be included and addressed when creating the Snow and Ice Control Plan. The outline is not intended to be all-inclusive, but rather, contains the minimum items that should be included and addressed in the Snow and Ice Control Plan.

The Snow and Ice Control Plan must include provisions for annual and periodic updates, training and supervision of staff and adherence to all policies and procedures.

G.4.1. Introduction

This section briefly introduces the need and purpose of the Snow and Ice Control Plan, and sets out the overall goals and objectives of the Snow and Ice Control operations. The introduction should discuss the duties and responsibilities of the Snow and Ice Control Supervisor and that person's role in the implementation and maintenance of the Plan.

The introduction should refer to the methodology used to develop and implement the Snow and Ice Control Plan, and refer to specific agency reference guides and manuals as applicable.

G.4.2. Advance Preparation Procedures

This section of the Snow and Ice Control Plan is to address the specific preparedness procedures that the Development Entity undertakes in advance of each winter season. It is to contain, at a minimum, the following:

- A storm monitoring, watch and "on-call" procedure so that assigned personnel are monitoring information regarding developing snow and ice storms on a 24 hour a day basis, beginning on the last Sunday in October and continuing without interruption to the third Sunday in April.
- An organizational chart showing the titles and duties of all of the Development Entity's staff who will be responsible for advance preparations for Snow and Ice Control work, as well as operations following commencement of a storm event.
- The Development Entity's preparation and equipment assembly activities before the winter storm season, with maps showing where equipment, staff and stockpiles will be pre-positioned.
- Complete list of available equipment and appurtenances, and the primary assignment during and following a storm event.
- Minimum inventories of de-icing chemicals and snow fencing.
- Locations, directions and capacities of designated snow storage areas.
- Priorities for assignment (i.e. parking areas, sidewalks, roadways, shoulders, pedestrian bridge landings, commercial development area, etc.).

G.4.3. *Call-Out Procedures*

This section of the Plan is to address the specific procedures that will be followed each time the Development Entity must mobilize work forces in response to winter storm or frost warnings. The Call-Out Procedure section is to contain, at a minimum, the following:

- The anticipated outside coordination to be undertaken when scoping the initial call-out, including obtaining frost warnings and notifications or advice from a weather consultant, PennDOT, or other Department agency.
- The steps by which the Snow and Ice Control Supervisor will perform a call-out of staff and resources following the receipt of a storm or frost warning.
- The methodology by which the Snow and Ice Control Supervisor will evaluate the need and scope of the call-out in order to ensure that the appropriate amount of equipment, adequately loaded and staffed, is assigned and pre-staged to the upcoming snow and ice control effort in order to furnish the required service levels.
- The specific factors evaluated when determining the appropriate level and scope of snow removal crew “call-out” for each anticipated storm, including the following, as applicable:
 - Anticipated accumulation, duration and winds forecasted for the event.
 - Anticipated travel volume demand during typical or actual snow storm events.
 - Congestion and traffic delay resulting from insufficient snowplowing and hazardous conditions, and the resulting impact of delays.
 - Project patron safety.
 - Public interest and concern as expressed in complaints, letters, etc.
 - Environmental considerations.
- The titles and duties of supervisory personnel to be contacted in the call-out, and the data to be transmitted during such contact including storm/frost warnings, operational procedures, the required response time for affected work groups to report in, etc.
- The outside contacts such as PennDOT, Local Counties and Municipalities, the Pennsylvania State Police, and Amtrak etc. who will be notified of each call-out.
- The means by which the Development Entity shall document the call-out in a snow storm/frost warning folder for each storm, which must consist of:
 - Weather consultant’s warning, if applicable.
 - Procedural instructions.
 - Supervisory Personnel Call-Out Sheet.
 - City notification and Road Conditions Report.
 - Storm Data Report.
 - Press Release or Web-Site posting (when required).

G.4.4. *Response Protocol*

This section of the Snow and Ice Control Plan is to address the series of pre-planned activities that will be performed in response to each forecasted winter storm or frost event, as may be modified by specific instructions transmitted during each call-out. This section is to contain, at a minimum, the following:

- The Development Entity's methodology for ensuring that all snow removal personnel have been alerted and given specific assignments during the call-out.
- The incident response steps and general timetable.
- Equipment cycling, reloading, downtime, overhaul and related factors.
- The methods and procedures that the Development Entity's Snow and Ice Control operations will employ to furnish continuous efforts during and after each storm until all driving surfaces of ramps, mainline pavements and bridge decks are clear and free of snow or ice, and the shoulders are in usable condition.
- The measures by which Snow and Ice Control operations will promptly remove snow and ice from bridge decks and from any hazard areas identified by the Development Entity, such as lanes adjacent to walls or guardrail where ramping and drifting may occur.
- The procedures by which the Development Entity will maintain contact with the Central Command Center and snow removal crews, and how communications will be used to track the progress of all work efforts, promptly deal with any significant problems, and make any adjustments to work assignments, staff levels, operating frequencies, and other such similar matters as judgment demands, in order to satisfactorily remove snow and ice.
- The measures to be taken by the Snow and Ice Control Supervisor to maintain communications throughout each snow and ice control operation in consultation with the PennDOT, Local Counties and Municipalities, the Pennsylvania State Police, and Amtrak and other agencies regarding severe weather forecasts, the impacts on congestion and travel times, the success of each snow removal response, and other items of mutual interest.
- The method for the Development Entity's designated spokesperson(s) to furnish information to journalists or reporters, including Project travel reports, bulletins, delay estimates, and the like. The spokesperson(s) must comply with requests for verbal reports or estimates regarding travel times, pavement condition, accidents, icy or hazardous areas, and the like to assist reporters to accurately report news, issue bulletins and advisories, and in general inform commuters and the public about regional travel problems.
- The method for the Development Entity's designated spokesperson(s) to furnish information to Patrons and inquiring members of the public, including reports on Project conditions during inclement weather, daily snowfall, depth of pack, period of storm, and related matters of public interest.

G.4.5. *Operational Requirements*

This section of the Snow and Ice Control Plan is to discuss the requirements to be implemented by Snow and Ice Control crews, and the operational adjustments that may be required in response to changing situations during each incident. This section is to contain, at a minimum, the following:

- The Development Entity's priority during winter storms must be snow removal and ice control in order to best protect traffic safety and preserve the mobility of motorists. The Development Entity must provide a commitment statement and assurance that every effort will be made to keep the Project open to traffic at all times.
- The actions to be taken if the Project becomes blocked due to severe drifting, stalled traffic, or other winter hazards.
- The Plan must specify the authority of the Pennsylvania State Police Department to order the Development Entity to halt traffic and implement temporary road closures when conditions and situations warrant preserving public safety.
- The communication protocol that will be undertaken with outside agencies, Patrons, etc. whenever it is decided to close the road. The Plan must list all the contact and notification agencies anticipated by the Development Entity, including PennDOT, Local Counties and Municipalities, the Pennsylvania State Police, Amtrak and Patron agencies, news media, the Pennsylvania Emergency Management Agency, the Office of Public Affairs, etc. (See also Volume II, Chapter K, "Emergency Management and Operations Plan").
- The methods of how bare-pavement objectives will be met, with specific detail regarding hauling of snow to designated snow storage areas (when necessary), work to open drains covered by snow and ice, mechanical and manual salt application, and the use of solid and/or liquid solution deicing agents.
- The procedures that the Development Entity will employ for the Snow and Ice Control operations which will allow adjustment and fine-tuning during each incident to address any response shortcomings, customer complaints, identified safety issues, and other problems that arise.
- An operation plan for applying sufficient deicer chemicals to parking areas and roadways at the beginning of a storm in order to deter bonding and build-up of pack, and the conditions under which regular plowing and salt spreading on treated decks would resume in order to remove accumulations and restore bare-pavement surface conditions as soon as possible.
- A plan for scheduling special patrols for the detection and correction of slippery conditions whenever freezing conditions are anticipated. Particular attention must be paid to sidewalks, curves, large grades and problem locations such as shaded areas and parking areas.
- An operation plan and procedure for when ice formation on the ceilings and/or floors of the parking area, pedestrian bridge and commercial development area.

- Full details of the methodology for applying deicing chemicals to the Project pavements, sidewalks, parking areas, and commercial development areas including the following:
 - Application of deicing chemicals in advance of a storm to prevent the formation of frost or ice films.
 - Successive applications of deicing chemicals during a storm to weaken or prevent bonding between the snow pack and road surface.
 - Application of chemicals and deicers by snow plowing trucks to increase driver traction and melt new snow that falls.
 - Measures to limit the applied deicing agents to the minimum amount necessary for effective Snow and Ice Control because of potentially detrimental effects of deicing agents to vegetation, water quality and corrosion of metal.
 - The protocol to be followed when switching between alternative deicers.
 - Measures by which surveillance of the plowed-off or melted snow will be maintained, to ensure that any freezing on the shoulders and pavement is promptly addressed before such conditions create a hazard.

G.4.6. *Training*

This section of the Snow and Ice Control Plan is to discuss the means by which the Development Entity will identify the annual training requirements for personnel involved in snow and ice control efforts, how such training will be obtained, how snow removal crew persons will be certified, and when refresher training will occur.

G.4.7. *Record Keeping*

This section of the Snow and Ice Control Plan is to discuss the need for the Development Entity to maintain accurate records of the locations and quantities where Anti-Icers and other deicers are stored and used. The Development Entity must log and analyze the amounts, locations and application rates of deicers used on the Project in order to obtain acceptable results from its snow and ice control efforts.

This section is also to track the use of, and comment upon the effectiveness of, alternate snow and ice control chemicals, deicers, and other types of deicing systems.

G.4.8. *Environment*

This section of the Snow and Ice Control Plan is to discuss the means by which the Development Entity intends to investigate potentially environmentally sensitive areas that have been identified as directly or indirectly receiving salts and other deicing chemicals. It is to contain, at a minimum, the following:

- Identification of areas that are potentially environmentally sensitive, including landscaped areas and bodies of water.
- The coordination undertaken to seek a determination from the appropriate governing agencies whether the identified areas may receive the anticipated contaminated discharges, or if mitigation of some form is required.
- The commitments or agreements reached to perform mitigation, control or other strategies, as required, in order to comply with governing agency requirements and restrictions.

- Coordination with the Environmental Management Plan.

G.4.9. *Salt, Anti-Icer and Deicing Chemical Storage*

This section of the Snow and Ice Control Plan must outline the Development Entity's procedures and requirements for stockpiling of chemicals and materials used in snow and ice control operations, including the following:

- The location of all Project or additional lands or sites utilized for stockpiling, staging or cycling materials.
- A commitment that all deicing chemicals are stored in compliance with the National Pollutant Discharge Elimination System (NPDES) standards, in order to prevent any pollution or contamination of local waters by toxins or chemicals.

G.4.10. *Equipment*

This section of the Snow and Ice Control Plan must address the following points concerning equipment to be employed for snow removal tasks within the Project area

- The number, classifications and types of vehicles to be used in the Snow and Ice Control operations.
- The types, models, etc. of the devices applied, attached and furnished with each piece of equipment that applies and distributes deicing chemicals.
- The types, models, etc. of the Two-Way radios and other communication equipment installed in all snow removal equipment.
- The type, model, number, location, etc. of all warning and safety devices attached or furnished with Snow and Ice Control equipment, and assurance that all devices conform to all applicable laws and ordinances.
- The snow removal equipment demarcation which must include the name, logo and contact phone number of the Development Entity's organization or operating entity formed to manage the Snow and Ice Control for the Project Concession, as appropriate.
- The Development Entity's methods to ensure that all equipment furnished by outside Contractors for use in the Project area fully complies with the requirements of the Snow and Ice Control Plan.
- The procedures employed to calibrate equipment used to apply deicing chemicals or abrasives.

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H.1. Definitions

Electrical Systems: Systems, elements and components that are contained in Project Facilities, and which supply, distribute and function by the use of electricity. These systems include, but are not limited to: substations, meters, wiring, service panels, individual circuits, generators, transformers, lighting, motor control units, back-up generators and systems, emergency lighting, etc.

Fire Protection Systems: Systems, elements and components that are intended to assist in the prevention and suppression of fire. These systems include, but are not limited to: fire extinguishers, exit signage, fire alarms, sprinkler systems, heat sensors, smoke detectors, etc.

Life Safety Systems: Systems, elements and components that are contained in Project Facilities that promote health, safety, and life preservation. These systems include, but are not limited to: communication systems; security systems; fire suppression and prevention systems; and medical attention stations; etc.

Mechanical Systems: Systems, elements and components that are contained in Project Facilities that supply and distribute ventilation and climate control. These systems include, but are not limited to HVAC systems and components, thermostats, boilers, combustion chambers, dampers, heat exchangers, furnaces, air handling units, fresh air intakes, ductwork, return fans, zone dampers, exhaust fans, chillers/condensers, pumps, etc.

Plumbing Systems: Systems, elements and components that are contained in Project Facilities, and which supply, distribute and provide potable water, or dispose of wastewater. These systems include, but are not limited to valves, piping, water heaters, water storage tanks, faucets, toilets, sinks, showers, booster pumps, ejector pumps, sanitary piping, hot/cold water piping, etc.

Security Systems: Systems, elements and components that promote safety and security of the people and facilities from outside parties. These systems include, but are not limited to alarms, cameras, monitor stations, intercoms and radios, access control, etc.

Treatment Plants: The facilities that contain the equipment, components, elements and systems to treat the water and wastewater for other Project Facilities.

H.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- International Building Code, IBC.
- “National Fire Codes”, NFPA.
- “National Electrical Code”, NFPA.
- “National Plumbing Code, ANSI.
- “Uniform Plumbing Code”, WPOA.
- “Uniform Heating and Cooling Code”, WPOA.
- “Boiler and Unfired Pressure Vessel Code, ASME.
- “Chimneys, Fireplaces and Vents Code”, NFPA.
- “International Mechanical Code”.
- Americans with Disabilities Act”, U.S. Department of Justice.
- Occupational Health and Safety Act (OSHA) Guidelines
- OSHA Publications List via Catalog or Website, OSHA (Website: <http://www.osha.gov/pls/publications/pubindex.list>).
- National Standards, Specifications and Regulations as applicable, from the following organizations:
 - National Electrical Manufacturers Association (NEMA).
 - American Waterworks Association (AWWA).
 - American National Standards Institute (ANSI).
 - American Society for Testing and Materials (ASTM).
 - Federal Communications Commission (FCC).
 - Underwriters Laboratory (UL).
- Original Equipment Manufacturer’s (OEM) specifications, Maintenance Manuals, Handbooks, Procedures Guides, etc. as applicable for all installed equipment, systems and components.

H.3. Policy for Facilities Operations Plan

H.3.1. Objective

The objective of the Facility Operations Plan is to ensure that the Development Entity has established and is implementing predetermined processes and procedures in order to sustain the planned, organized and continuous operation of the Project Facilities within the Project. The operation of the Project Facilities includes the tasks aimed at supervising and organizing, as well as the short-term and long-term tactical and strategic needs of each Project and its components. Meeting and performing these objectives, expressed through a written Plan, will ensure that the Project Facilities remain safe, habitable, efficient and productive in their function of supporting the operation of the Project.

H.3.2. Responsibility of Development Entity

The Facilities Operations Plan is a document to be written, developed and carried out by the Development Entity, and must be consistent with all applicable Local, State and Federal laws, codes and requirements governing the operations of Project Facilities and their components and systems. The Plan must incorporate the applicable and appropriate sections of Volume III – Environmental Management Manual and must conform to and work in conjunction with the Environmental Management Plan. The Plan is to be updated and submitted annually and must receive Approval by the Department.

The Plan must address how the Development Entity will operate the following systems, and how the continual operation impacts the function of the Project:

- Operation of Project Facilities used for Parking Fee collection work.
- Operation of Project Facilities used for administration, security, and public access.
- Operation of all systems dedicated to supporting the Project Facilities themselves including: Life Safety, Mechanical, Utility, Plumbing, Electrical, ITS, Communication, Emergency, Fire, etc.

Given that the Project is operational 24 hours-a-day, every day of the year, the continual and efficient operation of the Project Facilities and the systems that support the Project cannot be compromised. The primary goals in preparing the Facilities Operations Plan must be the management of Project Facilities operations in a manner that minimizes deterioration and unforeseen breakdowns, and that ensures compliance with all applicable Local, State and Federal Laws, rules and requirements. The Plan is intended to address the Development Entity's efforts to manage its Project Facilities operations, and must reflect the need for maintenance; advance planning for upgrading or replacement of Projects; positioning and maintaining backup or auxiliary equipment; performing timely replacements of unreliable equipment; and anticipating staffing needs to support Project Facilities operations in order that the Project Facilities will continually support all vital Project operations.

This Chapter includes a general outline of the proposed Plan. This outline is intended only to provide guidance in the preparation of the Development Entity's Plan and must be modified, revised or changed, as appropriate, to address specific issues, needs or concerns related to the Project that develop over time.

H.3.3. Performance Time Frames

The following table establishes the minimum frequency that the Project Facilities Operations Plan is to be written and updated by the Development Entity, submitted to the Department and Approved by the Department.

Plan	Minimum Frequency of Occurrence
Facilities Operations Plan	Once Yearly

H.3.4. Acceptance Criteria

The Facilities Operations Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, submitted to Department and Approved by the Department.

H.4. Facilities Operations Plan Preparation Requirements

The following is a general outline of the Development Entity's responsibilities that must be included and addressed when creating the Facilities Operations Plan. The outline is not intended to be all-inclusive, but rather, contains the minimum items that should be included and addressed in the Facilities Operations Plan.

The Facilities Operations Plan must include provisions for annual and periodic updates, training and supervision of staff and adherence to all policies and procedures.

H.4.1. Introduction

This section should briefly introduce the purpose of the Facilities Operations Plan and set out the overall goals and objectives of the Plan. The introduction should discuss the titles, functions, roles, duties and responsibilities of the each person that the Development Entity identifies as being involved with the operation of systems within the Project Facilities.

H.4.2. Operational Integrity – Life Safety Systems

The continual operation and integrity of the Life Safety Systems within each Project is essential to both the staff of the Development Entity and the Patrons. These systems provide the safety, communication and life preserving components that must be operated for the Project to function as intended.

This section of the Plan must address the operational procedures and polices employed by the Development Entity to ensure that these systems constantly remain functional; are tested on an established schedule; are evaluated for functionality and operation; and perform as designed and intended. This section of the Plan must include the following subsections, at a minimum:

- Communication Systems
 - Intercoms
 - Telephones
 - Radios
 - Mobile Communications
- Security Systems
 - Access Control
 - Video Surveillance
 - Stations and Personnel
 - Alarms
 - Coordination with the Borough and Pennsylvania State Police (PSP)
 - Security Sweeps

- Fire Suppression and Precaution Systems
 - Fire Alarms
 - Sprinkler Systems
 - Heat Sensors
 - Smoke Detectors
 - Carbon Monoxide Detectors
- Medical Attention Stations
 - First Aid Stations
 - Emergency Call Buttons

H.4.3. *Operational Integrity – Energy Distribution*

In order for the Project Facilities within the Project to continually operate at their peak efficiency, the distribution of energy both to and from components must be provided. The function, integrity, continual supply, and efficient distribution of energy to and from various systems and targets directly impacts their operation as individual units, as well as to the Project as a whole.

This section of the Plan must address the procedures and polices employed by the Development Entity to ensure that the energy distribution systems remain fully operational at all times. The Plan must also address the Development Entity's plan for enhancing reliability, providing redundancy in depth, arranging for backup equipment, staff, power, etc., and any other action required in order to safeguard continuous operations.

This section of the Plan must include the following subsections, at a minimum:

- Electrical Supply
 - Substation Level
 - Panel Level
 - Circuit Level
 - Back-up Systems
 - Lighting
 - Emergency Lighting
 - Motor Control Units
- Mechanical Systems
 - Heating, Ventilation, and Air Condition (HVAC) Systems
 - Plumbing Systems
 - Pumping Systems
- Life Safety Systems
- Computer Systems
 - Parking Fee Collection System
 - Uninterruptible Power Supply (UPS)
 - Servers
 - Redundancy in depth Measures

- Shops & Shop Equipment
- Coordination and Agreements with Utility Companies/Agencies
 - Electrical
 - Phone
 - Natural Gas
 - Water
 - Sanitary

H.4.4. *System Operational Management*

The Project Facilities within the Project contain numerous and unique systems that either support the Project in which they are located, or provide resources to other portions or sections of the Project. These systems, their continual function, and the management of these systems are essential to the daily and critical operations of the Project.

This section of the Plan must address, describe and outline the methods and procedures that the Development Entity will employ in the operation and management of the Project systems. This section of the Plan must include, the following subsections concerning the various systems within the Project Facilities at a minimum:

- Electrical Systems
 - Substations
 - UPS
 - Back-up Systems
- Mechanical Systems
 - HVAC
 - Plumbing
 - Pumping Systems
- Life Safety Systems
- Computer Systems
 - Parking Fee Collection System
 - Servers
- Shop Equipment
- Communications

H.4.5. *Occupancy Management*

This section of the Plan must address the procedures employed by the Development Entity in managing and operating the physical occupants within the Project. This section will need to discuss at a minimum, space programming; health, safety and environment standards; emergency evacuation; and the function of each defined role of those responsible in the operation of the Project Facilities.

H.4.6. *Vendor Management*

This section of the Plan must briefly list the names of vendors, their roles, and their responsibilities if they perform work with or operate systems in the Project Facilities.

H.4.7. *Licenses, Fees and Permits*

This section of the Plan must briefly explain the process by which all required licenses, fees and permits will be obtained by the Development Entity for the operation of all systems and equipment in the Project Facilities of the Project; “operator certifications” for water and wastewater systems personnel; and must certify that all such permits and licenses are current.

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I.1. Definitions

Average Annual Daily Traffic (AADT): The total volume of traffic passing a point on a highway, in both directions, for one year, divided by the number of days in the year.

Average Daily Traffic (ADT): The average 24-hour volume of traffic that being the total volume of traffic during a stated period divided by the number of days in that period.

Capacity: The maximum number of vehicles that can pass over a given section of roadway in one or both directions during a given period of time under prevailing roadway and traffic conditions.

Closed-Circuit Television (CCTV): The video camera system used to provide surveillance of the roadway system.

Dynamic Message Signs (DMS): Signs that use electronics or mechanics to vary a visual word, number or symbolic display as traffic conditions warrant. Also known as Variable Message Signs (VMS) and Changeable Message Signs (CMS).

Incident Detection Algorithm: Computer software developed to automatically identify incidents on the basis of field data received from detection equipment.

Inductive Loop Detector: A coil of cable embedded in the pavement surface that creates a magnetic field. The vehicle is detected when the magnetic field is disturbed.

Intelligent Transportation Systems (ITS): The application of technologies to improve mobility and transportation productivity, and enhance safety.

Maintenance and Protection of Traffic (MPT): A plan for handling traffic through a work zone. The MPT plan may range in scope depending on the complexity of a project and resulting traffic interference.

Peak Hour: That hour during which the maximum amount of travel occurs.

Peak Period: The period during which traffic levels rise from their normal background levels to maximum levels.

Queue: A line of waiting vehicles.

Real-Time Expert System: Software that provides decision support for operations personnel.

Volume: The number of vehicles passing a given point over a period of time.

Work Zone: An area of a highway in which maintenance and/or construction operations are taking place that may impinge on the number of lanes available to moving traffic or affect the operational characteristics of traffic flowing through the area.

I.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Publication 8: “Construction Manual”, PennDOT.
- Publication 10: “Design Manual, Part 1: Transportation Project Development Process”, PennDOT.
- Publication 10A: “Design Manual, Part 1A: Transportation Engineering Procedures”, PennDOT.
- Publication 13M: “Design Manual Part 2 – Highway Design (Dual Unit), PennDOT.
- Publication 23: “Maintenance Manual”, PennDOT.
- Publication 35: “Approved Construction Materials (Bul. 15)”, PennDOT.
- Publication 46: “Traffic Engineering and Operations Manual”, PennDOT.
- Publication 72M: “Roadway Construction Standards (Dual Unit)”, PennDOT.
- Publication 108: “Sign Foreman’s Manual”, PennDOT.
- Publication 111M: Traffic Control – Pavement Markings and Signing Standards”, PennDOT.
- Publication 148: ”Traffic Standards (TC-7800 Series) – Signals, PennDOT.
- Publication 149: ”Traffic Signal Design Handbook, PennDOT.
- Publication 212: “Official Traffic Control Devices”, PennDOT.
- Publication 213: “Work Zone Traffic Control”, PennDOT.
- Publication 234: “Flagging Handbook”, PennDOT.
- Publication 236M: “Handbook of Approved Signs”, PennDOT.
- Publication 383: “PA Traffic Calming Handbook”, PennDOT.
- Publication 408: “Highway Specifications”, PennDOT
- “Strike Off Letters”, PennDOT
- “A Policy on Geometric Design of Highways and Streets”, AASHTO.
- “Manual on Uniform Traffic Control Devices (MUTCD)”, FHWA
- “Portable Changeable Message Sign Handbook (PCMS)”, FHWA
- “Highway Capacity Manual”, TRB.
- “Traffic Engineering Handbook”, ITE.

I.3. Policy for Traffic and Travel Management Plan

I.3.1. Objective

The objective of the Traffic and Travel Management Plan is to ensure that the Development Entity has considered and created processes, procedures and standards to manage traffic and travel throughout the Project in order to combat congestion and its damaging effects, including Patron delay, inconvenience and frustration, reduced safety, and deteriorated air quality.

Another critical objective of the Traffic and Travel Management Plan must be to create protocols and procedures that need to be taken to quickly identify where congestion is likely to occur and to devise a series of operational plans to prevent delays from occurring, whether such delays are caused by normal day-to-day operations, maintenance operations, construction operations, and/or emergency operations.

I.3.2. Responsibility of Development Entity

The Traffic and Travel Management Plan is a document to be developed, written and carried out by the Development Entity, and must be consistent with all applicable Local, State and Federal laws, codes and requirements governing traffic management practices and traffic control policies. The Plan is to be updated and submitted annually and must receive Approval from the Department, and all other governing authorities, as appropriate.

The Plan must address how the Development Entity will incorporate the following concepts in order to operate the Project at peak efficiency:

- Active management and monitoring of the decision-support systems.
- Active management operations and functions.
- Actions taken beyond the capabilities of the automated actions of the computer systems, such as communication with field personnel, emergency responders, and other/adjacent operating agencies.

The Development Entity must understand that the Plan must not only address the effective technologies and deployment of systems, but also address the needs of the available staff trained to monitor and control the systems. In addition, the Plan must illustrate how the management systems function, and how such systems can be adjusted so that the Project can continually operate at peak efficiency.

This Chapter includes a general outline of the proposed Plan. This outline is intended only to provide guidance in the preparation of the Development Entity's Plan and must be modified, revised or changed, as appropriate, to address specific issues, needs or concerns related to the Project that develop over time.

I.3.3. *Performance Time Frames*

The following table establishes the minimum frequency that the Traffic and Travel Management Plan is to be written and updated by the Development Entity, and submitted to the Department and Approved by the Department.

Plan	Minimum Frequency of Occurrence
Traffic and Travel Management Plan	Once Yearly

I.3.4. *Acceptance Criteria*

The Traffic and Travel Management Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, and submitted to the Department and Approved by the Department.

I.4. Traffic and Travel Management Plan Preparation Requirements

The following is a general outline of the Development Entity's responsibilities that must be included and addressed when creating the Traffic and Travel Management Plan. The outline is not intended to be all-inclusive, but rather, contains the minimum items that should be included and addressed in the Traffic and Travel Management Plan.

The Traffic and Travel Management Plan must include provisions for annual and periodic updates, training and supervision of staff and adherence to all policies and procedures.

I.4.1. Introduction

This section should briefly introduce the purpose of the Traffic and Travel Management Plan, and set out the overall goals and objectives of the Plan. The introduction should discuss the title, functions, roles, duties and responsibilities of each person that the Development Entity identifies as being involved with traffic and travel control and management.

I.4.2. Functional Management

This section of the Plan must address the strategies, activities, responsibilities, requirements and procedures that the Development Entity will implement for traffic control and travel management operational functions.

Traffic control and travel management functions for the Project will be comprised of several subsystems, procedures, responsibilities and protocols that will need to interface with each other to accomplish the objectives stated above. The Plan must address each of these components and discuss how they will interface with one another, and how their functional characteristics enhance the safe and efficient movement of traffic through the Project.

This section of the Plan must include the following subsections, at a minimum:

I.4.2.1. Staffing

This section of the Plan must include descriptions, titles, responsibilities and roles each person involved with traffic control and travel management will play. The Development Entity must identify essential personnel, the call-up protocol, and the measures employed to keep the Project performing at its peak efficiency.

I.4.2.2. Training

This section of the Plan must include the specific Projects that the Development Entity has implemented to train, re-train and advance the staff assigned to traffic control and travel management.

I.4.2.3. Monitoring Procedures

This section of the Plan must include the procedures implemented by the Development Entity to monitor the decision-support and surveillance systems; to monitor the information obtained from multi-agency operations; and to monitor the information obtained from the Patrons, or other tools, communications and means.

I.4.2.4. Operations Control Center

This section of the Plan must address the operational requirements and functions of the Operations Control Center. All traffic control and travel management should be coordinated through the efforts and communications via the Operations Control Center functions, its tools, and its management.

The Plan should include the Operations Control Center operational procedures to address items essential to the operations of the Project, including but not limited to: traffic congestion management; traffic monitoring; Parking Fee collection activities; accident management; disabled vehicle management; construction and maintenance travel management, etc. The Operations Control Center must be operated at all times, 24 hours per day, 7 days per week.

I.4.2.5. Traffic Control Supervision

This section of the Plan must include procedures and responsibilities that the Development Entity will establish for the supervision and decision making associated with the Project traffic control and travel management. The Plan must address the authority that the Traffic Control Supervisor will possess and the procedures that have been established.

The Plan must include the following items when addressing traffic control supervision, at a minimum:

- Contacts and communication with local and state law enforcement, fire and emergency service agencies.
- Field checking locations and placements of signs and traffic control devices before any work begins, and as it progresses.
- Providing sufficient surveillance of signs, barricades and other traffic control devices and systems, and establishing procedures to ensure that these elements are inspected and properly functioning every calendar day.
- Directing revisions to work zone traffic control plans to meet field and weather conditions for traffic control to operate as intended.
- Directing and monitoring all project flaggers.

I.4.2.6. Records and Data Management

This section of the Plan must include processes and procedures for obtaining accurate traffic data for the Project via the Parking Fee Collection System, the Radio Communication System, or by other means.

This section of the Plan must also include procedures and frequencies for the collection of traffic data at entrances and exits within the Project.

I.4.2.7. Traffic Analysis

This section of the Plan must include procedures and frequencies for performing traffic analyses for all sections and portions of the Project. Traffic data should be analyzed to determine if operational improvements are required to accommodate changes in traffic volumes or patterns. Particular attention must be paid to Parking

Fee and ramp queue lengths in order to determine the maximum length and the duration of such queues, and if the mainline traffic flow is impacted.

I.4.2.8. Traffic Alleviation Plans and Procedures

This section of the Plan must address the development and content of the standards, details, communication tree, responsibilities and functions required when implementing each specific traffic alleviation procedure.

The Development Entity must always keep in mind that the goals and objective of managing the Project including the following:

- The reduction of congestion impacts and occurrences.
- To maximize operational safety for the Patrons and the public.
- Ensure the efficient and pleasant passage of traffic through the Project.
- To provide the Patrons accurate and necessary information to aid in making effective and pleasurable use of traveling within the Project.

I.4.2.9. Information Dissemination

This section of the Plan must include descriptions and procedures for the accurate dissemination of necessary, essential and real-time information concerning traffic to the Patrons, the public, the community, and to Local, State and Federal agencies.

I.4.2.10. Cooperation with Law Enforcement

This section of the Plan must include the practices that are being employed to coordinate enforcement of traffic safety issues with appropriate law enforcement.

I.4.3. *Decision-Support Systems*

Decision-support systems are tools that function by obtaining, analyzing, organizing and presenting information obtained from a variety of sources in order to assist the Development Entity in making effective and sound traffic control and travel management decisions.

This section of the Plan must address the functions, operations, and procedures utilized by the Development Entity when employing these types of systems with traffic control and travel management information. The Plan must also address how these systems will be coordinated, the control strategies of each system, the operational strategies of each system, and the identification techniques utilized.

This section of the Plan must including the following subsections, at a minimum:

I.4.3.1. Parking Fee Collection System

The Parking Fee Collections System has the ability to store traffic data by time, vehicle class, etc. since it is used as a verification system in conjunction with the Parking Fee payment process. This system is an extremely valuable tool that can be utilized to analyze the peak hour, peak period traffic, AADT, ADT, etc. The Plan must address how this information and its support functions and algorithms are utilized by the Development Entity in traffic control and travel management.

This section of the Plan must also include the procedures and process the Parking Fee Collection System will utilize in developing historical traffic count databases, and how databases, along with real-time counts can be applied in the Development Entity's traffic control and travel management functional decision making processes.

I.4.3.2. Communication Systems

Radio Communication systems are another effective tool that can assist the Development Entity in the decision-making process for traffic control and travel management. Communication systems include voice and data information, which includes, but is not limited to, Highway Advisory Radios, agency data reports, travel time listings, interagency radio monitoring, and computer related systems.

This section of the Plan must include the procedures and process that the Development Entity will follow when utilizing these systems and how the Development Entity will release the information from its communication systems to others.

I.4.3.3. Surveillance & Detection Systems

Surveillance and detection systems are a developing technology that will be essential in the future for managing traffic and travel within the Project. The systems will be able to collect data on traffic flows and performances through sensor technology and will permit the Development Entity to monitor conditions as they develop.

This section of the Plan must include the procedures and process that the Development Entity will employ when using both current and future surveillance and detection technologies, and how their functions and algorithms will be employed to assist in traffic control and travel management.

I.4.3.4. Roadway Weather Information Systems (RWIS)

RWIS have been traditionally employed to assist in making snow and ice control decisions. As technology continues to advance, these systems will also advance so that they are able to provide more accurate locations and durations of weather events. The Development Entity may choose to utilize these systems and the advantages they provide in traffic control and travel management.

This section of the Plan must include the procedures and process that the Development Entity will employ with the use of these types of systems.

I.4.3.5. Other Systems

To the extent any other systems are employed or implemented by the Development Entity on the Project, or if the Development Entity plans to implement any other such systems, the Development Entity must address such systems in this section of the Plan.

I.4.4. *Multi-Agency Operations and Arrangements*

An effective technique of ascertaining assistance in the management of traffic and travel within the Project is by developing agreements and participation with other agencies. These techniques include the coordination and communication with people, systems and resources available on other highway networks through the sharing of information. These arrangements are typically contained in a written plan that addresses use, limits, confidentiality and other terms and conditions related to such information. Such agreements may include sharing data; voice communication; emergency responders; real-time traffic movements and counts; and CCTV and other surveillance systems.

This section of the Plan must address the types, terms, relationships and procedures that exist between other agencies and the Development Entity, including the following subsections, at a minimum:

I.4.4.1. Integrated Systems

These integrated systems allow multiple agencies to share a single management center, and to utilize the systems to share data and communications in a network to assist in an overall decision making policy.

This section of the Plan must address informa

tion on how the Development Entity and the Projects integrated, cooperate, and function with to other agency systems and Emergency & Traffic Management Centers; the manner in which it participates in these organizations and systems; and will ensure that the policy of continuing involvement is upheld.

I.4.4.2. Regional Initiatives

These types of initiatives foster communication, coordination and cooperation between agencies over a particular area or region to ease congestion and disseminate information.

This section of the Plan must address information on how the Development Entity and the Project share and participate in these initiatives and describe how these initiatives will continue.

I.4.4.3. Resource Sharing

These types of relationships center on the sharing of informational resources, including such devices as CCTV systems, surveillance systems, real-time traffic counts, ITS, dynamic message signs, electronic Parking Fee tag readers, communication equipment and traffic management centers.

This section of the Plan must address how the Development Entity and the Project will share Project resources, the terms and limits of sharing and the parties that participate in the sharing agreements.

I.4.5. *Standards and Protocols - Work Zone Traffic Control*

Maintaining safety for Patrons, the public at large, the community and workers must be of paramount importance to the Development Entity at all times. At the same time the Project must be kept open to travel at all times, and only restricted during emergencies, traffic safety hazards, severe weather conditions, maintenance and construction activities, and other permitted times.

This section of the Plan must address the requirements for Work Zone Traffic Control, and the development of a series of stand-alone traffic control standards and drawings to be used for the Project Work Zone Traffic Control. The intent of these standards and drawings is to have a series of protocols prepared in anticipation of imminent work; ensure full compliance with the Reference Documents listed in Section I.2 of this Chapter; ensure full compliance with all applicable Local, State and Federal laws. Such standards and drawings must be prepared by a Professional Engineer Licensed in the Department of Pennsylvania.

This section of the Plan must also address the policies, procedures and approval requirements developed by the Development Entity for work conducted by Contractors within the Project. The intent of these processes is to ensure that a written plan has been developed and approved by a responsible Professional Engineer in the Department of Pennsylvania prior to the start of work. Additionally, the Plan must consider the requirements placed on others for work on facilities adjacent to the Project.

The development of all sections, standards, and procedures of the Plan must consider any

proposed work, maintenance, or emergency lane closure or traffic pattern change within the Project. The plans must be thoroughly developed in a manner to minimize impacts to the traffic and minimize dangers to workers present on the project work site. All situations that require temporarily closing one or more lanes must carefully consider the effect that such an operation will have on traffic.

In addition to the above stated requirements, this section of the Plan must address, at a minimum the following:

I.4.5.1. Material and Equipment Storage and Parking

This section of the Plan must include procedures and standards that take into consideration, at a minimum, the following: material supply and storage within a work zone site; equipment transport to and within the Work Zone; equipment storage while on site; and the parking of personal vehicles and other equipment.

I.4.5.2. Protection of Hazards

This section of the Plan must include procedures and drawings for protecting traffic from all potential hazards that may exist during construction or maintenance work, or hazards that may be created or exposed as part of the work.

I.4.5.3. Temporary Lane Closures

This section of the Plan must include procedures, standards and drawings for providing temporary lane closures when a portion of the Project traveled way is needed for construction or maintenance activities. The Plan must address the policy utilized for lane closures such as traffic analysis methods, and must also include the allowable times, locations and other pertinent information. Lane closures must be kept to a minimum and should occur during off-peak times, unless conditions require otherwise.

I.4.5.4. Temporary Road Closures

This section of the Plan must address the procedures and protocols to accommodate any temporary road closure as a result of an emergency situation.

I.4.5.5. Flagging in Work Zones

This section of the Plan must include procedures and requirements when flagging activities are required within work zones. Work zone flaggers should be qualified, trained and certified to perform their required duties.

I.4.6. *Standards and Protocols - Work Zone Traffic Control Devices*

This section of the Plan must address the requirements for Work Zone Traffic Control Devices which are necessary and required to inform and safely guide and direct traffic within and through the designated Work Zones within the Project. Traffic Control Devices that must be considered and specified in the Plan include, but are not limited to warning signs, Dynamic Message Signs, barriers, barricades, delineators, and pavement markings to clearly and safely route traffic through any construction or maintenance work zone.

The Plan must also address the maintenance and operation that the Development Entity will employ to provide continuous and expeditious repair or replacement of all damaged or ineffective traffic control devices. All devices used within the Project must remain in good condition and provide the level of functionality required by the most stringent criteria of either the Department or the MUTCD. The Development Entity must include in the Plan the maintenance activities for replacement of traffic control devices, which are damaged (torn, crushed, discolored), displaced by traffic or other means, or deteriorated beyond effectiveness.

Work zones must be delineated with advance warning signs; protective barriers or other appropriate safety devices; and end of work zone signing. The maintenance work zones must meet traffic and worker safety standards and procedures established by the Department as supplemented by standards presented in the Reference Documents.

I.4.7. Standards and Protocol - Emergency Events

This section of the Plan must address the procedures and protocols that the Development Entity will apply during emergency events that occur within the Project. This section of the Plan must include, at a minimum, the following subsections:

I.4.7.1. Event Management

This section of the Plan must include the general responsibilities and management procedures that the Development Entity and its staff will employ during emergency events.

I.4.7.2. Notification of Roadway Closures

This section of the Plan must include procedures to be followed to inform the Patrons and the Department of emergency roadway closure. The Plan must use efficient and rapid response procedures to restore normal travel conditions after an incident has occurred. This section must also include the protocols for information dissemination.

I.4.7.3. Emergency Detouring of Traffic

This section of the Plan must include procedures and practices for the emergency detouring of Project traffic in the event of an emergency situation. The Development Entity must address the protocols that will exist between other agencies so that traffic will flow effectively and safely through the detour route.

I.4.7.4. Disabled and Abandoned Vehicles

This section of the Plan must include the traffic control procedures for the safe and efficient removal of disabled or abandoned vehicles within the Project. The Development Entity must address the protocols that will be established with law enforcement when these situations arise.

I.4.8. *Standards and Protocol – Unusual Events*

This section of the Plan should address the procedures and protocols that have been established to address unusual and special events that may occur within or affect the Project. This section of the Plan must include the following subsections, at a minimum:

I.4.8.1. Overweight/Oversized Vehicles

This section of the Plan must include the procedures established by the Development Entity for managing Overweight and Oversized vehicles which pass through the Project. The Plan must address communication with PennDOT concerning the permitting of these types of vehicles, and must address the times and policies that will be employed to handle these situations. In addition, this section of the Plan must include procedures and protocols to maintain traffic safety in the vicinity of Overweight/Oversized vehicles.

I.4.8.2. Security Convoys

This section of the Plan must address the situations that may occur when security or other types of motorcades or special convoys are required to pass through the Project.

I.4.8.3. Vehicle Peak Capacity Events

This section of the Plan must address the protocols and procedures, including manpower shifts, employee call-outs, etc. that will be employed when unusual events which occur that increase traffic and the number of vehicles passing through the Project are well beyond that which is considered peak or maximum.

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J.1. Definitions

Agencies: Including, but not be limited to, municipal, county and/or agencies and departments of the Department, or other such public stakeholders.

Best-practice: A level of performance that is equal-to-or-better-than the performance commonly attributed to top-tier highway systems.

Patron: Any person or organization outside of the Project that has contact with the Project, including but not limited to patrons, people who make inquiries or complaints to the Development Entity, the Department, and other similar situated persons.

Stakeholder: Those entities or individuals, public or private, who care about or are responsible to or for, directly or indirectly, the quality of the Project's function or operation.

Staff: Any employee of the Development Entity, its agents, or its contractors.

J.2. Policy for Patron Service Plan

J.2.1. Objective

The objective of the Patron Service Plan is to ensure that the Development Entity establishes guidelines for creating and maintaining a uniform, efficient system that documents customer concerns and inquiries, ensures an adequate response, and provides a recoverable record of the concern and the corrective action taken, addressed in a written and Approved Plan.

J.2.2. Responsibility of Development Entity

The Patron Service Plan is to be developed, written and implemented by the Development Entity, and must be consistent with all applicable Local, State and Federal laws, codes and requirements. The Plan is to be updated and submitted annually and must receive Approval from the Department.

This Chapter includes a general outline of the proposed Plan. This outline is intended only to provide guidance in the preparation of the Development Entity's Plan and must be modified, revised or changed, as appropriate, to address specific issues, needs or concerns related to the Project that develop over time.

J.2.3. Performance Time Frames

The following table establishes the minimum frequency that the Patron Service Plan is to be written and updated by the Development Entity, submitted to the Department and Approved by the Department.

Plan	Minimum Frequency of Occurrence
Patron Service Plan	Once Yearly

J.2.4. Acceptance Criteria

The Patron Service Plan will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, submitted to the Department and Approved by the Department.

J.3. Patron Service Plan Preparation Requirements

The following is a general outline of the Development Entity's responsibilities that must be included and addressed when creating the Patron Service Plan. The outline is not intended to be all-inclusive, but rather, contains the minimum items that should be included and addressed in the Patron Service Plan.

The Patron Service Plan must include provisions for annual and periodic updates, training and supervision of staff and adherence to all policies and procedures. It is expected that the Plan represents best-practice in the field of Patron Service.

J.3.1. Introduction

This section is to contain a short introduction to the Patron Service Plan that includes a description of the persons or agencies involved in the preparation of the Plan, the title of the individual who is charged with the implementation and maintenance of the Plan and the overall goals and objectives of the Plan. At a minimum, this section is to contain the following sub-sections:

- Purpose.
- Scope and applicability.
- The methodology used to develop the Plan.

J.3.2. Patron Service

The Plan must include the requirements that the Development Entity's staff will be required to follow when communicating with customers. The Plan must include provisions to ensure proper handling of complaints in order to improve customer satisfaction and responsiveness.

J.3.2.1. Procedure for Handling Patron Complaints and Inquiries

The Development Entity must develop this section of the Plan to include a Patron Service Log used when receiving comments and concerns about the Project. The Patron Service Log must be maintained in accordance with standards and requirements established in the Patron Service Plan. Provisions must be made in the Plan to receive, record, and log customer comments received by either a Project Operator or by any other Development Entity staff member whether in person, in writing, by telephone, mail, email, web page or any other manner. At a minimum, the record must include the name and address of the person presenting the complaint or comment, the date and time of the complaint or comment, the Project operations staff receiving the complaint or comment, and a complete description of the complaint or comment. The Plan must, at a minimum, address the following:

- Requirements and standards for the Patron Service Log.
- Procedures and standards for receiving inquiries or concerns.
- Recording of customer inquiries and concerns.
- Reviewer protocol of customer service inquiries or concerns.
- Exceptions to recording customer service inquiries and concerns.

J.3.2.2. Complaint Prioritization Procedures

This section of the Plan must address a system and procedure to develop criteria for responding to concerns based on priority, degree of deficiency, and schedule to correct.

J.3.2.3. Complaint Reconciliation Procedures

This section of the Patron Service Plan must establish guidelines and procedures to ensure an adequate response to any complaints or comments received in the Patron Service Log.

The Patron Service Plan must delineate follow-up procedures and actions documented by the Development Entity. The Plan must include provisions for acknowledging communication from the Development Entity to the individual filing the complainant or commenter that the complaint or comment was received, and appropriate corrective actions were initiated.

The Plan should include, at a minimum, the following considerations:

- Patron Service database requirements and procedures.
- Follow-up procedures and actions.
- Requirements for formal plan of long term improvements.

J.3.2.4. Dissemination of Comments and Concerns

This section of the Plan must state the policies and procedures developed to ensure all comments or complaints from agencies outside the Development Entity are obtained, recorded and reconciled. Additionally, directives should be created to ensure the appropriate distribution of comments or complaints to agencies outside the Development Entity, if requested.

J.3.2.5. Analysis of Database

This section of the Plan must indicate that all Patron Service Logs and corrective actions should be recorded in a database providing, at a minimum, a summary of the complaint, date of complaint, date underlying occurrence (if known), date action was taken, summary of action taken and date of notification to the individual filing the complaint or comment.

The database and Patron Service Logs must be reviewed monthly to reconcile complaints received with actions taken. All outstanding complaints, refund requests, and responses must be reconciled and processed through closure each month.

To improve customer satisfaction and performance, the database statistics must be reviewed quarterly to compare performance of the current quarter versus the prior period and the current year versus the prior year.

J.3.2.6. Improvement Plan

This section of the Plan must indicate the formal plan and process for improvement when there is a significant increase in the number of complaints received, a significant increase in the number of Parking Fee refund requests and/or a significant increase in the number of days taken to initiate an action. The definition and delineation of "Significant Increase" must be defined in the Plan. The improvement plan should be prepared by the Development Entity, and implemented and monitored monthly until improvements are documented. The Plan should include:

- Identification of recurring deficiencies and policies to develop plans for improvements.
- Identification of patterns of problems and concerns, and development of plans to analyze, detect, and rectify deficiencies.
- A mechanism to ensure that services and concerns are addressed adequately.

J.3.3. *Information Services*

J.3.3.1. General Requirements and Goals of Information Services.

This section of the Plan must include efforts of the Development Entity in assisting Patrons with general information. This task should include providing information services to the Patrons in an effort to achieve a positive overall standard of Patron Service.

J.3.3.2. Information Requirements

This section of the Plan must include the contents that will be included in every Parking Fee Booth so that they are equipped with a current Information Packet to address requests for information from Patrons. This packet must contain a base set of information tools for use, in addition to information addressing common requests gathered by Parking Fee Booth attendants. At a minimum the Information Packets should contain the following:

- Updated current street maps of Local cities surrounding the particular Parking Fee Booth.
- A quick list of dates, locations and general directions for major events in communities near the Project.
- A quick list and directions to various venues (stadiums, museums, concerts, arenas, airports theaters, etc.) for communities near the Project.
- A quick list of directions to regional cities and suburbs.

J.3.3.3. Communication Requirements

Policies and procedures must be developed for communications protocol with Patrons.

J.3.3.4. Information Updates

The Patron Service Plan should develop requirements for updating standard information available as an Information Service to Patrons. Updates may be required due to construction activities and road closures, updated street maps, or special events.

J.3.4. *Lost and Found*

The Development Entity must establish Lost and Found procedures as a part of the Patron Service Plan. The Development Entity must assume custody of all found property, and place such property in a secure and designated location. This section of the Plan must, at a minimum, address the following:

- Protocols for Found Property:
 - Log Book.
 - Date of find.
 - Description and condition of property.
 - Who found and submitted the property.
 - Contents of property.
 - Location where property was found.
 - Tagging and identification of property.
 - Contact of property owner if identification is present.
 - Placement, storage and security of property.
 - Contact with the Local Community and Law Enforcement.

- Protocols for Returning Property:
 - Patron Lost property report.
 - Claim Form.
 - Inventory check procedures against claims and reports.

- Disposing of Unclaimed Property
 - Property hold length (90 Day Minimum).
 - Disposal of property.
 - Coordination with the Local Community and Law Enforcement.

J.3.5. *Project Web Site*

The Development Entity must create, maintain and update a specific and independent web site solely for Project information as part of the Patron Service Plan. This section of the Plan must, at a minimum, address and include the following web pages and their contents:

- Home Page
- Location and Regional Maps
- Parking Fee Rate Schedule
- Current Construction Activities and Locations
- Traffic Alerts and Delay Locations.
- Roadway Restrictions
- Contact Information (Phone, Address, E-mail, etc.)
- Patron Service Page
- Links to other Agencies and pertinent Web Sites:
 - Pennsylvania Department of Transportation (PennDOT)
 - Amtrak
 - Capital Area Transit
 - Harrisburg International Airport
 - Local Traffic Update Websites
 - Weather

This section of the Plan must also briefly describe the computer hardware and software utilized, and the Internet Service Provider. The Development Entity must also provide a planned website update schedule.

J.3.6. *Training*

The Development Entity must include in the Patron Service Plan the philosophy that every employee of the Development Entity or its hired contractor of the Development Entity is a customer service representative, and represents a perception of the Department. The Plan must also define the yearly and special situational training that will be required for those persons who will have the greatest contact with customers.

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K.1. Definitions

Agency: A division of government with a specific function offering a particular kind of assistance.

Disaster: A dangerous event that causes significant human and/or economic loss and demands a crisis response beyond the scope of any single agency or service. Disasters are distinguished from emergencies by the greater and more complex level of response and recovery required.

“Emergency” as proclaimed by the Governor of the Department of Pennsylvania: Whenever, in the opinion of the Governor of the Department of Pennsylvania, the safety of the Department, or portions thereof, its citizens, and/or its assets requires the exercise of extreme measures due to an impending or actual disaster, he (or she) may declare an emergency to exist in the Department or any portion thereof, in order to prioritize the deployment of the Department to assist in the resolution of the disaster.

Emergency Operations Center (EOC): A centralized facility utilized by the Department for the direction, control and coordination of the disaster or emergency.

Emergency Operations Plan (EOP): An EOP is a document that:

- Assigns responsibility to organizations and individuals for carrying out specific actions at projected times and places in an emergency that exceeds the capability or routine responsibility of any one agency.
- Sets forth lines of authority and organizational relationships, and demonstrates how all actions will be coordinated.
- Describes how people and property will be protected in emergencies and disasters.
- Identifies personnel, equipment, facilities, supplies and other resources available for use during response and recovery operations.
- Identifies steps to address mitigation concerns during response and recovery activities.

Emergency Support Foundation (ESF): “ESF” a functional approach to group the types of federal and local assistance available during emergencies. The National Response Plan identifies twelve ESF’s. Each ESF is headed by a primary agency that has been selected based on its authorities, resources and capabilities in the particular area.

First Responder: Local police, fire, public works and emergency medical personnel who first arrive on the scene of an incident and take action to save lives, protect property and meet basic human needs.

Incident: An occurrence or event, natural or man-made that requires an emergency response to protect life or property.

Mass Care: Care provided to individuals dislocated during the emergency period. These services are normally provided by volunteer organizations. Services provided normally include lodging, feeding, registration, first aid and other social services.

Major Disaster: Any natural or man-made catastrophe, act of terrorism or other disaster that causes damage of sufficient severity and magnitude as to exceed the efforts and available resources of the Department of Pennsylvania sufficiently to warrant disaster assistance under the provisions of the Stafford Act, Public Law 93-288, as amended.

Mitigation: Those activities designed to alleviate the effects of a Major Disaster or Emergency or long-term activities to minimize the potentially adverse effects of future Disaster in affected areas.

National Incident Management System (NIMS): A comprehensive national approach and standardized organizational structure to incident management, applicable at all jurisdictional levels and cross functional disciplines that are intended to further the effectiveness of emergency response providers.

Preparedness: The range of deliberate, critical tasks and activities necessary to build, sustain and improve the operational capability to prevent, protect against, respond to and recover from domestic incidents. It is operationally focused on establishing guidelines, protocols and standards for planning, training and exercises, personnel qualification and certification, equipment certification and publication management.

Recovery: Recovery involves actions needed to assist individuals and communities to return to normal following an incident. Recovery Projects are designed to assist victims and their families, restore institutions to sustain economic growth and confidence, rebuild destroyed property and reconstitute government operations and services. Recovery actions often extend long after the incident itself. Recovery Projects include mitigation components designed to avoid damage from future incidents.

Response: Response includes activities to address immediate and short-term actions to preserve life, property, environment and the social, economic and political structure of the community.

Stafford Act: Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended. This federal enabling legislation was enacted to support State and Local government and their citizens when disasters overwhelm them. The law establishes a process for requesting and obtaining a Presidential disaster declaration, defines the type and scope of assistance available from the federal government and sets the conditions for obtaining that assistance. The Federal Emergency Management Agency (FEMA), a part of the Emergency Preparedness and Response Directorate of the Department of Homeland Security, is tasked with coordinating the response.

Terrorism: Terrorism is the unlawful use of force or violence or threatened use of force or violence against persons and places for the purpose of intimidating and/or coercing a government, its citizens, or any segment thereof for political or social goals.

K.2. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- The White House, Office of the Press Secretary, “Homeland Security Presidential Directive 5”, February 28, 2003.
- U.S. Department of Homeland Security, Office of Homeland Security, “National Strategy for Homeland Security”, July 2002.
- U.S. Department of Homeland Security, Office for Domestic Preparedness, “Homeland Security Exercise and Evaluation Project”, Volume I, March 2003.
- U.S. Department of Homeland Security, Office of the Secretary, “National Incident Management System”, March 1, 2004.
- U.S. Department of Homeland Security, Office of the Secretary, “National Response Plan”, first draft, February 25, 2004.
- Public Entity Risk Institute (PERI), “Characteristics of Effective Emergency Management Organizational Structures”.
- Federal Emergency Management Agency, “Objectives for Local Emergency Management”, July 1984.
- U.S. Department of Transportation and Federal Emergency Management Agency, “Guidelines for Public Sector Hazardous Materials Training”, March 1998.
- Federal Emergency Management Agency, Publications Catalog, #20.

K.3. Policy for Emergency Management and Operation Plan

K.3.1. Objective

The objective of the Emergency Management and Operation Plan is to ensure that the Development Entity has considered, trained, addressed, and planned for all likely potential natural and man-made disasters, and established protocols, procedures, responsibilities and guidelines to mitigate the potential impacts and respond to and recover from the occurrence of a disaster event, in accordance with a written and Approved Plan.

K.3.2. Responsibility of Development Entity

The Emergency Management and Operation Plan (EMOP) consists of both the Emergency Management Manual (EMM) and Emergency Operation Plan (EOP) which are documents to be developed, written and carried out by the Development Entity that must be consistent with all applicable Local, State and Federal Laws, codes and requirements governing emergency planning, response and recovery. The Plan is to be updated and submitted annually and must receive approval from the Department and, as appropriate, all other governing authorities.

It is understood that whenever the Homeland Security Advisory System (HSAS) is raised to “orange” or “red”, the Development Entity is to have management personnel with decision-making authority assigned to be personally present at the Pennsylvania Emergency Management Agency (PEMA) on a 24 hour per day, seven day per week basis until such threat level is reduced to “yellow” or the PEMA determines that such staffing level is no longer required.

It is further understood that the Plans developed by the Development Entity will be incorporated into the Department of Pennsylvania Emergency Operations Plan and accordingly will be required to be consistent with the published Department criteria to the extent possible, notwithstanding the unique characteristics and needs of this asset.

All damages to the Project caused by emergency situations, as addressed herein, are highly undesirable, and it is necessary to identify and prepare for damages when they render critical components of the Project inoperable, weakened, or unsafe.

This Chapter includes a general outline of the proposed Plan. This outline is intended only to provide guidance in the preparation of the Development Entity’s Plan and must be modified, revised or changed, as appropriate, to address specific issues, needs or concerns related to the Project that develop over time.

K.3.3. Performance Time Frames

The following table establishes the minimum frequency the Emergency Management and Operation Plan (EMOP) is to be written and updated by the Development Entity, submitted to the Department and approved by the Department.

Plan	Minimum Frequency of Occurrence
<u>Emergency Management and Operation Plan (EMOP):</u> Consisting of: Emergency Management Manual (EMM) & Emergency Operations Plan (EOP)	Once Yearly

K.3.4. Acceptance Criteria

The Emergency Management and Operation Plan (EMOP) will be considered acceptable for a particular year when the Plan has been written and updated by the Development Entity, submitted to the Department, and approved by the Department.

K.4. Emergency Management and Operations Plan Preparation Requirements

The following is a general outline of the Development Entity's responsibilities that must be included and addressed when creating the Emergency Management and Operation Plan. The outline is not intended to be all-inclusive, but rather, contains the minimum items that should be included and addressed in the Emergency Management and Operation Plan.

The Emergency Management and Operation Plan must include provisions for annual and periodic updates, training and supervision of staff, and adherence to all policies and procedures.

K.4.1. Introduction

This section is to contain a short introduction to the Plan that includes a description of the persons or agencies involved in the preparation, the agency or individual who is charged with the implementation and maintenance of the Plan and the overall goals and objectives of the Emergency Operations Plan (EOP). At a minimum, this section is to contain the following sub-sections:

- Purpose.
- Scope and applicability.
- The methodology used to develop and implement the EOP.
- Updates to the methodology.

K.4.2. Situation

This section is to provide an overview of the Project, the hazards to which it is exposed, the planning assumptions upon which the Plan is based and the critical facilities required to carry out the Plan. At a minimum, this section is to contain the following sub-sections:

K.4.2.1. Project Information, Facts and statistics of the Project including:

- A plan view map of the system.
- A general description of the location of the system.
- A description of the geology and geography of the area.
- A description of the meteorology of the area.
- A description of the Public-Private Transportation Partnership Agreement.

K.4.2.2. Hazard Analysis

A detailed hazard analysis of the Project: This is to include a detailed investigation and analysis of the natural and man-made hazards to which the Project is exposed. It must also contain a detailed listing of any major incidents that have historically impacted the Project that required either a complete shutdown of the Project or resulted in an interruption of services or revenue stream. The list must address, at a minimum, the last ten (10) years of operations of the Project. It must also include a detailed hazard analysis table that summarizes the hazard exposures of existing conditions and expected development.

K.4.2.3. Vulnerability Analysis

A detailed all-hazards vulnerability analysis of the Project: It must identify the specific hazards that are possible or likely to impact the Project, the level of visibility of the hazard, how critical the site is to the Department, the financial impact to the Project, the impact to nearby agencies, residential areas, commercial, and industrial facilities, the accessibility of the Project, and the potential for mass casualties and the site population capacity.

K.4.2.4. Planning Assumptions

A statement indicating the basic planning assumptions upon which the Plan is based. It must include lead times, effects of emergencies, when and how an emergency is to be declared, what outside assistance is available, and the conditions under which an evacuation may be required.

K.4.2.5. Response Capabilities

A statement describing the current response and recovery capabilities of the Development Entity: This statement must summarize the basic capabilities both in-house and from outside sources to deal with response and recovery issues. It must contain a general description of how resources are currently managed and deployed. It must also identify shortfalls in response capabilities and strategies to resolve these shortfalls.

K.4.2.6. Critical Project Facilities

Identification of critical facilities of the Development Entity, providing the system name, address, contact person, property classification, primary emergency function, the secondary emergency function, the primary or normal use, the priority for power restoration, and the emergency power requirements. A location map indicating the location of all critical facilities is to be included in this section. A detailed map and description of all critical facilities is to be included in the Appendices.

K.4.3. *System Management Policies*

This section is to address the current management policies and practices regarding the major factors that can have an impact on the operation of the Project. Copies of all written policies and procedures are to be included in the Appendices. It is to contain, at a minimum, a discussion of the following issues:

- Surveillance and Incident Detection
- Safety Patrols
- Project Security
- Lane Use Control
- Pedestrian Ingress/Egress Routes
- Information Dissemination
- Traffic Incident Management Procedures
- Control Center Operations
- Detours and existing alternative traffic routes for Project entrance and exit
- Project Impact and Interruption
- The application of organization design standards for emergency management purposes.
- The development of a Concept of Operations Plan (COOP) for recovery following a major incident.

K.4.4. *Project Resources*

This section is to contain a description of the resources that the Project and the Development Entity has available on a day-to-day basis and a listing of the outside resources that are available on an on-call or contract basis. At a minimum, it must contain the following information:

K.4.4.1. Employee Lists

A complete employee listing that includes names, addresses, telephone contact information, job titles and bargaining units (if applicable). An organization chart must also be included.

K.4.4.2. Equipment Lists

A listing of all vehicles and equipment owned or leased by the Development Entity that includes at a minimum, the make, model and year, vehicle identification number, a general description of the vehicle, the American Trucking Association or American Public Works Association description code, the approximate mileage, and use under normal operating conditions.

K.4.4.3. Available Outside Resources

A listing of all outside equipment that is available on-call that includes all of the information listed in the previous paragraph, a 24-hour name and phone number for a principal and two backup contacts, and the approximate response time. An identical list is to be prepared for all firms and equipment currently under contract to the Development Entity. Copies of all current support contracts are to be included in the Appendices.

K.4.5. *Day-To-Day Functions and Responsibilities*

This section is to identify and discuss the day-to-day functions and responsibilities of the Development Entity. It should discuss, in detail, why, when and how the various responsibilities of the Development Entity are organized and managed. At a minimum, it should address the following:

- Routine facility surveillance and inspections
- Project security for all facilities and structures
- Emergency notification systems
- Delivery of goods and services
- Documentation and recordkeeping.
- Revenue collection

K.4.6. *Basic Operations Plan Content*

The Basic Operations Plan provides an overview of the Development Entity's approach to emergency operations. It is intended to detail and describe the response organization and assign specific tasks to the agencies and organizations that may be involved in an incident. It is used to guide and direct the development of functional and hazard specific annexes that provide specific direction and responsibilities for various types and magnitudes of incident.

K.4.6.1. Forward

The EOP must have a forward that contains introductory materials that enhances accountability and ease of use and includes:

- A document that is updated annually, signed and dated by the principal executive of the Development Entity approving the Plan.
- A register for recording changes and entering change dates.
- A signature page providing signatory evidence that the highest ranking officials of all governmental departments and private sector organizations with assigned responsibilities, as appropriate, concur with the portions of the Plan applicable to the Development Entity or entity they represent.
- A distribution list of the Plan recipients, indicating whether full copies or specific portions of the Plan were distributed.
- A table of contents listing all sections of the Plan.
- Cataloging of copies of the EOP that have been provided to other agencies and date of distribution.

K.4.6.2. Overview

The EOP is to have a Basic Plan Overview, detailing the Development Entity's approach to emergency management that contains, at a minimum, a general-purpose statement of the EOP that also references information provided in other parts of the overall Plan.

K.4.6.3. Concept of Operations

The EOP is to have a Concept of Operations section that describes the day-to-day operational issues of the Development Entity. It is also intended to explain the Development Entity's overall approach to an emergency situation (i.e. what should happen, when and at whose direction). The EOP shall be written to be in compliance and consistent with the Incident Command System (ICS) and the National Incident Management System (NIMS).

K.4.6.4. Organization and Assignments

The EOP is to have an Organization and Assignment of Responsibilities section that includes all individuals, departments, agencies and political subdivisions that may be involved in an emergency incident. It must include, at a minimum:

- An Incident/Unified Command basic structure that graphically illustrates the command structure that is typically used for "routine" and "major" emergencies. It should identify by position and/or job title those persons normally assigned to fill the various roles and have specific responsibilities under various emergency situations. This is not intended to be an absolute or inflexible document, but rather provide general guidance and information on how various incidents will typically be managed.
- A general sequence of actions, before, during and after an emergency situation.
- An explanation of who requests aid and under what conditions. Also, an explanation of who has the authority to request and/or send aid to other State or Local agencies.
- An explanation of the relationships (for purposes of emergency management) between the Development Entity and the Department, and the other governmental agencies, municipalities, and entities as appropriate.
- An introduction to other issues and concerns that may be dealt with more fully in the annexes.
- An explanation of the organization, staffing, location, and responsibilities of the Emergency Operations Center (EOC), and the conditions under which it is to be activated.

K.4.6.5. Administration and Logistics

The EOP is to have an Administration and Logistics section that covers the general support requirements and the availability and support for all types of emergencies, as well as general policies for managing resources. This section should address, at a minimum:

- A reference to and listing of all current mutual aid agreements. Full copies are to be included in the Appendices.
- All general policies for managing resources.
- Policies on:
 - Augmenting staff, if necessary
 - Reassignment of employees, if necessary
 - Financial record keeping
 - Reporting and tracking resource needs
 - Use of available resources
 - Acquiring ownership of resources
 - Compensating owners of private property, when used by the Development Entity.

K.4.7. *Functional Annex Requirements*

Annexes are the parts of the EOP that begin to provide specific information and direction and must focus on operations. These annexes must emphasize responsibilities, tasks and operational actions that pertain to the specific functions. They should also clearly define and describe the policies, processes, roles, and responsibilities inherent in the various functions before, during, and after any emergency situation.

At a minimum, the EOP shall include a functional annex that addresses how the agency will perform each of the functions described below:

Each functional annex will be structured to be consistent with the Emergency Support Functions included in the Federal Response Plan and will individually address:

- The purpose of the function.
- A description of the situations that trigger implementation of the function.
- A description of the assumptions that apply to the function.
- The concept of operations for the function.
- Assignment of responsibility for annex maintenance, review and updating.
- Additional requirements established by the Pennsylvania Emergency Management Agency (PEMA) must also be addressed.

An Emergency Support Function (ESF) matrix of primary and support functions is to be developed and included in the Plan, which must include the following subsections:

K.4.7.1. Direction and Control

The means by which the Development Entity will direct and control activities during emergency situations.

K.4.7.2. Communications

The means by which information will flow between responders, the EOC and the Department.

K.4.7.3. Warning/Emergency Information

The means by which the public will be warned and instructed regarding actual or threatened hazards and emergencies through the public media and other means.

K.4.7.4. Public Information

The means, organization and process by which the Development Entity will provide timely, accurate and useful information and instructions to Patrons, and impacted (or potentially impacted) residential, commercial, and industrial parties, under or adjacent to, or near the Project.

K.4.7.5. Disaster Intelligence/Damage Assessment

The means, by which the Development Entity will identify, collect, analyze and disseminate information on the extent and impact of the emergency situation.

K.4.7.6. Evacuation

The means, by which the Development Entity will manage, coordinate and conduct the evacuation of persons from the area believed to be at risk, when situations necessitate such action.

K.4.7.7. Mass Care

The means by which the Development Entity will support and assist in mass care activities necessary to be provided as the result of an incident on the Project.

K.4.7.8. Health and Medical

The means by which the Development Entity will assist and support health and medical services in emergencies and disasters, on or affecting the Project.

K.4.7.9. Mortuary Services

The means by which the Development Entity will assist and support in the collection, identification and care of human remains resulting from emergencies and disasters on or affecting the Project.

K.4.7.10. Resource Management

The means by which the Development Entity will manage the people, equipment, facilities, supplies and other resources to satisfy the needs generated by the disaster or emergency.

K.4.7.11. Debris Clearance and Waste Management

The means by which the Development Entity will manage and coordinate the clearance of debris to allow access by emergency response vehicles, collect and remove debris from an incident and the means by which debris will be disposed. Special guidance should be included to address handling debris from a crime scene.

K.4.7.12. Rapid Damage Assessment

The means by which the Development Entity will conduct rapid damage assessments following a major incident, target time frames and priorities.

K.4.8. *Hazard Specific Annex Requirements*

Hazard-specific annexes offer a means of extending functional annexes to address special and unique response procedures, notifications, protective actions and other needs generated by a specific hazard.

Hazard-specific annexes are actually supplements to the functional annexes and should not simply repeat the common planning considerations addressed in the functional annexes.

The need for a hazard-specific annex will be determined as a result of the hazard and vulnerability assessments and the development of the functional annexes. Hazard-specific annexes must follow the same structure and similar content as the Basic Plan and the Functional Annexes. There are, however, a number of specific and unique hazards to which the Project is exposed due to its climate, location and profile.

At a minimum, the following specific hazards are to be addressed:

- Major Traffic Accidents and/or Incidents
- Hazardous Materials Incidents
- Radiological Incidents
- Terrorism Incidents
- Weather Related Events
 - Major Snow and Ice Conditions
 - Tornados
 - Flooding
 - High winds
 - Earthquake

- **Shipping Incidents:** Along sections of the Project that are paralleled, cross above navigable waterways.
- **Railroad Incidents:** Along sections of the Project that are paralleled or cross below, or cross above by passenger and/or freight rail facilities.
- **Structural Fires:** In such structures under or adjacent to the Project.
- **Structural Failure:** Any part of the Project facility or non-facility structures.
- **Electrical Power Incidents:** Along sections of the Project that are paralleled or crossed by electrical lines, towers or power generating stations.
- **Other Utility Incidents:** Along sections of the Project that are paralleled or crossed by gas, oil, communications, and other utility lines, facilities or stations.

K.4.9. *Recovery Annex Requirements*

Following a major emergency or disaster, many critical issues and concerns will need to be addressed requiring coordinated efforts of the Development Entity, the Department and adjacent the State and Federal governments.

The Recovery Annex is intended to address the methodology and processes that will be implemented during the recovery process and must include, at a minimum the following issues:

- Identifies the agencies with responsibility for recovery efforts.
- Establishes documentation and record keeping requirements following the Disaster.
- Establishes financial, accounting and spending authorities.
- Establishes the initial post disaster priorities and responsibilities (0-12 hours).
 - Preliminary Damage Assessment
 - Y Walk through or Rapid Damage Assessment
 - Y Assessing economic injury
 - Y Damage Survey Reports
 - Y Written Damage Assessment Document
 - Y Estimates of Cost
 - Search and rescue and medical needs
 - Damage impact to critical facilities and structures
 - Establish Direction and Control
- Addresses Human Needs
- Develops and Addresses Mitigation Strategies

K.4.10. *Training and Exercises*

The success of the EOP depends to a large extent upon the level of training and preparedness of the Development Entity and agencies identified for involvement in an incident.

This section must identify and address a specific training curriculum and exercise schedule for the Development Entity. It must address, at a minimum, the following:

- 1) The types of training required for each employee and Development Entity involved in a particular incident.
- 2) A specific annual training curriculum and schedule for each employee so identified.
- 3) Establish and implement an exercise curriculum that provides both table-top and full scale training exercises based upon the potential hazards and vulnerabilities to which the Project is exposed.

K.4.11. Definitions

This section is to contain a complete listing of all definitions that are unique to the Emergency Management Section of the Plan. It will also contain a listing of commonly used federal acronyms and a glossary of terms.

K.4.12. References

This section is to contain a listing of Federal Department of Homeland Security, Federal Emergency Management Agency, Pennsylvania Emergency Management Agency (PEMA), Pennsylvania Department of Homeland Security (PennDHS), Local agencies, and Project Reference Documents, Laws and regulations and their location. Full copies of all documents are to be included in the Appendices.

K.4.13. Bibliography

This section is to contain a bibliography of the document, as applicable.

K.4.14. Appendices

All appendices referenced within the document shall be listed in a summary, indexed and tabbed.

K.4.15. Forms and Documentation Guidelines

This section is to contain copies of all forms and documentation guidelines currently in use by the Development Entity. It is also to contain copies of all applicable Department, DHS, FEMA, PennDHS, PEMA, and other applicable forms for use during and following emergencies.

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L.1. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Publication 2: “Project Office Manual”, PennDOT.
- Publication 4: “Conducting Business with PennDOT”, PennDOT.
- Publication 8: “Construction Manual”, PennDOT.
- Publication 10: “Design Manual Part 1 – Transportation Project Development Process”, PennDOT.
- Publication 10A: “Design Manual Part 1A – Transportation Engineering Procedures”, PennDOT.
- Publication 13M: “Design Manual Part 2 – Highway Design”, PennDOT.
- Publication 14M: “Design Manual Part 3 – Plans Preparation”, PennDOT.
- Publication 15M: “Design Manual Part 4 – Structures”, PennDOT.
- Publication 21: “Making Sound Decisions about Highway Noise Abatement”, PennDOT.
- Publication 23: “Maintenance Manual”, PennDOT.
- Publication 24: “Project Level Highway Traffic Noise Handbook”, PennDOT.
- Publication 25: “Quality Assurance Manual”, PennDOT.
- Publication 27: “Specifications – Bituminous Mixtures (Bul. 27)”, PennDOT.
- Publication 30: “Portland Cement Concrete (Bul. 5)”, PennDOT.
- Publication 34: “Aggregate Producers”, PennDOT.
- Publication 35: “Approved Construction Materials (Bul. 15)”, PennDOT.
- Publication 37: “Specifications - Bituminous Materials (Bul. 25)”, PennDOT.
- Publication 38: “Specifications – Paints & Allied Materials (Bul. 26)”, PennDOT.
- Publication 41: “Producers of Bituminous Mixtures (Bul. 41)”, PennDOT.
- Publication 42: “Producers of Redi-Mixed Concrete Mixtures (Bul. 42)”, PennDOT.
- Publication 51: “Bid Package Preparation Guide (ECMS)”, PennDOT.
- Publication 70M: “Guidelines for the Design of Local Roads and Streets”, PennDOT.
- Publication 72M: “Roadway Construction Standards”, PennDOT.
- Publication 111M: Traffic Control – Pavement Markings and Signing Standards”, PennDOT.

- Publication 122M: “Surveying and Mapping Manual”, PennDOT.
- Publication 135: “Fabricated Structural Steel Inspection”, PennDOT.
- Publication 148: “Traffic Standards (TC-7800 Series) – Signals, PennDOT.
- Publication 149: “Traffic Signal Design Handbook, PennDOT.
- Publication 201M: “Engineering and Traffic Studies”, PennDOT.
- Publication 212: “Official Traffic Control Devices”, PennDOT.
- Publication 213: “Work Zone Traffic Control”, PennDOT.
- Publication 216: “Community Impact Assessment”, PennDOT.
- Publication 218M: “Standards for Bridge Design BD-600”, PennDOT.
- Publication 219M: “Standards for Bridge Construction BC-700”, PennDOT.
- Publication 236M: “Handbook of Approved Signs”, PennDOT.
- Publication 242: “Pavement Policy Manual”, PennDOT.
- Publication 278: “Environmental Impact Statement Handbook – The Transportation Project Development Process”, PennDOT.
- Publication 293: “Geotechnical Engineering Manual”, PennDOT.
- Publication 294: “Categorical Exclusion Evaluation Handbook - The Transportation Project Development Process”, PennDOT.
- Publication 295: “Public Involvement Handbook - The Transportation Project Development Process”, PennDOT.
- Publication 302: “Bridge Design Training Manual”, PennDOT.
- Publication 304: “Getting Involved”, PennDOT.
- Publication 306M: “Sign Blank Specifications”, PennDOT.
- Publication 319: “Needs Study Handbook”, PennDOT.
- Publication 321: “Project Air Quality Handbook, PennDOT.
- Publication 324: “Agricultural Resource Handbook”, PennDOT.
- Publication 325 “Wetland Resources Handbook”, PennDOT.
- Publication 349: “Section 4f Handbook”, PennDOT.
- Publication 362: “Environmental Assessment Handbook - The Transportation Project Development Process”, PennDOT.
- Publication 408: “Highway Specifications”, PennDOT.
- Publication 461: “Roadside Planting Guidebook”, PennDOT.

- Publication 581: “Highway Beautification Manual”, PennDOT.
- “Strike-Off Letters”, PennDOT.
- “LRFD Bridge Design Specifications,” AASHTO.
- “Standard Specifications for Highway Bridges,” AASHTO.
- “Maintenance and Management of Roadways and Bridges”, AASHTO.
- “Guide Specifications and Commentary for Vessel Collision Design of Highway Bridges”, AASHTO.
- Guide for Design of Pavement Structures, Volume I”, AASHTO.
- “A Policy on Geometric Design of Highways and Streets”, AASHTO.
- “Pavement Management Guide”, AASHTO.
- Publication FHWA-EP-00-005: “FHWA Highway Noise Barrier Design Handbook”, FHWA.
- “Pennsylvania Stormwater Best Management Practices Manual”, PennDEP.
- “Pennsylvania Code Title 25 Chapter 102 Erosion and Sediment Control”, PennDEP.
- “Pennsylvania Code Title 25 Chapter 105 Dam Safety and Waterway Management”, PennDEP.
- “Pennsylvania Code Act 167 – Watershed Plan”, PennDEP.
- “General National Pollutant Discharge Elimination System (NPDES)”, USEPA.
- International Building Code, IBC.
- “National Fire Codes”, NFPA.
- “National Electrical Code”, NFPA.
- “National Plumbing Code, ANSI.
- “Uniform Plumbing Code”, WPOA.
- “Uniform Heating and Cooling Code”, WPOA.
- “Americans with Disabilities Act”, U.S. Department of Justice.
- Occupational Health and Safety Act (OSHA) Guidelines
- OSHA Publications List via Catalog or Website, OSHA (Website: <http://www.osha.gov/pls/publications/pubindex.list>).

L.2. Policy for Design and Construction Requirements

L.2.1. Objective

The objective of the directives within this Chapter is to provide the Development Entity a series of procedural requirements and guidelines relative to the framework necessary in undertaking and completing major changes within the Project, and the coordination that will be required and expected by the Department.

The principal objectives in all design and construction work undertaken by the Development Entity within the Project must include, but is not limited to, the following:

- Conduct all work in manner consistent with the policies and procedures adopted and utilized by the Department so as to conform to the requirements of the Technical Provisions and assists in the facilitation of Plan review.
- Creates and maintains the Project as a premier station and accompanying facilities to the public and the patrons.
- Conduct all work in a manner that does not compromise the safety of the workers, public, patrons or the Department.
- Promotes a spirit of cooperation, communication and partnership with the Department.
- The value of the Project is continually maintained and improved such that the asset meets or exceeds the requirements of the PPA and these Technical Provisions throughout the Term, with a special focus on the quality of the asset at the termination of the PPA.

The purpose of the Chapter is to articulate that the while the Development Entity is not necessarily bound to previous Department means and methods, an awareness of prior successes and failures must guide the Development Entity's work related to Design and Construction. For example, geology, climate, work force, location, and population contribute to how design and construction is accomplished and completed.

It is expected that the Development Entity will bring its experience, "best practices", "lessons learned" and ingenuity to create a Project that exceeds the requirements of the PPA and these Technical Provisions. Conversely, the Development Entity must understand that the project must conform to the design and construction standards established and enforced by the Department.

Proactive communication with the Department and other stakeholders must be undertaken and be continual throughout the term of the PPA. Establishing guidelines, policies, protocols and procedure that conform to the design and construction requirements of the Department are extremely important. In utilizing the contents of this Chapter, the Development Entity is directed to integrate all of its design and construction work with the requirements of both: Volume II, Chapter B that covers management of projects and discusses some of the coordination efforts needed, and Volume II, Chapter C that covers quality measures that permeate design and construction activities.

L.2.2. Responsibility of Development Entity

In order to meet the requirements of this Chapter, the Development Entity is advised that the Department has utilized numerous Professional Engineering and Construction Firms. The Development Entity will maintain the right to establish and decide the mix of in-house and contracted work, but responsibility for all work must be clear and accountable. As public safety is involved, the Development Entity must employ Professional Engineers and Architects Licensed in the Commonwealth of Pennsylvania, qualified for particular type of work that is to undertaken. Ultimate responsibility for all work undertaken by the Development Entity will be solely retained by the Development Entity.

As required, the Development Entity may choose to seek and retain the services of Licensed Professional Consulting Engineering Firms or Licensed Construction Firms, to perform the services indicated within this Chapter. Such Firms must conform to all laws, regulations and registrations required by the Department; must have individuals Licensed in the Commonwealth appropriate for the work in which they undertake, and will be responsible for their work within the Project.

L.2.3. Performance Time Frames

One of the many functions of Volume II, Chapter M “Annual State of the Amtrak Station Improvement Project Reports” is to assist the Development Entity in establishing a schedule for the planning, design and construction against the needs of the Project, and to communicate that plan to the Department. It is intended that the execution project tasks that require advanced and coordinated Approval and planning are appropriately allotted the necessary time for completion by the Development Entity.

The cycle time for construction projects has many variables including location, other projects and the method of delivery. The Development Entity must understand that due to the various regulatory statutes that exist in the Approval and permitting of projects at the local, State and sometimes Federal level, significant impact can occur in the timeframes of both design and construction. To provide assistance and guidance to the Development Entity through this process the contents of this Chapter and the requirements outlined in PennDOT Construction, Design Manuals and the other Referenced Documents in Section L.1 of this Chapter are referenced as guidance on executing problem free projects.

The Development Entity must be aware that the Department, Project Stakeholders, or their designated agent, retains the right and privilege to review, inspect and be informed of all planned and on-going work within the Project at all times.

Prior to the start of both design and construction work the Development Entity and the Department, or its designated agent, must hold a joint meeting at which time a mutually agreeable schedule for Plan and document submissions; review of design plans; interface on construction work; and the overall project goals for all work is established and agreed upon. Alterations to the schedule or goals must be conducted at separate meetings and made jointly prior to their enactment. In addition, the Development Entity must recognize and plan to conduct all of its design and construction work in a manner such that the Department is provided ample time to review projects prior to rendering an appropriate decision of denial or Approval of the project and its contents.

L.2.4. *Acceptance Criteria*

The Development Entity's design and construction of projects must conform to the requirements of the PPA, Operating Standards, and where applicable, the design and construction standards established by the Department. Conversely, it is expected that the Development Entity will bring its "best practices" and ingenuity to the work such that materials, construction methods and the like are introduced that extend and increase to functionality and useful life of the Project.

The Development Entity is obligated to meet the minimum standards established by AASHTO and the Department. If a particular project is a non-transportation project, such as work in the Project Facilities, the International Building Code (IBC) will be the recommended guideline. Additionally, the Development Entity must incorporate the generally accepted engineering practices in the Department with respect to employing engineering and construction professionals who will conduct the work on a given project. Finally, all work must be conducted so as to conform to all applicable safety regulations established and regulated by OSHA, and laws at the local, State and Federal levels.

While the particular acceptance criteria will vary for each project based upon its purpose and characteristics, the Development Entity must put forth every effort to achieve the following expected useful life goals herein, and established by PennDOT Publication 15M, whichever is more stringent:

- The general design life for new Superstructures and Substructures should be 100 years.
- The general design life for new structure Decks, with epoxy-coated reinforcement, and the appropriate concrete mix, should be 50 years.
- The general design life for new cast-in-place retaining walls should be 100 years.
- The general design life for new proprietary retaining walls (MSE, gabion, soldier Pile walls) should be 75 years.
- The general design life for new roadways and pavement should be 40 years and must including a periodic maintenance and resurfacing Project.
- The general design life for new drainage pipes and systems should be 50 years.

In addition, the Development Entity must make every effort to conduct all construction work in manner that provides the least amount of disruption to the patrons and the public.

L.3. Additional Design & Construction Process Guidelines & Requirements

L.3.1. Coordination with the Department

The Development Entity is expected to fully communicate, coordinate all work and work with the Department during the planning, design and construction phases of each project. The Development Entity must also be aware that their work will require a variety of communications with agencies ancillary or directly connected to the Department. Of particular note, and as discussed in subsequent sections of this Chapter, utilities, railroads, Commonwealth Departments, and local and Federal agencies all must be considered Stakeholders in the welfare of the Project, and coordination with those entities is fully expected.

L.3.2. Approval of the Department

All projects and additional developments, whether initiated by the Development Entity or by another manner, must be Approved by the Department. It is recommended that each project be undertaken in a manner such that the requirements of the Department's Design Manuals are adhered by.

It is further recommended that prior to the start of work, the Development Entity provide a brief summation of the Project that discusses the needs and justification analysis, and must contain the project location, scope, and duration of the Project. Following that submission the Development Entity must schedule a meeting with the Department to gain Approval prior to commencing further preliminary or design work.

L.3.3. Local Agency Coordination

The Development Entity will be responsible for coordinating with the relevant Governmental Entities and other key stakeholders within and outside the Commonwealth that may include but not be limited to:

- Amtrak (“National Railroad Passenger Corporation”)
- The U.S. Federal Transit Administration (“FTA”)
- U.S. Army Corps of Engineers (“USACOE”);
- U.S. Environmental Protection Agency (“USEPA”);
- PA Department of Conservation and Natural Resources (“DCNR”);
- PA Department of Environmental Protection (“PADEP”);
- PA Department of Agriculture (“PDA”);
- PA Game Commission (“PGC”);
- PA Fish and Boat Commission (“PFBC”);
- U.S. Fish and Wildlife Service (“USFWS”); and
- PA County Conservation Districts.

For processes where FTA will be consulted, the Department will be involved with any consultations.

L.3.4. *Utility Coordination*

Within the Project are utilities that are located within and adjacent to the Project. The Development Entity must coordinate all of its efforts and work with those utilities with the Pennsylvania Utility Commission (PUC). The PUC has binding regulatory powers that will require the Development Entity to insure continued utility operation in accordance with past and future agreements. It is anticipated that the involvement of the railroads will demand extra time for completion.

The Development Entity will be responsible for coordinating the location and relocation of all utilities affected by the Project. The Development Entity must follow the guidelines established in PennDOT Publication 16M and develop utility relocations designs, agreements and cost sharing for relocations.

L.3.5. *Elective Projects*

Over the term of the Project, the Development Entity may propose additional projects that improve its operational efficiencies, reduce congestion, or improve the Project for a variety of other reasons. These projects will be require Approval from the Department and Stakeholders in accordance with the Reference Documents noted in Section L.1 of Chapter and the other requirements described in this Chapter.

L.3.6. *Projects Resulting from Local Initiative*

Over the term of the Project, the Development Entity may be approached by the Department, Amtrak or a local agency where another project impacts the Project. The Development Entity is responsible for working with the Department and/or that local agency, and must not impede their work, so that the project can be accomplished. Further, the Development Entity will also work with the Department to coordinate the efforts with the local agencies so that a reasonable structure is established prior to the start of work.

L.3.7. *Situations When Additional Right-of-Way is Required*

Should the Development Entity request additional land, the Development Entity must work with the Department both prior to and during these projects so that the required land is acquired in a manner consistent with all applicable laws, regulations and requirements. The Development Entity must follow all Department processes and requirements for this process, and will be solely responsible for the cost associated with each aspect of the process.

The Development Entity must also be aware that the Borough of Middletown will operate Emaus StreetSt, which crosses the Project, and that full detours of this road during work on the Project cannot be assumed nor may be allowed once it is opened to traffic.

L.3.8. *Public Involvement*

The Development Entity must make every effort with the public to inform and involve their input when a particular project may affect their community. The Development Entity must conduct meetings and informational session, as required, so that its operations and work is viewed as being cooperative and communicative.

L.3.9. *Environmental Approvals*

All work must conform to the guidelines, criteria and evaluation adopted and utilized by PennDOT and NEPA for environmental clearance. In particular, the Development Entity must conform to the requirements of Act 120 of the Department in dealing with environmental matters. Upon submission and Approval of a Project, the appropriate Environmental study, action or exclusion documentation must be produced to support the Project's characteristics.

L.3.10. *Construction Management Requirements*

The Development Entity must provide construction management services with internal forces or consultant services to manage, monitor and control all project construction work. This work must be conducted in a manner similar to the requirements of PennDOT during the Construction Phase. All inspection documents, shop drawings and alternate designs will be reviewed and approved by the Development Entity's Management Team. Project schedules and progress will be reviewed to assure that the work is done in according to schedule with minimal delay.

L.3.11. *Construction Inspection*

The Development Entity must retain construction inspectors or firms to provide assurances that all construction work is being done in accordance with the Approved Plans, Technical Provisions and all contract provisions and permits. Completed work must be documented on As-Built Plans and variances so indicated. At the end of construction, electronic copies of As-Built Plans must become part of the project record.

L.3.12. *Project Delivery Methods*

The Development Entity retains the right to advertise, solicit and contract for project delivery in the manner that best suits its operations provided that it does not violate the terms and conditions of the PPA, Technical Provisions or Department Law.

L.3.13. *Travel Impacts*

The Development Entity must maintain continuous patron service on the Project during all construction and maintenance activities to provide the best quality service to the public at all times in accordance with the requirements of the PPA and the Technical Provisions.

L.3.14. *Quality Control / Quality Assurance*

The Development Entity must develop, manage and maintain a Quality Control and Quality Assurance plan that meets the requirements for its work overall, per the requirements of Volume II, Chapter C; as well as for each Project. Items such as materials, construction quality must be documented in the project record which must also include the results of all testing, sampling and remediation.

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M. ANNUAL STATE OF THE AMTRAK STATION IMPROVEMENT PROJECT REPORTS

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M.1. References

All stated references must be the most current version, or the document known to have succeeded or replaced the original stated herein:

- Publication 13M: “Design Manual Part 2 - Highway Design”, PennDOT.
- Publication 15M: “Design Manual Part 4 - Structures”, PennDOT.
- Publication 19: “Field Test Manual”, PennDOT.
- Publication 23: “Maintenance Manual”, PennDOT.
- Publication 33: “Guide Rail Condition Survey Manual”, PennDOT.
- Publication 55: “Bridge Preventative Maintenance Standards”, PennDOT.
- Publication 73: “Drainage Condition Survey Field Manual”, PennDOT.
- Publication 100A: “Bridge Management System 2 (BMS2) Coding Manual”, PennDOT.
- Publication 108: “Sign Foreman’s Manual”, PennDOT.
- Publication 135: “Fabricated Structural Steel Inspection”, PennDOT.
- Publication 145: “Inspection-Concrete Pipe and Precast Concrete Products”, PennDOT.
- Publication 213: “Work Zone Traffic Control Manual”, PennDOT.
- Publication 218M: “Standards for Bridge Design - BD-600”, PennDOT.
- Publication 219M: “Standards for Bridge Construction BC-700”, PennDOT.
- Publication 234: “Flagging Handbook”, PennDOT.
- Publication 238: “Bridge Safety Inspection Manual”, PennDOT.
- Publication 242: “Pavement Policy Manual”, PennDOT.
- Publication 293: “Geotechnical Engineering Manual”, PennDOT.
- Publication 302: “Bridge Design Training Manual”, PennDOT.
- Publication 336: “Automated Pavement Condition Surveying Field Manual”, PennDOT.
- Publication 343: “CRC & Unpaved Roads Condition Survey Field Manual”, PennDOT.
- Publication 383: “PA Traffic Calming handbook”, PennDOT.
- Publication 408: “Highway Specifications”, PennDOT.

- Publication 450: “Roadside Development Inspection Guide”, PennDOT.
- Publication 464: “Maintenance Field Reference for Erosion and Sediment Control”, PennDOT.
- Publication 590: “PA CoRe Element Coding Guide”, PennDOT.
- “Strike Off Letters”, PennDOT.
- “Guide Specifications for Fatigue Evaluation of Existing Steel Bridges”, AASHTO.
- “Manual for Condition Evaluation of Bridges”, AASHTO.
- “LRFD Bridge Design Specifications”, AASHTO.
- Standard Specifications for Highway Bridges," AASHTO.
- “The Maintenance and Management of Roadways and Bridges”, AASHTO.
- “Guide Specifications and Commentary for Vessel Collision Design of Highway Bridges”, AASHTO.
- Title 23 Code of Federal Regulation, Section 650, “National Bridge Inspection Standards (NBIS)”, FHWA.
- “Bridge Inspector's Training Manual," FHWA.
- “Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation’s Bridges," FHWA.
- Publication FHWA-PL_01_021: “Traffic monitoring Guide”, FHWA.
- “NCHRP Report 299: Fatigue Evaluation”, NCHRP/FHWA.
- “Highway Capacity Manual”, TRB.
- International Building Code, IBC.
- “National Fire Codes”, NFPA.
- “National Electrical Code”, NFPA.
- “National Plumbing Code, ANSI.
- “Uniform Plumbing Code”, WPOA.
- “Uniform Heating and Cooling Code”, WPOA.
- “Boiler and Unfired Pressure Vessel Code, ASME.
- “Chimneys, Fireplaces and Vents Code”, NFPA.
- “International Mechanical Code”.
- Americans with Disabilities Act”, U.S. Department of Justice.
- Occupational Health and Safety Act (OSHA) Guidelines
- OSHA Publications List via Catalog or Website, OSHA (Website:

<http://www.osha.gov/pls/publications/pubindex.list>).

- National Standards, Specifications and Regulations as applicable, from the following organizations:
 - National Electrical Manufacturers Association (NEMA).
 - American Waterworks Association (AWWA).
 - American National Standards Institute (ANSI).
 - American Society for Testing and Materials (ASTM).
 - Federal Communications Commission (FCC).
 - Underwriters Laboratory (UL).

M.2. Policy for Annual State of the Amtrak Station Improvement Project Reports

M.2.1. Objective

The objective of the Annual State of the Amtrak Station Improvement Project Reports is to protect the Project by detecting and correcting weaknesses prior to failure. This objective must be accomplished by the inspections, reports and requirements of this Chapter. The inspections and reports will provide the Department current and accurate information on the condition and adequacy of the structures, infrastructure and facilities within the Project, in part or in whole. Further, the reports must provide a means of communication and assurance to the Department that the Project is being adequately maintained and improved.

In addition, the performance of the inspections and the filing of the reports will assist in fulfilling the State and Federal requirements stated in Title 23 Code of Federal Regulation, Section 637; Construction Inspection and Approval, as well as Section 650; Bridge, Structures and Hydraulics.

Also, the inspection and report process fulfills the following additional objectives:

- To update and submit the required biennial State and Federal reports.
- To maintain the condition databases of the Project.
- To ensure that the Project is and remains safe for the intended use.
- To develop and prioritize specific maintenance, repair and/or rehabilitation work.

M.2.2. Responsibility of Development Entity

In order to meet the requirements of this Chapter, the Development Entity must engage in practices and measures that ensure that all inspections and reports are performed and completed accurately, professionally, independently, and within the Time Frames established in Section M.2.3 of this Chapter. The work must be administered by the Development Entity and must meet the Approval of the Department.

The Development Entity must seek and retain an independent and Licensed Professional Consulting Engineering Firm, not associated, owned or partnered with the Development Entity, to perform the services indicated within this Chapter. The names, resumes and qualifications of the Engineering Firm and the specific Inspection and Report Team members must be submitted to the Department for Approval annually. The same Engineering Firm can be retained only for a maximum of a four (4) year duration at which time the Development Entity must seek, retain and employ a different Engineering Firm. The purpose of these requirements is to develop a fair, impartial, independent and objective assessment of the condition of the Project.

The qualifications of the Inspection and Report Team that will be performing the inspection and report work are stated in Section M.3.1 of this Chapter.

All structure inspection procedures and frequencies must be in accordance with NBIS from Title 23 CFR, as required by the Department or as amended within this Chapter, whichever is the most stringent. Inspection procedures must be in accordance with PennDOT Publication 238: “Bridge Safety Inspection Manual”, FHWA, and the relevant approved methods of the Department. The nomenclature, numbering system, Quality Control/Quality Assurance Manual and Safety Manual as stated in PennDOT Publication 238: “Bridge Safety Inspection Manual”, and must be utilized and implemented by the Development Entity and the Engineering Firm.

Inspection forms will include the formats from PennDOT Publication 238: “Bridge Safety Inspection Manual” that must be completed and submitted as required, and as stated in the requirements of Volume I, Chapter G, “Bridge and Structure Maintenance”. In addition, the Development Entity and the Engineering Firm must complete and submit the PennDOT Bridge Management System (BMS) forms on an annual basis.

The Development Entity and their retained Engineering Firm are responsible for equipment, staffing, traffic control, outside testing services and supervision for all inspections. Material sampling and uncovering of encased members must be performed on a limited basis as recommended by the Engineering Firm.

The Engineering Firm and the Development Entity are required to coordinate, pay for, and obtain all necessary permits and insurance required for the performance of the work, which may include the following:

- Local Road Closure Permits.
- Railroad Right-of-Entry permit and flagging.
- Railroad Protective Liability Insurance.

The Development Entity and the Engineering Firm must perform the following:

- Perform Biennial inspections of all applicable structures (Parking Facilities, Pedestrian Bridge, High-Mast lighting, culverts, retaining walls, etc.) within the time frames prescribed in Table M.2.3 of this Chapter. The Development Entity must conduct inspections such that during one biennial cycle, the entire structure inventory is inspected and reported upon in the next year.
- Provide load ratings for all structures, as required based upon the results of the Fracture Critical Inspections.
- Perform the Roadway/Civil Annual Inspection.
- Perform Architectural/Structural/Electrical/Mechanical inspections of the associate facilities and infrastructure.
- Prepare, develop and submit an Annual Amtrak Station Improvement Project Report that contains recommendations, schedules and capital improvement work that is planned for the upcoming year(s).
- Perform General Condition inspections on an annual basis.
- The Development Entity must prepare, and keep current, load analysis calculations and tables that indicate both the Inventory Rating and the Operating Rating for every structure within the Project, and share this information with the Department upon request.

The Development Entity must retain a nationally recognized Traffic Consultant that must be responsible for conducting measurements of the traffic volumes on the Project, and prepare an Annual Report on the current and forecasted traffic volume on the Project. Forecasts of traffic growth must be conducted on a planning horizon of at least ten (10) years. Traffic volumes must be measured and reported annually including truck flows and sample weights. At a minimum traffic monitoring will be conducted within the guidelines established by the FHWA in the Traffic Monitoring Guide.

M.2.3. Performance Time Frames

The following table establishes the minimum frequency that a particular Report (based on the appropriate Inspection or Inspections) must be written and updated by the Development Entity, submitted to the Department and Approved by the Department.

Table M.2.3

Report	Minimum Frequency of Occurrence
Structure Condition Report	Once Yearly
Roadway/Civil Condition Report	Once Yearly
Project Facilities Condition Report	Once Yearly
Amtrak Station Improvement Project Report	Once Yearly
Report on Current Traffic Volume and Ten Year Forecast of Traffic Growth	Once Yearly
Certification Letter stating that all Project Maintenance and Operations conform to the guidelines and criteria stated in each Chapter of Volume I – Maintenance Manual, each required Plan of Volume II – Operations and Procedures Manual, and, the requirements of Volume III – Environmental Management Manual.	Once Yearly

M.2.4. Acceptance Criteria

The Annual State of the Amtrak Station Improvement Project Reports will be considered acceptable for a particular year when each inspection has been completed by the Development Entity; each required Condition Report has been written and updated by the Development Entity, submitted to the Department, and approved by the Department; and the Amtrak Station Improvement Project Report has been written and updated by the Development Entity, submitted to the Department and Approved by the Department.

In order to receive Approval by the Department, the following criteria must be met or exceeded:

- All Inspections have been performed in accordance with the requirement of this Chapter, all Reports have been signed and Sealed by a Professional Engineer Licensed in the Commonwealth of Pennsylvania, and all required documentation and Reports have been filed with the appropriate agency.
- The qualifications of the Engineering Firm conducting the inspections conform to the requirements of this Chapter, Volume I – Maintenance Manual, and the Reference Documents, whichever is more stringent.
- Notification has been made to the Department immediately when inspections determine that one or more of its major components, or elements are at risk of a localized or large scale

failure.

- No component, element, segment, feature, system, etc., of the Project in part or in whole is considered to be unsafe or has the potential to become unsafe.
- The Development Entity provides a Statement and Certification Letter that Project Maintenance and Operations conform to the guidelines and criteria stated in each Chapter of Volume I – Maintenance Manual, each required Plan of Volume II – Operations and Procedures Manual, and the requirements of Volume III – Environmental Management Manual.
- The Project must be continually maintained in accordance with the requirements of Section M.3.11 of this Chapter.

M.3. Requirements for the Annual State of the Project Condition Inspections and Report Submittals

M.3.1. Inspection and Report Team Qualification Requirements

ROLE	COLLEGE EDUCATION	EXPERIENCE	LICENSE/ CERTIFICATION	MINIMUM ADDITIONAL QUALIFICATIONS
Project Manager	B.S./B.A. (Minimum)	10 Years (Related)	P.E. (Minimum)	Previous experience with FHWA, NBIS and PennDOT Bi-Annual Inspection Projects.
Structure Inspection Team Leader	B.S.C.E. (Minimum)	5 Years (Related)	P.E.	Previous experience on structures and 15 Day NBIS Qualification Course.
Roadway Inspection Team Leader	B.S.C.E.	10 Years (Related)	P.E.	Previous experience with Roadway/Civil Inspections
Project Facility Inspection Team Leader (By Discipline)	B.S. (By Discipline)	10 Years (Related)	P.E. (By Discipline)	Previous experience with Project Facility and Building Inspections
	B.A.		A.I.A.	
Inspection Team Members	High School Diploma Minimum	5 Years (Related)	N/A	Previous experience on Highway or Railroad structures, Roadways, Project Facilities, or as appropriate.
Structure Evaluation/ Rating Engineer	B.S. (Minimum)	5 Years (Related)	EIT Minimum P.E. Preferred	15 Day NBIS Qualification Course

M.3.2. Independent Professional Consulting Engineering Firm

The Independent Professional Consulting Engineering Firm must be a registered and licensed Professional Design Firm with the Department of Pennsylvania – Department of Professional Regulation for Professional Engineering. In order to maintain true independent Inspections and Reports, the Engineering Firm must not be teamed, owned or partnered with the Development Entity or be an Affiliate of the Development Entity. The Development Entity must engage firms that have exhibited experience with the kinds of structures, Project Facilities, and conditions within the Project and that meet all of the requirements of this Chapter.

The same Engineering firm can be retained only for a maximum four (4) year duration, at which time the Development Entity must seek, retain and employ a different Engineering Firm. The Department must approve the Engineering Firm on an annual basis, and retains the right to dismiss firms that do not meet the requirements of this Chapter. The Development Entity must also annually submit the names, resumes and qualifications of the specific Inspection and Report Team members to the Department for Approval.

M.3.3. Project Management

A senior engineer, serving as Project Manager, must direct the Inspection Project, review results for conformance with PennDOT, Amtrak and FHWA requirements and provide Project Management. Elements of the Management Project include:

- Training, mobilization and support of field crews.
- Development of a bridge inspection schedule and updates, bridge assignments and team scheduling.
- Meetings with the Development Entity, and if required, with the Department.
- Major equipment coordination.
- Ongoing coordination with the Development Entity.
- Field reviews of inspection teams.
- Field inspections.
- Inspection forms review and submittal.
- Database coordination.

To ensure uniformity of the inspections, a format has been prepared by the Department for use by Consulting Engineering Firms. A QA/QC Manual, Nomenclature Manual, Safety Manual and Inspection Form Manual have been prepared and implemented by the Department with respect to inspections undertaken by the Department, and are the components of PennDOT Publication 238: “Bridge Safety Inspection Manual”. These documents must be used by the Development Entity and the Engineering Firm, and are further summarized as follows:

M.3.3.1. Quality Assurance/Quality Control Manual

The purpose of this Manual is to define the responsibilities of the participants of the Inspection Team, describe the quality of activities to be performed, and define the inspection methodology to be used in the execution of the work. The Manual provides the basis by which uniformity of the inspections, ratings and identification of members and their defects is assured.

Sketches and photographs, where available, are used to illustrate and define bridge types, elements, components and their associated defects. The Manual contains the checklists and surveillance forms that will be used by the PennDOT Quality Assurance personnel to verify that the inspections meet the objectives of the Department.

M.3.3.2. Nomenclature Manual

This Manual defines the structural elements and components, establishes coding and numbering methodology and provides defect, rating, prioritization and other codes that are necessary for the uniform completion of the forms. Requirements for bridge nomenclature can be found in Section G of Volume I, Chapter G, "Structure Maintenance".

M.3.3.3. Safety Manual

Multiple crews performing inspection work throughout the Project require a consistent safety format for the performance of the work. The Safety Manual establishes the minimum requirements for the performance of the work that will be expected of each team.

M.3.4. *Mobilization*

The Development Entity must meet the following requirements:

M.3.4.1. Plan Review

Prior to commencement of the fieldwork, the latest report of inspection information for each structure must be reviewed by the Engineering Firm. A location map, and a general plan and elevation drawing of the structure must be provided to each field crew. A review must be made of the critical elements and anticipated problems that will be encountered in performing the inspection.

M.3.4.2. Site Inspections

A variety of physical conditions and other factors may affect the manner in which site inspection is undertaken. Rail traffic and vehicular traffic will affect the scheduling and equipment needs of the inspection. All permits, insurance and/or access requirements must be procured by the Development Entity and the Engineering Firm.

M.3.4.3. Equipment

The Development Entity and the Engineering Firm must furnish each field crew with

equipment for conducting the inspections. Among such equipment, to the extent necessary, are measuring tapes, chipping hammers, hand tools, ladders, portable lights, cellular phones/pagers, auto-focus cameras (with time and date recorder), traffic vests, traffic cones, arrow-boards, traffic barriers, air-handling equipment for work in enclosed spaces, personnel vehicles, man-lifts, bucket-trucks and snoopers. Equipment must be acquired by the Development Entity and/or the Engineering Firm.

M.3.4.4. Field Team Orientation

The Engineering Firm must conduct orientation meetings to train and standardize the field teams.

M.3.5. *Safety Manual*

The Engineering Firm must use the Safety Manual described above as a basis and compose a complete Safety Manual to be implemented as part of its work. The Manual must be used to train and monitor crews performing this work. All crews must be trained in the use of the equipment required by the particular inspection and condition. Safety will be the responsibility of the Engineering Firm. A truck with an arrow-board must be used when personnel are working in or adjacent to traffic, and street permits will need to be secured, as required, by the Development Entity.

M.3.6. *Structure, Roadway and Project Facilities Condition Inspections*

The Engineering Firm must develop a schedule for the inspection of the entire Project infrastructure consisting of roadway, structures, civil, architectural, electrical and mechanical elements. The Development Entity will review and approve the final schedule and may alter the schedule to meet its needs.

Field teams must consist of either two-person or three-person crews, depending upon the type and location of the inspection work. The number of teams is to be dictated by the need to complete all of the inspections.

Traffic control must be provided by the Engineering Firm and the Development Entity, when required to protect inspection crews and Patrons. Inspections at track level must be performed under railroad flagging protection. The Development Entity and the Engineering Firm must procure all necessary rights-of-entry and protective liability insurance, and arrange for all flagging.

The Engineering Firm must perform inspections using aerial bucket trucks, snoopers trucks or ladders to gain access for close, visual inspection. The Engineering Firm must use portable lighting to provide necessary illumination. Portable air handling units must be utilized for all inspections of vaulted abutments, or where confined space entry is required.

M.3.6.1. Biennial Structure Inspections

The Biennial structure inspections must include supervision and execution of the intermediate level structure inspection, and includes all structures within the Project. The inspections must involve visual observations by approved and experienced bridge engineers and at times may require detailed bridge condition surveys. The Development Entity must be aware that some structures may require annual inspections to accurately produce the

Reports.

M.3.6.2. Annual Roadway/Civil Inspections

The Annual Roadway/Civil inspections will be a visual inspection of the earth embankments and slopes along the Project, the pavement and shoulders, drainage system, fencing, landscaping, median barrier, guardrails and railings, signage, sign structures and pavement markings.

An annual inspection of the Project Lighting must be performed during both daylight hours and during the night. The Lighting inspection team must be accompanied by the Development Entity to provide access to lighting control cabinets.

M.3.6.3. Annual Project Facilities Inspections

Structural Engineers, Mechanical Engineers, Electrical Engineers and Architects must perform a detailed visual inspection of the maintenance and Parking Fee collection facilities. The facilities inspection team must be accompanied by the Development Entity to provide access to all areas of the Project, Parking Facilities and equipment. These inspections must be conducted in accordance with the applicable Reference Documents stated in Section O.2 of Volume I and Section H.2 of Volume II.

M.3.7. *Report and Form Submission Requirements*

M.3.10.1. Structure Inspection Forms

The PennDOT structure inspection forms are to be completed and submitted to the Department as described in Volume I – Maintenance Manual, Chapter G, “Structure Maintenance”.

The PennDOT Bridge inspection forms, as required by PennDOT Publication 238: “Bridge Safety Inspection Manual”, must be submitted annually to PennDOT, and must be included in the Structure Condition Report.

PennDOT inspection forms that in the sole and absolute discretion of the Department are incomplete, do not show sound analysis of the conditions, or do not contain sufficient detail to track problems, will be returned to the Development Entity for revision.

M.3.10.2. Condition Reports

The Development Entity and the Engineering Firm must submit to the Department Structure, Roadway/Civil and Project Facilities Condition Reports on an annual basis, as defined by the requirements of this Chapter. The following requirements must be addressed in such Reports:

- The Development Entity must submit to the Department four (4) copies of each Report and all applicable sets of Inspection Forms (including color reproductions of all photographs). These Reports must be collated, by Structure, Roadway/Civil and Project Facility, into tabbed three ring binders with indexes.
- Changes in conditions must be noted in a General Condition and Rating Summary

for all Structures, Roadway/Civil, Parking Facilities and Other Project Facility features, and prepared in a spreadsheet format. For structures the summary must contain overall ratings for each element.

- A draft of each Report must be submitted to the Department for review prior to finalization, after which the final version of each Report must be submitted to the Department for Approval.

M.3.10.3. Amtrak Station Improvement Project Report

Upon Approval of the Structure, Roadway/Civil and Project Facilities Condition Reports by the Department each year, the Development Entity and the Engineering Firm must compose and submit to the Department the Annual Capital Improvement Project Report, within two (2) months. This Report will define and describe the planned rehabilitation, replacement and reconstruction Project improvement work scheduled to be addressed and completed in the next year, and planned for the subsequent 10-year window, based upon the inspections and Condition Report findings. The following are the requirements that shall be addressed:

- The Development Entity must prepare and submit to the Department four (4) copies of the Annual Amtrak Station Improvement Project Report, which must include the following at a minimum:
 - Executive Summary
 - Introduction and discussion of the inspections and Condition Report findings.
 - Approach and Methodology.
 - Recommendations and Planned Capital Improvement Work.
 - Project Schedule.
- A draft of the Report must be submitted to the Department for review prior to finalization, after which the final version of the Report must be submitted to the Department for Approval.

M.3.8. *Criteria of Review and Acceptance*

The Development Entity and the Engineering Firm must always use sound engineering judgment in assessing the conditions and deficiencies of the Project. In particular all components, elements, features, systems, etc. that are deemed unsafe or possess the potential to become unsafe must be clearly identified and noted.

The Development Entity and the Engineering Firm must be aware that the Department will review and approve the Annual Condition Reports and the Annual Amtrak Station Improvement Project Report taking into account the requirements stated throughout each individual Chapter of the Operating Standards, the requirements of this Chapter, common industry acceptance criteria and the condition classification stated below.

The Department will assess the Condition Reports utilizing the following condition classification terminology to describe the condition of the elements. The terminology is generally consistent with the References listed in these Technical Provisions in Chapter M.1.

The Development Entity must maintain (or perform the necessary and required Capital

Improvement work to maintain) the overall condition of each of the Project Structures, Roadway/Civil and Project Facilities features at “Good” or better. In addition, the Development Entity must maintain the condition of each particular item of each Project Structure, Roadway/Civil and Project Facility feature at “Fair” or better, provided, however, that when the overall condition of any particular Project Structure, Roadway/Civil or Project Facility feature declines from “Good” to “Fair”, that Project feature must be placed in the next Annual Amtrak Station Improvement Project Report (as approved by the Department) with a designation and general description of the work to be performed. The duration that a Project feature can remain in the Amtrak Station Improvement Project must not exceed ten (10) years from the time such feature is placed in the Project until that feature is brought back to a condition of “Good” or better. In addition, all features (as well as all of the particular items of that feature) placed in the Amtrak Station Improvement Project Report, must continually be maintained in accordance with the guidelines and criteria of Volume I – Maintenance Manual, and the requirements of Volume II – Operations & Procedure Manual.

The definitions of the condition terms are as follows:

- Excellent: New condition. No noticeable or noteworthy deficiencies affecting the condition or function of the elements noted.
- Good: Minor deficiencies noted. The element is satisfactorily performing its intended function. No corrective repairs or rehabilitation are required.
- Fair: Deficiencies and deterioration present. All primary elements are sound and are satisfactorily performing their intended function. However, the potential exists to justify an improvement Project or corrective work.
- Poor: Advanced deterioration present. Primary structural elements are seriously affected and are not satisfactorily performing their intended function. An accelerated improvement Project and/or immediate corrective work are required.
- Critical: Major deterioration of primary elements. These elements are not performing adequately and require urgent corrective work or total replacement. These elements require regular, continual monitoring until corrective action is completed.

M.3.9. *Structure Inventory List*

Structure Summaries include Project Facilities, retaining walls, noise walls and sign structures. Note that culvert maintenance is addressed in Volume I, Chapter D, “Drainage Maintenance and Erosion Control”. The Development Entity must establish a comprehensive list of structures that require inspection and reporting to be confirmed by the Department and Stakeholders listed in Chapter L.3.3 of these Technical Provisions.