OS-299 (7-08)	TRANSMITTAL LETTER	**PUBLICATION:** Publication 10X November 2015 Edition
pennsylvania DEPARTMENT OF TRANSPORTATION		**DATE:** November 9, 2015

SUBJECT:

Design Manual Part 1X
Appendices to Design Manuals 1, 1A, 1B, and 1C
November 2015 Edition

INFORMATION AND SPECIAL INSTRUCTIONS:

Publication 10X (Appendices to Design Manuals 1, 1A, 1B, and 1C) is re-issued with this letter. The enclosed November 2015 Edition represents a complete publication. This Edition supersedes the September 2010 Edition and all subsequent changes. The effective date of the November 2015 Edition is December 1, 2015.

These new guidelines should be adopted on all new and existing projects as soon as practical without affecting any letting schedules.

This release includes incorporation of outstanding Strike-off Letters issued through August 31, 2015. Strike-off Letters issued on or after September 1, 2015 are still effective until they are incorporated into this publication.

Also, this release includes additions / deletions / revisions for the following:

*Appendix A, Appendix B, Appendix O, and Appendix Q (updated policy; refer to Publication 638, District Highway Safety Guidance Manual)

*Appendix C (updated Stewardship and Oversight Agreement; added Procedures for Projects of Division Interest (PoDI) and PennDOT Project Oversight Identification; both documents dated June 1, 2015)

*Appendix I is now reserved for future use. Strike-off Letter 482-13-20 deleted the previous contents for Appendix I (Sample FONSI and FONSI Related Correspondence).

*Appendix P, Design Exceptions (updated policy)

*Appendix U is now reserved for future use. The PS&E Submittal Review Certification List was replaced with material found in Publication 51, Plans, Specifications and Estimate Package Delivery Process Policies and Preparation Manual.

*Appendix AE is new and presents Department Force Box Culverts Review Procedures (Refer to Strike-off Letter 422-12-04).

*Appendix AF is new and presents a Memorandum of Understanding (Footpaths on DCNR Lands Crossing State Highways) (Refer to Strike-off Letter 430-06-03).

CANCEL AND DESTROY THE FOLLOWING:

Publication 10X (September 2010 Edition and all associated changes)

SOL 430-06-03 (Jan. 17, 2006)
SOL 422-12-04 (Sept. 25, 2012)
SOL 432-12-06 (Aug. 28, 2012)
SOL 432-12-07 (Nov. 28, 2012)
SOL 482-13-02 (Jan. 7, 2013)
SOL 482-13-03 (Jan. 7, 2013)
SOL 482-13-13 (May 30, 2013)
SOL 482-13-20 (Sept. 5, 2013)
SOL 482-13-27 (Dec. 10, 2013)
SOL 482-14-15 (May 19, 2014)
SOL 482-14-29 (Nov. 14, 2014)
SOL 482-15-04 (Jan. 28, 2015)

Note: Incorporated the following SOLs. However, these SOLs cannot be cancelled and destroyed until they are incorporated into all identified publications:

SOL 422-12-04 (Sept. 25, 2012)
SOL 482-15-10 (Apr. 20, 2015)

NOTE: Publication 10X is only available electronically via the PennDOT website.

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APPROVED FOR ISSUANCE BY:

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BY:

Brian G. Thompson, P.E.
Director, Bureau of Project Delivery,
Highway Administration

OS-299 (7-18)

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TRANSMITTAL LETTER

PUBLICATION:

Publication 10X
Nov. 2015 Edition Change #1

DATE:
9/24/2018

SUBJECT:

Design Manual Part 1X
Appendices to Design Manuals 1, 1A, 1B, and 1C
November 2015 Edition, Change No. 1

INFORMATION AND SPECIAL INSTRUCTIONS:

Incorporate the attached revisions into the November 2015 Edition of Design Manual Part 1X.

These new guidelines should be adopted on all new and existing projects as soon as practical without affecting any letting schedules.

CHAPTER 1 INTRODUCTION

-Updated for consistency with the revisions made as described below.

APPENDIX B GLOSSARY

-Added entries into the glossary to account for revisions issued in Publication 10A, Design Manual Part 1A and Publication 10X, Design Manual Part 1X, including: Intelligent Transportation System (ITS); Intersection Control Evaluation (ICE); Need(s); Purpose; Scoping Field View; Transportation System Management and Operations (TSMO); and Travel Demand Management (TDM).

APPENDIX P DESIGN EXCEPTIONS

*Section P.0 (Introduction)

-Modified first paragraph, first sentence to update the descriptions of the sets of project design criteria.

-Revised first paragraph, second sentence to indicate 11 controlling criteria rather than 13.

*Section P.1 (Controlling Criteria)

-Revised first paragraph, first and second sentences to indicate 10 controlling criteria rather than 13.

-Deleted second paragraph with reference to FHWA's Mitigation Strategies for Design Exceptions.

-Inserted second paragraph to clarify requirements for FHWA's 10 controlling criteria.

-Modified third paragraph as follows:

*Added first sentence to indicate that PennDOT requires an 11th controlling criteria (Acceleration and Deceleration Lane Length).

*Revised second sentence to indicate 11 controlling criteria rather than 13.

*Updated guidance for Item 1 (Design Speed), Item 2 (Lane Width), and Item 3 (Shoulder Width).

*Deleted Item 4 (Bridge Width), Item 7 (Vertical Alignment), and Item 12 (Lateral Offset to Obstruction); renumbered all remaining items.

*Changed Item 4 to Horizontal Curve Radius (was Horizontal Curve Alignment) and updated guidance.

*Updated guidance for Item 5 (Superelevation), third bullet.

*Revised Item 6 to Maximum Grade (was Grade) and updated guidance.

*Updated guidance for Item 7 (Stopping Sight Distance), Item 8 (Cross Slope), and Item 9 (Vertical Clearance).

*Revised Item 10 to Design Loading Structural Capacity (was Structural Capacity) and updated guidance.

*Added Item 11 (Acceleration and Deceleration Lane Lengths).

*Added note with asterisk to indicate portions of Note 5 (Superelevation), Note 7 (Stopping Sight Distance), and Note 11 (Acceleration and Deceleration Lane Length) are PennDOT requirements and do not require FHWA approval.

-Revised fourth paragraph, first sentence to identify the design elements of minimum vertical grade, Headlight Sight Distance (HLSD), minimum gap acceptable length, and lateral offset to obstruction are not included in the 11 controlling criteria.

-Added fourth paragraph, third sentence to indicate documentation should include, at a minimum, the five bulleted items listed.

*Section P.2 (Situations Not Requiring Design Exceptions)

-Updated guidance for Item 1 (projects with no roadway nor bridge improvements) and Item 2 (geometry where a project ties into an existing roadway); deleted Item 5 (shoulder widths in curbed sections).

*Section P.3 (Design Exception Request Documentation)

-Updated guidance that now serves as the first two paragraphs of this Section.

-Revised guidance for Level 1 Design Exception Documentation (Item 1) and Level 2 Design Exception Documentation (Item 2).

-Created Item 3 (Design Load Structural Capacity).

*Section P.4 (Review and Approval)

-Updated guidance for:

*Section A (Review and Approval of Design Exceptions, Excluding Design Loading Structural Capacity)

*Section B (Review and Approval of Design Loading Structural Capacity)

*Section E (Quality Assurance).

*Form (Design Exception Request - Level 1)

-Updated Item C (Design Element and Design Criteria) from "Bridge Preservation" to "Bridge Project".

-Updated Item D.1 (Impacts) by inserting text to include "impacts to all modes".

-Inserted Item D.2 (Alternatives); revised numbering of remaining items.

-Updated Item G (Required Attachments) by adding "or designee" after "Chief, Highway Delivery Division".

*Form (Design Exception Request for Structural Capacity)

-Updated Item D.1 (Impacts):

*Inserted second sentence to verify proposed loading is justified for proposed traffic loads.
*Inserted text in third sentence to include "impacts to all modes".

-Inserted Item D.2 (Alternatives); revised numbering of remaining items.

*Form (Design Exception Request - Level 2)

-Updated Item B (Design Element and Design Criteria) from "Bridge Preservation" to "Bridge Project".

APPENDIX AC PLANNING AND PROJECT DEVELOPMENT GUIDANCE FOR ROUNDABOUTS

Appendix AC, Planning and Project Development Guidance for Roundabouts, is being rewritten. In the interim, refer to the 2015 DM-1X edition for general roundabout information on public involvement, education and references. Refer to Appendix AI, Intersection Control Evaluation (ICE) Policy, for evaluating alternatives, including roundabouts, for intersections.

APPENDIX AG STAFFORD ACT AND OTHER FLOOD HAZARD MITIGATION ASSISTANCE GRANT PROPERTY PROCESSES

This new Appendix outlines procedures for utilizing property protected by the U.S. Federal Emergency Management Act (FEMA) Hazard Mitigation Grant Program (HMGP). In the past few years, there have been several instances where coordination on Stafford Act properties have added significant time to the environmental clearance and right-of-way processes due to the complexity of obtaining a compatible use determination from PEMA/FEMA. These procedures emphasize the importance of identifying Stafford Act properties at the beginning of the environmental clearance process. It outlines a streamlined process that allows project managers to anticipate a project schedule appropriate for the needs of the project. (Refer to Strike-off Letter 482-16-03.)

APPENDIX AH RISK MANAGEMENT FOR PROJECT DEVELOPMENT

This new Appendix describes PennDOT's formal risk management approach. Risk management enables PennDOT to anticipate threats and opportunities and subsequently evaluate and plan for them. This includes mitigating threats and opportunities to project performance in terms of cost (e.g., additional design costs and construction work orders) and schedule (e.g., negative float, delays, and missed let dates).

APPENDIX AI INTERSECTION CONTROL EVALUATION (ICE) POLICY

This new Appendix describes PennDOT's development of an Intersection Control Evaluation (ICE) policy. To support this policy, PennDOT has created a framework for a range of activities to support objective evaluations of intersection control strategies. ICE replaces the current process of signal justification for intersections in the Commonwealth. ICE is intended to be flexible and adaptive by the user for a given project context. ICE activities could potentially be streamlined on some projects while other projects may require relatively more extensive analyses. The users should use their judgment to apply the ICE framework in the way that meets project needs and the objectives of the ICE Policy. Ultimately, this ICE policy is intended to foster thoughtful consideration of alternative intersection types and ensure a holistic, quantitative analysis is completed when selecting an intersection control type for intersections across the Commonwealth.

Gender neutral language has been updated in all revised and new Chapters and appendices, i.e., Chapter 1, Appendix B, Appendix P, Appendix AC, Appendix AG, Appendix AH, and Appendix AI.

Any comments or questions regarding the above revisions should be directed to the Highway Design and Technology Section, Highway Delivery Division, Bureau of Project Delivery.

CANCEL AND DESTROY THE FOLLOWING:	ADDITIONAL COPIES ARE AVAILABLE FROM:
Chapter 1 - all pages Appendix B - all pages Appendix P - all pages Appendix AC – all pages SOL 482-16-03 (May 23, 2016) NOTE: Publication 10X is only available electronically via the PennDOT website.	☐ PennDOT website - www.penndot.gov *Click on Forms, Publications & Maps* APPROVED FOR ISSUANCE BY: LESLIE S. RICHARDS Secretary of Transportation BY: /s/ Brian G. Thompson, P.E. Director, Bureau of Project Delivery, Highway Administration

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Publication 10X
Design Manual Part 1X

Appendices to Design Manuals 1, 1A, 1B, and 1C

November 2015 Edition

September 2018 Change No. 1

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PUB 10X (9-18)

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CHAPTER 1

INTRODUCTION

1.0 PURPOSE AND OBJECTIVES

The purpose of Design Manual Part 1X is to provide the appendix items supporting Design Manuals Part 1, Part 1A, Part 1B, and Part 1C for Pennsylvania Department of Transportation's (PennDOT's) Transportation Program Development and Project Delivery Process. PennDOT developed these manuals to serve as a guide for planners, environmental staff, engineers, administrators, and others, both within and external to PennDOT, who are responsible for project delivery. The Transportation Program Development and Project Delivery Process (Process) and its procedures, discussed in this and the other Design Manuals, were developed by PennDOT with input from the MPOs/RPOs, counties, municipalities, resource agencies, District representatives, Office of Chief Counsel, and the Federal Highway Administration (FHWA). The information is PennDOT guidance for project delivery and implementation but not a federal or state regulation. Following this guidance will assist in assuring compliance with relevant state and federal requirements.

1.1 ORGANIZATION

A. Design Manual Family of Documents. This manual is Part 1X of a nine-volume series of documents that encompass PennDOT's Design Manual. The Design Manual series of documents includes:

Publication 10	Part 1	*Transportation Program Development and Project Delivery Process*	Design Manual Part 1	(DM-1)
Publication 10A	Part 1A	*Pre-TIP and TIP Program Development Procedures*	Design Manual Part 1A	(DM-1A)
Publication 10B	Part 1B	*Post-TIP NEPA Procedures*	Design Manual Part 1B	(DM-1B)
Publication 10C	Part 1C	*Transportation Engineering Procedures*	Design Manual Part 1C	(DM-1C)
Publication 10X	Part 1X	*Appendices to Design Manuals 1, 1A, 1B, and 1C*	Design Manual Part 1X	(DM-1X)
Publication 13M	Part 2	*Highway Design*	Design Manual Part 2	(DM-2)
Publication 14M	Part 3	*Plans Presentation*	Design Manual Part 3	(DM-3)
Publication 15M	Part 4	*Structures*	Design Manual Part 4	(DM-4)
Publication 16	Part 5	*Utility Relocation*	Design Manual Part 5	(DM-5)

B. Contents of Design Manual Part 1X. Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, contains 36 appendices. This section provides a list of the appendices.

APPENDIX A, *LIST OF ACRONYMS*

APPENDIX B, *GLOSSARY*

APPENDIX C, *FHWA/PENNDOT STEWARDSHIP & OVERSIGHT AGREEMENT*

APPENDIX D, *QUALITY MANAGEMENT MANUAL FOR PROJECT DEVELOPMENT*

APPENDIX E, *AGENCY COORDINATION MEETING OPERATING PROCEDURES*

APPENDIX F, *GUIDANCE FOR COMPILING TECHNICAL SUPPORT DATA*

APPENDIX G, *SAMPLE FHWA PURPOSE AND NEED CONCURRENCE LETTER*

APPENDIX H, *EA AND EIS DISTRIBUTION LISTS*

APPENDIX I, *Reserved for Future Use*

APPENDIX J, *SAMPLE PROJECT INITIATION LETTER*

APPENDIX K, *SAMPLE PARTICIPATING AGENCY INVITATION LETTERS*

APPENDIX L, *SAMPLE COORDINATION PLAN AND SCHEDULE*

APPENDIX M, *SAMPLE STATUTE OF LIMITATIONS NOTICE*

APPENDIX N, *CONSTRUCTIBILITY REVIEW PROCEDURES FOR HIGHWAY AND BRIDGE PROJECTS*

APPENDIX O, *SAFETY REVIEW PROCEDURES*

APPENDIX P, *DESIGN EXCEPTIONS*

APPENDIX Q, *POINTS OF ACCESS*

APPENDIX R, *VALUE ENGINEERING AND VALUE ENGINEERING/ACCELERATED CONSTRUCTION TECHNOLOGY TRANSFER (VE/ACTT) REVIEW PROCEDURES*

APPENDIX S, *BICYCLE AND PEDESTRIAN CHECKLIST*

APPENDIX T, *ENVIRONMENTAL COMMITMENTS AND MITIGATION TRACKING SYSTEM (ECMTS) PROCESS*

APPENDIX U, *Reserved for Future Use*

APPENDIX V, *BRIDGE AND ROADWAY PROGRAMMATIC AGREEMENT*

APPENDIX W, *REAL PROPERTIES PROGRAMMATIC AGREEMENT*

APPENDIX X, *LEVELS 1 - 3 SCREENING FORMS*

APPENDIX Y, *SECTION 106 PROGRAMMATIC AGREEMENT*

APPENDIX Z, *REPAYMENT OF PRELIMINARY ENGINEERING COSTS*

APPENDIX AA, *EA REEVALUATION TRANSMITTAL FORM*

APPENDIX AB, *MINOR PROJECTS DESIGN PROCEDURES FOR CONSULTANT DESIGNED PROJECTS*

APPENDIX AC, *PLANNING AND PROJECT DEVELOPMENT GUIDANCE FOR ROUNDABOUTS*
Guidance is being rewritten. Refer to 2015 Edition for information.

APPENDIX AD, *STUDY PROCESS TO EVALUATE BRIDGE CLOSURE AND REMOVAL*

APPENDIX AE, *DEPARTMENT FORCE BOX CULVERTS REVIEW PROCEDURES*

APPENDIX AF, *MEMORANDUM OF UNDERSTANDING (FOOTPATHS ON DCNR LANDS CROSSING STATE HIGHWAYS)*

APPENDIX AG, *STAFFORD ACT AND OTHER FLOOD HAZARD MITIGATION ASSISTANCE GRANT PROPERTY PROCESSES*

APPENDIX AH, *RISK MANAGEMENT FOR PROJECT DEVELOPMENT*

APPENDIX AI, *INTERSECTION CONTROL EVALUATION (ICE) POLICY*

APPENDIX BB, *RIGHT-OF-WAY PLAN REVIEW CHECKLIST*

1.2 PROCEDURES FOR MODIFICATIONS OR ADDITIONS TO THIS DOCUMENT

This Design Manual is published in digital form to facilitate future changes and additions. PennDOT recognizes that the regulations and policies affecting its procedures are continuously changing and that this manual must be a dynamic document to remain current. Whenever modifications or additions are required to improve the present procedures, the following procedure shall be followed:

1. Bureau Directors and District Executives should submit suggestions in the form of revised pages in digital form to the Central Office Bureau of Project Delivery for evaluation and processing. The Bureau of Project Delivery is to evaluate and process the submittals, and coordinate with other Central Office Deputates and Bureaus as necessary concerning any changes and/or additions. The suggestions should include:

- The title and page number of the existing procedures if applicable.
- The recommended revised page(s) and the Appendix into which it (they) should be incorporated.
- The reasons for recommending modifications or additional procedures.

2. The Director, Bureau of Project Delivery, will review the recommended changes or additional procedures and transmit copies to the various affected Bureau Directors for their comments.

3. The affected Bureau Directors shall provide their comments to the Director, Bureau of Project Delivery, who will take appropriate action.

4. The Director, Bureau of Project Delivery, will submit the final version of all changes to FHWA for approval prior to issuing the revised manual.

5. When modifications or additions are made to pages in this manual, a revision date will be indicated below the page number in the upper right-hand or upper left-hand corner, and the revision will be distributed by the Bureau of Project Delivery by Transmittal Letter.

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APPENDIX A

ACRONYMS

23 CFR	Code of Federal Regulations, Title 23, Highways
3R	Resurfacing, Restoration, and Rehabilitation
AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ACM	Agency Coordination Meeting
ADA	Americans with Disabilities Act
ADE	Assistant District Executive
ADT	Average Daily Traffic
ALCAB	Agricultural Lands Condemnation Approval Board
ALPP	Agricultural Lands Preservation Policy
APE	Area of Potential Effects
ASA	Agricultural Security Area
ASHMA	Additional State Highway Maintenance Appropriations
BMP	Best Management Practice
BDTD	Bridge Design and Technology Division
BMS	Bridge Management Systems
BOMO	Bureau of Maintenance and Operations
BOPD	Bureau of Project Delivery
BRPA	Bridge and Roadway Programmatic Agreement
CAAA	Clean Air Act Amendments of 1991
CAP	Capacity Adding Project
CE	Categorical Exclusion
CEE	Categorical Exclusion Evaluation
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CMS	Congestion Management System
CO	Carbon Monoxide
CPM	Critical Path Method
CRGIS	Cultural Resources Geographic Information System
CRP	Cultural Resource Professional
CSS	Context Sensitive Solutions
CWA	Clean Water Act
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCED	Department of Community and Economic Development
DCNR	Department of Conservation and Natural Resources
DE	District Executive
DEIS	Draft Environmental Impact Statement
DFV	Design Field View
DM	Design Manual
DSR	Detailed Studies Report
E&SPC	Erosion and Sediment Pollution Control
EA	Environmental Assessment
EAF	Environmental Assessment Form
ECMS	Engineering and Construction Management System
ECMTS	Environmental Commitments and Mitigation Tracking System
ED	Environmental Documentation
EDS	Electronic Data Sharing System
EER	Environmental Evaluation Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency

EPDS	Environmental Policy and Development Section
ESA	Environmental Site Assessment
EV	Exceptional Value
FAA	Federal Aviation Administration
FAI	Federal-Aid Interstate
FAQ	Frequently Asked Questions
FAPG	Federal-Aid Policy Guide
FAR	Farmlands Assessment Report
FDOM	Final Design Office Meeting
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FOIA	Freedom of Information Act
FONSI	Finding of No Significant Impact
FPPA	Farmlands Protection Policy Act of 1981
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GIS	Geographic Information System
HASP	Health and Safety Plan
HCM	Highway Capacity Manual
HDD	Highway Delivery Division
HDTS	Highway Design and Technology Section
HEP	Habitat Evaluation Procedure
HOV	High Occupancy Vehicle
HPMS	Highway Performance Monitoring System
HQ	High Quality
HSCA	Hazardous Sites Cleanup Act
HSM	Highway Safety Manual
HSMS	Highway Safety Management System
ICC	Interstate Commerce Commission
IMS	Intermodal Management System
iTMS	Internet Traffic Monitoring System
IOP	Independent Oversight Program
ISA	Initial Site Assessment
ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation System
JD	Jurisdictional Determination
LOS	Level of Service
LRTP	Long Range Transportation Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act
MFC	Maintenance Function Code
MIA	Major Investment Analysis
MMTI	Major Metropolitan Transportation Investment
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPMS	Multimodal Project Management System
MPO	Metropolitan Planning Organization
MUTCD	Manual on Uniform Traffic Control Devices
NBIS	National Bridge Inspection Standards
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act of 1969
NETSIM	Network Simulation Analysis
NHI	National Highway Institute
NHPA	National Historic Preservation Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System

NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
PA	Programmatic Agreement
PAC	Planning Advisory Committee
PA DEP	Pennsylvania Department of Environmental Protection
PASDA	Pennsylvania Spatial Data Access
PASS	Pennsylvania Archaeological Site Survey
PDE	Project Development Engineer
PennDOT	Pennsylvania Department of Transportation
PFBC	Pennsylvania Fish and Boat Commission
PGC	Pennsylvania Game Commission
PHMC	Pennsylvania Historical and Museum Commission
PI	Project Inspection
PIP	Public Information Plan
PM	Particulate Matter
PMC	Program Management Committee
PMS	Pavement Management System
PNDI	Pennsylvania Natural Diversity Inventory
POA	Point of Access
POM	Project Office Manual
POS	Plan of Study
PS&E	Plans, Specifications, and Estimates
PTC	Pennsylvania Turnpike Commission
PTMS	Public Transportation Facilities and Equipment Management System
PUC	Public Utility Commission
QA	Quality Assurance
QC	Quality Control
QA/QC	Quality Assurance/Quality Control
QDP	Quality Development Plan
RFP	Request For Proposal
R/W	Right-of-Way
RMS	Roadway Management System
ROW	Right-of-Way
RPO	Rural Planning Organization
ROD	Record of Decision
RSA	Roadway Safety Assessment
SACM	Special Agency Coordination Meeting
SCS	Soil Conservation Service
SEMP	Strategic Environmental Management Program
SFV	Scoping Field View
SHPO	State Historic Preservation Office(r)
SI	International System of Units
SIP	Safety Improvement Project
SIP	State Implementation Plan
SLD	Straight Line Diagram
SOV	Single Occupancy Vehicle
SOVCAP	Single Occupancy Vehicle Capacity Adding Project
SR	State Route
STAMPP	Systematic Techniques to Analyze and Manage Pennsylvania Pavements
STC	State Transportation Commission
STIP	State Transportation Improvement Program
STORET	Storage and Retrieval Federal Database System
STURAA	Surface Transportation and Uniform Relocation Assistance Act
T&E	Threatened and Endangered
TCP	Traffic Control Plan
TIP	Transportation Improvement Program

TMA	Transportation Management Area
TMP	Transportation Management Plan
TMS/H	Traffic Monitoring System for Highways
TOP	Transportation Operations Plan
TRB	Transportation Research Board
TS&L	Type, Size and Location
TSD	Technical Support Data
TSM	Transportation Systems Management
TYP	Twelve Year Program
UFAS	Uniform Federal Accessibility Standards
UMT	Urban Mass Transit
UPWP	Unified Planning Work Program
USCOE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VE	Value Engineering
VMT	Vehicle Miles Traveled
WQC	Water Quality Certification

APPENDIX B

GLOSSARY

A

Acceptance Certificate - The certificate issued by PennDOT, certifying that the construction of the project has been satisfactorily completed and accepted.

Act 100 Determination - A finding issued by the Pennsylvania Department of Agriculture on the basis of studies and a presentation to the Agricultural Lands Condemnation Approval Board (ALCAB). Section 306 of Pennsylvania Act 100 of 1979 mandates that studies be performed and determinations be made before agricultural lands can be condemned for transportation purposes.

Act 120 - A Pennsylvania Legislative Act passed on May 6, 1970 which in part created the Pennsylvania Department of Transportation (PennDOT) and granted it certain powers, duties, and responsibilities. The Act also orders PennDOT to coordinate highway and transportation development projects with other public agencies and authorities.

> **Section 2002** of the Act states that PennDOT must issue specific findings whenever lands from public recreation areas, wildlife and waterfowl refuges, historic sites, state forest, wilderness, state game lands, and public parks are needed for highway or transportation purposes.

Act 287 of 1974, as amended - A Pennsylvania Legislative Act enacted to protect the public health and safety by preventing excavation or demolition work from damaging underground lines used to provide various utilities including: electricity, communication, gas, oil, sewage, and water. The Act imposes specific duties on utility companies, recorders of deeds, designers, and contractors performing excavation and demolition work. For more information, see Publication 16, Design Manual Part 5, *Utility Relocation*.

Act 537 - The Pennsylvania Sewage Facilities Act, enacted in 1966, requires municipalities to develop and implement official sewage plans that address existing sewage disposal problems, account for future land development, and provide for future sewage disposal needs.

Action Agenda - The near term (one-year), mid term (two to four years), and long-term (five to twenty years) commitments by PennDOT and its partners, to meet Policy Plan Goals, Objectives and Recommendations.

Action Plan - A 1975 voluntary policy document prepared by PennDOT that describes its functions and serves as a framework within which to achieve state transportation improvements in the overall public interest. The Action Plan for PennDOT's transportation planning, location, and design process relies on the application of the interdisciplinary approach, interagency cooperation, full public participation, and early consideration of economic, social, and environmental impacts.

Additional Work - Extra Work not specified in the contract, but of a type already provided by the contract and for which the contract has established a unit price.

Adjacent Property Owners - Any persons who own property next to a defined area, usually adjoining the right-of-way for transportation improvements. Often, adjacent property must be acquired for transportation purposes or for other related uses such as storm water facilities, noise barriers, wetland mitigation, etc.

Advertisement - The public announcement, required by law, inviting Contractors to submit bids for work to be performed or for materials to be furnished.

Aerial Photography - High resolution photographs taken from aircraft which are used to assess features in a study area and, which are also used to produce topographic base maps of varying scales for alignment studies, engineering, and final design work.

Affected Environment - The physical features, land, area, or areas to be influenced, affected or created by an alternative alignment under consideration; also includes various social and environmental factors and conditions pertinent to an area.

Agency Coordination - Refers to the process whereby PennDOT contacts, consults, and maintains communication with various public and environmental resource agencies, affording such agencies an opportunity to review and comment upon specific transportation proposals.

Agency Coordination Meeting (ACM) - *formerly the Transportation Project Development Interagency Committee Meeting (TPDICM)*. A monthly gathering of representatives from a number of resource agencies who review projects. The goal of ACM is to foster effective agency communications during the development of projects so that environmental issues are identified, clearly understood, and properly addressed early in the process. Project Team representatives present updates on their work to the ACM at several key stages of project development.

Agricultural Lands Condemnation Approval Board (ALCAB) - A six-person, independent administrative board with jurisdiction over the condemnation of certain types of agricultural lands in Pennsylvania. The Board reviews proposals and presentations made by PennDOT and determines whether there is a "reasonable and prudent alternative" to the condemnation of active farmland for transportation use.

Air Temperature - The measured temperature in degrees Celsius (Fahrenheit) in the shade, not in the direct rays of the sun, and away from artificial heat.

Alignment Studies - A general term for engineering work involving the vertical and horizontal positioning, adjusting and refining, and comprehensive evaluation of a trial line or lines through a selected study corridor. All relevant features, controls, travel desires, impacts, benefits and costs are taken into account in these studies. Alignment studies are typically performed to assess the relative feasibility of a proposed transportation facility linking two identified points.

Alternative - One of a number of specific transportation improvement proposals, alignments, options, design choices, etc., in a study. Following detailed analysis, one improvement alternative is chosen for implementation. Sometimes, the term "alternate" is used interchangeably with "alternative." Study alternatives may include but are not limited to the following: "No-Build," Transportation System Management (TSM), network upgrade, new alignment, high occupancy vehicle lanes, bus lanes, bicycle lanes and transit.

Alternatives Analysis - Preliminary engineering and environmental studies of a wide range of alternatives. The objective is to reduce the number of alternatives for more detailed study, and then, after substantial and detailed engineering and environmental studies, to identify a preferred alternative.

Americans with Disabilities Act (ADA) - Passed in 1990, this federal law prohibits discrimination on the basis of disability in the services, programs, or activities of all State and local governments. Under the provisions of ADA, PennDOT must take steps to make all public involvement activities related to the Transportation Project Development Process accessible to persons with disabilities. This includes providing services and/or auxiliary aids to those with special needs.

Archaeological Investigations - Cultural resource studies conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended. Depending on the extent and significance of archaeological resources in a study area, investigations may proceed through three phases, each with an increasingly complex level of detail. In **Phase** I Archaeological investigations, a field survey is conducted to determine the presence or absence of archaeological resources in a project area that may be potentially eligible for the National Register of Historic Places. **Phase** II investigations are designed to sample the archaeological deposits at a site in order to determine its eligibility for listing in the National Register. **Phase** III involves data recovery excavation to mitigate the adverse effects of a transportation project to a National Register eligible site.

Area of Potential Effects (APE) - The geographic area or areas within which an undertaking may directly or indirectly cause changes, whether beneficial or adverse, to the character or use of the area.

Asset Management - transportation asset management is a strategic approach to managing infrastructure; emphasizing lifecycle-cost analysis and preventative maintenance to predict and prevent problems before they occur. Asset management techniques should be applied as early as possible in the project delivery process.

Attainment Area - An area considered to have air quality that meets or exceeds the U.S. Environmental Protection Agency (EPA) health standards used in the Clean Air Act. Nonattainment areas are areas considered not to have met these standards for designated pollutants. An area may be an attainment area for one pollutant and a nonattainment area for others.

Average Daily Traffic Volumes - The total traffic volume during a given time period in whole days (24-hour periods), greater than one day and less than one year, divided by the number of days in that time period.

Avoidance Alternative - Any alignment proposal that has been developed, modified, or shifted specifically to avoid affecting one or more resources regarded as significant.

Award - PennDOT's written acceptance of a proposal.

B

Betterment - Refers to lower cost roadway improvements; typically maintenance activities including pavement widening, resurfacing, grading, signing, guiderail, or bridge repairs. Betterments typically require little right-of-way acquisition or realignments.

Bidder - Any individual, firm, partnership, corporation, or joint venture submitting a proposal for the work contemplated and acting either directly or through an authorized representative.

Bridge - A structure, including supports, spanning and providing passage over a waterway, a railroad, a highway, or other obstruction; more than 6 m (20 ft) long, measured along the center of the roadway or railroad, between the faces of abutments. In the case of boxes or arches, the length is measured between the faces of the sidewalls and, in the case of multiple boxes, between the inside faces of the outside walls.

Bridge Management System (BMS) - A decision support tool that supplies analyses and summaries of data, uses mathematical models to make predictions and recommendations, and provides the information by which alternative bridge management policies and programs may be efficiently considered. A BMS includes formal procedures for collecting, processing, and updating bridge data, predicting bridge deterioration, identifying alternative actions, predicting costs, determining optimal policies, performing short- and long-term budget forecasting, and recommending bridge programs and schedules for implementation within policy and budget constraints.

Build-out - Estimated future development during identified study period.

Bulletins - Publications, prepared by PennDOT, indicating requirements for material and processes, listing approved material suppliers, etc.

Bureau of Project Delivery (BOPD) - A major administrative unit of PennDOT whose engineering staff creates and administers design policy and standards, oversees the Transportation Project Development Process, obtains federal approvals for specific projects, and performs various Quality Assurance tasks.

Bureau of Maintenance and Operations (BOMO) - A major administrative unit of PennDOT responsible for collecting and analyzing crash data and provides program direction and financial support to the state's highway safety program; oversees statewide traffic engineering operations, including traffic regulations, policies and programs, and performing Quality Assurance tasks; performing quality assurance reviews of PennDOT's highway and bridge maintenance operations; truck weight enforcement; and establishing maintenance policy.

C

Calendar Day - Every day shown on the standard calendar.

Capacity - The maximum number of vehicles that can reasonably be expected to pass over a lane or a roadway during a given time period under prevailing roadway and traffic conditions. Typically, the maximum expressway capacity for automobiles is 2,000 vehicles per lane per hour; the capacity of other roadways will be different.

Categorical Exclusion - 1. A classification given to federal aid projects or actions that do not have a significant effect on the environment either individually or cumulatively. Categorical Exclusions do not require extensive levels of environmental documentation. 2. The written documentation to support a Class of Action that satisfies federal criteria describing non-significant impacts.

Central Office - The various administrative units that comprise the state headquarters of PennDOT.

CEQ Regulations - Directives issued by the Federal Council on Environmental Quality (40 CFR Part 1500-1508) that govern the development and issuance of environmental policy and procedure for federal aid actions by public agencies. The regulations contain definitions, spell out applicability and responsibilities, and mandate certain processes and procedures to be followed by state and Federal agencies that administer federally funded programs.

Chapter 102 Rules and Regulations - Water quality impacts are primarily regulated by The Clean Streams Law, first passed in 1937, and as subsequently amended several times. Pennsylvania's Erosion and Sediment Control (E&SC) Program is authorized by and functions under the requirements of The Clean Streams Law. The E&SC Program is administered by the PA DEP according to the requirements of the PA DEP's Chapter 102 Rules and Regulations. In general, the regulations require that every earthmoving activity within the Commonwealth develop, implement, and maintain a plan for the control of erosion resulting from the activity. In addition, the regulations require that certain earthmoving activities obtain a permit from PA DEP before any earth is disturbed. Furthermore, in compliance with the provisions of the Federal Clean Water Act, and Pennsylvania's Clean Streams Law, as amended, PA DEP will authorize eligible dischargers of storm water from construction activities, who are required under the Federal storm water regulations, to submit an application and obtain a National Pollutant Discharge Elimination System (NPDES) permit to discharge storm water into waters of the Commonwealth. Two types of NPDES Permits exist: General and Individual. In general, any activity requiring a Chapter 105 Water Obstruction and Encroachment Permit, also is subject to the permitting requirements of Chapter 102 for Erosion and Sediment Pollution Control.

Chapter 105 Water Quality Permit - Permit issued by PA DEP and required by Pennsylvania's Dam Safety and Encroachments Act (25 PA Administrative Code Chapter 105) for projects involving the construction, modification, or relocation of any dam, water obstruction or encroachment. [The Act defines "encroachment" as any structure or activity that in any manner changes, expands, or diminishes the course, current, or cross-section of any watercourse, floodway, or body of water (including wetlands).] Any activity that disturbs a wetland, whether or not it is associated with filling or fill materials, requires a permit. PA DEP automatically forwards Joint Chapter 105 permit applications to the U.S. Army Corps of Engineers to fulfill Section 404 (Federal Clean Water Act) Water Quality Certification application requirements. However, these permits are issued independently.

Chief Bridge Engineer - The Engineer in charge of all bridge design for PennDOT, and its authorized designer.

Citizen Advisory Group - A group of residents, community leaders, and public officials representing the population of the study area who assist in formulating transportation planning goals and objectives, evaluating alternative plans, selecting recommended courses of action, and setting priorities. They represent community interests and contribute valuable information to project sponsors about the location, design, and implementation of proposed transportation improvements.

Clean Air Act Amendments (CAAAs) - Federal legislation passed in 1990 to change both federal and state approaches to regulating air quality; mandating programs to curb acid rain, urban air pollution, and toxic air emissions. The CAAAs call for emission reduction measures in air quality non-attainment areas, including the

consideration of transportation control measures (TCMs) as part of transportation improvement projects. Projects in non-attainment areas may not increase the number of vehicle miles traveled (VMTs); the number of cars on the roadways must be reduced by encouraging drivers to use mass transit, ridesharing, and carpooling.

Commenting Agency - Agency responsible for reviewing and commenting on draft environmental documents. Their comments are considered by the lead agency in the preparation of the final environmental document (EA, CE, or EIS).

Comment Period - The period during which a document (e.g., the Draft and Final Environmental Impact Statements or Environmental Assessment) is reviewed by agencies and the public, who may submit verbal or written comments. It can be applicable to all types of engineering and environmental documents which are circulated, as well as to formal presentations such as those which may be given by Transportation Department officials at a Public Hearing.

Community Context - see "Land Use Context"

Comparison Table - (Formerly referred to as matrix.) Presents summary data in a rectangular column format to allow comparison of impacts among alternatives. Data based on study parameters is typically computed and listed numerically or otherwise given values based on knowledge or judgment by technical staff.

Comprehensive Plan - The general, inclusive, long-range statement of the future development of a community. The plan is typically a map accompanied by description and supplemented by policy statements that direct future capital improvements in an area.

Conceptual Design Scheme Development - Developing an appropriate topographic base map and several (minimum of two) graphic, scaled design schemes (studies). These items would indicate how the approved site location could be developed as a Safety Rest Area or Welcome Center. This stage also involves investigating other basic site requirements and preparing the appropriate environmental studies and documents.

Conceptual Mitigation - The early, generalized identification of design, operational, or construction measures that would minimize or avoid anticipated environmental consequences. Typically, conceptual mitigation ideas are discussed prior to the concluding stages of an environmental study, well before many of the ideas are further worked upon, refined or committed.

Concurrence - Written determination by the agency that information to date is adequate and the agency agrees that the process can be advanced to the next stage. Agencies agree not to revisit the previous process steps unless conditions change.

Conformity - The U.S. Clean Air Act stipulates that any approved transportation project, plan, or program must conform to the State Implementation Plan, a document which prescribes procedures for the implementation, maintenance and enforcement of primary and secondary pollutants.

Congestion - The level at which transportation system performance is no longer acceptable due to traffic interference. The level of acceptable system performance may vary by type of transportation facility, geographic location (metropolitan area or subarea, rural area) and/or time of day.

Congestion Management System (CMS) - A systematic process that provides information on transportation system performance and alternative strategies to alleviate congestion and enhance the mobility of persons and goods. A CMS includes methods to monitor and evaluate performance, identify alternative actions, assess and implement cost-effective actions, and evaluate the effectiveness of implemented actions.

Congestion Management System (CMS) Analysis - A study of how measures such as transit, car pooling, van pooling, flex-time, intersection improvements and high occupancy vehicle lanes might reduce traffic congestion and eliminate the need for a new highway or supplement a new highway alternative.

Consensus - The point at which agencies and the public offer their agreement with PennDOT's recommendations or findings. PennDOT works to build consensus through continuing coordination, especially ACMs and Public Meetings. A project generally does not proceed to the next major stage in development until every effort has been made to address the concerns of agencies and the public. Although unanimous consensus is seldom achieved, continuous coordination throughout the Transportation Project Development Process is expected to gather support from most agencies and much of the public.

Constraints - (More commonly described as "environmental features.") Significant resources, facilities, or other features of a study area located in or adjacent to an existing or proposed transportation corridor that serve to restrain, restrict, or prevent the ready implementation of proposed transportation improvements in a given area; may include natural or physical resources, important structures, communities, facilities, or topographic features.

Constructability - a relative measure of how simple or difficult a design is to construct. A project's constructability depends on a wide range of project-specific variables including project complexity, schedule, location, site constraints, traffic control, material availability, and labor availability.

Construction Claim Review Committee - A committee that reviews a Contractor's claim which has been rejected by the District Executive (DE) and which has been appealed for review in the manner set forth in Publication 408, *Specifications*, Section 105.01(a). The committee consists of the DE, the Office of Chief Counsel and the Director, Bureau of Project Delivery, or their respective designees.

Construction Phase - The fourth phase of the five-phase Transportation Project Development Process (encompassing *Mitigation Follow-Through*), in which a contractor selected by PennDOT constructs the improvement alternative selected in the Design Phase. After a thorough final inspection, the new and/or improved transportation facility is opened for public use.

Constructive Use Impacts - Proximity impacts associated with a transportation project that does not actually acquire land from a Section 4(f) resource. These impacts must be so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially diminished.

Consultant - An individual, partnership, or firm with qualified expertise in engineering or environmental disciplines that is contracted by PennDOT to provide technical services for design and study purposes.

Consultant Agreement - A binding legal agreement between PennDOT and an individual, partnership, or firm for the procurement of engineering, environmental, construction inspection, or other services; typically includes a Scope of Work, required staffing, schedules, manner of payment and various administrative requirements which must be met.

Context - See "Project Context", "Financial Context", "Transportation Context", "Land Use Context" and "Environmental Context".

Context Area - A context area is a land area that contains a unique combination of built and natural characteristics made up of different land uses, architectural types, urban form, building density, roadways, and topography and other natural features.

Contract - The binding legal agreement between PennDOT and the Contractor for the construction of the project. The contract includes the following: Proposal; Plans; Specifications; Agreement; Performance Bond; Payment Bond; Insurance Certificates; Notice to Proceed; and all work orders and supplemental agreements which are required to complete the construction of the project.

Contract Documents - Written material and engineering data required to put a highway construction project under contract, including: proposals, agreements, plans, specifications, estimates, and other information pertaining to the manner and method of furnishing materials and performing the work under binding agreement.

Contract Item (Pay Item) - A specifically described unit of work for which a price is provided in the contract. Individual units in the component item schedule of a lump sum payment item are not considered contract items.

Contractor - The construction firm responsible for construction or other related services.

Controlled Access - Partial access restriction that gives preference to through traffic. Also provides for connections to selected public routes and to certain other adjacent locations where vehicles can enter or leave a roadway safely with minimal interference to through traffic.

Control of Access - A condition in which a public authority fully or partially controls the right of abutting property owners to have access to a highway. Common terms defining types of access control are free access, controlled access, and limited access.

Cooperating Agency - As defined in the *Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of the NEPA*, "any organization other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in...[a] major Federal action significantly affecting the quality of the human environment." The CEQ emphasizes that agency cooperation should begin early in the NEPA process.

Corridor Preservation - Cooperative planning efforts and/or specific administrative, fiscal, or legal methods for reserving land area for future transportation needs.

Council on Environmental Quality (CEQ) - A branch of the Executive Office of the President which develops regulations that are used to implement the National Environmental Policy Act of 1969.

Critical Path Method (CPM) - A planning and scheduling tool that allows project managers to focus strictest attention on the critical activities of the project, those which determine target dates for project milestones, and ultimately the project's time of completion.

Cross Sections - Graphic representations of the original ground and the proposed highway, at right angles to the centerline or base line. Highway cross sections are typically prepared at 20 m (50 ft) intervals.

Culvert - Any structure, not classified as a bridge, which provides an opening under the roadway.

Cumulative Impact - The sum of all direct, indirect, and secondary impacts resulting from a transportation improvement project.

D

Debriefing Session - A meeting at which a work group or study team discusses the outcome of a public meeting, presentation, or some other activity where studies or proposals related to transportation development are reviewed; usually takes place within a short period following a scheduled event.

Deliverables - The completed end products of a consultant firm's Scope of Work. These may include plans, reports, mapping, graphics, artwork surveys, statistical data, correspondence, and other compiled information.

Department - The Pennsylvania Department of Transportation.

Design Agency - The consultant charged with conducting the appropriate environmental and engineering studies and plan preparation contained in the Scope of Work of the engineering agreement.

Design Criteria - Established state and national standards and procedures that guide the establishment of roadway functional classifications, layouts, alignments, geometry, and dimensions for specified types of highways in certain defined conditions. The principal design criteria for highways are traffic volume, design speed, the physical characteristics of vehicles, the classification of vehicles, and the percentage of various vehicle classification types that use the highway.

Designer - The District design squad or a design consultant under contract to PennDOT, responsible for providing design services.

Design Exception - An approval issued by PennDOT or the FHWA to permit certain deviation from a specified, accepted standard granted on the basis of a report justifying the need for the exception.

Design Field View (DFV) - The Design Field View compliments the Design Field View Submission and is typically held within weeks after the Submission is delivered. The purpose of the Design Field View is to evaluate the Design Field View Submission under field conditions. This is an important opportunity to: Meet with affected review agencies, obtain review comments, reach consensus on critical issues, identify aspects of the project requiring special attention in Final Design, and confirm the environmental impact and footprint of the selected alternative.

Design Field View Approval - An administrative action taken by PennDOT to approve the Design Field View Submission prepared during Preliminary Engineering in support of the project's environmental document. Design Field View Approval represents the culmination of the Preliminary Engineering Phase.

Design Field View Submission - A Design Field View Submission contains plans, profiles, typical sections, representative cross sections, cost estimates and other supporting documentation prepared to support the engineering analysis of the selected alternative developed during Preliminary Engineering. This report is the main engineering product of Preliminary Engineering and is filed as support for the project's environmental document. Completion of this report marks an important progress point in the overall design phase.

Design Manual - A nine volume series of publications that describes PennDOT's policies, procedures, and design criteria for the evaluation, assessment, engineering design, and development of highway and bridge projects. The Design Manual may be accessed through PennDOT's website.

Design Refinements - Modifications made to preliminary highway alignments, cross sections, profiles, or design features during the preliminary or final design phases in response to given needs or concerns expressed by agencies and the public during project development; often made to avert impacts to one or more significant resources.

Design Year - The year for which a roadway facility is designed, normally 20 years after planned completion, taking into consideration projected volumes of traffic.

Design Year and Design Hour Volumes - The design year of an improved highway facility typically is 20 years after the highway facility has been opened to traffic (although some projects may have a 10-year or 5-year design life); the design hour volume represents the 30th highest hour of traffic volume during the design year.

Desired Operating Speed - The speed at which it is intended that vehicles travel. The Project Context should play a large role in determining the Desired Operating Speed. For example, pedestrians and commercial use suggest the need to use the lower range of the Desired Operating Speed.

Detailed Studies Report (DSR) - A report prepared during the Problem Definition Phase of PennDOT's Transportation Project Delivery Process. The intent of the DSR is to document more detailed information on potential TIP proposals (problems). See Publication 10A, Design Manual Part 1A, *Pre-TIP and TIP Program Development Procedures* for more details.

Determination of Effect - A finding made by the State Historic Preservation Officer, which determines whether a proposed project affects a property included on or eligible for the National Register of Historic Places.

Determination of Eligibility - The process of assembling documentation to render professional evaluation of the significance of an historic property. PennDOT applies National Register of Historic Places criteria when deciding matters of historical significance & request State Historic Preservation Officer concurrence in the eligibility recommendation.

Direct Effects - Influences or occurrences caused by a given action and occurring at the same time as the action. Changes in noise levels, traffic volumes, or visual conditions are some examples of direct effects of a new highway.

District Engineering Office - One of PennDOT's eleven field offices throughout the state responsible for administrating project development, design, construction, and maintenance activities within their geographic region.

District Executive - The Chief Executive in charge of one of PennDOT's eleven Engineering Districts.

Draft Environmental Impact Statement (DEIS) - This document is a detailed study of the proposed alternatives and the impact of those alternatives on the project study area. When a DEIS is published, there is a 45-day review and comment period for environmental agencies and the general public. A Public Hearing is held during the 45-day review period. All substantive comments are then addressed in the Final Environmental Impact Statement.

Dry-run - Practice sessions with Central Office for presentations to be conducted at ACMs and Public Meetings. They give presenters the opportunity to rehearse delivery, assess the effectiveness of handouts and graphic displays, discuss strategy for responding to questions, and incorporate any new information.

E

Early Coordination - Communication efforts undertaken near the beginning of the Transportation Project Development Process to exchange information and work cooperatively with agencies and the public in an effort to determine the type and scope of studies, the level of analysis, and related study requirements.

Elements - The components of a bridge important from a structural, user, or cost standpoint. Examples are decks, joints, bearings, girders, abutments, and piers.

Engineering and Construction Management System (ECMS) - Automation that supports both of the streamlined and coordinated design and construction processes. This is being achieved through the use of project management tools, and technology that facilitates PennDOT and its design partners working together and sharing information.

Environmental - 1) In a scientific context, a combination of external or extrinsic conditions present in nature. 2) In a planning context, a category of analytical studies of aesthetic values, ecological resources, cultural (historical) resources, sociological and economic conditions, etc.

Environmental Assessment - A document prepared in compliance with the National Environmental Policy Act (NEPA) for federally-funded transportation projects that do not fall under any categorical exclusion category and do not appear to be of sufficient magnitude to require an EIS. An Environmental Assessment provides the analysis and documentation to determine if an EIS or a Finding of No Significant Impact (FONSI) should be prepared.

Environmental Classification - An internal Department determination as to which type of environmental documentation is appropriate. At the beginning of the transportation project development process, projects are systematically grouped into one of three classes based on knowledge of the significance of environmental effects: **Class** I projects require Environmental Impact Statements, **Class** II require Categorical Exclusions, and **Class** III require Environmental Assessments.

Environmental Commitments and Mitigation Tracking System (ECMTS) - A process implemented to track environmental commitments and mitigation measures (identified during any class of NEPA action) from the Design phase through Construction, and Maintenance and Operation phases of a project.

Environmental Context - The regulated natural, cultural, and socio-economic resources of a project area, including wetlands, streams, historic and archaeological sites, threatened and endangered species, air quality, noise levels, farmland, recreational areas, etc. See Publication 10B, Design Manual Part 1B, *Post-TIP NEPA Procedures* for more details.

Environmental Impact Statement (EIS) - An EIS is required by the National Environmental Policy Act (NEPA) of 1969 for projects that may have significant impacts, and is the document that assures that planners, engineers and

environmental scientists have studied appropriate alternatives and that citizens are fully aware of the environmental, social, cultural and economic effects of all alternatives. The EIS documents the development and impact analysis of the alternatives as well as the logic for the selection of the preferred alternative.

Environmental Justice - Federal Executive Order 12898, approved February 1994, requires every federal agency to identify and address adverse health or environmental effects of that agency's programs or activities on minority and low-income populations.

Environmental Manager - A professional in each of PennDOT's 11 District Offices responsible for overseeing and coordinating District environmental issues and operations, organizing data collected by the District and its consultants regarding natural, socioeconomic, and cultural resources, and assisting in the preparation of NEPA and other related studies.

Environmental Monitor - An individual or firm selected to monitor the design or construction of a project. Among other tasks, a monitor would ensure that project environmental commitments are carried out, check implementation of mitigation, report on community concerns, and monitor environmental conditions. A monitor is typically employed for complex projects with wide-ranging impacts in sensitive environmental areas.

Environmental Overview - A beginning inventory or summary assessment of environmental features in a study area usually performed during systems planning or preliminary environmental activities. From this preliminary information, the environmental impacts of the study alternatives will be determined. This overview may sometimes be referred to as Environmental Screening.

Environmental Protection Agency (EPA) - This federal agency is responsible for enforcing environmental regulations such as the National Environmental Policy Act, Clean Air Act and Clean Water Act.

Environmental Reevaluation - A written document prepared after environmental clearance whenever changes occur to single or cumulative project conditions which might cause new or more severe environmental impacts; also determines if a supplement to the Draft or Final EIS is needed.

Erosion and Sediment Pollution Control Plan - A detailed series of plans developed to minimize accelerated erosion and prevent sedimentation damage. In accordance with Publication 13M, Design Manual Part 2, *Highway Design*, Chapter 13, and Publication 584, *PennDOT Drainage Manual*, these plans are prepared in conjunction with construction staging plans, detailing what erosion control measures must be in place at all times during various construction stages and phases

Expected (Average) Crash Frequency - The estimate of long-term expected average crash frequency of a site, facility or network under a given set of geometric conditions and traffic volumes (AADT) in a given period of years. In the Empirical Bayes (EB) methodology, this frequency is calculated from the observed crash frequency at the site and predicted crash frequency at the site based on crash frequency estimates at other similar sites. Refer to Publication 638, *District Highway Safety Guidance Manual,* for further information.

Expressway - A partially controlled-access, divided highway for through traffic with at least 50% of the expressway's intersections "grade-separated."

F

Fabricator - A firm, company, or individual supplying fabricated material for the project.

Feasibility Study - Refers to various types of systematic evaluations carried out to better assess the desirability or practicality of further developing a proposed action. Such studies are typically performed during the planning stages, or very early in Preliminary Engineering when certain improvement proposals or design concepts need to be more fully investigated.

Federal-Aid Highways - Those highways eligible for assistance under Title 23, United States Code (U.S.C.).

Federal Aid Project - An activity, study, survey, project, or other work related to transportation authorized in advance by the Federal Highway Administration, and which is paid for either partially or fully by federal funds.

Federal Authorization - An administrative action taken by the Federal Highway Administration whereby that agency reviews and approves various project phases prior to the work being started. The information is submitted to the FHWA on a Form D-4232. The authorization obligates the federal funds and establishes the date of eligibility for funding preliminary engineering, final design, right-of-way, and construction projects.

Federal Highway Administration (FHWA) - This agency oversees the process of planning, designing and constructing federally funded highway projects.

Federal Oversight Project - A Federal-Aid project that is subject to full FHWA approval authority. Refer to the FHWA/PennDOT Stewardship and Oversight Agreement (Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C,* Appendix C) for more detail.

Federal Register - A daily publication of the U.S. Government Printing Office that contains notices, announcements, regulations, and other official pronouncements of U.S. Government administrative agencies. Various printed announcements and findings related to specific environmental matters and transportation projects and activities appear in this publication.

Field View - A site visit conducted by PennDOT to gather or verify data, define scopes of work, perform analyses, and make decisions for specific projects. Several field views are identified as important progress points in the Transportation Project Development Process.

Final Design Phase - Occurs during Step 7 of the Transportation Project Delivery Process and involves the development of detailed working drawings, specifications, and estimates for approved transportation projects. Final Design follows the receipt of necessary design and/or environmental approval, and it includes right-of-way acquisition, utility relocation, and construction contract advertisement and award.

Final Environmental Impact Statement (FEIS) - All substantive comments and questions received at the Public Hearing and on the DEIS are addressed in this document prepared by transportation agencies. Other studies are done, as needed, to address comments and questions. The document is then submitted to the Federal Highway Administration, with a preferred alternative, for approval.

Financial Context - The Financial Context involves planning and designing a project to fit the project purpose and need, while considering the Project Context, at the lowest cost possible. The goal is to provide the best value (most benefits) for the lowest construction cost. Financial Context considers not only individual problems/proposals/projects, but regional funding priorities to help develop a fiscally constrained TIP that provides the best possible improvements to the transportation network.

Finding of No Significant Impact (FONSI) - An administrative determination by the Federal Highway Administration based upon the findings of an Environmental Assessment.

Four-Year Program - A prioritized listing, as adopted by PennDOT and the State Transportation Commission, of those improvements identified for development and/or implementation during the initial four years of the overall Twelve-Year Program of transportation improvements. Projects listed in the first four years have priority over those listed in the second or third four-year periods. The four-year program is updated every two years.

Free Access - The lowest condition of access control on state highways which allows private driveway connections, intersections at grade, field entrances, or other land service linkages that give vehicles or pedestrians access to the highways.

Freeway - Divided arterial highways with fully controlled access and no at-grade intersections with other roads, railroads, or multi-use trails.

Functional Roadway Classification - The organization of roadways into a hierarchy. In planning and needs studies, roadways are classified by the character of service provided. Character of service refers to serving the mutually exclusive objectives of through or regional trips versus providing access to adjacent land uses. Typical roadway classifications are arterial (primarily serving through and regional traffic on roads designed for mobility), local roadways (providing access to adjacent land uses) and collectors (connecting local roads to arterial roads and providing some service to adjacent land uses).

G

Geometric Design - Pertains to those engineering activities involving standards and procedures for establishing the horizontal and vertical alignment and dimensions of slopes of a highway. It includes engineering work involved with proportioning the visible elements of a facility, tailoring the highway to the terrain, the controls of environmental and land space usage, and the requirements of the highway user, individually and collectively.

Goals - General statements of what the Policy Plan seeks to accomplish in the broadest sense, over a 20-year time framework.

Grade Line - The profile of the finished roadway surface along the proposed construction centerline or base line.

Guiding Principles - The major themes that PennDOT seeks to examine, pursue, and realize throughout all aspects of Policy Plan development and subsequent implementation.

H

Hazardous Waste - An environmental impact category encompassing all types of permitted and unregulated materials, sites, and substances which require prudent handling and treatment to prevent harm or danger. Sites are often referred to as Waste Management Sites.

High Occupancy Vehicle (HOV) - A vehicle carrying a specified minimum number of people, typically applies to buses and vans. On some highways, HOV lanes are provided and can be used only by vehicles meeting the minimum occupancy requirements. Increased HOV usage reduces the total number of vehicles on a highway.

Highway Performance Monitoring System (HPMS) - The State/Federal system used by the FHWA to provide information on the extent and physical condition of the nation's highway system, its use, performance, and needs. The system includes an inventory of the nation's highways including traffic volumes.

Highway Safety - The reduction of traffic crashes, deaths, injuries, and property damage resulting there from, on public roads.

Highway Safety Manual (HSM) - A resource that provides safety knowledge and tools in a useful form to facilitate improved decision making based on safety performance. The focus of the HSM is to provide quantitative information for decision making through an assemblage of currently available information and methodologies on measuring, estimating and evaluating roadways in terms of crash frequency (number of crashes per year) and crash severity (level of injuries due to crashes).

I

Identification of Alternatives - PennDOT's Phase I engineering and environmental evaluations, in which the Originating Office identifies and chooses an initial set of study alternatives that address the stated program objectives and the project need, and which are sensitive to the resources and land uses of a study area. The process commences with brainstorming or listing a wide variety of possible options, assessing the overall merits and draw backs comparing them, and finally choosing those that should be carried forward. Alternatives to be studied normally include the No-Build alternative, an upgrading of the existing roadway alternative, new transportation routes and locations, transportation systems management strategies, multi-modal alternatives if warranted, and any combination of the above.

Impacts - Positive or negative effects upon the natural or human environment resulting from transportation projects.

Independent Oversight Program - A joint FHWA/PennDOT program that will provide selective reviews of Federal-Aid projects and PennDOT processes to assess the effectiveness of Quality Management in producing quality products and services in compliance with Federal and State regulations and policy.

Indirect Effects - Impacts that can be expected to result from a given action that occur later in time or further removed in distance; for example, induced changes to land use patterns, population density, or growth rate.

Inspector-in-Charge - PennDOT's authorized field representative in immediate charge of inspecting the performance of work on the construction project.

Integration Process - The continual assimilation of relevant environmental, engineering, and public response issues during the course of project development. All important study information and variables are fully considered and unified as the project develops, thus resulting in a well formulated project that responds to all identified needs.

Intelligent Transportation System (ITS) - Devices to implement Transportation Systems Management and Operations (TSMO).

Interagency Consensus on Integrating NEPA and Section 404 - In response to federal legislation, an interagency task force agreed to combine the Environmental Protection Agency's NEPA process with the U.S. Army Corps of Engineers' review of applications for permits under Section 404 of the Clean Water Act. This integrated review process is intended to streamline the Transportation Project Development Process by maximizing agency participation throughout.

Interdisciplinary Review - Review and critique of a technical file, study, or report by a group of experts in relevant fields. Typically, such a process is used to provide a more wide-ranging final quality assurance review within a District Office or to provide first-level review for a completed study in the Central Offices of PennDOT, or in the FHWA.

Interested Parties List - A compilation of the names and addresses of persons or groups interested in a specific transportation project. This information is gathered and maintained by Department officials during the course of transportation project studies.

Interim Transportation Policy Plan - A statement of goals, objectives, preliminary policy recommendations and actions developed during calendar year 1994, for submission to the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) by January 1, 1995.

Intermodal - Connections between passenger modes, and among freight and goods movement modes of transportation.

Intermodal Facility - A transportation element that accommodates and interconnects different modes of transportation and serves intrastate, interstate, and international movement of people and goods. Intermodal facilities include, but are not limited to, highway elements providing terminal access, coastal, inland and Great Lakes ports, canals, pipeline farms, airports, marine and/or rail terminals, major truck terminals, transit terminals including park and ride facilities, intercity bus terminals, etc.

Intermodal Management System (IMS) - A systematic process of identifying key linkages between one or more modes of transportation, where the performance or use of one mode will affect another, defining strategies for improving the effectiveness of these modal interactions, and evaluation and implementation of these strategies to enhance the overall performance of the transportation system.

Intermodal Relationships - Coordination of different modes of transportation, such as rail, air, busways and bicycle paths, during the planning and development of a particular project.

Intermodal System - A transportation network consisting of public and private infrastructure for moving people and goods using various combinations of transportation modes.

Internal Review - The means by which documents and data are reviewed, transmitted, furnished for approval, and certified as complete through a series of offices including those of Consultants, the District, the Central Office, and the various offices of the FHWA. Certain review and transmittal requirements are identified as necessary to carry out each of these individual steps.

Intersection Control Evaluation (ICE) - Framework for a range of activities to support objective evaluations of intersection control strategies.

Invitation for Bids - The advertisement for proposals from contractors for construction work or material. The advertisement will state, with reasonable accuracy, the quantity and location of the work to be done, the character and quantity of the material to be furnished, and the time and place of the opening of bid proposals. The advertisement is issued by the Bureau of Project Delivery's Project Schedules, Specifications and Constructability Section (or District Office).

In Writing - Communication between parties delivered or sent, and received, in the form of a written letter, telegram, e-mail, or mailgram.

J

Joint Venture - A legal association of contractors or subcontractors formed for the purpose of bidding and executing a common contract. Prequalification is required of each contractor or subcontractor. PennDOT limits joint ventures to three participants.

Jurisdictional Determination (JD) - A site survey performed by the U.S. Army Corps of Engineers to officially determine whether or not a given parcel of land is subject to wetlands regulations, and if so, the extent of the area.

K

L

Land Use Context - Seven context areas define the Land Use Context of a project area. In reality, land uses do not always fit neatly into these seven areas and boundaries between areas may be fluid. Best professional judgment should be used in selecting the context that best matches the existing and proposed land use in the project area. The seven context areas for Land Use Context include:

1. ***Rural*** - Consists of a few houses/structures dotting a farm or forested landscape. Most land is undeveloped or cultivated. Small commercial establishments are often located at intersections of arterial or collector road.

2. ***Suburban Neighborhood*** - Predominantly low density residential communities with houses typically arranged along a curvilinear system of streets with limited connectivity to regional road networks. Neighborhoods can include community facilities (schools, churches, recreation) and some small businesses or offices.

3. ***Suburban Corridor*** - Characterized by big box stores, commercial strip centers, restaurants, auto dealers, office parks, and gas stations, sometimes interspersed with natural areas and occasional home clusters. Buildings are usually set back from the road behind surface parking.

4. ***Suburban Center*** - Often a mixed-use, cohesive collection of land uses that include commercial businesses serving surrounding neighborhoods. Typically designed to be accessible by car, these areas may include large parking areas/garages and are less accommodating to pedestrians than town centers with limited opportunities to cross the primary roadway.

5. ***Town/Village Neighborhood*** - Predominantly residential neighborhoods, sometimes mixed with small retail establishments. Residential buildings tend to be close to the street with rowhouses fronting the sidewalk and houses sitting back behind a front lawn. On-street parking is common and typically well used.

6. ***Town Center*** - A mixed use, high density area with buildings (typically two to four stories with retail operations on the bottom and office space on top floors) adjacent to the sidewalk. Parallel parking usually occupies both sides of the street with parking lots behind the buildings. Important public buildings, such as town hall or library, are prominent.

7. ***Urban Core*** - Downtown areas consisting of blocks of high density mixed use buildings that vary in height from 3 to 60+ stories.

Land Use Plan - A plan which establishes strategies for the use of land to meet identified community needs.

Lead Agency - A state or federal agency taking primary responsibility for preparing an engineering or environmental document.

Legal Notice - A formal announcement or finding published by PennDOT in a periodical or newspaper to provide official public notice of an action or approval of interest to the public.

Letter of Interest - Written communication prepared by a consultant or a consultant firm in response to a public advertisement placed by PennDOT to seek certain defined technical or professional services.

Level of Service (LOS) - A measure of the operational conditions within a stream of traffic considering traffic interruptions, speed, freedom to maneuver, comfort and convenience. The six levels are designated "A" through "F". "A" represents the best conditions (free-flow), while "F" is the worst possible conditions (congested). The flow of traffic through an intersection can also be measured as a level of service.

Life-Cycle Cost Analysis - A procedure for evaluating the economic worth of one or more projects or investments by discounting future costs over the life of the project or investment.

Limited Access Highway - A highway on which owners or occupants of abutting lands and other persons have no legal right of access except at points and in the manner determined by the authority having jurisdiction over the highway.

Local Traffic - Vehicular traffic that originates or terminates within the project limits.

Logical Termini - Known features (land uses, economic areas, population concentrations, cross route locations, etc.) at either end of a proposed transportation route that enhance good planning and which serve to make the route usable. Logical termini are considered rational end points for a transportation improvement.

Logical Terminus - The rational beginning or ending point of a transportation project, such as at an existing transportation facility project.

Long Range Transportation Plan (LRTP) - Identifies regional transportation goals, issues and needs, and defines the direction for regional planning, programming and project development over a minimum 20-year period.

Lot - An isolated quantity of specified material from a single source, or a measured amount of specified construction, to be produced by the same process.

M

Main Street - Anchors the center of a town, village or center. Characterized by wide sidewalks, pedestrian activity, mainly commercial use, high building density with buildings oriented to the street with little or no setbacks, street furniture and art, on-street parking, 30 mph speeds or less, and usually only two travel lanes.

Major Complexity Project - Also referred to as a "Most Complex Project," this is the most complicated of PennDOT's three general project classifications. Major Project roadway improvements typically include new highways, major relocations, new interchanges, capacity adding/major widenings, or major reconstruction. Environmentally, Major Projects typically require an Environmental Impact Studies or complex Environmental Assessment, studies of multiple alternatives, and extensive interaction with permitting agencies. See Publication 10, Design Manual Part 1, *Transportation Program Development and Project Development Process*, Table 2.3, for a complete description of Major Projects.

Management System - A systematic process, designed to assist decision makers in selecting cost-effective strategies/actions to improve the efficiency and safety of, and protect the investment in, the nation's transportation infrastructure. A management system includes: identification of performance measures; data collection and analysis; determination of needs; evaluation and selection of appropriate strategies/actions to address the needs; and evaluation of the effectiveness of the implemented strategies/actions.

Mapping - A plane surface graphic or photographic representation of land or water used to depict the study area for a project. Existing alignments, alternatives, engineering design features, and environmental constraints are plotted on various types of mapping. Photogrammetric (aerial) mapping assists in resource identification and studies. Topographic (base) mapping provides a basis for alignment layout. Property tax maps and traffic data maps are also consulted in the transportation development process. The type and scale of mapping are selected to fit the terrain and land use intensity of the study area as well as the level of detail of the proposed design.

Mass Transit Facilities Alternative - An alternative that includes upgrading or the construction of new mass transit facilities (i.e., rail transit, busways).

Meeting Minutes - Usually a brief memo prepared by a meeting chairperson summarizing points discussed, conclusions reached, and any other notable items. Meeting minutes offer a quick, efficient format for recording coordination with agencies and important public involvement actions.

Memorandum of Agreement (MOA) - Lists certain binding historic resource commitments and outlines measures to avoid, mitigate, or accept the adverse effects on a given historic resource. The MOA is part of requirements outlined in Section 106 of the National Historic Preservation Act of 1966. It must be signed by agencies such as the State Historic Preservation Officer (SHPO), the FHWA, the Advisory Council on Historic Preservation (when participating), and PennDOT for Federally funded project or by the SHPO and PennDOT for 100% state funded projects. The MOA may also be signed by concurring parties such as Consulting Parties and Tribes or Nations.

Metropolitan Planning Area - The geographic area in which the metropolitan transportation planning process required by 23 U.S.C. 134 and Section 8 (49 U.S.C. App. 1607) of the Federal Transit Act must be carried out.

Metropolitan Planning Organization (MPO) - A planning group designated for each urban area with a population of 50,000 or more. Members include both private citizens and local government officials. An MPO addresses federal aid planning mandates by producing local area transportation plans or transportation improvement programs on an annual or biannual basis, or by employing other strategies that make existing systems more efficient.

Milestone Date - The date on which a specific portion of physical contract work is to be completed, prior to the Required Completion Date of all contract work.

Minor Project - Also referred to as a "Non-Complex Project," this is the least complicated of PennDOT's three general project classifications. Minor Project roadway improvements typically include overlays, simple widenings without right-of-way (or very minimum right-of-way take), and little or no utility coordination. Environmentally, Minor Projects typically require a Level 1A or 1B Categorical Exclusion and minimum interaction with permitting agencies. See Publication 10, Design Manual Part 1, *Transportation Program Development and Project Development Process*, Table 2.1, for a complete description of Minor Projects.

Mitigation Measures - Specific design commitments made during the environmental evaluation and study process that serve to moderate or lessen impacts deriving from the proposed action. These measures may include planning

and development commitments, environmental measures, right-of-way improvements, and agreements with resource or other agencies to effect construction or post construction action.

Mitigation Report - A summary document prepared by the originating office for every Final EIS to inform design consultants, value engineering teams, project engineers, and construction contractors of committed project design, operational measures, and construction measures to minimize or avoid the anticipated environmental consequences. This report is an internal informational document subject to modification, if necessary, as the project proceeds through final design.

Modal Split - The proportion of trips made on the highway versus other modes of travel, such as the public transit system.

Moderately Complex Project - One of PennDOT's three general project classifications. In terms of complexity, Moderately Complex Projects are in the middle of the spectrum, mid-way between Minor and Major Projects. Moderately Complex Project roadway improvements typically include 3R and reconstruction projects which do not add capacity, minor roadway relocations, and certain complex (non-trail enhancements) projects. Environmentally, Moderately Complex Projects typically require a Categorical Exclusion level 2 or a mitigated Environmental Assessment, and interaction with permitting agencies. See Publication 10, Design Manual Part 1, *Transportation Program Development and Project Development Process*, Table 2.2, for a complete description of Moderately Complex Projects.

Most Complex Project - See Major Project.

Multimodal - Different types of transportation, including airplane, motor vehicle, motorcycle, train, waterborne, bicycle, pedestrian and non-traditional (e.g., horse and carriage).

N

National Environmental Policy Act of 1969 (NEPA) - The federal law that requires the preparation of an Environmental Impact Statement (EIS), Environmental Assessment (EA), or Categorical Exclusion (CE) for undertakings using Federal funds that may have significant impacts. To comply with NEPA, a process has been developed by PennDOT to address all potential environmental, social, cultural and economic impacts of a proposed highway project before decisions are reached on design. Public involvement is an integral component of the NEPA process.

National Highway System (NHS) - The system of highways designated and approved in accordance with the provisions of 23 U.S.C. 103(b).

National Pollutant Discharge Elimination System (NPDES) Permit - Mandated by Section 402 of the Clean Water Act for projects that involve the discharge of pollutants from a point source into surface waters (including wetlands) for disposal purposes; intended to regulate the amount of chemicals, heavy metals, and biological wastes discharged in wastewater. The EPA has granted PA DEP the authority to administer NPDES permits under the Pennsylvania Clean Streams Law.

Need(s) - See Project Need Statement

Needs Service Area - A discrete, defined expanse of land use, defined by radius or geometric bounds, to identify the extent of demand, usage, or influence that is present and that is likely to be served by a transportation improvement in a given area. Knowledge of needs service is useful for differentiating between predominant types of service and user desires, including usage by local, area, regional, through or interstate, and long-distance traffic.

Needs Study - The purpose of this study is to identify such items as roadway deficiencies, safety problems, capacity issues and social demands, which support the consideration of a transportation improvement. State and federal environmental agencies are asked to agree that there is a need for improvements before a project moves into the next phase of development.

NETSIM - Network Simulation Analysis (NETSIM) is a computerized tool to visually observe vehicles progressing through an at-grade roadway network. NETSIM is updated and maintained by the FHWA.

Network Level Analysis - An analysis pertaining to policy, system planning, programmatic, or budgeting issues for the whole inventory of a roadway network or a subset thereof.

Network Upgrade Alternative - An alternative which considers improvement to the existing roadway network such as the addition of lanes and minor changes in vertical or horizontal alignment to correct deficiencies.

New Location - An area, or an alignment, proposed for highway development that was not previously acquired or used for transportation purposes.

Newsletter - Required as part of Public Involvement Plans for certain types of larger projects; a printed brochure that conveys news or information of interest to the general public.

No-Build Alternative (Also known as "No-Action Alternative") - Option of maintaining the status quo by not building transportation improvements. Usually results in eventual deterioration or obsolence of existing transportation facilities. Serves as a baseline for comparison of "Build" Alternatives.

Non-Attainment Areas - Counties that do not meet national ambient air quality standards for ozone pollution; ranked by the severity of their problem as marginal, moderate, serious, severe, or extreme. In accordance with the Clean Air Act Amendments of 1990, these areas must take specific emission reduction measures.

Non-Complex Project - See Minor Project.

Non-Traditional/Non-engineering Solution - These solutions (alternatives) involve construction and non-construction items beyond the traditional realm of transportation engineering solutions (see Traditional Solution), and may include measures such as encouraging transit or bicycle use or walking, traffic calming measures that reduce lane widths or present visual clues, such as landscaping, meant to slow traffic speeds, educational programs aimed at reducing speeds, increasing compliance with traffic signals, or ensuring compliance with crosswalk regulations. Non-Traditional solutions are not limited to just these items mentioned, but are any solution that solves a transportation need but that are not necessarily standard engineering solutions.

Notice of Intent - Announcement in the Federal Register advising interested parties that an Environmental Impact Statement will be prepared and circulated for a given project.

Notice to Proceed - Written notice to a consultant firm or a contractor to begin the work defined in a contract or agreement; includes contract start-up date.

O

Obligation of Funds - Committing funds for specific use on a given transportation project or activity. Typically, when projects are approved for a certain phase of development, federal funds are "obligated" for that purpose.

Oblique Photograph - A print of a picture taken by an aerial camera from a slanting or sloping direction. Oblique photographs are used to show particular topographic and roadway features present in a study area.

One-Year Program - A statewide listing for planning, funding, and implementation purposes of those state and federal aid transportation projects slated for implementation in a given calendar or fiscal year.

Operating Procedures - Procedures developed by District and Central Office organizations on how certain design and review activities will be performed. The procedures identify the individual or unit responsible for the activity, necessary qualifications, design criteria standards, etc. This document must be approved by PennDOT and have FHWA's concurrence to obtain delegation approval.

Open House - An informal, unstructured Public Meeting during which display boards are used to convey important project information and Department and consultant personnel are available to answer the public's questions.

Operations - activities associated with managing, controlling, and regulating highway traffic.

Originating Office - The "lead" District, Bureau, Office, or Agency responsible for administering, developing, and implementing a given project.

P

PS&E Submission - The reference given to a transmittal of plans, specifications, and estimates made from a preparing office to PennDOT for review and processing. This transmittal includes all written material and engineering data necessary to place a highway construction project under contract. These submissions are reviewed by PennDOT for accuracy and completeness prior to bid. For certain major federal-aid projects (Federal Oversight projects), the PS&E submission is also provided to the Federal Highway Administration for final approval.

PAMHEP - (Pennsylvania Modified Habitat Evaluation Procedure) A simplified version of the Habitat Evaluation Procedure (HEP) for assessing and mitigating impacts to fish and wildlife from proposed water and land resource development projects.

Parkway - An arterial highway for non-commercial traffic, with full or partial control of access, and usually located within a park or a ribbon or park-like development.

Pavement Design - a project level activity where detailed engineering and economic considerations are given to alternative combinations of subbase, base, and surface materials which will provide adequate load carrying capacity. Factors which are considered include: materials, traffic, climate, maintenance, drainage, and life-cycle costs.

Pavement Management System (PMS) - A systematic process that provides, analyzes, and summarizes pavement information for use in selecting and implementing cost-effective pavement construction, rehabilitation, and maintenance programs.

Pavement Structure - The combination of subbase, base course, and surface course placed on a subgrade to support the traffic load and to distribute the load to the roadbed.

Payment Bond - The approved form of security, furnished by the Contractor and the surety, as a guaranty to pay promptly, or cause to be paid promptly, in full, such sums as may be due for all material furnished, labor supplied or performed, rental of equipment used, and services rendered by public utilities in, or in connection with, the work under contract.

Peak Hour - The one-hour period of a typical day during which the highway carries its highest volume of traffic, usually during the morning or evening "rush" period when commuters travel to and from work.

PennDOT Oversight Project - A Federal-aid project for which the FHWA has delegated approval authority to PennDOT as established by the FHWA/PennDOT Stewardship and Oversight Agreement (Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix C). This also includes projects with no federal aid and no federal action.

Pennsylvania Bulletin - Official weekly gazette of the Commonwealth of Pennsylvania, containing notices, regulations, announcements, and other documents filed with the Legislative Reference Bureau. Mail subscriptions can be purchased. Its distribution exceeds 15,000.

Performance Bond - The approved form of security, furnished by the Contractor and the surety, as a guaranty on the part of the Contractor to execute the work, in accordance with the terms of the specifications and contract.

Performance Measures - Operational characteristics, physical conditions, or other appropriate parameters used as a benchmark to evaluate the adequacy of transportation facilities and estimate needed improvements.

Permit - Written permission from a governmental agency to take certain action during the Transportation Project Development Process (relating to, for example, waterways or wetland encroachments, solid waste management, underground storage tanks, coastal areas, etc.).

Phase - A major activity, typically requiring one year or more, that involves the collection, organization, and documentation of data; the discharge of specific tasks, and the implementation of certain action. The seven Phases of PennDOT's Transportation Project Delivery Process are: Problem Assessment, Problem Identification in LRTP, Problem Initiation, Problem Definition, Project Identification in TIP/STIP, Preliminary Engineering/NEPA Decision, and Final Design/Construction.

Phase I Alternatives Analysis (also known as Preliminary Alternatives Analysis) - Within the Preliminary Engineering of projects requiring an EIS are two subphases (Phase I and Phase II) during which the Project Team attempts to choose the most reasonable, practical, cost-effective, technically sound, and environmentally sensitive transportation improvements. During Phase I, a wide range of preliminary study alternatives are developed and evaluated. Following engineering feasibility and environmental assessments, the long, initial list of alternatives is narrowed down, and the least desirable alternatives are dismissed from further study. A narrower range of alternatives is then carried forward into Phase II.

Phase II Alternatives Analysis (also known as Detailed Alternatives Analysis) - During Phase II, the second subphase of Preliminary Engineering for projects requiring an EIS, the smaller range of alternatives is evaluated in greater detail. The ultimate goal of detailed analysis is to select an alternative that satisfies project needs while balancing transportation, community, and environmental objectives. In order to achieve this, engineering and environmental studies are combined. Specifically: impacts of each Phase II alternative are identified and quantified; alternatives are compared on the basis of their consequences; and designs are refined to avoid, minimize, or mitigate impacts. These analyses are presented in the EIS, and in many cases, one alternative is recommended as preferred.

Place - The project setting and context as a whole. The environmental, financial, land use/community contexts and roadway type (transportation context) together comprise the organizing framework for the selection of roadway design values and constitute "Place."

Plan of Study (POS) - Outlines and describes the engineering and environmental studies proposed for a project, the range of alternatives to be studied, the public and resource agency involvement and the anticipated project schedule.

Planning Phase - The first of five Phases of the Transportation Project Development Process. Planning involves the development of transportation plans for a particular urban area or for some other given region of the state. This phase involves data collection, problems/needs assessments, generating and comparing alternative plans, evaluating the social, economic, and environmental impacts of proposed transportation actions with a variety of public, agency, and citizen involvement groups, and selecting the preferred plan. The planning phase involves elements of policy planning, systems planning, or facility planning. The focus of the effort may be short-range, intermediate, or long-range.

Plans Display - Public exhibit of graphics, artwork, or drawings that explain important features of a proposed project to interested parties.

Plans - Technical drawings which show the location, character, and dimensions of prescribed project work, including layouts, profiles, cross-sections, and other details.

Point-of-Access Study - An engineering evaluation performed for a section of limited access highway to determine the influence to existing levels of service and to adjacent highway facilities of a new or revised access point (ramp or interchange).

Policies - General or specific directives that are supported by priorities, strategies, programs and other forms of guidance, intended to ensure progress toward meeting goals and objectives.

Policy Recommendations - A product of a consensus building process among the public and those with an interest or responsibility for transportation, regarding what commitments should be made to achieve goals and objectives.

Predicted (Average) Crash Frequency - The estimate of long-term average crash frequency which is forecast to occur at a site using a predictive model found in Part C of the AASHTO Highway Safety Manual (HSM). The predictive models in the HSM involve the use of regression models, known as Safety Performance Functions, in combination with Crash Modification Factors and calibration factors to adjust the model to site-specific and local conditions.

Preliminary Engineering - Preliminary Engineering encompasses all the major design steps associated with the development and comparison of alternate locations, alternate alignments, detailed engineering and environmental studies, ongoing public and agency interaction, project review, and final selection of a project alternative. Preliminary Engineering concludes when Design Field View Approval is obtained.

Prequalification - The system for establishing a qualification rating, determining the maximum amount of contract and one or more of the classified types of work on which a Contractor will be eligible to bid or subcontract, and the maximum amount the Contractor may have under contract and incomplete at any one time.

Prioritization & Programming Phase - The second of the five Phases of the Transportation Project Development Process is a prelude to the procedures outlined in this handbook. Prioritization & Programming involves the review and evaluation of planning data, together with a consideration of available fiscal resources as related to needs, in order to identify, and schedule transportation improvements which will be carried forward by PennDOT into subsequent phases of Design, Construction and Maintenance.

Problem Statement - A concise narrative, prepared at the outset of a project or as part of a project needs study, defining the fundamental situation or circumstance to be solved. A problem statement will generally describe a particular situation in which an expected level of performance is not being achieved, and will list one or more important factors which cause or contribute to the unacceptable performance.

Profile Grade - The elevation or gradient of a trace of a vertical plane intersecting the proposed surface, usually along the longitudinal centerline or base line of the roadway.

Program Management Committee (PMC) - An administrative group within PennDOT, chaired by the Secretary of Transportation, which includes all Deputy Secretaries and representatives of the District Offices and the Federal Highway Administration. The Center for Program Development and Management supports this group by developing agendas and making presentations. PMC Approval is required to fund and initiate the development of specified phases of a given project. Typically, meetings of the PMC are held weekly, and those projects or actions that are listed on a published agenda are reviewed and acted upon.

Programming - A general term to refer to a series of activities carried out by PennDOT, including data assessment, appraisal of identified planning needs, and consideration of available or anticipated fiscal resources to result in the drawing up, scheduling, and planning of a list of identified transportation improvements for a given period of time.

Project Context - Roadways should respect the character of the community, and its current and planned land uses. The design of a roadway should change as it transitions from rural to suburban to urban areas. Understanding "Project Context" makes this possible. This includes the financial context (order of-magnitude costs, benefits and regional funding priorities), transportation context (function and use of the roadway), land use and community context (type of area that is served by the roadway), and environmental context (environmental resources in the project area). Note that community context is much more than the physical appearance of buildings and street. At the local level, the context includes the role of the roadway in supporting active community life.

Project History - A written narrative recounting the origins, development, attendant circumstances, and significant actions associated with a given transportation activity, usually included as part of environmental study documents.

Project Limits - The physical end points of a proposed project usually designated at geographic or municipal boundaries, at intersections, at roadway segments where cross-sections change, or at the beginning or end of numbered state traffic routes.

Project Manager - Originating Office staff member responsible for supervising the overall process of planning, developing, and implementing one or more phases of a given project.

Project Need Statement - A statement of specific transportation problems and/or deficiencies which have resulted in the search for improvements. Project needs are typically based on technical information and analyses.

Project Purpose - A broad statement of the overall intended objective to be achieved by a proposed transportation improvement.

Project Sponsor - The agency originating the transportation improvement project. This may be PennDOT, MPOs, RPOs, or other transportation agencies. See also Originating Office.

Project Team - A group of professionals representing specific technical or scientific disciplines who are brought together for a designated period of time to perform detailed analysis of subjects that require various environmental, engineering and project development expertise. For a transportation project, a project team consists of the Originating Office and its consultants, Central Office, FHWA, and cooperating agencies.

Proposed Action - A transportation plan or project selected for implementation by an agency.

Proposal - The offer of a bidder, on the proposal form, to design or construct the project, at the prices bid or predetermined.

Public Hearing - A meeting designed to afford the public the fullest opportunity to express support of or opposition to a transportation project in the form of testimony in an open forum at which a verbatim record (transcript) of the proceedings is kept.

Public Information Plan (PIP) - A plan that informs the public of the impacts of highway construction activities on traffic. Required as part of the Transportation Management Plan (TMP).

Public Involvement - Coordination events and informational materials geared at encouraging the public to participate in the Transportation Project Development Process. A successful Public Involvement Plan facilitates the exchange of information among project sponsors and outside groups and the general public, and includes meetings, surveys, committees, presentations, etc.

Public Meeting - An announced meeting conducted by transportation officials designed to facilitate participation in the decision-making process and to assist the public in gaining an informed view of a proposed project at any level of the Transportation Project Development Process. Also, such a gathering may be referred to as a Public Information Meeting.

Public Officials Meeting - A scheduled session conducted by transportation officials whose purpose is to inform and advise local public officials and other governmental authorities of particular details and schedules associated with a given project. Typically, such a meeting is held in advance of a larger gathering to communicate similar information to the general public.

Public Transportation Facilities and Equipment Management System (PTMS) - A systematic process that collects and analyzes information on the condition and cost of transit assets on a continual basis. It identifies needs as inputs to the metropolitan and statewide planning processes enabling decision makers to select cost-effective strategies for providing and maintaining assets in a serviceable condition.

Purpose - See Project Purpose

Q

Quality - Preparing the design or products to meet criteria and expectations in an efficient, cost-effective manner using state-of-the-art engineering practices and good engineering judgment. Achieving quality is the responsibility of each individual performing the work.

Qualitative Analysis - A general concept which categorizes a process used in certain types of environmental or route location studies where multiple factors are compared in a systematic and comprehensive manner on the basis of sound judgment. Factors analyzed by using a qualitative analysis are such that they cannot be measured in monetary terms, have no apparent common denominators, and are not readily quantifiable.

Quality Assurance (QA) - The planned and systematic action performed by a party not involved in QC to provide adequate confidence that delegated approvals will comply with Federal and State requirements. It is the performance of a limited, high-level review of each product to confirm quality, economy, and compliance with laws, regulations, and policies prior to final acceptance by PennDOT or prior to submission to external agencies for approval.

Quality Audit - A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

Quality Control (QC) - Processes performed by PennDOT (and/or its consultants and contractors) that ensure delegated approvals comply with Federal and State requirements. QC is the responsibility of the party producing the product or service (which is PennDOT in regard to the FHWA/PennDOT Stewardship and Oversight Agreement). For example, a document (calculations, drawings, reports, etc.) produced by a designer is thoroughly checked by another qualified person to ensure utilization of accepted logics, practices, and correctness of all information (calculations, details, etc.).

Quality Control Plan - A Contractor's or Vendor's prepared plan, submitted to and reviewed by the Engineer, describing the proposed quality control system. This plan contains, as a minimum, an inspection schedule, sample schedule, testing schedule, and required laboratory inspection reports.

Quality Control System - A system of controls, inspection, and tests, fully documented, providing reasonable assurance that all materials, products, and completed construction submitted for acceptance, conform to specifications.

Quality Development Plan (QDP) - A plan prepared for managing quality during project development whether a project is PennDOT designed, Consultant designed, or a joint PennDOT/Consultant effort. Where consultants are used, a joint plan is required. Size and complexity of a plan will vary dependent on size and scope of project. This plan will address key staff, responsibilities, milestones, monitoring budgets and schedules, communication efforts, QC/QA efforts and tracking procedures as a minimum.

Quality System - The organizational structure, responsibilities, procedures, processes, and resources for implementing quality improvement.

Quantitative Analysis - The process used in certain economic, cost-benefit, engineering, or traffic studies where multiple factors, elements, and/or outcomes are evaluated and compared by the use of measurable data. Certain mathematical models, formulas, numerical indices, rankings, and value matrices may be used to assist with such a process.

R

Record of Decision (ROD) - A document prepared by the Federal Highway Administration that presents the basis for selecting and approving a specific transportation proposal that has been evaluated through the various environmental and engineering studies of the Transportation Project Development Process. Typically, the Record of Decision identifies the alternative selected in the Final EIS, the alternatives considered, measures to minimize harm, monitoring or enforcement programs, and an itemized list of commitments and mitigation measures.

Rendering - The art of depicting forms, figures, and features on paper to illustrate visual conditions of a specific location or an area. A rendering may be displayed at presentations or included in study documents to portray the conditions that would result from the construction of a specific improvement at a site or in an area.

Resource Agencies - A group of federal and state agencies or commissions which have various regulatory, jurisdictional, and/or administrative responsibilities in a variety of subject areas that are part of the Transportation Project Development Process. These agencies and commissions are involved in participating in project meetings, reviewing and evaluating Department studies, commenting on documents, and granting certain approvals.

Right-of-Way - Land, property, or interest therein acquired for and devoted to transportation purposes, including construction, maintenance, operations, and protection of a facility.

Roadway Safety Assessment - A tool that planners can initiate in coordination with PennDOT. An RSA is a formal safety performance examination of an existing or future road, bridge or intersection by an independent assessment team. The RSA team considers the safety of all road users, qualitatively estimates and reports on road safety issues and opportunities for safety improvement.

Roadside Development - Items for seeding, sodding, mulching, topsoiling, planting of ground covers, other planting, and items for erosion control.

Roadway Construction Standards - Publication 72M, containing PennDOT's design standard drawings for roadway construction.

Roadway Deficiencies - Problems with the existing roadway system, or lack of a roadway system, that causes safety concerns, motorist inconvenience, or traffic congestion.

Rural Planning Organization (RPO) - Seven multi-county, non-profit agencies in rural areas created by counties to support regional planning and economic development initiatives. RPOs represent 37 of the Commonwealth's 67 counties for transportation planning.

S

Safety Improvements - Roadway maintenance activities and smaller construction projects that correct conditions occurring on or alongside an existing highway. Typically involves minor widening, resurfacing, regarding roadsides, hazard or obstacle elimination, guiderail installation, and miscellaneous maintenance.

Safety Management System (SMS) - A systematic process that has the goal of reducing the number and severity of traffic crashes by ensuring that all opportunities to improve highway safety are identified, considered, implemented as appropriate, and evaluated in all phases of highway planning, design, construction, maintenance, and operation and by providing information for selecting and implementing effective highway safety strategies and projects.

Scope of Work - A detailed, written listing of tasks prepared in advance of engineering and environmental work to explicitly define the contents of studies. A Scope of Work is typically provided to prospective consultant firms prior to the initiation of studies to aid them in preparing estimates of working hours, schedules, and costs required to prepare, complete, and deliver all portions of the work described.

Scoping - As defined by the Council on Environmental Quality (CEQ) Regulations, the process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

Scoping Field View - See Field View

Scoping Form - A prepared Department document with blanks for the insertion of details or information to define all essential items associated with the evaluation, study, and assessment of a project. The scoping form is used to record initial project data and to make preliminary judgments regarding impact subject areas, assessments of significance, proposed analysis, coordination, and documentation required.

Secondary Effects - A general term to define impacts which are caused by a specific action and which take place later in time or further removed in distance but are still reasonably foreseeable. Secondary effects can be indeterminate, may not be easily recognized, and can be difficult to identify and evaluate.

Section 106 Procedures - Derived from Section 106 of the National Historic Preservation Act of 1966 which governs the identification, evaluation, and protection of historical and archaeological resources affected by federal transportation projects. Principal areas identified include required evaluations to determine the presence or absence of sites, the eligibility based on National Register of Historic Places criteria and the significance and effect of a proposed project upon a National Register-eligible or listed site.

Section 2002 Finding (Sometimes called a "State 4(f)") - A written determination for 100% state funded projects issued pursuant to Section 2002 of PA Act 120 of 1970 and signed by the Secretary of Transportation describing conditions related to the taking of lands from recreation areas, wildlife or waterfowl refuges, historic sites, state forest, state wilderness, and state game lands and public parks. Documents the need for and the condition of the acquisition.

Section 4(f) Determination - Administrative action by which FHWA confirms that, on the basis of extensive studies and alternative analysis, there are no "prudent and feasible" alternatives to the taking of land from resources protected under Section 4(f) of the U.S. Department of Transportation Act, as amended (49 USC 303). These resources include: parks or recreation areas that are publicly owned or open to the public, wildlife or waterfowl refuges, or any significant historic sites.

Section 401 Water Quality Certification - Required as per Section 401 of the 1972 Federal Clean Water Act for projects involving the discharge of materials into surface waters, including wetlands. The applicant must demonstrate that activities will comply with Pennsylvania water quality standards and other provisions of federal and state law and regulation regarding conventional and nonconventional pollutants, new source performance standards, and toxic pollutants. This permit is issued by PA DEP.

Section 404 Permit - Under Section 404 of the 1972 Federal Clean Water Act, amended in 1977, a permit is required from the U.S. Army Corps of Engineers before any dredged or fill material is discharged into an aquatic system. It must be shown that the discharge will have only minimal adverse effects on water quality. A Section 404 Alternatives Analysis, performed during the environmental studies of the Transportation Project Development Process, examines practical alternatives to the discharge of dredged or fill material into aquatic systems. "Practical" means "available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes."

Section 6(f) - A provision in the Federal Land and Water Conservation Fund Act that protects properties developed or enhanced using federal funding supplied to states or municipalities under the act. Proposed transportation projects which involve a taking of such lands require a study and an analysis of alternatives to serve as the basis for a Section 6(f) finding by the U.S. Department of the Interior. Specific state legislation for any proposed land transfer is also required in order to implement a Section 6(f) action.

Significant Impacts - Any number of social, environmental, or economic effects or influences that may result from the implementation of a transportation improvement, classified as direct, secondary, or cumulative. The FHWA mandates environmental clearance documents based upon the significance of impacts. Categorical exclusions, for example, are those actions which do not involve significant effects. In most cases, Environmental Impact Statement projects do involve significant impacts.

Significant Project - A project that alone, or in combination with other concurrent projects nearby, is anticipated to cause sustained work zone impacts that are greater than what is considered tolerable based on State policy and/or engineering judgment. Significant projects require a Transportation Management Plan (TMP) that consists of a Public Information Plan (PIP), Traffic Control Plan (TCP), and Transportation Operations Plan (TOP). See Publication 46, *Traffic Engineering Manual*, for a complete description of significant projects.

Site Selection - Investigating potential site locations (minimum of two) to determine the best area feasible for development. A Site Selection Report is required. This report will evaluate and document all data necessary to make a site location selection. Investigation of each site will include information on right-of-way, environmental considerations, topography, site orientation, utility availability, potential for water supply and wastewater disposal, soils and any geological factors.

Special Agency Coordination Meeting (SACM) - A monthly meeting of various state and federal transportation and environmental resource agencies to review project status and issues. Provides for the involvement of agencies during project development. In the past, these meetings were referred to as special Transportation Project Development Interagency Coordination Meetings (TPDICM).

Special Provisions - Provisions, requirements, or directions applying to the project, as set forth in the proposal, and that are not contained in Publication 408, *Specifications*, or its supplements.

Specifications - The compilation of technical provisions and requirements for the performance of prescribed work. PennDOT's standard specifications are contained in Publication 408, *Specifications*.

Staged Construction - The phasing of a construction project so that only portions of the ultimate facility are built initially, which involves such practices as building two lanes of highway on four lane right-of-way, grading but not paving areas, constructing only portions of interchanges, pr deferring permanent signing and lighting. The objective of stage construction is to maximize total benefits to the public from highway expenditures in a region or in the state.

Standard Drawings - Approved drawings, showing standard details, produced to be used repeatedly on projects.

State - The Commonwealth of Pennsylvania.

State Implementation Plan - A document prepared by state government officials specifying measures to be used in the attainment and maintenance of National Ambient Air Quality Standards.

State Transportation Advisory Committee - A body that advises the Secretary of Transportation and the State Transportation Commission on transportation issues in Pennsylvania, including the determination of goals and the allocation of resources among the alternate modes in the planning, development and maintenance of programs and technologies for transportation systems. The committee which is composed of representatives of government, industry, labor and education, was mandated by PA Act 120 of 1970.

State Transportation Commission (STC) - Established by state law and consists of fifteen members: the Secretary of Transportation (chairman), the chairman and minority chairman of both the Senate Transportation Committee and the House Transportation Committee; and ten public members appointed by the Governor. The responsibility of the STC is to address transportation program priorities, evaluate and determine the condition and performance of the Commonwealth's Transportation System and to set policy direction regarding transportation.

State Transportation Improvement Program (STIP) - A prioritized, intermodal listing of highway, bridge, and public transit projects that will be implemented in Pennsylvania over four years. The STIP will be consistent with both the statewide Policy Plan and the MPO Long Range Plans and Transportation Improvement Programs (TIPs) and with the Twelve Year Transportation Program.

State-Funded Project - The design or construction of an improvement which is funded entirely with state highway or bridge funds. Pennsylvania environmental clearance requirements of PA Act 120 of 1970 apply for these projects. These projects do not require compliance with the NEPA process.

Study Area - The geographic area within which pertinent project matters are contained. Originally defined at the outset of engineering and environmental evaluations, although it may be revised during development of the studies and the EIS.

Superstructure - All portions of the bridge, above the bridge seat, including bearings, bearing anchors sunk in the substructure, abutment backwalls, cheekwalls, shear blocks, bridge drainage down to but not including the drain box, and portions of the wings and appurtenances above the horizontal construction joint nearest the bridge seat.

Supplement - A contractual term to describe a new or changed assignment or a specific work task given by PennDOT to a consultant firm or to a contractor that is already under contract agreement to perform work for

PennDOT. A supplement may be needed to perform studies, surveys, services, field work, and construction activities.

Supplemental Studies - Additional analysis, including special purpose evaluations, mini-studies, or added work, required to complete a given phase of a project; authorized work performed by a study consultant beyond the originally deemed scope. Based on re-evaluation, supplemental studies (summarized in a Supplemental EIS) may be required before a project can proceed to final design and construction.

System Linkage - Interconnection of roadway segments that comprise an overall transportation network. Also, a discussion of how a proposed project fits into the existing and future transportation system (network) and how it contributes to developing a sound transportation network in an area or region. The terms connector road, missing link, gap completion, circumferential link, or beltway segment are sometimes used to describe this concept.

System Planning - A methodical approach to the formation of plans and programs for safe, efficient, and balanced transportation networks involves setting goals and objectives, collecting data on existing conditions, simulating future activities, formulating alternative planned changes, evaluating changes against the desired goals and objectives, and recommending feasible, desirable, and appropriate action.

T

Task Force - 1. A group, usually representative of various Central Office Bureaus and District Engineering Office Units, designated by the Secretary of Transportation or a Deputy Secretary to oversee the Preliminary Engineering or Final Design of a project. The group holds periodic coordination meetings, works with engineering consultants, guides and reviews project development, and ensures the project is carried out according to established schedules. 2. An offshoot of the Citizens Advisory Group composed of representatives from the major interest groups in a project area, its goals are to advise the Project Team throughout project development, solve problems in a collaborative fashion, and build consensus on a course of action.

Technical Basis Report - A study document presenting in detail the results of engineering or environmental studies in a technical subject area that was summarized in the environmental document. TBRs are only prepared when the information contained in a project's Technical Support Data is especially complex or in order to fulfill the requests of a review team. When prepared, TBRs become part of the project's Technical Support Data.

Technical Support Data - The standard support documentation for Environmental Impact Statements (EIS) and other NEPA documents. Technical Support Data includes all the detailed information, assumptions, raw data from all of the technical studies (e.g., noise and air quality analyses), and calculations needed to support the conclusions in the NEPA document. The amount or extent of Technical Support Data depends upon the scope, complexity and the level of public interest in the project. The term Technical Support Data replaces the term "technical files" which was used in many of PennDOT's guidance documents. Preparation of Technical Support Data has reduced the need for preparing Technical Basis Reports.

Technical Proposal - A document submitted to PennDOT to describe the means by which a consultant firm proposes to carry out a specific work assignment. Tasks, workload, schedules, and documents to be produced are typically included therein.

Tracking - The means by which a project manager records data and measures the progress of a project; involves identifying targets and milestones, recording information at key steps to note the completion of defined tasks, the submission of documents, the status of review comments, the receipt of approvals, etc. Various Department data systems and personal computer programming assist tracking.

Traditional Solution - Typical engineering solutions meant to solve a transportation need, such as additional lanes, new signals or other traffic control devices, new roadways, etc.

Traffic Control Plan - A developed method or scheme for safely and efficiently moving traffic through or around a highway work zone.

Traffic Monitoring System for Highways - A systematic process for the collection, analysis, summary, and retention of highway related person and vehicular traffic data, including public transportation on public highways and streets.

Transcript - A typewritten record, usually prepared by a certified stenographer, providing a verbatim account of the official proceedings that take place at all Public Hearings and some Public Meetings.

Transit Assets - Public transportation facilities (e.g., maintenance facilities, stations, terminals, and transit related structures), equipment, and rolling stock.

Transportation Context - This area looks beyond the functional classification system which tends to place entire highways into a certain classification based on select characteristics. The Transportation Context includes a roadway typology that better captures the role of the roadway within the community, focusing more narrowly on access, mobility and speed. The five roadway typologies that define Transportation Context include (also see "Main Street"):

Roadway Class and Type	*Desired Operating Speed (mph)*	*Average Trip Length (mi)*	*Volume*	*Intersection Spacing (ft)*	*Comments*
Regional Arterial	30-55	15-35	10,000-40,000	660-1,320	Roadways in this category would be considered "Principal Arterial" in traditional functional classification.
Community Arterial	25-55	7-25	5,000-25,000	300-1,320	Often classified as "Minor Arterial" in traditional classification, but may include road segments classified as "Principal Arterial"
Community Collector	25-55	5-10	5,000-15,000	300-660	Often similar in appearance to a community arterial. Typically classified as "Major Collector."
Neighborhood Collector	25-35	<7	<6,000	300-660	Similar in appearance to local roadways. Typically classified as "Minor Collector."
Local	20-30	<5	<3,000	200-660	

Transportation Control Measures (TCM) - Also known as Travel Demand Management (TDM), TCMs focus on reducing the number of vehicles on a roadway by changing the behavior of motorists. The Clean Air Act Amendments of 1990 mandate consideration of certain TCMs as ways to reduce vehicle emissions in air quality non-attainment areas: for example, promoting the use of public transit, encouraging ridesharing and carpooling, and organizing employer-sponsored flexible work hour programs.

Transportation Improvement Program (TIP) - A long-range transportation plan established by the MPOs in each urbanized area which consists of a prioritized list of projects or project segments to be carried out within the next four years after adoption of the TIP. The TIP is updated every two years.

Transportation Management Area (TMA) - an urbanized area with a population over 200,000 (as determined by the latest decennial census) or other area when TMA designation is requested by the Governor and the MPO (or affected local officials), and officially designated by the Administrators of the FHWA and the Federal Transit Administration (FTA). The TMA designation applies to the entire metropolitan planning area(s).

Transportation Management Plan (TMP) - Describes a set of coordinated strategies and describes how these strategies will be used to manage the work zone impacts of a project during construction.

Transportation Operations Plan (TOP) - A plan that describes strategies used to address safety and mobility and includes Demand Management Strategies, Corridor/Network Management Strategies, Work Zone Safety Management Strategies and Traffic/Incident Management and Enforcement Strategies. Required as part of the Transportation Management Plan (TMP).

Transportation Policy Plan - A statement of goals, objectives and strategies by the Commonwealth - the people, governments and businesses in Pennsylvania and issued by PennDOT, regarding current and future statewide transportation by all modes, public and private, in compliance with the statewide transportation planning and programming requirements of the federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.

Transportation Project Delivery Process - PennDOT procedures for advancing a transportation improvement project from concept to routine maintenance which are divided into seven phases. The philosophy behind the process emphasizes the integration of engineering and environmental studies, and continuous coordination among Department offices, state and federal resource agencies, and the public. The ultimate goal is to select, design and construct the most reasonable, practical, cost-effective, technically sound, and environmentally sensitive transportation improvement option.

Transportation Systems Management (TSM) Alternative - TSM maximizes the utilization and efficiency of the present transportation system. This limited construction option is always evaluated when major urban area construction activities are proposed. Components of a TSM Alternative can include fringe parking, ridesharing, bus transfer facilities, traffic signal time optimization, high occupancy vehicle lanes, and other administrative or management strategies which facilitate the movement of people.

Transportation Systems Management and Operations (TSMO) - Way to address reliability, mobility, and congestion by using various strategies rather than just trying to build our way out.

TRANSYT 7-F - The most popular of the computerized tools used to analyze the traffic performance of a network of streets and highways. It is updated and maintained by the Federal Highway Administration. TRANSYT 7-F is also used to set the timing of a network of traffic signals in order to minimize delay to motorists.

Travel Demand Management (TDM) - Techniques and programs that focus on changing or reducing travel demand, particularly at peak commute hours, instead of increasing roadway supply.

Twelve-Year Program - The official prioritized listing, as adopted by PennDOT and the State Transportation Commission, of those transportation improvements identified for development and implementation in Pennsylvania during the upcoming 12 years. The plan, together with any additions or changes, is subject to review and re-adoption every two years.

U

Upgrade Alternative - A study alternative or a proposed action in which all proposed improvement efforts are focused within the corridor or land area of a facility that is already built. This alternative is examined and studied first, often in conjunction with a TSM Alternative, before other alignments that may be on a new location are considered.

Urban Area - An area having a Center City population of 50,000 or more as defined by the 2010 U.S. Census; may also include other major population concentrations where a systems planning study is deemed necessary.

V

Value Engineering - The identification of the function(s) of a contract item, establishing the cost of the function(s) (considering life cycle costs), and providing the required functions at the lowest cost with no reduction in required quality or performance.

W

Working Drawings - Required shop drawings, erection plans, false work plans, stress sheets, framework plans, cofferdam plans, bending diagrams for reinforcing steel, and any other supplementary plans or similar data, all prepared by the Contractor.

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APPENDIX C

FHWA/PENNDOT STEWARDSHIP & OVERSIGHT AGREEMENT

C.0 INTRODUCTION

The FHWA/PennDOT Stewardship & Oversight Agreement presents the current procedures for the administration of the Federal-aid Highway program in Pennsylvania. The general intent of the FHWA/PennDOT Stewardship & Oversight Agreement is to delegate much of FHWA's approval authority to PennDOT for certain preliminary engineering, construction contract administration, and right-of-way activities on or related to Federal-aid projects. The June 2015 FHWA/PennDOT Stewardship & Oversight Agreement replaces the August 2012 Stewardship & Oversight Agreement and any references to this agreement contained in any manual should now refer to the June 2015 FHWA/PennDOT Stewardship & Oversight Agreement.

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Federal – Aid Highways

Stewardship and Oversight Agreement

between

pennsylvania
DEPARTMENT OF TRANSPORTATION

and

U.S. Department of Transportation
Federal Highway Administration

June 1, 2015

TITLE 23, UNITED STATES CODE

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STEWARDSHIP AND OVERSIGHT AGREEMENT

ON PROJECT ASSUMPTION AND PROGRAM OVERSIGHT

BY AND BETWEEN

FEDERAL HIGHWAY ADMINISTRATION, PENNSYLVANIA DIVISION

AND THE

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

SECTION I. BACKGROUND AND INTRODUCTION

The Federal Highway Administration (FHWA) and the Pennsylvania Department of Transportation (PennDOT) hereby enter into this Stewardship & Oversight Agreement (S&O Agreement) for the purpose of administering the Federal-aid Highway Program (FAHP) in Pennsylvania. This Agreement clarifies the stewardship and oversight roles and responsibilities of both the FHWA and PennDOT in implementing the FAHP. The Agreement is intended to result in the efficient and effective management of public funds and to ensure that the FAHP is delivered consistent with laws, regulations, policies, and good business practice in Pennsylvania.

The FAHP is a federally-assisted program of State-selected projects. FHWA and the State Departments of Transportation have long worked as partners to deliver the FAHP in accordance with Federal requirements. In enacting 23 U.S.C. 106(c), as amended, Congress recognized the need to give the States more authority to carry out project responsibilities traditionally handled by FHWA. Congress also recognized the importance of a risk-based approach to FHWA oversight of the FAHP, establishing requirements in 23 U.S.C. 106(g). This Agreement defines select stewardship and approval roles for Federal-aid design and construction projects in Pennsylvania, and sets forth the roles and responsibilities of FHWA and PennDOT with respect to Title 23 project approvals and related responsibilities, and FAHP oversight activities.

The scope of FHWA responsibilities, and the legal authority for PennDOT assumption of FHWA responsibilities, developed over time. The U.S. Secretary of Transportation delegated responsibility to the Administrator of FHWA for the FAHP under Title 23 of the United States Code, and associated laws. (49 CFR 1.84 and 1.85) The following legislation further outlines FHWA's responsibilities:

- Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991;
- Transportation Equity Act for the 21st Century (TEA-21) of 1998;
- Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005; and
- Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012 (P.L. 112-141).

FHWA may not assign or delegate its decision-making authority to a State Department of Transportation unless authorized by law. Section 106 of Title 23, United States Code (Section

106), authorizes the State to assume specific project approvals. For projects that receive funding under Title 23, U.S.C., and are on the National Highway System (NHS) including projects on the Interstate System, the State may assume the responsibilities of the Secretary of the U.S. Department of Transportation under Title 23 for design, plans, specifications, estimates, contract awards, and inspections with respect to the projects unless the Secretary determines that the assumption is not appropriate. (23 U.S.C. 106(c)(1)) For projects under Title 23, U.S.C. that are not on the NHS, the State shall assume the responsibilities for design, plans, specifications, estimates, contract awards, and inspections unless the State determines that such assumption is not appropriate. (23 U.S.C. 106(c)(2))

For all other project activities which do not fall within the specific project approvals listed in Section 106 or are not otherwise authorized by law, the FHWA may authorize PennDOT to perform work needed to reach the FHWA decision point, or to implement FHWA's decision. However such decisions themselves are reserved to FHWA.

The authority given to PennDOT under Section 106(c)(1) and (2) is limited to specific project approvals listed herein. Nothing listed herein is intended to include assumption of FHWA's decision-making authority regarding Title 23, U.S.C. eligibility or Federal-aid participation determinations. The FHWA always must make the final eligibility and participation decisions for the Federal-aid Highway Program.

Section 106(c)(3) requires FHWA and PennDOT to enter into an agreement relating to the extent to which PennDOT assumes project responsibilities. This S&O Agreement includes information on specific project approvals and related responsibilities, and provides the requirements for FHWA oversight of the FAHP (Oversight Program), as required by 23 U.S.C. 106(g).

SECTION II. INTENT AND PURPOSE

The intent and purpose of this S&O Agreement is to document the roles and responsibilities of the FHWA's Pennsylvania Division Office and PennDOT with respect to project approvals and related responsibilities, and to document the methods of oversight which will be used to efficiently and effectively deliver the FAHP.

The purpose is to ensure adequate oversight for validating the obligation and expenditure of Federal funds. On the broader program level, this S&O Agreement acknowledges that FHWA and PennDOT are responsible for the effective and efficient use of Federal funds.

The Project Action Responsibility Matrix, Attachment A to this S&O Agreement and as further described in Section VIII of this S&O Agreement, identifies FHWA FAHP project approvals and related responsibilities State DOT assumes from FHWA on a program-wide basis pursuant to 23 U.S.C. 106(c) and other legal authorities. Upon execution of this agreement, Attachment A shall be controlling and except as specifically noted in Attachment A, no other agreements, attachments, or other documents shall have the effect of delegating or assigning FHWA approvals to State DOT on a program-wide basis under 23 U.S.C 106 or have the effect of altering Attachment A.

REFER TO DOCUMENT TITLED *"PROCEDURES FOR PROJECTS OF DIVISION INTEREST (PoDI) AND PENNDOT PROJECT OVERSIGHT IDENTIFICATION"* FOR IDENTIFICATION OF PROJECTS OF FHWA DIVISION INTEREST AND PENNDOT OVERSIGHT PROJECTS. On an annual basis, projects of division interest (PoDI) will be determined jointly by the FHWA and PennDOT, for stewardship and oversight activities.

SECTION III. ASSUMPTION OF RESPONSIBILITIES FOR FEDERAL-AID PROJECTS ON THE NATIONAL HIGHWAY SYSTEM

A. PennDOT *may assume* the FHWA's Title 23 responsibilities for design; plans, specifications, and estimates (PS&E); contract awards; and inspections, with respect to *Federal-aid projects on the National Highway System (NHS)* if both PennDOT and *FHWA* determine that assumption of responsibilities is appropriate. PennDOT may not assume responsibilities for high risk category interstate projects (23 U.S.C. 106(c)4). High risk categories are discussed in section IX of this guidance.

Refer to Section IV of this agreement for Assumptions of Responsibility for Federal-aid Projects Off of the National Highway System (non-NHS).

Refer to Section VI of this agreement for Areas of Assumption under 23 USC 106(c).

B. Approvals and related activities for which PennDOT has assumed responsibilities as shown in **Appendix A** will apply program wide unless project specific actions for which FHWA will carry out the approval or related responsibilities are documented in accordance with the FHWA Project of Division Interest/Project of Corporate Interest Guide (FHWA PoDI/PoCI Guide) located at: http://www.fhwa.dot.gov/federalaid/stewardship/

Refer to document titled "Procedures for Projects of Division Interest (PoDI) and PennDOT Project Oversight Identification" for additional information.

See Section VII for Federal approvals and related responsibilities that may not be assumed by PennDOT.

C. The State DOT may not assume responsibilities for Interstate projects that are in high risk categories. (23 U.S.C. 106(c)(1))

D. PennDOT is to exercise any and all assumptions of the Secretary responsibilities for Federal-aid projects on the NHS in accordance with Federal laws, regulations and policies.

It is agreed that PennDOT's assumption of certain responsibilities does not preclude FHWA access to and review of Federal-aid projects at any time, and that it does not replace the provisions of Title 23, U.S.C. with respect to the basic structure of the FAHP. FHWA continues to retain overall responsibility for all aspects of Federal-aid programs and, as such, shall be

granted full access to review any aspect or record of a Federal-aid project at any time. In matters concerning questionable eligibility for Federal participation in the programming, development, and construction of Federal-aid projects, PennDOT will consult with FHWA or FHWA may choose to become involved in determining eligibility.

SECTION IV. ASSUMPTION OF RESPONSIBILITIES FOR FEDERAL-AID PROJECTS OFF THE NATIONAL HIGHWAY SYSTEM

Project selection off the NHS will be risk-based and stewardship and oversight activities will be directed toward addressing the identified risks. This may include retaining certain project approvals or directing stewardship or oversight activities to a specific phase or element of the project. For PoDIs, the scope of a Division's stewardship and oversight activities, beyond any project approval actions retained by FHWA, will be tailored to the level of risk ascertained by the Division. For Projects of Corporate Interest (PoCIs), the scope of involvement will include the dedication of corporate resources to ensure the successful delivery of the project. Refer to document titled "Procedures for Projects of Division Interest (PoDI) and PennDOT Project Oversight Identification" for additional information.

A. PennDOT *shall assume* the FHWA's Title 23 responsibilities for design, PS&Es, contract awards, and inspections, with respect to *Federal-aid projects off the NHS (non-NHS)* unless *PennDOT* determines that assumption of responsibilities is not appropriate. (23 U.S.C. 106(c)(2))

B. Except as provided in 23 U.S.C.109(o), PennDOT is to exercise the Secretary's approvals and related responsibilities on these projects in accordance with Federal laws.

C. PennDOT, in its discretion, may request FHWA carry out one or more non-NHS approvals or related responsibilities listed as "PennDOT" in **Appendix A** on a program-wide basis. For a project specific request, PennDOT may request FHWA carry out any approval or related responsibility listed in **Appendix A** off the NHS. Such project-specific requests shall be documented in accordance with the FHWA PoDI/PoCI Guide.

D. Pursuant to 23 U.S.C. 109(o), non-NHS projects shall be designed and constructed in accordance with State laws, regulations, directives, safety standards, design standards, and construction standards.

It is agreed that PennDOT's assumption of certain responsibilities does not preclude FHWA access to and review of Federal-aid projects at any time, and that it does not replace the provisions of Title 23, U.S.C. with respect to the basic structure of the FAHP. FHWA continues to retain overall responsibility for all aspects of Federal-aid programs and, as such, shall be granted full access to review any aspect or record of a Federal-aid project at any time. In matters concerning questionable eligibility for Federal participation in the programming, development, and construction of Federal-aid projects, PennDOT will consult with FHWA or FHWA may choose to become involved in determining eligibility.

SECTION V. ASSUMPTION OF RESPONSIBILITIES FOR LOCALLY ADMINISTERED PROJECTS

PennDOT may permit local public agencies (LPAs) to carry out PennDOT's assumed responsibilities on locally administered projects. PennDOT is responsible and accountable for LPA compliance with all applicable Federal laws and requirements, and will provide the necessary reviews and approvals of projects that are developed and administered by local agencies to assure compliance with Federal requirements. PennDOT is responsible and accountable for ensuring compliance with Federal–aid requirements on Locally Administered Projects.

SECTION VI. PERMISSIBLE AREAS OF ASSUMPTION UNDER 23 U.S.C. 106(c)

FHWA and PennDOT must enter into this Agreement relating to the extent to which PennDOT assumes project responsibilities, as required by 23 U.S.C. 106(c)(3). An assumption of responsibilities under 23 U.S.C. 106(c) may cover only activities in the following areas:

A. Design, which includes preliminary engineering, engineering, and design-related services directly relating to the construction of a FAHP-funded project, including engineering, design, project development and management, construction project management and inspection, surveying, mapping (including the establishment of temporary and permanent geodetic control in accordance with specifications of the National Oceanic and Atmospheric Administration), and architectural-related services.

B. PS&E, which represents the actions and approvals required before authorization of construction. The PS&E package includes geometric standards, drawings, specifications, project estimates, certifications relating to completion of right-of-way acquisition and relocation, utility work, and railroad work.

C. Contract awards, which include procurement of professional and other consultant services and construction-related services to include advertising, evaluating, and awarding contracts.

D. Inspections, which include general contract administration, material testing and quality assurance, review, and inspections of Federal-aid contracts as well as final inspection/acceptance.

E. Approvals and related responsibilities affecting real property as provided in 23 CFR 710.201(i) and any successor regulation in 23 CFR Part 710.

SECTION VII. FEDERAL APPROVALS AND RELATED RESPONSIBILITIES THAT MAY NOT BE ASSUMED BY PENNDOT

A. Any approval or related responsibility not listed in Appendix A cannot be assumed by PennDOT without prior concurrence by FHWA Headquarters. The following is a list of

the most frequently-occurring approvals and related responsibilities that may not be assumed by PennDOT:

1. Civil Rights Program approvals;
2. Provide pre-approval for preventive maintenance activities outside the scope of the preventive maintenance agreements;
3. Environmental approvals, except those specifically assumed under other agreements. (23 U.S.C. 326 and 327; programmatic categorical exclusion agreements);
4. Federal air quality conformity determinations required by the Clean Air Act;
5. Approval of current bill and final vouchers;
6. Approval of federally-funded hardship acquisition, protective buying, and 23 U.S.C. 108(d) early acquisition;
7. Project agreements and modifications to project agreements and obligation of funds (including advance construction);
8. Planning and programming pursuant to 23 U.S.C. 134 and 135;
9. Special Experimental Projects (SEP-14 and SEP-15);
10. Use of Interstate airspace for non-highway-related purposes;
11. Any Federal agency approval or determination under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended, and implementing regulations in 49 CFR Part 24;
12. Waivers to Buy America requirements;
13. Approval of Federal participation under 23 CFR 1.9(b);
14. Requests for credits toward the non-Federal share of construction costs for early acquisitions, donations, or other contributions applied to a project;
15. Functional replacement of property;
16. Approval of a time extension for preliminary engineering projects beyond the 10-year limit, in the event that actual construction or acquisition of right-of-way for a highway project has not commenced;
17. Approval of a time extension beyond the 20-year limit for right of way projects, in the event that actual construction of a road on the right-of-way is not undertaken;
18. Determine need for Coast Guard Permit;
19. Training Special Provision – Approval of New Project Training Programs; and
20. Any other approval or activity not specifically identified in Appendix A unless otherwise approved by the FHWA, including the Office of Chief Counsel.

B. For all projects and programs, PennDOT will comply with Title 23 and all applicable non-Title 23, U.S.C. Federal-aid program requirements, such as metropolitan and statewide planning; environment; procurement of engineering and design related service contracts (except as provided in 23 U.S.C. 109(o)); Civil Rights including Title VI of the *Civil Rights Act*, and participation by Disadvantaged Business Enterprises; prevailing wage rates; and acquisition of right-of-way, etc.

C. This S&O Agreement does not modify FHWA's non-Title 23 program approval and related responsibilities, such as approvals required under the Clean Air Act; National

Environmental Policy Act, Executive Order on Environmental Justice (E.O. 12898), and other related environmental laws and statutes; the Uniform Act; and the Civil Rights Act of 1964 and related statutes.

SECTION VIII. PROJECT ACTION RESPONSIBILITY MATRIX

Appendix A, Project Action Responsibility Matrix, to this S&O Agreement identifies FAHP project approvals and related responsibilities. The Matrix specifies which approvals and related responsibilities are assumed by PennDOT under 23 U.S.C. 106(c) or other statutory or regulatory authority, as well as approvals and related responsibilities reserved to FHWA.

SECTION IX. HIGH RISK CATEGORIES

A. In 23 U.S.C. 106(c), Congress directs that the Secretary shall not assign any approvals or related responsibilities for projects on the Interstate System if the Secretary determines the project to be in a high risk category. Under 23 U.S.C. 106(c)(4)(B), the Secretary may define high risk categories on a national basis, State-by-State basis, or national and State-by-State basis.

B. The Division has determined there are no high risk categories.

SECTION X. FHWA OVERSIGHT PROGRAM UNDER 23 U.S.C. 106(G)

A. In 23 U.S.C. 106(g), Congress directs that the Secretary shall establish an oversight program to monitor the effective and efficient use of funds authorized to carry out the FAHP. This program includes FHWA oversight of the State's processes and management practices, including those involved in carrying out the approvals and related responsibilities assumed by the State under 23 U.S.C. 106(c). Congress defines that, at a minimum, the oversight program shall be responsive to all areas relating to financial integrity and project delivery.

B. FHWA shall perform annual reviews that address elements of PennDOT's financial management system in accordance with 23 U.S.C. 106(g)(2)(A). FHWA will periodically review PennDOT's monitoring of subrecipients pursuant to 23 U.S.C. 106(g)(4)(B).

C. The FHWA shall perform annual reviews that address elements of the project delivery systems of PennDOT, which elements include one or more activities that are involved in the life cycle of project from conception to completion of the project. The FHWA will also evaluate the practices of PennDOT for estimating project costs, awarding contracts, and reducing costs. 23 U.S.C. 106(g)(2) and (3).

D. To carry out the requirements of 23 U.S.C. 106(g), the FHWA will employ a risk management framework to evaluate financial integrity and project delivery, and balance risk with staffing resources, available funding, and the State's transportation needs. The FHWA may work collaboratively with PennDOT to assess the risks inherent with the

FAHP and funds management, and how that assessment will be used to align resources to develop appropriate risk response strategies.

Techniques the Division and PennDOT may use to identify and analyze risks and develop response strategies include the following:

- Program Assessments;
- FIRE Reviews;
- Program Reviews;
- Certification Reviews;
- Recurring or periodic reviews such as the Compliance Assessment Program (CAP); and
- Inspections of project elements or phases.
- Independent Oversight Program (IOP) reviews

These techniques will be carried out in a manner consistent with applicable Division Standard Operating Procedures or other control documents relating to program assessments, FIRE, program reviews, CAP, etc.

The following techniques and processes will be used to carry out the requirements of 23 U.S.C. 106(g):

1. Risk Assessment- FHWA and PennDOT will tri-annually perform joint risk assessments of various program areas for the purpose of prioritizing its program level oversight activities. This assessment will be jointly reviewed in the other years to determine if the risks identified have been addressed and no additional action is needed. The risk assessment will include identification of risk responses that FHWA and PennDOT will undertake either individually or jointly. The risk response strategies will include identification of program reviews of Federal-aid projects and PennDOT processes. These program reviews will be captured in the Independent Oversight Program.

2. Financial Integrity Review and Evaluation (FIRE) FHWA Order 4560.1C- The FIRE Program is an oversight program to ensure that Federal-aid funds are properly managed and effectively used in accordance with Federal policies, and that safeguards are in place to minimize fraud, waste, and abuse. The FIRE program includes Funds Management, Federal-aid billing, Major projects, Project authorization, Modification and Voucher, and Locally Administered Projects. The FIRE program is a consistent process for identification and prioritization of risk events, and identification of strategies for risk mitigation.

3. The Independent Oversight Program (IOP) - The IOP includes program reviews that are triggered by the joint risk assessment and/or by the performance indicators/measures that suggest a need for improvement, or as identified by general recurring reviews of programs and projects. In general, FHWA will use the IOP process to assess the capability and capacity of PennDOT in those areas where PennDOT has assumed FHWA's responsibilities. The IOP includes formal

procedures for conducting reviews, developing reports, and tracking resolution of findings and recommendations. The reviews are conducted to:

- Assess compliance with Federal requirements.
- Identify opportunities for greater efficiencies and improvements to the program.
- Identify exemplary best practices.
- Identify areas that need attention and make recommendations for improvement.

The number of reviews and the review topics are jointly established annually by FHWA and PennDOT and are based on the results and recommendations of the program assessment which includes a risk assessment analysis. Reviews may be initiated by both FHWA and PennDOT and are designed to include a multidisciplinary team from both agencies. Based on the outcome of the IOP, an action plan may be required to address the recommendations or corrective actions identified in the reviews. The action plan will be jointly monitored until the recommendations and corrective actions have been satisfactorily addressed. At the beginning of each FHWA performance year, FHWA will develop its schedule of reviews for the forthcoming year in coordination with PennDOT.

4. Compliance Assessment Program (CAP) – The CAP is to help provide reasonable assurance that Federal-aid highway projects comply with key federal requirements. The CAP helps provide this assurance by assessing a statistically valid sample of projects such that the results inform the FHWA, with an acceptable level of certainty, of the degree of compliance. The approach is objective, defensible, and will inform the development of Corporate and Unit risk assessments with statistically valid information and data. The CAP is one element of project stewardship and oversight and will supplement and strengthen the agency's movement toward being more data-driven and risk-based.

E. Program Responsibility Matrix

Appendix B to this S&O Agreement is the Program Responsibility Matrix that identifies all relevant FHWA program actions, and Division and PennDOT program contact offices.

F. Manual and Operating Agreements

PennDOT manuals, agreements and other control documents that have been approved for use on Federal-aid projects are listed in **Appendix C** to this S&O Agreement.

G. Non-Title 23 requirements such as the NEPA, and Section 4(f) apply to both NHS and Non-NHS Federal-aid projects, and FHWA will review and approve the applicable actions for all FHWA oversight and PennDOT oversight projects, except for those programmatically delegated to PennDOT, as defined in Appendix A. FHWA will also approve Right-of-Way (ROW) actions related to hardship and protective buying requests under the provisions of 23 CFR. Other Title 23 requirements (e.g., Metropolitan and

Statewide Planning) apply to both NHS and Non-NHS projects. In addition, applicable Title 23 requirements pertaining to contracts (for example, bid proposal content, including Davis Bacon, and DBE) and procurement procedures (competitive bidding, Brooks Act) apply regardless of whether the project is on or off the NHS.

SECTION XI. PENNDOT OVERSIGHT AND REPORTING REQUIREMENTS

The Project Action Responsibility Matrix included in **Appendix A** documents the roles and responsibilities of PennDOT on NHS projects for which PennDOT has assumed Section 106(c) responsibilities for design, PS&E, contract awards, and project inspections. Project actions for which PennDOT assumes defined approval authority in **Appendix A** are not subject to further approvals by FHWA on those specific items, unless PennDOT requests FHWA be involved or FHWA requests involvement for a particular project.

For non-NHS projects, this agreement provides that PennDOT assumes FHWA's specific Section 106(c) responsibilities unless PennDOT determines that such assumption is not appropriate. Additionally, this agreement provides that PennDOT is to exercise the Secretary's responsibilities on non-NHS projects with the expectation that PennDOT's actions will be based on Federal laws. This agreement provides that pursuant to 23 U.S.C. 109(o), non-NHS projects shall be designed and constructed in accordance with State laws, regulations, directives, safety standards, design standards, and construction standards. Documentation will be provided in the project files if PennDOT requests FHWA maintain 106(c) responsibilities on a non-NHS project.

It is agreed that PennDOT's assumption of certain responsibilities does not preclude FHWA access to and review of Federal-aid projects at any time, and that it does not replace the provisions of Title 23, U.S.C. with respect to the basic structure of the FAHP.

Nothing in this Agreement shall affect or discharge any responsibility or obligation of the FHWA under any Federal law other than Title 23, U.S.C. Such other Federal requirements include, but are not limited to, the National Environmental Policy Act (NEPA), Section 4(f) of the Department of Transportation Act of 1966, the Clean Air Act, the Clean Water Act, the Civil Rights Act of 1964, NHPA Section 106, Davis Bacon Act (40 U.S.C.), Brooks Act, Disadvantaged Business Enterprise (DBE) (49 CFR 26), and the Uniform Relocation Assistance and Acquisition Policies Act of 1970 as Amended (i.e., Uniform Act) (49 CFR 24).

A. PENNDOT OVERSIGHT AND REPORTING REQUIREMENTS

As provided for in Federal legislation, certain categories of Federal-aid projects are delegated to PennDOT for oversight responsibility. On PennDOT-oversight projects, PennDOT will act on behalf of the U.S. Secretary of Transportation and FHWA in the development and approval of projects in accordance with the provisions in this Agreement and applicable Federal regulations, with the expectation that it exercises similar judgment based on Federal laws, regulations, and FHWA policies.

The State DOT is responsible for demonstrating to the FHWA how it is carrying out its responsibilities in accordance with this S&O Agreement. In order to fulfill this responsibility, the State DOT will perform its oversight responsibilities in accordance with all the Manuals, Agreements and Operating Procedures contained in **Appendix C** of this Agreement.

B. ***PENNDOT OVERSIGHT OF LOCALLY ADMINISTERED PROJECTS***

PennDOT's oversight of LPA's is documented in Publication 740 – *Local Project Delivery Manual (LPDM)*. This manual describes PennDOT's role for communicating, educating, and validating Federal requirements with local public agencies. The processes in Publication 740 detail how PennDOT will provide management for the following:

- Sub-recipient processes for project management, (including staffing), adequate project delivery systems, and sufficient accounting controls.
- Sub-recipient awareness of Federal grant requirements, management of grants and sub-grants, and pass through entity responsibilities.
- Sub-recipient satisfactorily staffed and equipped to cost effectively perform work.
- Sub-recipient inspection to ensure their project is completed in conformance with approved plans and specifications.
- LPAs use of consultants for engineering services.
- Project actions administered in accordance with all applicable Federal laws and regulations.

Additionally, PennDOT understands the following responsibilities:

B.1. PennDOT is required to provide adequate oversight of sub-recipients including oversight of any assumed responsibilities PennDOT delegates to a LPA.

B.2. Pursuant to 23 U.S.C. 106(g)(4), PennDOT shall be responsible for determining that sub-recipients of Federal funds have adequate project delivery systems for locally administered projects and sufficient accounting controls to properly manage such Federal-aid funds. PennDOT is also responsible for ensuring compliance with reporting and other requirements applicable to grantees making sub-awards, such as monthly reporting requirements under the Federal Funding Accountability and Transparency Act of 2006, PL 109-282 (as amended by PL 110-252).

B.3. PennDOT acknowledges that it is responsible for sub-recipient awareness of Federal grant requirements, management of grant awards and sub-awards, and is familiar with and comprehends pass through entity responsibilities (2 C.F.R. 200.331 Requirements for Pass-thru Entities). PennDOT shall carry out these responsibilities using the following actions, programs, and processes:

PennDOT will ensure that sub-recipients are aware of federal requirements through routine project management and delivery. PennDOT Project managers at the District level maintain familiarity and utilize and comply with the new Publication 740 (*Local Project Delivery Manual*). PennDOT also meets routinely with larger sub-recipients to ensure projects are advancing in compliance with procedures. Publication 740 addresses all phases (planning thru construction) including roles and responsibilities, procedures for invoicing, payments to

contractors, records and documentation control, reimbursement agreements, audits, finalization and close-out.

B.4. PennDOT shall assess whether a sub-recipient has adequate project delivery systems and sufficient accounting controls to properly manage projects, using the following actions, programs, and processes:

PennDOT ensures delivery systems and accounting controls are adequate by virtue of complying with Publication 740, which requires PennDOT's review and approval of most elements of each phase of delivery. Publication 740 also includes flowcharts, tables, checklists and sample documents to ensure quality, consistency and compliance is achieved.

The use of PennDOTs Engineering and Construction Management System (ECMS) system and other electronic systems for the delivery of local projects will help ensure compliance with federal regulations. These programs and systems have built in processes that are identical to PennDOT's normal project delivery process. (LPDM Section 3.3)

B.5. PennDOT shall assess whether a sub-recipient is staffed and equipped to perform work satisfactorily and cost effectively, and that adequate staffing and supervision exists to manage the Federal project(s), by using the following actions, programs, and processes:

Publication 740 *Local Project Delivery Manual* clearly states the roles and responsibilities of both LPAs and PennDOT with regard to staffing skills and experience required to manage Federal Aid projects. (LPDM Section 3.0)

B.6. PennDOT shall assess whether sub-recipient projects receive adequate inspection to ensure they are completed in conformance with approved plans and specifications, by using the following actions, programs, and processes:

The manner in which the LPA plans to keep records and documentation of construction work must be approved by PennDOT. The LPA must adhere to PennDOT Publications and inspection requirements as detailed in Publication 740 *Local Project Delivery Manual*. (LPDM Section 3.6 and 7.2)

B.7. PennDOT shall ensure that when LPAs elect to use consultants for engineering services, the LPA, as provided under 23 CFR 635.105(b), shall provide a full-time employee of the agency to be in responsible charge of the project. PennDOT's process to ensure compliance with this requirement is documented by the following actions, programs, and processes:

Publication 740 *Local Project Delivery Manual* states that the LPA must provide a full-time employee of the agency to be in responsible charge of the project. (LPDM Section 3.0)

B.8. PennDOT shall ensure that project actions will be administered in accordance with all applicable Federal laws and regulations. PennDOT's processes on required approvals on sub-recipient projects are documented in Publication 740 *Local Project Delivery Manual,* Chapter 3. The oversight areas include:

a. Consultant selection and management;

b. Environment;

c. Design;

d. Civil Rights;

e. Financial management including audits and indirect cost allocation plans;

f. Right-of-way;

g. Construction monitoring, including Quality Control/Quality Assurance (QC/QA); and

h. Contract administration including PennDOT's responsibility to approve a sub-recipient to pursue a contract procurement method other than competitive bidding.

B.9. PennDOT's process for documentation for its oversight activities for LPA-administered projects and findings, and methods to share this information with the FHWA are provided in Publication 740 *Local Project Delivery Manual.*

Eligible public agencies (city, county, township) or other State agencies (Pennsylvania Turnpike Commission (PTC) and other toll facility owners/operators) may be permitted by PennDOT to take project approval actions and administer Federal-aid design and construction projects if they have jurisdiction over the roadway in accordance with 23 CFR 635 – *Construction and Maintenance.* The requesting public agency may develop procedures which modify and/or supplement the procedures contained in this Agreement or otherwise published by PennDOT, as long as the public agency procedures are approved by PennDOT and FHWA, and the agency certifies that it will operate in compliance with them. PennDOT is responsible for providing FHWA with documentation of the results of their quality assurance program relative to oversight activities of other public agencies.

SECTION XII. IMPLEMENTATION AND AMENDMENTS

This Agreement supersedes all previously executed Stewardship and Oversight Agreements between the FHWA and PennDOT. Upon execution, this S&O Agreement will apply immediately to all new Federal-aid projects and all existing Federal-aid projects under design. Federal-aid projects under construction will retain their current oversight designation through completion, unless FHWA and PennDOT mutually agree to change that designation.

A. This S&O Agreement will take effect as of the effective date of the signature of the FHWA Pennsylvania Division Administrator, who shall sign this S&O Agreement last.

B. FHWA and PennDOT agree that updates to this Agreement will be considered periodically on a case-by-case basis or when:

- Significant new legislation, Executive orders, or other initiatives affecting the relationship or responsibilities of one or both parties to the S&O Agreement occurs;
- Leadership, or leadership direction, changes at PennDOT or FHWA; or

- Priorities shift as a result of audits, public perception, or changes in staffing at either PennDOT or the Division Office.

C. FHWA and PennDOT agree that changes may occur to the contents of the Appendices to this S&O Agreement and documents incorporated by reference into the S&O Agreement. Except as provided in paragraph XII.D and E, changes to the Appendices and documents incorporated by reference will not require FHWA and PennDOT to amend this S&O Agreement. The effective date of any revisions to one of these documents shall be clearly visible in the header of the revised document. This Agreement and any revised document shall be posted on the FHWA Pennsylvania Division's S&O Agreement internet site within five (5) business days of the effective date.

D. Any changes to the high risk categories must be documented by an amendment to this S&O Agreement.

E. Any changes to the Project Action Responsibility Matrix must be approved by the FHWA Office of Infrastructure in writing and documented by an amendment to this S&O Agreement.

EXECUTION BY THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

Executed this 11th day of May, 2015.

Signature

Leslie Richards
Secretary of Transportation

EXECUTION BY THE FHWA PENNSYLVANIA DIVISION OFFICE

Executed this 26th day of May, 2015.

B. Renee Sigel

Signature

B. Renee Sigel
Division Administrator

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APPROVED AS TO LEGALITY
AND FORM

BY _____
for Chief Counsel DATE 5/12/2015

BY _____
Deputy General Counsel DATE 5/12/2015

BY _____
Deputy Attorney General DATE 5/19/15

PRELIMINARILY APPROVED

BY _____ 5/7/15
Assistant Counsel DATE

FUNDS COMMITMENT DOCUMENT #_____
CERTIFIED FUNDS AVAILABLE UNDER
SAP NO. _____
SAP COST CENTER_____
GL ACCOUNT_____
AMOUNT_____
BUDGET PERIOD 2014

BY N/A
for Comptroller Operations DATE

APPENDIX A – PROJECT ACTION RESPONSIBILITY MATRIX

The following matrix identifies Federal-aid highway program (FAHP) project approvals and related responsibilities on a program-wide basis. The matrix specifies which actions are assumed by the State under the provisions of 23 U.S.C. 106(c) or other statutory or regulatory authority, as well as those which are reserved to FHWA. Projects classified as PoDI[1] projects are not covered by the matrix, as those projects will be governed by a separate PoDI plan that specifies FHWA and State responsibilities for the project.

Actions marked with an asterisk ("FHWA*or PennDOT*") are those that FHWA has retained or require FHWA concurrence but that could have been assumed by the State through FHWA discretion (on the NHS) or by right (off the NHS). Projects requiring those actions are PoDI projects because of FHWA's retained authority or concurrence. Those projects will be governed by a separate PoDI Plan.

The State DOT is responsible for ensuring all individual elements of the project are eligible for FAHP funding, but all final eligibility and participation determinations are retained by FHWA.

[1] *The following are considered PoDI projects: Major Projects (>$500M); Appalachian Development Highway Projects; TIGER Discretionary Grant Projects; NHS Projects with Retained FHWA Project Approval; Non-NHS Projects with Retained FHWA Project Approval;* and *Projects Selected by FHWA for Risk-based Stewardship & Oversight.* Regardless of retained project approval actions, any Federal-aid Highway Project either on or off the NHS that the Division identifies as having an elevated level of risk can be selected for risk-based stewardship and oversight and would then be identified as a PoDI. Please see *"Projects of Division Interest (PoDI)/Projects of Corporate Interest (PoCI) Guidance (available at* http://www.fhwa.dot.gov/federalaid/stewardship/)

PROJECT ACTION RESPONSIBILITY MATRIX (as of June 1, 2015) (Excluding PoDIs, which are subject to separate PoDI Plans)		
ACTION	**AGENCY RESPONSIBLE**	
	PROJECTS ON THE NHS	**PROJECTS OFF THE NHS**
PROGRAMMING (All phases)		
Ensure project in Statewide Transportation Improvement Program (STIP)/Transportation Improvement Program (TIP)	PennDOT	PennDOT
Identify proposed funding category	PennDOT(1)	PennDOT(1)
FINANCIAL MANAGMENT (All phases)		
Obligate funds/approve Federal-aid project agreement, modifications, and project closures (project authorizations) (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Authorize current bill (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Review and Accept Financial Plan and Annual Updates for Federal Major Projects over $500 million [23 U.S.C. 106(h)] (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Review Cost Estimates for Federal Major Projects over $500 million [23 U.S.C. 106(h)] (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Develop Financial Plan for Federal Projects between $100 million and $500 million.[23 U.S.C. 106(i)]	PennDOT	PennDOT

ENVIRONMENT (All phases)		
All EA/FONSI, EIS/ROD, 4(f), 106, 6(f) and other approval actions required by Federal environmental laws and regulations. (Note: this action cannot be assumed by PennDOT except under 23 U.S.C. 327)	FHWA(2)	FHWA(2)
Categorical Exclusion approval actions (Note this action cannot be assumed by PennDOT except through an assignment under 23 U.S.C. 326 or 327, or through a programmatic agreement pursuant to Section 1318(d) of MAP-21 and 23 CFR 771.117(g))	FHWA(2)	FHWA(2)
PRELIMINARY DESIGN (Design Phase)		
Consultant Contract Selection	PennDOT(3)	PennDOT(3)
Sole source Consultant Contract Selection	PennDOT(3)	PennDOT(3)
Approve hiring of consultant to serve in a "management" role (Note: this action cannot be assumed by PennDOT) [23 CFR 172.9]	FHWA(4)	FHWA(4)
Approve consultant agreements and agreement revisions (Federal non-Major Projects) [23 CFR 172.9]	PennDOT	PennDOT
Approve consultant agreements and agreement revisions on Federal Major Projects [23 CFR 172.9] (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Approve exceptions to design standards [23 CFR 625.3(f)]	PennDOT(5,6)	PennDOT
Interstate System Access Change [23 USC 111] (Note: this action cannot be assumed by PennDOT)	FHWA	N/A

Interstate System Access Justification Report [23 USC 111] (Note: action may be assumed by PennDOT pursuant to 23 USC 111(e))	FHWA*	N/A
Airport highway clearance coordination and respective public interest finding (if required) [23 CFR 620.104]	PennDOT	PennDOT
Approve Project Management Plan for Federal Major Projects over $500 million [23 USC 106(h)] (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Approve innovative and Public-Private Partnership projects in accordance with SEP-14 and SEP-15 (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Provide pre-approval for preventive maintenance activities outside the scope of the preventive maintenance agreement (until FHWA concurs with PennDOT procedures) (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
DETAILED / FINAL DESIGN (Design Phase)		
Provide approval of preliminary plans for unusual/complex and other unusual bridges or structures on the Interstate. [23 USC 109(a) and FHWA Policy]	FHWA(7)	N/A
Provide approval of preliminary plans for unusual/complex and other unusual bridges or structures (non-Interstate) [23 USC 109(a) and FHWA Policy]	PennDOT(7)	PennDOT
Approve retaining right-of-way encroachments [23 CFR 1.23 (b) & (c)]	PennDOT	PennDOT

Approve use of local force account agreements [23 CFR 635.104 & 204]	PennDOT	PennDOT
Approve use of publicly owned equipment [23 CFR 635.106]	PennDOT	PennDOT
Approve the use of proprietary products, processes [23 CFR 635.411]	PennDOT	PennDOT
Approve use of warranty specifications (23 CFR 635.413)	PennDOT	PennDOT
Approve pavement design (23 CFR 626)	PennDOT	PennDOT
Concur in use of publicly furnished materials [23 CFR 635.407]	PennDOT	PennDOT
RIGHT-OF-WAY (Design and Operational Phases)		
Make feasibility/practicability determination for allowing authorization of construction prior to completion of ROW clearance, utility and railroad work [23 CFR 635.309(b)]	PennDOT*(8)	PennDOT*(8)
Make public interest finding on whether PennDOT may proceed with bid advertisement even though ROW acquisition/relocation activities are not complete for some parcels [23 CFR 635.309(c)(3)]	PennDOT*(8)	PennDOT*(8)
Ensure compliant ROW certificate is in place [23 CFR 635.309(c)]	PennDOT	PennDOT
Approve Hardship and Protective Buying [23 CFR 710.503] (If a Federal-aid project) (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Approve Interstate Real Property Interest Use Agreements [23 CFR 710.405] (Note: this action cannot be assumed by PennDOT)	FHWA	N/A

Approve non-highway use and occupancy [23 CFR 1.23(c)]	FHWA for Interstate PennDOT for Non-Interstate (9)	PennDOT(3)
Approve disposal at less than fair market value of federally funded right-of-way, including disposals of access control [23 U.S.C. 156] (Note: this action cannot be assumed by State)	FHWA	FHWA
Approve disposal at fair market value of federally funded right-of-way, including disposals of access control [23 CFR 710.409] (Note: 23 CFR 710.201 authorizes FHWA and PennDOT to agree to scope of property-related oversight and approvals for all actions except those on the Interstate System)	FHWA for Interstate PennDOT for Non-Interstate(3)	PennDOT(3)
Requests for credits toward the non-Federal share of construction costs for early acquisitions, donations or other contributions applied to a project (note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Federal land transfers [23 CFR 710, Subpart F] (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Functional replacement of property [23 CFR 710.509] (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
SYSTEM OPERATIONS AND PRESERVATION (Design Phase)		
Accept Transportation Management Plans (23 CFR 630.1012(b))	PennDOT	PennDOT
Approval of System Engineering Analysis (for ITS) [23 CFR 940.11]	PennDOT	PennDOT

PS&E AND ADVERTISING (Design Phase)		
Approve PS&E [23 CFR 630.201]	PennDOT	PennDOT
Authorize advance construction and conversions [23 CFR 630.703 & 709] (Note: this action cannot be assumed by PennDOT)	FHWA	FHWA
Approve utility or railroad force account work [23 CFR 645.113 & 646.216]	PennDOT	PennDOT
Approve utility and railroad agreements [23 CFR 645.113 & 646.216]	PennDOT	PennDOT
Approve use of consultants by utility companies [23 CFR 645.109(b)]	PennDOT	PennDOT
Approve exceptions to maximum railroad protective insurance limits [23 CFR 646.111]	PennDOT	PennDOT
Authorize (approve) advertising for bids [23 CFR 635.112, 309]	PennDOT(10)	PennDOT(10)
CONTRACT ADVERTISEMENT AND AWARD (Design Phase) **All contracts to be done by competitive bidding unless otherwise authorized by law**		
Approve cost-effectiveness determinations for construction work performed by force account or by contract awarded by other than competitive bidding [23 CFR 635.104 &.204]	PennDOT	PennDOT
Approve emergency determinations for contracts awarded by other than competitive bidding [23 CFR 635.104 &.204]	PennDOT	PennDOT
Approve construction engineering by local agency [23 CFR 635.105]	PennDOT	PennDOT
Approve advertising period less than 3 weeks [23 CFR 635.112]	PennDOT	PennDOT
Approve addenda during advertising period [23 CFR 635.112]	PennDOT	PennDOT
Concur in award of contract [23 CFR 635.114]	PennDOT	PennDOT

Concur in rejection of all bids [23 CFR 635.114]	PennDOT	PennDOT
Approval of Design-Build Requests-for-Proposals and Addenda [23 CFR 635.112]	PennDOT	PennDOT
CONSTRUCTION (Construction Phase)		
Approve changes and extra work [23 CFR 635.120]	PennDOT	PennDOT
Approve contract time extensions [23 CFR 635.120]	PennDOT	PennDOT
Concur in use of mandatory borrow/disposal sites [23 CFR 635.407]	PennDOT	PennDOT
Accept materials certification [23 CFR 637.207]	PennDOT	PennDOT
Concur in settlement of contract claims [23 CFR 635.124]	FHWA*	PennDOT
Concur in termination of construction contracts [23 CFR 635.125]	PennDOT	PennDOT
Waive Buy America provisions [23 CFR 635.410] (Note: this action cannot be assumed by State)	FHWA	FHWA
Final inspection/acceptance of completed work [23 USC 114(a)]	PennDOT	PennDOT
CIVIL RIGHTS (All phases)		
Approval of Disadvantaged Business Enterprise (DBE) Project Contract Goal set by the State DOT under 49 CFR 26.51(d). [49 CFR 26.51(e)(3)]	PennDOT	PennDOT

Acceptance of Bidder's Good Faith Efforts to Meet Contract Goal [49 CFR 26.53] or of Prime Contractor's Good Faith Efforts to Find Another DBE Subcontractor When a DBE Subcontractor is Terminated or Fails to Complete Its Work [49 CFR 26.53(g)] (Note: this action cannot be performed by the FHWA)	PennDOT	PennDOT
Equal Employment Opportunity (EEO) Contract Compliance Review [23 CFR Part 230, Subpart D]).	PennDOT	PennDOT
Training Special Provision – Approval of Project Goal for training slots or hours [23 CFR Part 230, Subpart A]	PennDOT	PennDOT
Training Special Provision – Approval of New Project Training Programs (Note: this action cannot be assumed by State) [23 CFR 230.111(d), (e)]	FHWA	FHWA

FOOTNOTES:

* Actions marked with an asterisk ("FHWA*or PennDOT*") are those that FHWA has retained or require FHWA concurrence but that could have been assumed by the State through FHWA discretion (on the NHS) or by right (off the NHS).

(1) PennDOT is responsible for ensuring that all individual elements of the project are eligible. FHWA will check that the scope of the project as described in submitted project agreement is eligible for the category of funding sought. All final eligibility and participation determinations are retained by FHWA.

(2) If there is a 23 U.S.C. 326 or 325 assignment or Programmatic Categorical Exclusion agreement, decisions are handled in accordance with those assignments or agreements.

(3) PennDOT's process and modifications to, or variation in process, require FHWA approval.

(4) FHWA approval is not required for 100% State-funded projects.

(5) Design criteria in Design Manual, Part 2 (DM-2) meets and in some cases exceeds the criteria in the AASHTO Green Book. For any designs on NHS projects that do not meet the criteria in DM-2, but conform to the minimum criteria in the AASHTO Green Book, a design exception is not required to be approved by FHWA, but will require PennDOT approval. PennDOT approves for State-funded projects

(6) For all Interstate projects, regardless of funding, PennDOT will submit a copy of approved design exceptions to FHWA.

(7) Unusual/Complex bridges and structures are those that the Division determines to have unique foundation problems, new or complex designs, exceptionally long spans, exceptionally large foundations, complex hydraulic elements, or that are designed with procedures that depart from currently recognized acceptable practices (i.e., cable-stay, suspension, arch, segmental concrete, moveable, truss, tunnels, or complex geotechnical walls or ground improvement systems)

(8) FHWA concurrence is required for all conditional ROW certifications.

(9) PennDOT will consult with FHWA for highly unusual circumstances (i.e. extended closures).

(10) PennDOT is still required to submit a fiscal project authorization (4232) for FHWA approval prior to advertisement.

APPENDIX B – PROGRAM RESPONSIBILITY MATRIX

Activity	Authority	Frequency	Due Date	FHWA HQ Program Office	FHWA Division Responsible Program Office	State DOT Responsible Program Office	Remarks
Appropriations, Allotments, Obligations	31 USC 1341(a)(1)(A)& (B); 31 USC 1517(a); 23 USC 118(b), 23 USC 121	As needed	Not Applicable	Office of Chief Financial Officer	Finance	CPDM (Center for Program Management and Development) (Program Center)	State will monitor appropriations, allotments and obligations to ensure that all funding is used efficiently within each quarter and use all Obligation Authority (OA) by the end of the year.
Approval of Indirect Cost Allocation Plans (ICAPs)	CFR 200 Subpart E ; ASMBC-10	As needed	Not Applicable	Office of Chief Financial Officer	Finance	BFM (Bureau of Fiscal Management)	The State will certify that the ICAP was prepared in accordance with 2 CFR 200 Subpart E.

[1] All actions taken on or after December 26, 2014, shall be governed by the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards in 2 CFR Part 200. Part 200 of 2 CFR supersedes 49 CFR Parts 18 and 19, and requirements from OMB Circulars A-21, A-87, A-110, and A-122 (which have been placed in OMB guidances); Circulars A-89, A-102, and A-133; and the guidance in Circular A-50 on Single Audit Act follow-up.

FIRE Program Activities	FHWA Order 4560.1C (or as superseded)	Ongoing		Office of Chief Financial Officer	Finance	CPDM/BFM	State will continue to provide oversight and conduct reviews to ensure Federal-aid compliance. FHWA will review and monitor. State responsibilities include multiple tasks in support of risk assessments, conducting reviews and implementation of recommendations.
Audit Coordination/FHWA Financial Statement Audit/State External Audit Reviews/State Internal Audit Reviews	FMFIA, 2 C.F.R. Part 200, Subpart F ; GAAP, CFO Act of 1990; DOT Order 8000.1C	As needed	Not Applicable	Office of Chief Financial Officer	Finance	BFM	State assures corrective action is taken to resolve audit findings and FHWA will monitor activities to ensure implementation.

Improper Payments Review	Improper Payments Information Act of 2002, PL 107-300, Improper Payments Elimination and Recovery Act of 2010, PL 111-204, Improper Payments Elimination and Recovery Improvement Act of 2012, PL 112-248	Annually		Office of Chief Financial Officer	Finance	BFM	State will provide all information necessary to document sampled payments and FHWA offices will review and complete appropriate data submittal forms.
Transfer of Funds between programs or to other FHWA offices or agencies as requested by State	23 USC 126, 23 USC 132, and FHWA Order 4551.1	As needed	Not Applicable	Office of Chief Financial Officer	Finance	CPDM	State will submit requests for transfer and FHWA approves and processes the funding transfers between programs, to other States, to other agencies, and to FHWA HQ, Federal Lands, or Research offices.

Reviews of State Transportation Departments Financial Management Systems - Financial Integrity	23 USC 106(g)(2)(A)	Annually	Not Applicable	Office of Chief Financial Officer	Finance	BFM	23 USC 106(g)(2)(A) states that the Secretary shall perform annual reviews that address elements of the State transportation departments' financial management systems that affect projects approved under subsection (a).
Review Adequacy of Sub-recipient Project Delivery Systems and Sufficient Accounting Controls to Manage Federal Funds	23 USC 106(g)(4)(A)(i)	As needed	Not Applicable	Office of Chief Financial Officer	Finance	BFM	
Periodic Reviews of States Monitoring of sub-recipients	23 USC 106(g)(4)(B)	As needed	Not Applicable	Office of Infrastructure	Finance	BFM	

Approval of Increased Federal Share Agreement (Sliding Scale)	23 USC 120(b)(2)	As determined by the Federal Share Agreement	Not Applicable	Office of Chief Financial Officer	Finance	BFM	A State must enter into an agreement with FHWA for use of the increased Federal share allowable under this section, which must be reviewed and updated periodically as agreed to in the agreement. States must demonstrate that they are in compliance with the statute and the agreement.
Prepare / Review Title VI Plan Accomplishments and Next Year's Goals	23 CFR 200.9(b)(10)	Annually	1-Oct	Office of Civil Rights	Civil Rights	BEO (Bureau of Equal Opportunity	Division office reviews and comments.
Prepare / EEO Contractor Compliance Plan accomplishments and next year's goals	23 CFR 230, Subpart C, Appendix A, Part I, III	Annually	1-Oct	Office of Civil Rights	Civil Rights	BEO	Division office reviews and comments.
Prepare / Review State Internal EEO Affirmative Action Plan (Title VII) Accomplishments and Goals	23 CFR 230.311	Annually	1-Oct	Office of Civil Rights	Civil Rights	BEO	Courtesy copy to HQ.
Review DBE Program Revisions	49 CFR 26.21(b)(2)	As needed	Not Applicable	Office of Civil Rights	Civil Rights	BEO	Division sends to HCR for review and approval as

Prepare / DBE Uniform Awards and Commitment Report	49 CFR 26, Appendix B	Semi-Annual	June 1st December 1st	Office of Civil Rights	Civil Rights	BEO	Division Office reviews and sends to HCR
Prepare / Annual Analysis and Corrective Action Plan (if necessary)	49 CFR 26.47(c)	Annual (as necessary)	December 31st	Office of Civil Rights	Civil Rights	BEO	Division Office approves sends copy to HCR
Prepare / State DBE Program Goals	49 CFR 26.45(f)(1)	Triennial	August 1st	Office of Civil Rights	Civil Rights	BEO	Division reviews and approves; HCC provides legal sufficiency review and approval sends copy to HCR
Prepare / Review On-the-Job-Training (OJT) goals & accomplishments	23 CFR 230.111(b)	Annually	TBA	Office of Civil Rights	Civil Rights	BEO	Division office reviews and comments.
Approval of OJT and DBE Supportive Services fund requests	23 CFR 230.113 & 23 CFR 230.204	Annual	TBA	Office of Civil Rights	Civil Rights	BEO	Division recommends approval submits to HCR for final approval
Return of any unused discretionary grant program funding	23 CFR 230.117(2)	Annual	TBA	Office of Civil Rights	Civil Rights	BEO	Division works with HCR and CFO
Prepare / Review of Report on Supportive Services (OJT & DBE)	23 CFR 230.113(g), 230.121(e), 230.204(g)(6)	Quarterly		Office of Civil Rights	Civil Rights	BEO	Division office reviews and comments.

Prepare / Review Annual Contractor Employment Report (Construction Summary of Employment Data (Form PR-1392)	23 CFR 230.121(a); Appendix D to Subpart A, Part 230, General Information and Instructions	Annually	1-Dec	Office of Civil Rights	Civil Rights	BEO	Recommendation sent to HQ for approval.
Prepare / Review State DOT Employment Statistical Data (EEO-4)	23 CFR, Subpart C, Appendix A	Biannual	1-Dec	Office of Civil Rights	Civil Rights	BEO	Report sent to HQ quarterly for informational purposes and recommendation sent to HQ annually for approval.
Prepare / Review Annual Federal Projected Awards Reports - Historically Black Colleges & Universities/Tribal Colleges & Universities/Hispanic Serving Institutes, American Indian Alaskan Native, Asian Pacific & American Islander.	Presidential Executive Orders: 13230, 13256,13270, 13361, 13515	Annual	TBA	Office of Civil Rights	Civil Rights	BEO	Divisions submit data to HCR who prepares report for DOCR
Prepare / Review ADA Complaint Reports of Investigation	28 CFR 35.190	As needed	Not Applicable	Office of Civil Rights	Civil Rights	BEO	Division office reviews, FHWA HQ approves and issues finding.
Review Americans with Disabilities Act (ADA) /Sec. 504 Program Plan	49 CFR 27.11(c), EO 12250	Annually	1-Oct	Office of Civil Rights	Civil Rights	BEO	Division office reviews and comments.

accomplishments and next year's goals							
Return of unexpended funds used for Summer Transportation Institutes	23 CFR 230.117(2)	Annual	August 30; however, State procurement rules may govern	Office of Civil Rights	Civil Rights	BEO	Divisions work with HCR and CFO
Prepare / Review Request for National Summer Transportation Institute (NSTI) Proposals (SOWs)	23 USC 140(b)	Annual	TBA	Office of Civil Rights	Civil Rights	BEO	Divisions recommend approval. HCR gives final approval
Prepare / Review NSTI Report (questionnaire)	23 USC 140(b)	Annual	October 15th	Office of Civil Rights	Civil Rights	BEO	Divisions provide to HCR
Receipt of State Consultation Process with Tribal Governments	23 CFR 450.210(c)	As needed	Not Applicable	Office of Federal Lands Highway		BOPD (Bureau of Project Delivery)	Informational Purposes.
Approval of Contracting Procedures for Consultant Selection	23 CFR 172.5 & 172.9	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval.

Determination of High Risk Categories - Limitation on Interstate Projects	23 USC 106(c)(4)(B)	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	Office of Program Administration determines national categories and must concur on any State designations.
Approval of State 3R Program	23 CFR 625.4(a)(3), 23 USC 109(n)	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval.
Verify adoption of Design Standards (National Highway System, including Interstate)	23 CFR 625, 23 USC 109(b), 23 USC 109(c)(2), 23 USC 109(o)	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA HQ regulatory action to adopt NHS standards.
Approval of preliminary plans of Major and Unusual Bridges on the Interstate Highway System	(M1100.A)	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	Director of HIBT has approval of preliminary plans of Major and Unusual Bridges on the Interstate Highway System (M1100.A)
Approval of State Standard Specifications	23 CFR 625.3	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval.
Verify State Design Exception Policy complies with FHWA Policy	23 CFR 625.3	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval.
Approval of State Standard Detail Plans	23 CFR 625.3	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval.
Approval of Pavement Design Policy	23 CFR 626.3	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	FHWA Division Office Approval.

Review of Value Engineering Policy and Procedures	23 CFR 627.1(b)&(c), 23 CFR 627.7 FHWA Order 1311.1B	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Review.
Review of Value Engineering Annual Report	23 CFR 627.7, FHWA Order 1311.1B	Annual	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office collects, reviews, and submits to HQ for review and reporting.
Review and Approval of Interstate Access Requests	23 USC 111, 23 CFR 710, 74 FR 43743-43746 (Aug. 27, 2009)	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office approval with concurrence from HQ on more complex access requests.
Approval of Liquidated Damages Rate for CELDs	23 CFR 635.127	Every 2 years	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval.
Approval of Quality Assurance Program	23 CFR 637.205	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	State administers, with programmatic agreement by the Division Office, as part of their materials testing and construction quality assurance/acceptance program.

Assure Central Laboratory accredited by AASHTO Accreditation Program or FHWA approved comparable program	23 CFR 637.209	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	State administers, with programmatic agreement by the Division Office, as part of their materials testing and construction quality assurance/acceptance program.
Assure Non-STD designated lab performing Independent Assurance sampling and testing accredited by AASHTO Accreditation Program or FHWA approved comparable program	23 CFR 637.209	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	State administers, with programmatic agreement by the Division Office, as part of their materials testing and construction quality assurance/acceptance program.
Assure Non-STD designated lab used in dispute resolution accredited by AASHTO Accreditation Program or FHWA approved comparable program	23 CFR 637.209	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	State administers, with programmatic agreement by the Division Office, as part of their materials testing and construction quality assurance/acceptance program.
Review Independent Assurance Annual Report	23 CFR 637.207	Annually	1-Mar	Office of Infrastructure	Technical Services Team	BOPD	State administers, with programmatic agreement by the Division Office, as part of their materials testing and construction quality

							assurance/acceptance program.
Assure Labor Compliance - Prevailing Wage Rate	23 USC 113	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Review and Approval
Determination of Eligible Preventive Maintenance Activity - Cost-Effective Means of Extending Useful Life Determination	23 USC 116(e)	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval
Approval of Utility Agreement / Alternate Procedure	23 CFR 645.119	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval
Approval of Utility Accommodation Policy	23 CFR 645.215, 23 USC 109(l), 23 USC 123	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	FHWA Division Office Approval
Review Bridge Construction, Geotechnical, and Hydraulics	23 CFR 650	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	

Review Plans of Corrective Action established to address NBIS compliance issues	23 CFR 650, 23 USC 144	Annually		Office of Infrastructure	Technical Services Team	BOPD	Division office performs annual compliance review and reports results to HQ.
Review NBI Data Submittal	23 CFR 650 Subpart C, Annual Memo from HQ, 23 USC 144	Annually	1-Apr	Office of Infrastructure	Technical Services Team	BOPD	Division resolve errors with States; States submit to HQ.
Review structurally deficient bridge construction Unit Cost submittal	23 USC 144	Annually	1-Apr	Office of Infrastructure	Technical Services Team	BOPD	Submit to HQ.
Review Section 9 of the Rivers and Harbors Act Submittals (Bridge Permits)	23 CFR 650 Subpart H; 33 CFR 114 & 115	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	
Approval for reduction of expenditures for off-system bridges	23 USC 133(g)(2)(B)	As needed	Not Applicable	Office of Infrastructure	Technical Services Team	BOPD	The FHWA Administrator may reduce the requirement for expenditures for off-system bridges if the FHWA Administrator determines that the State has inadequate needs to justify the expenditure.

Determination on Adequacy of State's Asset Management Plan	23 USC 119(5)	Annually beginning second fiscal year after establishment of the process		Office of Infrastructure	Technical Services Team	BOMO	
Certification and Recertification of States Process for Development of State Asset Management Plan	23 USC 119(6)	Recertification every four years after establishment of the process		Office of Infrastructure	Technical Services Team	BOMO	
Review Reporting on Performance Targets	23 USC 150(e)	Beginning four years after enactment of MAP-21 and biennially thereafter		Office of Infrastructure	Technical Services Team	CPDM	
Review National Highway System Performance Achievement Plan for Actions to achieve the targets (when State does not achieve or make significant progress toward achieving)	23 USC 119(7)	Required if State does not achieve targets (or significant progress) for 2 consecutive reports		Office of Infrastructure	Technical Services Team	CPDM	

States and sub-recipient failure to maintain projects - Notice and withholding Federal-aid Funds	23 USC 116(d)	As needed	Not Applicable	Office of Infrastructure	Division Administrator	CPDM	
Emergency Relief (ER) Damage Assessments and Reports	23 CFR 668 23 USC 120 and 125	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOMO	Perform with State.
Toll Credit and Maintenance of Effort (MOE) Calculation and Agreement	23 USC 120(i)	Annually		Office of Infrastructure	Finance Team	CPDM (Center for Program Development and Management)	State will calculate the amount of eligible toll credit and submit for approval. FHWA will review and approve the request.
Local Public Agency (LPA) Oversight	2 CFR 200.331 ; 23 USC 106(g)(4)	As needed	Not Applicable	Office of Infrastructure	Operations Team	BOPD	States are responsible to ensure that LPAs are aware of all the applicable Federal-aid Program requirements; States are responsible to ensure monitoring and oversight to assure compliance with Federal requirements. 23 USC further reinforces stressing accountability on "project delivery systems" and "accounting controls."

Approval to Sell, Lease or Otherwise Dispose of a Ferry Purchased with Federal-aid Funds	23 USC 129 (c)(6)	As needed	Not Applicable	Office of Infrastructure	Operations Team	CPDM	Division Office reviews and submits for Office of Program Administration for Administrator Approval
Territorial Highway Program - Approval of Territory Agreement	23 USC 165(c)(5)	Reviewed and Revised as needed every two years		Office of Infrastructure	N/A	N/A	
TIFIA Credit Program	23 USC 601-609	As needed	Not Applicable	Office of Innovative Program Delivery	Finance Team	CPDM	Project sponsors submit requests for credit assistance to the TIFIA JPO for review; approval by the Secretary
GARVEEs	23 USC 122; GARVEE Guidance 3/14	As needed	Not Applicable	Office of Innovative Program Delivery	Finance Team	CPDM	MOUs strongly suggested for each GARVEE issue. FM contacts OIPD for review/concurrence before final approval
State Infrastructure Banks	NHS Act Section 308; 23 USC 610; SIB Guidance 3/14	Annual Report	Not Applicable	Office of Innovative Program Delivery	Finance Team	CPDM	Division sends copy of report to OIPD. SIB submits annual report to Division Office.
Section 129 Tolling Authority Requests	23 USC 129(a)	As needed	Not Applicable	Office of Innovative Program Delivery	Finance Team	TBD	At the option of the project sponsor, may execute a Tolling Eligibility MOU with the Division Office; HIN coordinates FHWA HQ review

Section 166 HOV/HOT Lanes Tolling Authority Requests	23 USC 166(d)	As needed	Not Applicable	Office of Innovative Program Delivery	Finance Team	TBD	At the option of the project sponsor, may execute a Tolling Eligibility MOU with the Division Office; HIN coordinates FHWA HQ review
Value Pricing Pilot Program Tolling Authority Requests	ISTEA Section 1012(b)	As needed	Not Applicable	Office of Innovative Program Delivery	Technical Services Team	TBD	Requests submitted to HIN to coordinate review; approval by the Administrator
Interstate System Reconstruction and Rehabilitation Pilot Program Tolling Authority Requests	TEA-21 Section 1216(b)	As needed	Not Applicable	Office of Innovative Program Delivery	Technical Services Team	TBD	Applications submitted to HIN to coordinate review; approval by the Administrator
Annual Audit of Toll Facility Records and Certification of Adequate Maintenance - Report Submittal	23 USC 129(a)(3)(B); TEA-21 Section 1216(b)(5)(B); SAFETEA-LU Section 1604(b)(3)(A); ISTEA Section 1012(b)(3)	Annually		Office of Innovative Program Delivery	Finance Team	TBD	Division Office to receive the reports.
Project Management Plan (Major Projects)	23 U.S.C. 106(h)(2)	Prior to first federal authorization of construction funds for a Major Project	Not Applicable	Office of Innovative Program Delivery	Operations Team. Division Office will conduct concurrent review with HQ Office of Innovative Program Delivery.	PennDOT or Project Sponsor will prepare and submit Project Management Plan.	Division Office will provide approval after receiving concurrence from HQ Office of Innovative Program Delivery.

Financial Plan (Major Projects)	23 U.S.C. 106(h)(3)	Prior to first federal authorization of construction funds for a Major Project and then annually.	Annually as noted in the approved Initial Financial Plan	Office of Innovative Program Delivery	Operations Team. Division Office will conduct concurrent review with HQ Office of Innovative Program Delivery.	PennDOT or Project Sponsor will prepare and submit annual Financial Plans.	Division Office will provide approval after receiving concurrence from HQ Office of Innovative Program Delivery.
Financial Plan (Other Projects)	23 U.S.C. 106(i)	Prior to first federal authorization of construction funds for an Other Project and then annually.	Annually as noted in the approved Initial Financial Plan	Office of Innovative Program Delivery	Operations Team. Division Office will review and approve Financial Plans for Other Projects in accordance with its stewardship and oversight agreement with the State DOT or Project Sponsor.	PennDOT or Project Sponsor will prepare and submit annual Financial Plans to the Division Office, only upon request.	Other Projects are defined as projects with an estimated total cost of $100 million or more that have not been designated as Major Projects.
Review Designation and Re-designation of Primary Freight Network	23 USC 167(d)	One year after enactment of MAP-21 and every ten years thereafter		Office of Operations	Program Development Team	CPDM	Under development, initial PFN designation scheduled for Spring 2014 completion.

Review Development and Update of National Freight Strategic Plan	23 USC 167(f)	Three years after enactment of MAP-21 and every five years thereafter		Office of Operations	Program Development Team	CPDM	OST lead
Review Freight Transportation Conditions and Performance Report	23 USC 167(g)	Two years after enactment of MAP-21 and every two years thereafter		Office of Operations	Program Development Team	CPDM	OST lead
Review HOV Operations Report for Tolled Use and Low-Emission and Energy-Efficient Vehicle Use	23 USC 166(d)	Annually		Office of Operations	Technical Services Team	TBD	
Congestion Partnerships Assessment	Annual Memo from HQ	Annually	1-Jul	Office of Operations	Technical Services Team	BOMO	Complete with partners and forward to HQ.
Traffic Incident Management Self-Assessment	Annual Memo from HQ	Annually	1-Jul	Office of Operations	Technical Services Team	BOMO	Complete with partners and forward to HQ.

Work Zone Self-Assessment	Annual Memo from HQ	Annually	7/1/2013, This project is currently on hiatus and has not been determined whether it will be reestablished or not.	Office of Operations	Technical Services Team	BOMO	Complete with partners and forward to HQ.
Approval of State-Prepared Manual on Uniform Traffic Control Devices - State Traffic Control Manuals	23 CFR 655.603, 23 USC 109(d)	As needed	Not Applicable	Office of Operations	Technical Services Team	BOMO	
Review Vehicle Size & Weight Enforcement Plan	23 CFR 657.11, 23 USC 127	Annually	1-Oct	Office of Operations	Program Development Team	BOMO	
Review Vehicle Size & Weight Enforcement Certification	23 CFR 657.13, 23 USC 141	Annually	1-Jan	Office of Operations	Program Development Team	BOMO	
Approval of National Network Modifications	23 CFR 658.11	As needed	Not Applicable	Office of Operations	Program Development Team	BOMO	
Intelligent Transportation System Architecture & Standards	23 CFR Part 940	As needed	Not Applicable	Office of Operations	Technical Services Team	BOMO	
Approval of Work Zone Significant Project Determination	23 CFR 630.1010	As needed		Office of Operations	Technical Services Team	BOMO	

Approval of Exceptions to Work Zone Procedures for Interstate Projects	23 CFR 630.1010	As needed		Office of Operations	Technical Services Team	BOMO	
Approval of Work Zone Policy and Procedures Conformance Review	23 CFR 630.1014	At appropriate intervals		Office of Operations	Technical Services Team	BOMO	
Process Review of Work Zone Safety and Mobility Procedures	23 CFR 630.1008, 23 USC 109(e)(2), 23 USC 112(g)	Every 2 years		Office of Operations	Technical Services Team	BOMO	
Approval of State Planning Work Program and Revisions (Part 1)	23 CFR 420.111, 23 CFR 420.115, and 23 CFR 420.209	Annually	Prior to Program Period	Office of Planning, Environment & Realty	Program Development Team	BPR (Bureau of Planning and Research)	FHWA Division Office Approval.
Approval of State Research and Development Work Program (Part 2)	23 CFR 420.111, 23 CFR 420.115, and 23 CFR 420.209	Annually	Prior to Program Period	Office of Planning, Environment & Realty	Program Development Team	BPR	FHWA Division Office Approval.
Approval of State's Distribution of Planning Funds Formula - Allocation Formulas for PL Funds	23 CFR 420.109, 23 USC 104(d)(2)(A)(i)	When Revised	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BPR	FHWA Division Office Approval.
Review of State Public Involvement Procedures	23 CFR 450.210(a)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	FHWA Division Office Review to Assure Compliance.
Receipt of State Consultation Process for Non-metropolitan Local Officials	23 CFR 450.210(b)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Informational Purposes.

Review of Long-range Statewide Transportation Plan	23 CFR 450.214	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	FHWA Division Office Review to Assure Compliance.
Approval of Statewide Transportation Improvement Program (STIP)	23 CFR 450.216, 23 CFR 450.218(a) & (c), 23 USC 135(g)(7)	At least every 4 years	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Joint FHWA and FTA approval.
Approval of STIP Amendments	23 CFR 450.218(a) & (c)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Joint FHWA and FTA approval.
Finding of Consistency of Planning Process with Section 134 and 135	23 USC 135(g)(8), 23 CFR 450.218(b)	Concurrent with STIP approval	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	FHWA and FTA issue a joint finding concurrent with STIP approval.
Review of State Self-certification that Planning Process is in Accordance with Applicable Requirements	23 CFR 450.218(a)	Submitted with proposed STIP or STIP amendments	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Received with STIP.
Approval of Transportation Management Area (TMA) MPO Unified Planning Work Programs (UPWP)	23 CFR 450.308(b) and 23 CFR 420 (Subpart A)	Prior to Program End	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	
Approval of Non-TMA UPWA	23 CFR 450.308(b) and 23 CFR 420 (Subpart A)	Prior to Program End	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	May use simplified work statement.

Approval of UPWP Revisions and Amendments (All MPO's)	23 CFR 420.115	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	
Review of UPWP Performance and Expenditure Reports (All MPO's)	23 CFR 420.117(b)	Not more frequently than quarterly	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	
Approval of Report Before Publication (All MPO's)	23 CFR 420.117(e)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Waiver may be granted.
Approval to use Planning Funds outside Urbanized Areas for States Receiving Minimum Apportionment	23 USC 104(d)(1)(A)(ii)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	
Review of Metropolitan Planning Area Boundary (Establishment and Changes)	23 CFR 450.312	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Approval by MPO and the Governor, shape files forwarded to HQ. (Comment: No action is required by FHWA/FTA).
Review of Metropolitan Transportation Planning Organizations (MPO) Designation and Re-designation	23 CFR 450.310	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Require agreement between Governor and local governments.

Review of Metropolitan Planning Agreements (MPA) for Attainment or Entire Nonattainment Area	23 CFR 450.314(a)	When Completed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Between MPO/State DOT/Transit Operator. Included in UPWP or Prospectus (23 CFR 450.314(d)).
Review of MPA - for MPA that do not include the entire nonattainment or maintenance area	23 CFR 450.314(b), 23 USC 109(j)	When Completed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Between MPO/State DOT/State AQ Agency.
Review of MPO Public Participation Procedures	23 CFR 450.316(a)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Must be developed and published.
Review of Metropolitan Transportation Plan (MTP) in Attainment Areas (and Updates)	23 CFR 450.322	Every 4 years	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	
Review of MTP in Non-Attainment and Maintenance Areas (and Updates)	23 CFR 450.322	Every 5 years	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	
Review of MTP Amendments	23 CFR 450.322(c)	As Needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	

Air Quality Conformity Determination on LRTP in Non-attainment and Maintenance Areas	23 CFR 450.322(d)	Concurrent with LRTP updates at least every 4 years and as needed on amendments	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	After receipt of MPO determination; Joint FHWA and FTA determination; In consultation with the Environmental Protection Agency (EPA).
Review of Transportation Improvement Program (TIP)	23 CFR 450.300(a); 23 CFR 450.324(b); 23 CFR 450.328(a), 23 USC 134(j)(1)(D)	Prior to Program Period	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	No succinct Federal approval action is required for the TIP. FHWA/FTA approval of the TIP is through the STIP approval process.
Review of TIP Amendments	23 CFR 450.324(a); 23 CFR 450.328(b)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	No succinct Federal approval action is required for the TIP. FHWA/FTA approval of the TIP is through the STIP approval process.
Approval of Air Quality Conformity Determination on TIP	23 CFR 450.326; 23 CFR 450.328	At least every 4 years, or when the TIP has been modified (unless exempt projects)	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Applies to non-attainment and maintenance areas only. After receipt of MPO determination, joint determination with FTA (in cooperation with EPA).
Federal Finding of Consistency of Planning Process with Section 134 and 135	23 CFR 450.218(b); 23 CFR 450.334(a)	Concurrent with (S)TIP submittal	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	At least every four years, joint finding with FTA when TIP is submitted.

In Metropolitan Planning Areas, Review of State and MPO Self-certification that Planning Process is in Accordance with Applicable Requirements	23 CFR 450.334 (a), 23 CFR 218(a)	Annually or concurrent with the STIP/TIP cycle	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	CPDM	Required for all MPO's. May be included in the STIP, TIP, or UPWP, at least every 4 years.
In TMA's, Certification that Planning Process is in Accordance with Applicable Requirements	23 CFR 450.334(b), 23 USC 134(k)(5)	Every 4 years		Office of Planning, Environment & Realty	Program Development Team	CPDM	Joint FHWA and FTA Certification.
Approval of Federal-Aid Urban Area Boundaries	23 CFR 470.105 (a), 23 USC 101(a)(33)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOMO	
Approval of Revision of Functional Classification	23 CFR 470.105 (b)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOMO	
Approval by Administrator of Interstate Additions & Revisions	23 USC 103(c)(1)(D), 23 CFR 470.111, 23CFR 470.115 (a)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOMO	Approval by HQ – Administrator.
Approval by Office Director of National Highway System (NHS) Additions and Revisions	23 USC 103(b)(3), 23 CFR 470.113 and 470.115(a)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOMO	Approved by HQ - Office Director.

Review of CMAQ Annual Report	CMAQ Guidance Memo October 31, 2006	Annually	1-Mar	Office of Planning, Environment & Realty	Program Development Team	CPDM	Division provides information on CMAQ projects including: amount of obligation, project description and location, and air quality benefits. The report must be submitted via the web-based CMAQ Tracking System.
Transportation Planning Excellence Awards		Annually	1-Feb	Office of Planning, Environment & Realty	Program Development Team	BPR	Call for entries for the FHWA FTA Transportation Planning and Excellence Awards.
Approval of Local Technical Assistance Program (LTAP) Centers Work Plan and Budget	FHWA LTAP Field Manual	Annually	31-Mar	Office of Planning, Environment & Realty	Operations Team or Program Development Team	BPR	FHWA HQ approval.
Approval of Public Involvement Program Procedures	23 CFR 771.111(h), 23 USC 128	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of NEPA Procedures, including Section 4(f)	23 CFR 771; 23 CFR 774; SAFETEA-LU 6007 & 6009, 23 USC 109(h)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Noise Policies	23 CFR 772.7, 772.9, and 772.13, 23 USC 109(i)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	FHWA approves State' noise abatement policy.

EIS Status Updates	FHWA Strategic Goal - EIS Timeliness	Quarterly	(Fiscal Year - Oct, Jan, Apr, Jul)	Office of Planning, Environment & Realty	Program Development Team	BOPD	Monitor time required to complete EIS's. Determine projects which have exceeded recommended timeline (3 years). Identify projects which should be listed as dormant. Submit to HEPE.
Endangered Species Act Cost Report		Annually	1-Mar	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Exemplary Ecosystem Initiatives Applications		Annually	1-Apr	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Acquisitions, Appraisals, and Relocations Program and Procedures	49 CFR Part 24, The UA	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Early Acquisitions	23 CFR 710.501	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Local Public Agency Oversight	49 CFR 24.4(b); 23 CFR 710.201	As needed	Not Applicable	Office of Planning, Environment & Realty	Operations Team	BOPD	
Approval of Highway Facility Relinquishment	23 CFR 620.203	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	

Approval of ROW Disposal Authorization Request	23 CFR 710.409	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team and Operations Team	BOPD	
Approval of ROW Operations Manual (Organization, Policies and Procedures), Updates, and Certification	23 CFR 710.201	January 1, 2001 and every 3 years thereafter or as required by changes in State law or Federal regulation or law	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Exception to Charging Fair Market Value	23 CFR 710.403 and 23 CFR 710.409	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Interstate Real Property Use Agreements	23 CFR 710.405	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Request for Federal Land Transfer	23 CFR 710.601	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Request for Direct Federal Acquisition	23 CFR 710.603	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	

Approval of Outdoor Advertising Policies and Procedures, and Regulation and Procedure Approval	23 CFR 750.304, 23 CFR 750.705, 23 USC 131	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Requests to Exempt Certain Nonconforming Signs, Displays, and Devices	23 CFR 750.503	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Railroad Agreement Alternate Procedure	23 CFR 646.220	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	
Approval of Uniform Act Waivers and Waivers from Availability of Comparable Replacement Dwelling before Displacement	49 CFR 24.7, 49 CFR 24.204(b)	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BOPD	Requests reviewed and approved by HEPR Office Director.
Review of Uniform Relocation Assistance & Real Property Acquisition Report -(OMB Form 2125-0030)	49 CFR 24.9c & Appendix B 49 CFR 24.603	Annually	15-Nov	Office of Planning, Environment & Realty	Program Development Team	BOPD	Submitted to FHWA Headquarters (HQ).
Review of Real Property Acquisition Statistical Report	FHWA Order 6540.1	Annually	15-Nov	Office of Planning, Environment & Realty	Program Development Team	BOPD	

Approval of Management Process and Project Selection Procedures and Certification for Research, Development & Technology Transfer Program and Revisions to Process	23 CFR 420.115 and 23 CFR 420.209	As needed	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BPR	FHWA Division Office Approval.
Periodic Review of States Management Process of the Research, Development & Technology Transfer Program	23 CFR 420.209	Periodic	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BPR	FHWA Division Office Periodic Review.
Approval of Performance and Expenditure Reports for SPR Research Work Programs	23 CFR 420.117	No less frequently than annual and no more frequently than quarterly	90 Days After End Of Period	Office of Planning, Environment & Realty	Program Development Team	BPR	FHWA Division Office Approval.
Approval of SPR research reports	23 CFR 420.117	Prior to publication unless prior approval is waved	Not Applicable	Office of Planning, Environment & Realty	Program Development Team	BPR	FHWA Division Office Approval unless waived.
Annual Traffic Reports	Traffic Monitoring Analysis System and Traffic Monitoring Guide reporting	When Published	As needed	Office of Highway Policy information	Program Development Team	BPR	When Published

Approval of Annual Field Review Report	HPMS Field Review Guidelines (June 2001) Continuous Process Improvement Model for HPMS(February 2003)	Annually	1-Nov	Office of Highway Policy information	Program Development Team	BOMO	Review memo to HQ.
Approval of Certified Public Road Mileage	23 CFR 460.3(b)	Annually	1-Jun	Office of Highway Policy information	Program Development Team	BOMO	Each year, the Governor of each State and territory or a designee must certify Public Road Mileage. FHWA division reviews the Mileage and sends to HQ with division review/concurrence. This is reported to NHTSA for Apportionment of Safety Funds.
Approval of HPMS Data Submittal	23 CFR 420.105(b), HPMS Field Manual	Annually	15-Jun	Office of Highway Policy information	Program Development Team	BOMO	State DOT sends directly to Division Office and HQ.
Highway Statistics Reports	Guide to Reporting Highway Statistics			Office of Highway Policy information	Finance Team	BPR	State DOT of Division Office sends directly to HQ.
Motor Fuels Report	A Guide to Reporting Highway Statistics, Chapter 2	Due 60 days after end of each reporting month		Office of Highway Policy information	Finance Team	TBD	

Vehicles and Drivers (561, 562, 566, and 571)	A Guide to Reporting Highway Statistics, Chapters 3, 4, 5, and 6	1-Apr	1-Apr	Office of Highway Policy information	Finance Team	TBD	
Finance (531, 532, 541, 542, and 543 (optional)	A Guide to Reporting Highway Statistics, Chapters 8 and 9	1-Apr	1-Apr	Office of Highway Policy information	Finance Team	TBD	
Transportation Bond Referendums	A Guide to Reporting Highway Statistics, Chapter 9	When Published	When Published	Office of Highway Policy information	Finance Team	TBD	
State DOT / Toll Authority Audits and Published Annual Reports and Form 539 (optional)	A Guide to Reporting Highway Statistics, Chapter 10	When Published	When Published	Office of Highway Policy information	Finance Team	TBD	Annually, Due as soon as available.
Finance (536)	A Guide to Reporting Highway Statistics, Chapter 11	30-Sep	30-Sep	Office of Highway Policy information	Finance Team	BFM	Biennially for odd-numbered years. Due nine months after end of reporting year
Finance (534)	A Guide to Reporting Highway Statistics, Chapter 12	15-May	15-May	Office of Highway Policy information	Finance Team	BFM	Annually for State, Biennially for local
Highway Finance and Tax Legislation	A Guide to Reporting Highway Statistics, Chapter 13	When Published	When Published	Office of Highway Policy information	Finance Team	BFM	

State DOT Budgets and Published Annual Reports	A Guide to Reporting Highway Statistics, Chapter 13	When Published	When Published	Office of Highway Policy information	Finance Team	TBD	
Motor Fuel Oversight Review	July 24, 2001 HQ Memo	Initial baseline reports no later than December 31, 2003		Office of Highway Policy information	Finance Team	TBD	Annual progress reports and statement of verification by June 30. Submitted via UPACS.
Review of Biennial - Toll Facilities in the United States	23 CFR 450.105(b) HPMS Field Manual	Biennially - Odd Years	June 15 (Odd Years)	Office of Highway Policy information	Finance Team	TBD	Division Office sends to HQ.
State Highway Maps (Tourist)		When Published	When Published	Office of Highway Policy information	Admin Team	BPR	Two copies to each Division Office and 100 copies to HQ.
Traffic Flow Maps		When Published		Office of Highway Policy information	Program Development Team	BPR	When Published.
Vehicle Classification Data	MAP-21, HPMS Field Manual, Traffic Monitoring Guide	15-Jun	15-Jun	Office of Highway Policy information	Program Development Team	TBD	Part of Annual HPMS submittal.

Highway Use Tax Evasion Grant Awards	23 USC 143	Annual	Not Applicable	Office of Highway Policy information	Finance Team	TBD	FHWA along with the Internal Revenue Service will review applications and select awardees for projects designed to reduce or eliminate fuel tax evasion. FHWA will also review annual progress reports on projects.
Heavy Vehicle Use Tax (HVUT) – Certification of verifying proof-of-payment of HVUT	23 CFR 669	Annual	1-Jan	Office of Highway Policy information	Finance Team	TBD	Each year, the Governor of each State, or a designee must certify that the State is verifying that the HVUT has been paid before they issue or renew registrations on vehicles over 55,000 lbs. The HVUT program is administered by the Internal Revenue Service.

Heavy Vehicle Use Tax (HVUT) – Triennial review of State program	23 CFR 669.21	Triennial	Not Applicable	Office of Highway Policy information	Finance Team	TBD	Every 3 years, the local Division Office will perform a review of the State process for verifying that the HVUT has been paid before a registration can be issued or renewed for vehicles over 55,000 lbs. The HVUT program is administered by the Internal Revenue Service.
Permanent ATR Data	Heavy Vehicle Travel Information System Field Manual	Monthly	Monthly	Office of Highway Policy information	Program Development Team	BPR	Submit monthly, within 20 days after the close of the month for which the data were collected.
Continuous Automatic Vehicle Classifier Data	Heavy Vehicle Travel Information System Field Manual	Monthly	Monthly	Office of Highway Policy information	Program Development Team	BPR	Send up to one week of data per quarter
Weight and Vehicle Classification Data Collected at Weigh-in-motion sites	Heavy Vehicle Travel Information System Field Manual	15-Jun	As needed	Office of Highway Policy information	Program Development Team	BPR	WIM data collected at non-continuous sites during a year should be submitted by June 15 of the following year. If continuous WIM data are available, then up to one week of data per quarter.

Approval of MAP-21 compliant SHSP update within the legislatively required timeframe.	23 U.S.C. 148 (d)(2)(B)	Non Recurring	By Aug. 1 of the fiscal year after the HSIP final rule is established	Office of Safety	Technical Services Team	TBD	FHWA Division Offices provide copy of SHSP process approval letter to HQ.
Highway Safety Improvement Program (HSIP) and Railway-Highway Crossing Program (RHCP) Reports	23 USC 148(h), 23 CFR 924.15	Annually	31-Aug	Office of Safety	Technical Services Team	TBD	As per MAP-21 guidance, reports are due to FHWA Division Office by August 31st and to the Office of Safety by September 30.
Transportation Performance Management (TPM) for Safety	23 USC 150, 23 USC 134, 23 USC 135, 23 USC 148(i)	Annually	31-Aug	Office of Safety	Technical Services Team	TBD	Per MAP-21, States and MPOs must set targets for established measures. Targets must be assessed for achievement
Review Drug Offender Driver's License Suspension Law & Enforcement Certification (Section 159)	23 USC 159 23, CFR 192.5	Annually	1-Jan	Office of Safety	Technical Services Team	TBD	Certifications due to the Division Office by January 1.

Section 154/164 Compliance Status - Funds Reservation	23 USC 154 and 23 USC 164	Annually	30-Oct	Office of Safety	Technical Services Team	TBD	States must submit a Shift letter to the Division Office by Oct. 30 indicating how to apply the penalty. New penalty states have additional time. The Office of Safety processes the compilation of information in a memo to the CFO.
Review Safety Belt Compliance Status	23 USC 153, 23 CFR 1215.6	Annually	Annually	Office of Safety	Technical Services Team	TBD	NHTSA
High Risk Rural Roads (HRRR) Special Rule	23 USC 148(g)(1)	Annually	Annually	Office of Safety	Technical Services Team	TBD	After the final FARS and HPMS data are available, FHWA HQ will inform the States if the HRRR Special Rule applies for the following FY.

Older Drivers and Pedestrians Special Rule	23 USC 148 (g)(2)	Annually	31-Aug	Office of Safety	Technical Services Team	TBD	States should include in their annual HSIP reports (due August 31st) the calculations performed, verifying whether the Older Driver Special Rule applies in the State. If the Special Rule applies to a State in a given year, the State must include in its subsequent SHSP strategies to address the increases in the fatality and serious injury rates for drivers and pedestrians over the age of 65.
FHWA Emergency Preparedness Program	Executive Order 12656 and FHWA Order 1910.2C	As needed	Not Applicable	Office of Operations	Operations Team	BOMO	National Programs.

APPENDIX C – MANUALS AND OPERATING AGREEMENTS

The FHWA/PennDOT Stewardship and Oversight Agreement (Agreement) presents the current procedures for the administration of the Federal-aid Highway program in Pennsylvania. The general intent of the Agreement is to delegate much of FHWA's approval authority to PennDOT for certain preliminary engineering, construction contract administration, and right-of-way activities on or related to Federal-aid projects.

1. Project Development Process (Including Public Involvement in the Development of Projects and Title VI Requirements as Related to Minority Group Participation)

Procedures for project development and public involvement are established in PennDOT Design Manuals and Environmental Handbooks. These guidelines are provided in the following:

a. *Design Manual, Part 1, Transportation Program Development and Project Delivery Process* (Pub. 10) (includes DM-1, 1A, 1B, 1C, and 1X).
b. *Highway Occupancy Permits (Pub 282).*
c. *Project Level Public Involvement Handbook* (Pub. 295).
d. Recreational Trails Program Programmatic Agreement between PennDOT, DCNR, and FHWA dated March 2005.
e. Scenic Byways Guidance (www.bywaysonline.org).
f. Pennsylvania Act 120 of 1970 (This Act requires the Department of Transportation to prepare and submit a fiscally constrained multi-modal program of transportation improvements which it recommends be undertaken during the next 12 years to the State Transportation Commission every two years.)
g. *Publication 740 Local Project Delivery Manual*
h. *Right-of-Way Manual* (Pub. 378) *Relocation Program from the Conceptual Stage Until Initiation of Negotiations for the Project*, Chapter 4.02.

2. Application of Appropriate Design and Construction Standards

Appropriate design and construction standards are provided by the application of the following:

a. *Manual on Uniform Traffic Control Devices* (MUTCD).
b. *Design Manual, Part 2, Highway Design* (Pub. 13M).
   - Design criteria in Design Manual, Part 2 (DM-2) meets and in some cases exceeds the criteria in the AASHTO Green Book. For any designs on NHS projects that do not meet the criteria in DM-2, but conform to the minimum criteria in the AASHTO Green Book, a design exception is not required to be approved by FHWA, but will require PennDOT approval.
c. *Design Manual, Part 3, Plans Presentation* (Publication 14M).
d. *Design Manual, Part 4, Structures* (2 Volumes),(Pub. 15M), includes preventative maintenance eligible activities.
e. *Design Manual, Part 5, Utility Relocation* (Publication 16M).

f. *Standards for Roadway Construction, Series RC-1M – RC-100M* (Pub. 72M).
g. *Standards for Bridge Design, BD-600M* Series (Pub. 218M).
h. *Standards for Bridge Construction, BC-700M Series* (Pub. 219M).
i. Pavement Policy Manual (Pub. 242), includes preventative maintenance eligible activities
j. *Traffic Control – Pavement Markings and Signing Standards, TC-8600 and TC-8700 Series* (Pub. 111M).
k. *Traffic Standards - Signal, TC-8800 Series* (Pub. 148).
l. *Traffic Signal Design Handbook* (Pub. 149).
m. *Handbook of Approved Signs* (Pub. 236M).
n. *Guidelines for the Design of Local Roads and Streets* (Pub. 70M).
o. *Title 67 – Transportation, PA Code* - Pennsylvania Department of Transportation - Rules and Regulations.
p. *Specifications* (Pub. 408) with applicable Bulletins.
q. *Plans, Specifications and Estimate Package Delivery Process Policies and Preparation Manual* (Pub. 51).
r. *Geotechnical Engineering Manual* (Pub. 293).
s. *Right-of-Way Manual* (Pub 378).
t. *Grade Crossing Manual* (Pub 371).

PennDOT will apply design and construction standards for new construction, reconstruction, resurfacing (except maintenance resurfacing), restoration, or rehabilitation of highways on the NHS in accordance with 23 CFR Part 625 – *Design Standards for Highways.*

3. PennDOT's Highway and Railroad Safety Programs

PennDOT will administer a Highway Safety Improvement Program on a continuing basis according to 23 CFR Part 924 – *Highway Safety Improvement Program.*

PennDOT will apply design and construction standards for new construction, reconstruction, resurfacing (except maintenance resurfacing), restoration, or rehabilitation of highways on the NHS in accordance with the standards listed in Item 2 above, the *Grade Crossing Manual* (Pub. 371), and in accordance with 23 CFR Part 625 – *Design Standards for Highways.*

PennDOT will administer a federal-highway railroad grade crossing safety program, and other associated railroad crossing projects, on a continuing basis and in compliance with 23 CFR Part 646 – Railroads, 23 CFR Part 140 - Reimbursement, subpart I – Reimbursement for Railroad Work, 23 CFR Part 172 - Administration of Engineering and Design Related Service Contracts and 23 CFR Part 924 - Highway Safety Improvement Program.

4. Quality Control/Quality Assurance of Construction and Materials

The quality of construction is assured through the application of the following:

a. *Specifications* (Pub. 408) with applicable Bulletins.
b. *Field and Laboratory Testing Manual* (Pub. 19).
c. *Project Office Manual* (Pub. 2).
d. *Quality Assurance Manual* (Pub. 25).
e. *Finals Unit Manual* (Pub. 11).
f. *Approved Construction Materials, Bulletin 15* (Pub. 35).
g. *Construction Manual* (Pub. 8).

PennDOT Engineering Districts are responsible for managing construction projects and operations according to policies and procedures detailed in Pub. 408 - *Specifications*, and Pub. 8 - *Construction Manual*. The Districts are held accountable for a level of performance through a Quality Assurance program administered by the Bureau of Project Delivery, Innovation and Support Services Division. The Quality Assurance program provisions, including review frequencies and compliance levels, are specified in Pub. 25 - *Quality Assurance Manual*. Compliance is determined and information obtained to determine performance levels. Specific training is developed to achieve compliance. Deficiencies are addressed according to severity as specified in Pubs. 8 - *Construction Manual* and 25 - *Quality Assurance Manual*.

The economy of construction is assured through PennDOT's competitive bidding procedures and through value engineering policies.

5. Signing, Pavement Marking and Traffic Control Devices

Provisions for adequate signing, pavement marking, and traffic control devices are provided through application of the following PennDOT's publications and according to the Manual on Uniform Traffic Control Devices:

a. *Temporary Traffic Control Guidelines* (Pub. 213).
b. *Official Traffic Control Devices* (Pub. 212).
c. *Traffic Signal Design Handbook* (Pub. 149).
d. *Pennsylvania's Traffic Calming Handbook* (Pub. 383).
e. *Guide to Roundabouts* (NCHRP 672).
f. *Traffic Engineering Manual* (Pub. 46).
g. *Traffic Control – Pavement Markings and Signing Standards* (Pub.111M).
h. *Traffic Standards – Signals* (Pub. 148).
i. *Handbook of Approved Signs* (Pub. 236M).
j. *Intelligent Transportation Systems Design Guide (Pub. 646).*

6. Economic, Social and Environmental Impacts

Minimization of adverse economic, social, and environmental impacts is accomplished through adherence to the procedures in the following PennDOT's guidance:

a. *Project Level Public Involvement Handbook* (Pub. 295).
b. *Design Manual, Part 1B, Post TIP NEPA Procedures* (Pub. 10).

c. *Agricultural Resources Evaluation Handbook* (Pub. 324).
d. *Project Level Air Quality Handbook* (Pub. 321).
e. *Needs Study Handbook* (Pub. 319).
f. *Geotechnical Waste Management* (Pub. 292).
g. *Waste Site Evaluation Procedures Handbook*(Pub. 281).
h. *Wetland Resources Handbook* (Pub. 325).
i. *Project Level Highway Traffic Noise Handbook* (Pub. 24).
j. *Section 4(f) Handbook* (Pub. 349).
k. *Community Impact Assessment Handbook* (Pub 217).
l. *Tribal Consultation Handbook* (Pub. 591).
m. *Threatened and Endangered Species Desk Reference* (Pub. 546).
n. *Indirect and Cumulative Effects Desk Reference* (Pub. 640).
o. *Right-of-Way Manual* (Pub. 378), Relocation Program from the Conceptual Stage until Negotiations for the Project, Chapter 4.02.
p. Every Voice Counts, PennDOT's Environmental Justice Guidance.

7. Equal Employment Opportunity

PennDOT's policy with respect to equal employment opportunity and non-discrimination is as provided in the following:

a. Executive Order 1988.1, Affirmative Action and Contract Compliance.
b. Executive Order 11246 (as amended), Notice of Requirements for Affirmative Action to ensure Equal Employment Opportunity.
c. Title 23 U.S.C., Subchapter C - *Civil Rights*, Part 230 *External Programs*.
d. *Right-of-Way Manual* (Pub 378).
e. CC-4297, Nondiscrimination and Equal Employment Clauses for all contracts.
f. CC-4297A, Nondiscrimination Clause.
g. *Conducting Business with the Pennsylvania Department of Transportation* (Pub. 4).

The number of highway construction trainees and their training program is controlled by PennDOT Strike-Off Letters and conforms to Federal requirements.

PennDOT is firmly committed to fulfilling its goals for participation of DBE's in all contracts and projects involving Federal-aid funds. The DBE Program will be administered in accordance with 49 CFR Part 26 – *Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs*.

8. Competitive Bidding and Payment of Prevailing Wage Rates on Construction Contracts

Competitive bidding procedures are provided in PennDOT policy letters and will conform to Federal requirements. Procedures governing the payment of prevailing wage rates on construction contracts are included in PennDOT Publication 408 - *Specifications* and in PennDOT Publication 2 - *Project Office Manual*.

9. Design and Construction Claim Settlements

Design claim settlements will be processed in accordance with procedures identified in Publication 93 - *Policy and Procedures for the Administration of Consultant Agreements.*

Construction claim settlements will be processed in accordance with Publication 2 - *Project Office Manual.*

10. Federal-Aid Procurement and Contract Provisions

a. Consultant Agreements – PennDOT provides the required Federal-aid procurement and administration of Consultant Agreements as prescribed in 23 CFR, Part 172 – *Administration of Engineering and Design Related Service Contracts* through PennDOT Publication 93- *Policy and Procedures for the Administration of Consultant Agreements*, Publication 442 – *Specification for Consultant Agreements*, and ECMS *Standard Agreement Provisions and Attachments.*

b. Engineering Contracts - PennDOT provides the required Federal-aid contract provisions as prescribed in 23 CFR, Part 172 - *Administration of Engineering and Design Related Contracts* as prescribed in Publication 93 - *Policy and Procedures for the Administration of Consultant Agreements*, Publication 442 – *Specification for Consultant Agreements* , and ECMS *Standard Agreement Provisions and Attachments.*

c. Construction Contracts - PennDOT provides the required Federal-aid contract provisions as prescribed in 23 CFR, Part 633, Subparts A and B - *Required Contract Provisions* and 23 CFR 635 – *Construction and Maintenance*, Subpart A – *Contract Procedures*, through ECMS and in Publication 51 – *Plans, Specifications and Estimate Package Delivery Process Policies and Preparation Manual.*

d. Non-competitive Procurement - PennDOT provides the required Federal-aid procurement requirements as prescribed in 23 CFR 635 – *Construction and Maintenance*, Subpart B – *Force Account Construction* in Publication 408 – *Specifications.*

11. Retention of Records

PennDOT retains records on Federal-aid projects in accordance with 2 CFR 200.333 Retention requirements for records. Involved local governments and other third party contractors are also required to retain records as specified above.

12. State Transportation Improvement Program

In conformance with the requirement of 23 CFR 450 – *Planning Assistance and Standards*, PennDOT will submit to the FHWA and the Federal Transit Administration (FTA) the Statewide Transportation Improvement Program (STIP) of projects which it

intends to implement over the succeeding four year period. The STIP will be updated every two years, and will include all approved Metropolitan Planning Organization (MPO) and Rural Planning Organization (RPO) Transportation Improvement Programs (TIP's). Amendments and administrative actions to the STIP and to the metropolitan and rural TIPs can occur at any time during the life of these documents. Only after the STIP or its amendments are approved by the FHWA and/or the FTA can federal funds be obligated for individual transportation projects that are shown in the current Federal fiscal year in the STIP and included in the document.

13. Local Agency Procedures

Administration of Federal-aid projects shall be in accordance with PennDOT's current version of Publication 740 *Local Project delivery Manual*, and any revision thereto.

PennDOT has the oversight responsibility for the design and construction of all Federal-aid projects, and is not relieved of such responsibility by authorizing performance of the work by or under the supervision of a county, city, or other Local Public Agency (i.e. Local Project Sponsor). When work is to be performed under a contract awarded by a Local Public Agency, PennDOT has the responsibility of ensuring that all Federal requirements, including those prescribed in 23 CFR Part 635 – *Final Rule General Material Requirements*, have been met.

Right-of-Way Activities - PennDOT must monitor local public agency right-of-way activities as required by 23 CFR 710.201. - *State Responsibilities* as defined in Publication 740 *Local Project Delivery Manual.*

Consultant Agreements - PennDOT provides the required Federal-aid procurement and administration of Consultant Agreements as prescribed in 23 CFR, Part 172 through PennDOT Publication 93, Publication 442 and ECMS *Standard Agreement Provisions and Attachments.*

Quality Assurance - As part of the IOP process, Central Office in conjunction with FHWA will include a sampling of LPA projects for quality assurance audits.

14. Federal-Aid Financial Procedures

a. Electronic Data Transfer - Current electronic data transfer techniques will be utilized wherever appropriate. When PennDOT desires to initiate formal authorization of a project, the critical fiscal and other necessary data required for authorization will be uploaded directly from PennDOT to the FHWA Fiscal Management Information System (FMIS) Warehouse.

Project Oversight Designation Requirement in the FMIS

PoDI/State Administered – Projects of Division Interest that are administered by the State DOT. If specific 106(c) responsibilities are assumed by the State DOT, the responsibilities assumed should be noted in the project description and/or remarks fields. (Projects where all six 106(c) responsibilities are retained by FHWA would

need no such notation.) These are projects where FHWA will review and approve actions pertaining to one or more of the following (design; plans, specifications, and estimates; contract awards; and project inspections) and may also include additional areas of focus by the division.

PoDI/Locally Administered – Projects of Division Interest that are locally administered. If specific 106(c) responsibilities are assumed by the State DOT, the responsibilities assumed should be noted in the project description and/or remarks fields. (Projects where all six 106(c) responsibilities are retained by FHWA would need no such notation.) These are projects where FHWA will review and approve actions pertaining to one or more of the following (design; plans, specifications, and estimates; contract awards; and project inspections) and may also include additional areas of focus by the division.

Assumed/State Administered – Projects where *responsibility for all six Section 106(c) items* is assumed by the State DOT and the project is administered by the State DOT. These are projects where the State DOT has assumed responsibility for review and approval actions pertaining to all of the following: design; plans, specifications, and estimates; contract awards; and project inspections.

Assumed/Locally Administered - Projects where *responsibility for all Section 106(c) items* is assumed by the State DOT and the project is administered by a local agency. These are projects where the State DOT has assumed responsibility for review and approval actions pertaining to all of the following: design; plans, specifications, and estimates; contract awards; and project inspections.

Other – There may be situations that do not fit the previous categories. In cases where the project is identified as "Other," additional details should be provided in the project description and/or remarks fields. Examples could include non-State DOT direct recipients.

b. Project Authorization and Project Agreement – A signed PennDOT Request for Authorization will be submitted to FHWA for all Federal-aid projects.

PennDOT will electronically verify that the fiscal authorization has occurred by reviewing the FMIS transaction and EDS status logs.

PennDOT will assure that necessary environmental studies and approvals have occurred prior to submitting any request for authorization.

PennDOT agrees and is bound by all the provisions contained in 23 CFR 630.112 - *Agreement Provisions*. The project specific data contained in the Request for Authorization is sufficient for FHWA to place all projects under Project Agreement at the time of authorization; no further FHWA Project Agreement or PennDOT Agreement Estimate is required unless there is a modification to the Agreement. PennDOT's Request for Authorization will serve as a concurrent request to place the project under Project Agreement in FHWA's FMIS system.

When project funding adjustments are required due to bid adjustments or cost overruns/underruns, PennDOT will submit a signed Request for an Amended Project Authorization with supporting information necessary for FHWA to adjust the Project Agreement amount. All funding adjustments must be supported by an estimate maintained in PennDOT's files for all phases being requested.

Inactive Federal-aid Project Review: The FHWA Division Office shall work with PennDOT to conduct and document the results of quarterly reviews of inactive projects in accordance with 23 CFR 630 - *Agreement Provisions*, Subpart A, *Project Authorizations and Agreements*. Projects that are not properly documented may be subject to de-obligation upon coordination with PennDOT.

c. Financial Management –. The FIRE program includes Funds Management, Federal-aid billing, Major projects, Project authorization, Modification and Voucher, Locally Administered Projects. The FIRE program is a consistent process for identification and prioritization of risk events, and identification of strategies for risk mitigation. At least one Financial Management process review is conducted through the Independent Oversight Program. Findings are tracked. Any corrective action are communicated to PennDOT, and monitored by FHWA until completed.

d. Innovative Finance –

State Infrastructure Bank (SIB): The State Infrastructure Bank (SIB) was authorized through the National Highway System Act of 1995 and was established in Pennsylvania in 1997. SIBs are codified in United States legal code Title 23 Highways, Chapter 6 Infrastructure Finance, Section 610.1 Loans generated through the SIB Program Loans from the original principal are subject to federal procedures and periodic review per the Cooperative Agreement signed June 5, 1998. The use of state funds for the SIB is not subject to federal procedures and periodic review.

Toll Credits: FHWA will approve the use of toll credits. To receive this approval, PennDOT must provide (1) a certification by the Secretary of Transportation or a designated deputy that the toll authority project outlays meet FHWA soft match requirements as specified in FHWA guidance and 23 CFR, and (2) a certification that the required Maintenance of Effort (MOE) has been met the period of expenditure. FHWA may periodically review a sample of toll authority expenditures (either on-site or through a records review) to assure the projects meet 23 CFR eligibility requirements.

15. Planning Activities

Title 23 USC - *Highways* specifies that the planning functions cannot be delegated to the State Department of Transportation. FHWA retains authority for all Federal responsibilities for planning and programming specified in 23 USC 134 - *Metropolitan Transportation Planning* and 135 – *Statewide Transportation Planning*. In addition, this also applies to the Federal air quality conformity determinations required by the Clean Air Act. However, for all delegated programs or projects, PennDOT shall oversee and ensure compliance with the metropolitan and statewide planning requirements,

including but not limited to: project eligibility for the proposed funding source, fiscal constraint, air quality conformity, public involvement, STIP, and long range transportation plans requirements.

APPENDIX D – BUSINESS SERVICE STANDARDS

RESERVED

GLOSSARY

Assumption of Responsibilities – The act of State DOT to accept responsibility for carrying out and approving certain actions in the place of the FHWA. Such actions are to be taken by the State DOT in conformance with Federal laws, regulations, and policies.

Assumed Projects – Federal projects that the State DOT reviews in the place of the FHWA and has the authority to approve certain specified actions pertaining to design; plans, specifications, and estimates; contract awards; and inspections.

Certification Reviews – A review that formalizes the continuing oversight and day-to-day evaluation of the planning process.

Control Document – Applicable laws, regulations, standards, policies, and standard specifications approved by FHWA for use on Federal-aid highway projects.

Core Functions – Activities that make up the primary elements of the division office's Federal-aid oversight responsibilities based on regulations and national policies. Core functions in the division office are Planning, Environment, Right-of-Way, Design, Construction, Finance, Operations, System Preservation, Safety, and Civil Rights.

Locally Administered Projects – For the purpose of the S&O Agreement, a Federal-aid project in which an entity other than a traditional State DOT is a sub-recipient and this entity is administering the particular phase being authorized, i.e., Preliminary Engineering, ROW, or Construction. These would include projects where the non-traditional entity will either perform the work itself or enter into a contract for services or construction. State DOT remains responsible for the local public agency's compliance on locally administered projects.

Local Public Agency (LPA) – Any organization, other than a traditional State DOT, with administrative or functional responsibilities that are directly or indirectly affiliated with a governmental body of any Tribal Nation, State, or local jurisdiction. LPAs would most often include cities or counties. However, an LPA, as defined here, could also include a State entity as well, perhaps even a part of a State DOT. An example could include a Port Authority or Toll Authority that had not traditionally worked with the Federal-aid highway program (FAHP).

Oversight – The act of ensuring that the FAHP is delivered consistent with laws, regulations, and policies.

Program Assessments – This evaluation technique may take many forms, including joint risk assessments and self-assessments. These tools are based on the common concepts of identifying strengths, weaknesses, and opportunities and the identification and sharing of "best" practices to continually improve the program.

Program Reviews – A thorough analysis of key program components and the processes employed by the State DOT in managing the program. The reviews are conducted to: 1) ensure compliance with Federal requirements; 2) identify areas in need of improvement; 3) identify opportunities for greater efficiencies and cost improvement to the program; and/or 4) identify exemplary practices.

Projects of Division Interest (PoDIs) – PoDIs are those projects that have an elevated risk, contain elements of higher risk, or present a meaningful opportunity for FHWA involvement to enhance meeting project objectives. For PoDIs, FHWA has made a risk-based decision to retain project approval actions or conduct stewardship and oversight activities for the project as provided for in 23 USC 106.

Recipient - a non-Federal entity that receives a Federal award directly from a Federal awarding agency to carry out an activity under a Federal program. The term recipient does not include subrecipients. (2 CFR 200.86)

Recurring Reviews – Reviews that the division office conducts annually or on a regular periodic basis. Examples include NBIS, HPMS, HVUT, etc.

Risk Assessment – The process of identifying a risk event, determining the likelihood of the event happening, determining the impact (positive or negative) of the event on the delivery of the FAHP, and identifying an appropriate risk response strategy.

Risk-Based Approach – Incorporating risk assessment and risk management into investment and strategic decision making (the means by which limited resources are focused).

Risk Management – The systematic identification, assessment, planning, and management of threats and opportunities faced by FHWA projects and programs.

Stewardship – The efficient and effective management of the public funds that have been entrusted to the FHWA.

Sub-recipient/sub-grantee – a non-Federal entity that receives a subaward from a pass-through entity to carry out part of a Federal program; but does not include an individual that is a beneficiary of such program. A subrecipient may also be a recipient of other Federal awards directly from a Federal awarding agency (2 CFR 200.93)

Unit Performance Plan – The annual performance plan prepared by an individual FHWA unit that address unit responsibilities and priorities taking into account the National Performance Objectives and National Initiatives identified in the FHWA's Strategic Implementation Plan (SIP) as well as specific initiatives identified at the unit level based on risk.

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Procedures for Projects of Division Interest (PoDI) and PennDOT Project Oversight (PO) Identification

June 1, 2015

Stewardship and Oversight Agreement Implementation

PROCEDURES FOR PROJECTS OF DIVISION INTEREST (PODI) AND PENNDOT PROJECT OVERSIGHT (PO) IDENTIFICATION

JUNE 2015

Identification of Oversight Projects

Projects of Division Interest (PoDI): PoDI are those projects that have an elevated risk, contain elements of higher risk, or present a meaningful opportunity for FHWA involvement to enhance meeting program or project objectives. Under this category, project selection will be risk-based, with stewardship and oversight activities being directed toward addressing identified risks. PoDI will include projects which FHWA will retain all or some of the stewardship and oversight responsibilities and approval actions from project initiation to final voucher, and may also include retaining certain project approvals or directing stewardship and oversight activities to a specific phase or element of a project. For example, FHWA may determine that a project warrants FHWA oversight up to PS&E approval, but not during the construction phase of the project. Additionally, FHWA and PennDOT may agree to make certain components of a project subject to FHWA Oversight if the project contains one or more Risk Based Parameters that are listed in Table I. Definitions of Risk-Based Oversight Parameters is included in **Appendix A**.

For those projects where FHWA retains certain project approvals and/or those that have stewardship or oversight activities directed to a specific phase or element of a project, the FHWA Transportation Engineer assigned to a specific PennDOT District will coordinate stewardship and oversight responsibilities with the PennDOT BOPD, HDTS, Project Development Engineer.

Generally, PoDI can be categorized into the following six types:

1. *Major Projects (>$500M); 23 USC 106(h)*
2. *Appalachian Development Highway Projects; 23 USC 106 (g)(5)(B)*
3. *TIGER Discretionary Grant Projects*
4. *NHS Projects with Retained FHWA Project Approval; 23 USC 106(c)(1)*
5. *Non-NHS Projects with Retained FHWA Project Approval; 23 USC 106(c)(2)*
6. *Projects Selected for Risk-based Stewardship & Oversight; 23 USC 106(g)*

Regardless of retained project approval actions, any Federal-aid Highway Project either on or off the NHS that the Division identifies as having an elevated level of risk can be selected for risk-based stewardship and oversight and would then be identified as a PoDI. Please see *"Projects of Division Interest (PoDI)/Projects of Corporate Interest (PoCI) Guidance (available at* http://www.fhwa.dot.gov/federalaid/stewardship/)

Projects of Corporate Interest (PoCIs): PoCIs are a subset of PoDIs. These are projects deemed to be so significant that FHWA is willing to commit additional resources beyond those available at the individual Division level to help ensure successful delivery of the project.

PennDOT-Oversight Projects (PO): Generally, PennDOT Oversight Projects are those that are not identified as PoDIs.

PennDOT and FHWA utilize a risk-based approach for oversight designations. Upon Statewide Transportation Improvement Program (STIP) approval, PennDOT will provide FHWA with a list of projects programmed for the upcoming three years based on the criteria included in **Table 1**. Immediately after, a project oversight meeting will be held with each PennDOT District, with FHWA, PennDOT Central Office, and District staff in attendance. The purpose of the meeting is for FHWA and PennDOT to specifically review the list of projects for each District and jointly make an oversight designation. FHWA, in consultation with PennDOT, will make risk-based oversight determinations to meet FHWA and PennDOT goals, objectives, and identified risk areas, while at the same time considering FHWA workload. This may include changing projects deemed to be low-risk from PoDI to PennDOT-Oversight, and changing other projects not typically designated as PoDI to be designated as such because they meet the criteria in **Table 1, Part B**.

On interim years of the STIP, preferably at the beginning of the Federal fiscal year, a modified project oversight meeting will be conducted in each District with representatives from FHWA, PennDOT Central Office, and the PennDOT District. The focus of the meeting will be to review the most current list of projects that will advance to design or construction and make changes to the oversight designations (PoDI or PO) based on modifications in project scope or cost. The meeting will also be used to assess and determine the oversight designation of projects that were added to the STIP after it was approved. As determined to be needed by PennDOT, a modified project oversight meeting may also be conducted shortly after projects are added to the STIP.

Within two weeks of the project oversight meetings, FHWA will submit meeting minutes and the agreed upon list of PoDI to the PennDOT District Office for final concurrance. Any changes to oversight designation that occur outside of the project oversight meetings must be documented in writing and formally approved by FHWA.

PoDI will each have a project specific Stewardship and Oversight Project of Division Interest (S&O PoDI) Plan prepared by FHWA which identifies only those phases or components that will be subject to FHWA oversight, as jointly agreed to by both PennDOT and FHWA. These documents will be shared with the PennDOT District and Central Office. There may be cases when project conditions, costs, or risks increase or decrease prompting reconsideration of the oversight designation.

Table 1 identifies the general parameters for identifying those projects that will be designated PoDI and those that will be designated PO. The costs thresholds shown in **Table 1** are based on the estimated cost of construction (regardless of funding source, unless 100% State, and excluding construction engineering and right-of-way costs) as reported on

the STIP. If the project scope or cost is modified as a result of the Design Field View of a project, FHWA will be consulted regarding any potential changes in the oversight designation. Any changes to oversight designation must be documented in writing and formally approved by FHWA.

- Table 1 - ***A. General Parameters for Project Oversight Designation*** *(1)*		
	PoDI (FHWA-Oversight)	***PennDOT-Oversight (PO)***
Interstate		
< $10 Million		*x*
≥$10 Million	*X*	
NHS (except Interstate)		
< $20 million		*x*
≥ $20 million	*x*	
Miscellaneous		
Appalachian Development Highway System (ADHS) Corridors Completion Projects	*x*	
Non-NHS		*x*
Discretionary Funding Source *(2)(3)* *(regardless of cost or system, e.g.. TIGER Projects)*	*x*	
Locally Administered Projects *(4)(5)*		*x*

(1) Dollar thresholds correspond to construction amount.
(2) Projects with discretionary funding will follow statutory law requirements.
(3) Definitions of Risk-Based parameters is contained in **Appendix A of this document.**
(4) LPA projects are PennDOT Oversight (PO) except where FHWA and PennDOT jointly agree to designate an LPA project as a PoDI.
(5) FHWA may elect to select at least one LPA Project as a PoDI in each PennDOT District.

B. RISK-BASED PARAMETERS POTENTIAL EXCEPTIONS TO ABOVE REGARDLESS OF SYSTEM OR DOLLAR AMOUNT [(3)(4)]
Bridge/Structures/Geotech : • Complex or Unusual Structures, (eg., Suspension or Cable-Stay Bridge, etc) • Experimental/research • Other Non-Standard Structures – See DM-4 Table 1.9-1 • Unusual Geotech issues, such as Geotech & Slope Stability Projects (historically known bridge, roadway, subsurface, slide or drainage problems/issues). • Contaminated/Hazardous materials (if known) • EDC/SHRP2 initiatives (including Accelerated Bridge Construction (ABC), Prefab/Precast Elements). • Unusual hydraulic or scour issues.
Planning/Environmental: • Projects Requiring an Environmental Impact Statement (EIS) or complex Environmental Assessment (EA) NEPA Document (i.e., projects with significant environmental impacts). • Federal Stakeholders Involved (USF&W, USCOE, EPA, HUD, etc) • Threatened & Endangered Species (e.g., Peregrine Falcon, Indiana Bat, etc.) • Impact on identified freight corridors and facilities (e.g., I-95, I-70)
ITS/Operations: • Extremely High Congestion and Delay ADT (LOS E/F for 3 hrs or ADT>150,000 • Stand-alone ITS projects • Traffic signal systems • Communications • Systems engineering analysis • Experimental/research • Managed Lanes • TMC Improvements • TDM Initiatives • Freight Technology and Operations • POAs • New ITS/New Technologies (Wireless ITS communications, connected vehicle, etc) • EDC/SHRP2 initiatives

Pavements & Materials:

- Major reconstruction/New Alignment
- Concrete overlays
- Experimental/research
- EDC/SHRP2 initiatives
- Materials Acceptance and Quality (if known concerns/Issues)

Safety:

- Complex traffic control or work zone impacts
- New Interstate Point of Access (POA) Modifications
- Pedestrian/Bicycle Safety
- Experimental/research
- EDC/SHRP2 initiatives
- Design exceptions
- HOV/HOT/Bus on Shoulders Project

Utility/Right-of-Way:

- Complex Utility Relocations
- Significant Right-Of-Way Impacts
- Right-of-Way Condemnation of Agriculture Lands (ALCAB)

Miscellaneous:

- Experimental Methods (SEP-14, SEP-15)
- Major Project – (>$500M); 23 USC 106(h) High Risk Locally Administered Project
- New or Innovative Construction Methods (P3, A+Bx, Warranty, Design-Build, new Design or Construction Technique, Diverging Diamond Interchange (DDI), Roundabout, etc)
- Every Day Counts (EDC1, EDC2, EDC3)
- Strategic Highway Research Program (SHRP1, SHRP2)
- New or Revised Interstate Access Modifications
- Breaks in Access on Limited Access 4 Lane Expressways
- Projects with Earmarks or High Political/Congressional interest
- Controversial Projects
- Bi-state projects
- New Alignment
- Major Widening
- Claims Resolution

Oversight Designation for Special Types of Projects

Projects characterized by the parameters described below are defined as Special Types. Oversight varies depending on the cost threshold, risk, and facility.

1. Major Projects and Projects with Costs Between $100 and $500 Million

All Major Projects and projects with costs between $100 and $500 million will be designated as PoDI projects, regardless of the oversight designation criteria included in **Table 1**.

In accordance with Section 1904 of SAFETEA-LU, all projects with costs greater than $100 million (including ALL design and construction costs) require an annual financial plan. While the preparation of the annual Financial Plan (FP) is expected of Projects between $100 and $500 million in cost, the submittal of the FP to the FHWA is not required. However, the annual FP's of these projects shall be made available to FHWA upon request, and the contents of the FP's should be consistent with FHWA guidance.

Typically, a the "Major Project" designation is defined as a federal-aid funded project with an estimated *total* project cost of $500 million *or more* (including *ALL* design and construction costs). However, FHWA also has the discretion to designate a project with a total cost of *less than* $500 million as a Major Project in situations where a project requires a substantial portion of the State Transportation Agency (STA)'s program resources; have a high level of public or congressional interest; are unusually complex; have extraordinary implications for the national transportation system; or are likely to exceed $500 million in total estimated project cost. Generally the Project Owner of a Major Project is the STA, but major projects can also be developed by other State Agencies (Toll Agencies), Local Public Agencies, and/or Private Ventures (e.g. Public Private Partnerships.) A Major Project requires: (1) a Project Management Plan (PMP), (2) a Financial Plan (FP), including a phasing plan when applicable, and (3) a cost estimate validation or Cost Estimate Review (CER).

A Project Management Plan (PMP) shall document: (A) the procedures and processes that are in effect to provide timely information to the project decision makers to effectively manage the scope, costs, schedules, and quality of, and the Federal requirements applicable to, the project; and (B) the role of the agency leadership and management team in the delivery of the project.

A Financial Plan (FP): (a) shall be based on detailed estimates of the cost to complete the project; (b) shall provide for the annual submission of updates to the Secretary that are based on reasonable assumptions, as determined by the Secretary, of future increases in the cost to complete the project; (c) may include a phasing plan (when applicable) that identifies fundable incremental improvements or phases that will address the purpose and the need of the project in the short term in the event there are insufficient financial resources to complete the entire project. If a phasing plan is adopted for a project, the project shall be deemed to satisfy the fiscal constraint requirements in the statewide and metropolitan

planning requirements in sections 134 and 135; and (d) shall assess the appropriateness of a public-private partnership to deliver the project.

The cost estimate validation is achieved via a Cost Estimate Review (CER) that must be conducted by FHWA. The FHWA Division Office must be consulted when the cost estimate for any project reaches the dollar threshold that defines a Major Project.

2. Intelligent Transportation Systems (ITS) Projects

Normally ITS projects follow the same oversight designation criteria as depicted in **Table 1**. However, Non-facility specific ITS/operations projects, such as Traffic Management Center (TMC) projects, require a joint determination by FHWA and PennDOT of oversight responsibilities. Projects must conform to system engineering requirements in 23 CFR Part 940 – *Intelligent Transportation System Architecture and Standards* and 49 CFR - *Transportation*, as appropriate.

3. Local Public Agency (LPA) Administered Projects

LPA administered projects will follow the oversight designation criteria as depicted in **Table 1**. , FHWA may elect to select LPA projects to be designated as PoDIs using the risk-based parameters in **Table 1**. The LPA PoDIs will be identified and selected by FHWA during the project oversight meetings with the Districts. All Federal-aid projects on the NHS are subject to quality assurance procedures (23 CFR 637 – *Construction Inspection and Approval*) including LPA administered projects. For projects off the NHS, PennDOT and the LPAs should use established procedures approved by PennDOT and FHWA. PennDOT's LPA procedures used for Federally Funded NHS projects must comply with applicable Federal requirements.

Maintaining PennDOT-Oversight Projects

PennDOT is committed to improving quality in all facets of its operations to ensure that highway programs and projects adequately meet the existing and future transportation needs and conditions in a manner conducive to safety, environmental requirements, durability, and economy of maintenance. Projects will be designed and constructed in accordance with standards suited to accomplish this objective and to conform to the particular needs of each locality.

PennDOT provides guidelines for Quality Control and Quality Assurance for overseeing production of quality products to accomplish project objectives. PennDOT's QC and QA definitions are:

A. Quality Control (QC) is the process performed by PennDOT (and/or its consultants and contractors) that ensure developed products comply with Federal and State requirements and standards. QC is the responsibility of the party producing the product or service. For example, a document (calculations, drawings, reports, etc.) produced by a designer is thoroughly checked by another qualified person to ensure utilization of accepted logics, practices, and correctness of all information.

B. Quality Assurance (QA) is the planned and systematic action performed by a party not involved in QC to provide adequate confidence that delegated approvals comply with Federal and State requirements and standards. An example is the performance of a limited, high-level review of each product to confirm quality, economy, and compliance with laws, regulations, and policies prior to final acceptance by PennDOT or prior to submission to external agencies for approval.

Quality assurance and quality control are assured through the Program Oversight activities described above. PennDOT Central Office has delegated project development and delivery activities to District Engineering Offices and committed to performing Quality Assurance Reviews.

Standards, Specifications, and Policies

PennDOT will comply with the provisions of Title 23 U.S.C, 23 CFR - *Highways* and all appropriate Federal and State laws, regulations, standards, and directives. PennDOT will develop Federal-aid projects in accordance with the standards and guides identified in 23 U.S.C. 109, 23 CFR 625 – *Design Standards for Highways* (as well as other FHWA policies identified in the Federal Register, the Federal-aid Policy Guide and elsewhere) and/or PennDOT standards or manuals approved by FHWA. PennDOT manuals and guides are identified in **Appendix C of the currently approved Stewardship and Oversight Agreement**. Additions to **Appendix C** will occur as additional policies and guidance are developed, approved by FHWA, and implemented by PennDOT.

PennDOT agrees that any revisions or additions to policy and procedure statements, design manuals, letters containing policy, rules and regulations, specifications and standards affecting the development or administration of Federally funded projects will be submitted, with a formal transmittal letter, to the FHWA Division Office for approval and/or concurrence. Design standards and specifications for non-NHS projects do not require FHWA approval.

A-5. Business Service Standards

Business Service Standards (BSS) provide an expectation for how long it will take to provide reports and findings along with the expectation of a response concerning corrective actions from PennDOT. FHWA and PennDOT have jointly developed the BSS relative to action on responses to audit findings, processing financial instruments, approval of PS&E packages, agreement on Risk Response Strategies, and quality assurance documentation of the LPA program. The BSS are provided in **Appendix D of the currently approved Stewardship and Oversight Agreement**. These standards may be revisited annually.

APPENDIX A - DEFINITIONS FOR RISK-BASED OVERSIGHT PARAMETERS

Bridge/Structures/Geotech:

- **Unusual structures** - An unusual structure is one with non-standard or unusual foundation issues, new or complex designs involving irregular structures or operational features, or bridges for which the design standards or criteria may not be applicable. Use of new products and experimental or demonstration projects are also considered as unusual structures. Examples of Major or Unusual Structures are: Suspension, Cable-Stay, or Prefab/Precast Bridge.
- **Other non-standard structures** - These structures include stayed girder bridges, segmental bridges, any structure having a clear unsupported length in excess of 150,000 mm {500 ft.}, or fracture critical structures.
- **Geotech & Slope Stability Projects –** Projects with historically known bridge, roadway, subsurface, slide or drainage problems/issues.
- **Contaminated/Hazardous Materials** - Projects with known contaminated/hazardous materials.

Planning/Environmental:

- **Project requiring an EIS or complex EA –** An EA is prepared to evaluate if the short and long-term effects of a proposed project or alternative will significantly affect the quality of the locations environment. It also includes identifying ways to minimize, mitigate, or eliminate these effects and/or compensate for their impact. If the impacts are determined to be insignificant, a Finding of No Significant Impact (FONSI) is prepared and is made a part of the decision. If the impacts are determined to be significant, the proposed action may be rejected, modified, or require the preparation of an Environmental Impact Statement (EIS).

  An EIS is performed for a project that has significant adverse impacts. EIS projects tend to be complex with significant impacts to a variety of environmental resources. Potential projects would include new limited-access highway; highways constructed on new alignment; construction or extension of fixed guideway systems expected to cause major shifts in travel and land use patterns; or construction involving extensive demolition, displacement of many individuals or businesses, or substantial disruption to local traffic patterns. An EIS would be required for projects that significantly affect properties protected under Section 4(f); are opposed on environmental grounds by a federal, state, or local agency, or by a considerable number of affected persons; significantly affect sensitive natural, cultural, or scenic resources; significantly disrupt established communities; significantly raise noise levels in sensitive areas such as schools, hospitals, or residential areas; significantly decrease air quality or violate a State Implementation Plan (SIP) for Air Quality; significantly affect water quality or a

sole source aquifer or a public water supply system; or significantly increase energy consumption.

- **Federal Stakeholders Involved** – Projects with federal stakeholder involvement (such as but not limited to: USF&W, USCOE, EPA, HUD, etc.
- **Threatened & Endangered Species** - *P*rojects with known endangered species involvement, as identified during the NEPA process (e.g., Peregrine Falcon, Indiana Bat, etc.)
- **Impact on identified freight corridors and facilities** – Impact on freight corridors **include** roadways, rail lines, and waterways that are essential to efficient movement of goods to, from, and within a particular region of the state. The regional corridors and facilities are included in the *Pennsylvania Mobility Plan, Pennsylvania State of the System Report*.

ITS/Operations:

- **Extremely high ADT** – Daily traffic volume, which due to its amount and composition of traffic, results in Level of Service E or F for a period greater than three consecutive hours per day or ADT exceeding 150,000 vehicles per day.
- **Extremely high congestion and delay** – Existing roadway with Level of Service (LOS) E or F for a period greater than three consecutive hours per day.
- **Complex Traffic Control significant project** – This type project is one that, alone or in combination with other concurrent projects nearby is anticipated to cause sustained work zone impacts (as defined in §630.1004) that are greater than what is considered tolerable based on State policy and/or engineering judgment.
- **New ITS/New Technologies** – Projects with new Intelligent Transportation System (ITS) technologies, such as Wireless ITS communications, connected vehicle, etc.

Pavements & Materials:

- **Materials Acceptance and Quality–** Projects with known pre-existing materials acceptance and quality issues and concerns.

Safety:

- **New or Revised Interstate Access Modifications –** Projects involving changes to interstate access, such as a new interstate interchange, or modified/revised ramps to an existing interstate interchange or ramps.
- **Breaks in Access on Limited Access 4 Lane Expressways –** Access management projects on 4-lane expressways.
- **Pedestrian/Bicycle Safety –** Projects with pedestrian or bicycle safety components, such as but not limited to ADA Curb Ramps and/or Bicycle lanes.
- **HOV/HOT/Bus on Shoulders Project –** Projects with High Occupancy Vehicle (HOV) of High Occupancy Toll (HOT) lanes.

Utility/Right-of-Way:

- **Complex utility relocations and ROW** - A complex network of public/private utilities, whose relocation threatens mobility, increases safety risks, adversely affects nearby residents or businesses, and adds project delay and expense. Relocation results in the need to acquire right-of-way from more than 20 property owners or at a cost greater than $1,000,000.

Miscellaneous:

- **Bi-State projects** – Bi-State projects involve the Commonwealth of Pennsylvania as well as one of its adjacent neighboring states in the identification of cross-boundary issues and strategies as they relate to the enhancement of each state's transportation network.
- **Claims Resolution –** Projects with known complex contractor claims.
- **Controversial Projects –** Projects with known strong public opposition, possibly with media attention.
- **Every Day Counts (EDC)-** Every Day Counts (EDC) is a finite set of initiatives identified by FHWA to be proven innovative techniques to shorten project delivery, enhance roadway safety and protect the environment.

  EDC-1 is the first group of innovations that were identified in 2010. These innovations were promoted through Every Day Counts during 2011 and 2012. In late 2012, sponsorship of the EDC-1 innovations by the Every Day Counts initiative came to a close, and a new set of innovations, EDC-2, was selected for deployment. All of them provide ways of improving the work of highway planning, design, construction and operation.

  The latest group of innovations to be promoted through the Every Day Counts initiative was announced to the public on August 28, 2014. These innovations continue the goal of shortening project delivery, enhancing roadway safety, reducing congestion, and improving environmental sustainability. This round of EDC carries the theme of "efficiency through technology and collaboration" as many of the technologies are aimed at improving collaboration among stakeholders to bring efficiencies to the development and delivery of roadway projects.

  - ✓ **EDC-1 Innovations are:** Adaptive Signal Control; Clarifying the Scope of Preliminary Design; Construction manager/General Contractor; Design-Build; Enhanced technical Assistance with Ongoing EISs; Expanding the Use of Programmatic Agreements; Flexibilities in Right-of-Way; Flexibilities in Utility Accommodation and Relocation; Geosynthetic Reinforced Soil-Integrated Bridge System; Planning and Environmental Linkages; Prefabricated Bridge Elements and Systems; Safety Edge; Use of In-Lieu Fee and Mitigation banking; Warm Mix Asphalt.
  - ✓ **EDC-2 Innovations are:** 3D Engineered Models for Construction; Accelerated Bridge Construction (Geosynthetic Reinforced Soil-Integrated Bridge System, Prefabricated Bridge Elements and Systems, Slide-In Bridge Construction); Alternative Technical Concepts; Construction Manager/General Contractor; Design-Build; First Responder Training; Geospacial Data Collaboration; High Friction Surfaces; Implementing

Quality Environmental Documents; Intelligent Compaction and Construction; Intersection and Interchange Geometrics; Locally-Administered federal-aid Projects; Programmatic Agreements.

- ✓ **EDC-3 Innovations are:** Regional Modes of Cooperation; Improving Collaboration and Quality Environmental Documentation (eNEPA and IQED); 3D Engineered Models: Scehedule, Cost, and Post-Construction; e-Construction; Geosynthetic Reinforced Soil –Integrated Bridge System; Locally Administered federal-aid Projects: Stakeholder; Improving DOT and Railroad Coordination (SHRP2 R16); Mobility – Smarter Work Zones; Safety- Data-Driven Safety Analysis, Road Diets (Roadway Reconfiguration); Quality – Ultra-High Performance Concrete Connections for prefabricated Bridge Elements.

- **Experimental Methods** – Projects requiring Special FHWA Approval (SEP-14, SEP-15).
- **Innovative contracting methods** - Contracting methods that provide a means of motivating contractors to provide quality transportation facilities while minimizing travel delays and maintaining a competitive bidding process.
- **Locally administered project** - For the purpose of the Agreement, a locally administered project is a Federal-aid project in which an entity other than PennDOT is a sub-recipient, and this entity is administering the particular phase being authorized, i.e., PE, ROW, or Construction. These would include projects where the non-traditional entity will either perform the work itself or enter into a contract for services or construction.
- **Major Project** - A project with a total estimated cost of $500 million or more that is receiving financial assistance.
- **Major Widening –** Projects requiring the addition of at least one standard travel lane in each direction, with shoulders and drainage.
- **New alignment** - The purposeful and justifiable location of a travelway along a previously undeveloped corridor greater than ½ mile in length designed to connect logical termini while avoiding as many vital community and natural resources as possible.
- **New or innovative construction methods** - The procedures and techniques utilized during construction designed to deploy innovation aimed at shortening project delivery, enhancing the construction safety of the roadway, and protecting the environment. Examples are: Prefab/Precast bridge, Slide-In Bridge Construction, Diverging Diamond Interchange (DDI), Roundabout, etc.
- **Political Projects, with Congressional interest –** Projects with involvement, inquiries and/or interest by local/state or federal political appointees, or members of congress.
- **Projects with earmarks** – A legislative provision that directs approved funds to be spent only on a specific project. To qualify, the project must be consistent with the project description in the provision (scope and location).
- **Strategic Highway Research Program (SHRP1 and SHRP2) -** A program to promote research results and products developed under the future strategic highway research program administered by the Transportation Research Board (TRB) of the National Academy of Sciences. SHRP2 implementation is an eligible activity under the Technology and Innovation Deployment Program (TIDP) in each of FYs 2013 and 2014. These funds

are contract authority from the Highway Account of the Highway Trust Fund. Funds are available until expended. At the request of a State, the Secretary may transfer funds apportioned or allocated to that State to another State or to FHWA to fund research, development and technology transfer activities of mutual interest on a pooled fund basis. Funds are subject to the overall Federal-aid obligation limitation and the obligation limitation associated with these funds is available for four fiscal years. Funds from this source may be used for administrative costs.

- ✓ **SHRP 2 Innovations are:** Managing Risk in Rapid Renewal Projects (R09); Project management Strategies for Complex Projects (R10); Organizing for reliability Tools (L06/L01/L31/L34); Implementing Eco-Logical (C06); Innovative Bridge design for rapid renewal (R04); Guidelines for the Preservation of High-Traffic Volume Roadways (R26); Performance Specifications for Rapid Renewal (R07); Railroad-DOT Mitigation Strategies (R16); Expediting Project Delivery (C19); GeotechTools (R02); Identifying and Managing Utility Conflicts (R15B); Precast Concrete Pavement (R05); Pavement Renewal Solutions (R23); Freight Demand Modeling and Data Improvement (C20); to Technologies to Enhance Quality Control on Asphalt Pavements (R06C); Tools to Improve PCC Pavement Smoothness During Construction (R06E); Nondestructive Testing for Tunnel Linings (R06G); Project Management Strategies for Complex Projects (R10); New Composite Pavement Systems (R21); Economic Analysis Tools (C03/C11); Advanced Travel Analysis Tools for Integrated Travel Demand Modeling (C10/C04/C05/C16); 3D Utility Location Data Repository (R01A); Service Life Design for Bridges (R19A); Service Limit State Design for Bridges (R19B); Nondestructive Testing for Concrete Bridge Decks (R06A); Techniques to Fingerprint Construction Materials (R06B); Advanced Methods to Identify Pavement Delamination (R06D); WISE: Work Zone Impact Estimation Software (R11); PlanWorks: Better Planning, Better Projects (C01) .

2015 Stewardship and Oversight Agreement
and
Procedures for Projects of Division Interest (PoDI) and PennDOT Project Oversight Identification

Stewardship and Oversight Agreement

The development of the 2015 Stewardship and Oversight Agreement (S&O) was based on a significant change in FHWA's oversight approach which is transitioning from "full-oversight" of projects to oversight activities primarily focused on areas of higher risk and opportunity. FHWA's use of a risk-based approach is intended to optimize the successful delivery of projects and to assure compliance with Federal requirements. Additionally, to provide consistency across the nation, FHWA developed a standard template for the development of the new agreement.

To provide a mechanism for the new oversight responsibilities, FHWA has created two categories for their oversight: Projects of Division Interest (PoDI) and Projects of Corporate Interest (PoCI). PoDI are those projects that have an elevated risk, contain elements of higher risk, or present a meaningful opportunity for FHWA involvement to enhance meeting program or project objectives. Under this category, project selection will be risk-based, with stewardship and oversight activities being directed toward addressing identified risks. PoDI will include projects which FHWA will retain all or some of the stewardship and oversight responsibilities and approval actions from project initiation to final voucher, and may also include retaining certain project approvals or directing stewardship and oversight activities to a specific phase or element of a project. For example, FHWA may determine that a project warrants FHWA oversight up to PS&E approval, but not during the construction phase of the project. Additionally, FHWA and PennDOT may agree to make certain components of a project subject to FHWA Oversight if the project contains one or more Risk Based Parameters; and when this happens, the entire project becomes a PoDI. PoCI are a subset of PoDI. These are projects deemed to be so significant that FHWA is willing to commit additional resources beyond those available at the individual Division level to help ensure successful delivery of the project.

In addition to PoDI and PoCI, the new S&O agreement provides more detailed information regarding the oversight of local project delivery. Furthermore, this agreement added appendices containing a Project Action Responsibility Matrix and a Program Responsibility Matrix.

Procedures for Projects of Division Interest (PoDI) and PennDOT Project Oversight Identification

The S&O Agreement references a new document called: Procedures for Projects of Division Interest (PoDI) and PennDOT Project Oversight Identification. This document contains the essence on how FHWA and PennDOT will implement the requirements of the S&O agreement. This document gives definitions of PoDi, PoCi, and PennDOT oversight projects; details regarding how and when FHWA and PennDOT will identify oversight responsibilities; definitions of risk based parameters; and refers to Business Service Standards contained in the S&O agreement to identify time frames to provide services.

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APPENDIX D

QUALITY MANAGEMENT MANUAL FOR PROJECT DEVELOPMENT

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FOREWORD

This Quality Management Manual (QMM) describes and references the quality control and quality assurance (QC/QA) practices and procedures of the Pennsylvania Department of Transportation's (PennDOT) Bureau of Project Delivery (BOPD), Bureau of Maintenance and Operations (BOMO), Federal Highway Administration (FHWA), and Engineering Districts relative to Project Development. The practices and procedures are intended to ensure that 1) projects are developed and designed in accordance with Federal and State requirements; 2) corrective actions are taken when design processes and related approvals are found to be in noncompliance with applicable Federal and State requirements; and 3) continuous quality improvement is applied to all work processes and products.

PennDOT is committed to improving quality in all facets of its operations. Various tools have been used and are currently being used to improve quality in the design process. Some of these tools are quality circles, customer service surveys, strategic planning, process reviews, and quality training on techniques such as identification of root causes, fishbone diagramming, and self-evaluation according to the Malcolm Baldridge National Quality Award criteria.

The current FHWA/PennDOT Stewardship and Oversight Agreement delegates certain approval authority to PennDOT that was formerly the responsibility of the FHWA. As stated in the FHWA/PennDOT Stewardship and Oversight Agreement, "in consideration of the efficiency associated with making project approvals on behalf of FHWA, PennDOT's QC/QA plan will assure that all such approvals are in accord with applicable statutes, FHWA regulations, policies and standards (i.e., Federal requirements)." PennDOT has been a national leader in assuming responsibilities from the FHWA for certain approval activities. PennDOT was one of the early state agencies to apply for certification acceptance and receive approval to perform certain functions on behalf of FHWA on Federal-aid projects.

Policies and Procedures are defined for the design of projects in the following documents:

- PennDOT Standards
- PennDOT Specifications
- PennDOT Design Manuals (DMs) (see Section 1.2.5 of this Manual)
- PennDOT Publications (See Appendix A of this Manual)
- PennDOT Strike Off Letters

The Roles and Responsibilities for Districts, Central Office and FHWA organizations involved in the Design Phase of projects are as follows:

Districts

- Manage project development and perform delegated approvals
- Manage consultant agreements
- Maintain and distribute internally copies of appropriate policies and procedures
- Comply with appropriate policies and procedures
- Develop operating procedures (Tier II, see Section 1.2.3.)
- Exercise appropriate QC/QA
- Prepare and implement Quality Development plans
- Coordinate/participate with Central Office/FHWA/other Federal and State Agencies

Bureau of Project Delivery - Central Office

- Coordinate approvals at various levels of project development
- Establish education and experience qualifications for performing various functions
- Implement process improvements
- Develop and implement the Project Management system
- Coordinate with FHWA/District/other Federal and State Agencies
- Participate with FHWA in the Independent Oversight Program (IOP)
- Perform quality assurance activities not delegated to the Districts
- Review/approve District operating procedures

- Establish criteria and training policies
- Develop and maintain engineering computing needs (engineering and operational software, hardware, expert systems, management systems, etc.) for the Design Community
- Develop operating procedures
- Coordinate with other Central Office Bureaus
- Evaluate effectiveness of design product after implementation in construction
- Assess available technology and implement changes where appropriate
- Perform quality control on products produced by the Bureau
- Develop policies and procedures
- Provide technical guidance and assistance
- Assess training needs and coordinate training/certification programs
- Coordinate environmental with FHWA and other agencies
- Develop and establish processes to meet requirements and process improvements
- Develop environmental expert systems
- Perform environmental document reviews
- Assess training needs and coordinate training/certification programs
- Review geotechnical report (Roadway)
- Perform geotechnical field testing activities as needed
- Coordinate with FHWA on geotechnical matters
- Develop processes to meet geotechnical requirements
- Develop geotechnical operating procedures
- Develop geotechnical expert systems
- Participate with FHWA in IOP involving geotechnical matters
- Coordinate evaluation and approval of experimental materials and new products
- Perform quality control on products produced by the Bureau

Bureau of Maintenance and Operations - Central Office

- Assess training needs and coordinate training/certification programs
- Participate in pavement designs and review on Federal Oversight projects
- Coordinate with FHWA for program and appropriate project matters
- Review and approve District operating procedures
- Develop processes to meet requirements (e.g., pavement designs)
- Develop standards and operating procedures for pavement engineering
- Develop expert systems
- Participate with FHWA in IOP on pavement design activities
- Coordinate with other Central Office Bureaus
- Measure/evaluate performance of pavements and adjust design procedures
- Perform quality assurance activities not delegated to the Districts
- Assess available technology and implement changes where appropriate
- Perform quality control on products produced by the Bureau
- Develop policies and procedures
- Provide technical guidance and assistance
- Participate with FHWA in IOP on Highway Safety and Traffic Engineering functions
- Establish education and experience qualifications for performing various functions
- Develop processes to meet requirements (e.g., safety reviews)
- Develop operating procedures
- Perform quality assurance activities not delegated to the Districts
- Perform quality control on products produced by the Bureau

Federal Highway Administration

- Review and approve environmental documents
- Manage and conduct IOP
- Coordinate/participate with Central Office and Districts
- Approve and act on Federal Oversight projects and other Federal Aid activities as appropriate
- Review and approve standards, plans, specifications, and strike-off letters for all Federal-Aid activities
- Coordinate with other Federal Agencies

DEFINITIONS

Construction Phase Design Activities - This phase commences upon approval to proceed with design by the Program Management Committee and concludes with the award and execution of the construction contract. During construction, design staff are responsible for activities considered construction services, e.g., shop drawing review, alternate designs for structures, resolution of design-related construction issues, consultation during construction, and evaluation of design quality.

Consultant Quality Plan - A plan prepared by a Consultant performing work for PennDOT that defines the consultant's organizational quality plan. This plan would define procedures, etc. in general terms, for PennDOT's review and approval. In lieu of the organizational plan, PennDOT would accept ISO 9001 and ISO 14000 certification.

Design Phase - Phase of project development that includes needs analysis, feasibility studies, preliminary engineering, environmental analysis, final design, utility relocation, right-of-way acquisition, PS&E preparation, advertising, letting, bidding and award of construction contract.

Engineering and Construction Management System - The automation of the streamlined business processes developed during the Business Process Re-engineering of Project Development activities. Major components include project management, improved ties with PennDOT's business partners, and increased collaboration between the planning design, environmental, traffic safety, and construction communities.

Independent Oversight Program (IOP) - A joint FHWA/PennDOT program that will provide selective reviews of Federal-Aid projects and PennDOT processes to assess the effectiveness of Quality Management in producing quality products and services in compliance with Federal and State regulations and policy.

Operating Procedures - Procedures developed by District and Central Office organizations detailing the performance of certain design and environmental review activities. The procedures identify the individual or unit responsible for the activity, necessary qualifications, design criteria, standards, etc. These documents must be approved by PennDOT Central Office and have FHWA's concurrence to obtain additional delegation approval.

Quality - Preparing the design or products to meet criteria and customer-defined expectations in an efficient, cost-effective manner using state-of-the-art engineering practices and sound professional judgment. Achieving quality is the responsibility of each individual performing the work.

Quality Assurance (QA) - The planned and systematic action performed by a party not involved in QC to provide adequate confidence that delegated approvals comply with Federal and State requirements and standards. An example is the performance of a limited, high-level review of each product to confirm quality, economy, and compliance with laws, regulations, and policies prior to final acceptance by PennDOT or prior to submission to external agencies for approval.

Quality Audit (per ISO 10011-1:1990E) - A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

Quality Control (QC) - Processes performed by PennDOT (and/or its consultants and contractors) that ensure delegated approvals comply with Federal and State requirements and standards. QC is the responsibility of the party producing the product or service. For example, a document (calculations, drawings, reports, etc.) produced by a designer is thoroughly checked by another qualified person to ensure utilization of accepted logics, practices, and correctness of all information (calculations, details, etc.).

Quality Development Plan - A plan prepared for managing quality during project development whether a project is PennDOT designed, Consultant designed, or a joint PennDOT/Consultant effort. Where Consultants are used, a joint plan is required. Size and complexity of a plan will vary dependent on size and scope of project. This plan will address key staff, responsibilities, milestones, monitoring budgets and schedules, communication efforts, QC/QA efforts and tracking procedures as a minimum.

- **Consultant Project-Specific Quality Development Plan** - Project-specific plan developed by Consultant to manage the overall assignment and ensure quality products are provided. This document will be incorporated into the Quality Development Plan.

Quality System (per ISO 10011-1:1990E) - The organizational structure, responsibilities, procedures, processes, and resources for implementing quality improvement.

Third Party Federal-Aid Projects - Projects receiving Federal-Aid that are developed or managed by an entity other than PennDOT. The organizations would include the cities of Philadelphia and Pittsburgh and other county, local and municipal governments.

Work Instructions - Specific instructions or checklists for individuals performing the work. These documents provide directions on how to do the work.

REVISIONS AND REISSUES

This QMM for project development will be prepared by, and all changes will be issued by the Director of the Bureau of Project Delivery. Revisions requested by the Director of the Bureau of Maintenance and Operations will be forwarded to the Director of the Bureau of Project Delivery for approval and distribution. Revisions will be accomplished by issuing revised pages to reflect changes in the current BOPD/BOMO practices and procedures. Each page of the initial QMM will contain the month and year of adoption at the bottom, left side of the page. Likewise, revised pages will contain the revised month and year at the bottom, left side of the page. For the initial issue and any subsequent issues, a REVISION LIST (see following page) will be included. The REVISION LIST will indicate all revisions to the current issue. Periodically, dependent on the number of revisions, the QMM may be reissued. Reissues will be numbered and will cancel and replace the previous edition and all revisions to the previous edition.

IMPLEMENTATION

The BOPD/BOMO Directors and District Executives have ultimate responsibility for the effective management of all design work processes within their organizations. The current design work processes, whether formalized or not, contain or should contain QC/QA procedures. Initially, existing QC/QA procedures will be used. As part of the continuous quality improvement initiative in the BOPD/BOMO/Engineering Districts and in the PennDOT design community, errors of omission and commission in any work process and its integral QC/QA procedures will be continuously monitored by the respective Divisions within each Bureau. All non-conformances should be systematically reported by the Bureaus to the District via quarterly parallel activity reports or other means deemed appropriate. Corrective actions will be taken at the lowest, competent level possible. Recurring non-conformance to the operating procedures will be addressed with systematic, progressive corrective actions and may include the loss of delegated approval authority.

REVISION LIST

REVISION	DATE	DESCRIPTION	PAGE(s)

QUALITY MANAGEMENT PLAN

1.1 MANAGEMENT RESPONSIBILITY

1.1.1 Quality Policy

The PennDOT design community is committed to providing consistent, high-quality products in a timely manner and within the design and construction budgets that meet the customer's expectations. A key element of quality is continuous quality improvement.

1.1.2 Organization

Managers within the BOPD/BOMO and Engineering Districts are responsible for implementing and managing design work performed in their respective areas. This would include quality control and quality assurance functions; however, quality begins with the individual. Each employee is responsible for the correctness and timely completion of his/her work, and each employee is responsible for continuously recognizing and recommending work process improvements.

1.2 QUALITY SYSTEM

1.2.1 Quality Management Manual for Project Development

This QMM contains references to current BOPD/BOMO and Engineering Districts internal operating procedures, policy and procedure manuals, and management directives. Some of these references currently contain operating procedures. Additional operating procedures will be developed over time as part of the continuous quality improvement process.

1.2.2 Quality System Procedures

PennDOT is committed to this quality management system which is applicable to all design products and processes. This system covers all activities from approval by the Program Management Committee to proceed with design, to award and execution of construction contracts. At this point, the project responsibility for quality is transferred to the Bureau of Project Delivery (BOPD) and the District construction units. However, the design staff retains responsibility for activities performed under the construction services phase which include shop drawing reviews, alternate structures review, and consultation during construction, including resolution of design-related construction issues and ensuring that mitigation commitments are implemented.

1.2.3 Tier Documentation

PennDOT has adopted the following ISO 13001 Quality Pyramid documentation structure. A description of the information to be included in each Tier for PennDOT activities follows:

<u>Tier I - PennDOT Quality Management Manual for Project Development (QMM)</u>

This document establishes the Department's commitment to quality and the general philosophy for a quality management system.

<u>Tier II - Operating Procedures</u>

Tier II documentation addresses the who, what, when, where, and why for design work processes in the Central Office and in the Districts. Operating Procedures include, but are not necessarily limited to, those published in PennDOT's various Design Manuals, Surveying and Mapping Manual, Policy and Procedures for the Administration of Consultant Agreements (Publication 93), Standard Drawings, Specifications, Strike-off letters, Policy letters, Transportation Development Handbooks, Right-of-Way Manual, Geotechnical Manual, and the Pavement Policy Manual. Some of these current operating procedures contain QC/QA processes. The current QC/QA processes and those to be developed with the implementation of the Engineering and Construction Management System (ECMS)

and this QMM should also define how to identify non-conforming products or services and how to initiate and implement the corrective actions.

Tier III - Work Instructions

Work Instructions (how to do it) are specific instructions or checklists for individuals actively performing the work. In many instances, this information is already incorporated in existing documents or exists as informal procedures. As part of the continuous quality improvement process, work instructions will be developed and documented, including QC/QA activities.

Tier IV - Audits of Conformance

This Tier includes any internal audits PennDOT staff or others perform to randomly monitor activities to ensure that the QC practices have been addressed and documented.

Tier IV would also include an annual third-party IOP for Federal-aid projects as identified in the current FHWA/PennDOT Stewardship and Oversight Agreement. Primary responsibility for the IOP rests with FHWA. However, the selection of process and review topics, the performance of reviews, and the preparation of reports will be performed jointly with PennDOT.

1.2.4 Quality Management Objectives

The following objectives guide the overall Quality Management effort in the Design Phase and the implementation of the QC/QA program required by the current FHWA/PennDOT Stewardship and Oversight Agreement.

- Provide overall quality for project development of highway projects, bridge projects, and other transportation-related projects during the design phase as defined by the FHWA/PennDOT Stewardship and Oversight Agreement.
- Ensure quality design services during the design and construction phase.
- Approve submissions delegated by FHWA to PennDOT to satisfy Federal-aid requirements.
- Prepare Quality Development Plans.
- Ensure all design partners have approved operating procedures.
- Establish standardized procedures for QC/QA for the various processes throughout the design phase.
- Develop standardized procedures for revising operating procedures and incorporating QC/QA requirements.
- Identify procedures to obtain approval for delegating duties in accordance with FHWA/PennDOT Stewardship and Oversight Agreement requirements.
- Make consultants responsible for the quality of their design products and comply with the Quality Development Plan.
- Enhance efficiency/effectiveness of the Department's various project development processes.
- Identify generic procedures for preparing project-specific Quality Development Plans for both Department staff and consultants.
- Ensure compliance with QC procedures in all work processes and also in policy development procedures.
- Ensure compliance with Federal and State requirements and standards.

1.2.5 Operating Procedures and Work Instructions

Current Operating Procedures and Work Instructions for the design phase are partially contained in the following nine-volume family of DMs. These DMs are complemented by numerous handbooks, manuals, guides, standards, and other publications as listed in Appendix A.

Part	Document Name	Designation
Part 1	Transportation Program Development and Project Delivery Process	DM-1
Part 1A	Pre-TIP and TIP Project Development Procedures	DM-1A
Part 1B	Post-TIP NEPA Procedures	DM-1B
Part 1C	Transportation Engineering Procedures	DM-1C
Part 1X	Appendices to Design Manuals 1, 1A, 1B, and 1C	DM-1X
Part 2	Highway Design	DM-2
Part 3	Plans Presentation	DM-3
Part 4	Structures	DM-4
Part 5	Utility Relocation	DM-5

The DMs and the appended documents contain procedures, standards, and policies for performing design work. The quality control of design is provided through guidance from these manuals and publications. Design products will be prepared, reviewed and approved in accordance with operating procedures to be developed by each Bureau or District.

The development of operating procedures by each Bureau or District will interface with ECMS and utilize the automation being developed and acquired for ECMS implementation. The appropriate operating procedures will be incorporated in revisions to Tiers I, II, III, and IV documents to ensure that these practices are integral to the standard design procedures for the PennDOT design community.

PennDOT's purpose in both the ECMS and the FHWA/PennDOT Stewardship and Oversight Agreement is to delegate approval authority to the lowest possible competent level. To accomplish this goal, each Bureau or District will develop operating procedures for its particular design work processes. The respective operating procedures will address the following items:

- The objective of and approach to the design process
- The design criteria
- The education, experience, roles, and responsibilities of the named key personnel
- The quality control measures
- The quality assurance measures
- The corrective action procedures

After Central Office approval of and FHWA concurrence in these respective operating procedures, the approval authorities will be officially delegated to the appropriate Bureau or District.

1.3 INTERNAL QUALITY AUDITS AND THE INDEPENDENT OVERSIGHT PROGRAM (IOP)

The Director of the BOPD, in consultation with the Director of the BOMO and District Executives, will establish procedures for conducting internal quality audits. Internal quality audits will be conducted on an annual or as-needed basis. The purposes of conducting internal quality audits are:

- Compliance - To ensure compliance with standard processes, laws, regulations, policies, operating procedures, or other requirements.
- Problem Resolution - To investigate and eliminate the cause of problems identified.
- Efficiency/Effectiveness - To modify a process to improve its efficiency and cost effectiveness.
- Information Sharing/Education - To study processes and products so all who are involved with or affected by them improve their understanding.

An annual third-party IOP will evaluate the reliability and effectiveness of PennDOT's quality management system as well as the products developed using the identified processes. FHWA and PennDOT will jointly determine areas for the IOPs. PennDOT representatives will assist the FHWA in conducting these IOPs. The Director of the BOPD will also establish procedures to respond to FHWA's IOP findings and recommendations within 90 days.

1.4 CORRECTIVE AND PREVENTIVE ACTIONS

PennDOT is committed to continuous quality improvement (CQI). The essence of CQI is identifying what we do and how we can do it better. Results of the ongoing quality control procedures (i.e., reviews, checking, etc.) during the design process, and the above-referenced Internal Quality Audits and IOPs will be evaluated to determine what is causing work process problems and what can be done to eliminate the causes or reengineer the process. Corrective action will then be determined and implemented by the "owners" of the work process. As part of the continuous quality improvement process, new QC/QA procedures will be developed and integrated into the design work processes. Subsequent internal quality audits and IOPs will assure that the corrective actions have been implemented and that they are effective.

1.5 DESIGN MANAGEMENT

1.5.1 General

The DMs listed in Section 1.2.5 and the complementary documents listed in Appendix A currently contain some operating procedures. The object of this quality management system is to comply with these current procedures. Where there are no current operating procedures, they will be developed and become an integral aspect of the design work process. Currently groups with input to a specific design process interact via PennDOT's standard procedure for distributing proposed changes. This process includes soliciting comments from the affected parties.

1.5.2 Design Review

At appropriate stages of design, the design results will undergo formal documented reviews in accordance with current operating procedures identified in the DMs and documents referenced in Section 1.2.5 and as identified in the District's quality development plans. Participants in each design review shall represent all functions associated with the design stage being reviewed. Records of such reviews shall be maintained in accordance with the Department's policies and procedures.

1.6 CONSULTANT MANAGEMENT

PennDOT employs consultants to perform a number of activities in the design phase. Procedures for obtaining consultant assistance for various design functions are found in Publication 93, *Policy and Procedures for the Administration of Consultant Agreements*. This document addresses the need for a consultant, the selection process, the development of the scope, the negotiations, management of the consultant, and other pertinent topics related to consultant services.

The Department has implemented procedures to place additional responsibilities on consultants for quality of work. The consultants will be required to submit an organizational quality plan and submit job specific Quality Development plans for PennDOT approval. In lieu of the organizational plan, PennDOT would accept ISO 9001 (ISO 14000) certifications. As part of quality reviews, process reviews, and IOPs, these plans and the consultants' conformance to them will be monitored, evaluated and documented and appropriate corrective action taken when required.

1.7 MANAGEMENT OF FEDERAL AID PROJECTS BY A THIRD PARTY

Federal-Aid projects developed and managed by third party organizations (Pennsylvania Turnpike, cities, counties, municipalities and others) will be required to conform to the quality management requirements outlined in this manual. The organizations may adopt PennDOT's operating procedures and work instructions or develop and submit their own for PennDOT approval and FHWA concurrence.

APPENDIX A

The following complement the Design Manuals listed in Section 1.2.5:

- Agricultural Resources Evaluation Handbook (Publication 324)
- Plans, Specifications and Estimate Package Delivery Process Policies and Preparation Manual (Publication 51)
- Categorical Exclusion Evaluation Handbook (Publication 294)
- Cultural Resources Handbook (Publication 689)
- Design Circular Letters
- Design Strike-off Letters
- Environmental Assessment Handbook (Publication 362)
- Environmental Impact Statement Handbook (Publication 278)
- Estimating Manual (Publication 352)
- FHWA Contract Administration Core Curriculum Guide, Participants Manual, and Reference Guide
- Geotechnical Engineering Manual (Publication 293)
- Geotechnical Waste Management (Publication 292)
- Guidelines for the Design of Local Roads and Streets (Publication 70M)
- Handbook of Approved Signs (Publication 236)
- Local Project Delivery Manual (Publication 740)
- Manual on Uniform Traffic Control Devices (MUTCD)
- Needs Study Handbook (Publication 319)
- Official Traffic Control Devices - Chapter 212 (Publication 212)
- Pavement Policy Manual (Publication 242)
- PennDOT Drainage Manual (Publication 584)
- Pennsylvania Department of Transportation - Rules and Regulations Published as 67 PA Code Chapters
- Policy and Procedures for the Administration of Consultant Agreements (Publication 93)
- Procedures for the Administration of Locally Sponsored Projects (Publication 39)
- Project Level Air Quality Handbook (Publication 321)
- Project Level Highway Traffic Noise Handbook (Publication 24)
- Project Level Public Involvement Handbook (Publication 295)
- Project Office Manual (Publication 2)
- Relevant American Association of State Highway Transportation Officials (AASHTO) Publications
- Right-of-Way Manual (Publication 378)
- Section 4(f) Handbook (Publication 349)
- Specifications (Publication 408) with applicable Bulletins and Supplements noted therein.
- Standards for Bridge Construction, BC-700M Series (Publication 219M)
- Standards for Bridge Design, Reinforced Concrete, Steel, Prestressed Concrete Structures, BD-600M Series (Publication 218M)
- Standards for Roadway Construction, Series RC-0M to 100M (Publication 72M)
- Surveying and Mapping Manual (Publication 122M)
- Temporary Traffic Control Guidelines (Publication 213)
- Traffic Control - Pavement Marking and Signing Standards, TC-8700 Series (Publication 111)
- Traffic Engineering Manual (Publication 46)
- Traffic Signal Design Handbook (Publication 149)
- Traffic Standards - Signals, TC-8800 Series (Publication 148)
- Waste Site Evaluation Procedures Handbook (Publication 281)

ACRONYMS

AASHTO - American Association of State Highway Transportation Officials

BOMO - Bureau of Maintenance and Operations

BOPD - Bureau of Project Delivery

CQI - Continuous Quality Improvement

DMs - Design Manuals

ECMS - Engineering and Construction Management System

FHWA - Federal Highway Administration

IOP - Independent Oversight Program

ISO - International Standards Organization

PS&E - Plans, Specifications, and Estimate

Publication 93 - Policy and Procedures for the Administration of Consultant Agreements

QC/QA - Quality Control/Quality Assurance

QDP - Quality Development Plan

QMM - Quality Management Manual

TS&L - Type, Size and Location

APPENDIX E

AGENCY COORDINATION MEETING OPERATING PROCEDURES

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AGENCY COORDINATION MEETING
OPERATING PROCEDURES
(August 2015)

GOAL OF ACM

To develop transportation procedures and transportation projects in an environmentally responsible manner through open and effective communication between and among the Federal Highway Administration, the state and federal environmental resource agencies, the Pennsylvania Department of Transportation and transportation planning organizations.

OBJECTIVES

- Provide decisions to ensure that projects proceed through the project development process in a timely manner.
- Provide an open forum for the timely discussion of key concerns and issues of individual agencies.
- Reduce the amount of travel and time needed to fully understand the key concerns and issues related to a specific project.
- Provide adequate opportunity to understand and address key concerns and issues at the appropriate time in the project development process.
- Provide an open forum for the continuous exchange of project related information.
- Increase awareness and understanding of the missions and objectives of all agencies and provide updates on policies and procedures related to the transportation program development and project delivery process.

GROUND RULES/GUIDELINES

Meeting Logistics

1. **Frequency** – The ACMs will be held monthly, generally on the fourth Wednesday of the month. Exceptions will be made for the November and December meetings due to the Thanksgiving and Christmas holidays. In these cases, the ACM meetings for November and December may be joined, and moved to the second Wednesday in December (or other agreed upon date).

2. **Establishment of Annual Schedule** – An annual schedule of the ACMs will be prepared by the ACM coordinator for each calendar year. This schedule will be planned in September/October for the following calendar year. Meetings will generally be scheduled for the fourth Wednesday of the month, unless there is a holiday or other conflict. Each agency representative will be provided with a copy of the annual schedule. This schedule may be modified during the year as appropriate and in consultation with the ACM members. Appropriate notifications of changes will be provided.

3. **Location** – The ACMs will be held at a location designated by PennDOT. PennDOT will attempt to secure a permanent suitable location for ACM. Agency representatives and other ACM participants will be notified as to the location when the monthly agenda is distributed.

In addition to the Monthly ACM, two dates per month will be scheduled for agency field views. All ACM resource agencies will be provided with an annual schedule of the field view dates with the annual ACM schedule. These field view dates can be used for any projects, including EIS and EA Projects, as well as CE projects that warrant an agency field view. Reserved field view dates can also be used for corridor studies and other planning projects or feasibility studies coordinated by the Metropolitan Planning Organizations/Rural Planning Organizations (MPO/RPO) and the PennDOT Districts. Field views must be scheduled through the ACM coordinator.

4. **Time/Breaks** – The ACMs will begin at 9:00 a.m. and generally will last no longer than 3:30 p.m. A one-hour lunch break will be provided, generally from 12:30 p.m. to 1:30 p.m.

5. **Notification of Meetings** – At least two weeks prior to each regularly scheduled ACM, the ACM coordinator will send to each ACM member the agenda for the meeting. The agenda will list the discussion topics and confirm the meeting date, time and location. A calendar showing tentatively scheduled presentations for future months will be provided along with the current month’s agenda.

6. **Cancellation** – If an ACM must be cancelled, the ACM coordinator will notify each ACM representative at the earliest possible time. Notices will be sent by email. In the case of weather emergencies, the ACM coordinator in coordination with the ACM co-chairpersons will make a decision the day before the meeting (an email will be sent to the ACM representatives and those making presentations.)

7. **Seating/Place Cards** – Seating cards will be placed at the table for each of the following persons: each funded resource agency representative, the FHWA and PennDOT representative co-chairing the meeting, the ACM coordinator, the EPDS representative taking the meeting minutes, a facilitator (when required), and the PennDOT District representative or other transportation agency representative (ex. Transit Authority, MPO, RPO) responsible for the particular project/presentation. The seating cards will be used to ensure that key agency and transportation representatives are seated at the main table for each project/presentation, enabling them to more easily participate in presentations and discussions.

8. **Correspondence** - All ACM correspondence will be by electronic means. Paper copy distribution of ACM correspondence will be by special request only.

Meeting Agenda/Agenda Changes

1. **Meeting Agenda** – The meeting agenda will be prepared by the ACM coordinator and sent to the ACM members at least two weeks prior to the ACM. Effort will be made to group projects by Corps District, by DEP Region and by PennDOT Engineering District. One-page "briefing sheets" describing each of the projects to be presented, and providing names of contact persons for additional information, will be included with the agenda.

Placement on the agenda must be requested by the Districts through the Highway Design and Technology Section (HDTS). Briefing sheets must be submitted by the Districts, to HDTS. HDTS will forward the briefing sheet to the ACM coordinator for inclusion in the agenda distribution. Briefing sheets must be received by the ACM coordinator no later than three weeks in advance of the scheduled ACM. Under no circumstances should consultants contact the ACM coordinator directly for ACM scheduling.

The ACMs are for general transportation project development purposes. Transportation agencies other than PennDOT may use the ACM upon request. When a project has no FHWA involvement, Project Teams must seek prior approval to use ACM resources. This includes formal monthly ACMs, agency field views and project meetings. Approval must be obtained from the Chief of the Environmental Policy and Development Section. In the event that approval is not granted, agency funded personnel may not charge their time to the interagency MOU, or the agency must send an alternate representative.

The ACM can also be used as a forum for involving the resource agencies in the planning process for transportation projects. Requests for MPO/RPO presentations should be made directly to the ACM coordinator. Materials for review prior to the ACM should be provided to the ACM coordinator three weeks in advance. The ACM coordinator will distribute these materials through email for the MPO/RPO. All MPO/RPO presentations must be sent to EPDS for review and comment at least two weeks prior to the ACM to ensure that the presentations focus on the planning topics relevant to the ACM participants. Added information on planning presentations can be found under the section titled "*ACM and the Transportation Planning Process*" later in these procedures.

2. **Training and Informational Presentations** – In addition to discussing transportation projects, the ACMs can be used to share information related to environmental and transportation issues and technology. Resource or transportation agency representatives wishing to provide a training or informational presentation should indicate this to the ACM coordinator in advance of an ACM so that this can be placed on the agenda for the next ACM meeting.

3. **Agenda Changes –** The ACM coordinator is responsible for informing the resource agencies of any changes to the ACM agenda as soon as possible prior to the meeting. Notices of changes will be emailed to the ACM representatives.

Meeting Participation

1. **Attendance** – State and Federal resource agencies, FHWA, PennDOT, appropriate consultant staff, and project sponsors (if other than previously listed) should attend ACMs. Agency and Department representatives will make every attempt to attend for the duration of the meeting that is appropriate for their respective area of concern. All meeting attendees are requested to sign the attendance sheet.

The general public, press, and public officials will generally be restricted from ACMs. (These meetings are not subject to Sunshine Laws.) Special meetings for public officials may be arranged outside of the ACM, and public meetings will be held to inform the general public. The press is entitled to attend the public meetings. Final approved meeting reports from the ACMs are available to the public as part of the Technical Support Data for the project. If an exception is made to allow an elected official, press person or someone from the general public to attend an ACM, the resource agency representatives will be notified of this at least one week in advance of the meeting and this person(s) will be introduced at the beginning of the presentation.

2. **Introductions** – It is important for the agency and transportation representatives to know who is in attendance at the ACM. At the start of the ACM, the co-chairperson chairing the meeting will ask each person in the room to state their name and indicate the agency they represent. People should enter at the start or finish of a presentation, not during a presentation. The chairperson should introduce those who enter the meeting room subsequent to the opening introductions, or ask them to state who they are and who they represent. At the start of each presentation, the presenter shall introduce themselves, along with the other members of their team working on the project.

3. **Caucuses** – When appropriate, any resource or transportation agency representative may suggest that a caucus be held to discuss a particular issue. If the other resource or transportation agencies agree, the caucus will be held and the results then relayed to the entire ACM group. The decision resulting from the caucus and any key pertinent issues should be conveyed to the group.

Chairperson/Facilitation

1. **Co-Chairperson(s)** – The Section Chief of the Environmental Policy and Development Section and the FHWA Director of Program development (or their designees) will chair the ACM. The co-chairpersons will be responsible for keeping the meeting moving forward and on schedule; asking questions to clarify information presented and issues raised; ensuring that everyone has been afforded an opportunity to speak and express their opinions; summarizing key points; and reviewing items requiring follow up.

2. **Facilitator** – An outside facilitator may be brought in, on an as needed or as desired basis, to help resolve conflicts.

3. **ACM Coordinator** – A member of EQAD will be appointed as the ACM coordinator. The coordinator will be responsible for the scheduling of meetings, preparation and distribution of meeting records/minutes, updating/scheduling of field views, etc.

Presentations

1. **Types of Projects to Bring to ACM** – All projects with substantial impacts should be brought before the ACM. With very few exceptions, this will include all EIS level projects. EA and CEE level projects will be brought to the ACM at the discretion of the PennDOT Districts, PennDOT Central Office, and FHWA. In addition, MPO/RPOs are encouraged to use ACM as a forum for presenting their Long Range Transportation Plans (LRTP), ongoing planning initiatives and the results of planning studies. The ACM is also an opportunity to address current requirements related to the consideration of environmental mitigation in the planning process. Additional discussion can be found in the section titled “ACM and the Transportation Planning Process” later in these procedures.

2. **Provision of Meeting Materials** – It is strongly encouraged that meeting materials, handouts, and a one-page “executive summary” be provided to the ACM coordinator so they can be distributed with the agenda at least two weeks in advance of the meeting. This will enable the resource agency representatives to come to the ACM prepared for the discussion and with potential questions and concerns ready for discussion. This distribution can be made by the Project Team, but can also be done by the ACM coordinator.

3. **Length of Presentations/Questions/Answers/Discussions** – Presentations should be concise and to the point, allowing for adequate time to address issues and concerns following the presentation. A “workshop” type format is encouraged for all presentations so that all agencies will have an opportunity to provide input. Presentation materials should be in the form of easily understandable charts, graphs and plans wherever possible, and text material should be presented in outline form.

The amount of time allotted on the ACM agenda should take into consideration the time needed to present the pertinent facts, and adequate time for questions, answers and discussion following the presentation. ACM presentations should only be made when input is needed on issues, or on a key decision point in the project development process.

For large projects, it may be necessary to break presentations into sections to allow adequate time to present the necessary facts, discuss issues, and allow time for questions and answers.

Meeting Reports (Minutes)

1. **Taping of Meetings/Preparation of Meeting Reports** – The ACMs will be taped in order to assist the ACM coordinator, or his/her designee, in the preparation of accurate meeting reports (minutes). The ACM coordinator is responsible for providing the means to tape record the meetings. The meeting reports, not the tapes, will remain the official record of the meeting proceedings. The tapes will be saved for a period of 90 days subsequent to approval of the meeting report at the next ACM. The tape will then be recycled for use at a subsequent ACM.

2. **Distribution of Meeting Reports** – The ACM meeting report will be prepared and distributed electronically to the ACM members within two weeks after the ACM. The ACM coordinator is responsible for distribution of the meeting reports. ACM members should review the minutes and provide any comments, clarifications, or corrections at the following ACM.

3. **Acceptance of Meeting Reports** – At the beginning of each ACM, the co-chairperson facilitating the meeting will ask if there are any changes, clarifications or corrections to the previous ACM meeting report. If there are no comments, the meeting report will be approved. Otherwise, the requested changes will be noted in the subsequent meeting report, and the previous meeting report will be approved with the incorporation of those changes.

4. **Changes/Corrections to the Meeting Reports** – Changes, clarifications, or corrections to the meeting reports should be provided to the co-chairperson facilitating the meeting at the following ACM. If an ACM member will not be in attendance at the following ACM, they may provide changes, clarifications or corrections to the ACM coordinator prior to that ACM; the ACM co-chairperson facilitating the meeting will ensure that such changes, clarifications or corrections are read into the meeting record.

5. **Official Meeting Record** – The meeting report (minutes), once approved, will become the official meeting record.

6. **Follow ups** – At the end of each presentation, the ACM co-chairperson facilitating the meeting, or other EPDS, District or

FHWA representative, will review any items requiring follow up. The meeting report will reflect these follow up items.

Field Views/Workshops

1. **Annual Field View Reserve Dates -** At the time of the establishment of the annual ACM schedule, Field View Reserve Dates will also be established. These dates will typically be the first and third Tuesday of each month. ACM members should hold these dates open to accommodate field view scheduling. Each time the field view schedule is updated by the ACM coordinator it will be emailed to all ACM representatives.

2. **Scheduling** – Agency field views and other workshops should be scheduled at the ACMs if at all possible. This will facilitate the selection of a field view date suitable for all interested agency representatives to attend. All requests to utilize reserved agency field view dates must come from the District, through HDTS to the ACM coordinator to ensure that requests are coordinated and dates are not “double-booked”.

3. **Invitations** – Generally, all regulatory and resource agency representatives will be invited to attend agency field views. Regulatory and resource agency representatives will be invited to field views/workshops 30 days in advance whenever possible. In the event that the reserved field view dates are used for pre-application meetings, mitigation field views, or others where only a small subset of ACM agency members are needed, this will be highlighted on the ACM Field View Reserve Date schedule. The attendees needed will be contacted individually by the Project Team with meeting details.

Conduct/Courtesy

1. **Attendance/Timely Arrivals/Stay for Duration** – It is very important that all agency representatives attend the ACMs for the projects under their jurisdiction. It is also important for agency representatives to arrive on time and to stay for the duration of the presentations. Full attendance will facilitate timely decisions.

2. **Keep Discussion Focused on Agenda Items** – In order to fulfill the agenda and provide everyone with their allotted time, it is important that discussions focus on the agenda items. The meeting co-chairperson facilitating the meeting, or other meeting attendee, may interrupt tangent discussions and suggest that these topics be scheduled for further discussion at a subsequent ACM or at a special meeting, if warranted.

3. **Give Speaker Full Attention/Avoid Side Bar Discussions** – All ACM attendees should direct their attention to the presentation

taking place. Side bar discussions are distracting to others and should be avoided.

Special ACMs

Special ACMs (SACM) may be held for projects being “fast-tracked” through the NEPA/Transportation Project Development Process. These meetings will be held once a month for these special projects. When these special projects arise, a list of SACM dates will be prepared. These meetings will typically be held on the Thursday following the regular ACM. Additional “special” ACMs may be held as necessary.

ACM and the Transportation Planning Process

ACM is available for use by the MPO/RPOs in order to involve the resource agencies in the transportation planning process. Opportunities for involving the agencies include reviewing LRTPs and the Transportation Improvement Plan (TIP) selection process, review of the results of planning or feasibility studies, and discussing potential mitigation opportunities associated with long range transportation improvements as required by legislation. The MPO/RPO is encouraged to use the ACM as a means of involving the resource agencies during the pre-TIP project development process to ensure that potential environmental concerns are identified early. Information to be presented by the MPO/RPO at the meetings can include:

- Overview of the region’s transportation system and land use.
- Overview of the region’s environmental, societal and cultural resources.
- Discussion of the public involvement process.
- Overview of the Plan’s vision, goals, and objectives.
- Discussion of the consideration or inclusion of Federal, State, Tribal and Local policies and plans.
- Identification of funding needs across modes.
- Identification of projected revenue.
- Allocation of funding.
- Project prioritization and selection process by mode.
- Overview of the project list.
- Discussion of avoidance and resource mitigation opportunities.
- Identification of additional opportunities for coordination.

In response to these presentations, the agencies are expected to offer guidance and insight related to resources of concern, potential permitting issues, and mitigation opportunities along with any other relevant information that could affect the long term implementation of the overall transportation plan. For specific planning or corridor studies, specific input on potential resource impacts, mitigation and permitting should be offered.

If the MPO/RPO elects to hold separate meetings regarding planning studies, PennDOT will encourage the MPO/RPO to invite the resource agencies to the key meetings with adequate lead time to allow for scheduling and making travel plans.

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APPENDIX F

GUIDANCE FOR COMPILING TECHNICAL SUPPORT DATA

EXECUTIVE SUMMARY

This Appendix has been prepared to supplement the information regarding assembling and reviewing Technical Documentation. **Technical Support Data** serves as the standard support documentation for NEPA documents and includes all the detailed information, assumptions, raw data and calculations needed to support NEPA conclusions. The amount or extent of Technical Support Data depends on the scope, complexity and controversy involved in each individual project.

PURPOSE

The Technical Support Data serve as back up information to the NEPA document (Environmental Impact Statement (EIS), Environmental Assessment (EA), or Categorical Exclusion Evaluation (CEE)). The Technical Support Data should contain all pertinent materials (calculations, assumptions, methodology, etc.) to support the information and conclusions contained in the NEPA document. The Technical Support Data are produced during the course of the project, and the contents of the Technical Support Data are directly considered in the decision-making process.

The information contained in the Technical Support Data should be sufficient to allow a technically competent person to repeat the analyses if necessary, or identify changes in impacts when a design modification is made without recalculating impacts for the entire project. The Technical Support Data, if properly organized, will provide valuable information to the final designer or final design consultant. Assembly of Technical Support Data should facilitate the organization of technical data and analysis, so that it may be more succinctly summarized in the NEPA document.

The Technical Support Data is an essential subset of the Administrative Record for the project. In addition to the information contained in the Technical Support Data, the Administrative Record would include internal correspondence, draft documents, formal transmittals, and contractual information. In the event of a court action against a project, it is the entire Administrative Record that is reviewed. The Administrative Record has been defined by the courts to include all documents and materials, directly or indirectly considered, by an agency in reaching a decision. The Administrative Record includes information which documents that all statutory and regulatory requirements were fulfilled.

In order to ensure that information included in the Technical Support Data is considered part of the Administrative Record, it is essential that this Technical Support Data be complete at the time the CEE is approved or the Finding of No Significant Impacts (FONSI) or Record of Decision (ROD) is issued.

FORMAT

The organization of the Technical Support Data is very important. The Technical Support Data should be divided by major subject headings in keeping with the format of the NEPA document. A checklist has been prepared for use in compiling and reviewing Technical Support Data. This checklist, included as Attachment 1, should be used as a guide in establishing the Technical Support Data.

An overall index (table of contents) to the Technical Support Data should be provided to assist in locating specific subject materials. Indices of the contents within each major subject area should be provided in addition to the overall index.

Use of three ring binders to contain the Technical Support Data is recommended. Information kept loose in file folders is often lost, misplaced, or simply not returned to the file folder after use. Keeping information in three ring binders will reduce the likelihood of information being removed from the Technical Support Data and not replaced. It is recommended that a "library card" system or other appropriate system be established to keep track of information temporarily removed from the Technical Support Data during the preparation of the project documents. In addition, and where possible, back up files in the form of computer disks should be kept for the information contained in the Technical Support Data.

The volume of information for each major subject will determine the number of three ring binders needed for each subject. The binders should contain dividers for each major subject and subdividers for topics under the major subject headings. All information included in the Technical Support Data should be dated with indication of individual(s) completing the work and the consulting firms' project reference, if applicable.

WHAT TO INCLUDE

The Technical Support Data are a subset of the overall project files. Specific information (methodology, raw data, assumptions, calculations, etc.) needed to support the analyses and conclusions of the CEE must be included in the Technical Support Data.

The checklist in Attachment 1 provides a comprehensive list of materials to be included under each major subject heading. Keep in mind, all projects are different and will require different levels of information for each major subject. In general, the following should be included under each major subject:

- The **methodology** used to gather information/data and to calculate impacts should be described.
- **Maps**, **plans**, etc. must be part of the Technical Support Data if needed to support or repeat calculations.
- **Data input and output files** should be included (hard copy and diskette).
- **Field data sheets**, **lab reports** and **photographs** where appropriate should be included.
- Copies of documents prepared as part of specific regulatory processes should be included (for example, Section 4(f) Evaluation or checklists).
- Specific **correspondence** necessary for preparing specific sections of the NEPA document, and letters approving the analyses should be included (for example, letters from the USFWS, PGC, PFBC, and DCNR regarding threatened and endangered species; the wetlands jurisdictional determination (JD) letter; letters from PHMC, the Advisory Council, and National Park Service regarding cultural resources; letters from DEP/EPA regarding hazardous waste sites; letters from DCNR regarding Wild and Scenic Rivers; etc.).
- **Meeting and field view reports from meetings/field views with the resource agencies, and Agency Coordination Meeting (ACM) minutes** should be included as appropriate.
- Standard **reference materials** (books, manuals, published guidelines, etc.) need not be included in the Technical Support Data, but should be referenced. A list of the reference materials used in preparing the NEPA document should be included.
- Proposed **mitigation strategies** should be documented in the Technical Support Data.
- The **name of the person(s) responsible** for conducting the particular analysis should be recorded. Additionally, the person(s) responsible for checking or updating calculations, with dates, should be identified.

Methodology/Assumptions/Data Input

The methodology used to gather data, calculate impacts and analyze each aspect of a project should be clearly documented in the Technical Support Data. This could entail referencing a standard methodology such as the specific manual used for delineating wetlands, or preparing a short paragraph or two describing how the analysis was performed. If computer models are used for any part of the analysis, the name of the model and the version of the model should be stated. Assumptions and sources of raw data should be indicated as appropriate. The names of the person(s) conducting/checking the analyses should be indicated. All entries into the Technical Support Data should be dated. It is suggested that the persons responsible for a particular analysis periodically check with the appropriate person at the PennDOT District and/or PennDOT BOPD during the development of the project to ensure that the appropriate version of the computer model is being used and to ensure that the appropriate input data is applied.

Maps/Computer Printouts

In this high tech age of computers, GIS, and CADD programs, impacts can now be calculated directly from computer files without performing or printing intermediate calculations. When calculations are done directly from computer files, the calculations should be recorded and labeled with the date of the calculations, the date/revision of the plan used in the calculation, the parameters/assumptions used in the calculation, the version of the computer software used, and the names of the persons conducting and checking the analysis. Copies of the plans used in the calculations, with the appropriate constraints shown and labeled, should be printed/plotted and included in the Technical Support Data. A scale, legend, and date should appear on all maps.

Appropriate maps showing alignments and constraints must be included as part of the Technical Support Data. When maps are too big, too bulky, or cannot be folded and put in the Technical Support Data binders, they should be clearly labeled and placed in a map box. A reference to the location of the map should be included in the Technical Support Data binder. An index to the map box should be provided in the overall index to the Technical Support Data.

Correspondence

Required correspondence for the Technical Support Data must be separated from "internal" correspondence. ("Internal" correspondence is described under "What Not To Include".) Correspondence required for the Technical Support Data includes, but is not limited to, the following:

- Project Scoping Form and letters from resource agencies in response to the Project Scoping Form.
- Letters to resource agencies formally requesting specific information for the project and responses to these requests.
- Other letters from resource agencies, public officials, businesses, organizations, and the general public.
- Handouts, questionnaires, completed/returned questionnaires, and summary reports from Public Meetings and Public Officials Meetings.
- Meeting reports from meetings with special purpose groups, task force groups and citizen advisory groups.
- Agency field view reports.
- Minutes from Agency Coordination Meetings (ACM) or Special Agency Coordination Meetings (SACM).
- Project Newsletters produced to inform the general public about the project, and the Newsletter mailing list.
- Newspaper articles regarding the project.
- The Public Hearing Transcript and comments received from the public, resource agencies, etc... during the comment period.

When a letter applies to more than one major subject in the Technical Support Data, it should be cross-filed. For example, a letter from the Pennsylvania Department of Conservation and Natural Resources regarding a threatened wetland plant species should be included in the Technical Support Data under Wetlands, under Vegetation and Wildlife, and under Agency Correspondence.

Technical Documents (Technical Basis Reports)

In certain instances, preparation of a Technical Basis Report (TBR) may be required to satisfy a specific regulatory process. The primary difference between a TBR and Technical Support Data is text. A TBR will include a description of the proposed project, a summary of the project history, a narrative description of the resource, tables, figures, impact calculations, references, correspondence, and other pertinent information. Technical Support Data would not include the narrative descriptions and discussions; it would only include the raw data, appropriate maps with constraints used in impact calculations, impact calculation sheets, CDs when appropriate, etc.

Examples of TBRs that are often prepared to satisfy specific regulatory processes include:

- One or more of the following reports that are prepared to satisfy the Section 106 Process: Historic Structures Survey/Inventory Reports; Archaeological Survey Reports (Phases I and II); Determination of Eligibility Reports; Determination of Effects Reports.

- A Farmlands Assessment Report prepared for submission to the Agricultural Lands Condemnation Approval Board (ALCAB) when condemnation of active agricultural land is necessary for construction of a new roadway.

- A Section 4(f) or Section 2002 Evaluation or checklist prepared if land is to be taken from public recreation areas, wildlife or waterfowl refuges, or National Register eligible historic structures/archaeological sites.

- One or more of the following reports prepared to satisfy the Section 404 and Chapter 105 processes: Wetland Delineation Reports, Wetland Functional Assessment Reports, Wetland Mitigation Reports, Hydrologic and Hydraulic Reports.

- Habitat Evaluation Reports.

- Geo-Technical Reports.

- Waste Site Evaluation Reports.

Additional TBRs can be prepared as appropriate. The need for preparation of specific TBRs should be determined on a case by case basis through project scoping and project coordination. Any TBRs prepared should be included in the Technical Support Data.

WHAT NOT TO INCLUDE

In addition to the Technical Support Data, the overall project files will include working files and internal information regarding the project. These working files and internal information are not part of the Technical Support Data.

Working Files

Working files include draft information, draft write ups, and other unfinished, incomplete work often kept at a technical person's desk in the process of preparing the NEPA document. Interpretations from legal counsel indicate that working or draft documentation is not part of the public record. Only finished products and the information/calculations/data to support the finished products need to be included in the Technical Support Data for the public record.

Internal Information

Internal Information is best described using examples. The following items would be considered internal information and would not be included in the Technical Support Data:

- Consultant Scope of Work, budgetary information, invoices, supplements, etc...
- Transmittal letters and correspondence between/among the following - PennDOT/FHWA/consultants conducting the analyses.
- Meeting reports and field view reports from meetings involving only PennDOT/FHWA/the consultants involved in the project.
- Comments on documents received from PennDOT/FHWA/consultants involved in the project.
- Comments on draft or interim documents received from Cooperating Agencies. (Official comment letters received from Cooperating Agencies during an official comment period should be included in the Technical Support Data.)

Other Considerations

Sensitivity should be exercised in preparing the Technical Support Data for subjects such as archaeological sites and threatened/endangered species habitats. Information regarding the specific locations of these sites/habitats is not routinely disseminated to or readily acquired by the general public. It is given to project sponsors and study consultants for use in designing alternatives in a sensitive manner, to determine impacts, and investigate minimization/mitigation measures where avoidance is not possible. Maps specifically indicating the locations of these sensitive areas should not be included in the Technical Support Data.

AVAILABILITY

The Technical Support Data must be available for public and agency review during the EA availability period, the Draft EIS circulation period, the Final EIS review period, and upon completion of the CEE. If possible, the Technical Support Data should be made available somewhere within the study area. If the prime consultant's office and/or District Office are not near the study area, a time and place could be established where the specific portions of the Technical Support Data requested would be transported to the study area or other mutually agreed upon location for review by the person(s) requesting the review.

Requests to copy information from the Technical Support Data will be handled in accordance with PennDOT's policy regarding payment by the public for reproduction of information. Copying of draft material (e.g. reports still being worked on /reviewed) by the public will not be permitted. If a resource agency requests to see portions of the Technical Support Data, the appropriate information can be copied and sent to the agency representative, or arrangements can be made for that resource agency representative to come to the District's or consultant's office to review the requested information and supporting data.

CHECKLIST

The Technical Support Data Checklist (Attachment 1) is a comprehensive list of potential items that may be available/required for each major subject. Not all projects will require the same level of analysis. Where information is either not applicable or does not exist for a particular project, a note to this effect should be included in the Technical Support Data and N/A (not applicable) should be written on the checklist. It is also possible that a particular project may involve unique information or require unique studies not listed on the checklist. The last page of the checklist includes a subheading for "Other Technical Studies" that can be used for these unique situations.

COMMUNICATIONS/FOLLOW UP

The preparation of Technical Support Data is highly dependent on project scope and complexity, effective project scoping, timely public and agency coordination, and ongoing contact with staff who guide and manage project development. Effective communications with involved parties including the Districts and BOPD is urged in all cases when identifying and preparing Technical Support Data.

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ATTACHMENT 1

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

TECHNICAL SUPPORT DATA CHECKLIST

DATE: _____

COUNTY: _____

S.R. AND SECTION NUMBER: _____

MPMS NUMBER: _____

FPN NUMBER: _____

NAME OF PROJECT: _____

NEPA CLASS OF ACTION LEVEL
(If CE, CEE LEVEL/PACKAGE NO): _____

PENNDOT DISTRICT: _____

PENNDOT CONTACT PERSON: _____

NAME(S) OF REVIEWER(S): _____

_____

_____

_____

This checklist has been prepared to assist the project team in compiling the Technical Support Data and identifying deficiencies.

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TECHNICAL SUPPORT DATA CHECKLIST

Complete / Incomplete Notes
[✓] [ ] N/A = Not Applicable

OVERALL ORGANIZATION/GENERAL CONTENT

- Boxes/drawers/shelves/binders labeled with County, SR #, Section #, Project Name [ ] _____
- Index to the complete Technical Support Data [ ] _____
- Contents separated into major subjects [ ] _____
- Index provided for each major subject [ ] _____
- Subject files in logical order and clearly labeled [ ] _____
- All contents facing same direction [ ] _____
- All contents in chronological order [ ] _____
- Copies of all applicable environmental documents (CEE, Phase I Report, Farmlands Assessment, Wetland Delineation, Cultural Resources reports, etc.) [ ] _____

COMMENTS AND COORDINATION

Agency Coordination

- Plan of Study and Agency responses [ ] _____
- ACM/SACM meeting reports [ ] _____
- Special purpose meeting reports [ ] _____
- Field view reports [ ] _____
- Informational letters received from Agencies [ ] _____

Public Involvement

- Intent to Enter Letters [ ] _____
- Public Officials meeting reports/handouts [ ] _____
- Public Meeting reports/summaries [ ] _____
- Comment forms/questionnaires/handouts from Public Meetings [ ] _____
- All meeting advertisements (newspaper block ads) [ ] _____
- Newsletters [ ] _____
- Task Force meeting reports [ ] _____
- Citizens Advisory Committee meeting reports [ ] _____
- Special purpose meeting reports [ ] _____
- Letters received from the public/public officials during project development [ ] _____
- Newspaper articles [ ] _____
- Public Hearing Transcript/Comments received at the Public Hearing [ ] _____

TECHNICAL ACCURACY OF SUBJECT FILES

Engineering

- Functional Classification [ ] _____
- Urban/Urbanized Area [ ] _____
- Design Speed [ ] _____
- Type of Terrain [ ] _____
- Project Funding Classification [ ] _____
- Plans [ ] _____
- Profiles [ ] _____
- Typical Sections [ ] _____
- Cross Sections [ ] _____

Congestion Management System (CMS) Analysis

- Analysis of CMS Strategies [ ] _____
- CMS Document [ ] _____
- Signed MPO resolution [ ] _____
- Other pertinent correspondence/meeting reports [ ] _____

Major Investment Study (MIS) Analysis

- Process/Scoping Meeting reports [ ] _____
- Public/agency involvement [ ] _____
- Range of Alternatives developed/evaluated [ ] _____
- MIS report [ ] _____
- Endorsement by FHWA/FTA/Agencies [ ] _____
- MPO Endorsement/Resolution [ ] _____
- Other pertinent correspondence/meeting reports [ ] _____

Project Need

- Existing and Projected (No-Build) Traffic Volume Analysis
  - Raw Count Data [ ] _____
  - Seasonal Adjustment Factors [ ] _____
  - Traffic Projection and LOS Methodology [ ] _____
  - Annual Average Daily Traffic (AADT) Volumes [ ] _____
  - Intersection Turning Movements (A.M. & P.M. Peak Hours) [ ] _____
  - Levels of Service Worksheets [ ] _____
  - Truck Percentages [ ] _____
- Safety Analysis [ ] _____
- Accident Resumes/Data Summary [ ] _____
- Roadway Deficiencies [ ] _____
- Regional and Local Roadway Systems (with maps) [ ] _____
- Economic Development Data [ ] _____
- Planning and Transportation Context [ ] _____
- Needs Document or ACM handouts/meeting reports [ ] _____
- Pertinent correspondence [ ] _____
- List of reference materials [ ] _____

Traffic, Transportation and Energy Analysis of Alternatives

- Logical Termini [ ] _____
- Projected (Build Alternatives) Traffic Volume Analysis [ ] _____
  - Traffic Projection and Level of Service Methodology [ ] _____
  - Projected AADT Volumes [ ] _____
  - Projected Intersection Turning Movements (Morning and afternoon peak hours) [ ] _____
  - Levels of Service Worksheets [ ] _____
- Energy Impacts [ ] _____
- Pertinent correspondence [ ] _____
- List of reference materials [ ] _____

Origin-Destination Studies

- Study details (dates, times, locations, etc.) [ ] _____
- Survey Forms [ ] _____
- Trip Tables [ ] _____
- Travel Pattern Analysis [ ] _____
- Pertinent correspondence [ ] _____

Alternatives

- All alternatives considered and dismissed/maps and plans [ ] _____
- Phase I Alternatives Report/Waiver [ ] _____
- Alternatives studied in detail (concurrence) [ ] _____
- Alternatives studied in detail/maps and plans [ ] _____
- ACM/SACM handouts and meeting reports [ ] _____
- Pertinent correspondence [ ] _____

Natural Resources

Geology and Groundwater Hydrology

- Geology and groundwater mapping [ ] _____
- Geologic formations/sinkhole data [ ] _____
- Public and private water supplies data [ ] _____
- Sole source aquifers and well head protection areas (if applicable) [ ] _____
- Pertinent correspondence/fieldview reports [ ] _____
- List of reference materials [ ] _____

Soils and Erosion

- County Soil Survey [ ] _____
- Soils associations, series, drainage classes and engineering properties [ ] _____
- List of hydric soils and highly erodible soils from NRCS [ ] _____
- Pertinent correspondence/fieldview reports [ ] _____
- List of reference materials [ ] _____

Surface Water Hydrology and Floodplains

- Waterways mapping [ ] _____
- Stormwater management facilities mapping [ ] _____
- FEMA & FIRM mapping [ ] _____
- Hydrologic and hydraulic studies/data/reports [ ] _____
- Letters/meeting reports/fieldview reports [ ] _____
- List of reference materials [ ] _____

Water Quality and Aquatic Biota

- Water quality data (STORET, PFBC) [ ] _____
- Aquatic biota data [ ] _____
- Protected, designated water uses (Chapter 93) [ ] _____
- Stocked trout streams [ ] _____
- Wild trout streams [ ] _____
- Wild and scenic rivers data/letter (if applicable) [ ] _____
- Letters/meeting reports/fieldview reports [ ] _____
- List of reference materials [ ] _____

Coastal Zone

- Coastal Zone Management Plan [ ] _____
- Consistency Determination [ ] _____
- Pertinent correspondence [ ] _____

Wetlands

- NWI/Mapping [ ] _____
- Hydric Soils list (NRCS) [ ] _____
- Infrared aerial photos (if used) [ ] _____
- Field data sheets [ ] _____
- Mapping of wetland areas
  and extent of study area [ ] _____
- Wetlands Delineation Report [ ] _____
- Jurisdictional Determination from COE [ ] _____
- Impact Calculations [ ] _____
- Wet 2.0 Data [ ] _____
- Letters/meeting reports/fieldview reports [ ] _____
- Statewide or Individual Wetland Finding data
  - Avoidance alternatives [ ] _____
  - Minimization options [ ] _____
  - Conceptual mitigation plans [ ] _____
- List of reference materials [ ] _____

Vegetation and Wildlife

- Land use and cover type maps (aerials) [ ] _____
- Common wildlife species found
  in the study area (PGC) [ ] _____
- PAM HEP Report (if applicable) [ ] _____
- Endangered species - letters from agencies
  (USFWS, PGC, PFBC, PNDI) [ ] _____

- Field view reports on T/E species and coordination with experts and agencies [ ] _____
- Letters/meeting reports/field view reports [ ] _____
- List of reference materials [ ] _____

Farmlands

- Compliance with E.O. 1994-3 [ ] _____
- NRCS list of prime, statewide and locally important farmland soils and maps [ ] _____
- Form AD-1006 [ ] _____
- List/map of farms protected by Acts 43, 319 and 515 [ ] _____
- Information on Private Easements [ ] _____
- Maps of active farmland parcels [ ] _____
- Interviews with local farmers [ ] _____
- Farmlands Assessment Report (if applicable), including Avoidance Alternatives/Minimization options [ ] _____
- ALCAB adjudication [ ] _____
- Pertinent correspondence & meeting/field view reports [ ] _____
- List of reference materials [ ] _____

Hazardous, Residual and Municipal Waste

- PAR Report [ ] _____
- Paper study performed
  - commercial database search report [ ] _____
  - PAR research checklist (Publication 281) [ ] _____
- Field "windshield" study performed [ ] _____
  - PAR field checklist (Publication 281) [ ] _____
- ISA Report (if required) [ ] _____
- Health and Safety Plan for ISA (if required) [ ] _____
- ISA Background Research Checklist (Publication 281) [ ] _____
- ISA Field Checklist (Publication 281) [ ] _____
- PSI Report (if required) [ ] _____
- Health and Safety Plan for PSI (if required) [ ] _____
- Field Sampling Plan for PSI [ ] _____
- Investigative Reports and lab data used in preparation of PSI Report (soil gas survey, geophysical investigation lab reports, etc.) [ ] _____
- DSI Report (if required) [ ] _____
- Health and Safety Plan for DSI [ ] _____
- Field Sampling Plan for DSI [ ] _____
- Investigative Reports and lab data used in preparation of DSI Report [ ] _____
- Waste Management Plan/PS&E Document(if required) [ ] _____
- Remedial Construction Monitoring Report (if required) [ ] _____
- Post Construction Monitoring Report (if required) [ ] _____
- Pertinent correspondence/interviews/meeting reports/ phone memos not included in above reports [ ] _____

- List of reference materials [ ] _____

Noise

- Maps of receptor site locations and links used in analysis [ ] _____
- Monitoring data sheets/traffic counts [ ] _____
- Traffic used for analysis [ ] _____
- Model used [ ] _____
- Model check results [ ] _____
- Stamina input and output files [ ] _____
- Optima input and output files [ ] _____
- Future Noise Level (FNL) Calculation Adjustments [ ] _____
- Reasonableness analysis sheets, signed [ ] _____
- Noise meter and calibrator certificates [ ] _____
- List of all assumptions used for analysis [ ] _____
- Pertinent correspondence [ ] _____
- List of reference materials [ ] _____

Air Quality

- Maps of receptor site locations and links used in analysis [ ] _____
- Traffic used for analysis [ ] _____
- CALINE 3/CAL3QHC input and output files [ ] _____
- Mobile model used [ ] _____
- Mobile input files and output files [ ] _____
- Background CO concentrations used [ ] _____
- TIP information [ ] _____
- Conformity Statement data [ ] _____
- List of all assumptions used for analysis [ ] _____
- Pertinent correspondence [ ] _____
- List of reference materials [ ] _____

Social Environment

- Comprehensive plans [ ] _____
- List of reference materials used for Social Environment
- Evaluations [ ] _____
- Environmental Justice covered [ ] _____

Land Use and Zoning

- Land use plans (existing and future) [ ] _____
- Existing and proposed development plans and information (Green sites) [ ] _____
- Redevelopment plans (Brown sites) [ ] _____
- Recreation plans [ ] _____
- Tax maps [ ] _____
- Zoning maps (existing and future) [ ] _____
- Pertinent correspondence [ ] _____

Population and Housing

- Census data [ ] _____
  - Age distribution (existing and projected) [ ] _____
  - Education levels [ ] _____
  - Ethnics/minorities/elderly/handicapped (existing and projected) [ ] _____
  - Specialty housing (low income/ handicapped, etc.) [ ] _____

Economy and Employment

- Census data [ ] _____
- List and map of area and local employers [ ] _____
- Map of commercial/industrial centers [ ] _____
- Economic trends/forecasts [ ] _____
- Business displacements [ ] _____
- Pertinent correspondence [ ] _____

Community Facilities

(Health and Safety, Education, Parks and Rec. Facilities, Utilities, Air, Rail, Bus and Bicycle Facilities, Religious facilities, etc.)

- List and map of local facilities and services [ ] _____
- Detailed information on each facility/list of contacts for each facility [ ] _____
- Map of service areas for facilities and planned expansion [ ] _____
- Pertinent correspondence [ ] _____

Community Cohesion

- List and map of neighborhoods [ ] _____
- Map of pedestrian crosswalks/walkways [ ] _____
- Detailed information on neighborhoods [ ] _____
- Residential displacements [ ] _____
- Pertinent correspondence [ ] _____

Municipal Finances

- Area property values [ ] _____
- Millage rates [ ] _____
- Calculations to determine tax revenue lost [ ] _____
- Tax maps [ ] _____
- Pertinent correspondence [ ] _____

Visual

- List/map/photos of sensitive receptors [ ] _____

Cultural Resources

Historic Resources

- List and map of National Register eligible or listed properties [ ] _____
- Historic Structures Survey/ Determination of Eligibility Report [ ] _____
- Determination of Effects Report [ ] _____
- Memorandum of Agreement (MOA) [ ] _____
- Correspondence with local historical societies [ ] _____
- Letters from PHMC/other correspondence [ ] _____
- Letter from Keeper (if applicable) [ ] _____
- Letters from Advisory Council (if applicable) [ ] _____

Archaeological Resources

- Map of probability areas for archaeological sites and/or predictive model [ ] _____
- Interviews with local informants [ ] _____
- Phase I Report or Phase I Summary Report/ Phase II work plan [ ] _____
- Phase I/Phase II Report (if applicable) [ ] _____
- Phase III Work Plan (if applicable) [ ] _____
- MOA (if applicable) [ ] _____
- Letters from PHMC/other correspondence [ ] _____
- Letters from Advisory Council (if applicable) [ ] _____

Section 4(f) Evaluation

- Section 4(f) documentation (checklist(s) or individual evaluation) including: list and map of 4(f) properties, descriptions, photos, and avoidance alternatives [ ] _____

Secondary and Cumulative Impacts

- Defined Study area (space and time) [ ] _____
- Methodology/Parameters [ ] _____
- Secondary impacts [ ] _____
- Cumulative evaluation [ ] _____
- Mitigation strategies [ ] _____
- Other pertinent correspondence [ ] _____
- Coordination with County and Municipal Planning Agencies [ ] _____

Other Technical Studies (as required)

- Methodology [ ] _____
- Data [ ] _____
- Mitigation [ ] _____
- Pertinent correspondence [ ] _____

APPENDIX G

SAMPLE FHWA PURPOSE AND NEED CONCURRENCE LETTER

DATE: [Date]

SUBJECT: [Project Name]
Purpose and Need Concurrence

TO: [FHWA Division Representative Name]
Federal Highway Administration
Pennsylvania Division

FROM: [Name]
[Originating Office]

Please review the attached Purpose and Need documentation for the [Project Name] Project and sign and date the concurrence box below. Return this page to [Name] at [Email] or [Fax Number] (fax) at [Originating Office].

If you have any questions or issues to discuss prior to concurrence, please contact [Name] at [phone number] or [email address].

Attachment

FHWA concurs with the attached Purpose and Need for the project.

_____ _____

FHWA Representative **Date**

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APPENDIX H

EA AND EIS DISTRIBUTION LISTS

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FEDERAL AGENCIES	EA	EIS	PA Act 120 Agency
Advisory Council on Historic Preservation *Eastern Office of Review* 1100 Pennsylvania Avenue, NW, Suite 809 Washington, DC 20004 Attn: Preservation Specialist http://www.achp.gov/	X	X	
Federal Emergency Management Agency 105 South 7th Street, 2nd Floor Philadelphia, PA 19106-3392 Attn: Mitigation Division http://www.fema.gov/about/divisions/mitigation.shtm	X	X	
Federal Highway Administration *Eastern Resource Center* 10 South Howard Street Suite 4000 Baltimore, MD 21201 Attn: Regional Administrator http://www.fhwa.dot.gov/field.html#fieldsites		X	
Federal Highway Administration *PA Division* 228 Walnut Street Room 558 Harrisburg, PA 17101-1720 Attn: Division Administrator https://www.fhwa.dot.gov/padiv/		X	
Federal Highway Administration Room 3301, 400 7th Street, SW Washington, DC 20590 Attn: HEP-31 Project Development Specialist http://www.fhwa.dot.gov/index.html		X	
U.S. Army Corps of Engineers *Pittsburgh District* 2200 William S. Moorhead Federal Building 1000 Liberty Avenue Pittsburgh, PA 15222 Attn: Chief, Natural & Cultural Resources Branch http://www.lrp.usace.army.mil/	X	X	
U.S. Army Corps of Engineers (USACE) *Baltimore District* City Cresent Building 10 South Howard Street Baltimore, MD 21201 Attn: Chief, Regulatory Branch http://www.nab.usace.army.mil/	X	X	

FEDERAL AGENCIES	EA	EIS	PA Act 120 Agency
U.S. Army Corps of Engineers (USACE) *Philadelphia District* Wanamaker Building 100 Penn Square East Philadelphia, PA 19107-3390 Attn: Chief, Environmental Resources Branch http://www.nap.usace.army.mil/	X	X	
U.S. Fish and Wildlife Service (USFWS) Pennsylvania Field Office 315 South Allen Street, Suite 322 State College, PA 16801 http:\\www.fws.gov	X	X	
U.S. Department of Health & Human Services *Centers for Disease Control & Prevention* National Center for Environmental Health Special Programs Group, MSF 29 4770 Buford Highway, NE Atlanta, GA 30341-3724 Attn: Chief, Special Programs Group http://www.cdc.gov/	X	X	
U.S. Department of Housing & Urban Development *HUD Pittsburgh Field Office* 339 Sixth Avenue Pittsburgh, PA 15222 Attn: Environmental Officer http://www.hud.gov/local/index.cfm?state=pa&topic=offices	X	X	
U.S. Department of Housing & Urban Development *Pennsylvania State Office* Wanamaker Building 100 Penn Square East Philadelphia, PA 19107-3380 Attn: Environmental Officer http://www.hud.gov/local/index.cfm?state=pa&topic=offices	X	X	
U.S. Department of Interior *Office of Environmental Policy and Compliance* 1849 “C” Street, NW Room 2340 Washington, DC 20240 Attn: Director http://www.doi.gov/oepc/	X	X	

FEDERAL AGENCIES	EA	EIS	PA Act 120 Agency
U.S. Department of Transportation *Federal Transit Administration* *Office of Planning and Program Development* 1760 Market Street, Suite 500 Philadelphia, PA 19103 Attn: Transportation Program Specialist http://www.fta.dot.gov/7072_ENG_HTML.htm	X	X	
U.S. Environmental Protection Agency *Region III (3ES43)* 1650 Arch Street Philadelphia, PA 19103-2029 Attn: Chief, Environmental Assessment and Protection Division http://www.epa.gov/region03/index.htm	X	X	
U.S. Department of Agriculture *Natural Resources Conservation Service* One Credit Union Place, Suite 340 Harrisburg, PA 17110-2993 Attn: Water Resources Department http://www.nrcs.usda.gov/	X	X	
U.S. Environmental Protection Agency *Office of Federal Activities* EIS Filing Section Ariel Rios Building (South Oval Lobby), Mail Code 2252-A 1200 Pennsylvania Avenue, NW Washington, DC 20460 Shipping: U.S. Environmental Protection Agency Office of Federal Activities EIS Filing Section Ariel Rios Building (South Oval Lobby), Room 7220 1200 Pennsylvania Avenue, NW Washington, DC 20004 http://www.epa.gov/compliance/nepa/submiteis/index.html	X	X	
Fifth Coast Guard District 400 Coast Guard Boulevard Portsmouth, VA 23703-2199 http://www.uscg.mil/d5/	Coordination as needed		
Eighth Coast Guard District Hale Boggs Federal Building 500 Poydras Street New Orleans, LA 70130 http://www.uscg.mil/d8/	Coordination as needed		

FEDERAL AGENCIES	EA	EIS	PA Act 120 Agency
Ninth Coast Guard District 1240 E. 9th Street, Room 2069 Cleveland, OH 44199 http://www.uscg.mil/d9/	Coordination as needed		
National Park Service Office of Policy 1849 C Street, NW; Room 7254 Washington, DC 20240 http://www.nps.gov	Coordination as needed		

* NOTE: The following Federal agencies have requested that they not be sent environmental documents for review. However, they should still be sent a scoping letter stating that although it is understood that they requested to be removed from EA/EIS distribution lists, should they wish to receive the EA/EIS for this particular project, they can contact the Project Manager. If no contact is made, DO NOT send them an EA/EIS.

- USACE, North Atlantic Division
- U.S. Department of Commerce

** NOTE: The NEPA document should only be sent to one of the two HUD offices listed above, depending upon the location of the project. For all projects located west of and including Potter, Cameron, Clearfield, Blair, Huntingdon, and Fulton Counties, the document should be sent to the Pittsburgh Field Office. For all other projects, the document should be sent to the Philadelphia office.

* PA Act 120 Agency – The agencies noted as Act 120 Agencies must receive a copy of the EA/EIS. Where Policy Offices and Regional Offices are indicated, send to the Policy Office as well as the appropriate Regional Office. Only the Policy Offices are marked for simplicity.

STATE AGENCIES	EA	EIS	PA Act 120 Agency
PA Department of Agriculture *Bureau of Farmland Preservation* Agriculture Office Building 2301 North Cameron Street, Room 402 Harrisburg, PA 17110-9408 Attn: Director http://www.agriculture.state.pa.us/agriculture/cwp/view.asp?a=3&q=128859	X	X	X
PA Department of Community and Economic Development *Policy Office* 400 North Street, 4th Floor Harrisburg, PA 17120 Attn: Director http://www.newpa.com/default.aspx?id=15	X	X	X
PA Department of Conservation and Natural Resources *Office of Policy* Rachel Carson State Office Building PO Box 8767, 400 Market Street Harrisburg, PA 17105-8767 Attn: Director http://www.dcnr.state.pa.us/info/ataglance/fsexecutive.aspx http://www.naturalheritage.state.pa.us	X	X	X
PA Department of Environmental Protection *Office of Policy* Rachel Carson State Office Building P.O. Box 2063 400 Market Street, 15th Floor Harrisburg, PA 17105-2063 Attn: Director http://www.depweb.state.pa.us/dep/site/default.asp	X	X	X
PA Department of Environmental Protection *Northcentral Regional Office* 208 West Third Street, Suite 101 Williamsport, PA 17701-6448 http://www.depweb.state.pa.us/ncregion/site/default.asp	X		
PA Department of Environmental Protection *Northeast Regional Office* 2 Public Square Wilkes-Barre, PA 18711-0790 http://www.depweb.state.pa.us/northeastro/site/default.asp	X		

STATE AGENCIES	EA	EIS	PA Act 120 Agency
PA Department of Environmental Protection *Northwest Regional Office* 230 Chestnut Street Meadville, PA 16335-3481 http://www.depweb.state.pa.us/northwestregion/site/default.asp	X		
PA Department of Environmental Protection *Southcentral Regional Office* 909 Elmerton Avenue Harrisburg, PA 17110-8220 http://www.depweb.state.pa.us/southcentralro/site/default.asp	X		
PA Department of Environmental Protection *Southeast Regional Office* 2 East Main Street Norristown, PA 19401 http://www.depweb.state.pa.us/southeastro/site/default.asp	X		
PA Department of Environmental Protection *Southwest Regional Office* 400 Waterfront Drive Pittsburgh, PA 15222-4745 http://www.depweb.state.pa.us/southwestro/site/default.asp	X		
PA Department of Health *Office of Policy* Health and Welfare Building 8th Floor West, 625 Forster Street Harrisburg, PA 17120 Attn: Executive Policy Assistant http://www.dsf.health.state.pa.us/health/site/	X	X	X
PA Department of Transportation *Bureau of Project Delivery* *Highway Delivery Division* *Environmental Policy and Development Section* P.O. Box 3790 Harrisburg, PA 17105-3790 Shipping: Commonwealth Keystone Building 400 North Street, 7th Floor West Harrisburg, PA 17120 Attn: Section Chief	X	X	

STATE AGENCIES	EA	EIS	PA Act 120 Agency
PA Department of Transportation *Bureau of Project Delivery* *Highway Delivery Division* *Highway Design and Technology Section* P.O. Box 3161 Harrisburg, PA 17105-3161 Shipping: Commonwealth Keystone Building 400 North Street, 7th Floor Harrisburg, PA 17120 Attn: Section Chief	X	X	
PA Department of Transportation *Office of Policy & Public Private Partnerships* Commonwealth Keystone Building 400 North Street, 8th Floor Harrisburg, PA 17120 Attn: Director	X	X	
PA Fish and Boat Commission *Environmental Services Division* 450 Robinson Lane Bellefonte, PA 16823-9620 Attn: Chief, Environmental Services Division http://www.fish.state.pa.us	X	X	X
PA Game Commission *Environmental Planning and Habitat Protection* 2001 Elmerton Avenue Harrisburg, PA 17110-9797 Attn: Chief, Environmental Planning and Habitat Protection Division http://www.pgc.state.pa.us/	X	X	
PA Game Commission *North Central Region* 1566 South Route 44 Highway Box 5038 Jersey Shore, PA 17740-5038 http://www.pgc.state.pa.us/pgc/cwp/view.asp?a=463&q=150181	X		
PA Game Commission *Northeast Region* Box 220, R.D. 5 Dallas, PA 18612-0220 http://www.pgc.state.pa.us/pgc/cwp/view.asp?a=463&q=150188	X		

STATE AGENCIES	EA	EIS	PA Act 120 Agency
PA Game Commission *Northwest Region* Box 31 1509 Pittsburgh Road Franklin, PA 16323-2011 http://www.pgc.state.pa.us/pgc/cwp/view.asp?a=463&q=150160	X		
PA Game Commission *South Central Region* 8627 William Penn Highway Huntingdon, PA 16652-0537 http://www.pgc.state.pa.us/pgc/cwp/view.asp?a=463&q=150195	X		
PA Game Commission *Southeast Region* 448 Snyder Road Reading, PA 19605-9254 http://www.pgc.state.pa.us/pgc/cwp/view.asp?a=463&q=150202	X		
PA Game Commission *Southwest Region* 4820 Route 711 Bolivar, PA 15923 http://www.pgc.state.pa.us/pgc/cwp/view.asp?a=463&q=150209	X		
PA Historical and Museum Commission *Bureau for Historic Preservation* Commonwealth Keystone Building 300 North Street, 2nd Floor Harrisburg, PA 17120-0093 Attn: Chief, Division of Archaeology and Protection http://www.phmc.state.pa.us/bhp/overview.asp?secid=25	X	X	
Governor's Office of Policy & Planning Office of Policy Development 506 Finance Building Harrisburg, PA 17120	X	X	X
Public Utility Commission (PUC) PO Box 3265, 400 North Street Harrisburg, PA 17120 http://www.puc.state.pa.us	Coordination as needed		

STATE AGENCIES	EA	EIS	PA Act 120 Agency
** NOTE: The following state agencies have requested that they not be sent environmental documents for review. However, they should still be sent a scoping letter stating that although it is understood that they requested to be removed from EA/EIS distribution lists, should they wish to receive the EA/EIS for this particular project, they can contact the Project Manager. If no contact is made, DO NOT send them an EA/EIS. • PA Council on the Arts • PA Department of Aging • PA DCNR, Bureau of Forestry, Forest Advisory Services, PNDI (it is necessary to involve this agency in early project scoping and endangered species coordination however) • PA Energy Office • Governor's Office of Policy and Planning • PA Housing Finance Agency			

METROPOLITAN PLANNING ORGANIZATIONS	EA	EIS	PA Act 120 Agency
Berks County Planning Commission Berks County Services Center 633 Court Street, 14th Floor Reading, PA 19601-3591 Attn: Transportation Planner http://www.co.berks.pa.us/planning/site/default.asp	X	X	
Blair County Planning Commission Valley View Home Wing E 301 Valley View Boulevard, East Wing Altoona, PA 16602-6409 Attn: Transportation Planner http://blair.sapdc.org/bcpc/site/default.asp	X	X	
Cambria County Planning Commission 401 Candelight Drive, Suite 213 Ebensburg, PA 15931 Attn: Transportation Planner http://www.co.cambria.pa.us/cambria/cwp/view.asp?a=3&q=499754	X	X	
Centre Region Planning Commission 2643 Gateway Drive, Suite #4 State College, PA 16801 Attn: Transportation Planner http://cog.centreconnect.org/CRMPO/	X	X	
Delaware Valley Regional Planning Commission 190 North Independence Mall West 8th Floor Philadelphia, PA 19106-1520 Attn: Assistant Executive Director for Transportation Planning http://www.dvrpc.org/	X	X	
Erie County Department of Planning Erie County Court House, Room 119 Erie, PA 16501 Attn: Transportation Planner http://www.eriecountyplanning.org/Transportation/erieMPO.htm	X	X	
Erie Metropolitan Transit Authority 127 East 14th Street, P.O. Box 2057 Erie, Pennsylvania 16512 Attn: Executive Director http://www.emtaerie.com/	X	X	

METROPOLITAN PLANNING ORGANIZATIONS	EA	EIS	PA Act 120 Agency
Lackawanna County Regional Planning Commission 507 Linden Street, 5th Floor Scranton, PA 18503 Attn: Transportation Planner http://www.lackawannacounty.org/viewDepartment.aspx?DeptID=15	X	X	
Lancaster County Planning Commission 50 North Duke Street P.O. Box 83480 Lancaster, PA 17608-3480 Attn: Deputy Director for Transportation Planning http://www.co.lancaster.pa.us/planning/site/default.asp	X	X	
Lebanon County Planning Department Municipal Building, Room 206 S 8th Street Lebanon, PA 17042-6794 Attn: Transportation Planner http://dsf.pacounties.org/lebanon/cwp/view.asp?A=3&Q=477676	X	X	
Lehigh Valley Planning Commission 961 Marcon Boulevard, Suite 310 Allentown, PA 18109 Attn: Chief Transportation Planner http://lvpc.org/	X	X	
Luzerne County Planning Commission Penn Place, Suite 208 20 North Pennsylvania Avenue Wilkes-Barre, PA 18701 Attn: Transportation Planner http://dsf.pacounties.org/luzerne/cwp/view.asp?a=1187&q=446190&luzerneNav=|27243|27253|	X	X	
Lycoming County Planning Commission Court House, 4th Floor 48 West 3rd Street Williamsport, PA 17701 Attn: Transportation Planner http://www.lyco.org/lyco/cwp/view.asp?a=3&Q=407109&lycoRNavradD69E2=|	X	X	
Mercer County Regional Planning Commission 2491 Highland Road Hermitage, PA 16148 Attn: Senior Planner http://www.mcrpc.com/	X	X	

METROPOLITAN PLANNING ORGANIZATIONS	EA	EIS	PA Act 120 Agency
Southwestern Pennsylvania Commission 425 Sixth Avenue, Suite 2500 Pittsburgh, PA 15219-1819 Attn: Transportation Planning Director http://www.spcregion.org/about_comm.shtml	X	X	
Tri-County Regional Planning Commission Dauphin County Veterans Memorial Office Building 112 Market Street, 2nd Floor Harrisburg, PA 17101-2015 Attn: Transportation Planner http://tcrpc-pa.org/	X	X	
York County Planning Commission 100 West Market Street York, PA 17401 Attn: Sr. Chief of Transportation Planning & Traffic Eng. http://www.ycpc.org/transportation.htm	X	X	

RURAL PLANNING ORGANIZATIONS	EA	EIS	PA Act 120 Agency
Adams County Office of Planning and Development 19 Baltimore Street, Suite 101 Gettysburg, PA 17325 Attn: Transportation Planner http://dsf.pacounties.org/adams/cwp/view.asp?a=3&q=453211&adamsNav=|27138|27158|	X	X	
North Central PA Regional Planning and Development Commission 651 Montmorenci Avenue Ridgway, PA 15853 Attn: Transportation Planner http://web2.ncentral.com/ncprpdc/	X	X	
Northeastern Pennsylvania Alliance 1151 Oak Street Pittston, PA 18640 Attn: Community and Government Services Manager http://nepa-alliance.org/	X	X	
Northern Tier Regional Planning and Development Commission 312 Main Street Towanda, PA 18848 Attn: Transportation Planner http://northerntier.org/	X	X	
Northwest Pennsylvania Regional Planning and Development Commission 395 Seneca Street – PO Box 1127 Oil City, PA 16301 Attn: Transportation Planner http://www.nwcommission.org/	X	X	
SEDA-Council of Governments Timberhaven, RD 1 Lewisburg, PA 17837 Attn: Transportation Planner http://www.seda-cog.org/	X	X	
Southern Alleghenies Regional Planning and Development Commission 541 58th Street Altoona, PA 16602 Attn: Transportation Planner http://sapdc.org/sapdc/site/default.asp	X	X	

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APPENDIX I

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APPENDIX J

SAMPLE PROJECT INITIATION LETTER

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Oregon Department of Transportation
Region *[Insert Region #]*
[Insert Street Address]
[Insert City], OR *[Insert zip code]*

Mr. David Cox, Division Administrator
Federal Highway Administration
530 Center Street NE, Suite 100
Salem, OR 97301

Re: SAFETEA-LU 6002 notification of project initiation on *[Insert Project Name]*

Dear Mr. Cox:

The Oregon Department of Transportation (ODOT) in cooperation with *[Insert names of joint lead agencies]* is initiating the environmental review process as required by SAFETEA-LU 6002 for a *[Insert Type of Environmental Document]* for the proposed *[Insert Project Name]*. This is a *[insert type of work]* project proposed in *[Insert name of County and closest City or specific area if within a large metro area]*. The proposed project is approximately *[Insert length]* and is located between *[Insert cross streets or mileposts]* on *[Insert name of State Highway]* (a project vicinity map is attached). The purpose of the project, as currently defined, is to *[Insert Basic Statement of the Project's Purpose and Need].*

Pursuant to Section 6002 of SAFETEA-LU, the Federal Highway Administration (FHWA) must serve as the lead Federal agency for this project, and ODOT *[list other joint leads as appropriate]* will serve as a joint lead agency. The responsibilities of the lead agencies are to:

- Establish a list of potentially participating and cooperating agencies
- Prepare and send invitations to potentially participating agencies
- Develop a SAFETEA-LU 6002-compliant Coordination Plan [and schedule]
- Provide opportunities for the public and participating agencies involvement in defining purpose and need and range of alternatives
- Consult with participating agencies in determining methodologies and the level of detail for the analysis of alternatives.

In addition to a *[Insert Type of Environmental Document]*, ODOT anticipates that this project will require *[list anticipated federal approvals and permits anticipated to be necessary for the proposed project]*.

If you have any questions or would like to discuss in more detail the *[Insert Project Name]* or the SAFETEA-LU 6002 process as it pertains to this project, please contact *[Insert Contact Name and Phone Number – likely the project Environmental Project Manager, Project Leader, or Area Manager]*.

Thank you for your cooperation and interest in this project.

Sincerely,

Region Manager or Area Manager – whoever signs the EISs

Enclosure *Attach a map of the project location* ***and attach any of the following if they have already been prepared:*** *NOI, Coordination Plan, list of agencies that were invited to participate and indication of how they responded.*

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APPENDIX K

SAMPLE PARTICIPATING AGENCY INVITATION LETTERS

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U.S. Department
of Transportation
Federal Highway Administration

Ohio Division Office
200 North High Street
Columbus, Ohio 43215

In Reply Refer To:
HPD-OH

July 28, 2006

United States Environmental Protection Agency
Attn: Mr. Kenneth Westlake, Chief
Environmental Planning and Evaluation Branch
Mail Code (B-19J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Dear Mr. Westlake:

The Ohio Department of Transportation (ODOT) and the Kentucky Transportation Cabinet (KYTC), in cooperation with the Federal Highway Administration (FHWA), are initiating an Environmental Impact Statement (EIS) to improve the 6.5-mile segment of Interstate 75 (I-75) between Covington, Kentucky and Cincinnati, Ohio, which includes the Brent Spence Bridge over the Ohio River. The southern limit of the project is approximately the interchange of I-75 and Kyles Lane in Kentucky (Exit 189). The northern limit of the project is approximately the interchange of I-75 and the Western Hills Viaduct Interchange in Ohio (Exit 2B). The FHWA, Ohio Division Office will serve as the lead Federal agency for this project. ODOT and KYTC will serve as joint lead agencies.

In accordance with the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Section 6002, FHWA invites your agency to be a participating agency in the environmental review process for the Brent Spence Bridge Replacement/Rehabilitation project. Enclosed with this correspondence are copies of the Purpose and Need Statement, Coordination Plan, and Red Flag Summary. The FHWA requests that your agency review these documents and provide comments and identify any environmental issues of concern associated with the proposed project.

Pursuant to Section 6002 of SAFETEA-LU, participating agencies are responsible for identifying, as early as practicable, any issues of concern regarding the project's potential environmental, social, or economic impacts that could substantially delay or prevent an agency from granting a permit or other approval that is needed for the project. Section 6002 is intended to assure that agencies are fully engaged in the scoping of the project and the decisions regarding alternatives to be evaluated in detail in the NEPA analysis. We suggest that your agency's role in the development of the above project should include the following as they relate to your area of expertise:

Celebrating 50 Years
1956 50th 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

1) Provide meaningful and early input on defining the purpose and need, determining the range of alternatives to be considered, and the methodologies and level of detail required in alternatives analysis.
2) Participate in coordination meetings and joint field reviews as appropriate.
3) Provide timely review and comment on the pre-draft or pre-final environmental documents to reflect the views and concerns of your agency on the adequacy of the document, alternatives considered, and the anticipated impacts and mitigation.

We understand Region 5 will serve as the lead for this project. Please respond to FHWA, the Ohio Division Office in writing with an acceptance or denial of the invitation n*o more than 30-days from the date of this letter*. If you should choose to decline the invitation, the response should state your reason for doing so. Pursuant to SAFETEA-LU Sec. 6002, any Federal agency that chooses to decline the invitation must specifically state that the agency:

- Has no jurisdiction or authority with respect to the project;
- Has no expertise or information relevant to the project; and
- Does not intend to submit comments on the project.

Currently the project is in the early stages of the preliminary development process. To date, a Purpose and Need Statement, a Red Flag Summary, and a Coordination Plan have been prepared. The Red Flag Summary identifies potentially sensitive locations that may require additional coordination activities. Red flags may also affect the anticipated project design, estimated project budget, or construction schedule. Notices of Intent for the preparation of an EIS were published in the Federal Register on June 1, 2000 and July 20, 2006. The former notice initiated the scoping process during the Major Investment Study for anticipated projects along this corridor. The latter notice describes this specific project and advises the public of the earlier notice and preliminary work performed previously.

After all participating agencies have been identified, we intend to prepare and circulate for comments a proposed project schedule. The project schedule will explain the project documents that each agency will be expected to review, the dates that we expect the documents to be submitted, and the timeframe in which we expect to receive agency comments.

If you have any questions regarding the enclosed documents and/or the Brent Spence Bridge Replacement/Rehabilitation project in general, please contact Messrs. Stew Sonnenberg or Mark VonderEmbse at 614-280-6837 or 614-280-6854 or email at stew.sonnenberg@fhwa.dot.gov or mark.vonderembse@fhwa.dot.gov, respectively.

Sincerely,

For: Dennis A. Decker
Division Administrator

Encl.

cc:
USEPA (R-4)
S. Spinosa, ODOT D-8
M. Loyselle, FHWA-KY
HR
VP
DS
MS
MVE
SS
File: HAM, 75119

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U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

628-2 Hebron Avenue, Suite 303
Glastonbury, Connecticut 06033-5007

May 10, 2006

\IN REPLY REFER TO:
HDA-CT

Colonel Curtis L. Thalken
District Engineer
Department of the Army
New England District, Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751

Subject: Extension of North Hillside Road in Mansfield, Connecticut
University of Connecticut (Storrs Campus)
Preparation of Environmental Impact Statement
Request for Participating & Cooperating Agency Designation

Dear Colonel Thalken:

The Federal Highway Administration (FHWA), in cooperation with the University of Connecticut (UConn), is initiating the preparation of an Environmental Impact Statement (EIS) for the extension of North Hillside Road on the UConn Storrs campus in Mansfield, Connecticut. A Notice of Intent (NOI) dated April 13, 2006 was published in the Federal Register on April 21, 2006. Since the project may require a Corps permit, and because of your agency's legal jurisdiction over such permits, pursuant to §6002 of SAFETEA-LU (P.L. No. 109-59), we are requesting that your agency concur on designation as a Participating & Cooperating Agency.

The proposed project will construct a road to provide an alternate entrance to the University and to relieve traffic on U.S. Route 44, Route 195, and Hunting Lodge Road. The new road is also intended to facilitate the development of UConn-related academic and research buildings, student housing, and recreational facilities on parcels of land adjacent to the Storrs campus, also known as the "North Campus." (**see enclosed map**). This EIS will involve an analysis of several alternatives and their associated environmental concerns.

The extension of North Hillside Road is considered necessary to improve circulation within the campus, to reduce traffic on the local roadway network, and to facilitate development of the North Campus. Alternatives under consideration include, but are not limited to: (1) taking no action; (2) alternative project locations, including off-site locations; and (3) various roadway alignments within the proposed project area.

Areas of concern to be emphasized in the study will include potential environmental impacts upon existing ecological resources, wetlands, water resources, historic and archaeological resources, parks and recreation, noise, social and community character, hazardous/contaminated materials, and impacts due to project construction.

Your agency's involvement should entail those areas under its jurisdiction and no direct writing or analysis by your agency will be necessary for this document's preparation. The following activities will be undertaken by our agency to maximize interagency cooperation:

1) Invite your agency to all agency coordination meetings.
2) Consult your agency on any relevant technical studies that may be required for the project.
3) Organize joint field reviews.
4) Provide project information, including study results.
5) Encourage your agency to use the above documents to express its views on subjects within your agency's jurisdiction or expertise.
6) Include information in the project environmental documents that cooperating agencies need to fulfill their National Environmental Policy Act (NEPA) responsibilities and any other requirements regarding jurisdictional approvals, permits, licenses, and/or clearances.

You have the right to expect that the EIS will enable your agency to fulfill its jurisdictional responsibilities. Likewise your agency has the obligation to tell us if, at any point in the process, your agency's needs are not being met. We expect that at the end of the process the EIS will satisfy your agency's NEPA requirements including those related to project alternatives, environmental consequences and mitigation. Further, we intend to utilize the EIS and our subsequent Record of Decision (ROD) as our decision-making documents and as the basis for the permit application.

We look forward to your response to this request and your agency's role as a Participating & Cooperating Agency on this project. An agency scoping meeting has been scheduled for **Thursday, June 15, 2006 at 1:30 p.m.** in Room 7 of the Bishop Center at the University of Connecticut, One Bishop Circle, Storrs, CT. Please arrange to have a representative from your agency attend this meeting, and provide this office with the appropriate contact person(s) responsible for the NEPA process **by June 7, 2006**. If you have any questions or would like to discuss this project or our agencies' respective roles and responsibilities during the preparation of the EIS in more detail, please contact Mr. Richard A. Miller, Esq., Director of Environmental Policy, University of Connecticut at (860) 486-8741 or Mr. Robert W. Turner, P.E., Environmental Engineer of our agency at (860) 659-6703, ext. 3011. Thank you in advance for your interest and participation in this project.

Sincerely yours,

/s/ Bradley Keazer 5/10/06

Bradley D. Keazer
Division Administrator

Enclosure
cc: Richard A. Miller (UConn)

APPENDIX L

SAMPLE COORDINATION PLAN AND SCHEDULE

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Environmental Impact Statement for Pellissippi Parkway (Route 162) Extension From SR 33 to US 321 (SR 73), Blount County, TN, P.I.N. 101423.00

COORDINATION PLAN FOR

AGENCY AND PUBLIC INVOLVEMENT

Federal Highway Administration (Tennessee Division)

and

Tennessee Department of Transportation

November 17, 2006

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1.0 PURPOSE OF COORDINATION PLAN

This Coordination Plan is intended to define the process by which the Tennessee Department of Transportation (TDOT) will communicate information about the Pellissippi Parkway (Route 162) Extension Environmental Impact Statement (EIS) project to the lead, cooperating, participating and other agencies and to the public. The plan also identifies how input from agencies and the public will be solicited and considered.

Since the Federal Highway Administration (FHWA) is expected to provide funding for this project, FHWA serves as the lead federal agency for the project. TDOT, as the direct recipient of Federal funds for the project, is the joint lead agency.

Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users of 2005 (SAFETEA-LU) requires that the lead agencies establish a plan for coordinating public and agency participation and comment during the environmental review process.

In accordance with TDOT's 2006 Public Involvement Plan, this project requires a Level Four Public Involvement Process, a level of participation designed for projects that would require an Environmental Impact Statement (EIS) to be completed. This plan also outlines the process by which the required level of public involvement will be accomplished.

This Coordination Plan will:

- Identify the early coordination efforts;
- Identify cooperating and participating agencies to be involved in agency coordination;
- Establish the timing and form for agency involvement in defining the project's purpose and need and study area, the range of alternatives to be investigated, and methodologies, as well as in reviewing the DEIS draft and the selection of the preferred alternative and mitigation strategies.
- Establish the timing and form for public opportunities to be involved in defining the project's purpose and need and study area and the range of alternatives to be investigated, providing input on issues of concern and environmental features, and commenting on the findings presented in the DEIS.
- Describe the communication methods that will be implemented to inform the community about the project.

The Coordination Plan will be updated periodically to reflect any changes to the project schedule and other items that typically require updating over the course of the project.

2.0 PROJECT BACKGROUND

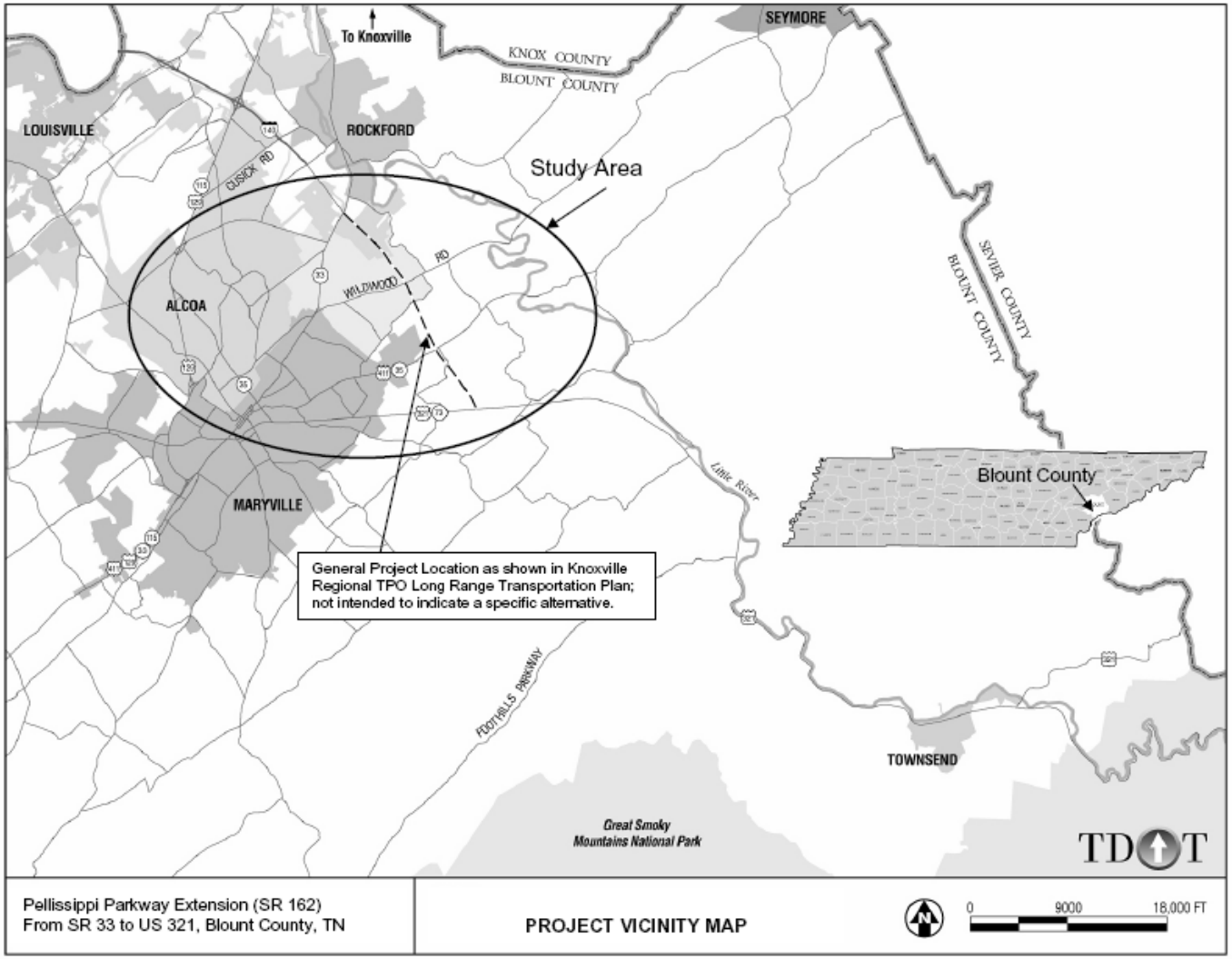
This project involves the extension of Pellissippi Parkway (State Route 162) from State Route 33 (SR 33) to U.S. Highway 321/SR 73 or East Lamar Alexander Parkway in Alcoa and Maryville, Tennessee, a distance of approximately 4.4 miles. (See Figure 1) Based on previous studies, the extension of Pellissippi Parkway has been considered necessary to improve regional and local accessibility for the general public as well as emergency vehicles, to improve traffic capacity on the existing roadway system, and to improve safety conditions on US 129/SR 115 and US 321/SR 73. As a part of this study, a Purpose and Need Statement is being developed and refined based on input from agencies and the public during the initial coordination/scoping period.

Alternatives to be evaluated are expected to include: (1) No-Build; (2) Transportation System Management (TSM) activities; (3) Upgrades to existing roadways; (4) Mass Transit; and/or (5) One or more alternatives that would construct a new roadway on new location. The alternatives to be investigated in the EIS will be developed/refined based on input from agencies and the public during the initial coordination/scoping period and subsequent agency and public involvement opportunities.

An Environmental Assessment (EA) for the project was prepared between 1999 and 2001; the EA was approved by the Federal Highway Administration (FHWA) on October 3, 2001. On March 5, 2002, TDOT announced the selection of Alternative A as the preferred alignment for the project and on April 24, 2002, FHWA issued a Finding of No Significant Impact (FONSI) for the project. Prior to the initiation of acquisition of right-of-way, however, on July 17, 2002 a Federal Court order was issued and imposed a preliminary injunction halting continued planning, financing, contracting, land acquisition, and construction of the project. Citizens Against the Pellissippi Parkway Extension (CAPPE) had filed a lawsuit in U.S. District Court in Nashville against officials of TDOT, the U.S. Department of Transportation, and FHWA. The lawsuit contended that FHWA should have prepared an EIS in compliance with National Environmental Policy Act (NEPA) regulations, and that FHWA did not properly document their decision not to prepare an EIS. FHWA rescinded the right-of-way authorization after the court order was issued. On September 5, 2002, FHWA filed a motion in U.S. District Court in Nashville to allow FHWA to voluntarily remand the EA/FONSI. That request was rejected by the court.

In early 2003, the new TDOT Commissioner requested an independent assessment of the Pellissippi Parkway Extension project. The independent assessment was conducted by the University of Tennessee's Center for Transportation Research.

Figure 1 Project Area Map



The findings of the assessment, published in August 2003, recommended that if the project was restarted, additional input from affected land owners and interest groups be sought as the project moved forward.

In July 2004, a federal appeals court reversed the decision of the Nashville District Court, thus allowing FHWA to withdraw the 2002 FONSI and revisit the environmental evaluation of the project. TDOT then announced its intention to conduct an EIS for the extension of Pellissippi Parkway. In 2006, TDOT contracted with a consultant team, led by Parsons Brinckerhoff Quade and Douglas, to conduct environmental and engineering studies as part of the preparation of the EIS.

3.0 INITIAL COORDINATION

On April 17, 2006, in conformance with the requirements of SAFETEA-LU, TDOT formally notified FHWA in writing of its intent to initiate the NEPA EIS process for this project. The initial coordination/scoping process was initiated in order to obtain comments and input from agencies and the public to help determine the purpose and need for the project, alternatives to be evaluated and the issues that will be examined as part of the EIS process.

3.1 Notice of Intent

Following the project initiation, FHWA with assistance from TDOT prepared a Notice of Intent (NOI) to Prepare an Environmental Impact Statement, as required by CEQ regulations 40 CFR 1501.7. The NOI was published in the *Federal Register* on April 25, 2006.

Notification of the preparation of the EIS was published in project area newspapers (Knoxville News Sentinel and Maryville Daily Times), along with the announcement of two public Scoping Meetings.

3.2 Initial Coordination Package

TDOT prepared an Initial Coordination Package that was distributed to approximately 58 agencies, officials, and organizations on May 10, 2006. The packages included a transmittal letter, a project summary and a project vicinity map. The project summary identified the preliminary purpose and need for the project, potential alternatives to be considered, traffic counts on specified roadways and examples of environmental concerns that will be considered throughout the course of the EIS process.

Five groups of agencies and organizations received initial coordination packages:

- Cooperating Agencies;
- Participating Agencies;
- Non-Participating Agencies and Organizations;

- Local Agencies and Organizations; and
- Section 106 Consultating Parties.

3.2.1 Cooperating Agencies

Cooperating Agencies are those governmental agencies specifically requested by the lead agency to participate during the environmental evaluation process for the project. FHWA's NEPA regulations (23 CFR 771.111(d)) require that those federal agencies with jurisdiction by law (with permitting or land transfer authority) be invited to be Cooperating Agencies for an EIS. Cooperating Agencies for this project are the US Army Corps of Engineers, Nashville District (Corps of Engineers) and the Tennessee Valley Authority (TVA). These Cooperating Agencies are also invited to be participating agencies.

If new information reveals the need to request another agency to serve as a Cooperating Agency, TDOT will issue that agency an invitation.

3.2.2 Participating Agencies

SAFETEA-LU (Section 6002) created a new category of agencies to participate in the environmental review process for EISs. These are federal and non-federal governmental agencies that may have an interest in the project because of their jurisdictional authority, special expertise and/or statewide interest. These participating agencies are formally invited to participate in the environmental review of the project. In addition to TVA and the Corps of Engineers, eight other federal, state and regional agencies/divisions are being asked to be participating agencies for this project. The designated Participating Agencies are shown in Table 1, on the following page.

If, during the progress of the project, new information indicates that an agency not previously requested to be a Participating Agency does indeed have authority, jurisdiction, acknowledged expertise or information relevant to the project, then TDOT, in consultation with FHWA, will promptly extend an invitation to that agency to be a Participating Agency. TDOT and FHWA will consider whether this new information affects any previous decisions on the project.

3.2.3 Non-Participating Agencies and Organizations

Initial Coordination Packages were sent to 39 Non-Participating agencies. This group includes federal and state agencies and organizations with statewide interests. A complete list of the agencies receiving this package is included in Appendix A.

3.2.4 Local Agencies and Organizations

Nine local agencies and private organizations received the Initial Coordination Package. A listing of those agencies is also included in Appendix A.

Table 1 Lead, Cooperating and Participating Agencies

Agency Name	Category	Point of contact
Tennessee Division FHWA	Lead Federal Agency	Karen Brunelle, Planning and Program Management Team Leader
TDOT	Lead State Agency	Mike Russell, Project Manager
US Army Corps of Engineers, Nashville District	Cooperating/Participating Agency	Lt. Col. Steven Roemhildt, District Engineer, Regulatory Functions Branch (ORNOP-F)
Tennessee Valley Authority	Cooperating/Participating Agency	Mr. Jon Loney, Environmental Manager
U.S. Fish and Wildlife Service	Participating Agency	Mr. Lee A. Barclay, Field Supervisor
Great Smoky Mountains National Park	Participating Agency	Dale Ditmonson, Superintendant
Environmental Protection Agency, Region 4	Participating Agency	Heinz J. Mueller, Chief, Environmental Assessment Office, EIS Review Section
Tennessee Department of Environment and Conservation (TDEC)	Participating Agency	Commissioner James H. Fyke
TDEC Division of Water Pollution Control	Participating Agency	Paul E. Davis, Director
Tennessee Wildlife Resources Agency	Participating Agency	Robert Todd, NEPA Contact
State Historic Preservation Office, Tennessee Historical Commission	Participating Agency	Richard Tune, Interim Executive Director
Knoxville Regional Transportation Planning Organization	Participating Agency	Jeffrey A. Welch, Transportation Planning Coordinator ,

3.2.5 Section 106 Early Coordination

The National Historic Preservation Act requires the federal agency or its designee (in this case TDOT) identify the appropriate parties that need to be involved in the process of identifying effects of a proposed project to historic

resources and working through the process with such parties. This "involvement" is referred to as "consultation." As a part of the consultation requirements for Section 106, a separate initial coordination package was sent to six parties with interests in historical and archaeological issues. The Blount County Mayor was invited to request status as a Section 106 consulting party, as were five Native American Tribes:

- Cherokee Nation;
- Eastern Band of Cherokee Indians;
- Eastern Shawnee Tribe of Oklahoma;
- Shawnee Tribe; and
- United Keetoowah Band of Cherokee Indians.

If new information reveals the need to request another agency or organization to serve as a consulting party, TDOT will issue that agency an invitation.

4.0 AGENCY COORDINATION

The participating agencies for this project have roles and responsibilities that include, but are not limited to:

- Participating in the NEPA process starting at the earliest possible time, especially with regard to the development of the purpose and need statement, range of alternatives, and methodologies;
- Identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts. Participating agencies are also allowed to participate in the issue resolution process;
- Providing meaningful and timely input on unresolved issues; and
- Reviewing and providing comment on the preliminary draft of the Draft Environmental Impact Statement (DEIS) and the preferred alternative.

The participating agencies will have defined opportunities for meaningful participation in the decision-making process for the project. Specific opportunities are provided via the agency concurrence points that have been defined for this project.

4.1 Tennessee Environmental Streamlining Agreement Concurrence Points

TDOT has developed and is finalizing its Tennessee Environmental Streamlining Agreement for the Environmental and Regulatory Coordination of Major Transportation Projects, referred to as TESA or the Agreement. In addition to TDOT and FHWA, signatories to the TESA will include eight federal agencies and authorities, three state agencies, and the eleven Metropolitan Planning Organizations in the state. Signatory agencies are not

required to participate in every project; they will participate only in those specific projects that affect their area of jurisdiction, expertise, or interest.

The Agreement establishes a single decision-making process to identify and address agency issues at four key points (referred to as concurrence points), during the planning and NEPA process. While the Agreement is not yet formalized, TDOT has committed to apply the principles of the Agreement for the Pellissippi Parkway Extension EIS project.

The agencies listed above in Table 1 will be participating in the concurrence point points at the following four major milestones in the environmental review process for the Pellissippi Parkway Extension EIS:

1) Purpose and Need and Study Area;

2) Project Alternatives to be Evaluated in the DEIS and Methodologies for Conducting Evaluation;

3) Adequacy of the Pre-Draft DEIS;

4) Designation of Preferred Alternative and Preliminary Mitigation;

The process for coordination associated with each of the major milestones (concurrence points) for this project is discussed below.

4.1.1 Concurrence Point 1 - Purpose and Need and Study Area

Based upon comments received during the scoping period from agencies and the public, a draft purpose and need for the project will be prepared and submitted by TDOT to FHWA for internal review. Upon incorporation of comments from FHWA, TDOT will prepare and forward to the participating agencies a purpose and need and study area package. The package will include a history of the project, this coordination plan, and a summary of public and agency input received to date. Additionally, the package may include:

A. Description of core objectives of the proposed action, and any secondary objectives;

B. Explanation of the basis for the project objectives in terms of:

1. Relevant Federal, state and/or local policies, which may include transportation, economic conditions, land use conditions, and other conditions;

2. Relevant data that may include information on transportation conditions, economic conditions, land use conditions, and other conditions;

3. Public and agency comments regarding the project's objectives.

C. Description of the evaluation criteria that will be used to evaluate the effectiveness of an alternative in meeting the purpose and need of the project and explanation of how those evaluation criteria will be utilized.

D. Description of any other factors, besides purpose and need that will be considered in the screening of alternatives, such as cost and environmental factors;

E. Demonstration of the project's logical termini and independent utility;

F. A list of local and regional planning efforts that may impact or involve the project; and

G. A map detailing the study area.

The participating agencies will be given 45 days from receipt of the package to review and provide a response; a reminder will be sent to the agencies 14 days before the end of the review period. At the end of the 45-day period, TDOT will receive a concurrence, a non-concurrence, a request for a 15-day time extension, or request for cessation of formal concurrence from each agency. TDOT will assume concurrence from those agencies from whom it has not heard at the end of the 45-day period. The output of Concurrence Point 1 should include concurrence from the participating agencies on:

- The purpose and need and the study area of the project;
- The coordination plan;
- Appropriate methodologies to be used and the level of detail required in the analysis of each alternative; and
- Preliminary range of alternatives to be considered, including different modes.

Additionally, the agencies will provide input on environmental features and resources of concern.

Based on the output of Concurrence Point 1, TDOT will revise as appropriate the Purpose and Need statement, the study area description, the coordination plan, and draft methodologies. Following this activity, TDOT will hold a public workshop on alternatives at which time the public will once again be given the opportunity provide input on the Purpose and Need statement and alternatives to be evaluated.

4.1.2 Concurrence Point 2 – Project Alternatives to be Evaluated

Based on the output of Concurrence Point 1 as well as the public workshop on alternatives, and any general alternatives analysis conducted during the project development process, TDOT will prepare a Project Alternatives to be Evaluated Package. The package to be forwarded to the participating agencies may include the following information:

- Revised purpose and need statement and study area;
- Revised coordination plan;
- Revised methodologies to be used and level of detailed required in the analysis of each alternative;
- A summary table of all project alternatives to be evaluated and their effectiveness in addressing the purpose and need of the project, as well as a map showing the location of the project alternatives;
- Qualitative results of the preliminary alternatives analysis and environmental screening (based on existing data sources and GIS inventories);
- Discussion of the No-Build Alternative;
- Narrative describing the rationale why each of the proposed alternatives is being carried into the DEIS, including what alternatives were considered for inclusion but later eliminated along with the rationale why they were abandoned; and
- Where substantial impacts are anticipated, refined scopes and methodologies of studies, including the spatial and temporal limits of indirect and cumulative impact analyses.

The participating agencies will be given 45 days from receipt of the package to review and provide a response; a reminder will be sent to the agencies 14 days before the end of the review period. At the end of the 45-day period, TDOT will receive a concurrence, a non-concurrence, a request for a 15-day time extension, or request for cessation of formal concurrence from each agency. TDOT will assume concurrence from those agencies from whom it has not heard at the end of the 45-day period. The output of Concurrence Point 2 should include concurrence from the participating agencies on

- The alternatives to be carried forward into the DEIS;
- Any revisions to the purpose and need statement and the study area of the project;
- Any revisions to the coordination plan; and
- The refined scopes and methodologies to be used and the level of detail required in the analysis of each alternative.

4.1.3 Concurrence Point 3 – Preliminary Draft DEIS Document

Based on the output of Concurrence Point 2 and the subsequent detailed investigation of alternatives and analysis of impacts, TDOT will prepare and forward a Preliminary DEIS document to the participating agencies for their review and comment.

The participating agencies will be given 45 days from receipt of the package to review and provide a response; a reminder will be sent to the agencies 14

days before the end of the review period. At the end of the 45-day period, TDOT will receive a concurrence, a non-concurrence, a request for a 15-day time extension, or request for cessation of formal concurrence from each agency. TDOT will assume concurrence from those agencies from whom it has not heard at the end of the 45-day period.

The output of Concurrence Point 3 should include concurrence from the participating agencies on the adequacy of the preliminary draft DEIS. The agencies will be asked to specify whether additional information is needed to fulfill other applicable environmental reviews or consultation requirements. In addition, the participating agencies will specify any additional information needed to comment adequately on the draft DEIS analysis of site-specific effects associated with the granting or approving by the agency of necessary permits, licenses, or entitlements.

Based on the output from this concurrence point, TDOT will finalize the DEIS for submittal to FHWA. Based on FHWA's approval of the DEIS for circulation, one or more public hearings will be conducted in accordance with NEPA requirements and requirements in the project's Public Involvement Plan.

4.1.4 Concurrence Point 4 – Preferred Alternative and Preliminary Mitigation

Based on the output of Concurrence Point 3, along with TDOT and FHWA's consideration of any issues, concerns and/or opportunities identified during the public hearings and comment period for the DEIS, TDOT will prepare a Preferred Alternative and Preliminary Mitigation Package. The package to be forwarded to the participating agencies may include the following information:

- Narrative describing the various elements of the preferred alternative;
- Rationale for recommending the preferred alternative;
- A preliminary mitigation summary describing the various elements of the proposed mitigation, including a map locating the elements of the preferred alternative and preliminary mitigation; and
- A summary of major public and agency comments and responses to those comments.

The participating agencies will be given 45 days from receipt of the package to review and provide a response; a reminder will be sent to the agencies 14 days before the end of the review period. At the end of the 45-day period, TDOT will receive a concurrence, a non-concurrence, a request for a 15-day time extension, or request for cessation of formal concurrence from each agency. TDOT will assume concurrence from those agencies from whom it has not heard at the end of the 45-day period.

The output of Concurrence Point 4 should include concurrence from the participating agencies on the selection of the preferred alternative and

preliminary mitigation. When avoidance of impacts to a resource is not practicable, participating agencies with jurisdiction by law or special expertise will assist TDOT in determining appropriate and practicable mitigation, including all practicable measures to minimize harm. If the agency determines that it does not have enough information to make a recommendation on mitigation measures, it will comment to that effect. If the project impacts are deemed substantial by a regulatory agency to the extent that permits would probably be denied, the participating agencies will advise the lead agencies to modify the project to reduce impacts. If this is not effective, the signatory agencies to the TESA agree to implement issue resolution to see if the project can be appropriately modified.

Based on the output from this concurrence point, TDOT will select a preferred alternative and prepare the Final Environmental Impact Statement (FEIS) document for submittal to FHWA.

Based on FHWA's approval of the FEIS, the FEIS will be made available for public and agency review for a minimum of 30 days. This period is the last period during which comments on the environmental evaluation process will be received from the public and agencies. Upon addressing the comments received in the comment period, the FEIS will be forwarded by TDOT to FHWA with a request for a Record of Decision (ROD).

4.1.5 Other Opportunities for Agency Involvement

Those agencies that are not "Participating Agencies" as defined in SAFETEA-LU will also have opportunities to provide input and comments on the project as it moves forward. The database of agencies developed as part of the Initial Coordination efforts will be maintained and updated throughout the EIS process. Those agencies that responded to the initial coordination/scoping and those that participated in public meetings and/or provided input/comment during the preparation of the DEIS will receive notification of the availability of the DEIS.

Comments may be received at any point during the development of the EIS analysis.

5.0 OPPORTUNITIES FOR PUBLIC INPUT

As required by NEPA and by TDOT's Public Involvement Plan, a project specific plan for public input has been developed and is documented in this overall coordination plan. This plan describes strategies for encouraging public input and describes the opportunities to be provided to the public to encourage early and ongoing involvement in the project development process. As required by SAFETEA-LU Section 6002, the public will be provided opportunities to provide specific input on the Purpose and Need and the range of alternatives.

5.1 Strategies for Encouraging Public Involvement

5.1.1 Database of Names

TDOT's Environmental Division maintains an initial coordination list that includes the names of federal, state and other agencies (such as regional planning agencies) and local governments that TDOT will coordinate with for this project. The list also includes private entities that have requested to be included in initial coordination. The entities on the list were sent copies of the initial coordination package, and will be sent notices of public meetings, copies of project mailings and newsletters, and notice of the availability of the approved DEIS for review and comment. As appropriate, persons, organizations, and agencies on this list will also receive other correspondence related to the project.

The Environmental Division's current database will be supplemented by the Knoxville Regional Transportation Planning Organization (Knoxville TPO) contact and mailing list for the Blount County area. The database will be expanded as the project moves forward. Names of persons and organizations attending public meetings or requesting additional information will be added.

5.1.2 Community Groups Briefings

Briefings with community/civic groups, business groups, or other interested groups or organizations over the course of the EIS process will be used as an opportunity to introduce the project, provide project updates, and receive public input on the project. Approximately eight community group briefings are expected to be held in the project area throughout the development of the EIS.

5.1.3 Local Government Officials Briefings

Briefings with local government officials will be used as an opportunity to introduce the project to city/county/local officials, provide updates at project milestones, and facilitate the flow of information between the officials, TDOT and FHWA. Approximately four local government officials briefings are expected to be held in the project area throughout the development of the EIS.

Local officials expected to be invited to these briefings include:

- Blount County Mayor and County Engineer;
- Mayors of Maryville, Alcoa, Rockford, and Townsend and City Managers;
- East Tennessee Development District;
- Knoxville Area Transportation Planning Organization (Knoxville TPO);

- East Tennessee Rural Planning Organization (RPO) South; and
- Representatives of area Chambers of Commerce.

The first local government officials briefing was held during the scoping period. The other briefings will occur at various milestones during the project, to be determined by the Project Team and as requested by local officials.

5.1.4 Identification of Special Outreach Areas

Populations in the project area requiring special outreach to ensure they have access to information and the opportunity to make comments, regardless of their race, religion, age, income or disability will be identified. Identification of these populations will include using Census data or information obtained from groups or organizations known to have knowledge of these populations.

5.1.5 Media Relations

Local newspapers, radio and television stations will be identified for use in disseminating information about the project. Minority media outlets will be included. Notices and reminders of project meetings will be sent to these media outlets in advance of public meetings.

Specific newspapers to be used are the Knoxville News-Sentinel and The Daily Times (Maryville).

5.1.6 Project Newsletters

Approximately six project newsletters will be prepared to keep the project area residents, business and property owners, interested citizens, civic groups, schools, local agency officials, and local public officials informed of the status of the project. Expected milestones for newsletters are as follows, and/or as deemed necessary by the Project Team;

- Following Scoping Meetings, to describe results of scoping, to inform the public how to comment, and to announce an Alternatives Workshop;
- Following the Alternatives Workshop, to present the results of the charette session;
- Prior to the DEIS Public Hearings, to announce the hearing dates and the availability of the DEIS for review, and to present some of the DEIS findings;
- Once the Preferred Alternative has been selected; and
- To announce the availability of the FEIS.

5.1.7 Project Website Content

The website for the project, http://www.tdot.state.tn.us/pellissippi/, will be updated with newsletters, public meeting announcements and transcripts, and other project information as needed.

5.1.8 Frequently Asked Questions

To provide direct answers to some of the most frequently asked questions (FAQs) posed by the public, FAQ sheets will be prepared and will be distributed via TDOT's project website and hardcopies will be available at briefings, public meetings and other public involvement events. These questions/answers will be updated as new information becomes available.

5.1.9 Comment Forms

Comment forms will be provided at all public meetings and smaller group meetings to encourage participants to provide their comments on the project. The comment form will also be available on the project website.

Comments may be provided in writing or electronically. Comments will be accepted at any time during the EIS process. All comments will be reviewed and incorporated as appropriate.

5.1.10 Notice of Availability of DEIS

A notice of availability of the DEIS document will be published in the local papers. The notice will identify where the DEIS will be available for public review, how the public can provide input, and who to contact with comments or for additional information. Copies of the DEIS will be available for public inspection at the Blount County Library, at the Blount County Chamber of Commerce, and at the TDOT Region 1 Office in Knoxville. The DEIS will also be available on TDOT's website.

5.2 Public Workshops and Hearings

Several public meetings/hearings have been or will be held during the EIS process to provide information on the project, to solicit public input, and in conformance with NEPA requirements and TDOT's Public Involvement Plan. In addition to the two Scoping Meetings already held, at least three other meetings/hearings are planned. A minimum of 30 days notice will be provided prior to each meeting, with at least 21 days for submittal of comments after each meeting (in order for the comments to be included in the official record).

5.3 Scoping Meetings

Two public scoping meetings were held in the project area in June 13, 2006. At those meetings, TDOT updated the public on the status of the project to date (since the last public hearing on the EA) with a short overview presentation. Information stations were staffed around the room with hard

copies of project area maps for the public to use to present ideas for alternatives and to identify transportation problems. Comment forms and a court reporter were available at the meetings.

The public was specifically asked to provide input on the transportation needs for the project, the range of alternatives that should be considered, and issues of concern to be addressed in the EIS.

During the official scoping period (April 25 through July 5, 2006), 211 public comments were received by letters, emails, completed comment forms distributed at the scoping meetings, and statements to a court report at the scoping meetings. These comments have been reviewed and are being used by TDOT to define the type of issues of public concern and to develop and refine the purpose and need for the project.

Following the close of the scoping period, TDOT continued to accept comments on the project, posting a comment form on the website that can be used to provide comments or as a guide to encourage ongoing input on the project.

5.4 Alternatives Workshop

After the Scoping comment period is closed, after TESA Concurrence Point 1 and prior to TESA Concurrence Point 2, the public will be given another early opportunity to provide their input on the draft Purpose and Need Statement and alternatives to be evaluated in the DEIS. A public workshop will be held in the project area. As a part of this workshop, the public will be asked to review the draft Purpose and Need statement, to help identify preliminary alternatives that would address the purpose and need, and confirm or identify additional issues of concern. An overview of the NEPA process will be provided at the beginning of the workshop. The workshop will include a full group discussion, breakout groups, and a wrap-up with the full group.

The expected outcome of the workshop will be a range of alternatives to be carried forward to the TESA Concurrence Point 2 and to be examined in the DEIS. Final decisions by FHWA regarding the purpose and need of the project and the range of reasonable alternatives to be considered in the DEIS will not be made until after this meeting.

5.5 Public Informational Meeting

Prior to the completion of the DEIS, another series of public meetings will be held to share results of technical studies. The purpose of the meetings is to share the preliminary findings of the technical investigations, so that the public can have meaningful input prior to the final preparation of the DEIS for circulation. Potential context sensitive solutions will be discussed with the public during this meeting.

5.6 DEIS Public Hearing

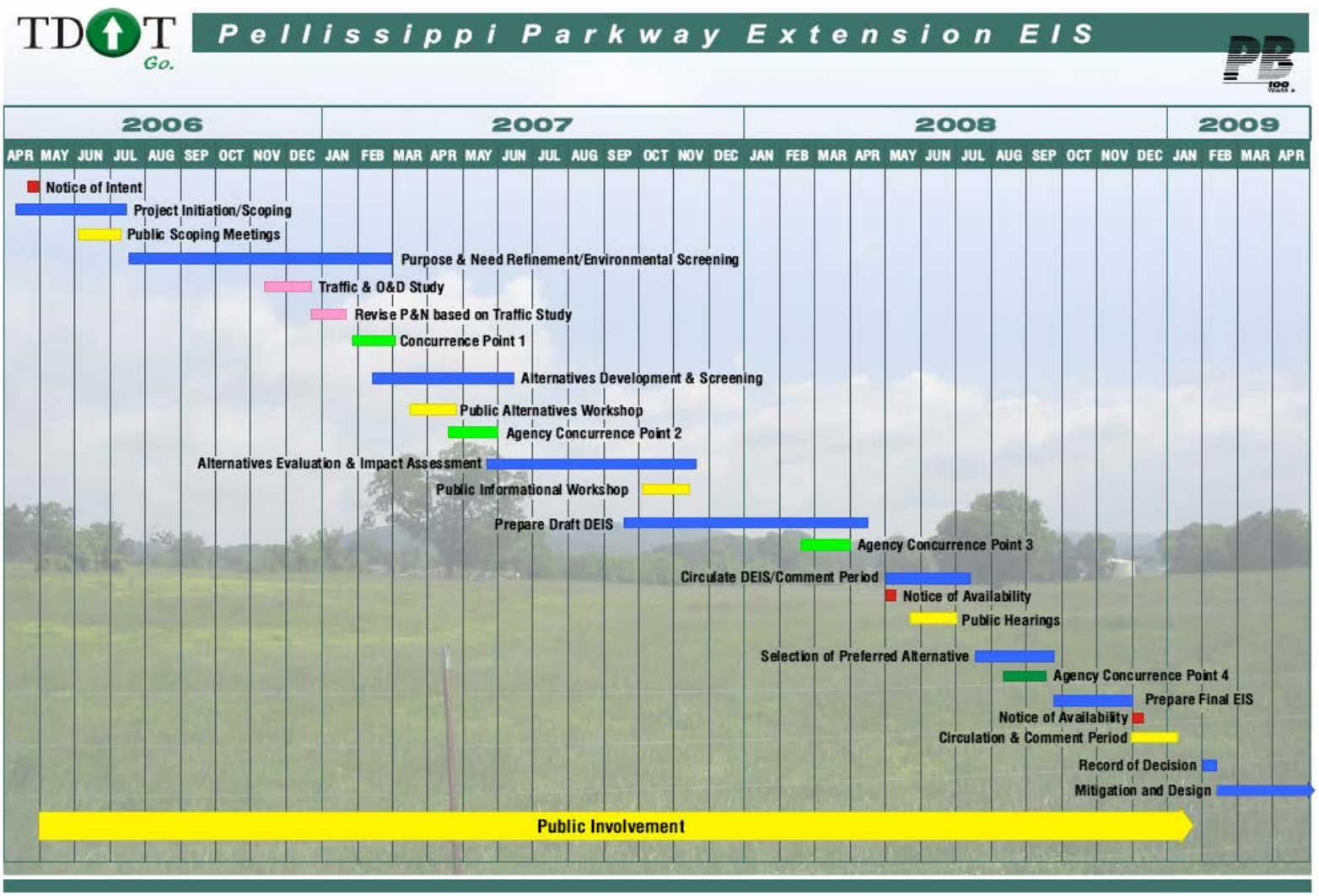
Once FHWA approves the DEIS document for public and agency review, TDOT will hold public hearings to receive comments from the public on the official findings presented in the DEIS and on the project. Input from the public hearing and public comment period will be used by TDOT to make a decision on the selection of the preferred alternative and preliminary mitigation measures.

One or two public hearings will be scheduled to be held in the project area. The hearing(s) will be advertised in local newspapers. Flyers advertising the hearing(s) will be mailed to organizations and individuals on the database.

6.0 SCHEDULE

Figure 2 presents the anticipated schedule for the completion of the EIS and issuance of a ROD for this project. This schedule will be revised/updated as the project moves forward and new information is revealed that may result in schedule adjustments.

Figure 2 Pellissippi Parkway Extension EIS Schedule



Appendix

List of Agencies and Organizations Receiving Coordination Packages

Type: Participating and Cooperating Agency

Mr. Jon Loney, Environmental Manager
Environmental Policy and Planning
Tennessee Valley Authority
400 West Summit Hill Drive
Suite WT8C
Knoxville, TN 37902-1499

Lt. Col. Steven Roemhildt, District Engineer
Regulatory Functions Branch (ORNOP-F)
U.S. Army Corps of Engineers
3701 Bell Road
Nashville, TN 37214-2660

Type: Participating Agency

Commissioner James H. Fyke
Attention: Ms. Kim Glassman
Tennessee Department of Environment and Conservation
L & C Tower, 20th Floor
401 Church Street
Nashville, TN 37243-0454

Mr. Heinz J. Mueller, Chief
Environmental Assessment Office
EIS Review Section
Environmental Protection Agency
61 Forsyth Street, SW
Atlanta, GA 30303

Mr. Lee A. Barclay, Field Supervisor
U.S. Fish and Wildlife Service
U.S. Department of the Interior
446 Neal Street
Cookeville, TN 38501

Mr. Dale Ditmonson, Superintendent
Great Smoky Mountains National Park
U.S. Department of the Interior
107 Park Headquarters Road
Gatlinburg, TN 37738

Mr. Richard Tune, Interim Executive Director
State Historic Preservation Office
Tennessee Historical Commission
Clover Bottom Mansion
2941 Lebanon Road
Nashville, TN 37243-0442

Type: Participating Agency, continued

Mr. Paul E. Davis, Director
Division of Water Pollution Control
Tennessee Department of Environment and Conservation
L & C Annex, 6th Floor
401 Church Street
Nashville, TN 37243-1534

Mr. Jeffrey A. Welch, AICP
Knoxville Regional Transportation Planning Organization
Metro Planning Commission of Knoxville and Knox County
City/County Building, Suite 403
400 Main Street
Knoxville, TN 37902

Mr. Robert Todd, NEPA Contact
Tennessee Wildlife Resources Agency
Ellington Agricultural Center
P.O. Box 40747
Nashville, TN 37204

Type: Non-Participating Agency or Organization

Office of Economic Analysis (RRP-32)
Federal Railroad Administration
400 Seventh Street, SW
Washington, D.C. 20590

Ms. Laverne F. Reid, Manager
Memphis Airport District Office
Federal Aviation Administration
2862 Business Park Drive, Bldg G
Memphis, TN 38118-1555

Advisory Council on Historic Preservation
The Old Post Office Building, Suite 809
1100 Pennsylvania Avenue, NW
Washington, D.C. 20004

Ms. Pearl Young
Office of Federal Activities, EIS Filing Section
U.S. Environmental Protection Agency
Mail Code 2252-A, Room 7241
Ariel Rios Building (South Oval Lobby) 1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Type: Non-Participating Agency or Organization, continued

Mr. Tom Chappell, Regional Engineer
Forest Service - R-8
U.S. Department of Agriculture
1720 Peachtree Road, NW
Atlanta, GA 30309

U.S. Department of Agriculture
P.O. Box 2010
Cleveland, TN 37320

Ms. Susan Fruchter
Coordinator, National Oceanic and Atmospheric Administration
Department of Commerce
14th and Constitution Avenue, N.W.
Room 5805
Washington, D.C. 20230

Mr. Tim Dieringer, Director
Office of Surface Mining
U.S. Department of the Interior
530 Gay Street, S.W., Suite 500
Knoxville, TN 37902

District Chief, Water Resources Division
U.S. Geological Survey
U.S. Department of the Interior
630 Grassmere Park, Suite 100
Nashville, TN 37211

Office of Environmental Affairs
U.S. Geological Survey
U.S. Department of the Interior
USGS National Center, MS-423
12201 Sunrise Valley Drive
Reston, VA 20192

Director, Office of Environmental Policy and Compliance
U.S. Department of the Interior
Main Interior Building, MS 2342
1839 C Street, NW
Washington, DC 20240

Mr. Harry Walls, Environmental Officer
U. S. Department of Housing and Urban Development
Five Points Plaza Building, 4th Floor
40 Marietta Street
Atlanta, GA 30303

Type: Non-Participating Agency or Organization, continued

Mr. William R. Straw
Regional Environmental Officer
Federal Emergency Management Agency
3003 Chamblee Tucker Road
Atlanta, GA 30341-4148

Federal Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Senior Transportation Advisor
Appalachian Regional Commission
166 Connecticut Avenue, NW
Washington, D.C. 20235

Mr. Wilton Burnett, Jr., Director of Special Projects
TDECD NEPA Contact
Department of Economic and Community Development
W.R. Snodgrass Tower, 11th Floor
312 8th Avenue North
Nashville, TN 37243

Mr. Reggie Reeves, Director
Tennessee Division of Natural Heritage
Tennessee Department of Environment and Conservation
L & C Tower, 14th Floor
401 Church Street
Nashville, TN 37243-0447

Mr. Kent Taylor, Director
Division of Ground Water Protection
Tennessee Department of Environment and Conservation
L & C Tower, 10th Floor
401 Church Street
Nashville, TN 37243-1540

Mr. David Draughon, Director
Division of Water Supply
Tennessee Department of Environment and Conservation
L & C Tower, 6th Floor, 401 Church Street
Nashville ,TN 37243-1549

Mr. James Ford, State Conservationist
Natural Resources Conservation Service,
U.S. Department of Agriculture
U.S. Courthouse - Room 675
Nashville, TN 37203

Type: Non-Participating Agency or Organization, continued

Mr. Mike Apple, Director
Division of Solid/Hazardous Waste Management
Tennessee Department of Environment and Conservation
L & C Tower, 5th Floor
401 Church Street
Nashville, TN 37243-1535

Deputy Commissioner Terry Oliver
NEPA Contact
Tennessee Department of Agriculture
Ellington Agricultural Center
Nashville, TN 37204

Mr. Barry Stephens, Director
Division of Air Pollution Control
Tennessee Department of Environment and Conservation
L & C Annex, 9th Floor
401 Church Street
Nashville, TN 37243-1531

Mr. Robert (Bob) V. Woods, Director
Tennessee Aeronautics Division
Tennessee Department of Transportation
484 Knapp Boulevard, Building 4219
Nashville, TN 37217

Diane Davidson, Transportation Director
Public Transportation, Waterways, and Rail Division
Tennessee Department of Transportation
James K. Polk Building, 18th Floor
505 Deaderick Street
Nashville, TN 37243

Ms. Lori Kirby, Director
Title VI Program, Civil Rights Office
Tennessee Department of Transportation
James K. Polk Building, Suite 1800
505 Deaderick Street
Nashville, TN 37243-0347

Mr. Tom Fusco, Executive Administrative Assistant
Tennessee Department of Education
Andrew Johnson Tower, 6th Floor
710 James Robertson Parkway
Nashville, TN 37243-0376

Type: Non-Participating Agency or Organization, continued

Tennessee State Library and Archives
403 7th Avenue North
Nashville,TN 37243-0312

Blount County Public Library
508 N. Cusick Street
Maryville, TN 37804

Mr. Dan Hawk, Urban Regional Director
East Tennessee Section
Tennessee Planning Office
5401 Kingston Pike
Suite 210
Knoxville, TN 37919

Tennessee Environmental Council
One Vantage Way, Suite D-105
Nashville ,TN 37212-4348

Ms. Wendy Smith
World Wildlife Fund
2021 21st Avenue, South, Suite 200
Nashville, TN 37212-4348

Mr. Michael Butler
Tennessee Wildlife Federation
300 Orlando Avenue
Nashville, TN 37209-3257

Ms. Gabby Call
The Nature Conservancy
2021 21st Avenue South, Suite C-400
Nashville, TN 37212

Tennessee Chapter of the Sierra Club
2021 21st Ave. South, Suite 436
Nashville, TN 37212

Ms. Liz Dixon, Sierra Club
10417 Victoria Drive, #C
Knoxville, TN 37922

Tennessee Trails Association
P.O. Box 41446
Nashville, TN 37204

Type: Non-Participating Agency or Organization, continued

James D. Hoskins Library
University of Tennessee
Serials Department
1401 Cumberland Avenue
Knoxville, TN 37996-4000

Ms. Nina Gregg
Citizens Against Pellissippi Parkway Extension
PO Box 494
Alcoa, TN 37701

Type: Local Agencies and Organizations

Mr. Mark Hairr
General Manager
Knoxville Area Transit
1135 East Magnolia Avenue
Knoxville, TN 37917

Mr. Dewey Roberts
President
NAACP-Knoxville Chapter
P.O. Box 14096
Knoxville TN 37914

Mr. Terry Bobrowski
East Tennessee Development District
P.O. Box 19806
Knoxville, TN 37939-2806

Blount County Executive
Blount County Courthouse
341 Court Street
Maryville, TN 37804-5906

Mr. John Lamb, Director of Planning
Blount County Planning Department
Blount County Courthouse
327 Court Street
Maryville TN 37804-5906

Glenn Cardwell, President
Smoky Mountain Historical Society
P.O. Box 5078
Sevierville, TN 37864-5078

Type: Local Agencies and Organizations, continued

Amanda Wild, Historic Preservation Planner
East Tennessee Development District
P.O. Box 19806
Knoxville, TN 37939-2806

Mrs. Inez Burns
Blunt County Historian
1308 Brannon Drive
Maryville, TN 37801

Blount County Historic Society
P.O. Box 4986
Maryville ,TN 37802-4986

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APPENDIX M

SAMPLE STATUTE OF LIMITATIONS NOTICE

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Word, or text (.TXT) files. Supporting documentation submitted as spreadsheets is acceptable as Quattro Pro or Excel files. A submitter requesting that information contained in a comment be treated as confidential business information must certify that such information is business confidential and would not customarily be released to the public by the submitter. A non-confidential version of the comment must also be provided. For any document containing business confidential information, the file name of the business confidential version should begin with the characters ''BC-'', and the file name of the public version should begin with the character ''P-''. The ''P-'' or ''BC-'' should be followed by the name of the submitter. Submissions should not include separate cover letters; information that might appear in a cover letter should be included in the submission itself. To the extent possible, any attachments to the submission should be included in the same file as the submission itself, and not as separate files.

All comments should be addressed to Sybia Harrison, Special Assistant to the Section 301 Committee, and sent (i) electronically, to the following e-mail address: *FR0606@ustr.eop.gov,* with ''Special 301 Review'' in the subject line, or (ii) by fax, to (202) 395–9458, with a confirmation copy sent electronically to the e-mail address above.

Public inspection of submissions: Within one business day of receipt, non-confidential submissions will be placed in a public file, open for inspection at the USTR reading room, Office of the United States Trade Representative, Annex Building, 1724 F Street, NW., Room 1, Washington, DC. An appointment to review the file must be scheduled at least 48 hours in advance and may be made by calling Jacqueline Caldwell at (202) 395–6186. The USTR reading room is open to the public from 10 a.m. to 12 noon and from 1 p.m. to 4 p.m., Monday through Friday.

Victoria Espinel,

Acting Assistant USTR for Intellectual Property.

[FR Doc. E6–426 Filed 1–13–06; 8:45 am]

BILLING CODE 3190–D2–P

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Notice of Final Federal Agency Actions on Proposed Highway in Pennsylvania

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of Limitation on Claims for Judicial Review of Actions by FHWA.

SUMMARY: This notice announces actions taken by the FHWA and other Federal agencies that are final within the meaning of 23 USC 139(1)(1). The actions relate to a proposed highway project, Mon/Fayette Expressway, PA Route 51 in Large PA to I–376 in Monroeville and Pittsburgh in Allegheny County, Pennsylvania and those actions grant licenses, permits, and approvals for the project.

DATES: By this notice, the FHWA is advising the public of final agency actions subject to 23 USC 139(l)(1). A claim seeking judicial review of the Federal agency actions on the highway project will be barred unless the claim is filed on or before July 21, 2006. If the Federal law that authorizes judicial review of a claim provides a time period of less than 180 days for filing such claim, then that shorter time period still applies.

FOR FURTHER INFORMATION CONTACT: Karyn Vandervoort, Environmental Program Manager, Federal Highway Administration, 228 Walnut Street, Room 508, Harrisburg, PA 17101–1720, between 8 a.m. and 4 p.m., (717) 221–2276, *karyn.vandervoort@fhwa.dot.gov* or David Willis, Environmental Manager, Pennsylvania Turnpike Commission, P.O. Box 67676, Harrisburg, PA 17106–7676 between 9 a.m. and 3 p.m., (717) 939–9551, *dwillis@paturnpike.com*

SUPPLEMENTARY INFORMATION: Notice is hereby given that the FHWA have taken final agency actions by issuing licenses, permits and approvals for the following highway project in the Commonwealth of Pennsylvania: a four-lane, limited access, tolled highway extending approximately 24 miles from PA 51 in Large, Pennsylvania north to the Parkway East (I–376) in the Municipality of Monroeville and west along the north shore of the Monongahela River to a connection with the Parkway East at Bates Street and Second Avenue (PA Route 885) in the City of Pittsburgh. The highway will improve access to neighborhoods, emergency providers and economic redevelopment areas; relieve existing and future congestion; improve major highway linkages, and improve vehicular and pedestrian safety. The actions by the Federal agencies, and the laws under which such actions were taken, are described in the Final Environmental Impact Statement (FEIS) for the project, approved on January 8, 2004, in the FHWA Record of Decision (ROD) issued on December 7, 2004, and in other documents in the FHWA administrative record. The FEIS, ROD, and other documents in the FHWA administrative record file are available by contacting the FHWA or the Pennsylvania Turnpike Commission at the addresses provided above. The FHWA ROD can be viewed and downloaded from the project Web site at *http://www.paturnpike.com*.

This notice applies to all Federal agency decisions as of the issuance date of this notice and all laws under which such actions were taken, including but not limited to:

1. National Environmental Policy Act (NEPA) [42 U.S.C. 4321–4351].
2. Federal-Aid Highway Act [23 U.S.C. 109].
3. Section 4(f) of the Department of Transportation Act of 1966 [49 U.S.C. 303].
4. Clean Air Act, 42 U.S.C. 7401–7671(q).
5. Section 106 of the National Historic Preservation Act of 1966, as amended [16 U.S.C. 470(f) *et seq.*].

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.)

Authority: 23 USC § 139(l)(1).

Issued on: January 10, 2006.

James A. Cheatham,

Division Administrator, Harrisburg.

[FR Doc. 06–367 Filed 1–13–06; 8:45 am]

BILLING CODE 4910–22–M

DEPARTMENT OF TRANSPORTATION

Maritime Administration

[Docket Number 2006 23377]

Requested Administrative Waiver of the Coastwise Trade Laws

AGENCY: Maritime Administration, Department of Transportation.

ACTION: Invitation for public comments on a requested administrative waiver of the Coastwise Trade Laws for the vessel TRIPLE TROUBLE.

SUMMARY: As authorized by Public Law 105–383 and Public Law 107–295, the Secretary of Transportation, as represented by the Maritime Administration (MARAD), is authorized to grant waivers of the U.S.-build requirement of the coastwise laws under certain circumstances. A request for such a waiver has been received by MARAD. The vessel, and a brief

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APPENDIX N

CONSTRUCTABILITY REVIEW PROCEDURES FOR HIGHWAY AND BRIDGE PROJECTS

N.0 PURPOSE OF CONSTRUCTABILITY REVIEWS AND PROCEDURES

A. Constructability Reviews. NCHRP Report 390, *Constructability Review Process for Transportation Facilities*, defines constructability as "the optimum use of construction knowledge and experience in planning, design, procurement, and field operations to achieve overall project objectives."

The purpose of a constructability review is to refine a project's design and increase its construction efficiency. Increased efficiency reduces the need for change orders and the inherent higher unit costs. Constructability reviews also have the potential to reduce disputes, cost overruns, and delays (NCHRP Report 390).

The following general requirements are essential for successful constructability reviews:

1. Integration of constructability reviews into the early design process prior to PS&E submission.

2. Uniform and flexible methodology that can be implemented according to individual project requirements and the abilities and available resources of each District.

3. Proper tools for each District. This will include training in constructability as necessary and access to using the statewide open-end agreements for consultant services.

4. Experienced construction personnel involvement.

B. Procedures. PennDOT has standard statewide procedures for the incorporation of constructability reviews in the project delivery process. This section identifies methods and resources necessary to implement effective constructability reviews. These procedures establish the uniform methodology to be followed and enable the District Executive (DE), Project Managers, and consultants to adapt constructability reviews to a variety of projects. These procedures also establish criteria for using statewide open-end consultant agreements to hire engineering consultants to provide constructability review services as necessary. The criteria include necessary items to be included in work orders for specific projects.

N.1 CONSTRUCTABILITY TEAMS

Constructability reviews for individual projects should be conducted by constructability teams at various stages throughout project development. Members of these teams should be experienced in construction, design, maintenance, contract management, and scheduling.

For projects other than those described in Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix AB, reviews should be conducted using constructability teams established by the DE and Project Manager. The teams should consist of the following staff:

a. District personnel from Design, Construction, and Maintenance (always)
b. Consultant staff (as needed)
c. Central Office and FHWA staff (when determined to be necessary on complex projects).

For projects described in Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix AB, constructability teams will be established by the consultant, in coordination with the District Project Manager. These teams should include the same District staff as other projects.

The extent to which constructability review teams are utilized will be dependent on the complexity of the individual project. The team could be required to be involved only at several points of time for minor projects or continually throughout project development for complex projects. The DE and Project Manager will determine the level of review effort for individual projects (this will be an integral part of developing the Scope of Work for consultant review projects).

N.2 CONSTRUCTABILITY TASKS

The DE and Project Manager will determine the level of review effort for individual projects. The following tasks are good guidelines for use in determining this effort. On minor projects, the tasks may be reduced. For major projects (particularly those requiring consultant services), these tasks will provide an opportunity to fully address construction issues during the project development process. In addition, following these guidelines will provide information that can be referenced for use on future projects.

A. Review of Plans. The review of plans and other information at various stages in the project development process involves the following issues:

1. Design

a. Engineering and Environmental Scoping Field View
b. Approximately 30% (Design Field View, including any preliminary Supplemental Plans)
c. Approximately 75% (Including preliminary Pre-bid Construction Schedule)
d. 95% (PS&E, including Special Provisions and Final Pre-bid Schedule)

2. Construction

a. Pre-Construction Conference and Partnering Session
b. Traffic Control Plan revision, project scope change, and 50% complete
c. Post-construction After Action Review

B. Conduct Meetings to Discuss Stage Reviews.

C. Prepare and Disseminate Reports and Presentations.

1. Reports should be disseminated and presented to DE, Project Manager, and other parties as necessary.

2. The content of these reports and presentations should include a description of the project; description of the review stage; brief minutes of the stage meeting (could be an attachment); and a list of findings, recommendations, and to whom findings and recommendations were presented.

3. Lessons learned report after construction to be used for future projects.

D. Prepare Implementation Plan for Recommendations. For additional information about constructability tasks, review stages, and philosophy, refer to NCHRP Reports 390, *Constructability Review Process for Transportation Facilities,* and 391, *Constructability Review Process for Transportation Facilities Workbook*.

N.3 OPEN-END AGREEMENTS

The following items are guidelines for using open-end agreements for consultant constructability review services. These guidelines are not exhaustive, but give a basis for what to expect in using these agreements.

A. When to Use.

1. Complex Projects
2. Not Enough District Personnel Available
3. Determined by DE and Project Manager

B. What Consultants Will Provide.

1. Expertise
2. Team Members
3. Reviews of Plans, Special Provisions, etc.
4. Facilitate Meetings
5. Compile Constructability Reports for Each Review Stage
6. Present Findings and Recommendations to DE and Project Manager
7. Prepare Implementation Plan under direction of DE and Project Manager

C. What The District Will Provide.

1. Scope of Work for Work Orders
2. Expertise
3. Team Members (Could also include Central Office and FHWA)
4. Review of Plans, Special Provisions, etc.
5. Input at Meetings
6. Direction for Implementation Plan

N.4 STEPS TO FOLLOW IN DEVELOPING WORK ORDERS

The District will prepare a Scope of Work for those projects that require consultant services under the statewide open-end agreements for consultant constructability review services. The Scope of Work will include and define the following tasks and items.

A. Items to be Determined. Items to be determined by the DE and Project Manager and included as background in the Scope of Work.

1. Project selected and reasons for selecting.
2. Determination of project complexity.
3. Proposed constructability team members.
4. Estimate of contract duration including milestones for periodic reviews.

B. Items to be Included as Specific Tasks in the Scope of Work. These should be standard items for consideration in all work orders. The DE and Project Manager will have the flexibility to determine which items will apply on specific projects. Those that do not apply can be cut from the specific work order agreement. Additional subtasks may be added to individual work orders based on the DE and Project Manager determining need for such items.

1. Collect background information.

2. Review information supplied by the District to the constructability team (including plans, schedule, proposal, specifications, estimates, borings, soils information, utility issues, and others).

3. Provide deliverables and schedule of deliverables (turnaround time of two to five days) to the District (includes meeting minutes, list of people contacted, site visit reports, pre-bid meeting report, pre-construction meeting report, constructability, biddability, estimate reviews, findings and recommendations reports, post-construction feedback, and others).

Constructability Reviews may include an evaluation of the following items:

a. Scheduling
b. Staging
c. Traffic Control/MPT
d. Utilities
e. Permits

f. Specifications (Supplements, Special Provisions)
g. Site Access
h. Logistics
i. Environmental Impacts
j. Compatibility of Plans
k. Structures/bridges/foundations
l. Subsurface Soil Data
m. Erosion and Sedimentation Control
n. Material Acquisition
o. Right-of-Way
p. Constraints/Restrictions
q. Safety (in general) and safety devices
r. Pavements and Substructure Preparation
s. Value Engineering (VE) recommendations

Biddability Reviews may include the following items:

a. Plan clarity
b. Specification clarity
c. Plan and Specification Compatibility
d. Shop Drawing Review Process
e. Innovative Contracting Methods
f. Acceptance of Work Criteria
g. Scheduling
h. Completion Dates
i. Milestone Dates

Estimates Reviews may include the following items:

a. Program Amount (PMC Approval Amount)
b. Engineer's Estimate (at given stage or review interval)
c. Bid Amount
d. Final Payment
e. Cost Control Measures
f. Bid Justifications
g. Work Order Items and Amounts

4. Presentation of findings and recommendations to the DE, Project Manager, and designers.

5. Implementation plan for approved recommendations (should include a list of approved recommendations, schedule for implementation, responsible party for implementing, and estimated project cost and time savings).

6. Feedback report to Constructability Consultant maintaining statewide findings list (copies for District as well).

C. General Requirements. For constructability reviews using consultant services under either statewide open-end contract for constructability reviews, the District will prepare a Scope of Work using the above guidelines and the criteria in Publication 93, *Policy and Procedures for the Administration of Consultant Agreements*, in coordination with the Bureau of Project Delivery, Contract Management Section. The method of payment for scopes of work using consultant services will be Specific Rate of Compensation.

D. Constructability Review Checklist. The "constructability" of a project is a relative measure of how simple or difficult a design is to construct. A project's constructability depends on a wide range of project-specific variables including project complexity, schedule, location, site constraints, traffic control, material availability, and labor availability.

Identifying possible constructability problems requires visualizing the various steps a contractor must take to build the project, and recognizing the uncertainties associated with each step. This identification process requires

familiarity with construction equipment, methods, and materials, as well as project-specific issues such as the proposed construction staging and any commitments PennDOT may have made to third party stakeholders.

In many cases the designer can reduce the probability of a constuctability problem occurring by compensating for uncertainties. This may require making more conservative assumptions, doing more investigations, and/or allowing more time between critical milestones in the construction schedule. The following checklist was developed to help reviewers identify possible constructability problems and recommend corrective action during the design process.

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Constructability Review Checklist
Roadway and "ALSO" Plans
Overall Plan Review

		YES	If YES, Drawing No.	NO	N/A
1	PLAN CONTENT				
	a. Clear project description				
	b. Complete quantity tabulations				
	c. Cross Sections				
	d. Complete project overall plan				
	1. Limit of work				
	2. Complete topography				
	3. Drainage clearly indicated				
	4. Structure station				
	5. Permanent traffic facilities				
	6. Complete survey data				
	7. Location of existing structures				
	8. Location of existing utilities				
	9. Existing and revised R/W lines indicated				
	e. Detailed temporary traffic plans				
	f. Structure details				
	g. Roadway details				
	h. Drainage details				
	i. Existing facility plans if rehabilitation project				
	j. If rehabilitation work - details for repair work				
	k. Lighting and signal plans				
	l. Standard drawing included (if applicable)				
	m. Special details				
	n. Contour and Grading Plan (if applicable)				

Recommendations Accepted: yes no (circle one); If no, provide explanation:

Constructability Review Checklist
Roadway and "ALSO" Plans
Overall Plan Review

			YES	If YES, Drawing No.	NO	N/A
2	SPECIFICATION CONTENT					
	a. Full description of project					
	b. Standard specifics & reference, if applicable					
	c. Full specifications for all work - if not standard					
	d. Special provisions for project					
	e. Complete item bid price schedule					
	f. Reference to all legal & regulatory agency requirements for project (ASTM, ASHTO, OSHA, EEO, federal and state, etc.)					
	g. List of all public & private utilities & contacts					
	h. Contract agreement outlines (terms, penalties, signatories, bonds, insurance, etc.)					
	i. A pay item review for selected items of the contract finds that the following are addressed by the Contract:					
		Subbase				
		Special Subbase				
		Geotextile				
		Pavement				
		Special Pavement				
		Sidewalk				
		Special Sidewalk				
		Railing				
		Special Railing				
		Fence				
		Special Fence				
		Barriers				
		Special Barriers				

Recommendations Accepted: yes no (circle one); If no, provide explanation:

Constructability Review Checklist
Roadway and "ALSO" Plans
Overall Plan Review

		YES	If YES, Drawing No.	NO	N/A
3	PROJECT DETAILS				
	Clearly indicated on general plan				
4	NOTES - SCOPE, CLARITY, COMPLETENESS				
5	TYPICAL SECTION - ROADWAY				
	a. Pavement - dimension and stations				
	b. Shoulders - dimension and stations				
	c. Curb - dimension and stations				
	d. Barrier - dimension and stations				
	e. Subbase - dimension and stations				
	f. Guiderail - dimension and stations				
	g. Pipe and U-drain - dimension and stations				
	h. Earthwork - cross sections and stations				
	i. Pavement and shoulder cross slopes				
6	TRAFFIC ITEMS - TEMPORARY AND PERMANENT				
	a. Plan Layout - clear narrative				
	b. Tape or Line - quantities				
	c. Barricades, Flashers, etc. - quantities				
	d. Barrier - location and quantities				
	e. Careful review of time frames to perform traffic work				
	f. Temporary Traffic Signals are considered for all stages of construction.				
	g. MPT is consistent with project construction staging work				

Recommendations Accepted: yes no (circle one); If no, provide explanation:

Constructability Review Checklist
Roadway and "ALSO" Plans
Overall Plan Review

		YES	If YES, Drawing No.	NO	N/A
7	MISCELLANEOUS				
	a. Overall project sequencing is given				
	b. Hazardous waste requirements are clearly identified				
	c. Railroad clearance envelope (design & construction) indicated on the profile view.				
	d. E&S measures can be implemented				
	e. All existing utilities shown in plan, X-section, & profile				
	f. Cross-sections denote areas requiring/not requiring guiderail, barrier, or other special considerations.				
	g. Toe benches will not undercut exist. roadway stability				
	h. Available & identifiable rock on site for benches, etc.				
	i. Excavations below the water table are identified.				
	j. Drainage is consistent with MPT & constr. staging.				
	k. Drainage can be built from low point to high point without interference.				
	l. Pedestrians and bicyclists access and safety are adequately addressed.				
	m. Environmental mitigation report commitments are satisfied.				
	n. Environmental areas of special concern delineated on plans.				
	o. Transportation Management Plan was developed if project was determined to be "significant."				

Recommendations Accepted: yes no (circle one); If no, provide explanation:

Constructability Review Checklist
Roadway and "ALSO" Plans
Overall Plan Review

		YES	If YES, Drawing No.	NO	N/A
8	STRUCTURES				
	a. Special structure constructability analysis				
	b. Special emphasis for detailed review of plans on rehabilitation or extension projects to ensure fit of new members to existing - Example: new camber vs existing member camber and connection member fit, bearings, emphasis of notes on plans regarding specific instructions and coordination with special provisions for items of work involved.				
	c. Emphasis on current requirements by governmental agencies for air and water pollution, protection of workers, inspectors, and appropriate work items.				
	d. Is bridge design fully coordinated with construction staging to minimize cost and traffic impacts?				
9	GEOTECHNICAL CONSIDERATIONS				
	a. Geo plan included				
	b. Scope of activity outlined				
	c. Appropriate item quantity				
	d. Provisions to mitigate sink holes or mine voids				
	e. Provisions for surcharging and monitoring				
	f. Provisions to mitigate for removal of unsuitable material				
	g. Integrity of subgrade (undercutting).				
10	E&S CONSIDERATIONS				
	a. Does plan indicate contractor responsibility for pollution and erosion control in areas disturbed as a result of method of construction adopted for contractor's convenience or method of procedure selected?				
	b. Does plan outline general requirements of governmental agencies for erosion control of disturbed earth areas and at drainage outlet areas?				
	c. Does Pre-Bid Construction Schedule consider the milestone (to provide adequate time) for establishment of vegetation?				

Recommendations Accepted: yes no (circle one); If no, provide explanation:

Constructability Review Checklist
Roadway and "ALSO" Plans
Overall Plan Review

Construction issues (circle most appropriate description)						
Traffic						
	Staging	Very complex		Average		Simple
	Impact on construction activities	High		Average		Low
	Volumes	High		Average		Low
Materials						
	Procurement Time	Inadequate	Poor	Average	Good	Excellent
	Galvanized steel products	Inadequate	Poor	Average	Good	Excellent
	Fabricated steel products	Inadequate	Poor	Average	Good	Excellent
	Proximity to borrow / waste sites	Inadequate	Poor	Average	Good	Excellent
	Aggregate (Concrete/bituminous)	Inadequate	Poor	Average	Good	Excellent
Space						
	On Site storage areas	Inadequate	Poor	Average	Good	Excellent
	Off-site storage areas	Inadequate	Poor	Average	Good	Excellent
	Staging areas	Inadequate	Poor	Average	Good	Excellent
	Shared storage	Inadequate	Poor	Average	Good	Excellent
	Access to the work	Inadequate	Poor	Average	Good	Excellent
	Disposal of Material	Inadequate	Poor	Average	Good	Excellent
	Concurrent access to cut & fill areas	Inadequate	Poor	Average	Good	Excellent
	Batch plant site	Inadequate	Poor	Average	Good	Excellent
Equipment						
	Availability	Inadequate	Poor	Average	Good	Excellent
	Security	Inadequate	Poor	Average	Good	Excellent
	Access to work area	Inadequate	Poor	Average	Good	Excellent

Constructability Review Checklist
Roadway and "ALSO" Plans
Overall Plan Review

Construction issues (circle most appropriate description)						
Time						
	Risk of delays	High		Average		Low
	Need for specialty subcontractor	High		Average		Low
	Number of work restrictions	High		Average		Low
Utilities						
	Probability of delays	High		Average		Low
	Need for close cooperation	High		Average		Low
	Level of cooperation during design	High		Average		Low
	Number of conflicts	High		Average		Low
Labor						
	Availability of skilled labor	High		Average		Low
Other:						
	Risk of Geotechnical Problems: Sink holes Mines Unsuitable materials	High		Average		Low
	Environmental Obligations	High		Average		Low
	Location: Weather sensitivity	High		Average		Low
	Local regulations and ordinances	High		Average		Low
	Restrictions to access routes (e.g. under clearances, bridge weight limits)	High		Average		Low

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APPENDIX O

SAFETY REVIEW PROCEDURES

O.0 INTRODUCTION

The Safety Review is one of PennDOT's main check points for quality assurance on highway design projects. PennDOT's design procedures require that all projects be submitted for safety review by a qualified, District Safety Review Committee before contract letting. Peer review and dedication to roadway safety are at the heart of the Safety Review process.

O.1 PURPOSE AND PROCEDURE

1. Purpose. The Safety Review is to detect and correct any safety deficiencies identified in the design as early as possible in the design process.

2. Procedure:

a. Safety Review Submission. The Safety Review Submission and review should be scheduled to occur as early in the design process as possible. The submission and review should precede the project Design Field View (if applicable) by at least two weeks. This will enable the Safety Review Committee to detect any safety deficiencies and recommend any safety enhancements well ahead of final plans preparation. This will also allow any required revisions to be incorporated with minimal impact to the project schedule. Comments generated by Safety Review should be presented and addressed at the Design Field View (Preliminary and/or Final, if applicable).

When the plans are sufficiently detailed to address the issues listed on the attached Safety Review checklist, the Project Manager shall prepare and submit two copies of the Safety Review Submission to the District Safety Review Committee. Safety Review Submission plans must identify all applicable items on this checklist to the level of detail required for a Design Field View Submission. The Safety Review Submission shall precede the Design Field View (if applicable) by at least two weeks and shall include:

(1) Color-coded plans
(2) Profiles
(3) Typical sections
(4) Project Design Criteria Report.

The Project Design Criteria Report is particularly necessary on roadway rehabilitation projects where the safety of existing features must be evaluated and improvements made in the proposed design. This document should summarize:

(1) Existing design deficiencies

(2) Design exception requests with justifications

(3) Crash histories for the previous three years

(4) Traffic data (AADT, percentage trucks, directional splits)

(5) Traffic control concepts.

(6) Consider providing a Crash Analysis and Safety Impact Evaluation as defined in Publication 638, *District Highway Safety Guidance Manual*, using the *Highway Safety Manual* methodologies for proposed conditions and applicable existing conditions.

b. Committee Recommendations. The Safety Review Committee shall return one of the following three recommendations to the District Executive:

(1) Plan Approval
(2) Plan Approval subject to revisions
(3) Plan Rejection.

The recommendation shall be accompanied by both copies of the Safety Review Submission containing the committee's review comments. Implementation of the Committee's recommendations is at the discretion of the District Executive. One copy of the Safety Review Submission and comments shall be retained in the project file by the District's Project Manager. The other copy shall be returned to the District Design Squad or consultant with specific direction on actions to be taken.

c. Safety Review Committee Selection. The effectiveness of PennDOT's Safety Review program depends on the qualifications and dedication of committee members and the commitment of the District Executive to implement the Committee's recommendations. Committee members must be selected with care.

(1) The optimum committee size is five persons. They should be from diverse backgrounds. The Project Manager should not be on the team; however, someone knowledgeable of the major items of the project should be included.

(2) Committee members should be selected by the District Executive from a pool of qualified District personnel rather than a fixed team for all reviews. At least one person on the committee must have considerable traffic engineering experience.

d. Safety Review Checklist. Table O.1 is a Safety Review Checklist to be used as a guide for all project safety reviews. This checklist is not a substitute for sound engineering judgment and should not be considered all inclusive. Many items included on this list will not apply to all projects. Additional items should be considered and reviewed as appropriate to the specific project.

O.2 ROADWAY SAFETY ASSESSMENTS

A Roadway Safety Assessment (RSA) is conducted in addition to PennDOT's traditional safety review process. It provides a formal examination of an existing facility or future roadway project by an independent multidisciplinary team. The RSA team may be able to identify safety concerns that may not have been discovered as part of a standard safety review or project design. The RSA team reports on opportunities for safety improvement for the specific purpose of safety performance, crash prevention/reduction for all users. RSAs can be conducted at any stage(s) of a project, from the preliminary planning stage through to operation of an existing facility. RSAs performed early in the planning and preliminary design stages of a project can be most effective in identifying road safety issues before they are "built into" the project.

Refer to Publication 638, *District Highway Safety Guidance Manual*, for more information and procedures of a RSA.

TABLE O.1
SAFETY REVIEW CHECKLIST

Design Criteria
- Functional classification
- Typology
- Criteria:
  New and Reconstruction, 3R Pavement Preservation or Bridge Preservation
- Design speed
- Level(s) of Service (LOS)
  Existing and proposed
- Traffic composition -
  Percentage of trucks

Roadside Design Features
- Cut and fill slopes
- Clear zone widths
- Traversable recovery area
- Lateral clearance to fixed objects
- Parking Restrictions
- Safety appurtenances
- Guide rail and barrier
  Placement
  End treatments/ Impact attenuators
- Driveway entrances
  Sight distance
  Spacing
  Proximity to intersections

Traffic Control Devices
- Signalization
- Signing
- Railroad crossing protection
- Pavement markings
  Passing zone restrictions
  Traffic arrows
  Lane use designation

Road Safety
- Crash histories (past 3 years)
- Safety Impacts/Crash Analysis for existing and proposed conditions using the HSM if applicable
- RSA safety issues
  Risk assessment
  Corrective countermeasures

Geometric Aspects
- Driver expectation and consistency of design speed
- Bridge width
- Lane width
- Shoulder width
- Median width
- Stopping sight distance
- Horizontal and vertical alignment
- Superelevation
- Cross slopes
- Vertical and lateral clearances
- Grades: Minimum & maximum
- Need for emergency escape ramps/climbing lanes
- Design exceptions or other nonstandard design features

Preliminary Transportation Management Plan
- Traffic Control Plan
- Transportation Operations Plan
- Public Information Plan

Traffic Control Plans
- Construction area speed limits
- Temporary roadway design speeds
- Advance warning signs
- Entry and exit of construction vehicles
- Lane reductions
- Emergency pull-off areas

Interchanges
- Acceleration and deceleration lane lengths
- Weave lengths
- Interchange spacing
- Signing
- Lighting

Intersections
- Pedestrian considerations
  ADA requirements
- Geometrics
  Minimum curve radii
  Design vehicle path
- Intersection sight distance
- Channelization islands
- Auxiliary lanes

Special Considerations
- Schools
- Recreational areas
- Speed restrictions
- Pavement markings
- Pedestrian, bicycle and school bus movements
- Fire stations and hospitals
- Emergency vehicle considerations
- Farm equipment
- Horse and buggy traffic
- Single lane bridges
- Oversize and Overweight vehicle usage
- Motorcycles
- Mature Drivers

Bicycle Considerations
- Bicycle safe inlet grates
- Signing
- Shoulder widths

Miscellaneous
- Drainage considerations
- High water - flooding potential
- Fog Considerations
- Special Events

O.3 CONFIDENTIAL IN-DEPTH SAFETY STUDY REPORTS

It is very important that safety studies including RSAs remain confidential. The following quote provides notification that RSA reports must not be identified as documents that can be used in any civil tort action.

> "In accordance with PA Consolidated Statutes Title 75-Vehicles (Vehicle Code) Section 3754 and 23 U.S.C. Section 409, this safety study is confidential and the publication, reproduction, release, or discussion of these materials is prohibited without the specific written consent of the Pennsylvania Department of Transportation's Office of Chief Counsel. This safety study is only provided to official agencies with official duties/responsibilities in the project development."

Although Pennsylvania does not have Sovereign Immunity, PennDOT is protected by a Statute that deems SAFETY STUDIES non-admissible in Torts. This is a great security blanket; however, this may not be practical or an option for some Agencies. The concern of Liability is valid, but the benefits that can be realized with a thorough RSA will outweigh the risks, if care is taken when documenting the results of the RSA.

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APPENDIX P

DESIGN EXCEPTIONS

P.0 INTRODUCTION

Publication 13M, Design Manual Part 2 (DM-2), *Highway Design* defines the following sets of project design criteria: New Construction and Reconstruction for roadway projects, 3R for roadway projects, Pavement Preservation, and Bridge Projects. Each set of design criteria have different values for the 11 controlling criteria as defined in Section P.1. If any of the controlling criteria cannot be met, a design exception request must be prepared using one of the Design Exception Request templates in this appendix with full justification provided for the retention, limited improvement, and mitigation of these features. Even if required design criteria cannot be met, incremental improvements should be considered to achieve as close to required criteria as feasible.

All design exception requests, whether or not the project is on the National Highway System (NHS) and regardless of funding (state, federal or local), are to be consistent with the procedures in this appendix.

P.1 CONTROLLING CRITERIA

The Federal Highway Administration (FHWA) has established 10 controlling criteria requiring formal documentation and approval of design exceptions. This list of 10 controlling criteria is provided in the "The Federal-aid Highway Program Policy & Guidance Center (PGC)" found at: http://www.fhwa.dot.gov/pgc/. FHWA also provides online guidance in "Guidance on NHS Design Standards and Design Exceptions" found at http://www.fhwa.dot.gov/design/standards/qa.cfm.

On high-speed (i.e., Interstate highways, other freeways, and other roadways with design speed ≥ 50 mph) roadways on the NHS, FHWA requires a design exception if one or more of FHWA's 10 controlling criteria are not met. This includes all freeway ramps at all design speeds. In addition, on low-speed roadways (i.e., non-freeways with design speed < 50 mph) on the NHS, FHWA requires a design exception for only the following two controlling criteria: Design Speed and Design Loading Structural Capacity. FHWA's 10 controlling criteria are based on AASHTO design standards, not DM-2. However, PennDOT applies design exception criteria for all roadways and all speeds based on DM-2 design standards. In instances where the AASHTO Green Book criteria are met but DM-2 criteria are not met, PennDOT requires a design exception, but FHWA does not.

PennDOT requires an 11th controlling criteria: Acceleration and Deceleration Lane Length. The list below provides PennDOT's clarification for the 11 controlling criteria. If there is any discrepancy between PennDOT's clarifications below and FHWA's clarification in the documents referenced above, then the more conservative document governs.

1. Design Speed: Design exceptions for design speed reductions will not be approved. Instead, design exception requests shall be prepared for individual design elements (i.e., those listed below) that do not meet criteria associated with the project design speed.

The design speed for a project shall be equal to or greater than the proposed posted regulatory or regulatory unposted speed limit of the roadway. Design speeds are typically not applicable to stop controlled or T-intersections since slow or stop conditions preclude attainment. Various speeds are typically used for designing Diverging Diamond Interchange (DDI) crossover roads and roundabouts including their approaches. These speeds are typically less than the regulatory speeds.

2. Lane Width: This includes travel lanes, lanes on bridges, auxiliary lanes, ramps and turning roadways. Formal design exceptions are not required for parking lanes or curve widening through horizontal curves.

3. Shoulder Width: This refers to effective shoulders which may be paved or unpaved as required per criteria. This includes shoulders on bridges, but does not include shoulder widths in curbed sections.

4. Horizontal Curve Radius: This refers to the radius of the horizontal curvature of the roadway.

5. Superelevation: This refers to:

- Superelevation rates that are less than required. For example, if criteria requires 8% superelevation and only 5% is proposed, then a design exception is required.

- The rate of superelevation transition exceeding the maximum allowable relative gradient.* For example, if the required maximum relative gradient is 0.45% and 0.70% is proposed, then a design exception is required. This is only applicable for projects using New and Reconstruction criteria.

- Superelevation transition located further into curve than required.* For example, if criteria allows up to a third of the superelevation transition to occur into the curve and it is proposed to locate the transition more than a third of the transition into the curve, then a design exception is required. This is only applicable for projects on new locations.*

6. Maximum Grade: This refers to the maximum vertical grade.

7. Stopping Sight Distance (SSD): This refers to vertical and horizontal SSD.

It also refers to the SSD associated with a sight triangle for a vehicle pulling out or crossing an intersecting roadway from a crossroad. The SSD on the main roadway must meet or exceed the SSD requirements, so that the approaching vehicle can stop and avoid impact. The height of the drivers' eye and the vehicle set back on the cross road are the same dimensions as for determining intersection sight distance (ISD)*.

8. Cross Slope: This typically refers to the minimum and maximum cross slopes of travel lanes in tangent sections. It also refers to the algebraic difference in cross slope between two lanes including through, turning and auxiliary lanes and the cross slope difference between lanes and shoulders. This includes the cross slope breaks on the high side of superelevated curves. It typically does not refer to cross slope difference at intersections where lanes and shoulders intersect, including transitions of intersecting roadways.

9. Vertical Clearance: This refers to the clearance over roadways (minimum clearance over lanes and shoulders to the structure). Design exceptions are not required for not meeting minimum vertical clearances of structures over railroads, bicycle/pedestrian facilities or navigable waterways.

10. Design Loading Structural Capacity: This refers only to the load-carrying capacity of a bridge or tunnel.

11. Acceleration and Deceleration Lane Lengths*: This refers to the minimum lane lengths and taper lengths on freeways.

The minimum gap acceptable length based on the Highway Capacity Manual is desirable and therefore no design exception is required for this additional length.

*These are PennDOT requirements and do not require FHWA approval.

Many design elements, such as minimum vertical grade, Headlight Sight Distance (HLSD), minimum gap acceptable length, lateral offset to obstruction, clear zone and barrier types, are not included in the 11 controlling criteria listed above. When these design elements do not meet criteria, they should be identified, justified and documented as early as possible during the design process which may be in the District Safety Review or Design Field View. Documentation should include, at a minimum:

- Geometric element, e.g., minimum vertical grade, HLSD, etc.

- Location of geometric element

- Existing, required and proposed value, e.g., existing width is 2 feet, required width is 4 feet, proposed width is 3 feet

- Justification, including right-of-way, environmental, cost, lack of crashes, etc.

- Proposed minimization, mitigation, if applicable.

P.2. SITUATIONS NOT REQUIRING DESIGN EXCEPTIONS

Design exceptions are not required for the following:

1. Projects with no roadway nor bridge improvements. This typically includes the following types of projects:

- Signalization projects not altering lane alignments nor the lane or shoulder widths
- ITS projects
- Pedestrian/bicycle/shared use trails
- Reapplication of existing pavement markings
- Signing
- Soundwalls
- Lighting projects

However, if a vehicle obstruction is placed adjacent to a roadway, applicable criteria are to be evaluated including clear zone, shoulder width, and lateral offset from the traveled way.

2. Geometry outside of project limits, at the project limit of work, or the transition area including minimal bridge approaches (not to exceed 500 ft for each approach) where a project ties into an existing roadway. The transition area must not be adversely affected by the project unless it still meets the New Construction and Reconstruction for roadway projects criteria.

3. Vertical and lateral clearance from railroads. See Publication 371, *Grade Crossing Manual*, Appendix H, for guidance on railroad vertical and horizontal clearances.

4. Temporary work zone conditions during construction.

P.3 DESIGN EXCEPTION REQUEST DOCUMENTATION

Design exception requests shall be prepared using the Design Exception Request template(s) in this appendix and must be submitted with all required attachments. The Design Exception Request for Structural Capacity template shall be used for design loading structural capacity design exceptions since the approval requirements are different than other design exceptions. Refer to Section P.3.3 for further Design Loading Structural Capacity template requirements. Note that the template(s) and this guidance are not all inclusive and should not be considered a substitute for sound engineering judgment.

Two levels of design exception request documentation are to be used as described below. One Design Exception Request template can be used for multiple design exception elements for each similar roadway on the same project. However, for Federal Oversight projects, only certain roadways and/or design criteria/elements require FHWA approval, while other roadways and/or design criteria/elements on the same project only require PennDOT approval, so do not combine these roadways and/or design criteria/elements on the same Design Exception Request template. For multiple design exceptions using a Level 1 template, Sections C through F on the Design Exception Request template will need to be repeated for each design element. For multiple design exceptions using Level 2 template, Sections B and C on the Level 2 Design Exception Request template will need to be repeated for each design element. If the traffic or roadway information such as SR, functional classification, or design speed is different for each design element location, then separate Design Exception Request templates must be completed.

1. Level 1 Design Exception Documentation:

This level of documentation is required for design exception requests on high-speed (i.e., Interstate highways, other freeways, and roadways with design speed ≥ 50 mph) roadways on the NHS. This includes all freeway ramps at all

design speeds. Level 1 is also required for Design Loading Structural Capacity for all roadways and all speeds. Refer to Section 3 below for additional information on Design Loading Structural Capacity documentation.

The following is guidance for completing the Level 1 Design Exception Request template:

A. General Project Information. Provide project identification information: District, County, State Route (SR), Section, Local Route Number/Name, ECMS number, Functional Classification and Area System (e.g., rural/urban), Typology (typically required for new and reconstruction projects), and project complexity. Also, indicate if the project is on the NHS, the STRAHNET or STRAHNET connector, and if the project is Federal Oversight. Provide a brief project description.

B. Traffic Information. Provide the following traffic information: Design Year, Design Year ADT, Current Year ADT, truck %, design speed and posted speed.

C. Design Element and Design Criteria. Provide the appropriate design element from the list of the 11 controlling criteria for each of the elements requiring a design exception. Indicate the location of each design element with stations and segment/offset. Check the applicable design criteria box. Indicate the required value, the proposed value and the existing value, if applicable. Name the PennDOT and AASHTO reference source, including edition date, name of publication, and page number for each design element.

D. Justification. The justification for each design element requiring a design exception should include the following:

1. Impacts. Explain why the design exception is justified. Include how the proposed design reduces these impacts while providing a safe transportation facility. Also include impacts of any incremental improvements considered. A general magnitude of the impacts is typically sufficient to show justification.

a. Environmental: The impacts of the proposed project with and without the proposed design exception(s) on sensitive environmental areas such as wetlands, farmlands, hazardous waste sites, Section 106 Resources, 4(f) sites, etc.

b. Right-of-Way (ROW): The impacts on ROW of the proposed project with and without the proposed design exception(s) on adjacent properties. This can be explained in differences of takes in acres and/or square footage, total take versus strip take, displacements, loss of usable space, proximity/distance to homes, loss of businesses, etc.

c. Construction: The impacts of the proposed project during construction, with and without the proposed design exception(s), including traffic control operations, detours, and access to residences and businesses.

d. Design Exception Requests on Structures: For projects where a design exception is being requested for a bridge feature such as bridge width or structural capacity, specify effects on the structure associated with incorporating and not incorporating the requested design exception. Justification may include the latest bridge sufficiency rating, the effect of the project on any load restrictions, and design life of the bridge.

e. All Modes of Transportation: Discuss impacts and usability by all modes of transportation and overall impacts on the community.

f. Other: Describe site constraints such as railroads, significant utility impacts, etc.

2. Alternatives. Briefly describe or attach alternatives considered (if any). Include alternatives for incremental improvements considered.

3. Compatibility. Describe the compatibility of the proposed design and design exception(s) with the geometrics and typology of roadway sections adjacent to the proposed project for each design exception element.

4. Estimated Cost. Provide the estimated cost of the project with requested design exception(s) including additional design, utilities, ROW and construction costs. Provide additional estimated cost for not incorporating the requested design exception including design, ROW, utilities, and construction costs. These estimates should not be based on a detailed study, but rather a general magnitude estimate based on information readily available and compatible with the stage of project development.

E. Mitigation. Describe the mitigation measures that will be incorporated into the project design to lessen the impact of the design exception(s) with respect to safety (remediating crashes, capacity, etc.). Mitigation measures are to be incorporated as appropriate. Mitigation measures may include advisory signing, improved delineation, lighting, clearing roadside obstructions, rumble strips, etc.

Crash Modification Factors (CMFs) in the CMF Clearinghouse and the *Highway Safety Manual* or Publication 638A, *Pennsylvania Safety Predictive Analysis Method Manual* may offer options for mitigation.

The implementation of cost effective safety improvements shall be considered (such as those listed in Table 1.1 of DM-2). These improvements will provide at least some mitigation of the effects of the substandard feature(s) created by the design exception(s).

Any minimization measures used to make incremental improvements to achieve as close to required criteria as feasible can be described in this section.

F. Future Upgrades and Compatibility with Land Use Planning. List the dates and types of future upgrades that are planned for the project area and adjacent sections of highway. Describe the advantages and disadvantages of meeting full criteria on the subject project with respect to future upgrades. If the design exception is for bridge width, then discuss compatibility with planned land use.

G. Required Attachments. Attach the following with the Design Exception Request:

1. District Safety Review Committee Letter. The document concludes that, based on the committee's evaluation and engineering judgment, the proposed design incorporating the design exception(s) has an acceptable level of highway safety.

2. Confidential Safety Study. The purpose is to evaluate the traffic crash data within the project limits to determine what, if any, existing highway safety concerns are present, and then identify how these safety concerns would be addressed by the proposed project using the design exception and by using full-design criteria. Refer to Publication 638A, *The Pennsylvania Safety Predictive Analysis Methods Manual* for information on the *Highway Safety Manual* (HSM) and evaluating the impact of changes in design elements on safety performance.

A safety study includes the following items as a minimum:

a. Crash History. A summary of traffic crash history using any five consecutive years in the most recent seven year period. Resumes and/or a crash detail list are not required, but may be included to help explain specific safety issues. Caution should be noted in interpreting the crash history if there have been traffic volume, traffic control or geometric changes during the time period included in the data.

b. Crash Cluster Locations. A listing of any crash cluster locations within the project limits. Refer to both below if available.

i. CDART Year-end clusters and other crash cluster lists developed by the Highway Safety and Traffic Operations Division.

ii. Potential for Safety Improvement (PSI) county network screening segment and intersection lists. Some roadway segments and intersections may not have a PSI.

c. Crash Rates and/or Crash Frequencies and Severity. If the design exception request involves safety related features that are adequately addressed in the AASHTO Highway Safety Manual (HSM), then documentation of the exception should include a safety analysis as described in the HSM. The

documentation typically includes a comparison of the predicted crash frequency and the fatal crash frequency for the proposed project with and without the requested design exception. A comparison of the expected crash frequency (i.e., weighting the predicted average crash frequencies with the actual site crash history) should also be included if the existing facility is similar to the proposed facility.

Tools such as PennDOT's HSM analysis spreadsheets, the Interactive Highway Safety Design Model (IHSDM), Pennsylvania Safety Performance Functions (SPFs) and Crash Modification Factor (CMF) Guide, and the CMF Clearinghouse website are available to aid completing HSM calculations. Refer to Publication 638, *District Highway Safety Guidance Manual*, Publication 638A, *The Pennsylvania Safety Predictive Analysis Methods Manual*, and the AASHTO Highway Safety Manual website for more information. There may be roadway types, design elements or countermeasures for which a SPF equation is not available.

If the feature cannot be adequately addressed with a HSM analysis, then a comparison of the actual crash rate and the fatal crash rate to the statewide averages should be included in the Safety Study.

d. Collision Diagrams. Collision diagrams are not required, but may be provided to help explain specific safety issues.

e. Narrative. Provide a concise description of the important aspects of the above safety study items. Discuss contributing factors to crashes by type. Discuss the relationship between the design exception element and crash data or other existing safety issues. The description must address any differences in traffic crash remediation between a project designed using the recommended design exception(s) versus a project designed using full design criteria.

f. Confidentiality. The safety study shall be kept together in a separate file within the project file itself. The entire safety study file and all items within that file, shall be clearly labeled with the following phrase: "Confidential-In-Depth Crash Investigation/Safety Study" (pertains to all project files from PennDOT, FHWA, consultant(s), etc.). In accordance with PA Consolidated Statutes Title 75-Vehicles (Vehicle Code) Section 3754 and 23 U.S.C. Section 409, this safety study is confidential and the publication, reproduction, release or discussion of these materials is prohibited without the specific written consent of the Pennsylvania Department of Transportation's Office of Chief Counsel. This safety study is only provided to official agencies with official duties/responsibilities in project development. See page P - 9 for a sample Confidential Safety Study cover sheet.

3. Supporting Attachments. Enough supporting attachments are required to support and explain the requested design exception. This includes a project location map, select plan sheets, and exhibits. This may also include select typical sections, construction plan sheets, vertical profiles, sight distance diagrams, plan views showing proposed and required geometry, ramp design sheets, photographs, etc.

2. <u>Level 2 Design Exception Documentation</u>:

Level 2 design exception documentation is required for all design exceptions not covered by the Level 1 documentation.

The design exception shall be documented on either the Level 1 or Level 2 template at the end of this appendix.

The following is guidance for completing the Level 2 template:

A. General Project Information. Provide project identification information: District, County, State Route (SR), Section, Local Route Number/Name, ECMS number, Functional Classification and Area System (e.g., rural/urban), Typology (typically required for new and reconstruction projects), and project complexity. Provide a brief project description.

B. Design Element and Design Criteria. Provide the appropriate design element from the list of the 11 controlling criteria for each of the elements requiring a design exception. Indicate the location of each design element with stations and segment/offset. Check the applicable design criteria box. Indicate the required value, the proposed value and the existing value, if applicable.

C. Justification. Explain why the design exception is justified. Justification includes the additional impacts that would occur by meeting criteria and not implementing the design exception such as site constraints, and traffic operation, environmental, railroad, significant utility, right-of-way and cost impacts. Explain how the proposed design reduces these impacts while providing a safe transportation facility. Include impacts of any incremental improvements considered. The justification may also include compatibility with adjacent road sections and compatibility with future projects and land use.

A general magnitude of the impacts is typically sufficient to show justification. Impacts should not be based on a detailed study, but rather a general magnitude (such as "to provide a fully compliant section would require approximately three times as much right-of-way and increase projects costs by 75%") based on information readily available and compatible with the stage of project development.

Mitigation: Describe the mitigation measures that will be incorporated into the project design to lessen the impact of the design exception(s) with respect to safety (remediating crashes, capacity, etc.). Mitigation measures are to be incorporated as appropriate. Mitigation measures may include advisory signing, improved delineation, lighting, clearing roadside obstructions, rumble strips, etc. The implementation of cost effective safety improvements shall be considered (such as those listed in DM-2, Table 1.1). These improvements will provide at least some mitigation of the effects of the substandard feature(s) created by the design exception(s).

D. Required Attachment. Attach a Confidential Safety Study as described in Section P.3.1.G for Level 1 Design Exceptions.

3. Design Load Structural Capacity:

Design exception requests for Design Loading Structural Capacity are applicable to all routes and all speeds. Requests shall be prepared using the Design Exception Request template in this appendix and must be submitted with all required attachments. Note that the template and this guidance are not all inclusive and should not be considered a substitute for sound engineering judgment.

Provide documentation that the applicable planning organization (e.g., MPO, RPO, etc.) agrees with the proposed structural capacity.

For new bridges and reconstructed bridges, the Design Loading Structural Capacity Design Exception Request documentation should include verification that the proposed load-carrying capacity (load rating) is justified for the state legal loads, and in the case of bridges and tunnels on the interstate, all Federal legal loads.

Refer to Section P.3.1, Level 1 Design Exception Documentation, for further information on completing the template and required attachments.

P.4 REVIEW AND APPROVAL

A. Review and Approval of Design Exceptions, Excluding Design Loading Structural Capacity. All design exception requests must be reviewed and recommended by the Project Manager and the Plans Engineer or designee. If the Project Manager is the preparer, then the Project Manager may sign the design exception document as both.

Level 1: For design exceptions using Level 1 documentation as defined in Section P.3, the ADE for Design or designee must recommend the design exception. The ADE for Design or designee authority must be a licensed Professional Engineer.

Design Exceptions for Level 1 documentation as defined in Section P.3 are approved as follows:

- Minor complexity PennDOT Oversight* - District Executive
- Moderate complexity PennDOT Oversight* - District Executive, except Interstates including ramps, which are approved by Chief of Highway Delivery Division (HDD)

- Major complexity
    - PennDOT Oversight* - Chief of HDD
    - Federal Oversight projects* - Only certain roadways and/or design criteria/elements require FHWA approval, while other roadways and/or design criteria/elements on the same project only require PennDOT approval. If FHWA requires a design exception for the roadway and/or design criteria/element in accordance with Section P.1, then FHWA approval is required. The Chief of the HDD approves all others, see Section P.1 for the roadways and/or design criteria/elements that require PennDOT approval, but not FHWA approval.

* For all Interstate highways and ramps, regardless of funding, if FHWA's 10 controlling criteria are not met as defined in Section P.1, PennDOT will submit a copy of approved design exceptions without attachments to FHWA.

For project complexity levels, refer to Publication 10, Design Manual Part 1, *Transportation Program Development and Project Delivery Process*, Chapter 2.

Level 2: Design exceptions for Level 2 documentation as defined in Section P.3 are approved by the ADE for Design. The ADE for Design must be a licensed Professional Engineer to approve a design exception.

B. Review and Approval of Design Loading Structural Capacity. All design exception requests for Design Loading Structural Capacity shall be recommended by the District Bridge Engineer, ADE for Design or designee, the District Executive, the chief of the Highway Delivery Division, and the chief of the Bridge Design and Technology Division. For PennDOT Oversight projects, design exception requests shall be approved by the Director of the Bureau of Project Delivery. For Federal Oversight projects, design exception requests shall be recommended by the Director of the Bureau of Project Delivery and approved by FHWA.

C. Safety Review Committee Evaluation. For both Level 1 and 2 design exception documentation, the Design Exception Requests shall be submitted for approval only after the District Safety Review Committee has conducted a safety evaluation of the proposed project and has concluded that, based on their engineering judgment, the proposed design with the feature identified in the design exception request with mitigation strategies provides an acceptable level of safety. The District Safety Review Committee shall provide written acceptance of the design exception(s). For Level 1 documentation, the written acceptance must be attached to the template. For Level 2 documentation, although written acceptance is required for the project file, it is not required to be attached to the template.

D. Vertical Clearance on Strategic Highway Network (STRAHNET) Routes. Design exceptions for vertical clearance less than 4.9 m (16 ft) on the interstate portion of the STRAHNET require coordination with the Director of Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) in accordance with DM-2, Chapter 2, Section 2.20.

E. Quality Assurance. For future quality assurance reviews and audits by the Highway Design and Technology Section and the FHWA, the design exception documentation with attachments must be available upon request.

F. Record Retention. Regardless if Level 1 or Level 2 documentation is used as defined in Section P.3, the approved Design Exception Request, and all required supporting attachments including the Confidential Safety Study must be retained by the District in EDMS for a minimum of two years after a future project is constructed that eliminates the design exception.

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CONFIDENTIAL

Safety Study/ In-Depth Crash Investigation
COVER PAGE

District: _____County: _____ SR: _____ Section: _____
Local Route Number/ Project Name_____
ECMS No._____
Prepared by: _____ Date: _____

Notice

In accordance with PA Consolidated Statutes Title 75 – Vehicles (Vehicle Code) Section 3754 and 23 U.S.C. Section 409, this safety study, as well as the information used in the prosecution and completion of this study, no matter what the source and notwithstanding possession of the same information by others (including crash reports in the possession of a local agency) is confidential and the publication, reproduction, release, or discussion of these materials is prohibited without the specific written consent of the Pennsylvania Department of Transportation's Office of Chief Counsel.

Where this safety study is provided to other government agencies, their officials and employees, the same, as well as the information used in the prosecution and completion of this study, no matter what the source and notwithstanding possession of the same information by others (including crash reports in the possession of a local agency) retain confidential status under the same laws.

The public review, use and dissemination of this study, or information used in the prosecution and completion of this study, no matter what the source and notwithstanding possession of the same information (including crash reports in the possession of local agencies) by others, (including but not limited to Cities, Boroughs, Towns, Townships, or other local agencies, their officers and employees, including police departments and policemen, as well as state and federal agencies, their officers and employees, including state policemen and local volunteer fire and rescue companies) to the news media or representative thereof, or a member of the public or an attorney, engineering firm, professional licensed engineer, private investigator, or insurance adjuster, whether representing or not representing a member of the public, or group of persons or another legal entity, or to the public at large, howsoever, *is prohibited.*

Local agencies of this Commonwealth, and all officials and employees thereof, are directed to follow the mandate of the Pennsylvania Sunshine Act; 65 Pa. C.S.A. § 708 (5) and reserve review and use of the same information to executive sessions. Should the prohibition expressed hereinbefore be violated, a civil action for damages as well as equitable relief will be instituted against the responsible person, entity, representative, or agency.

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Design Exception Request - Level 1

A. General Information:

District: _____ County: _____SR_____ Section_____

Local Route Number/Name: _____ ECMS No.: _____

Functional Classification: _____ Typology: _____

Area System: ____Urban ___Rural Complexity Level: _____

On NHS? Y/N On Interstate STRAHNET? Y/N On STRAHNET Connector? Y/N Federal Oversight? Y/N

Abbreviated Project Description: _____

_____

B. Traffic Information:

Design Year: _____ Truck %:_____

Current Year ADT: _____ Design Speed: _____

Design Year ADT: _____ Posted Regulatory Speed: _____

----------**Duplicate Sections C through F for each Design Exception Element**----------

Number of design exception elements in this design exceptions request: _____

C. Design Element and Design Criteria:

Element Requiring Design Exception: _____ (Structural Capacity uses another form)

Location (stations): _____

Begin Segment/Offset: _____ End Segment/Offset: _____

Design Criteria: □ New Construction & Reconstruction □ 3R □ Pavement Preservation □ Bridge Project

Required value: _____ Proposed value: _____ Existing value: _____

PennDOT and AASHTO reference source, year and page number: _____

D. Justification:

1. Impacts. Explain why the design exception is justified. Include any site constraints, safety and traffic operation impacts, impacts to all modes, environmental, and right-of-way impacts:

_____

_____

_____

_____

2. Alternatives. Briefly describe or attach alternatives considered (if any): _____

_____

_____

3. Compatibility. Describe compatibility with roadway geometrics beyond project limits: _____

_____

4. Estimated Cost. Estimated cost of project with requested design exception: $_____

Estimated additional cost to attain design criteria: $_____

E. Mitigation: Describe mitigation measures: _____

_____

F. Future Upgrades and Compatibility with Land Use Planning: Describe upgrades and compatibility: _____

_____

G. Required Attachments: ***District Safety Review Committee Letter*** *and* ***Confidential Safety Study*** *and* *supporting attachments:* If not previously provided, submit a project location map and plans/exhibits to support the requested design exception. This may include selected typical sections, construction plan sheets, vertical profiles, sight distance diagrams, photographs, etc. as appropriate.

Prepared by: _____ Date: _____
Name, title and company

Recommended by: _____ Date: _____
Project Manager

Recommended by: _____ Date: _____
Plans Engineer or designee

Recommended by: _____ Date: _____
ADE for Design or designee

Recommended/Approved by: _____ Date: _____
District Executive

Recommended/Approved by: _____ Date: _____
*Chief, Highway Delivery Division or designee**

Approved by: _____ Date: _____
*FHWA**

**As applicable, see Section P.4*

Design Exception Request for Structural Capacity

A. General Information:

District: _____ County: _____SR_____ Section_____

Local Route Number/Name: _____ ECMS No.: _____

Functional Classification: _____ Typology: _____

Area System: ____Urban ___Rural Complexity Level: _____

On NHS? Y/N On Interstate STRAHNET? Y/N On STRAHNET Connector? Y/N Federal Oversight? Y/N

Abbreviated Project Description: _____

_____

B. Traffic Information:

Design Year: _____ Truck %:_____

Current Year ADT: _____ Design Speed: _____

Design Year ADT: _____ Posted Regulatory Speed: _____

----------**Duplicate Sections C through F for each Design Exception Element**----------

Number of design exception elements in this design exception request: _____

C. Design Element and Design Criteria:

Element Requiring Design Exception: _____*Structural Capacity*_____

Location (list structures): _____

Begin Segment/Offset: _____ End Segment/Offset: _____

Design Criteria:

Required value: _____ Proposed value: _____ Existing value: _____

PennDOT and AASHTO reference source, year and page number: _____

D. Justification:

1. Impacts. Explain why the design exception is justified. Verify proposed loading is justified for proposed traffic loads. Include any site constraints, safety and traffic operation impacts, impacts to all modes, environmental, and right-of-way impacts: _____

_____

2. Alternatives. Briefly describe or attach alternatives considered (if any): _____

_____

3. Compatibility. Describe compatibility with roadway geometrics beyond project limits: _____

_____

4. Estimated Cost. Estimated cost of project with requested design exception: $_____

Estimated additional cost to attain design criteria: $_____

E. Mitigation: Describe mitigation measures: _____

_____

F. Future Upgrades and Compatibility with Land Use Planning: Describe upgrades and compatibility: _____

_____

G. Required Attachments: ***District Safety Review Committee Letter*** *and* ***Confidential Safety Study*** *and* *Supporting attachments:* If not previously provided, submit a project location map and plans/exhibits to support the requested design exception. This may include selected typical sections, construction plan sheets, vertical profiles, sight distance diagrams, photographs, etc. as appropriate.

Prepared by: _____ Date: _____
Name, title and company

Recommended by: _____ Date: _____
District Bridge Engineer

Recommended by: _____ Date: _____
ADE for Design or designee

Recommended by: _____ Date: _____
District Executive

Recommended by: _____ Date: _____
Chief, Highway Delivery Division

Recommended by: _____ Date: _____
Chief, Bridge Design and Technology Division

Recommended/Approved by: _____ Date: _____
Director, Bureau of Project Delivery

Approved by: _____ Date: _____
*FHWA**

**As applicable, see Section P.4*

Design Exception Request - Level 2

A. General Information:

District: _____ County: _____SR_____ Section_____

Local Route Number/Name: _____ ECMS#_____

Functional Classification: _____ Typology: _____

Safety Review Committee approval date: _____ Complexity: Minor/Moderate

Abbreviated Project Description: _____

_____

----------**Duplicate Sections B and C for each Design Exception Element**----------

B. Design Element and Design Criteria: *Number of Design Exception Elements included:* _____

Element Requiring Design Exception: _____ Location (stations): _____

Begin Segment/Offset: _____ End Segment/Offset: _____

Design Criteria: □ New Construction & Reconstruction □ 3R □ Pavement Preservation □ Bridge Project

Required value: _____ Proposed value: _____ Existing value: _____

C. Justification: Explain why the design exception is justified. Include any site constraints, and traffic operation impacts, environmental, cost, right-of-way impacts and mitigation: _____

_____

_____

_____

_____

D. Required Attachment: Confidential Safety Study

Prepared by: _____ Date: _____
Name, title and company

Recommended by: _____ Date: _____
Project Manager

Recommended by: _____ Date: _____
Plans Engineer or designee

Approved by: _____ Date: _____
ADE for Design

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APPENDIX Q

POINTS OF ACCESS

Q.0 INTRODUCTION

This Appendix is intended to provide guidelines regarding the applicable procedures, processes and documentation required for requesting, evaluating and obtaining new or revised point-of-access approvals on limited access roadways.

Requests for new or revised point(s)-of-access to limited access roadways greatly concern PennDOT and the FHWA. A point-of-access is any interchange, ramp or locked gate that provides access between a limited access roadway and a non-limited access roadway including local road systems or between two intersecting limited access roadways. New points-of-access, excluding locked gate access, should be consistent with sensible growth of the transportation system as part of sound access management and land use practices including encouraging economic development and/or relieving congestion on a local road system. However, the public and local interests in a new point-of-access must be evaluated in consideration of potential adverse impact on the existing limited access roadway.

Requests for at-grade intersections on limited access roadways should follow the point-of-access process as presented in this appendix. However, due to their potentially unique effects on limited access facilities they may require additional or different information than presented in this appendix on a case-by-case basis. At-grade intersections are not permitted on Interstates.

Limited access roadways are typically designed to carry large volumes of traffic at high speeds between relatively distant access points. An additional interchange and/or ramp can significantly reduce the capacity of an existing facility, particularly if located in an urban area with heavy traffic volumes and closely spaced interchanges. Adding a point-of-access and maintaining the safety and capacity of the existing facility may require significant modifications, including additional lanes, improved signing and lighting, as well as total reconfiguration and reconstruction of existing interchanges and/or intersections.

Thorough coordination between all public and private entities involved in planning, design, review and approval of the proposed point-of-access is necessary to assure that the proposed facility is developed properly with minimal adverse impact to the existing system. Collaboration with PennDOT's District Office and Central Office, the FHWA, Local Governments and planning agencies is important to ensure any transportation system changes are consistent with the local and regional congestion management strategies, land use and infrastructure plans. The impacts of a new point-of-access on the local roadway system should also be considered and mitigated with appropriate improvements. Additional points-of-access should not be requested unless the local roadway system can accommodate the increased traffic and the necessary transportation improvements are on a funding plan and fiscally constrained program. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within transportation management areas, as appropriate.

Developers and other private entities can only make improvements on their own land. Therefore, a governmental agency with the power of eminent domain may obtain right-of-way for transportation improvements, even if the private entity is providing all funding.

Q.1 OVERVIEW

These guidelines are provided to promote the application of uniform analysis and documentation procedures for the preparation and review of Point-of Access (POA) Request Reports. These guidelines apply to all limited access roadways, regardless of the funding source for the original construction or the proposed POA. They have been developed to be consistent with the FHWA's policy on Interstate access. The POA Request Report processes are discussed under Section Q.4.

Each entrance and exit point, including "locked gate" access, to the mainline is considered to be an access point. Revised access is considered to be a change in an interchange configuration even though the number of actual access points has not changed.

Actions Requiring a POA:

- New Interchange
- Major modification of an existing interchange
    - Adding new ramp(s)
    - Removing ramp(s)
    - Changing the interchange configuration
    - Completing basic movements at a partial interchange
    - Adding a new access point within an interchange
- New partial interchanges or new ramps to-from frontage roads
- Locked gate access and other Special Purpose access
- Abandonment or closure of ramps or interchanges

Actions Not Requiring a POA:

- Addition of turn lane storage and through travel lanes on the crossroad at a ramp termini
- Relocation or shifting the existing on-ramp or off-ramp termini along the crossroad
- Relocating entrance or exit ramp gore points along the mainline when adjacent interchange is more than one mile (gore to gore)
- Conversion of one lane ramp to two lane ramp
- Widening existing entrance or exit ramps to provide auxiliary lanes
- Increasing the length of a deceleration lane or an acceleration lane
- Adding an auxiliary lane between two adjacent interchange ramps
- Traffic signalization or channelization improvements of ramp terminal intersection with crossroad
- New signing, striping and/or resurfacing of an entrance or exit ramp, where geometric features are not changed
- Ramps providing access to rest areas, information centers, and weigh stations within the Interstate controlled access

Minimal improvements at an existing access point may not require the development of a POA Request Report. The potential applicability of minimal improvement should be discussed with the Bureau of Project Delivery and the FHWA, as appropriate.

Non-State and Non-Federal Government POA Request Reports may be created and funded by a private entity on behalf of the Local Government. However, the Local Government will be the applicant and must endorse the POA Request Report. The Local Government may permit the private entity to be the applicant, if the POA is required due to impacts to an interchange that does not connect directly to a local roadway. However, the Local Government must still endorse the POA Request Report. The District shall review the POA Request Report, and if acceptable, submit

it to the Bureau of Project Delivery with a recommendation for approval. All POA Request Reports affecting the Interstate system or routes approved as a future part of the Interstate system require FHWA review and approval upon PennDOT's recommendation for approval. POA Request Reports on all other limited access facilities require review by the Bureau of Project Delivery and approval by the Deputy Secretary for Highway Administration.

To offer maximum flexibility, the POA Request Report for any proposed access point should be submitted for a determination of engineering and operational acceptability prior to the completion of the environmental process. This is commonly known as Conceptual POA approval. Appropriate environmental and preliminary engineering activities need to be conducted to produce an acceptable document. Conceptual POAs shall be reevaluated whenever a significant change in condition occurs (e.g., land use, traffic volumes, roadway configuration or design, environmental commitments) or if the project has not progressed to construction within 8 years of receiving Conceptual POA approval. Final POA approval cannot be granted until planning requirements have been satisfied and environmental clearance is obtained. The POA Request Report must demonstrate the need for the facility and the benefits to be derived from it, including benefits to the transportation system and that the proposal is in the public interest. The report shall be clear, concise and comprehensive, and shall present the study area and proposed concept of the POA with appropriate graphics. The level of detail provided in the report should be commensurate with the location and complexity of the proposed POA. POAs in rural areas will typically not require the same level of detail as POAs in urban settings. Refer to Publication 319, *Needs Study Handbook*, for a guide to key transportation planning issues to consider in preparing a POA Report.

All required engineering and environmental studies and public involvement activities shall be conducted according to the procedures described in this and other PennDOT publications.

A. Control of Access. Control of access shall be required for all sections of the Interstate system, including the full length of ramps and terminals on the crossroads. Control of access at connections to the crossroads should extend beyond the ramp terminals and corner right-of-way areas by purchasing access rights and providing frontage roads. Such control should extend along the crossroads beyond the ramp terminal about 30 m (100 ft) or more in urban areas and about 90 m (300 ft) or more in rural areas and should include both sides of the crossroads even when ramp construction is limited to one side. The above access controls are also applicable to Non-Interstate, limited access facilities.

B. Control of Access on Interchange Ramps. In the development of all limited access facilities, the need to protect the operation and safety of the facility, with respect to access control, has long been recognized. This is particularly applicable in interchange areas where merge and exit conditions, as well as cross traffic and turning movements occur.

New or additional access points to and from existing full-access controlled interchange ramps can reduce the capacity of the ramp(s). The access points can create a safety problem by increasing crash potential through conflicting movements and may not serve the interests of the public. These access points within interchanges, especially on freeway-to-freeway ramp facilities, generally violate driver expectancy. They introduce additional decision points where the information processing task is already complex, provide high potential for traffic back up and create the possibility of wrong-way movements since full directional service is seldom provided. Complete control of access along all interchange ramps and their termini is essential for preservation of highway capacity and improved safety to highway users. Approval for new or additional access points on to ramps should be strictly limited to locked gate access.

C. Environmental Regulations. All federal-aid projects require compliance with the National Environmental Policy Act (NEPA). When the POA affects the Interstate, FHWA approval is required and compliance with NEPA is required. Therefore, the requirements of NEPA and other related environmental statutes and regulations shall be completed. These could include, for instance, compliance with Section 106 of the National Historic Preservation Act of 1966. These regulations apply if any phase of the proposed activity involves a federal action (e.g., Federal funding, Section 404 permit, etc.). PA Act 120 environmental review will also apply (71 P.S. § 512). Where the limited access roadway is not on the Interstate and the POA activity does not involve a federal action, then PA Act 120 environmental review will apply, not NEPA.

Construction of additional interchanges on existing limited access facilities may significantly affect the environment and could require the preparation of an Environmental Impact Statement. The determination of the level of environmental documentation for a project shall be based on an assessment of project impacts in coordination with

FHWA when applicable. Minimal actions such as a simple change or modification to access control, operational measures, maintenance access, ramp widening projects, temporary ramps, weave improvements, deletion of unauthorized accesses and acceleration/deceleration lane lengthening can typically be processed as Categorical Exclusion Evaluations.

D. Planning Requirements. The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within Transportation Management Areas, as appropriate.

E. Utility Involvement. The development of new or revised access points may require extensive coordination with utility companies having existing facilities in the area of the proposed POA. Utility company access to these facilities may be impaired by the control of access restrictions associated with limited access highways. Where it is necessary to provide access for utility companies and/or their emergency equipment, these access points should be included as part of the coordination process. The policy and guidelines presented in Publication 16, Design Manual Part 5, *Utility Relocation*, shall be used for all utility installations or adjustments.

F. Public Involvement. Public involvement is vital to virtually all highway and bridge projects. Therefore, for all Non-State and Non-Federal Government sponsored POA requests the Local Government or the private entity on their behalf must solicit public input regarding the proposed POA prior to submitting the POA Request Report for approval. A summary of all relevant public input should be submitted with the POA Request Report. Refer to Publication 295, *Project Level Public Involvement Handbook* for guidance on the public involvement process. Public involvement is also required for all State Government sponsored POAs.

G. POA Relation to Highway Occupancy Permit (HOP). When a POA is needed as a result of improvements required in the HOP process, the POA is part of the HOP process. Therefore, POA Request Reports should be developed and evaluated with consideration of the HOP which comes after completion of the POA Process, when applicable. The HOP approval process is rarely applicable to State or Federal sponsored POAs. POAs are not to conflict with regulations or PennDOT policies governing highway occupancy as described in Pennsylvania Code, Title 67, Transportation, Chapter 441, *Access to and Occupancy of Highways by Driveways and Local Roads* and Chapter 459, *Occupancy of Highways by Utilities*.

A Transportation Impact Study (TIS) report may be required as part of the HOP process. Portions of the TIS report may be incorporated into or extracted from the POA Request Report as prudent to avoid duplication of effort. Those responsible for reviewing and recommending approval of POAs should be the same as, or coordinated closely with, those reviewing and recommending issuance of HOPs. The HOP Process is provided in Publication 282, *Highway Occupancy Permit Guidebook*.

Q.2 PRE-POA REQUEST REPORT ACTIVITIES AND MEETINGS

The activities discussed in this Section shall be conducted prior to the applicant initiating development of the POA Request Report. These activities are also applicable to State or Federal sponsored POAs which should include Local Government coordination.

A. Planning and Funding. Preliminary information related to funding sources and conformance with area transportation plans should be known prior to initiating contact with PennDOT or conducting the Scoping Field View. A Concept Introduction meeting is recommended to be held between the stakeholders (Local Government, private entity, PennDOT, FHWA). At that meeting planning and funding is to be discussed.

B. Scoping Field View. A POA Scoping Field View is required to be scheduled with the appropriate PennDOT Engineering District upon acknowledgement from PennDOT or FHWA, as required, that a POA is appropriate. The purpose of the Scoping Field View is to provide the participants with an opportunity to gain an understanding of the existing conditions and to assist in identifying any sensitive resources, problem areas, engineering and environmental constraints. The appropriate level of environmental documentation should be determined at the Scoping Field View.

The Scoping Field View should be requested through the District's Assistant District Executive for Design or their designee. The Local Government that will be requesting the POA or the private entity on their behalf is responsible for coordinating the Scoping Field View. The District will coordinate with the Central Office, as appropriate and the Central Office will coordinate with the FHWA, as appropriate. The Local Government's representative or the private entity on their behalf will be responsible for developing and submitting minutes of the Scoping Field View to the District. The District's assigned Project Manager will circulate the minutes internally and to Central Office and the FHWA for concurrence as appropriate. PennDOT's standard CE or EA Scoping form should be used as applicable.

C. POA Development Meetings. In addition to the Concept Introduction meeting and the Scoping Field View, additional meetings are recommended to be held between the stakeholders such as Alternatives development and refinement meetings and a preliminary POA Request Report review meeting.

Q.3 POA REQUEST REPORT FORMAT AND REQUIRED INFORMATION

The format and required information discussed in this section pertains to all POAs (Conceptual and Final) for new or revised access points requested with the possible exception of POAs as discussed under Section Q.4.C. Although, this section is consistent with the FHWA's policy on Interstate Access, that policy should be consulted when developing POA requests that affect the Interstate system or routes approved as a future part of the Interstate system. The POA Request Report is a compilation report document which shall include the following Sections:

- Executive Summary, Introduction & Requirements
- Engineering Study
- Estimate, Funding and Schedule
- Land Use & Access Management Report
- Environmental Compliance
- Summary and Recommendations
- Local Government Agreements
- Appendices Documentation

A. Executive Summary, Introduction & Requirements.

1. Executive Summary. A clear and concise Executive Summary shall be provided at the beginning of the report expressing the purpose, need, goals and objectives of the proposed action. The purpose and need statements shall identify or define the performance criteria and deficiency which the project is intended to address or overcome. The Executive Summary shall include a statement describing the recommendation, or recommended/preferred alternative. The alternative should not be referred to as a preferred alternative until after the environmental document has been approved.

2. Introduction. An introduction to the project shall be provided that summarizes the following:

a. Project Description (proposed actions) and Location. Include maps and aerial photography of the project area and area of influence, identify the subject interchange location and a brief description of the area of influence. Aerial photos, conceptual layouts or schematic drawings should be to an appropriate scale and show distances between interchanges, intersections, and other key features. The subject interchange location should be identified by milepost, distance to adjacent interchanges and system linkages. Factors used to define the area of influence should be discussed, including interchange spacing, signal locations, anticipated traffic impacts, anticipated land use changes or proposed transportation improvements. The report should identify whether the proposed interchange is located within a Transportation Management Area (TMA) as defined in 23 CFR 450.104.

b. Purpose and Need. The project's purpose and objectives shall be identified. Describe the needs, an explanation of specific problems or deficiencies the project is intended to address or overcome. Changes to access to limited access roadways can be justified a number of ways. The following are some of the more common justifications:

- Systems linkage or connectivity
- Road user benefits
- Access to areas currently not served
- Address an existing congestion or safety problem
- Prevention of future congestion or safety problems

This section shall also define the performance criteria that will be used to measure the effectiveness by which the project alternatives satisfy the stated purpose and objectives. The evaluation of alternatives should be made using measures of effectiveness that allow comparisons to the conditions anticipated to occur in the analysis years under the No-Build Alternative. Refer to PennDOT/NJDOT, *Smart Transportation Guidebook* for additional information on measures of success/effectiveness.

c. Background. This section should discuss the project history and relationships to other projects planned, pending, under construction or recently completed in the area of influence. A summary describing consistency with the local planning process should also be included. Identify any supporting information from previous studies or data acquired to support the project purpose.

3. Requirements for Approval of Access. PennDOT identifies eight requirements necessary for approval of access. These are consistent with the FHWA's policy on Interstate access.

The documentation shall include a section describing how the proposed action is consistent with each of the policy requirements. This is a vital component of the documentation since appropriately satisfying the eight requirements is the primary basis for approving the recommended change in access. Each of the following eight requirements should be addressed individually with a summary of how that requirement will be satisfied by the proposed action:

a. The need being addressed by the request cannot be adequately satisfied by existing interchanges to the limited access facility, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands.

b. The need being addressed by the request cannot be adequately satisfied by reasonable Transportation System Management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative improvements to the limited access facility without the proposed change(s) in access.

c. An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the limited access facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access. The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network. Requests for a proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the limited access facility, ramps, intersection of ramps with crossroad, and local street network. Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative. Consider using AASHTO's *Highway Safety Manual* (HSM) to calculate crash frequencies of the existing and proposed configurations. Refer to Publication 638, *District Highway Safety Guidance Manual* for guidance on the HSM as a potential method to calculate the effect on safety as a result of changes in access points.

d. The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards.

e. The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within Transportation Management Areas, as appropriate.

f. In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan.

g. When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements. The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and limited access facility access point.

h. The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing.

B. Engineering Study. The Engineering Study is an engineering evaluation performed for an existing completed section of limited access roadway. The study is to determine the influence of a new or revised access point on existing levels of service and to adjacent roadway facilities including interchanges. The study area for a new or revised POA shall be large enough to encompass all of the transportation facilities affected by the POA. This could include consideration of all existing or planned intermodal facilities, including park-and-ride lots or truck terminals, and major trip generators such as shopping malls. The Engineering Study should be detailed enough to identify any existing access and operational problems.

1. Existing Conditions. This section shall identify the conditions existing in the project's base year. Text, figures and tables should be used to provide relevant information to describe the existing transportation system, demand, performance, land use and environmental conditions considering the following:

Description of existing and proposed interchanges:

- Configuration of the existing and proposed interchange(s) including an arrow diagram depicting the number of lanes throughout the affected area to assist in visualizing the critical areas for the Level of Service.

- Distances to adjacent interchanges in each direction, from crossroad to crossroad and distance to adjacent ramp termini, from gore to gore including any anticipated improvements.

- Reasonable alternatives considered including improvements to existing interchanges, local roads and streets instead of new access.

- Descriptions of any existing exceptions to current design criteria.

- Mainline and crossroad traffic volumes (ADT) including the turning movements for the current year in comparison to opening year and design year. The design year shall be 20 years after the opening year unless PennDOT or the FHWA approve the use of a different time period.

- An evaluation of the impact of the proposed point-of-access on the study area's existing highways as determined by an analysis of the Level of Service (LOS) of existing and future traffic. The analysis shall include all affected interchanges and intersections, connecting roads and streets and the proposed point-of-access itself. An origin and destination study may be required. The analysis shall evaluate the geometric aspects of the existing roadways and proposed improvements, including number of lanes, merge and diverge lengths, weave areas and climbing lanes. All proposed improvements shall be developed to preclude or minimize any significant degradation in LOS of the limited access highway.

- Identification of all existing transportation resources within the study area, including any other existing limited access highways, crossroads and/or streets.

a. Existing Facility and Roadway Network. Facilities within the project area of influence shall be identified by functional classification, number of lanes and access control (e.g., limited, controlled or uncontrolled access). In addition to a discussion, a figure should be provided illustrating each facility within the study area. This section should also summarize the existing traffic volumes, operating conditions (Level of Service) of the facility and network. Tables and figures should be employed to summarize operational performance.

b. Existing Interchanges. This section shall describe the existing configuration, geometry and other design features of existing interchanges and crossroads in the area of influence, including identifying any elements that do not meet current design standards. This section should summarize existing conditions based upon field reviews and site visits during peak and off-peak periods. Information on geometric conditions should include: number of lanes, lane widths, shoulder widths, acceleration lane lengths, deceleration lane lengths, weave section lengths, grades, horizontal and vertical curvature, and available sight distances at key locations. This section should also identify any approved but not yet constructed interchanges, defining their geometry and status. Also any other interchanges being developed in the area of influence should be identified.

c. Existing Safety and Operational Conditions. This section shall summarize an analysis of the nominal and substantive safety performance of the existing conditions including existing crash data supporting the need for the project. Consider using AASHTO's *Highway Safety Manual* (HSM) to calculate crash frequencies to quantify the substantive safety performance of the existing conditions. Refer to Publication 638, *District Highway Safety Guidance Manual*, for guidance on the HSM and for evaluating safety impacts and crash analysis. This section should also summarize existing operational conditions (daily volumes, peak hour volumes, LOS, delay, queue lengths or other criteria) of the system within the area of influence.

d. Existing Land Use and Demographics. Existing land use within the project area shall be summarized by general land use classifications (residential, commercial, industrial, institutional, recreational, etc.). Major developments within the study area should be identified. This section should also identify significant population and employment statistics and trends within the project area. If appropriate, include a summary of traffic analysis zones for the base year from the selected travel demand forecasting model. Planned Land Use is to be discussed in the Land Use & Access Management Report discussed in Section Q.3.D.

e. Alternative Travel Modes. Existing single occupant vehicle (SOV) alternatives related to the project shall be identified in this section. Alternative travel modes may include special use/HOV, park and ride, bus transit, fixed-guide way mass transit, airports, ports and forms of non-motorized transportation facilities.

f. Environmental Constraints. This section shall identify any known major environmental issues or areas of concern that will be addressed in subsequent project studies. This analysis is not intended to provide extensive examination of environmental and community impact issues that will be accomplished in the Environmental/NEPA process, but should describe any known controversies or issues of community concern associated with this or related projects.

2. Methodology. This section shall summarize the methodology for performing the analyses used in developing the access request. The discussion should provide sufficient detail for the reader to understand the tools and processes used and summarize the assumptions made in the analyses. Examples of what should be included here are descriptions of the basis for selecting the project influence area and the analysis years. Also, this section should describe the basis used for deriving the future year traffic forecasts, any deviations or refinements from established planning models, sources of the traffic volumes used, assumed growth rates, assumed peak hour factors, truck percentages, K-factors, and other assumptions used in the analyses.

a. Future Year Traffic Development. This section shall include a narrative on the development of the future year design traffic used for evaluating the alternatives. Information to be contained should include network and project validation, future travel demand projections and the design traffic projections.

b. Area of Influence. The access request shall identify an area of influence based on safety and operations concerns. The area of influence for safety and operational considerations should be based on appropriate boundaries for examining the potential impacts of the proposed action, upstream and downstream of the new or modified access. At a minimum the area of influence should extend to the adjacent interchanges and along the crossroad extending one-half mile from the ramp terminal, or at least to the first adjacent signal in either direction along arterial roadways, or to the first major intersection.

3. Alternatives. This section shall thoroughly discuss the alternatives considered. A narrative regarding the location and design elements should be provided for each alternative. At a minimum, the following alternatives will be considered:

- No-Build Alternative
- Transportation System Management Alternatives
- Improvements to Existing Interchanges and Arterial/Local Road Network
- Build Alternatives Involving New or Modified Access

Issues for consideration in alternatives development:

- System improvements needed to support the interchange operations
- Consequences of phased construction of an ultimate improvement
- Select a design Level of Service and design criteria consistent with project context
- Safety impacts
- Construction feasibility (constructability and maintenance & protection of traffic)
- Costs of structures and retaining walls
- Traffic control strategies at the intersections
- Coordination and/or impacts to future planned improvements to the corridor and adjacent interchanges
- Environmental, social and economic impacts
- Consistency with Comprehensive Plans, current zoning and local land use ordinances
- Consistency with Local Access Management Plans and ordinances
- Overall cost

4. Alternatives Analysis. This section shall describe the alternatives that have been considered and discuss the analysis of alternatives based on the established evaluation criteria as well as how the alternatives satisfy the purpose and need, the applicable engineering policies and standards, traffic operations and environmental impacts. The alternatives analysis for the POA Request and the Environmental/NEPA documentation should be consistent. The alternatives may then be evaluated in economic cost and benefits terms. A summary of the analysis that was performed, the methods and tools utilized, the assumptions and the conclusions is recommended. Information should include a description of the process followed to analyze different access changes and other transportation improvement alternatives considered and selected as the proposed recommendation (e.g., Interstate System facility, ramps, ramp terminal, crossroad and local street network). Capacity analysis shall be conducted utilizing the appropriate traffic engineering software approved by PennDOT's Traffic Resource Education and Computing Support Group, as identified in Publication 46, *Traffic Engineering Manual*, unless otherwise directed in writing by PennDOT.

The Alternatives Analysis should typically consider, at a minimum, the following:

a. Safety. A safety assessment, including the potential safety benefits shall be discussed if the proposed improvements will contribute to a reduced number and/or severity of crashes. This section shall also discuss the project's relationship regarding public safety issues such as emergency service and evacuations if appropriate. The following assessments shall be included:

- Nominal safety assessment
    - Conformance with applicable design criteria.
    - Selection of good geometry and design choices.
    - Check the simplicity of interchange signing.
- Substantive safety assessment
    - Overrepresentation of crash frequency, crash types, or crash severity.
    - Comparison of past safety performance to statistical estimates.
    - Assessment of future safety performance.

Consider using AASHTO's *Highway Safety Manual* (HSM) to calculate crash frequencies to quantify the substantive safety performance of the alternatives. Refer to Publication 638, *District Highway Safety Guidance Manual*, for guidance on the HSM and for evaluating safety impacts and crash analysis.

Roadway Safety Assessments, in accordance with Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix O, Safety Review Procedures, may be considered as a tool to identify opportunities to improve safety.

b. Operational Performance. The quality of operational service for various network elements within the interchange area of influence (including and along the crossroads) for the existing and proposed access conditions shall be presented. The operational performance shall be addressed in accordance with the performance targets established for the project. These measures may include Level of Service (LOS), the project's effect on system wide vehicle-hours of travel, average travel speed or other measures of effectiveness (MOE).

(1) Operational Analysis. The traffic operational analysis shall consider conditions in the current year, the opening year, and design year (typically 20 years from opening year) for Build and No-Build scenarios. The analysis should include adjacent segments of the freeway as well as adjacent existing and proposed interchanges.

The following are typical components of a traffic operational analysis:

- Summarize traffic volumes (for peak hours typically including both an AM and PM Peak Hour):
    - Opening Year
    - Design Year No-Build
    - Design Year Build
    - Interim Year as warranted or needed
- Analysis utilizing the methodology of the Highway Capacity Manual
    - Basic Freeway Segments LOS
    - Ramps and ramp junctions LOS
    - Weaving LOS
    - Ramp termini (intersection) LOS
    - Arterial operations as warranted
- Analysis using other traffic analysis tools (i.e., simulation modeling) as appropriate and having prior approval by PennDOT.
- Provide analysis input data, calibration adjustments and assumptions used.
- Identify assumptions and variables used (PHF, K, T, terrain, etc.).
- Summarize results on a schematic or table for easy interpretation.
- A summary of the traffic operational analysis must be presented in a form readily understandable and usable to a reviewer unfamiliar with the project.

(2) Capacity Analysis. The capacity of all affected roadways shall be determined. The following shall be provided when checking the calculations of the LOS and evaluating the operational analysis impact:

- Lane widths and offset distances to side obstructions.
- Distances between gore points.
- Peak hour traffic and directional factors and peak hour AM and PM traffic volumes.
- Terrain characteristics (level, rolling or mountainous/percent and length of grade).
- Composition of truck traffic for all movements expressed as a percentage of the total traffic during the design hour of total two-way traffic (for two-lane highway facilities) or as a percentage of total traffic in the predominant direction of travel (for multilane highway facilities).
- Any special situations relative to truck type and power (truck mass/power ratios).
- Design speed of the facility (in miles per hour and kilometers per hour).
- Adjustment factors (driver population factor) for the character of the traffic stream that reflect the influence of driver population.
- Special weave details for the operation and presentation of weaving sections if they are not obvious from the configuration and arrow diagram.

- Length of weaving sections.
- A schematic diagram with the LOS superimposed for the AM and PM peak traffic volumes for existing and proposed situations.
- A summary of the operational analysis showing the LOS of each element (basic freeway, all ramp gores, weaving sections) for the AM and PM and for existing and proposed situations.

c. Stakeholder and Environmental Concerns. This section shall summarize stakeholder involvement or any public involvement which has occurred during the project study and summarize any issues identified. A preliminary assessment of potential environmental impacts considering all Environmental/NEPA elements from a fatal flaw perspective for each alternative should be presented.

d. Conformance with Transportation Plans. This section shall discuss the proposal's relationship to Corridor Studies or similar investment studies. This section should identify the attainment status of the area for the National Ambient Air Quality Standards (NAAQS) established in the Clean Air Act Amendments. The relationship of the proposed improvements to the conforming TIP, State Transportation Improvement Program (STIP) and MPO or RPO Long Range Transportation Plan should be discussed. This section should also identify all known or planned transportation improvements and/or land uses within the project study area. Consideration of the area's long term transportation plan is necessary to obtain maximum benefit from limited transportation funds and avoid potential future conflicts. A cost/benefit analysis may be helpful to justify the POA, but is not required. Such an analysis should not be the sole or even the major determinant for justification of a POA.

e. Evaluation Matrix. A matrix that summarizes the analysis of the alternatives using the key alternative evaluation criteria shall be developed to examine the trade-offs and potential consequences of the alternatives.

f. Design Exceptions. A list of anticipated design exceptions must be provided.

5. Engineering Study Appendices. Appendices will be used for other supporting documents such as traffic operational analysis documentation. Preliminary design (functional design) plans showing lane configurations and proposed design features should be provided. These figures should clearly show dimensions for the acceleration and deceleration lane spacing, lane transition taper lengths, auxiliary lanes, grades, horizontal and vertical curvature and interchange spacing (measured from the centerline of grade separation structures or crossroad). A conceptual signing and marking plan should also be provided.

The following are guidelines for appropriate design level of effort:

- Horizontal plan concept or schematic with sufficient detail to establish geometry typically a scale of 1" = 200' or 1" = 100' is acceptable. However, a scale of 1" = 50' may be required for tight locations.
- Cross section, profiles or other sketches as necessary
- Detail sufficient to provide reasonable cost estimate
- Summary of alternatives considered and reasons for recommended/preferred plan
- Supporting information (e.g., bridge and retaining walls)

It is critical to accurately develop and reflect geometry on urban freeways and in locations where right-of-way is tight.

C. Estimate, Funding and Schedule. This section shall include the project estimate for design, construction, right-of-way and utilities. It shall identify the projected funding sources (including any private sources or toll revenues) needed to implement the proposed improvements. The project schedules should also be discussed (anticipated right-of-way acquisition, construction, etc.). It should also provide the correlation between the highway improvement schedule and the local land development process schedule.

D. Land Use & Access Management Report. A Land Use & Access Management Report shall be developed to verify that the proposed POA achieves the following:

The POA is in the public interest. This requires documentation of public involvement. Refer to Publication 295, *Project Level Public Involvement Handbook.*

- The POA benefits the transportation system.
- The POA utilizes sound access and congestion management principals.
- The POA location has been selected upon potential environmental impacts being identified and considered. Environmental clearance, NEPA and/or PA Act 120 is required prior to final POA approval.
- The POA is consistent with Comprehensive Plans, current zoning and local land use ordinances.
- The POA is consistent with Local Access Management Plans and ordinances.

Refer to Publication 574, *Access Management Model Ordinances for Pennsylvania Municipalities Handbook* and PennDOT & NJDOT's *Smart Transportation Guidebook.*

E. Environmental Compliance. This section shall provide information regarding the status of environmental compliance. The status shall include verification that all applicable environmental requirements and approvals including permits have been or will be obtained and should identify all pertinent issues. Information, such as the design year, provided in both the environmental document and the POA must be consistent.

The POA Request Report should be submitted for conceptual approval prior to completion of the environmental process. Appropriate environmental and preliminary engineering activities need to be conducted to produce an acceptable document. Although, final POA approval cannot be granted until environmental clearance is obtained, conceptual POA approval may be granted prior to environmental clearance.

If the required level of environmental document is a Level 2 Categorical Exclusion Evaluation, Environmental Assessment or Environmental Impact Statement, the FHWA will be the approval authority for the environmental document even if PennDOT is the approval authority for the POA. Therefore, PennDOT actions should be closely coordinated with FHWA.

F. Summary and Recommendations. This section shall summarize the requested change in access, identify the recommended (Conceptual POA) or preferred (Final POA) alternative (or alternatives), summarize the results of the analysis for engineering and operational acceptability and state recommendations for further action, such as obtaining NEPA clearance or programming final design.

The level of detail and effort included in the POA Request Report should be sufficient to give assurance that the plan will not substantially change as the project moves ahead through preliminary and final design.

G. Local Government Agreements. All Non-State and Non-Federal Government sponsored POA Requests shall include written documentation to PennDOT from the Local Government agreeing to the following statements:

- The proposed access is in the public interest including the highway user.
- The proposed access is endorsed by the Local Government and they concur with the POA Request.

- The proposed access will be owned and maintained by the Local Government, if it is not part of an existing State Route.

- All applicable environmental requirements and approvals including permits will be obtained. (Conceptual POA approval may be given prior to environmental clearance. However, environmental clearance is required for Final POA approval.)

This section should also provide a list and description of any agreements between the local government and any other entity pertaining to the proposed POA.

H. Appendices Documentation.

- Existing or proposed Act 209, "Transportation Impact Fee Studies"
- Capital Improvement Plans
- County or Municipal Comprehensive Plans
- Congestion Management Plans
- MPO or RPO plan showing proposed project
- Previous engineering studies or reports
- Letters of support from units of government

Q.4 POA REQUEST REPORT PROCESSES

POA Request Reports are applicable to the below listed two (2) types of limited access roadway classifications. Approval responsibility is shown as designated in the Stewardship and Oversight (S&O) Agreement between the FHWA and PennDOT (Refer to Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix C.).

- Interstate - Federal Approval
- Non-Interstate - PennDOT Approval

In accordance with the Pennsylvania Municipalities Planning Code (MPC), all Non-State and Non-Federal Government sponsored POA Requests, Conceptual and Final, require an "action" response from PennDOT to the Local Government within 60 calendar days from receipt of the POA Request regardless of whether or not approval from the FHWA is required. The action response must approve, deny or return the POA request for additional information. Because the Federal Government is not bound by the MPC's 60 calendar day requirement, PennDOT will typically need to provide an action response prior to receiving a determination from the FHWA for POA Requests that require Federal approval. If it appears the Federal Government will not provide a response in time to meet the 60 calendar day requirement, PennDOT must request the applicant to waive the 60 calendar day requirement. If the applicant does not agree to waive the 60 calendar day requirement, PennDOT will need to deny the request because FHWA approval has not been received. That denial must be made within the 60 calendar days. Sections Q.4.A and Q.4.B discuss the POA Request Report processes for Non-State and Non-Federal Government sponsored POA Request Reports. The processes are applicable to Conceptual and Final POA requests. However, if a Conceptual POA Request Report went through the process, then the Final POA request will begin at Step 5 of the process and may only require back-check of comments made during the conceptual process. Flowcharts of the processes are provided as Figures Q.1 and Q.2.

A. Interstate POA Request Report Process. All Interstate POAs require FHWA approval as per the S&O Agreement.

1. PennDOT's District Office is contacted by the Local Government to request change to or new access within limited access. The Local Government is the applicant and is the official PennDOT contact even if the POA is being sponsored by a private entity unless deferred to the private entity as per Section Q.1.

2. The District notifies local government of the following:

- Roadway - Breaks in limited access will not normally be issued for occupancy of or access to any limited access highway. However, an exception may be made in an "exceptional case" as per Title 67, Section 441.5.
    - If the local government requests definition of an exceptional case, the District should explain that an exceptional case may exist whenever reasonable access cannot be provided to a lower class roadway and the proposed access is shown to be in the public interest and benefits the transportation system. Also, interchanges on the Interstate system provide access to local areas, not to individual developments or parcels.
- Private Driveway - Breaks in limited access right-of-way along the highway mainline for private drives, including commercial drives, are not permitted.

3. The District notifies the Local Government of PennDOT's POA and HOP requirements.

4. If PennDOT in coordination with the FHWA, as appropriate, deems that the Local Government may have an "exceptional case" for which a POA may be appropriate, the Local Government or the private entity on their behalf will coordinate a Scoping Field View with the District Office. The POA process will then continue, if deemed applicable by PennDOT and the FHWA, as appropriate.

5. The Local Government or the private entity on their behalf develops and submits a POA Request Report as described under Section Q.3 with an official transmittal letter from the Local Government endorsing the POA Request Report. The number of copies requested by the District should be provided to assist in expediting the review.

6. The District evaluates the POA Request Report using applicable manuals, standards, criteria and policies. The POA Request Report is circulated via a POA District Office Review Routing Form (Figure Q.3), requiring approval recommendation signatures from each appropriate District Unit (Permits, Traffic, Right-of-Way, Environmental, etc.), including the District's Safety Review Committee.

- The District evaluation should cover all information required in a POA Request Report as defined in this Appendix.
- The District evaluation should consider Smart Transportation themes.
- The District should not recommend approval of a POA for which they foresee potential concern with the HOP.

7. The District either denies the POA request and notifies the Local Government or recommends approval to the Director of the Bureau of Project Delivery (BOPD).

- An approval recommendation must be via an official transmittal letter from the District Executive to the Director of the BOPD.
- The District should provide two (2) copies of the completed POA Request Report to the BOPD. The BOPD may request additional copies to expedite review.

8. The BOPD's Highway Design and Technology Section (HDTS) will review and coordinate review of the POA Request Report within Central Office (C.O.). The POA Request Report is circulated via a POA Central Office Routing Form (Figure Q.4), requiring approval recommendation signatures from each appropriate C.O. Bureau and/or Division (Bureau of Maintenance and Operations (BOMO), BOPD, etc.).

- The C.O. evaluation should cover all information required in a POA Request Report as defined in this Appendix.

- The C.O. evaluation should consider Smart Transportation themes.

- The C.O. Bureau's and/or Divisions/Sections should not recommend approval of a POA for which they foresee potential concern with the HOP.

9. If the C.O. evaluation concludes that the POA is acceptable, the BOPD will submit it to the FHWA for approval. The number of copies requested by the FHWA should be submitted to assist in expediting the review. The FHWA may submit the POA to their Washington, DC Headquarters for review.

10. If the FHWA finds the POA acceptable they will notify PennDOT via an approval transmittal. The approval transmittal will be one of the following:

- Conceptual approval with comments.
- Conceptual approval without comments.
- Final approval with comments (if NEPA approved and planning requirements satisfied).
- Final approval without comments (if NEPA approved and planning requirements satisfied).

11. If the FHWA finds the POA request unacceptable they will notify PennDOT via a denial transmittal. The denial transmittal will include comments regarding what needs to be addressed for them to reconsider approval.

12. The HDTS coordinates development of the denial or approval response to be sent to the District with the FHWA's approval or denial transmittal. The response transmittal will be from the Director of the BOPD.

13. The District disseminates the C.O./FHWA response to the Local Government under an official District transmittal letter.

14. If the POA request is denied the process ends or the POA Request Report is revised as recommended and resubmitted by the Local Government.

15. If the POA request is approved the Local Government continues with the Project Development and HOP processes.

Note - Conceptual POA approval may be given prior to NEPA clearance. However, planning requirements must be satisfied and NEPA clearance is required for Final POA approval.

B. Non-Interstate, POA Request Report Process. All Non-Interstate POAs require PennDOT approval. However, if the required level of environmental document is a Level 2 Categorical Exclusion Evaluation, Environmental Assessment or Environmental Impact Statement, the FHWA will be the approval authority for the environmental document. Therefore, the conceptual and final approval of the POA should be coordinated with the FHWA when they are the approval authority for the environmental document.

The Non-Interstate Process is the same as the Interstate Process as described under Section Q.4.A through Step 8. The process will then continue as follows:

9. If the C.O. evaluation concludes that the POA is acceptable, the Director of the BOPD will request the Deputy Secretary for Highway Administration's approval. However, if the FHWA has environmental approval authority, HDTS may submit the POA Request to the FHWA for concurrence prior to requesting approval.

10. If the Deputy Secretary for Highway Administration approves the POA Request and the FHWA has concurred, if applicable, the BOPD will notify the District via transmittal. The transmittal will be one of the following:

- Conceptual approval with comments.
- Conceptual approval without comments.
- Final approval with comments (if Environmental/NEPA approved and planning requirements satisfied).
- Final approval without comments (if Environmental/NEPA approved and planning requirements satisfied).

11. If the C.O. finds the POA request unacceptable they will notify the District via a denial transmittal from the Director of the BOPD. The denial transmittal will include comments regarding what needs to be addressed for them to reconsider approval.

12. The District disseminates the C.O. response to the Local Government under official District transmittal letter.

13. If the POA request is denied the process ends or the POA Request Report is revised as recommended and resubmitted by the Local Government.

14. If the POA request is approved the Local Government continues with the Project Development and HOP processes.

Note - Conceptual POA approval may be given prior to environmental clearance. However, planning requirements must be satisfied and environmental clearance is required for Final POA approval.

C. Other Types of POAs. Other types of POAs are evaluated on a case-by-case basis to determine the required level of documentation and review/approval process.

1. Special Purpose POAs. Special Purpose POAs include locked gate access and ramp connections to roadside park-and-ride lots. These facilities should be treated as special cases with the required movements addressed on a case-by-case basis.

Locked gate access points on the Interstate system are used primarily to provide access for fire, medical and other emergency vehicles to reduce travel time. The FHWA approval of a locked gate access point is limited to unusual circumstances.

2. State or Federal Sponsored POAs. State or Federal sponsored POAs will be evaluated on a case-by-case basis to determine the appropriate level of documentation required and the review/approval process. However, Section Q.3, POA Request Report Format and Required Information, is still applicable. As with Non-State and Non-Federal POAs, preliminary funding information and conformance with transportation plans should be known prior to initiating development of the POA Request Report. A Scoping Field View is also required and should involve all stakeholders. Concept Introduction, Alternatives development and refinement meetings, and Preliminary POA Request Review Report meetings should also be held. The POA Request Report Process should follow the steps provided in Sections Q.4.A and Q.4.B. However, the process will begin at Step 5 with the State or Federal Government developing the POA and completing the activities required in the subsequent steps. Although the Local Government is not the applicant, they are to be coordinated with as a project stakeholder.

Q.5 REFERENCES

1) Pennsylvania Code, Title 67, Transportation, Chapter 441, *Access to and Occupancy of Highways by Driveways and Local Roads.*

2) Pennsylvania Code, Title 67, Transportation, Chapter 459, *Occupancy of Highways by Utilities*.

3) Transportation Impact Study Guidelines.

4) Pennsylvania Municipalities Planning Code.

5) PennDOT & NJDOT's *Smart Transportation Guidebook.*

6) Publication 13, Design Manual Part 2, *Highway Design*.

7) Publication 15M, Design Manual Part 4, *Structure Design*.

8) Publication 16, Design Manual Part 5, *Utility Relocation*.

9) Publication 46, *Traffic Engineering Manual*.

10) Publication 72M, *Roadway Construction Standards.*

11) Publication 218M, *Bridge Design Standards*.

12) Publication 219M, *Bridge Construction Standards*.

13) Publication 282, *Highway Occupancy Permit Guidelines*.

14) Publication 319, *Needs Study Handbook.*

15) Publication 574, *Access Management Model Ordinances for Pennsylvania Municipalities Handbook*.

16) Publication 638, *District Highway Safety Guidance Manual*

17) Title 23 Code of Federal Regulations, Highways.

18) AASHTO, *A Policy on Geometric Design of Highways and Streets*.

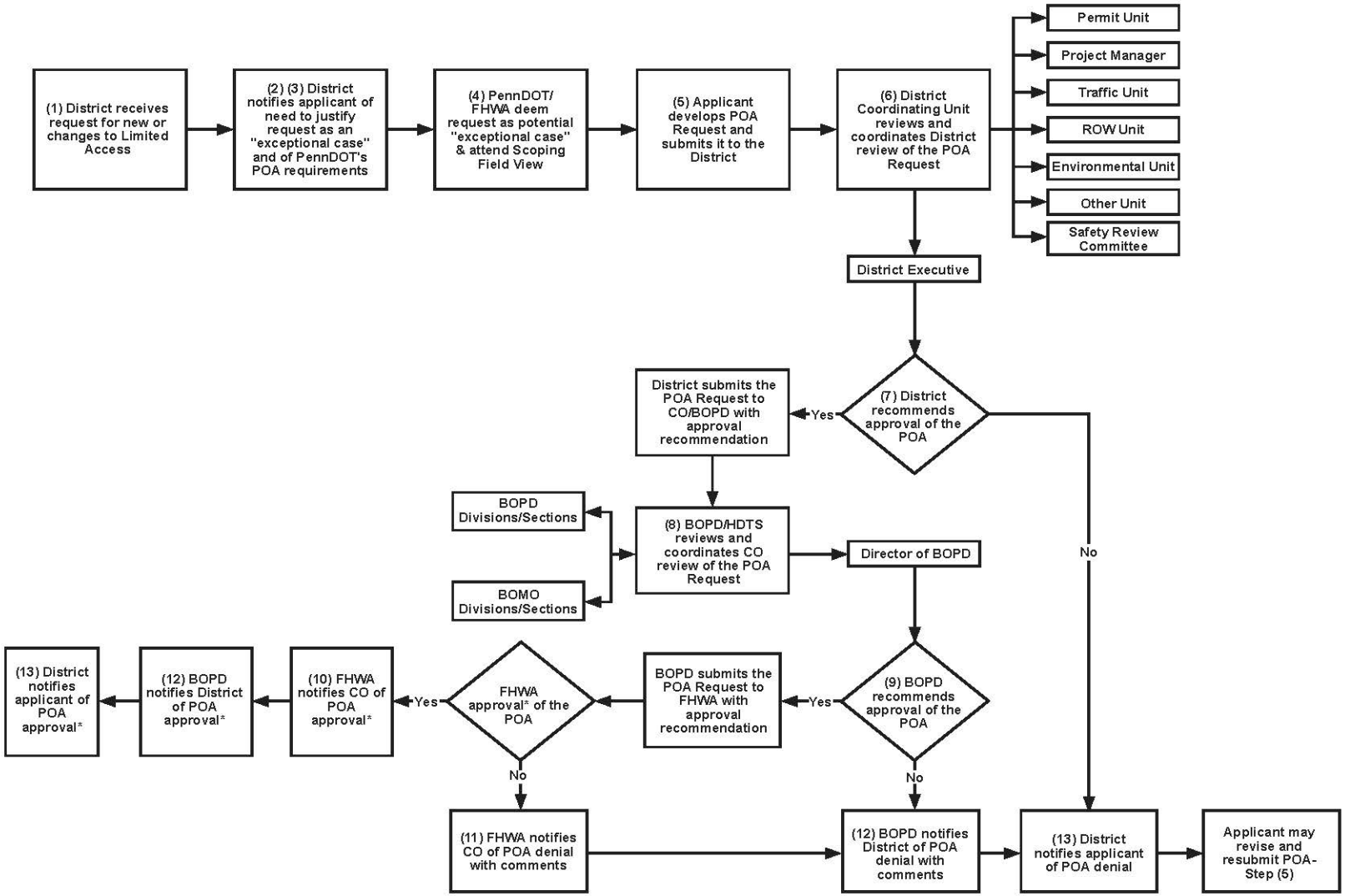
19) AASHTO, *A Policy on Design Standards, Interstate System*, January 2005.

20) Federal-Aid Highways Stewardship and Oversight Agreement, June 2015 (Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix C).

21) FHWA Interstate System Access Informational Guide.

22) FHWA Revised Policy Statement, *Access to the Interstate System*, Federal Register, Volume 74, No. 165, Thursday, August 27, 2009.

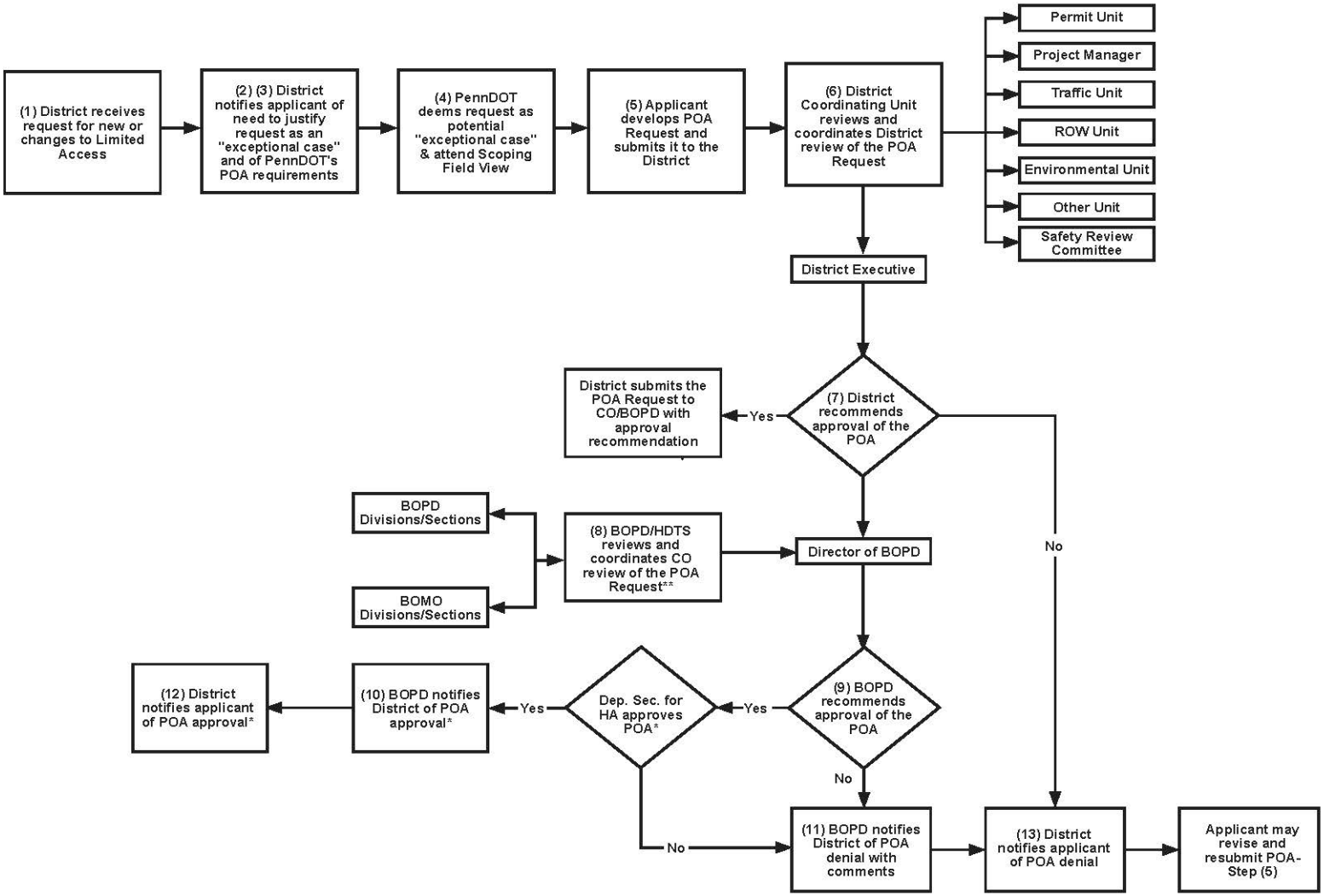
Figure Q.1
Interstate POA Request Report Process



(#) – Process step number.
*Conceptual POA approval may be given prior to environmental clearance. However, environmental clearance is required for Final POA approval.

Important – An approval, denial or request for additional information must be given to the Local Government within (60) sixty calendar days of receipt of the POA Request Report by the District.

Figure Q.2
Non-Interstate POA Request Report Process



(#) – Process step number.
*Conceptual POA approval may be given prior to environmental clearance. However, environmental clearance is required for Final POA approval.
**If FHWA has environmental approval authority, HDTS will submit the POA request to FHWA for concurrence.

Important – An approval, denial or request for additional information must be given to the Local Government within (60) sixty calendar days of receipt of the POA Request Report by the District.

Figure Q.3

POINT-OF-ACCESS (POA) REQUEST REPORT
DISTRICT REVIEW ROUTING FORM

Date POA Request Report Received by District*****: _____ POA Tracking No.: _____

Submission Cycle Count: ____ New ____ Resubmission # ____

Government Sponsor: ____ Local ____ State ____ Federal ____ Not Applicable

Government Applicant: _____
(Or) Non-Government Applicant: _____

County: _____
S.R.: _____ Section: _____ Start Segment: _____ Offset: _____ Stop Segment: _____Offset: _____

Date of Scoping Field View (SFV): _____ (Attach SFV Minutes)
(SFV to be held prior to accepting POA Request Report from an applicant)

Type of POA Request: (Check all that apply)
____ Interstate
____ Non-Interstate
____ Special Purpose ____ Locked Gate
____ State ___ Federal

Type of facility requested to access Limited Access roadway:
____ Locally Owned Roadway ____ State/Federal Owned Roadway

***** In accordance with the Pennsylvania Municipalities Planning Code (MPC), all Non-State and Non-Federal Government sponsored POA Requests, Conceptual and Final, require an "action" response from PennDOT to the Local Government within sixty (60) calendar days from receipt of the POA Request regardless of whether or not approval from the FHWA is required.

Refer to Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C,* Appendix Q for guidance.

POA Coordinating Unit: _____ Date Received: _____
Recommend approval prior to routing? ____ Yes ____ No ____ N/A Date Routing Initiated: _____
Recommend approval after routing? ____ Yes ____ No ____ N/A Date Routing Completed: _____

Coordinator/Reviewer: _____ _____ _____
Print Name Signature Date

Determine appropriate Units for District Routing.
Comments: (Required if not recommending approval)

DISTRICT ROUTING - (If any routing Unit does not recommend approval the document should be returned to the District's POA Coordinating Unit.)

Permit Unit Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

POA Project Manager (PM) Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

PM/Reviewer: _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

Traffic Unit Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

Right-of-Way Unit Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

Environmental Unit Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

Safety Review Committee Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

Other Unit: _____ Date Received:_____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

District Executive or ADE Design: _____ Date Received:_____
_____ _____ _____
Print Name Signature Date

Recommend Approval? ____ Yes ____ No ____ N/A

Comments: (Required if not recommending approval)

If Approval is recommended, submit POA Request Report with District Review Routing Form and the SFV Minutes to the Bureau of Project Delivery from the District Executive or ADE Design.

Figure Q.4

POINT-OF-ACCESS (POA) REQUEST REPORT
CENTRAL OFFICE REVIEW ROUTING FORM

Date POA Request Report Received by BOPD: _____ POA Tracking No.: _____

Submission Cycle Count: ____ New ____ Resubmission # ____

Government Sponsor: ____ Local ____ State ____ Federal ____ Not Applicable

Government Applicant: _____
(Or) Non-Government Applicant: _____

County: _____
S.R.: _____ Section: _____ Start Segment: _____ Offset: _____ Stop Segment: _____Offset:_____

Date of Scoping Field View (SFV): _____ (Attach SFV Minutes)
Central Office Represented at SFV? ____ Yes ____ No

Conceptual POA Request? ____ Yes ____ No (Anticipated NEPA Level _____)
Final POA Request? ____ Yes ____ No (Approved NEPA Level _____ Date Approved: _____)
(Planning requirements satisfied _____ Yes _____ No)

Attach completed District Review Routing Form and SFV Minutes.

***** In accordance with the Pennsylvania Municipalities Planning Code (MPC), all Non-State and Non-Federal Government sponsored POA Requests, Conceptual and Final, require an "action" response from PennDOT to the Local Government within sixty (60) calendar days from receipt of the POA Request regardless of whether or not approval from the FHWA is required.

Refer to Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix Q for guidance.

BOPD/HDTS Date Received: _____
Recommend approval prior to routing? ____ Yes ____ No ____ N/A Date Routing Initiated: _____
Recommend approval after routing? ____ Yes ____ No ____ N/A Date Routing Completed: _____

Coordinator/Reviewer: _____ _____ _____
Print Name Signature Date

Determine appropriate areas for Central Office Routing.
Comments: (Required if not recommending approval)

CENTRAL OFFICE ROUTING - (If any routing Area does not recommend approval the document should be returned to the BOPD/HDTS Coordinator)

BOMO Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

BOPD Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

Other: _____ Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

Other: _____ Date Received: _____
Recommend Approval? ____ Yes ____ No ____ N/A

Reviewer: _____ _____ _____
Print Name Signature Date
Comments: (Required if not recommending approval)

BOPD Director Date Received: _____
If FO, recommend approval by FHWA? ____ Yes ____ No ____ N/A
Recommend Conceptual POA Approval? ____ Yes ____ No ____ N/A
Recommend Final POA Approval? ____ Yes ____ No ____ N/A

_____ _____
Signature Date

Comments:

Deputy Secretary for Highway Administration Date Received: _____

Conceptual POA Approved – ____ Yes ____ No ____ N/A
Final POA Approved – ____ Yes ____ No ____ N/A

_____ _____
Signature Date

Comments:

FHWA Date Received: _____

Conceptual POA Approved – ____ Yes ____ No ____ N/A
Final POA Approved – ____ Yes ____ No ____ N/A

_____ _____
FHWA Director of Operations Date

Comments:

BOPD/HDTS Date Received: _____

Transmittal to District:

___ Approval
___ Denial
___ Request for additional information

Coordinator: _____ _____ _____
Print Name Signature Date

Comments:

APPENDIX R

VALUE ENGINEERING AND VALUE ENGINEERING/ACCELERATED CONSTRUCTION TECHNOLOGY TRANSFER (VE/ACTT) REVIEW PROCEDURES

R.0 INTRODUCTION

Value Engineering (VE) is defined as: "The systematic application of recognized techniques by a multi-disciplined team to identify the function of a product or service, establish a worth for that function, generate alternatives through the use of creative thinking, and provide needed functions to accomplish the original purpose of the project, reliably, and at the lowest life-cycle cost without sacrificing safety, necessary quality, and environmental attributes of the project."

A project is defined as "a portion of a highway that a State proposes to construct, reconstruct, or improve as described in the preliminary design report or applicable environmental document. A project may consist of several contracts or phases over several years." A Minor project that is typical of a group of projects may be studied and the savings may be applicable to other projects in the group.

PennDOT has embraced this concept as a valuable tool for reducing cost without reducing performance and is committed to providing the highest value for each dollar invested.

The potential for savings is greater when VE reviews are conducted early in the design process so that accepted VE recommendations can be implemented without delaying the project schedule. Reviews should be scheduled when sufficient data is available, generally immediately after the Design Field View Submission.

R.1 DESIGN VALUE ENGINEERING REVIEW

a. The Federal Highway Administration (FHWA) requires a VE study for all projects that meet the following criteria:

(1) Each project on the National Highway System (NHS) receiving federal assistance with an estimated total cost (which includes project development, design, right-of-way, and construction costs) of $50 million or more.

(2) Each bridge project located on or off of the NHS receiving federal assistance (includes local bridges) with an estimated total cost of $40 million or more.

(3) Any other Federal-aid projects the Secretary determines to be appropriate.

b. In addition to all projects described in Paragraph **R1a**, the Department strongly encourages conducting the VE analysis on other projects where there is a high potential for cost savings in comparison to the cost of the VE analysis, or the potential exists to improve the projects' performance or quality. Projects involving complex technical issues, challenging project constraints, unique requirements, and competing community and stakeholder objectives offer opportunities for improved value by conducting VE analyses.

c. Any use of Federal-aid highway program (FAHP) funding on a Major Project (a project receiving Federal financial assistance with an estimated cost of $500 million or more, or that has been identified by the Secretary as being "Major" as a result of special interest) requires that a VE analysis be conducted, regardless of the amount of FAHP funding that may be used on the project. It is strongly encouraged to perform more than one VE analysis for a Major Project.

d. A VE analysis is required if the established scope and estimate of the project costs in the preliminary design report or environmental document meets the criteria noted in Paragraph **R1a**. After completing the required VE analysis at this stage in the project development process, if the project is subsequently split into

smaller projects in final design or is programmed to be completed by the letting of multiple construction contracts, an additional VE analysis is not required. However, splitting a project into smaller projects or multiple construction contracts is not an accepted method to avoid the requirements of having to conduct a VE analysis.

e. The FHWA may require a VE analysis to be conducted if a State DOT or public authority encounters instances when the design of a project has been completed but the project does not immediately proceed to construction. In accordance with Paragraph **R1a(3)**:

(1) If a project that met the criteria identified in Paragraph **R1a** encountered a 3 year delay or longer prior to advancing to a letting for construction, and a substantial change to the project's scope or design is identified when the required re-evaluation of the environmental document is performed, the FHWA may encourage or require a new VE analysis or an update to the previously completed VE analysis to be conducted; or

(2) If a project's estimated total cost initially fell below the criteria identified in Paragraph **R1a** but the project advances to a letting for construction, and a substantial change occurs to the project's scope or design is determined to be the basis for an increase in the project cost above the criteria identified in Paragraph **R1a** when the required re-evaluation of the environmental document is performed, the FHWA will require a VE analysis to be conducted.

f. When the design of a project has been completed but the project does not immediately proceed to construction, the requirement to conduct a VE analysis is considered to be satisfied, or not necessary, if:

(1) A project met the criteria identified in Paragraph **R1a** and had a VE analysis conducted, and the project advances to a letting for construction without needing any substantial changes in its scope or its design; or

(2) A project's estimated cost initially fell below the criteria identified in Paragraph **R1a**, but when advancing to letting for construction, falls above the criteria due to inflation, standard escalation of costs, or minor modifications to the projects design or contract.

g. Informal VE Studies are highly recommended on all Most Complex (Major) and Moderately Complex projects with total estimated cost of less than **R1a**. An informal VE study can be conducted in conjunction with the constructability review.

R.2 NECESSARY INFORMATION INCLUDES:

(a) A plan with project limits
(b) Traffic data
(c) Typical sections
(d) Line, grade and geometric data
(e) Preliminary soils data
(f) Preliminary pavement design data
(g) Preliminary drainage facilities
(h) Structures - Type, Size and Location
(i) Selective cross-sections for typical and critical areas
(j) Drafts of expected special provisions
(k) Preliminary cost estimate
(l) Transportation Management Plan (TMP) if the project is determined to be "significant." Refer to Publication 46, *Traffic Engineering Manual*.

R.3 VALUE ENGINEERING STUDY

VE Study shall follow the widely recognized systematic problem-solving analysis process that is used by private industry and governmental agencies. VE Studies will be required on all projects identified in paragraph **R1a.** A VE Study can be conducted in conjunction with the constructability review. Studies must be performed using multi-disciplined teams of individuals not personally involved in the design of the project. Study teams should consist on a team leader and individuals from different specialty areas, such as design, construction, environmental, planning, maintenance, right-of-way, and other areas depending upon the type of project being reviewed. Individuals from public and other agencies may also be included on the team when their inclusion is found to be in the public interest. It is recommended that enough information be generated so the District Executive can make the required decision. A statement must be made as part of the Cost Containment Submission by the District (at the 75% submission) to PMC (if one is required) as to the results of the VE Study. The FHWA shall be invited to participate.

(1) Each team leader should be trained and knowledgeable in VE techniques and be able to serve as the coordinator and facilitator of the team.

(2) Studies should conclude with a formal report outlining the study team's recommendations for improving the project and reducing its overall cost.

R.4 VE TEAM SELECTION

The team approach is at the heart of VE's success. Team members must be selected with care.

(a) The optimum team size is at least five persons. Teams should consist of a team leader (who have had formal National Highway Institute (NHI) VE training certification) and individuals from different specialty areas, such as design, construction, environment, planning, maintenance, right-of-way, and other areas depending on the type of project being reviewed. Individuals from the public and other agencies may also be included on the team when their inclusion is found to be in the public interest. The Project Manager, project designer, and other individuals personally involved in the design of the project should not be on the team; however, someone knowledgeable of the major items of the project should be included.

(b) Team members should be selected from a pool of qualified people rather than a fixed team for all reviews. At least one person must have had the formal NHI VE training for Project studies. All team members should have exhibited creativity, cooperativeness, enthusiasm, a tendency to ask questions and a willingness to recommend and support changes, if justified.

(c) Team members should be relieved of all their regular duties during the team work sessions. Regular duties which cannot be reassigned must be conducted before or after VE sessions. Half-day VE meetings may be a necessary alternative.

(d) State DOTs may employ qualified VE consultants to conduct VE analyses. Consulting firms should not conduct a VE analysis on projects as specified in Paragraph **R1a** where they have an interest in the project. It is strongly recommended that consultants be qualified VE practitioners, experienced in performing and leading VE studies (have participated in several VE studies as a team member and as a team leader), and have sufficient VE training, education, experience and formal NHI VE training certification.

R.5 VE REVIEW REPORT GUIDELINES

A formal and informal VE Review Report should be prepared by the team leader and submitted to the District Executive immediately upon completion. The report should follow the format outlined in the NHI VE Course Book. The report should contain the following information:

(a) Current date, State Route (SR), section, county, estimated construction cost, VE team members, VE work locations and the review date.

(b) A basic project description including length, number of lanes, width, Maintenance Functional Code (MFC), Average Daily Traffic (ADT), percentage of trucks, shoulder type and width, type of project, type of funding, etc.

(c) Specific items studied.

(d) Recommendations including advantages and disadvantages. Include sketches if needed. Address whether VE proposal is consistent or inconsistent with environmental clearance commitments.

(e) Cost data with summary of savings.

(f) For formal report include approval dates for pavement, typical sections, Scoping Field View and Design Field View.

(g) The VE team should be prepared to make an oral presentation to the District Executive if requested.

R.6 SUBMISSION REQUIREMENTS

(a) All projects described in **R1a** require Design VE Reports, including backup information, with the District Executive's Approval/Disapproval shall be sent to the Central Office Value Engineering Coordinator (VE Coordinator) for approval. A copy of both the approval letter and the VE report/submission is sent to the FHWA for their information. The Design Field View plans, if used as a VE reference, should show the original design with the proposed VE changes noted. If the National Highway Institute workbook is used, the transmittal letter will summarize the results of the study along with the District's recommendation.

(b) For all other Design VE Reports, the requirements and the process are the same except that the VE Reports will be approved by the District Executive only with a copy sent to the Central Office VE Coordinator's Office.

(c) The District Executive has the option to involve the Central Office VE Coordinator in any VE Project approval process, if they so desire.

(d) For all VE studies recommendations that are disapproved by the District Executive shall be submitted to the Central Office VE Coordinator.

(e) Copies of all Design VE Study Reports with related memos shall be sent to the Central Office VE Coordinator's Office by the District VE Coordinator.

(f) Implementation of VE Review Recommendations. The Project Manager shall ensure that all approved VE recommendations are implemented in the project design.

(g) FHWA approval of the Final Design Office Meeting minutes or Final PS&E constitutes acceptance of the VE recommendations by FHWA.

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R.7 VALUE ENGINEERING/ACCERLERATED CONSTRUCTION TECHNOLOGY TRANSFER (VE/ACTT) PROCESS GUIDELINES

Purpose:

1) Use value engineering and accelerating construction technology transfer concept upfront prior to starting preliminary or final design.
2) Size the project to address well-defined problems/needs within the project environments (safety, economy, construction, maintenance and other applicable issues).
3) Utilize construction industry expertise to address potential constructability issues prior to the start of final design.
4) Utilize construction industry expertise to identify opportunities to expedite construction.
5) Make decisions on designs of key project components where feasible, based upon the above four items. (Additional information may be required/studied to validate the decisions).

Note: This process fulfills the requirements of value engineering and right-sizing of the project.

Applicability:

1) Reconstruction projects - bridge or highway
2) Major rehabilitation projects where traffic must be maintained with numerous constraints
3) New construction

When to apply the process:

1) It can be applied anytime during project development; however, application at early stages of project development will produce the most savings in engineering and construction costs.
2) The process can be most beneficial if applied near the completion of the environmental studies when the preferred alternative is identified or prior to starting of contract drawings and design.

   Note: Re-evaluation of NEPA document may be needed if this process is applied after environmental clearance is secured if there are major deviations from the environmental clearance as a result of this process.

Who should participate? (VE/ACTT Team Composition)

1) Central Office VE/ACTT Coordinator and District Design Project Manager will lead and coordinate this effort.
2) District multi-discipline team with key decision makers for each discipline involved. Prefer to have DE, ADE-Design, and ADE-Construction attend the session. A representative from the Maintenance organization is recommended but not required.
3) Design consultant, if the design is to be performed by the consultant.
4) Central Office multi-discipline team with key decision makers for each discipline involved.
5) FHWA transportation engineer.
6) Contractors through APC, District's special invitation, and through ECMS advertisement.
7) Representative from the Office of Chief Counsel.
8) Persons experienced as construction contractor but now working for a consultant (prepare work order for consultants for participating in the VE/ACTT).
9) Other specialty organizations (e.g., resource agency or local government, material fabricators, specialty contractors, etc.) deemed necessary to address/collaborate in solving problem(s).
10) Representative(s) from regulatory agencies if there are key issues which can affect constructability or approach to resolving problem(s)/ special situations.
11) If surrounding Districts have interest, invite them to learn process.

How long will the Session last?

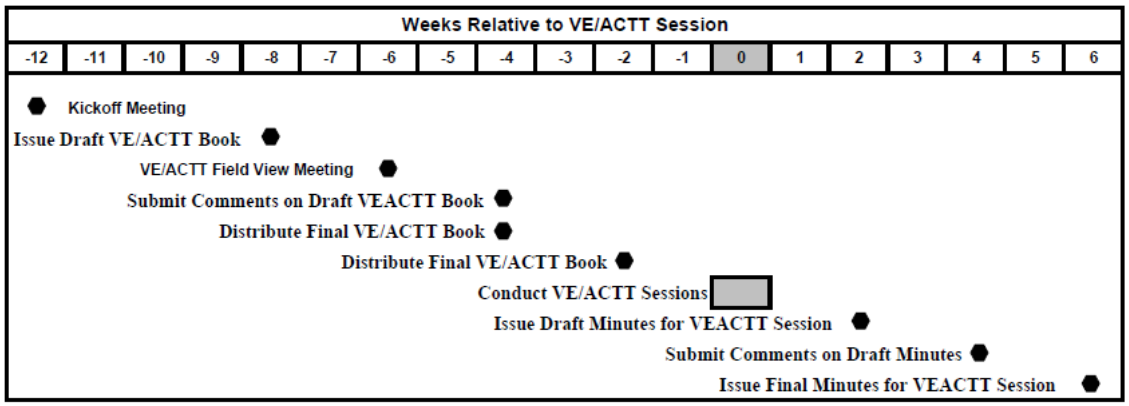
Generally, it is a two day session. The first day's primary focus is on right-sizing, value engineering and cost containment. Representatives from the construction industry are only invited to attend the second day of the session. The second day's primary focus is on constructability concerns, project staging, scheduling and applicable accelerated construction technology. It can be cut back to one day for moderately complex projects. See generic agenda (Attachment "A") as a guidance for session duration.

How do we prepare for the Session?

The following are key milestones in preparing for a VEACTT Session:

1) Conduct kickoff meeting
2) Issue draft VE/ACTT Session book
3) Conduct VE/ACTT field view meeting
4) Submit comments on draft VEACTT Session book
5) Provide contractor notification in ECMS & through APC
6) Distribute finalized VE/ACTT Session book to participants
7) Conduct VE/ACTT Sessions
8) Issue draft meeting minutes from VEACTT Session
9) Submit comments on draft meeting minutes from VEACTT Session
10) Issue final meeting minutes from VEACTT Session

Typical timeframes for each milestone are shown on the following time line:



1) Kickoff Meeting

A. The VE/ACTT Coordinator and District Design Project Manager will schedule a half-day kick-off meeting with the designer, key District staff (ADE-Design and Project Manager as a minimum), key Central Office staff (Division Chiefs of Divisions, Bridge Design and Technology Division and others as warranted), FHWA Area Engineer.

B. The kick-off meeting should be held approximately 12 weeks before the proposed VE/ACTT Session Dates. The kick-off meeting is typically held in Central Office but can be held at the District Office, the Designer's office or at a location close to the project site that has a meeting room available (i.e., County Maintenance Office).

C. The VE/ACTT Coordinator will facilitate the meeting and review the VE/ACTT Process Guidelines with all participants in order to identify everyone's specific roles and responsibilities before, during and after the VE/ACCT Session.

D. District personnel should be prepared to define problem(s) and significant project issues which the project is expected to encounter/resolve. **Note:** "If there are no problems, there is no project".

E. Particularly define the anticipated service life of the project, any impending work or changes which could affect it and the minimum maintenance of traffic requirements expected during construction.

F. District personnel should be prepared to define expectations from the VE/ACTT session and define measures of success related to:

1) the entire two-day session
2) the project during design
3) the project during construction
4) the project in service

G. The District & Consultant Design Team should prepare and present the following information during the Kick-off meeting:

1) Project Roll Plan, profiles & typical sections. Plan should show alternates and impact features such as environmental, wetlands, flood plains, contamination sites, etc.
2) Design criteria outline
3) Letter size location map
4) Project description
5) Project purpose & need
6) Environmental overview with impact assessment matrix
7) Preliminary cost estimate
8) Project schedule
9) Right-of-Way impact
10) Utilities impact
11) Traffic counts and projections
12) Additional items which will assist in the understanding of the project
13) Draft copies of the session hand out book, if available

H. A schedule that includes the following key items should be developed and agreed to during the kick-off meeting:

1) Set dates for the VE/ACTT Session based on availability of key participants. Allow approximately 12 weeks from Kick off meeting to VE/ACTT Session. Avoid scheduling the VE/ACTT Session the same week as a scheduled Department Let Date.
2) Set a date for the design consultant to issue the draft VE/ACTT Session Book to key participants as identified at the kickoff meeting. The draft should be issued approximately 8 weeks prior to session, and be available before the field view.
3) Set a date for a VE/ACTT Field View Meeting to be held approximately 6 weeks prior to the session and identify logistics for the VE/ACTT Field View Meeting.
4) Set a due date for all comments on Draft VE/ACTT Session Book to be submitted to the design consultant approximately 4 weeks prior to session.
5) Set a date for the VE/ACTT Coordinator to provide contractor notification in ECMS & through APC approximately 4 weeks prior to session.
6) Set a date for the design consultant to distribute finalized VEACTT Session books to participants, approximately 2 weeks prior to session.

I. Identify logistics for the VE/ACTT Session, including a facility to:

1) Sit 35-40 people in U-shape or square shape
2) Display full size plans on walls
3) Accommodate parking
4) Display two to three sets of flip charts on easels
5) Arrange for breaks, lunch, etc.
6) If site is remote for District Office, consider a hotel conference room near the site.

2) VE/ACTT Session Book

A. After the kick-off meeting and before the Field View Meeting, the design consultant is to prepare a draft VE/ACTT Session Book that will acquaint VE/ACTT participants very quickly with concise information about the project. Provide information in plans, pictures or bullet point write-ups of no more than two sentences per bullet.

B. The draft VE/ACTT Session Book should include the following information and other items identified at kick-off meeting:

1) One page project digest of the project with project data and information
2) Area Location Map
3) One page letter from District Executive welcoming participants and establishing expectations
4) Crash cluster
5) Aerial Photos (if available)
6) Bridge Photos
7) Identify structural conditions particularly corrosion and fatigue and fracture details with photos
8) Bridge sufficiency ratings
9) Preliminary hydraulics and scour
10) Construction access consideration and availability of materials
11) Area geology, soil type, ARD issues, etc., if known, and new or existing borings
12) Preliminary structure TS&Ls
13) Plan, profile and typical sections (existing and proposed). Plan should show alternates and impact features (historic and archeological sites, wetland areas, flood plain areas, T&E locations and contamination sites, etc.)
14) Cross sections of key locations
15) List of principal restrictions/constraints
16) Environmental Impact matrix showing alternate analysis (environmental, cultural, physical, other)
17) Right-of-way limits
18) Commitments (community, individuals, public official, etc.)
19) Other peripheral information such as geotechnical, utilities, pavement issues, permits, past performance issues, etc.
20) Current and projected traffic (ADT, peak volumes, truck percentage) at each intersection, interchange and highway
21) Traffic control issues - during and after construction
22) Preliminary traffic control plans for construction staging if developed. If not developed, have schematics.
23) Project status and Schedule

- **NOTE:** Cost Estimates are NOT to be included in the book. Copies should be made available for all participants on day one of the Session, but they are not to be provided to the contractors who attend on day 2.
- **NOTE:** Bridge Inspection reports are NOT to be included in the book. The District Bridge Engineer or representative should have copies of any relevant inspection reports available during day 1 of the session.

C. The VE/ACTT Coordinator and District Design Project Manager will prepare a list of Department and consultant personnel responsible for reviewing the draft VE/ACTT Session Book. The design consultant will issue the draft VE/ACTT Session Book to these personnel by the date agreed to at the kick-off meeting.

D. Personnel designated to review the draft VE/ACTT Session Book should email their review comments to the design consultant, the VE/ACTT Coordinator and District Design Project Manager by the due date set forth at the kick-off meeting.

E. The VE/ACTT Coordinator and District Design Project Manager should provide the design consultant with direction on how to address each specific review comment.

F. The VE/ACTT Coordinator and District Design Project Manager will prepare a project specific agenda using "Attachment A - Generic Agenda", to be included on the first page of the VE/ACTT Session book.

G. The design consultant will provide the VE/ACTT Coordinator and District Design Project Manager with copies of the final version of the VE/ACTT Session Book for their approval.

H. Once approved, the design consultant will transmit hard-copies of the VE/ACTT Session book, and a one page letter from District Executive welcoming participants and establishing expectations, to all attendees, including contractors, at least two weeks in advance of the VE/ACTT Session.

I. The design consultant will have at least 15 additional copies available at the VE/ACTT Session.

3) VE/ACTT Field View

A. Department personnel and consultants participating in the VE/ACTT session should plan on attending a VE/ACTT Field View meeting at the project site at the date, time and location agreed to during the kick-off meeting.

B. The design consultant should prepare an agenda for the Field View Meeting that will allow participants visiting the site to understand the terrain, potential complexities of traffic management during construction, highway geometry and constraints, bridge/culvert condition, geological formation, and other pertinent features.

C. Even though video log and other electronic/hard copy displays will be used during the session to acquaint all participants of the site conditions, a field visit gives an excellent perspective of issues and challenges when different alternates or ideas are being discussed during the session.

D. Field View participants who received the draft VE/ACTT Session book should review the material prior to the Field View and bring the material with them to discuss during or immediately following the Field View.

4) VE/ACTT Session Day 1

A. The focus of Day 1 is on the following:

1) Present the project's purpose and need
2) Discuss proposed improvements
3) Identify potential right-sizing and value engineering opportunities
4) Make decisions on designs of key project components; where feasible based upon the above items
5) Identify constructability topics to be addressed on Day 2

B. The VE/ACTT Coordinator typically serves as the facilitator for the VE/ACTT Session. The Coordinator may assign a couple of participants to take notes on flip charts during the session.

C. To make the session most successful, all participants are encouraged to:

1) Visit the project site prior to the session
2) Review the VE/ACTT Session Book in advance of the session
3) Prepare a list of ideas, questions & concerns to be addressed
4) Actively participate and be open to ideas and suggestions from others
5) Be prepared to make technical and procedural decisions if you are responsible for specific topics

D. The design consultant will be prepared to make minor changes to alignments, cross sections, profiles, etc. electronically or schematically on hard copies during the session or in the evening to aid in discussion if such items come up as a part of the session.

E. The design consultant will take notes and capture ideas generated during the session and categorize them in the following classifications:

(1) Scope clarification items
(2) Construction document items
(3) Early action items
(4) Project delivery components
(5) Right-sizing opportunities
(6) Design/construction scheduling items
(7) Critical tasks
(8) Other issues

F. The design consultant will prepare a list of follow-up actions identifying responsible person and due date.

G. A project specific Agenda for Day 1, jointly developed by the VE/ACCT Coordinator and the District Design Project Manager, should be followed during the session and include the following:

Agenda for Day 1
(See attached Generic Agenda)

1) Opening Remarks
   - Typically delivered by the District Executive or their designee

2) PennDOT's Value Engineering/Accelerated Construction Technology Transfer (VE/ACTT) Process
   - Typically delivered by the VE/ACTT Coordinator facilitating the session
   - Describe VE/ACTT's purpose, expectations, agenda, schedule & deliverables
   - Rules of Engagement (Post these on a wall at the session):
     - There is only one meeting - no sidebar discussions
     - No defensive positions, be open-minded
     - Jointly resolve problems
     - Contractors may discuss ideas, ask questions, share experiences and validate ideas
     - Contractors cannot give ideas or make suggestions
     - All attendees are encouraged to ask questions

3) Existing Conditions Overview
   - Typically prepared by the design consultant and delivered using a PowerPoint presentation.
   - Includes all information included in the Session book.
   - Show video logging film of the project area, related pictures and other pertinent features. If offsite, prepare a DVD for easy, efficient display.
   - Digital pictures of site constraints, special features and other features which have influence on defining or solving problems (e.g., sensitive environmental features, geotechnical conditions, structures, etc.)
   - Traffic and crash data
   - Plans/inspection report, summary of bridge ratings with and without future wearing surface identifying controlling elements
   - Plans/reports of existing roadway, bridges, walls, sign structures and other features if available

4) Proposed Improvements
   - Typically prepared by the design consultant and delivered using a PowerPoint presentation.
   - Be prepared to describe and discuss the project with background information and opportunities.
   - Show cut and fills overlay/earthwork mass diagram for major earth moving projects

- Use Google (or similar electronic media) Site display
- Display full size plans (plans, profile, cross sections, etc.); one set on each side of the room with color coded environmental/cultural resources, features, etc.

5) Right Sizing & Value Engineering Analysis
   - Typically facilitated by the VE/ACTT Coordinator.
   - Follow the general requirements and phases outlined in the FHWA's Value Engineering Workbook.
   - Use the latest Engineer's estimate to identify & group major cost items.
   - Lead an open discussion to identify potential right sizing, VE & cost saving ideas. Identify as many ideas as possible.
   - After all ideas are identified, briefly evaluate each idea and decide which ideas have enough merit to be further considered and which ideas have little opportunity for implementation and can be dropped.
   - As a group, or as part of a small group exercise, discuss and develop potential cost savings associated with each idea considered for further development and identify issues that need to be addressed in order to implement the suggested idea.
   - Present all suggestions, recommendations and cost savings.
   - Reach a consensus as to which of these recommendations are to be implemented as part of final design.

6) Post Session Meeting with VE/ACTT Coordinator & District Design Team
   - Prepare a summary of conclusions reached and action items
   - Identify a list of potential constructability topics to be addressed on Day 2

5) VE/ACTT Session Day 2

A. Design and Construction professionals are present on Day 2 and the focus of the session is on the following:

1) Present the project's purpose and need
2) Present existing conditions and proposed improvements
3) Identify potential logistic/constructability issues
4) Discuss potential cost effective solutions/resolutions
5) Evaluate construction sequencing & traffic control requirements
6) Develop construction timeline/schedule
7) Identify items which must be resolved during the design phase to meet assumptions made on items (4), (5) & (6) above.
8) Evaluate contract packaging issues/watch items

B. The VE/ACTT Coordinator typically serves as the facilitator for the Day 2 of the VE/ACTT Session. The Coordinator may assign a couple of participants to take notes on flip charts during the session.

C. A project specific Agenda for Day 2, jointly developed by the VE/ACCT Coordinator and the District Design Project Manager, should be followed during the session and include the following:

Agenda for Day 2

(See attached Generic Agenda)

1) Opening Remarks
   - Typically delivered by the District Executive or their designee

2) VE/ACTT Session Description
   - Typically delivered by the VE/ACTT Coordinator facilitating the session.
   - Purpose, expectations, agenda, schedule & deliverables
   - VE/ACTT Rules of Engagement (posted on the wall)

   Note: Construction contractors must not provide any recommendations or suggestions during the entire session. However, they can ask any question to bring key points to the group or share experience of what they know or have done elsewhere when a similar issue arose. This is to protect their rights to bid this project for construction.

3) Existing Conditions Overview & Proposed Improvements
   - Similar to Day 1 but quicker and without reference to design history

4) Proposed Project Delivery Method, NTP & Construction Duration

5) Proposed Traffic Control Staging & Phasing

6) Discuss Potential Constructability, Staging & Schedule Issues
   - This section is sometimes presented by one of the former contractors now working as a consultant for the Department. Issues to be discussed could include:

     a. Roadway excavation/drainage/pavement
     b. Site access/causeways/E & S controls
     c. Bridge substructure/foundations
     d. Bridge superstructure/girder delivery & erection
     e. Retaining walls & culverts
     f. Traffic control staging & phasing
     g. Project duration
     h. Project delivery method

7) Discuss Applicable Accelerated Construction Technology
   - What has been successfully implemented elsewhere?

8) Identify Specific Topics for Small/Breakout Group Discussions
   - Roadway/Earthwork related issues
   - Traffic control, staging & phasing
   - Alternate bridge and retaining wall types
   - Substructure & superstructure issues
   - Environmental issues & public involvement

9) Concurrent Small/Breakout Group Discussions & Deliverables
   - Each small group should have at least one contractor representative and someone from the District construction unit.
   - Design personnel should be distributed among the groups based on their area of expertise
   - The district design manager and design consultant project manager should be available to answer questions from all groups.
   - The VE/ACTT Coordinator should periodically sit in with each group to determine if they are on track to produce the following deliverables and give direction if necessary.

a. Logistic/Constructability Issues
b. Challenges and potential cost effective solutions/resolutions
c. Items which must be resolved during the design phase
d. Contract packaging issues/watch items
e. Construction sequencing to include MPT
f. Construction Timeline/Schedule
g. Any other item worth presenting/discussing or for future consideration

10) Presentation of Small Group Deliverables
- Each small group should designate an individual to record on flip charts the ideas and recommendations they come up with during their discussions. These flip-charts should be used when the small group makes their presentation to all participants.
- After each group presents, open discussion and questions can be presented to the group. The VE/ACTT Coordinate is responsible for keeping the session on schedule so that all groups have an opportunity to present their ideas. At times it may be better to have all groups present before taking questions and comments.

11) Summary of Conclusions Reached & Required Action Items

12) Day 2 Wrap-up: Input on what went well & what could be improved

13) Post Session Meeting with VE/ACTT Coordinator & District Design Team to discuss post-Session activities

6) <u>Post-Session activities</u>

A. Designer/Project Manager will send out minutes of meeting, documenting all decisions/discussions to all participants. Issue draft meeting minutes within 2 weeks of the session. Participants are to submit comments on draft meeting minutes within 2 weeks of receiving the minutes. Final meeting minutes from the VEACTT Session should be issued within 6 weeks of the session.

B. District will send out "Thank You" memo to participants, particularly volunteering contractors.

C. Districts and consultant make refinements and finish the project based upon decisions and thoughts discussed during the session.

D. District may request a follow up session, if warranted, at 75% plan completion to enhance the project constructability. This could also be considered as a second phase of the VE process.

E. District should document all savings and report these savings as VE savings for submission to the Chief Engineer and FHWA.

F. District and consultant will prepare the "Summary Slide" for the project documenting key issues discussed and resolved and identifying cost savings associated with right-sizing and value engineering efforts.

VE/ACTT DAY 1 - GENERIC AGENDA

1) Opening Remarks
   a. Welcome & introductions
   b. Project purpose & need
      - What problem(s) must this project solve?
   c. Department commitments & public involvement
   d. Current budget & funding projections
   e. Current status of design & proposed project delivery method
   f. Projected PS&E and NTP dates, construction duration

2) PennDOT's Value Engineering/Accelerated Construction Technology Transfer (VE/ACTT) Process
   a. Purpose, expectations, agenda, schedule & deliverables
   b. VE/ACCT Rules of Engagement (Posted on a wall)
      - There is only one meeting - no sidebar discussions
      - No defensive positions, be open-minded
      - Jointly resolve problems
      - Contractors may discuss ideas, ask questions, share experiences and validate ideas
      - All attendees are encouraged to ask questions

3) Existing Conditions Overview
   a. Use of video logging if appropriate
   b. Current roadway and structure plans, profiles & cross-sections
   c. Operational & geometric deficiencies
   d. Traffic & accident information
   e. Environmental & Geotechnical issues
   f. Site constraints, utility, railroad, ROW concerns

4) Proposed Improvements
   a. Alternatives analysis & proposed improvements
   b. Design criteria & exceptions
   c. Roadway typical sections, profile & cross sections
   d. Bridge/Culvert/Retaining Wall issues
      - Conceptual TS&L plans and alternatives
      - Bridge geometry & superstructure types
      - Substructure types, locations, foundations
      - Navigation/causeway issues
      - Bridge demolition
   e. Proposed traffic control staging & phasing
   f. Potential constructability issues

5) Right Sizing & Value Engineering Analysis
   a. Engineer's Estimate - Major Cost Items
   b. VE & Cost Saving Ideas: Brainstorming Phase
   c. VE & Cost Saving Ideas: Evaluation & Development Phase
   d. VE & Cost Saving Ideas: Recommendations Phase

6) Post Session Meeting with VE/ACTT Coordinator & District Design Team
   a. Summary of Conclusions Reached and Action Items for Day 2

VE/ACTT DAY 2 - GENERIC AGENDA

1) Opening Remarks

2) VE/ACTT Session Description
   a. Purpose, expectations, agenda, schedule & deliverables
   b. VE/ACTT Rules of Engagement
      - There is only one meeting - no sidebar discussions
      - No defensive positions, be open-minded
      - Jointly resolve problems
      - Contractors may discuss ideas, ask questions, share experiences and validate ideas
      - All attendees are encouraged to ask questions

      Note: Construction contractors must not provide any recommendations or suggestions during the entire session. However, they can ask any question to bring key points to the group or share experience of what they know or have done elsewhere when a similar issue arose. This is to protect their rights to bid this project for construction.

3) Existing Conditions Overview & Proposed Improvements

4) Proposed Project Delivery Method, NTP & Construction Duration

5) Proposed Traffic Control Staging & Phasing

6) Discuss Potential Constructability, Staging & Schedule Issues
   a. Roadway excavation/drainage/pavement
   b. Site access/causeways/E & S controls
   c. Bridge substructure/foundations
   d. Bridge superstructure/girder delivery & erection
   e. Retaining walls & culverts
   f. Traffic control staging & phasing
   g. Project duration
   h. Project delivery method

7) Discuss Applicable Accelerated Construction Technology

8) Identify Specific Topics for Small/Breakout Group Discussions

9) Concurrent Small/Breakout Group Discussions & Deliverables
   a. Logistic/Constructability Issues
   b. Challenges and potential cost effective solutions/resolutions
   c. Items which must be resolved during the design phase
   d. Contract packaging issues/watch items
   e. Construction sequencing to include MPT
   f. Construction Timeline/Schedule
   g. Any other item worth presenting/discussing or for future consideration

10) Presentation of Small Group Deliverables
   a. Open discussion, questions & responses

11) Summary of Conclusions Reached & Required Action Items

12) Day 2 Wrap-up: Input on what went well & what could be improved

13) Post Session Meeting with VE/ACTT Coordinator & District Design Team
   a. Preparing, reviewing & issuing VE/ACTT meeting minutes

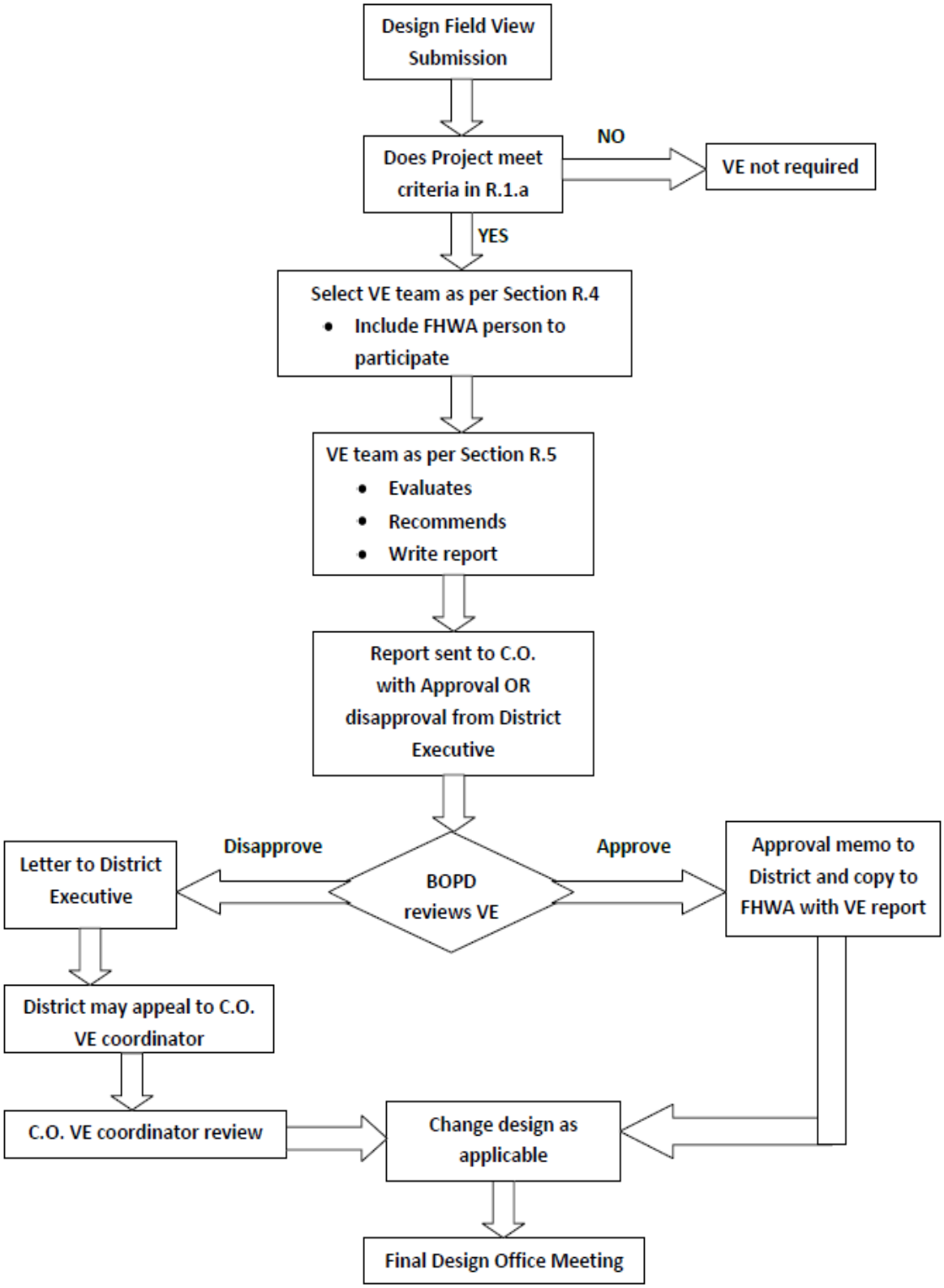


Figure R
Flow Chart
Value Engineering

APPENDIX S

BICYCLE AND PEDESTRIAN CHECKLIST

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How to Use the *Bicycle and Pedestrian Checklist*

The *Bicycle and Pedestrian Checklist* is an evaluation tool that has three distinct sections that perform best when completed at the appropriate times in the planning and design processes. The guidance below assumes a collective effort to complete the document throughout the life of a project. The three sections correlate closely with certain volumes and chapters within the Design Manual Series:

1. **Planning and Programming** - DM-1, Chapter 2, "Planning and Prioritization & Programming Phases"
2. **Scoping** - DM-1C, Chapter 2
3. **Final Design** - DM-2, Chapters 1, 2, 6 & 16 as applicable.

Planning and Programming Section

This Section is the research element of the evaluation of bicycle and pedestrian needs. It is suggested that the completion of this Section be a collaborative effort between the District Bicycle and Pedestrian Coordinator and the District Planning and Programming Manager. The Planning and Programming Sections should be initiated when a project has been selected for inclusion on the Transportation Improvement Program (TIP). Coordinate the research with the MPO/RPO, project sponsor, and other agencies or stakeholder organizations.

Transportation Master Plans, of which Bicycle and Pedestrian components are plan subsets, are stable, long range documents that reflect the transportation needs of a region, and as such, are applicable to the Department's individual projects. The Planning and Programming Section is intended to be a filtering process, whereby the highest level of assessment would be completed at the MPO/RPO and county levels within a District only once per version of their respective Master Plans. When the Master Plans at the MPO/RPO and county levels undergo revision, then a reassessment of bicycle and pedestrian needs, as applied to this Section, would also be revised.

Conversely, the demographics and dynamics of a municipality change much more quickly than the MPO/RPO or county-level, and therefore, municipal-level development will have a much greater real-time impact on Department projects. Each Project Manager should query the planning division of a municipality in order to assess the most current accommodations planned for cyclists and pedestrians. Such a query would also reveal omissions of accommodations.

The Planning and Programming Section should summarize the accommodations for cyclists and pedestrians that are currently planned on paper by various governmental and private entities. This summary is a transition to the scoping phase of evaluation and implemented in the Scoping Field View.

Scoping Section

The Scoping Section is a real-time validation of plans that are summarized in the Planning and Programming Section, and equally important is the identification of latent needs that are observed in the field. In many ways, the Scoping section is a comparison of what is planned versus what can practically be constructed, and further calibrated with the unplanned, but warranted, needs that your observe in the field. The Scoping Section should be completed by the Project Manager as part of the Scoping process. Coordination with the District Bicycle and Pedestrian Coordinator, the MPO/RPO, the project sponsor, and other agencies or organizations who participate in the field view will provide an appropriate level of evaluation.

Final Design Section

The Final Design Section should be used as a "cookbook-style" guideline of various design elements that are supportive or indigenous to bicycle and pedestrian transportation as it relates to a specific project. This section is intended to be completed throughout the Preliminary Engineering and the Final Design Engineering phases of a project. The Project Manager is responsible for the completion of this section.

Planning and Programming Checklist

Project_____
SR_____ Segment_____ Offset_____
Team Members_____
_____ Date_____

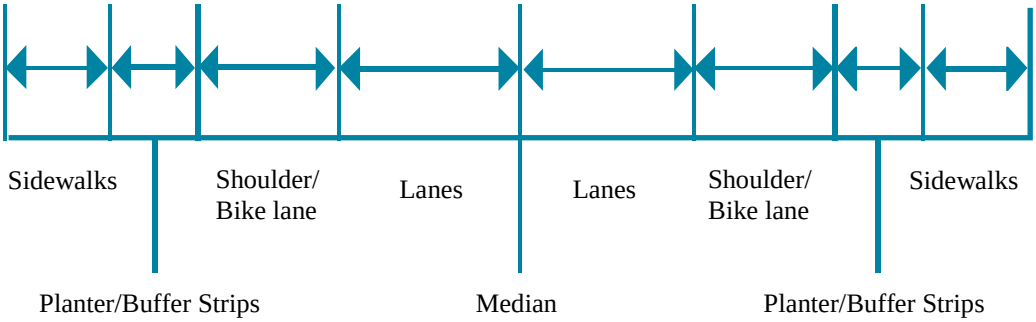
Item	Considerations	Check	Comments
1. Consistency with Bicycle/Pedestrian Planning Documents	Is the transportation facility included in or related to bicycle and pedestrian facilities identified in a master plan? • MPO/RPO bike/ped plan. • Local planning documents. • BicyclePA Routes. • Statewide Bicycle and Pedestrian Master Plan.		
	Will the transportation facility provide continuity and linkages with existing or proposed bicycle/pedestrian facilities?		
	Is the transportation facility included in or related to a regional/local recreational plan? • Rails-to-Trails. • Greenways. • Local, State, National Parks.		
2. Existing and Future Usage	Do bicycle/pedestrian groups regularly use the transportation facility? • Bike clubs. • Bicycle commuters. • Hiking, walking, or running clubs. • Skateboarding or rollerblading groups. • Bicycle touring groups. • General tourism/sightseeing.		
	Does the existing transportation facility provide the only convenient transportation connection/linkage between land uses in the local area or region?		
	Could the transportation facility have favorable or unfavorable impacts upon the bike tourism/economy of an area/ region? Consider: • Local businesses • Chamber of Commerce • Tourism Promotion Agencies.		
	Are there physical or perceived impediments to bicycle or pedestrian use of the transportation facility?		
	Is there a higher than normal incidence of bicycle/pedestrian crashes in the area?		
3. Safety	Is the transportation facility in a high-density land use area that has pedestrian/ bike/motor vehicle traffic?		

Item	Considerations	Check	Comments
3. Safety (continued)	Is there a high amount of crossing activity at intersections? • Midblock • Night crossing activity • Adequate lighting.		
	Would the transportation facility (and all users) benefit from widened or improved shoulders or improved markings (shoulders, crosswalks)?		
4. Community and Land Use	Is the transportation facility in a city, town, or village?		
	Is the transportation facility within/near a community or neighborhood?		
	Is the transportation facility the "main street" in a community or town?		
	Could bicycle or pedestrian usage impact economic development?		
	Are sidewalks needed in the area? • Presence of worn paths along the facility. • Adjacent land uses generate pedestrian traffic. • Possible linkages/continuity with other pedestrian facilities.		
	Is the transportation facility a link between complimentary land uses? • Residential and commercial. • Residential and business.		
	Is the transportation facility in close proximity to hospitals, elderly care facilities, or the residences or businesses of persons with disabilities?		
	Is the transportation facility within or near educational buildings?		
	Is the transportation facility in close proximity to transit stops or multi-modal centers (including airports, rail stations, intercity bus terminals, and water ports)?		
5. Transit	Is the transportation facility on a transit route?		
	Is the transportation facility near park-and-ride lots?		
	Are there existing or proposed bicycle racks, shelters or parking available? Are there bike racks on buses?		
6. Traffic Calming	Is the community considering traffic calming as a possible solution to speeding and cut-through traffic?		

Scoping Checklist

Project_____
SR_____ Segment_____ Offset_____
Team Members_____
_____ Date_____

Right-of-Way Needs Diagram



Element	Number Required	Width Required	Total Width
Sidewalks			
Buffer Strips			
Shoulders			
Lanes			
Median			
Total Right-of-Way Required			

Pedestrian Facilities

Item	Considerations	Check	Comments
1. Sidewalks	Appropriate width: • 1.5 m - 2.1 m (5' - 7') for residential, commercial, and industrial. • 2.5 m (8') minimum for high use areas/CBD. • 2.1 m (7') width for bridges. • 0.6 m (2') shy distance for vertical barriers. • 1.2 m - 2.1 m (5' - 7') barrier separating traffic from pedestrians on bridges.		

Item	Considerations	Check	Comments
Sidewalks (cont'd)	Applicability of planter or buffer strips.		
	Connectivity with other pedestrian facilities.		
	Proximity to transit bike/ped generators: • Transit stops. • Schools. • Park & rides. • Nursing homes. • Offices. • Business environments. • Athletic fields. • Recreation facilities.		
	Observe pedestrian patterns for special needs such as: • Midblock crossings. • Islands and refuges. • Night crossing activity.		
	ADA needs and concerns.		
2. Signalized Intersections	Crosswalks provided and marked.		
	Intersection bike/ped crash history reviewed.		
	Is there a dedicated pedestrian phase, if so how long?		
	Crossing distance is minimized.		
	Ped heads and ped pushbuttons provided.		
	ADA needs and concerns.	Retirement homes	
		Schools	
		Medical facilities	
3. Traffic Calming	Is the community considering traffic calming as a means to curb speeding and cut-through traffic?		

Bicycle Facilities

Item	Considerations	Check	Comments
1. Bikelanes/Paved Shoulders	Appropriate width of bike lane: • 1.5 m (5') adjacent to curb • 1.8 m (6') standard.		
	Connectivity with other facilities. • Bike lanes • Shared use trails • Trail heads/parking areas.		
	Maximize width of shoulders and provide appropriate markings as per *AASHTO Green Book*.		
	3 m (10') vertical clearance from fixed obstructions (excluding road signs).		
	Angle and smoothness of railroad crossings. Avoid angles of incidence of < 70° or re-design.		
	Bridge accesses provided/pinch points avoided.		
	Parking parallel or angled.		
2. Signalized intersections	Inventory existing bicycle facilities.		
	Intersection bike/ped crash history reviewed.		
	Crossing distance is minimized.		
	Considerations for bikes making turns.		
	Bike detection.		
	Elevated push buttons.		
3. Traffic Calming	Is the community considering traffic calming as a means to curb speeding and cut-through traffic?		

Final Design Checklist

Project_____
SR_____ Segment_____ Offset_____
Team Members_____
_____ Date_____

Pedestrian Facilities

Item	Considerations	Check	Comments
1. Sidewalks and Signalized Intersections	Crosswalks are at least 3 m (10') wide.		
	Crosswalks are prominently marked using at least 6" line.		
	Pedestrian signals are provided.		
	Pushbuttons are provided and accessible.		
	Minimize crossing distance.		
	Maximize pedestrian visibility at crossings.		
	Coordination of turn phases with walk/don't walk signs.		
	Proper lighting type and placement.		
2. ADA Requirements	Pushbuttons accessible.		
	Pushbuttons height 1.0 m - 1.1 m (3.5' - 4.0').		
	Large pushbuttons used.		
	1.5 m (5') recommended passage (sidewalks).		
	5% maximum grade recommended (sidewalks).		
	2% cross-slope maximum.		
	Textured curb cuts.		
	2 curb cuts per corner at intersections.		
	Curb cuts flush with street surface 0.6 cm (1/4" tolerance).		
	Running slope of new curb cuts 1 in 12 max.		
	Longer signal cycles.		
	Audible crossing signals.		
	Level landings on perpendicular curb ramps.		
	Proper head/shoulder clearance for visually impaired.		
	Coordinate utilities with ADA requirements.		
	Proper lighting.		
	Analyze landscaping growth potential for future obstructions.		
	Any conflicts with minimal distance that should be included in the project.		
	Coordinate and minimize signage conflicts.		

Item	Considerations	Check	Comments
3. Traffic Calming	Consider traffic calming as a means to improve pedestrian and general traffic safety.		

Bicycle Facilities

Item	Considerations	Check	Comments
1. Bikelanes/Bikeways	Bicycle safe grates, RC-45M, Sheet 8 of 20.		
	Manhole covers flush with roadway surface.		
	Inlets flush with roadway surface.		
	Rumble strips type and placement.		
	Driveway aprons.		
	Conflicts eliminated with: • Turns at intersections. • Through movements. • Bicycle and pedestrian conflicts. • Parked cars, angled vs. parallel. • Driveway aprons.		
2. Signage	3 m (10') vertical clearance from signs and structures.		
	"Share the Road Signs."		
	"Wrong Way Signs."		
	Lane stenciling.		
	Bike lane designation signs.		
	No parking signs.		
	Bike lane striped.		
	Transition from bike lane to bikeway.		
	Consistent width on roadways, bridges, and intersections.		
	Overlap bike lane/shoulder stripe over pavement joints.		
	Meet or exceed AASHTO criteria.		
3. Traffic calming	Consider traffic calming as a means to improve pedestrian and general traffic safety.		

APPENDIX T

ENVIRONMENTAL COMMITMENTS AND MITIGATION TRACKING SYSTEM (ECMTS) PROCESS

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Environmental Commitments and Mitigation Tracking System (ECMTS) Process

I. Introduction

The ECMTS process described below explains how to track mitigation activities and environmental commitments, which activities need to be tracked, and how to track them throughout the entire project delivery process. The ECMTS is flexible; adapting to different project scopes. Relatively simple projects in terms of design and environmental impacts will have few items to track, while large, complex projects will require more extensive tracking.

Tracking environmental commitments and mitigation items from design, through construction, and into maintenance is necessary for two reasons: (1) to *ensure* that commitments and mitigation activities are met, and (2) to *document* that they were met. The ECMTS tracks the genesis and ultimate disposition of environmental commitments and mitigation activities for each project.

Environmental commitments and mitigation activities are identified at several points in the project development and delivery process. The ECMTS ***begins*** with mitigation and environmental commitments identified as part of a project's NEPA approval. It is updated with additional activities identified during final design (e.g., permit conditions), and helps ensure that mitigation and environmental commitments are part of the plans, specifications, and estimates (PS&E) package. During construction, the ECMTS is used to ensure and document completion of mitigation and environmental commitments. Finally, the ECMTS is used to ensure and document post-construction commitments.

A project-specific ECMTS report is required for all projects.

The ECMTS report consists of: (1) a tracking matrix (sample attached - electronic version available via the CEES help system) which must be completed or updated at certain points during project development; (2) appropriate mapping as part of the PS&E package (e.g., showing areas to be avoided, exclusionary fencing, the location of geotextile and fill, etc. - this can be part of the E&S plan), and (3) a signature sheet to confirm that mitigation measures and environmental commitments are met during construction.

Use the matrix to document and track activities. All actions that the contractor takes to implement mitigation must be special provisions, permit conditions, or incorporated into plans. Document and track environmental commitments and mitigation activities completion with a signature sheet during construction. Post-construction maintenance and monitoring activities and commitments will continue to be tracked on the matrix.

For simple projects that do not require tracking of environmental commitments or mitigation – that is, they do not have ***any*** mitigation activities that need to be tracked (see Section II.C), no environmental commitments, nor waterway permit conditions - the ECMTS report will consist of a memo to file stating that:

> "No environmental commitments nor mitigation activities were identified in the environmental documentation (including cultural resources, waste sites, section 4(f), endangered species coordination), waterway permits, or other sources for the project."

The memo to file will be placed in the project development checklist (PDC) item in ECMS: "Environmental Mitigation and Commitments."

A. Regulatory Background

Mitigating environmental impacts is a key component of the National Environmental Policy Act (NEPA) process and the PA Act 120, section 2002 analysis required for PennDOT projects. The regulations for implementing NEPA state that federal agencies or their delegates shall, to the fullest extent possible, "Use all practicable means consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions on the quality of the human environment [40 CFR 1500.2(f)]." The mitigation of impacts must be considered whether or not the impacts are significant, and agencies are required to identify and include in the action all relevant and reasonable mitigation measures that could improve the action.

Similarly, the Federal Highway Administration's (FHWA's) policy for implementing NEPA states:

> "Measures necessary to mitigate adverse impacts will be incorporated into the action and are eligible for federal funding when the administration determines that:
>
> 1. The impacts for which the mitigation is proposed actually result from the administration action; and
> 2. The proposed mitigation represents a reasonable public expenditure after considering the impacts of the action and the benefits of the proposed mitigation measures. In making this determination, the administration will consider, among other factors, the extent to which the proposed measures would assist in complying with a federal statute, executive order, or administration regulation or policy [23 CFR 771.105(d)]."

More information on mitigating for adverse environmental impacts is available in Publication 10B, Design Manual Part 1B, *Post-TIP NEPA Procedures*.

B. The Purpose of Environmental Commitments and Mitigation Tracking

The purpose of this ECMTS is twofold:

1. To *ensure* that mitigation and other commitments are met before, during, and after construction. Commitments and mitigation activities must be integrated into plans, specifications, and estimates packages (PS&E). They must be checked during construction. After construction, they must be passed on to the District maintenance units to ensure PennDOT continues to honor long-term commitments and mitigation activities.
2. To *document* that mitigation and other commitments were met. It is very important that PennDOT be able to prove that it is fulfilling its environmental commitments and mitigation responsibilities.

Tracking mitigation and other commitments through project development accomplishes both objectives. In practice, mitigation items identified during design and permitting routinely become special contract provisions posted on the Engineering and Construction Management System (ECMS). ECMTS tracking ensures that those activities and commitments are properly documented.

II. Identifying & Tracking Mitigation Activities

Not every activity performed during construction to protect environmental resources or reduce adverse impacts needs to be tracked. Best management practices are covered in construction through Publication 408, *Specifications* and should not be replicated through special provisions in the contract. Generally speaking, only those activities specific to the project (e.g., protective fencing around a wetland) - as opposed to activities performed for every project (e.g., standard erosion and sedimentation controls detailed in an E&S plan) - need to be tracked.

A. What is mitigation?

The Council on Environmental Quality (CEQ) regulations for implementing NEPA define mitigation as:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.
   -- 40 CFR 1508.20

Mitigation:
Avoid —> Minimize —> Repair or Restore —> Reduce over time —> Compensate

This ordered approach to mitigation is known as "sequencing," and involves understanding the affected environment and assessing transportation effects throughout project development.

By definition, "mitigation" activities encompass the full range of activities described above. **In practice**, "mitigation" typically refers to: repairing/restoring the affected environment; reducing impacts over time through preservation and maintenance operations; or compensating for the impact. The first two activities, avoidance and minimization, typically comprise "environmental commitments." Environmental commitments include commitments PennDOT makes to project stakeholders to avoid, minimize, or otherwise mitigate adverse impacts to community and cultural resources in addition to impacts to the natural environment.

Additionally, there are commitments that are not necessarily directly associated with impacts. Rather, these commitments can be made to avoid impacts as part of the project design. Flexibility in design should be allowed to achieve context sensitive solutions (CSS). CSS applies to a transportation project's engineering design features, and may include features that help the project fit harmoniously into the community.

The important point is that activities, whether they are called "mitigation" or "environmental commitments," are:
(1) considered *mitigation* under the CEQ regulations; and
(2) *commitments* made by PennDOT and FHWA. Under FHWA regulations, environmental commitments made during the NEPA process must be implemented as a condition of FHWA approval.

Note: Publication 10B, Design Manual Part 1B, *Post-TIP NEPA Procedures*, Sections 3.3.C, 4.7, and 5.9 have additional guidance on developing mitigation and other commitments.

B. Sources for mitigation activities and other environmental commitments

There are six primary sources for mitigation activities and other environmental commitments:

1) *Environmental documentation*
   PennDOT's CEE process includes specifying "Resources to Be Avoided and Mitigation Measures" on form *section E of part B* of the CEE document for level 1b and 2 categorical exclusions in the CE Expert System (CEES).

   CEs processed under the Bridge and Roadways Programmatic Agreement may have mitigation measures or environmental commitments identified on the applicability matrix, which is available in the CEES.

Likewise, PennDOT's EA process requires mitigation to be specified when the preferred alternative is identified prior to the completion of environmental studies and the EA document. EIS documents include mitigation and other commitments for the preferred alternative identified in the final EIS document. PennDOT's EIS process requires completion of a project mitigation report after the FHWA has issued the record of decision (ROD).

Note that mitigation activities and other commitments may change or even no longer be required due to changes in a project's design during final design (e.g., a change in roadway alignment eliminates adverse impacts to a wetland). Mitigation can also change as a result of public and resource agency comment, changes in environmental regulations, and changes in the affected environment. Changes to proposed mitigation measures is one of the circumstances that triggers a reevaluation of NEPA documentation (see Publication 10B, Design Manual Part 1B, *Post-TIP NEPA Procedures*, Section 3.5). In the case of a reevaluation, the approved reevaluation becomes the source for mitigation activities and environmental commitments.

2) *Section 106 of the NHPA process*
The process for determining and mitigating potential impacts to cultural resources is completed prior to NEPA approval. However in some cases the section 106 process results in a memorandum of agreement (MOA) or a project-specific programmatic agreement (PA) that specifies additional work to be completed later in the project development process. Examples include site surveys to be conducted prior to construction which could result in additional mitigation activities.

It is important to capture not just the initial commitment in the MOA or project-specific PA, but also any commitments or mitigation activities that result from the activities specified in the MOA or project-specific PA. In particular, document and track items that need to be included in the PS&E such as using geotextile and fill to protect potential archeological sites or bridge treatments that need to be part of the project design.

3) *Section 4(f) evaluation/PA Act 120 Section 2002 evaluation*
Both section 4(f) of the U.S. Department of Transportation Act and section 2002 of PA Act 120 require FHWA and PennDOT to prove there is no feasible and prudent alternative to using (impacting) properties afforded protection under these acts. The acts also require PennDOT to take all reasonable measures to minimize harm to section 4(f) properties. Mitigation activities and other commitments satisfying section 4(f) and section 2002 are developed during preliminary engineering and are part of the approved NEPA documentation.

4) *Waterway permits*
Waterway permits that are often required for PennDOT projects include avoidance measures such as: restrictions on the time of year during which in-stream work is permitted, and time of year restrictions for construction activities or exclusion barriers during construction to avoid adverse impacts to bog turtles. The permit process usually begins after NEPA approval. Mitigation activities and other commitments resulting from permits are therefore not documented as part of the NEPA approval and must be documented during bid package preparation.

Note: the ECMTS is not an all-inclusive list of permit requirements. Contractors are responsible for reading the permit and complying with all permit requirements. As per Publication 51, *Plans, Specifications and Estimate Package Delivery Process Policies and Preparation Manual*, the design project manager must attach the project permit, including all associated standard provisions, to a project's project development checklist (PDC) in ECMS to help ensure contractor compliance with permit requirements.

5) *Waste Sites*
Commitments in the NEPA document may include completion of phase II and or phase III waste site evaluations. These studies are part of the due diligence process for export of waste material from a site. The mitigation requirements resulting from the Phase II/III studies must be carried through into construction and in some cases maintenance when remediation is required post construction. PennDOT may have made commitments to PaDEP as part of the agencies reaching concurrence on the termination or modification of an environmental covenant in the project area. These commitments also need to be carried through into construction and possibly maintenance.

6) *NPDES permits*
It is important to capture certain types of post construction stormwater management (PCSM) best management practices (BMPs), e.g., basins, infiltration devices, etc. These BMPs are mitigation measures that are unique to the project and have long term maintenance requirements (if PennDOT cannot obtain agreement from the municipality to assume the maintenance obligations). Tracking PCSM BMPs can be used to help satisfy the requirements of PennDOT's NPDES MS4 permit.

Other sources
Other source documents are USF&WS biological opinion/incidental take statements, technical reports, MOUs, and commitments to stakeholders. Notes on specific plans can be a source for environmental commitments or mitigation activities, e.g., notes on E&S plans related to T&E species avoidance measures.

C. What needs to be documented and tracked?

Only mitigation activities and other commitments that are *specific to a project* need to be documented and tracked. In contrast, standard activities routinely performed for all similar projects do not need to be documented and tracked (Table 1).

> The guiding principle for deciding which mitigation activities or other commitments to document and track is determining whether or not an activity is specific to a project.
>
> NOTE: the decision to not track certain routine activities is specific to the ECMTS and does not extend to other policies relating to the documentation of work done under a contract, particularly as it may relate to pay items.

Do not track activities performed for all projects as standard procedures or best practices.

Do track activities to avoid, minimize harm, or mitigate harm to specific natural, cultural, and social environmental resources from a specific project. Do track studies that need to be completed during final design such as archaeology, Phase II/III ESAs, and noise studies.

Table 1 — Examples of Activities that Need or Do Not Need to be Tracked

Document and Track	Do Not Document and Track
• Protective fencing in specific locations to prevent impacts to wetlands • Time of year in-stream work restrictions in a stocked trout stream • Restoring disturbed areas to their previous state (when related to impacts to 4(f) or 6(f) resources). • Time of year restrictions on construction, or exclusion barrier fencing to avoid adverse impacts to bog turtles • Replacing a farm field fence that needs to be removed during construction) • Time of year tree-cutting restrictions or other measures to avoid impacts to T&E species • Clearing, but not grubbing to protect underlying soils and vegetation • ATON plans • Using geotextile and fill in specific locations to avoid impacts to potential archeological sites • Coordination with a nearby industrial facility on bridge closing • Post-construction monitoring of a wetland mitigation site • A commitment to refine the design to further avoid resources (when applicable)	• Standard erosion and sedimentation control measures • Standard efforts to avoid spreading invasive species • Using standard seed mixes to restore vegetation. • Updating PNDI searches every two years. • Permit compliance measures not directly related to mitigation activities or environmental commitments (e.g. contacting DEP 10 days prior to construction

III. Roles and Responsibilities

District project managers (PMs) are ultimately responsible for maintaining the ECMTS during project design. The District environmental managers (EMs) and their staff provide technical assistance.

The EMs and their staff: (1) identify mitigation and environmental commitment activities (including coordinating with regulatory and resources agencies when necessary) during preliminary engineering; and (2) create the ECMTS tracking matrix.

Upon NEPA approval, the PM is responsible for: (1) keeping the matrix up-to-date as the project moves from PE to the bid package submission; (2) creating special provisions for individual mitigation and environmental activities in coordination with EMs and their staff; (3) ensuring that appropriate mapping of commitments and mitigation measures is included in the project PS&E; and (4) creating the signature sheet for use by the construction inspector during construction.

PennDOT cultural resource professionals (CRPs) are responsible for tracking cultural resources commitments, in coordination with EMs, environmental staff, PMs, and construction PMs and inspectors.

The contractor is responsible for completing mitigation measures and other commitments. The construction project managers and inspectors are responsible for verifying that the contractor completed the mitigation by maintaining the signature sheet documenting that environmental commitments and mitigation measures are met.

It is the responsibility of the inspector to notify the contractor if mitigation measures are not being completed in the required sequence (e.g., working in the northeastern quadrant of the project area without the required archeological monitor or working without the required protective fencing around a wetland, etc.).

Inspectors notify the construction project manager and environmental manager before initiating any changes to the project during construction. PMs and EMs will work with construction unit staff to coordinate the changes and applicable revisions to permits, environmental documentation, mitigation, and other environmental commitments to address changes that occur during construction. The construction project manager will update the tracking matrix and signature sheet to document the changes.

Environmental managers and their staff are responsible for ensuring post-construction environmental monitoring and follow-through.

Maintenance units are responsible for ensuring proper follow-through for post-construction mitigation measures and environmental commitments such as stormwater BMPs.

For projects with post-construction commitments or activities that need to be tracked, the ECMTS report must be kept in a computer network location accessible to both the District environmental staff and the appropriate maintenance unit.

Districts have the discretion to assign ECMTS responsibilities to people in roles different from those recommended above, provided that all the requirements of the ECMTS are met.

IV. Specific Procedures

Step 1 - PE/NEPA Approval

a. EMs and their staff identify environmental commitments and mitigation activities during PE. For CEs, these are collected on form B:E of level 1b and level 2 categorical exclusions. For CEs processed under the BRPA, mitigation activities and environmental commitments are captured in the applicability matrix. **NOTE:** make sure that the mitigation activities and environmental commitments are specific, with clear performance measures and time frames.

b. Create a mitigation report with a tracking matrix (using the template) according to the instructions below.

NOTE: for CEs the matrix can serve as the report and can be created after NEPA approval. Mapping related to mitigation items (e.g., exclusionary fencing) can be included in the E&S plan. For EISs and EAs, please refer to Publication 10B, Design Manual Part 1B, *Post-TIP NEPA Procedures* for detailed information on the contents of the mitigation report (which must include the matrix), and the timing of report creation relative to issuance of a ROD or FONSI.

For EISs and EAs, create a draft matrix to go with the draft document and modify it (if needed) after the ROD or FONSI is issued.

Step 2 - Design field view (as required)

a. As part of the design field view submission, PMs identify any changes or additions to mitigation items and environmental commitments and note them on the matrix.

b. PMs ensure that the mitigation activities and environmental commitments are incorporated into the design field view plans. For example, the location of protective fencing needs to be shown on the plans.

c. PMs capture any changes or additions to mitigation activities or environmental commitments that result from the design field view. Record those changes or additions in the tracking matrix. PMs coordinate with the environmental unit throughout the process if a scope change impacts resources differently than outlined in the CE.

Step 3 - Final Design/Bid Package Preparation

a. PMs confirm mitigation and other commitments. Note any changes to items identified during preliminary engineering, and add new mitigation items and commitments developed during final design, for example, section 106 MOAs and avoidance measures from permits.

NOTE: even though the permits (with their conditions) are included in the PS&E package, it is important to document project specific mitigation and avoidance measures from permits in the ECMTS.

Similarly, the results of section 106 activities (such as archaeological surveys that happen prior to construction, the placement of geotextile material to protect an archeological site, or the placement of historic plaques) need to be documented and tracked in the ECMTS. CRPs will work with PMs to identify the appropriate responsible party for mitigation activities and environmental commitments. For example, the contractor would be responsible for the placement of geotextile and fill to protect sensitive areas. However, CRPs are responsible for ensuring that the preparation of a report, public information products, or curation of artifacts and records will take place during or after construction.

b. PMs finalize matrix

c. PMs create a project development checklist item in ECMS: "Mitigation Commitments within CE EER." Attach the matrix.

d. PMs create special provisions for environmental commitments and mitigation activities. Use the sample signature sheet (attached) as a template to create a signature sheet for tracking mitigation activities and environmental commitments during construction. Use a special provision (sample is attached) to mandate the signature sheet's use. The Standard Special Provision is available through ECMS.

e. Contract management checks the matrix against the special provisions and plans to make sure that all mitigation activities and environmental commitments are part of the PS&E submission. The PM or EM (or assistant EM) should be contacted if errors are identified.

Step 4 - Construction

a. The PM and EM (or environmental staff) attend the pre-construction meeting and highlight the mitigation measures and environmental commitments. They will discuss maintaining the matrix and signature sheet.

b. During construction, the inspectors are responsible for verifying that the contractor completed the mitigation by maintaining the signature sheet.

c. Before finalizing the contract, the finals unit will review the ECMTS matrix with the EM or designated environmental staff to ensure that all mitigation measures and environmental commitments are completed.

d. Prior to finalizing the project the EM or designated environmental staff confirms that all commitments and mitigation activities were completed and signed off on the signature sheet during construction, and (when necessary) that long-term maintenance and monitoring activities are initiated.

The finals unit manager then attaches the fully completed matrix and signature page to the finalization checklist in ECMS.

Step 5 - Post-Construction Maintenance and Monitoring

a. Maintenance

After the project is completed, EMs or designated environmental staff notify the District ADE for maintenance and the relevant county manager of any resources that require special consideration.

Examples of resources requiring special consideration include:

- On-site natural or created wetlands that need to be avoided during maintenance activities,
- Areas of potential habitat of species of concern to be avoided, or
- Post construction stormwater management best management practices (e.g., basins and infiltration controls).

EMs provide the appropriate District maintenance staff an e-mail with specific information on the resource, its location, and instructions on the environmental commitment or mitigation activity. The subject line of the e-mail must be clear and descriptive (e.g., "SR 0022 seg 0641 and 0642, Special maintenance requirements for stream crossing"). The body of the e-mail must provide the exact location of the resource and clear instructions for the maintenance unit.

EMs or designated environmental staff place a copy of the e-mail and a copy of the tracking matrix in a District specific folder under: P:\penndot shared\Bureau of Project Delivery\O and M ECMTS\District X-X (Note: replace X-X with the appropriate District.) or in a location specified at each District in their R:\ drive.

EMs or designated environmental staff note the hand-off of mitigation items and environmental commitments to the ADE for maintenance and the relevant county manager in the "Action Taken" column under "Operations and Maintenance" on the tracking matrix. The ADE for maintenance and the relevant county manager are identified in the "Responsible Party" column, and they put their initials and

date in the "Responsible Party Date/Initials" column upon receipt of the e-mail from the EM or environmental staff (example below under "Completing the Matrix"). A copy of the completed matrix can then be saved in the project's technical file.

For items that need continued maintenance after construction is finished (such as a stormwater BMP requiring yearly inspection), EMs or designated environmental staff provide reminders for maintenance tasks via e-mail as TASKS in Microsoft Outlook to the appropriate District maintenance staff, with a copy to the ADE for maintenance. The task must have specific information on the post-construction maintenance activity. With Outlook tasks, the EMs and the responsible party will get notification of due dates for the duration of the established maintenance period via Outlook.

EMs or designated environmental staff place a copy of the Outlook TASK and a copy of the tracking matrix in a District specific folder under: P:\penndot shared\Bureau of Project Delivery\O and M ECMTS\District X-X
(Note: replace X-X with the appropriate District.)

District maintenance staff will then notify (with a copy to the ADE for maintenance) the District EM upon completion of the mitigation item or environmental commitment for that year. The EM or designated environmental unit staff will then update the matrix in the project's technical file.

Maintenance for locally-sponsored projects, on facilities not owned by the Commonwealth, is the responsibility of the local project sponsor. EMs or designated environmental unit staff ensure that long-term maintenance commitments are communicated to the local project sponsor.

b. Post-Construction Monitoring
EMs, the designated environmental unit staff, and CRPs are responsible for monitoring environmental commitments and mitigation activities that continue after construction such as yearly monitoring of a wetland mitigation sites, additional stream plantings the following year, or cultural resource commitments.

EMs note the ongoing mitigation items and environmental commitments in the "Action Taken" column under "Environmental Monitoring" on the tracking matrix. The appropriate environmental unit staff (or consultant) in the "Responsible Party" column, and they put their initials and date in the "Responsible Party Date/Initials" column when the task is completed for that monitoring period. Certain monitoring requirements include a report to the resource agencies. Create an entry for the report in the matrix to track its completion. The completed matrix would be placed in the P Drive with a copy to the technical file.

Completing the Matrix

Please refer to the attached sample ECMTS matrix.
To complete the matrix:

1) Open the MS Excel template and enter the project name, location, ECMS number, SR, and section in the top table.
2) Save the matrix with a descriptive file name using this format:
ECMS-SR-Sec-ECMTS-Matrix.xlsx
3) Place each mitigation activity/environmental commitment in its own row in column A. For EISs and EAs, create a draft matrix to go with the draft document and modify it (if needed) after the ROD or FONSI is issued. For CEs, copy the items from form B:E of the level 1b or 2 categorical exclusions to the spreadsheet.
4) Indicate the source document of the mitigation or commitment activity in column B. The two most common source documents for the initial completion of the matrix will be the CE and any section 106 programmatic agreements.
5) Impact Column: List the resource impacted and the quantity of the impact (i.e., linear feet, acres, etc.) for impacts that can be quantified. Concisely describe impacts that cannot be quantified (e.g., "potential impacts to endangered species habitat from tree cutting," or "potential impacts to wild trout from in-stream work").
6) Put the location of the activity, by beginning station and ending station, in the next two columns.
7) Continue to update the matrix as the project moves through the project development process.

   Note any changes or additions to mitigation activities and environmental commitments in the matrix using the "Action Taken" column as the project moves through each project phase.

   Note when a mitigation activity or environmental commitment is completed in the "Action Taken" column. Type the date the activity was completed and the responsible party initials in the "Responsible Party Date/Initials" column. Examples of completed activities include the completion of special plans, studies, reports, environmental site assessments, and the creation of project specific special provisions in the PS&E package for mitigation or commitment activities.

   Use the "Action Taken" column to note when a mitigation activity is no longer required due to a change in a project.

   Add any new mitigation activities or environmental commitments as a new row under the "Mitigation or Commitment Activity" column.

8) Generate the construction tracking signature sheet listing each activity, the special provision related to that activity, and spaces for each item for the signatures of the contractor and construction inspector. Include a special provision requiring the use of the signature sheet in the PS&E.

9) Use the signature sheet to track the completion of mitigation items and environmental commitments. The matrix does not usually need to be updated during construction.

   However, if an issue arises during construction that requires mitigation or mitigation commitments need to be modified, then update the matrix with the new activity and track it to make sure it is completed.

10) For post-construction maintenance commitments, the District environmental unit staff notifies appropriate maintenance staff (with a copy to the ADE for maintenance) of the requirements. Maintenance staff updates the matrix located on the P:\ drive or in a location specified at each District in their R:\ drive.

    For post-construction monitoring, environmental unit staff identify the responsible party (i.e., a District environmental staff person, environmental consultant, or CRP). The responsible party completes the monitoring and dates and initials the matrix.

V. Design-Build Considerations

For design-build projects, the mitigation and other environmental commitments should: (1) be clearly defined in the approved CEE or EA document (or ED and EER); (2) be standard, predictable, and readily implemented; (3) be clearly defined in terms of the time required to address and implement the mitigation commitments prior to or during construction; and (4) not require a consultative process that could result in delays.

It is important that any mitigation commitments involving qualified staff such as licensed asbestos abatement contractors or qualified bog turtle surveyors be clearly identified in the contract. Similarly, in order to properly bid a project, the contractor must be informed of the type and quantity of any contaminated materials to be excavated and disposed of as part of the contract. Additionally, time of year restrictions must be known and put into the contract so that the contractor can schedule accordingly and not have conflicts with time of year restrictions for paving or temperatures for curing concrete.

The PM works with environmental unit staff to complete the tasks described below.

- Fill out the tracking matrix to capture mitigation activities and environmental commitments - including any post-construction environmental monitoring and/or maintenance - from the NEPA documentation. Be sure to capture anticipated permit conditions in the matrix. Update the PDC in ECMS with the mitigation measures.

- Create individual special provisions for each mitigation activity and environmental commitment and include them in the bid package.

- Create a signature sheet to be completed by the construction inspector when each mitigation requirement is met.

- Create a special provision requiring the design-build contractor to maintain the matrix and update it for any new activities that arise after NEPA approval (sample is attached). The Standard Special Provision is available through ECMS.

During construction, the design/build team must implement the mitigation activities and environmental commitments. Construction inspectors monitor compliance with mitigation activities and environmental commitments through the construction tracking signature sheet.

NOTE: Any mitigation activities or environmental commitments - including post-construction environmental monitoring and/or maintenance - required after the contract is let must be added to the matrix by the design build team in coordination with the District environmental unit, added to the construction signature sheet, and tracked to the conclusion of the contract.

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Examples and attachments

A. Blank matrix

B. Example matrix

C. Example signature sheet

D. Sample ECMTS Special Provision for Design-Bid-Build Projects

E. Sample ECMTS Special Provision for Design-Build Projects

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Mitigation System Tracking Example

Project Name:	
Project Location:	
ECMS Project Number:	
SR, Section	

				Location		Design Field View (if needed)			Final Design/Bid Package Preparation			Construction	Post-Construction Maintenance			Post-Construction Env. Monitoring		
Mitigation or Commitment Activity	**Source Document**	**Resource Impacted**	**Impact**	**Begin Station**	**End Station**	**Action Taken**	**Responsible Party**	**Responsible Party Date/Initials**	**Action Taken**	**Responsible Party**	**Responsible Party Date/Initials**	**See ECMTS construction signature sheet**	**Action Taken**	**Responsible Party**	**Responsible Party Date/Initials**	**Action Taken**	**Responsible Party**	**Responsible Party Date/Initials**

Mitigation System Tracking Example

Project Name:	**Bubbling Creek Bridge**
Project Location:	**Penn Township**
ECMS Project Number:	12345
SR, Section	0111, A13

				Location		Design Field View (if needed)			Final Design/Bid Package Preparation			Construction	Post-Construction Maintenance			Post-Construction Env. Monitoring		
Mitigation or Commitment Activity	**Source Document**	**Resource Impacted**	**Impact**	**Begin Station**	**End Station**	**Action Taken**	**Responsible Party**	**Responsible Party Date/Initials**	**Action Taken**	**Responsible Party**	**Responsible Party Date/Initials**	**See ECMTS construction signature sheet**	**Action Taken**	**Responsible Party**	**Responsible Party Date/Initials**	**Action Taken**	**Responsible Party**	**Responsible Party Date/Initials**
Delineated wetlands within the project area will be protected by construction fencing.	CEE	Wetlands	0 ac.	119+00	121+50				Special provision created for wetland protective fencing.	Jane Doe, EM	JD/ 6-30-11	See special provision xxxx-yy1 on ECMTS signature sheet.						
Stream mitigation will be determined and a plan will be presented to the USACOE during final design.	CEE	Bubbling Creek	190 linear feet						Stream mitigation plan completed and approved.	John Doe, PM	JD, 11-17-11							
Streambank stabilization and planting of native vegetation on Bubbling Creek	Stream Mitigation Plan	Bubbling Creek							Special provisions created for streambank stabiliation and planting of native vegetation	John Doe, PM	JD, 11-30-11	See special provision xxxx-yy2 on ECMTS signature sheet.						
Seasonal trout stream construction restriction -- Bubbling Creek is a Trout Stocked Fishery (TSF). No construction activities are allowed within the stream channel between March 1st and June 15th unless these activities are authorized by the PFBC.	GP-11 Permit	Bubbling Creek										See ECMTS construction signature sheet						
Post-Construction Stormwater Management -- PCSM BMPs to be included in final design.	NPDES Permit								Permanent vegetated swales on both sides of roadway incorporated into construction plans.				Env Staff notified ADE for Maint. and County Manager of PCSM BMP maintenance requirements for swales.	Frank Doe, CM	FD 6/20/12			
Monitor stream mitigation site for five years after construction is finished (June 2012 until June 2017).	Stream Mitigation Plan	Bubbling Creek														Env. Staff performed monitoring and distributed monitoring report.	Jeff Doe, Env. Planner	JD 8/20/12
Second year of stream monitoring	Stream Mitigation Plan	Bubbling Creek														2nd year of monitoring	Jeff Doe, Env. Planner	JD 7/25/13

Environmental Commitments and Mitigation Tracking System
Construction Tracking Signature Sheet

Project Name:	
Project Location:	
ECMS Project Number:	
SR number, Section	

Environmental Commitment/Mitigation Item (Indicate special provision title, permit special condition, construction plan, or source document as appropriate)	**Date Completed**	**Contractor Signature and Date**	**Construction Inspector Signature and Date**

Designated individual responsible for maintaining this signature sheet:

Note: the ECMTS is not an all-inclusive list of permit requirements. Contractors are responsible for reading the permit and complying with all permit requirements.

Sample ECMTS Special Provision for Design-Bid-Build Projects
Instructions for usage: Use in accordance with Publication 10X (DM1 X) Appendix T. Attach the ECMTS signature sheet.

Header:
ENVIRONMENTAL COMMITMENTS and MITIGATION TRACKING SYSTEM (ECMTS) REVIEW and SIGN-OFF

Provision Body:

Refer to the Environmental Commitments and Mitigation Tracking System Report for information related to the mitigation commitments and tracking documents for the project. Refer to the attached ECMTS construction tracking signature sheet (ECMTS signature sheet) for a list of the commitments to be tracked.

Note: The ECMTS is not an all-inclusive list of permit requirements. Read the permit and comply with all permit requirements.

Designate a responsible individual (Project Manager or Site Superintendent) to maintain the ECMTS signature sheet during construction. Identify the designated individual's name in a note at the bottom of the ECMTS signature sheet. Include additional names if responsible individuals change during the construction of the project.

Review each Mitigation Category and associated mitigation or commitment identified in the ECMTS signature sheet at the Pre-construction Conference. As each mitigation or commitment is completed, initial and date the appropriate block. By initialing and dating the block, the designated individual confirms the mitigation or commitment has been reviewed, understood, and has been incorporated in the construction of the project, as appropriate.

Ensure that the mitigation commitments are completed as early as possible depending on the sequencing and construction schedule. Review the ECMTS signature sheet at each status meeting. The Department Construction Project Manager will verify, date, and initial each mitigation commitment as it is completed.

Direct questions regarding the mitigation and commitments to the assigned District Environmental Unit staff. Notify the assigned District Environmental Unit staff of any problems with implementing the commitments. Changes to mitigation or commitments will be reviewed and approved by the assigned District Environmental Unit staff in coordination with the relevant resource agencies and FHWA, as appropriate. Notify the Construction ACE Services Engineer of any problems encountered during the implementation of the commitments and mitigation measures.

Maintain one copy of the ECMTS signature sheet at the Contractor's project field office and provide one copy to the Inspector-In-Charge after each update.

Submit one copy of the completed ECMTS signature sheet to the Department IIC Construction Project Manager, one copy to the District Construction ACE Services Engineer, and one copy to the assigned District Environmental Unit staff upon completion of the project.

This work includes the review and sign off of the ECMTS Signature Sheet only and is considered incidental.

Sample ECMTS Special Provision for Design-Build Projects

Instructions for usage: Must use with SSPs: SPECIAL BIDDING – DESIGN-BUILD, QUALITY PLAN [DESIGN] – WITH QUALITY ASSURANCE REVIEW BY DEPARTMENT - LOW BID or QUALITY PLAN [DESIGN] – WITH QUALITY ASSURANCE REVIEW [PEER REVIEW] - LOW BID, and PERMITS FOR DESIGN-BUILD PROJECTS

Provision Body: All entries in "bold italic" must be completed by the designer. The completed provision should not contain any "bold italic" print. Except where indicated otherwise in the Provision Body, all sections and the subsections must remain and not be deleted because there are sectional references within the provision. Sections and subsections that do not apply should be designated as "Not Applicable." Extraneous information from subsections may be removed. Attach Environmental Documents and Permits to the Project Development Checklist and make viewable by the Contractor. Attach the ECMTS Matrix. Attach the ECMTS Signature Sheet.

Header:
ENVIRONMENTAL COMMITMENTS and MITIGATION TRACKING SYSTEM (ECMTS) REPORT

Provision Body:
I. DESCRIPTION - This work is the review and reevaluation of the environmental documents and the updating, documentation, and implementation of the environmental commitments identified in the project Environmental Commitments and Mitigation Tracking System (ECMTS) Report.

a) Compliance with Environmental Documents

Develop Final Design and complete construction activities in compliance with the mitigation and commitments detailed in the approved Environmental Documents and permits (attached to ECMS project development checklist). The Department has obtained environmental clearance for this project in the form of a ***(Indicate appropriate clearance: Categorical Exclusion Evaluation (CEE), Environmental Impact Statement (EIS), or Environmental Assessment (EA)).*** The complete environmental document can be obtained online through the CEE Expert System's Approved Document Archive at the following web address: http://dotdom2.state.pa.us/ceea/ceeamain01.nsf by entering Package Number ***(insert package number)*** into the search tool and select the returned document link.

Reevaluate the Environmental Document if the design does not conform to the environmental impacts described in the approved Environmental Document, or if any anticipated impacts to natural or cultural resources are different from the anticipated impacts evaluated in the approved Environmental Document. Reevaluation must be approved before the start of construction activities. Coordinate as needed with the assigned District Environmental Unit staff to obtain approval of the reevaluations. No extension of the project completion date will be granted.

b) Mitigation Tracking

Refer to the Environmental Commitments and Mitigation Tracking System Report for information related to the mitigation commitments and tracking documents for the project. Refer to the attached ECMTS Matrix for a list of the commitments to be tracked.

Note: The ECMTS is not an all-inclusive list of permit requirements. Read the permit and comply with all permit requirements.

Following the procedures in Appendix T of PennDOT Publication 10X, update the matrix with environmental commitments or mitigation activities identified after NEPA approval.

Create a signature sheet to be used during construction based on the template in Appendix T of PennDOT Publication 10X. Designate a responsible individual (Project Manager or Site Superintendent) to maintain the ECMTS signature sheet during construction. Identify the designated individual's name in a note at the bottom of the ECMTS signature sheet. Include additional names if responsible individuals change during the construction of the project.

Review each Mitigation Category and associated mitigation or commitment identified in the ECMTS signature sheet at the Pre-construction Conference. As each mitigation or commitment is completed, initial and date the appropriate block. By initialing and dating the block, the designated individual confirms the mitigation or commitment has been reviewed, understood, and has been incorporated in the construction of the project, as appropriate.

Ensure that the mitigation commitments are completed as early as possible depending on the sequencing and construction schedule. Review the ECMTS signature sheet at each status meeting. The Department Construction Project Manager will verify, date, and initial each mitigation commitment as it is completed.

Direct questions regarding the mitigation and commitments to the assigned District Environmental Unit staff. Notify the assigned District Environmental Unit staff of any problems with implementing the commitments. Changes to mitigation or commitments will be reviewed and approved by the assigned District Environmental Unit staff in coordination with the relevant resource agencies and FHWA, as appropriate. Notify the Construction ACE Services Engineer of any problems encountered during the implementation of the commitments and mitigation measures.

Maintain one copy of the ECMTS signature sheet at the Contractor's project field office and provide one copy to the Inspector-In-Charge after each update.

Submit one copy of the completed ECMTS signature sheet to the Department IIC Construction Project Manager, one copy to the District Construction ACE Services Engineer, and one copy to the assigned District Environmental Unit staff upon completion of the project.

IV. MEASUREMENT AND PAYMENT – Incidental to the design activities listed in Section IV of the Special Provision titled SPECIAL BIDDING – DESIGN-BUILD.

APPENDIX U

RESERVED FOR FUTURE USE

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APPENDIX V

BRIDGE AND ROADWAY PROGRAMMATIC AGREEMENT

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PROGRAMMATIC AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
FOR BRIDGE, ROADWAY AND NON-COMPLEX PROJECTS

The Federal Highway Administration, Pennsylvania Division, hereinafter FHWA, and the Pennsylvania Department of Transportation, hereinafter PennDOT, have developed this Programmatic Agreement, hereinafter PA, to outline the policy and procedures for environmental processing of certain federally funded bridge and roadway projects which are found to have no significant social, economic or environmental effects. In addition, this PA shall be applicable for the environmental clearance for specific 100% state-funded projects meeting the conditions herein, in accordance with Pennsylvania Act 120.

The FHWA hereby concurs that those types of bridge and roadway projects listed in Parts A, B, and C of this PA, and which satisfy the conditions and criteria in stipulations presented in Parts A, B, C and D as more fully described herein, will not result in significant environmental impacts, and are therefore excluded from the requirement to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS) pursuant to 23 CFR 771.115(b).

As outlined in the PA, PennDOT will individually determine the applicability of this PA and certify that an activity will not result in significant environmental impacts and document accordingly.

WHEREAS, the Division Administrator, FHWA, is the "Agency Official" responsible for compliance with the National Environmental Policy Act (NEPA) and implementing regulations (23 CFR 771);

WHEREAS, PennDOT and FHWA participated in the consultation and have jointly been invited to concur in this PA;

WHEREAS, PennDOT, as the statewide recipient of the federal-aid program, is responsible for compliance with all federal laws and regulations;

WHEREAS, this PA is consistent with the Statewide Long Range Transportation Plan, the Statewide Transportation Improvement Program (STIP), and applicable Metropolitan or Rural Planning Organizations' Transportation Improvement Programs (TIPs) and Long Range Transportation Plans, and is exempt from regional air quality conformity determinations (40 CFR parts 51 and 93);

WHEREAS, the FHWA has delegated approval authority of certain Categorical Exclusion (CE) activities as prescribed in the PennDOT Design Manual 1B, Publication 10B;

WHEREAS, these projects are a subset of Level 1a and Level 1b CE Projects, and therefore delegated approval authority resides within the PennDOT District(s);

WHEREAS, project conditions, which define approval authority, are contained in Publication 10B, and apply to this PA;

WHEREAS, the FHWA will monitor the approval of bridge and roadway projects using this PA, as described within, and retains the authority to revoke approval authority upon discovery of the misapplication of the PA or non-compliance with any federal law or regulation;

NOW, THEREFORE, the FHWA and PennDOT agree that bridge and roadway projects consisting of activities defined in this PA, which are not part of a larger undertaking, shall be administered in accordance with the following in order to satisfy FHWA's NEPA and Pennsylvania Act 120 responsibilities.

This Agreement establishes a procedure that will reduce the paperwork and processing time for certain federal actions that do not have significant impacts on the human and natural environment. PennDOT and FHWA concur in advance that certain bridge and roadway projects (identified in Stipulation 1 of Part A, Stipulations 1, 2, and 4of Part B, and Stipulation 1 of Part C of this Agreement) normally are found to have no significant social, economic and environmental effect. PennDOT agrees that all the conditions stated in this PA will be satisfied for all projects processed under this Agreement.

In accordance with FHWA regulations (23 CFR 771, "Environmental Impact and Related Procedures"), actions performed under this PA meet the definition contained in the Council on Environmental Quality regulations, 40 CFR 1508.4, and, based on past experience with similar actions, do not involve significant environmental impacts. They are actions which:

- Do not induce significant impacts to planned growth or land use for the area,
- Do not require the relocation of significant numbers of people,
- Do not have a significant impact on any natural, cultural, recreational, historic, or other resource,
- Do not involve significant air, noise or water quality impacts,
- Do not have significant impacts on travel patterns,
- Do not otherwise, either individually or cumulatively, have any significant environmental impacts, and are, therefore, excluded from the requirement to prepare an EA or EIS, and
- Do not involve unusual circumstances including: significant environmental impacts; substantial controversy on environmental grounds; significant impact on properties protected by Section 4(f) of the USDOT Act of 1966/Section 2002 of PA Act 120 or Section 106 of the National Historic Preservation Act; or inconsistencies with any Federal, State or local law, requirement or administrative determination relating to the environmental aspects of the action.

STIPULATIONS

PART A: ROADWAY REHABILITATION AND PAVEMENT PRESERVATION

Stipulation 1
Due to the limited scope of work for certain projects whose entire scope can be defined as rehabilitating and maintaining the roadway, and based on past experience with similar actions, FHWA and PennDOT will not require additional NEPA documentation for the projects listed below, provided conditions and criteria in Stipulations 2 of Part A and the Stipulations of Part D herein are satisfied. These actions meet the intent of 23 CFR 771.117 (a), (b) and (d).

The signatories to this PA agree that the project types listed below (provided the projects are limited to the activities specified and are not part of a larger undertaking), by their nature and definition, constitute undertakings that have no potential to cause significant effects on environmental resources.

The following five (5) categories of activities shall therefore be approved under this Agreement with no further NEPA documentation required provided the conditions and stipulations are met:

1. Interstate and Expressway Pavement Preservation including: overlay projects, mill and overlay projects, micro surfacing, ultra thin friction course, concrete patching and joint rehabilitation, diamond grinding, and dowel bar retrofit. This includes the construction of crossovers in previously disturbed medians.
2. Non-Expressway Pavement Preservation including: overlay projects, mill and overlay projects, micro surfacing, ultra thin friction course, cold in-place recycling, seal coat, ultra thin white topping, concrete patching and joint rehabilitation, diamond grinding, and dowel bar retrofit. This includes the construction of crossovers in previously disturbed medians.
3. Maintenance Betterments/Roadway Rehabilitation (3R) (Resurfacing, Restoration, and Rehabilitation) including pipe replacement, guiderail replacement, paving and overlays on existing alignment, and minor widening.
4. Reconstruction within same approximate footprint including Replacement, Crack and Seat, and Rubbelizing.
5. Minor widening provided such widening does not extend more than 12-feet from the existing edge of pavement.

Stipulation 2
Projects meeting the activity descriptions in Part A, Stipulation 1 shall also meet the following criteria in order to be approved under this PA. The term “Project”, as used here, includes the totality of work activities required for pavement preservation:

1. The project is designed using the latest guidance for each project type and follows the Pavement Policy Manual, Publication 242.

2. The proposed work does not include new interchanges, new ramps, or new rest areas.
3. The permanent acquisition of additional right-of-way is limited to that which is minimally necessary to allow for the activity authorized herein. Additional temporary easements which are minimally necessary to facilitate construction are also permitted
4. Pavement Rehabilitation is limited to structural enhancements that extend the service life of an existing pavement and/or improve its load carrying capacity.
5. The project does not result in a significant impact on travel patterns based on detours for the traveling public, including bicycle/pedestrian users.
6. Impacts to jurisdictional wetlands resulting from the activities in Stipulation 1 of this Part shall not exceed 0.05 acres of permanent impact, nor shall the projects result in the relocation of any stream channels.

PART B: BRIDGE REPLACEMENT, REHABILITATION, PRESERVATION, and REMOVAL

Stipulation 1 (Bridge Replacement/Rehabilitation)
Due to the limited scope of work for certain bridge projects and based on past experience with similar actions, FHWA and PennDOT will not require additional NEPA documentation for the bridge actions listed below provided the conditions and criteria in Stipulation 3 of this Part, and the Stipulations of Part D herein are satisfied. These actions meet the intent of 23 CFR 771.117 (a), (b) and (d).

The signatories of this PA agree that the project types listed below (provided the projects are limited to the activities specified and are not part of a larger undertaking), by their nature and definition, constitute undertakings that have no potential to cause significant effects on environmental resources.

The following ten (10) categories of bridge rehabilitation/replacement activities shall therefore be approved under this Agreement with no further NEPA documentation required provided the conditions in Stipulation 3 of this Part, and the Stipulations of Part D herein are met (for purposes of this PA, the term “bridge” includes bridges as well as culverts (box, metal and concrete pipe, arch, etc.):

1. Bridge replacement activities including but not limited to in-kind replacement, within the same approximate footprint and reconstruction of bridge superstructure and/or substructure.
2. Bridge decking and/or bridge barrier (parapet) replacements or modifications and substructure repair and modifications.
3. Replacement or strengthening of beams and other structural components of the bridge to extend the longevity of the structure.
4. In-kind replacement, reconstruction or ordinary repair or modification of existing bridge-mounted lighting, guiderails, curbs and gutters, sidewalks, noise barriers, signing, utility supports, fencing, etc. on the bridge.

5. Overlay, milling, grooving, repairing (concrete or asphalt patching), striping, or resurfacing of existing bridges; or addition of pavement markings (normal and raised), and snow and ice detectors to the same.
6. Other bridge related maintenance and repair actions, including but not limited to: overlay of existing approach roads for all bridges (not to exceed 500-feet of approach work (including pavement, guiderail and shoulder work) on either side of the bridge); seismic retrofits; in-kind replacement or repair of pedestals or bearing seats, bearings, shear blocks, diaphragms, structural steel, bridge and off-structure drainage, slope protection, steel caps, protective jackets, and dolphins; installation of external post-tensioning; and other similar routine actions.
7. Any remedial activity to an existing culvert or concrete rigid frame structure less than 20 feet in length, or pipe, so long as the remedial work is aesthetically and functionally in-kind and in the same footprint (no new elements or expansion).
8. General highway maintenance on bridges, including filling potholes, crack sealing, mill and resurfacing, joint grinding/milling, shoulder reconstruction, minimal bank stabilization, etc. within the right-of-way associated with the bridge.
9. Bridge beautification or facility improvement projects (e.g., curb and gutter replacement, decorative lighting, etc.) that are covered by other Agreements.
10. Construction of bicycle and pedestrian lanes, paths and facilities on existing bridges provided any required widening does not extend more than 12-feet on either side of the structure.

Stipulation 2 (Bridge Preservation)
It is understood that by their nature, the activities listed below are actions which meet the definition contained in 40 CFR 1508.4, and, based on past experiences with similar actions, do not involve significant environmental impacts. The following twelve (12) bridge preservation activities are designated as CEs under this PA pursuant to 23 CFR 771.117 (a), (b), and (d) without further approval or NEPA documentation, and are hereby approved provided the conditions and criteria in PA General Stipulations of Part D herein are satisfied:

1. Expansion dams: Repair, replace or install new expansion dams to ensure leak proof joints. Repairs to deck drainage or down spouting may also be included. Replacement of seals is also permitted, provided other items, if any, relative to leakage are also addressed.
2. Beam end repairs and restoration: restore steel, concrete or P/S concrete beam-ends to extend their service life.
3. Bridge bearings and supports: Restore or replace the existing bearings to make them functional and repair or rehabilitate substructure units to extend service life.
4. Approach slabs: Repair the approach slab as necessary where the condition of the approach slab is affecting the performance of the bridge. Where practical and needed, repair or replace approach slabs, pavement relief joints, and other high spots adjacent to bridge to restore functionality and/or improve rideability.

5. Deck restoration and overlays: concrete deck patching (Repair Types I, II, or III) and/or waterproofing overlays (i.e., latex concrete, bituminous with membrane) needed to extend deck life and improve rideability.
6. Spot/Zone painting: spot/zone painting can be used as a stand-alone measure or with other steel repair items. Cleaning and waste disposal is included in this item.
7. Painting: full overcoats or complete repaintings, with cleaning, waste disposal, and steel repairs.
8. Fatigue and Fracture Retrofits: retrofits or repairs to fatigue-prone details of steel bridges.
9. Scour Countermeasures: scour countermeasures including underpinning, riprap placement, stream bed paving, grout bags, sediment deposition and debris removal, etc. properly designed for predicted scour.
10. Concrete repairs, concrete sealing, crack sealing.
11. Guiderail updates or repair.
12. Bridge washing and cleaning activities including waste disposal.

Stipulation 3

Projects meeting the activity descriptions in Stipulations 1 and 4 of this Part shall also meet the following criteria in order to be approved under this PA. The term "Project", as used here, includes the totality of work activities required for replacement or rehabilitation of the structure, including but not limited to the structure itself, appurtenant works including walls, wingwalls and bank protection, and any approach roadway work:

1. Widening of existing structures (within the same approximate footprint) cannot exceed 12-feet on each side of the structure.
2. Changes in horizontal and vertical alignment (within the same approximate footprint) are permitted so long as those changes do not result in substantial impacts to area resources.
3. The permanent acquisition of additional right-of-way is limited to that which is minimally necessary to allow for any widening of the structure authorized herein. Additional temporary easements which are minimally necessary to facilitate construction are also permitted.
4. Impacts to jurisdictional wetlands resulting from the activities in Stipulations 1, 2, and 4 of this Part for the project shall not exceed 0.05 acres of permanent impact.
5. Stream realignment shall be limited to that which is incidental to the replacement of the structure, and occurs immediately adjacent to the structure. This limitation shall also apply to temporary diversions required to facilitate construction.
6. Use of temporary crossings, causeways, cofferdams, and associated roadways that are consistent with the criteria contained in this PA to facilitate construction are allowed. Construction of these features shall be coordinated closely with the US Army Corps of Engineers (USACE), Pennsylvania Department of Environmental Protection (DEP) or other regulatory entities. Upon completion of construction, all areas disturbed by these features shall be restored to their preconstruction condition.
7. No significant floodplain encroachments as defined at 23 CFR 650.105(q)(1-3) shall occur as a result of the project.

8. There shall be no permanent reduction in hydraulic capacity as a result of any proposed work.
9. The project would not result in negative impacts to environmental justice populations, community facilities/services, and/or emergency services.

Stipulation 4 (Bridge Removal)
It is understood that by their nature, certain bridge removals are actions which meet the definition contained in 40 CFR 1508.4, and based on past experiences with similar actions, do not involve significant environmental impacts. Bridge removal projects that meet the following criteria are designated as CEs under this PA pursuant to 23 CFR 771.117 (a), (b), and (d) without further approval or NEPA documentation, and are hereby approved provided the following conditions and criteria, and those in PA General Stipulations of Part D herein, are satisfied:

1. The bridge will not be replaced with another bridge or culvert.
2. The removed bridge is not replaced with fill.
3. The removal is not performed as an emergency project.
4. The removal is not part of a larger project.
5. Slope reprofiling is not to exceed 12-feet on each side of the footprint of the structure to be removed.
6. The permanent acquisition of additional right-of-way for the construction of cul-de-sacs or hammerheads is limited to what is minimally necessary.
7. The removal of a historic bridge is part of an agreed upon relocation following the Secretary of Interior's Standards, resulting in a finding of "no adverse effect."

PART C: NON-COMPLEX PROJECTS

Stipulation 1 (Non-Complex Projects)
Due to the limited scope of work for certain non-complex projects and based on past experience with similar actions, FHWA and PennDOT will not require additional NEPA documentation for the actions listed below provided the conditions and criteria in Stipulation 2 of this Part, and the Stipulations of Part D herein are satisfied. These actions meet the intent of 23 CFR 771.117 (a), (b) and (d).

The signatories of this PA agree that the project types listed below (provided the projects are limited to the activities specified and are not part of a larger undertaking), by their nature and definition, constitute undertakings that have no potential to cause significant effects on environmental resources.

The following ten (10) categories of non-complex (minor) projects shall therefore be approved under this Agreement with no further NEPA documentation required provided the conditions in Stipulation 2 of this Part, and the Stipulations of Part D herein are met:

1. Intersection improvement projects with minor or no signal layout changes, or unsignalized.
2. Construction of turn lanes at intersections.

3. Construction or replacement of sign structures including Dynamic/Variable Message Sign structures.
4. Guiderail/barrier installation, elimination, replacement or updating.
5. Traffic operations activities with minor or no roadway work including signalization, signing, pavement markings (including raised pavement markers (RPM), and roadway lighting.
6. 23 U.S.C. Sections 130 and 148 Highway 130 Safety Projects (relating to railroad grade crossings).
7. Transportation Enhancement Projects designed to address pedestrian and bicycle facilities.
8. Transportation corridor fringe parking areas and park and ride facilities located within previously disturbed right-of-way.
9. ADA curb cuts in areas that involve no disturbance outside of the existing right-of-way or no disturbance beyond the existing curb/sidewalk limits.
10. Slope restoration/slide repairs that involve no disturbance outside of the existing right-of-way.

Stipulation 2
Projects meeting the activity descriptions in Stipulation 1 of this part shall also meet the following criteria in order to be approved under this PA.

1. All work shall occur within existing right-of-way.
2. Impacts to jurisdictional wetlands resulting from these projects shall not exceed 0.05 acres of permanent impact.
3. Projects shall not result in or require relocation of any stream channels or other jurisdictional waterways.
4. There shall be no public controversy on environmental grounds.

PART D: OTHER STIPULATIONS

Stipulations presented in Part D are applicable to all actions and activities meeting the criteria identified in Parts A (Roadway), B (Bridge), and/or C (Non-Complex Projects) of this PA.

Stipulation 1
Projects applicable under this PA must be funded in part by state or Federal funds.

Stipulation 2
Projects meeting the activity descriptions in Stipulation 1 of Part A (Roadway), Stipulations 1, 2, and 4 of Part B (Bridge), or Stipulation 1 or Part C (Non-Complex Projects) shall be consistent with one of the following:

1. Meet the requirements of Appendix C of the Programmatic Agreement among the FHWA, PennDOT, the Pennsylvania State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Implementation

of the Federal Aid Highway Program in Pennsylvania (Section 106 Delegation PA).

2. Have a finding of either No Historic Properties Affected or No Adverse Effect under the Section 106 Delegation PA.

Stipulation 3

Projects under this PA will be coordinated, as required (refer to Publication 546, the Threatened and Endangered Species Desk Reference), with the U.S. Fish and Wildlife Service (USFWS), Pennsylvania Game Commission (PGC), Pennsylvania Fish and Boat Commission (PFBC), and the Pennsylvania Department of Conservation and Natural Resources' (DCNR) Pennsylvania Natural Diversity Inventory (PNDI) using the Heritage Geographic Information System (HGIS) to determine the potential presence of state listed or federally candidate or listed threatened or endangered species and if approved activities have the potential to affect threatened or endangered species. This may include, but is not limited to, those activities involving ground disturbance in undisturbed areas, areas outside existing right-of-way or potentially affecting water quality. If it has been determined that an activity "may affect - likely to adversely affect" a federal proposed, candidate, or listed threatened or endangered species, or state listed threatened or endangered species, then formal consultation with USFWS pursuant to the Endangered Species Act (ESA) (16 U.S.C. Section 1531, as amended) and 50 CFR 402 for federal species or coordination with the agency with jurisdiction for species that are state listed, is appropriate, and this PA does not apply.

Stipulation 4

If at any time the project requires additional Federal permits or approvals (beyond a Section 404 permit) other than from FHWA, this PA is no longer applicable. Examples include a U.S. Coast Guard permit or Section 7 formal consultation with or an incidental take permit from the USFWS.

Stipulation 5

Projects meeting the scope descriptions in Stipulation 1 of Part A (Roadway), Stipulations 1, 2, or 4 of Part B (Bridge) and/or Stipulation 1 of Part C (Non-Complex Projects) of this Agreement require completion of the *Bridge and Roadway Programmatic Agreement CE Applicability Matrix* (Appendix A).

Stipulation 6

Upon successful review and approval by PennDOT of the *Bridge and Roadway Programmatic Agreement CE Applicability Matrix* (Appendix A), in accordance with the stipulations contained herein, the approval date of the PA shall be the designated CE approval date for the subject project. Projects meeting the scope and condition descriptions in this PA do not require review and approval by FHWA.

Stipulation 7
Documentation assembled by PennDOT to support any environmental findings resulting from anticipated impacts, including the *Bridge and Roadway Programmatic Agreement CE Applicability Matrix* (Appendix A) will be maintained in the respective project file. This includes, but is not limited to documentation related to the National Historic Preservation Act (NHPA) (36 CFR 800), Endangered Species Act (50 CFR 402), the Clean Water Act, Section 4(f) of the US DOT Act of 1966/Section 2002 of PA Act 120, and all applicable permits.

Stipulation 8
If the scope of the proposed roadway, bridge, or non-complex project activity/ies change, or previously unidentified environmental resources are identified in final design, the PennDOT District Environmental Manager shall be notified, and will evaluate the need for additional environmental studies, the continued applicability of this PA to the project, and the need for other environmental documentation. All findings shall be documented in the project file and coordinated with FHWA, if necessary, for full NEPA compliance.

Stipulation 9
If previously unidentified environmental resources are identified during construction, those work activities that could potentially impact the resources will be stopped. The PennDOT District Environmental Manager shall be notified, and will evaluate the need for additional environmental studies, the continued applicability of this PA to the project, and the need for other environmental documentation. All findings shall be documented in the project file.

Stipulation 10
If at any time the PennDOT District Environmental Manager establishes that this PA no longer applies to a specific project due to changes in scope of work activities or environmental impacts, the appropriate individual project environmental document (CE, EA or EIS) will be completed.

Stipulation 11
The continued applicability of this PA to each individual project shall be re-evaluated according to the criteria contained in the FHWA Regulations at 23 CFR 771.129 which requires a confirmation of the continued applicability prior to "requesting any major approvals or grants" from the FHWA.

Stipulation 12
In an individual Section 4(f) evaluation is required for a project (excluding *de minimis*), this PA is not applicable to the project.

ADMINISTRATIVE CONDITIONS

1. **Applicability.** Applicable activities are defined as those specified in Stipulation 1 of Part A, Stipulations 1, 2, and 4 of Part B, and Stipulation 1 of Part C of this PA, including any areas necessary to support implementation of the project including, but not limited to staging areas, dewatering basins, stormwater facilities and temporary construction easements that are necessary to carry out the activity so long as those areas are depicted on the project plans being reviewed to determine applicability with this PA. Applicable activities shall include those administered by PennDOT and funded by the FHWA, as well as activities administered and 100% state-funded by PennDOT. This PA may not be applied to activities that are part of a larger action not covered under this PA.
2. **Prior Agreements.** This PA shall supersede the previous Bridge Preservation Program PA distributed under SOL 430-05-17, and the Bridge Preservation/Replacement PA distributed under SOL 438-09-01.
3. **Other Permits.** The use of this PA does not alleviate the need to obtain any necessary Federal or State permits including, but not limited to, Section 404, Chapter 105 and NPDES.
4. **Documentation.** For those bridge, roadway, and non-complex projects comprising the activity/ies and meeting the conditions defined in this PA, the PennDOT Environmental Managers or Designees shall, in reviewing the documentation provided, exercise their best judgment that the above conditions are being met, and shall document that no further NEPA compliance review shall be necessary other than the *Bridge and Roadway Programmatic Agreement CE Applicability Matrix* (Appendix A) as part of the appropriate NEPA project file. The NEPA project file shall contain supporting documentation (i.e., Bike/Ped Checklist, etc.). All projects shall be scoped and documented in the Categorical Exclusion Expert System utilizing the current scoping form or format. For purposes of this PA, Designee shall be defined to include the Assistant Environmental Manager, Assistant District Executive or District Executive. PennDOT shall maintain a list of projects reviewed by PennDOT under this PA.
5. **Monitoring**. FHWA shall conduct process reviews of a sampling of Districts on a triennial basis for compliance with the PA.
6. **Amendments.** Either party to this PA may request that it be amended, whereupon the FHWA shall consult with PennDOT to consider such an amendment. Any party to this Agreement may request that it be amended, and the request will be addressed within 30 days.
7. **Re-evaluation.** The FHWA and PennDOT may from time to time re-evaluate the list of undertakings (Stipulation 1 of Part A (Roadway), Stipulations 1, 2, and 4 of Part B (Bridge), and Stipulation 1 of Part C (Non-Complex Projects) of this PA) for possible new inclusions and/or deletions.
8. **Freedom of Information Act (FOIA).** Any information furnished to the FHWA by PennDOT under this instrument is subject to the Freedom of Information Act (5 U.S.C. 552).

9. **Disputes.** Objections to any actions carried out by either party under this Agreement shall be raised in writing by the objecting party. The FHWA and PennDOT shall consult to resolve those objections.
10. **Resolution of Objections by the Public.** At any time during the implementation of the activities stipulated in this PA, should any objection pertaining to any such activities or its manner of implementation be raised by a member of the public, the FHWA shall notify PennDOT and take the objection into account, consulting with the objector and, should the objector so request, with PennDOT to resolve the objection.
11. **Review of Implementation.** If the process of this Agreement has not been initiated within three (3) years after execution of this PA, the parties to the Agreement shall review the Agreement to determine whether revisions are needed. If revisions are needed, the parties to this Agreement shall consult to make such revisions.
12. **Termination.** Any party to this PA may terminate it by providing thirty (30) days notice to the other party, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, FHWA shall consult with PennDOT to develop a new PA or request comments from PennDOT. PennDOT shall have forty-five (45) days to respond with comments.

PROGRAMMATIC AGREEMENT:
An Agreement for Bridge, Roadway and Non-Complex Projects:

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Renee Sigel
Division Administrator

9/19/12
Date

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION (PennDOT)

R. Scott Christie, P.E.
Deputy Secretary for Highway Administration

9/11/12
Date

APPROVED AS TO LEGALITY AND FORM

BY _____ 09/25/2012
For Chief Counsel Date

BY _____ 9.25.12
Deputy General Counsel Date

BY _____ 10/9/12
Deputy Attorney General Date

APPENDIX A

Bridge and Roadway Programmatic Agreement CE Applicability Matrix

Bridge and Roadway Programmatic Agreement (BRPA)
Applicability Matrix

for Bridge, Roadway and Non-Complex Projects

CEES Package Number:

☐ **Project Scoping** ☐ **Project Evaluation** ☐ **Project Re-Evaluation** (original approval date _____)

Project Information			
MPMS	BMS	BRKEY	SR/Sec
County:	Municipality:	Seg/Offset Start	Seg/Offset End
Project:			
Date of the Scoping Field View:			

Project Description
Project Purpose
Why the project is needed? — Project Need(s)
Description of Activity
Identify activity from Stipulation 1 of Part A and/or Stipulations 1, 2 and/or 4 of Part B and/or Stipulation 1 of Part C of the PA with a note specifying the activity (ex. Act B2-4 = Part B, Stipulation 2, Activity 4 — Approach slab repair). If the proposed activity is not included in Stipulation 1 of Part A, or Stipulation 1, 2, or 4 of Part B, or Stipulation 1 of Part C, the PA is not applicable. Identify multiple activities, if appropriate.

Are temporary easements required? ☐ Yes ☐ No
Will there be any permanent right-of-way acquisition? ☐ Yes ☐ No

Resource Analysis

Answer YES to indicate that a resource is present. If YES, briefly discuss potential impacts and related commitments to avoid, minimize or mitigate. Attach additional documentation as required to document project impacts and any mitigation measures. Answer NO to indicate that a resource is not present.

1. Wild or Stocked Trout Streams	☐ Yes ☐ No
2. High Quality/EV Streams	☐ Yes ☐ No
3. Wetlands	☐ Yes ☐ No
4. Federally Proposed, Candidate, or Listed; or State Listed Threatened & Endangered Species	☐ Yes ☐ No
5. Agricultural Resources	☐ Yes ☐ No
6. Historic Properties or Archaeological Resources	☐ No Adverse Effect or No Historic Properties Affected Standard Treatment (if applicable): ☐ Meet the requirements of Appendix C of the Section 106 Delegation Programmatic Agreement Exempt Project Activity(s): Individual Making Exemption: Date of Exemption: Exemption Comments:
7. Public Controversy on Environmental Grounds	☐ Yes ☐ No
8. Resources protected under Section 4(f)/Section 2002. (If an Individual Section 4(f)/Section 2002 Evaluation is required (excluding de minimis), this PA does not apply.)	☐ Yes ☐ No
9. Water Trails	☐ Yes ☐ No
10. Hazardous, Residual, or Municipal Waste Sites	☐ Yes ☐ No

11. Regulated floodplain within or beyond the project limits. If there is a significant floodplain encroachment which requires a Floodplain Finding, the PA does not apply.	☐ Yes ☐ No
12. Navigable watercourses which require U.S. Coast Guard coordination or a waterway which requires an Aid to Navigation Plan.	☐ Yes ☐ No
DEP/USACE Permit Required?	☐ Yes ☐ No
Mitigation or other commitments included?	☐ Yes ☐ No

The projects identified on this form are in full compliance with the Bridge and Roadway Programmatic Agreement dated September 2012, and found not to have significant social, economic or environmental impacts, and therefore qualify as a CE under 23 CFR 771.117(a) and (b).

Prepared by:		
	Name/Title	Date
Reviewed for Applicability by:		
	Name/Title	Date

Additional Information — Remarks, Footnotes, Supplemental Data

APPENDIX W

REAL PROPERTIES PROGRAMMATIC AGREEMENT

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Agmt. # 431018
EIN # 53-0204534

PROGRAMMATIC AGREEMENT

BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
FOR

THE DISPOSAL OF REAL PROPERTY
AND
LEASE AGREEMENTS/RENEWALS

The Federal Highway Administration, Pennsylvania Division, hereinafter FHWA, and the Pennsylvania Department of Transportation, hereinafter PennDOT, have developed this Programmatic Agreement, hereinafter PA, to outline the policy and procedures for environmental processing of certain Class II Actions, Categorical Exclusions (CE), pursuant to the National Environmental Policy Act, hereinafter NEPA, as defined in 23 CFR 771.117 which normally are found to have no significant social, economic or environmental effects.

The FHWA hereby concurs in advance, on a programmatic basis, with PennDOT's designation that disposal of real property and lease agreement/renewal activities which satisfy the conditions and criteria of this PA, will not result in significant environmental impacts.

As outlined in this PA, PennDOT will determine and certify that an activity will not result in significant environmental impacts and document accordingly.

WHEREAS, the Division Administrator, FHWA, is the "Agency Official" responsible for compliance with the NEPA and implementing regulations (23 CFR 771.117); and

WHEREAS, PennDOT, as the statewide recipient of the federal-aid program, is responsible for compliance with federal laws and regulations pursuant to 23 CFR 1.36; and

WHEREAS, the disposal of real property is consistent with the Statewide Long Range Transportation Plan, the Statewide Transportation Improvement Program (STIP), and applicable Metropolitan or Rural Planning Organizations' Transportation Improvement Programs (TIPs) and Long Range Transportation Plans, and is exempt from regional air quality conformity determinations [40 CFR parts 51 and 93]; and

WHEREAS, the undertaking is confined to the disposal of excess right-of-way, the leasing of right-of-way or the renewal of an existing lease of right-of-way; and

WHEREAS, PennDOT will perform a field view of the parcel to be disposed or leased in order to confirm the site's characteristics and to assist in completing the *Disposition of Real Property and Lease Agreement/Renewal Categorical Exclusion Applicability Form*; and

WHEREAS, PennDOT Cultural Resource Professionals or District Designees will ascertain the likelihood, not presence, of historic properties (above and below ground) through use of the Cultural Resources Geographic Information System (CRGIS) or other readily available means for purposes of disclosing the potential; and

WHEREAS, if an eligible pre-historic or historic resource is known to be on/in the property, PennDOT will notify the Pennsylvania Historical and Museum Commission (PHMC) of the transfer pursuant to the State History Code and place or transfer a covenant on the property to ensure long-term preservation of the property's historic significance in compliance with Section 106; and

WHEREAS, PennDOT will consult with the U.S. Fish and Wildlife Service (USFWS), Pennsylvania Game Commission (PGC), Pennsylvania Fish and Boat Commission (PAFBC), and the DCNR Pennsylvania Natural Heritage Program (PNHP), Environmental Review Tool to ascertain the likelihood of threatened or endangered species for purposes of disclosing the potential; and

WHEREAS, PennDOT will consult readily available sources such as the Department of Environmental Protection's (DEP) eMap to ascertain the likelihood of hazardous or residual waste present on the site for purposes of disclosing the potential; and

WHEREAS, PennDOT will document the undertaking by completing the *Disposition of Real Property and Lease Agreement/Renewal Categorical Exclusion Form*; and

WHEREAS, a PennDOT Environmental Manager is qualified to approve the *Disposition of Real Property and Lease Agreement/Renewal Categorical Exclusion* Form on behalf of the PennDOT District Executive; and

WHEREAS, upon the successful completion and approval of the *Disposition of Real Property and Lease Agreement/Renewal Categorical Exclusion Form,* thereby fulfilling its obligation to disclose the characteristics of the parcel, PennDOT shall be held harmless from future activities on the parcel; and,

NOW, THEREFORE, the FHWA and PennDOT agree to the following stipulations in order to satisfy FHWA's NEPA responsibilities:

STIPULATIONS

Stipulation 1

It is understood that by the nature of the activity, there are no significant impacts to noise, air quality, sole source aquifer, historic properties, wetlands, endangered species or right-of-way issues or public controversy on environmental grounds. Under this agreement, pursuant to the 23CFR 771.117(d), disposal of real property (excess right-of-way) and lease agreements/renewals are documented without further approval or documentation provided the conditions and criteria of this PA are satisfied.

Based on the acceptance of the Categorical Exclusion Handbook, Publication 294, the disposal or lease of right-of-way is defined as a Level 1b activity. As such, no further approval from FHWA is necessary.

Stipulation 2

Upon successful completion and approval of the *Disposition of Excess Right-of-Way and Lease Agreement/Renewal Categorical Exclusion Applicability Form* found in Appendix A of this PA, the approval date of this Programmatic Agreement shall be the designated CE approval date for the subject project. The *Form* either can be completed and approved electronically or in hard-copy format. By completing and approving the *Form*, PennDOT certifies that the activity will not result in significant environmental impacts.

Stipulation 3

Documentation assembled by PennDOT to support any environmental findings resulting from anticipated impacts, including the *Disposition of Excess Right-of-Way and Lease Agreement/Renewal Categorical Exclusion Applicability Form,* will be maintained in the respective project file. This includes, but is not limited to documentation related to 36 CFR 800 and Endangered Species Act (ESA) [16 U.S.C. Section 1531, as amended] and 50 CFR 402.

Stipulation 4

If the scope of the proposed disposition of excess right-of-way activity changes, or previously unidentified environmental resources are identified before the transference of ownership or lease agreement, the Environmental Manager shall be notified, and will evaluate the need for additional environmental studies and disclosure to the future property owner or leasee. All findings shall be documented in the project file.

Stipulation 5

If at any time the District Environmental Manager establishes that this PA no longer applies to a specific project due to changes in scope of work activities or environmental impacts, the CE/EA Expert System form will be completed.

ADMINISTRATIVE CONDITIONS

1. **Applicability**. This agreement applies to disposition and lease/renewal of right-of-way that is administered by PennDOT and funded by the FHWA.

2. **Disputes**. It is the intent of the FHWA to become actively involved in the resolution of disagreements pertinent to findings of Section 106 eligibility and effects and Section 7 pursuant to the ESA, should they arise.

3. **Oversight**. FHWA maintains approval authority for actions involving the Interstate, including the execution of leases or deed transfers for Interstate associated properties. Per the stipulations of this PA, no further FHWA approval is required for NEPA compliance unless project conditions stipulate a Level 2 CEE, EA, or EIS.

4. **Monitoring**. The FHWA may monitor any activities carried out pursuant to this agreement. FHWA will cooperate with the PennDOT in carrying out these monitoring and review responsibilities.

5. **Amendments**. Any party to this agreement may request that it be amended and the request will be addressed within 30 days.

6. **Termination**. Any party to this agreement may terminate it by providing 30 days written notice to the other parties, provided that the parties will consult during the period prior to the termination to seek agreements on amendments or other actions that would avoid termination.

FEDERAL HIGHWAY ADMINISTRATION

for David W Craig 6/1/06

for James A. Cheatham, P.E. — Date
Division Administrator

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

M. Abdel 4/27/06

Richard H. Hogg, P.E. — Date
Acting Deputy Secretary for Highway Administration

Preliminary Approval:

JJB 5/10/06 BY _____

Assistant Counsel — Date

APPROVED AS TO FORM AND LEGALITY

BY Michael W Clune 5/11/06

~~Assistant~~ Chief Counsel — Date
for

BY _____ 5/16/06

Deputy General Counsel — Date

BY _____ 5/25/06

Deputy Attorney General — Date

March 1, 2006

Appendix A
Disposal of Real Property and Lease Agreement/Renewal
Programmatic CE Applicability Form

Project Information		
MPMS#:	Agreement #:	Project Name:
County:		Township:
SR, Section:	Segment/Offset:	Grantee/Lessee Name:
Project Description		
Area Location		
Scope of Proposal		
Project scope consistent with approved Disposal Right-of-Way and Lease Agreement/Renewal PA? *Y/N*		
Resource Analysis *Answer as yes, no or likely. **Additional comments can be noted***		
Presence of Wild or Stocked Trout streams		
Presence of High Quality/EV streams		
Presence of wetlands		
Presence of state or federal T&E species or habitat		
Presence of cultural resources		
If an eligible resource is present, PHMC provided notice of transfer		
Potential for public controversy on environmental grounds		
Presence of hazardous/residual waste		

Prepared by:_____ Date:_____

Environmental Manager:_____ Date:_____

FHWA (*for Interstate associated real property*) _____ Date:_____

Agreement Routing Sheet

Type of Agreement	**106 MOA PA (MEMORANDUM OF AGREEMENT/PROGRAMMATIC AGREEMENT)**
Agreemment Number	**431018**
Party	**FHWA AND PENNDOT**
City	**HARRISBURG**
County	**STATE WIDE**
Form Number	**None**
Federal ID Number	**53-0204534**
Amount	**0**
SAP Vendor Number	

PLEASE SUBMIT ONLY 1 ORIGINAL - MAKE COPIES ONCE FULLY EXECUTED

EXECUTION PROCESS	RECEIVED	RETURNED
Office of Chief Counsel, PennDOT For Review and Approval Commonwealth Keystone Building, 9th Floor mtd 5/11/06		
Office of General Counsel For Review and Approval Harristown II, 333 Market Street, 17th Fkoor	5/12/06	5/16/06
Office of Chief Counsel, PennDOT For Logging Commonwealth Keystone Building, 9th Floor	5/18/06	5/19/06
Office of Attorney General For Review and Approval Strawberry Square, 15th Floor		
Office of Chief Counsel, PennDOT For Logging Commonwealth Keystone Building, 9th Floor		5/25/06
Environmental Quality Assurance Division (EQAD) For Forwarding or Final Approval Commonwealth Keystone Building, 7th Floor		
Federal Agency (FHWA or ACOE) For Signature Dave 6-1-06		

DISTRIBUTION (1 copy each):

Copy to _____

Copy to Comptroller--Commonwealth Keystone Building, 9th Floor

Copy to Treasury--Treasury Dept., Treasury Audits, Finance Bldg., Room G-11

Original to: IRA BECKERMAN, EQAD, Keystone Building, 7th Floor

APPENDIX X

LEVELS 1 – 3 SCREENING FORMS

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PROJECT DEVELOPMENT PUBLIC SCREENING FORM (Form 1) 23 August 2010 DATE SUBMITTED:

1.0 ADVOCATE CONTACT INFORMATION				
Local Advocate Type	**Municipality(ies)**	**County(ies)**	**MPO/RPO(s)**	**PennDOT District(s)**
☐ **Agency/Org.**				
☐ **Municipality**				
☐ **Individual**				
Contact Name:		**Address**		
Email:		**Fax:**		**Phone:**
Signature:		*Signature denotes information is presented is true and accurate to the best of that person's knowledge*		

1.1 PROBLEM DESCRIPTION/JUSTIFICATION (*Please describe the problem encountered, and check all boxes that are appropriate to check*	
1.1.a ROADWAY MAINTENANCE	
☐ Road surface is in poor condition (cracks, potholes)	☐ Drainage problems are obvious on road
☐ Roadway is washed out in places	☐ Road shoulder is washing away
1.1.b BRIDGE MAINTENANCE	
☐ Bridge in poor condition	☐ Bridge ride is rough
☐ Bridge deck is too noisy	
1.1.c BRIDGE CONSTRUCTION	
☐ Bridge piers are showing age	☐ Bridge is posted and/or closed
☐ Bridge can't accommodate tall trucks	
1.1.d CONGESTION	
☐ Traffic congestion at many times of day	☐ Vehicles have trouble making turns
☐ Traffic congestion at peak rush hours	☐ Four-lane roads are not well connected
1.1.e SAFETY	
☐ Serious traffic crashes occur	☐ There are poles and trees close to the road
☐ Large number of crashes occur	☐ The road is too hilly, too many ups and downs
☐ You can't see far enough down the road when turning	☐ People drive too fast around the curves
☐ Missing or obscure signs	☐ There are not enough signs
☐ Paint lines are not clearly visible	☐ Turning conflicts are apparent
1.1.f LAND USE & ECONOMIC DEVELOPMENT	
☐ New development has meant more traffic	☐ There is lots of new housing development away from main roads
☐ Increase in driveways is creating problems	☐ Comprehensive planning has identified new demand
☐ Future impactful development has been identified	☐ Transit services hours are limited
1.1.g TRANSIT, PEDESTRIAN & ALTERNATE TRAVEL MODES	
☐ Bus fleet needs to be updated	☐ Walking is an option for me, but it is not safe
☐ Buses need to be added to our routes	☐ Walking/Biking trails don't connect well
☐ Ride sharing is hard	☐ Bike and pedestrian interaction with vehicles is unsafe
☐ We do not have safe lots to park and share rides	☐ We need to connect roads to other trains, planes, buses
☐ Transit services hours are limited	☐ Americans With Disabilities Act (ADA) concerns
☐ Road shoulders are not paved/wide enough	☐ Alternates to vehicle travel are non-existent
☐ Pedestrian Facilities are insufficient	☐ Parking is limited or lacking completely
1.1.h FREIGHT	
☐ Road Condition	☐ RR Grade Crossing Issues
☐ Turning Movement Restrictions	☐ Clearance for wide and/or high loads

DRAFT

1.2 PROBLEM DESCRIPTION (Please be clear on your assessment of the problem, expanding on what you have checked or providing new information. ATTACH ANY ADDITIONAL INFORMATION YOU WISH TO ADD TO THIS FORM.

1.3 COMMENTS (Is there anything else relating to land use or development, or other environmental concerns (impacts to environmental, cultural, and/or historic resources) that you feel is relevant at this point? Please be brief and to the point in describing the situation.)

1.4 Specific location of issue/problem		
Municipality:	**County:**	**MPO/RPO:**
State Route Number or Local Road Name if not State Highway:		
Transit issue with following provider:		
Is this issue on the Federal Aid system? ☐ Yes ☐ No ☐ Don't know		
1.5 Has the municipality begun pre-work such as study or preliminary design? ☐ Yes ☐ No ☐ Don't Know		

1.6 FORM REVIEW		
Reviewer: **Name of Individual:** **Name of Committee:**	**Date of Review:**	**Recommended Action:** **☐ Defer/Dismiss (Reason)** **☐ Level 2 Screening Recommended to be conducted by** **☐ MPO/RPO ☐ County ☐ Municipality ☐ PennDOT** **☐ Return to Advocate for More Information**

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LRTP DEVELOPMENT SCREENING FORM (Level 2) 23 August, 2010 **DATE SUBMITTED:**

1.0 ADVOCATE CONTACT INFORMATION (should populate from Level 1 when web-based)

Local Advocate Type **Municipality(ies)** **County(ies)** **MPO/RPO(s)** **PennDOT District(s)**

Agency/Org.
Municipality
Contact Name: **Address**
Email: **Fax:** **Phone:**
Signature: *Signature denotes information is presented is true and accurate to the best of that person's knowledge*
MPO/RPO Signature Approval: **Date:**
MPO/RPO Approval Name: **Recommend: Level 3 Screen More study LRTP Inclusion Defer/Dismiss**
Reason for deferral/dismissal:

2.1 PROPOSAL LOCATION INFORMATION
2.1.a Specific location and substance of issue/problem:
Municipality: **County:** **MPO/RPO:**
State Route Number/Segment(s)/Offsets or BMS Number or Local Road Name if not State Highway:
Transit issue with following provider:
Is this issue on the Federal Aid system? Yes No Don't know
2.1.b Has the municipality begun pre-work such as study or preliminary design? Yes No
2.1.c Separate needs documentation exists? Yes No Do Not Know IF YES, DESCRIBE SOURCE AND CONCLUSION

COMPLETE ONLY THOSE PORTIONS BELOW THAT ARE APPLICABLE TO THE PROBLEM EXAMINED HERE.

2.2 LAND USE LINKAGE TO TRANSPORTATION

2.2.a Check existing land use and future land use context in the problem study area

NOW FUTURE

Rural (few houses, businesses, population <250)
Suburban Neighborhood (low density residential)
Suburban Corridor (commercial or residential using service, access roads)
Suburban Center (mixed commercial and residential with less pedestrian access than a, b, c)
Town/Village Neighborhood (higher density residential, corner stores, sidewalks)
Town Center (mixed use, high density, buildings ~2 to 4 stories)
Urban Core (Major downtown with mixed use high rise buildings)
Transition Area (please describe)

2.2.b Check existing zoning	**2.2.c Land Use/Economic Development Opportunity**	**2.2.d Check where this problem is referenced in an existing planning document:**
Unzoned/No Zoning	Redevelopment	Planning study
Agricultural	Infrastructure efficiency improvement	Official mapping
Single family residential	Concentrates development	Multi-municipal/Regional plan
Medium-density residential	Increases job opportunities	Municipal comprehensive plan
High density residential	Fosters sustainable businesses	County comprehensive plan
Commercial/Industrial	Environmental restoration and/or enhancement	Other
Commercial/Retail	Enhancement of recreational opportunity	*ATTACH DOCUMENTATION TO THIS FORM PLEASE!*
Mixed use	Enhancement of historic/heritage resource	
Public park	Expands housing opportunity	
Other (specify)		

2.2.e List any pending or potential public or private development activities that are known at this time and how they may impact this problem or be part of a potential solution

2.2.f Describe any regional transportation/land use implications (positive and negative) of this problem:	**2.2.g Describe how any planned or scheduled projects (federal, state, local, private) may impact this problem or potential solution:**

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2.3 COMMUNITY ISSUES AND OPPORTUNITIES	2.4 PUBLIC AND AGENCY INVOLVEMENT *Attach copies of any information on public support or controversy associated with the proposal*
Emergency services or detour access Eliminates unneeded or unsafe traffic movements Enhances opportunities for underserved or environmental justice populations Supports community projects or opportunity Addresses community noise issues Enhances pedestrian access Other (specify) **2.3.a Transportation Context: What is primary facility function** Local trips Job commutes Regional pass-through Other **2.3.b Does this have a National Context? Will it serve national defense, national security, or other national objectives as established in federal laws, plans, or policies** Yes No **2.3.c Air Quality Conformity Analysis must be conducted** Yes No	**2.4.a Check any specific key issues identified by the public or partners as impacting on or impacted by this problem** Crash/Fatality reduction Infrastructure preservation Economic/community development needs Natural, historical or cultural preservation Improve connectivity on existing system Improve operational efficiency Improve system reliability **2.4.b Public Involvement and Outreach Methods Used to Date** Mailings to homes or interested parties Public meetings to gather, discuss or explain issues Press releases Web page presence or freestanding web site 4reation Local radio or TV news coverage Local radio or TV public affairs programming Newsletter Other (specify) **2.4.c What agency coordination is prudent to conduct?**

2.5.0 ENVIRONMENTAL (typically based on secondary source data)		
2.5.1 Resource Analysis	**Yes or No or unk.**	**Details (If yes)**
2.5.1.a Potential impacts to High Quality/EV streams, wild, stocked trout streams	Yes No Unk	
2.5.1.c Potential impacts to wetlands	Yes No Unk	
2.5.1.d Potential impacts to Federally proposed, candidate, or listed; or State listed Threatened & Endangered Species	Yes No Unk	
2.5.1.e Potential effects to Historic Properties or Archaeological Resources	Yes No Unk	
2.5.1.f Potential public controversy on environmental grounds	Yes No Unk	
2.5.1.g Potential temporary or permanent impacts (use) to Section 4(f) resources	Yes No Unk	
2.5.1.h Potential temporary or permanent impacts to designated scenic river or water trail?	Yes No Unk	
2.5.1.i Potential temporary/permanent impacts to hazardous/residual waste site	Yes No Unk	
2.5.1.j Potential impact to regulated floodplain within or beyond the project limits?	Yes No Unk	
2.5.1.k Potential impact to agricultural resources	Yes No Unk	
2.5.1.l Potential impact to navigable waterways	Yes No Unk	
2.5.2 Comment on potential environmental impacts:		

2.5.3 Anticipated NEPA Class of Action (to be completed by District Environmental Manager):	Review by:
Bridge and Roadway Programmatic Agreement: ☐ Level 1A Categorical Exclusion (CE) ☐ Level 1B Categorical Exclusion (CE) ☐ Level 2 Categorical Exclusion (CE) ☐ Environmental Assessment (EA) ☐ Environmental Impact Statement (EIS) ☐	**Title:** Name: Date: **the information contained herein is accurate to the best of my knowledge based on the level of data currently available**

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2.6.0 POTENTIAL APPROACHES/SOLUTIONS

2.6.1 ROADWAY

Resurface to Current Configuration Change Access Improve Drainage Roadway Reconstruction Roadway Realignment
Surface Seals Concrete Activities Widening Other:

2.6.2 BRIDGE REPAIR

Painting Parapet Repair, Rehab Slab/expansion Dam Repair Deck Patching Bearing Repair Scour Protection
Substructure Repair Other:

2.6.3 CONGESTION

Increased Efficiency (On-Route) Use Alternative Modes of Travel Increase Capacity (On-Route) Use Alternative Routes
Manage Demand (On & Off-Route) Reconfigure Intersection Change Intersection Operations Turning Lanes
ITS Other:

2.6.4 BRIDGE CONSTRUCTION

Rehabilitate Bridge Rebuild Bridge Remove Bridge Other:

2.6.5 SAFETY

Modify Intersection Control Adjust Signal Timing Improve Road Surface Enhance Sight Lines (Roadside)
Remove roadside obstacles New pavement markings, signs Intersection control improvements
Improve Pedestrian/ADA Elements Provide or Upgrade Illumination, Delineation: Access Management Strategy
Modify Geometry Install Guiderail Rumble Strips Other:

2.6.6 LANDUSE & ECONOMIC DEVELOPMENT

Create/Modify Land Development Ordinances Industrial Development Access Residential Development Access Other:

2.6.7 TRANSIT/OTHER MODES

Bus rehabilitation Bus replacement Fleet expansion Park and Ride Transit Services Ride Share Service
Linkage to Air Passenger Service Other:

2.6.8 FREIGHT

Truck terminal access Port access Airport access Other:

2.6.9 OTHER:

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2.7.0 CONCEPTUAL ENGINEERING details as appropriate

2.7.1 Limits of Work Start End Est. Total Length

2.7.2 Right-of-Way and Utility Involvement

2.7.2.a How many right-of-way parcels must be acquired for this proposal?

2.7.2.b Describe the extent and locations of any known acquisitions in attachment

2.7.2.c Indicate the involvement of utilities with this project:

Electric Sewer Water Gas Fiber Optic Other:

2.7.2.d Any intergovernmental land transfers involved? Yes No

2.7.3 Any involvement with railroads (active or inactive) including rail lines, crossings, bridges or signals? Yes No If yes, name of rail operator(s)

2.7.4 Any involvement with pedestrian/bicycle trails, or transit stations/centers?

Yes No If Yes, please provide some detailed description of impacts and involvement:

Category	Existing	Proposed
Type		
Weight Restriction		
Height Restriction		
Curb to Curb Width		
Shoulder Width		
Under clearance		
Lateral clearance		
Length		
Additional comment:		

2.7.5 Structure Proposal

2.7.6 Design Criteria

Current ADT:
Design Year ADT:
Design Hour Volume (DHV):
Truck %:
Directional distribution %
Design Speed:
Desired Operating Speed:
Posted Speed:
Pavement Width:
Shoulder Width:
Clear Zone:
Median Width:
Design Exceptions Required: Yes No TBD If yes, please describe:

For each roadway in this proposal, complete table	Existing	Proposed
Number of lanes		
Pavement Width		
Shoulder Width		
Median Width		
Sidewalk Width		
Bicycle Lane or Accommodation		
Clear Zone:		

2.7.7 Traffic Control Measures

The following traffic control measures to be considered:

Temporary bridge(s) Temporary roadway Detour
Approx. Length of detour in miles: Minutes
Approx. number of days detour might be in effect:
How many businesses affected by the detour:
How many residential units on the detour route:
Ramp Closure:
Other (Specify)
None will be required

Note: If any of the above traffic control measures will be necessary, indicate the following conditions:

Provisions for access by local traffic will be made and posted
Through-traffic dependent business will not be adversely affected
There will be no interference with any local special event or festival
There will be no substantial environmental consequences associated with the traffic control measures
There is no substantial controversy associated with the traffic control measures
There are no substantial impacts to bicycle or pedestrian routes

Note: If any of the above boxes are **not** checked, please explain the impacts that might occur here:

Note: Make the selection that best describes any proposed detour:

Detour will use local roads with no improvements
Detour will involve improvements to local roads with no resulting impacts on safety or the environment
Detour will involve improvements to local roads and will impact safety and/or the environment.
Please describe:
Detour will use only state-owned roads

2.7.8 *Environmental Quality Impacts* – Identify and explain key environmental impacts that may result from the candidate project. Provide a map of key impacts.

Describe conceptual mitigation opportunities identified at Resource Agency Review meetings.

Given the environmental context summarized above, what is the anticipated project schedule by year?

Activity	Year	Year	Year	Year

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2.8.0 COST/FUNDING ESTIMATE for SCREENING	2.8.2 Please describe the methodology used for developing the estimate:
2.8.1.a Planning Study $	
2.8.1a Environmental Studies $	Current cost estimate based on advocate experience
2.8.1b Preliminary Engineering $	Previous cost(s)+ escalation to year(s) _____
2.8.1c Final Design $	PennDOT provided project cost estimate
2.8.1d Right-of-Way (ROW) $	Other (specify):
2.8.1e Utility $	**2.8.3 Funding Sources (Identify all known earmarked or targeted sources)**
2.8.1f Construction $	**Federal State County Municipal Private**
2.8.1g Local/Municipal Match %	**Note years of all earmarks if known:**
2.9.0 ATTACHMENTS (Please attach Asset Management Screening Tool and any documents securely and include in an appropriate size envelope if hand delivered)	

2.10.0 RECOMMENDATION		
MPO/RPO Signature Approval:	**Date:**	
MPO/RPO Approval Name:	**Recommend: Level 3 Screen Planning Study LRTP/TIP Inclusion Defer/Dismiss**	
PennDOT Review by:		**Date:**
PennDOT Approval Name:		**Date:**

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LRTP DEVELOPMENT SCREENING FORM (Level 3) 23 August, 2010 DATE SUBMITTED:

1.0 ADVOCATE CONTACT INFORMATION (populates from Level 1 when web-based)

Local Advocate Type **Municipality(ies)** **County(ies)** **MPO/RPO(s)** **PennDOT District(s)**

☐ **Agency/Org.**
☐ **Municipality**

Contact Name: **Address**
Email: **Fax:** **Phone:**
Signature: *Signature denotes information is presented is true and accurate to the best of that person's knowledge*

3.1 PROPOSAL LOCATION INFORMATION
3.1.a Specific location and substance of issue/problem:
Municipality: **County:** **MPO/RPO:**
State Route Number or Local Road Name if not State Highway:
Transit issue with following provider:
Is this issue on the Federal Aid system? ☐ **Yes** ☐ **No** ☐ **Don't know**
3.1.b Has the municipality begun pre-work such as study or preliminary design? ☐ **Yes** ☐ **No** ☐ **Don't know**
3.1.c Separate needs documentation exists? ☐ **Yes** ☐ **No** ☐ **Do Not Know IF YES, DESCRIBE SOURCE AND CONCLUSION**

It is understood that this Level 3 screening documentation tool is an addendum to Level 1 and Level 2 screening and is designed to more fully define the scope, budget, and schedule that might result from a project being listed on a Long Range Transportation Plan or Transportation Improvement Program. It concentrates on more specific study, public and agency involvement, and review of all Level 2 statements. PLEASE ATTACH ANY AND ALL DOCUMENTATION TO THIS FORM.

3.2 LAND USE/COMMUNITY CONTEXT REVIEW (List any significant changes from Section 2.2, 2.3, 2.4 in Level 2 form)

3.3 ENVIRONMENTAL REVIEW (List any significant changes from Section 2.5 in Level 2 form)

3.4 Indicate public/agency involvement review meeting(s) and the date(s) they were conducted (Attach minutes from all meetings)

Initiated by	Location	Date	Topic(s)
Central Office			
Engineering District			
MPO/RPO			
Programming Task Force			
ACM			
Municipality or County			
Other (specify)			

3.5 Does the proposed project involve non-project-specific mitigation (i.e. banking, etc.)?
☐ Yes ☐ No (If yes, please attach summary of applicable resource agency coordination)

SECTION 2.6.0 POTENTIAL SOLUTIONS REVIEW (List any significant changes from Section 2.6 in Level 2 form)

2.7 CONCEPTUAL ENGINEERING REVIEW (List any significant changes from section 2.7 in Level 2 form)

2.8.0 COST/FUNDING ESTIMATE for SCREENING	**2.8.2 Please describe methodology used for developing estimate:**
2.8.1a Environmental Studies $	☐ Current cost estimate based on advocate experience
2.8.1b Preliminary Engineering $	☐ Previous cost(s)+ escalation to year(s) _____
2.8.1c Final Design $	☐ PennDOT provided project cost estimate
2.8.1d Right-of-Way (ROW) $	☐ Other (specify):
2.8.1e Utility $	**2.8.3 Funding Sources (Identify all known earmarked or targeted sources)**
2.8.1f Construction $	☐ **Federal** ☐ **State** ☐ **County** ☐ **Municipal** ☐ **Private**
2.8.1g Local/Municipal Match %	**Note years of all earmarks if known:**

2.10.0 RECOMMENDATION

MPO/RPO Signature Approval:		**Date:**
MPO/RPO Approval Name:	**Recommend:** ☐ **Planning Study** ☐ **LRTP Inclusion** ☐ **Defer/Dismiss**	
PennDOT Environmental Signature Approval:		**Programmatic Agreement:** ☐ **Yes** ☐ **No**
PennDOT Approval Name:		**Date:**

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APPENDIX Y

SECTION 106 PROGRAMMATIC AGREEMENT

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PROGRAMMATIC AGREEMENT
AMONG THE FEDERAL HIGHWAY ADMINISTRATION
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
THE PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER
AND THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
REGARDING IMPLEMENTATION OF THE FEDERAL AID HIGHWAY PROGRAM IN PENNSYLVANIA

WHEREAS, the Federal Highway Administration (FHWA) administers the Federal-Aid Highway Program in Pennsylvania authorized by 23 U.S.C. § 101 et seq., through the Pennsylvania Department of Transportation (PennDOT) (23 U.S.C. § 315); and

WHEREAS, the FHWA has determined that the Federal-Aid Highway Program may have an effect upon properties included in or eligible for inclusion in the National Register of Historic Places, and has consulted with the Advisory Council on Historic Preservation (ACHP) and the Pennsylvania State Historic Preservation Officer (SHPO) pursuant to 36 CFR § 800.14(b) of the regulations (36 CFR 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f); and

WHEREAS, cooperating Federal agencies that recognize FHWA as the lead agency for an undertaking may fulfill their obligations under Section 106 of the NHPA according to 36 CFR 800.2(a)(2), provided that FHWA and PennDOT follow the requirements of this Programmatic Agreement (PA) and the cooperating Federal agency's undertaking does not have the potential to cause effects to historic properties beyond those considered by FHWA and PennDOT; and

WHEREAS, the FHWA recognizes that it has a unique legal relationship with Indian tribes (Tribes and Nations) set forth in the Constitution of the United States, treaties, statutes, and court decisions, and, therefore, consultation with an Indian tribe must recognize the government-to-government relationship between the federal government and tribes; and

WHEREAS, in the development of this PA the FHWA has consulted with the following Federally recognized Tribes and Nations with ancestral ties to Pennsylvania that may attach religious or cultural significance to properties in Pennsylvania: the Absentee-Shawnee Tribe of Oklahoma, the Cayuga Nation, the Delaware Nation, the Eastern Shawnee Tribe of Oklahoma, the Oneida Indian Nation, the Oneida Tribe of Indians of Wisconsin, the Onondaga Indian Nation, the Seneca Nation of Indians, the Seneca-Cayuga Tribe of Oklahoma, the St. Regis Mohawk Tribe, the Shawnee Tribe of Oklahoma, the Stockbridge-Munsee Community of Mohican Indians of Wisconsin, the Tonawanda Seneca Nation, and the Tuscarora Nation; and

WHEREAS, the FHWA has invited other parties to participate in the development of this PA pursuant to 36 CFR§ 800.2 (a)(2), namely the Society for Pennsylvania Archaeology, the Pennsylvania Archaeological Council, Preservation Pennsylvania, the Pennsylvania Federation

of Museums and Historical Organizations, the Keystone Contractors Association, and the Pennsylvania Turnpike Commission; and

WHEREAS, PennDOT, the Seneca Nation of Indians, the Tonawanda Band of Seneca Indians, the Pennsylvania Archaeological Council, Preservation Pennsylvania, and the Society for Pennsylvania Archaeology have agreed to concur in this PA; and

WHEREAS, 36 CFR 800 encourages Federal agencies to fulfill their obligations efficiently under Section 106 of the NHPA through the development and implementation of cooperative Programmatic Agreements; and

WHEREAS, PennDOT maintains cultural resource staff and consultants meeting the Secretary of Interior's Professional Qualification standards (36 CFR 61) in the fields of archaeology and architectural history, or related fields; and

WHEREAS the ACHP, FHWA, SHPO, and PennDOT agree that effective and efficient consultation is in the public interest and seek to 1) develop a comprehensive, transparent, and efficient process for all Section 106 undertakings, 2) integrate project reviews under Federal historic preservation and environmental laws, 3) simplify procedural requirements to the maximum extent possible, and 4) reduce paperwork; and

WHEREAS, in the spirit of stewardship, the FHWA and PennDOT are committed to the design of transportation projects that 1) avoid, minimize and mitigate adverse effects to historic and archaeological properties, 2) utilize context sensitive solutions in appropriate settings, and 3) balance transportation needs with other needs of Pennsylvania communities; and

WHEREAS, the FHWA, SHPO and PennDOT support long term planning that considers preservation of historic properties and these agencies reasonably participate in the 1) development of historic contexts; 2) development of bridge management plans; 3) engagement in partnership in the continued upgrade and maintenance of the cultural resources GIS (CRGIS), and 4) continued development of innovative programs to address historic preservation issues; and

WHEREAS, the *Programmatic Agreement among the Federal Highway Administration, the Pennsylvania Department of Transportation, the Pennsylvania State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Implementation of Minor Transportation Projects* (1996) in Pennsylvania is superceded by this PA; and

WHEREAS, the following Programmatic Agreements are still in effect and are separate from this PA: *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the State Historic Preservation Officer, the Delaware Nation and the City of Philadelphia Regarding Implementation of Minor Transportation Improvement Projects in the City of Philadelphia* and, *Programmatic Agreement among the Federal Highway Administration, the Pennsylvania Department of Transportation, the Pennsylvania State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Emergency Relief Program*;

NOW, THEREFORE, the ACHP, FHWA, SHPO, and PennDOT agree that the Federal-Aid Highway Program shall be administered in accordance with the following stipulations to satisfy FHWA's Section 106 responsibilities.

Stipulations

FHWA shall ensure that the following measures are carried out:

I. Applicability and Scope

A. This PA sets forth the process by which FHWA will meet its responsibilities under Section 106 of the NHPA, with the assistance of PennDOT, for transportation projects under the Federal-Aid Highway Program.

B. This PA applies to any project under the Federal-Aid Highway Program including Transportation Enhancements (TE) projects. The purpose of this PA is to delegate certain aspects of Section 106 review to PennDOT and to establish the process by which the FHWA, ACHP, SHPO, PennDOT, and any consulting parties will be involved in such review.

C. If, for any undertaking, the U. S. Army Corps of Engineers (USACE) should become the lead federal agency under Section 106 because of project funding changes from Federal-Aid to State funding with a USACE Section 404 Permit under the Clean Water Act (33 U.S.C. § 1344) or a Section 10 permit under the River and Harbors Act of 1899 (33 U.S.C. § 403 et seq.), USACE shall be responsible for compliance with Section 106 of the NHPA. To the extent that the USACE deems applicable, the USACE may use studies, findings and determinations previously completed by PennDOT to document its own findings.

D. Any other designated lead federal agency may use PennDOT studies to support their findings and determinations under Section 106 of the NHPA.

II. Responsibilities and General Requirements

A. In compliance with its responsibilities under the NHPA and as a condition of their award of any assistance under the Federal-Aid Highway Program, FHWA will require PennDOT to carry out the requirements of this PA. This authorization does not preclude FHWA's right to take the lead in consultation among PennDOT, the SHPO and other consulting parties; or to consult with federally recognized Indian tribes (Tribes & Nations) on a government-to-government basis. When FHWA takes the lead, it may either carry out consultation in accordance with the procedures of this PA or follow the procedures in 36 CFR 800.3-800.6. If PennDOT cannot comply with

the requirements of this PA for any undertaking under the Federal-Aid Highway Program, FHWA shall comply with 36 CFR 800.

B. PennDOT shall employ professionally qualified personnel sufficient to implement this PA. PennDOT personnel, hereafter referred to as Cultural Resource Professionals (CRP), are Pennsylvania State Employees and will meet the Secretary of the Interior's Standards for Professional Qualifications (36 CFR 61) in the fields of archaeology or architectural history. Use of consultants will be guided by Stipulation III.D.

C. Tribal Consultation

1) Before the stipulations of this PA may be implemented, FHWA shall send a letter similar to that in Appendix A to the following Tribes and Nations: the Absentee-Shawnee Tribe of Oklahoma, the Cayuga Nation, the Delaware Nation, the Delaware Tribe of Indians, Oklahoma, the Eastern Shawnee Tribe of Oklahoma, the Oneida Indian Nation, the Oneida Tribe of Indians of Wisconsin, the Onondaga Indian Nation, the Seneca Nation of Indians, the Seneca-Cayuga Tribe of Oklahoma, the St. Regis Mohawk Tribe, the Shawnee Tribe of Oklahoma, the Stockbridge-Munsee Community of Mohican Indians of Wisconsin, the Tonawanda Seneca Nation, and the Tuscarora Nation. These letters will be individually addressed to the tribal leaders of the listed tribes.

2) Every other year after this PA goes into effect, FHWA shall send a letter similar to that in Appendix A to the Tribes and Nations identified in Stipulation II.C.1 above.

3) PennDOT may, on behalf of FHWA, initiate consultation with Tribes and Nations for individual undertakings carried out under the provisions of this PA. PennDOT and FHWA shall ensure that Tribes and Nations are provided information regarding proposed undertakings early in project planning and are invited to participate in consultation in accordance with the requirements of Section 101(d)(6) of the NHPA and 36 CFR Part 800. In consulting with Tribes and Nations, PennDOT shall follow the procedures in its *Tribal Consultation Handbook* (Publication 591) and, for those Tribes and Nations that have signed an individual Memorandum of Understanding (MOU) with FHWA, the provisions of the MOU. However, upon receipt of a written request from any Tribe or Nation, or officially designated representative of a Tribe or Nation, to consult with FHWA in lieu of PennDOT, FHWA shall consult with that Tribe or Nation for the particular undertaking or program.

D. FHWA authorizes PennDOT to consult with the SHPO and other consulting parties on their behalf for the following:

1) establish whether there is an undertaking with the potential to affect historic properties,
2) solicit and identify consulting parties,
3) conduct public involvement activities,
4) establish the Area of Potential Effect (APE),
5) determine the National Register eligibility of properties within the APE,
6) determine effect, and
7) initiate consultation on the resolution of adverse effects.

E. PennDOT, in consultation with FHWA, ACHP, and the SHPO, will develop a handbook containing guidance on how to implement this PA. The *Cultural Resources Handbook* must be completed and approved by FHWA prior to implementation of this PA. A table of contents for the handbook is included in Appendix D. The handbook will be made publicly available. PennDOT will ensure that their staff and consultants act consistent with the procedures contained therein.

F. PennDOT, with the assistance of FHWA and the SHPO, will provide training for PennDOT personnel and their consultants relative to implementation of this PA, as specified in Appendix B. PennDOT Personnel responsible for review under Stipulation III will receive such training prior to implementing activities under Stipulation III.

G. For projects funded under the Transportation Enhancements (TE) Program, and when an agreement is in place between PennDOT and the SHPO, the FHWA may delegate certain Section 106 activities to the SHPO. These activities will be mutually agreed upon between FHWA, PennDOT, and the SHPO, and will be specified in a separate agreement. In the absence of such an agreement, the FHWA, SHPO, and PennDOT will follow the requirements in Stipulation III.

H. The current Historic Bridge Inventory and Evaluation will provide individual determinations of eligibility for bridges 20 ft. and greater. With the exception of covered bridges, stone arch bridges, and closed spandrel concrete arch bridges, all other bridges or culverts less than 20 ft. in length are considered not individually eligible for the National Register.

I. PennDOT and FHWA will collaborate with the SHPO to continue the development of the Agricultural Context, the CRGIS, and bridge management plans, and to develop new projects or programs of mutual interest that facilitate historic preservation planning. These may include but are not limited to 1) historic contexts, 2) data syntheses, 3) development of management plans, 4) development of predictive models, and 5) electronic data exchange.

III. Project Review Responsibilities

Notwithstanding Stipulation II.G above, PennDOT, FHWA, and the SHPO will observe the following requirements for all projects covered under this PA.

A. Review by PennDOT District Designees
The types of projects listed in Appendix C, Section 2.A have little or no potential to affect historic properties and may be reviewed by PennDOT District staff (PennDOT Designees), provided the projects are limited to the activities specified and are not part of a larger undertaking. PennDOT Designees shall receive training (Appendix B) prior to review of activities defined in Appendix C.

1) The PennDOT Designee will exercise his/her best judgment that the conditions in Appendix C are being met, and will document that no further review is necessary under Section 106. The PennDOT Designee may consult with the PennDOT CRPs in reaching a decision. The PennDOT Designee will document his/her decision in the CE Expert system, as part of the appropriate National Environmental Policy Act (NEPA) documentation.

2) On a quarterly basis, PennDOT will prepare an electronic report of projects reviewed by the Designees that meet the conditions in Appendix C. For each project included in the report, the county, project name, and the specific project type in Appendix C that applies will be provided. Map locations of each project will be included. The report will be made available to the FHWA, SHPO, and the public.

B. Review by PennDOT Cultural Resource Professionals
In the absence of a District Designee, or at the request of a District Designee, PennDOT CRPs may review projects listed in Appendix C, Section 2.A. The CRPs will review the projects in Appendix C, Section 2.B. Those projects that meet the conditions specified in Appendix C may be exempted from further review under Section 106. The CRP will document his/her decision in the CE Expert system as part of the appropriate NEPA documentation.

For projects that do not meet the conditions of Stipulation III.A and Appendix C, the PennDOT CRPs, who meet the Secretary of Interior professional qualifications under 36 CFR 61, will be responsible for carrying out the following requirements.

1) *Early Notification*

Prior to making a finding of effect for an undertaking, the PennDOT CRP will provide the SHPO with an Early Notification for those projects that may have effects on historic properties. The Early Notification will include a brief project description and a map location.

2) *Consulting Parties*

In consultation with the SHPO, and pursuant to 36 CFR 800.2(c), PennDOT CRPs will identify consulting parties and invite them to participate in the Section 106 process. PennDOT shall also seek and consider the views of consulting parties. Consulting parties may include local governments, owners of property affected by the undertaking, or other individuals or organizations with a demonstrated interest in the undertaking.

3) *Tribal Consultation*

PennDOT CRPs will initiate consultation with appropriate federally recognized Tribes and Nations following the procedures in PennDOT's *Tribal Consultation Handbook* (Publication 591). For those Tribes or Nations that have signed an individual Memorandum of Understanding (MOU) with FHWA, the provisions of the MOU will be followed.

4) *Involving the Public*

Consistent with current state and federal laws and regulations and PennDOT policy, including the Public Involvement Handbook (Publication 295), FHWA and the PennDOT CRPs shall, through the opportunities afforded by the PennDOT project development process, seek and consider the views of the public, including municipalities and other interest groups. Public outreach will be conducted in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties, the likely interest of the public in the effects on historic properties, the confidentiality and concerns of property owners, who are either private individuals and/or businesses, and the relationship of the federal involvement to the undertaking.

5) *Area of Potential Effect*

PennDOT CRPs will define the undertaking's area of potential effect (APE) as defined in 36 CFR 800.16(d). The APE will initially be established during project field scoping. As the project develops, the APE will be adjusted, as necessary. The APE will be documented per Stipulation IV of the PA and the *Cultural Resources Handbook.*

a) As a streamlining measure, PennDOT may combine consultation with the SHPO on the APE with consultation on determinations of eligibility and/ or effect for projects classified as Categorical Exclusions (CE) and Environmental Assessments (EA) under NEPA.

b) For projects requiring the preparation of an Environmental Impact Statement (EIS) under NEPA and the provisions of federal transportation legislation, the PennDOT CRP will consult with the SHPO on the APE

early in project development prior to a determination of eligibility or effect.

6) *Determine the Appropriate Level of Identification*

a) Based upon the best available background information gathered via a literature search, including but not limited to the SHPO's Cultural Resources GIS (CRGIS), PennDOT's Historic Bridge Inventory, and a project scoping field view, the PennDOT CRP shall assess the likelihood that as yet unidentified historic properties exist within the APE. The PennDOT CRP will make a determination as to the need for further field survey to identify historic properties. In making such a determination and consistent with 36 CFR 800.4(b)(1), the CRP will take into account past planning, research and studies, the magnitude and nature of the undertaking and the degree of Federal involvement, the nature and extent of potential effects on historic properties, and the likely nature and location of historic properties within the APE. PennDOT will also seek information from consulting parties, as appropriate.

b) When the PennDOT CRP determines that a field survey is necessary to identify historic properties, the CRP shall conduct, or cause to be conducted, a survey to identify historic properties. Such surveys will be conducted in a manner consistent with the *Secretary of Interior's Standards and Guidelines for Identification (48 FR 44720-23),* and, where appropriate, applicable SHPO guidelines, and the approved PennDOT *Cultural Resources Handbook* developed to implement this PA.

c) Pursuant to 36 CFR 800.4(b)(2) and in consultation with the SHPO, Tribes and Nations, and other consulting parties, PennDOT may use a phased process to identify and evaluate historic properties. A phased process will be limited to the following conditions:

- large or complex projects where multiple alternatives are under consideration; or
- when access to property is restricted; or
- when the APE is not known until later in project development for the locations of items typically included as part of final design and permitting, such as bridge piers, storm water detention facilities, or wetland mitigation sites.

In such cases, PennDOT will prepare, or cause to be prepared, a reconnaissance or windshield survey, and/or an archaeological predictive model or archaeological sensitivity study, as appropriate. Reconnaissance or windshield surveys, archaeological predictive models or sensitivity studies will establish the likely presence of historic properties within each alternative under consideration or within each inaccessible area, and will

be documented in accordance with Stipulation IV and the *Cultural Resources Handbook.* Once an alternative has been selected or access to property is gained, PennDOT shall comply with Stipulations III.B.5.b, and III.B.6-9 of this PA, as appropriate.

7) *Determination of Eligibility*

a) When PennDOT CRPs identify properties that may be eligible for the National Register of Historic Places, the CRPs will apply the National Register criteria following National Register Bulletin 15, *How to Apply the National Register Criteria for Evaluation* and the *Secretary of Interior's Standards and Guidelines for Evaluation (48 FR 44723-26).* The PennDOT CRPs may consult with the SHPO and FHWA in making a determination of eligibility. The PennDOT CRPs will consult with Tribes and Nations that may attach religious and cultural significance to properties in the APE, in accordance with the *Tribal Consultation Handbook* and Tribal agreements. PennDOT will also seek information from consulting parties, as appropriate. Where eligible or listed historic properties have previously been identified but boundaries have not been established, the CRPs may identify recommended boundaries following the guidance in National Register Bulletin 21, *Defining Boundaries for National Register Properties.* Due to the passage of time, the CRPs may also reevaluate properties.

b) PennDOT CRPs will prepare documentation according to Stipulation IV and the *Cultural Resources Handbook.* For undertakings that will not affect historic properties, consultation with the SHPO on determinations of eligibility is not required. However, PennDOT will seek and consider the views of any Tribe or Nation that ascribes traditional cultural and religious significance to a property. The documentation will be made available to the SHPO, Tribes and Nations, consulting parties, and the public. For undertakings that may have an effect on historic properties, PennDOT CRPs shall consult with the SHPO and any Tribe or Nation that ascribes traditional cultural and religious significance to a potential historic property on determinations of eligibility when any of the conditions under III.B.9.b apply or when III.B.10 applies. This consultation may be completed as a separate step or combined with the finding of effect. The documentation will be provided to the Tribes and Nations, consulting parties, and made available to the public.

8) *No Historic Properties Affected*

If the PennDOT CRPs determine that either there are no historic properties within the APE, or historic properties are present but will not be affected by the undertaking, the PennDOT CRPs shall issue a finding of No Historic Properties Affected. The PennDOT CRPs will document their finding

according to Stipulation IV and the *Cultural Resources Handbook* and will notify the SHPO, FHWA, Tribes and Nations, and other consulting parties that a finding has been made, and make the documentation available for public inspection prior to approving the undertaking. Except when dispute resolution in Stipulation XI is invoked, PennDOT may consider Section 106 concluded.

9) *No Adverse Effect*

a) For those undertakings where historic properties may be affected, the PennDOT CRPs shall apply the Criteria of Adverse Effect in accordance with 36 CFR 800.5. If the effect of the undertaking will not be adverse, the PennDOT CRPs will propose a finding of No Adverse Effect and will document their finding according to Stipulation IV and the *Cultural Resources Handbook*. PennDOT shall seek and consider the views of the Tribes and Nations, and other consulting parties, and will make its finding available for inspection by the public. If a Tribe or Nation, a consulting party, or member of the public objects to the finding within 30 days, the dispute resolution process in Stipulation XI will be applied. Except when dispute resolution in Stipulation XI is applied, PennDOT may consider Section 106 concluded.

b) Under the following conditions the PennDOT CRP will request the concurrence of the SHPO on findings of No Adverse Effect:

i) Rehabilitation projects where the finding of No Adverse Effect is based on the proposed work being consistent with Secretary of Interior's Standards for rehabilitation,

ii) When there is public controversy on historic preservation issues,

iii) At the request of the CRP,

iv) When a consulting party, FHWA, a Tribe or Nation requests the SHPO's concurrence.

PennDOT shall submit the finding to the SHPO. If the SHPO fails to concur with an adequately documented finding of No Adverse Effect within the review time specified in Stipulation III.C, the dispute resolution process in Stipulation XI will be applied. Except when dispute resolution in Stipulation XI is applied, PennDOT may consider Section 106 concluded.

10) *Adverse Effect*

a) If the PennDOT CRPs determine that the undertaking will have an adverse

effect on historic properties, PennDOT will issue a finding of Adverse Effect and will document the finding according to Stipulation IV and the *Cultural Resources Handbook.* PennDOT CRPs will consult with the SHPO, FHWA, Tribes and Nations, and any other consulting parties, to evaluate the Adverse Effect finding and/or discuss options that would avoid or minimize adverse effects. These parties will have 30 days to provide comment.

b) If, after consultation, PennDOT determines that adverse effects cannot be avoided, PennDOT will consult with the FHWA, SHPO, Tribes and Nations, and other consulting parties, as appropriate, to resolve the adverse effect. FHWA will notify the ACHP of an Adverse Effect determination and invite its participation under any of the following conditions:

   i) When the undertaking will adversely affect a National Historic Landmark,

   ii) When the effects to historic properties are highly controversial or there is substantial public interest in the undertaking's effects on historic properties,

   iii) When PennDOT, the SHPO, and FHWA are not able to reach agreement on the resolution of adverse effects.

c) Resolution with a Letter of Agreement
If the FHWA, SHPO, and PennDOT agree to measures to resolve adverse effects, and other consulting parties, including Tribes and Nations do not object to the proposed resolution, PennDOT may prepare and execute a Letter of Agreement. Letters of Agreement prepared under this stipulation will be consistent with the sample provided in Appendix E. The execution of a Letter of Agreement and implementation of its terms will document FHWA's compliance with Section 106 of the NHPA for that undertaking. The Letter of Agreement shall be signed by the authorized representatives of the FHWA. SHPO, PennDOT and other concurring parties and approved as to legality and form by PennDOT's Office of Chief Counsel.

d) Resolution with a Memorandum of Agreement
FHWA shall carry out the requirements of 36 CFR 800.6 to complete the Section 106 process for resolving adverse effects in the following circumstances:

   i) When one of the potential signatories to the Letter of Agreement was not signatory to this PA,

ii) If a proposed mitigation commitment is not on the list of potential commitments in the Letter of Agreement in Appendix E,

iii) If a consulting party objects to the proposed resolution of adverse effects.

C. Review by SHPO

1) The SHPO will have 30 days to respond to any request for review made by PennDOT under Stipulations III.B.5.b, III.B.7.b, and III.B.9.b, unless the following Stipulations III.C.2 or III.C.3 apply.

2) The review times specified in any FHWA/PennDOT/SHPO interagency funding agreement will supercede III.C.1 above.

3) Provided that consulting Tribes, other consulting parties and the public have an adequate opportunity to express their views as provided in 36 CFR 800.2(d) of the regulations, PennDOT may request an expedited review by the SHPO. PennDOT and the SHPO will negotiate a review time that is mutually agreeable.

D. Use of Consultants in Project Review

1) Consistent with 36 CFR 800.2(a)(3), PennDOT may use consultants to gather information, analyze data, and prepare documentation. PennDOT, or FHWA, where applicable, will be responsible for all findings and determinations made under this PA.

2) Consultant staff meeting Secretary of the Interior's Standards for Professional Qualification (36 CFR 61) may be qualified to assume the role of PennDOT CRP by written approval from FHWA and PennDOT Cultural Resources Section Chief, and upon completion of the training specified in Appendix B.

3) Consultant staff may assume the role of a PennDOT CRP in a temporary capacity (defined as less than two years) only in the following circumstances: temporary vacancies of permanent staff; temporary fluctuations in workload; or, temporary specialized expertise that cannot be found within existing permanent staff.

4) Consultant staff may constitute no more than 25% of PennDOT cultural resource staff at any one time as defined under this Agreement. Exceptions to this provision will be handled under Section X.E of this Agreement.

IV. Documentation

With the exception of projects covered under Stipulation III.A and Appendix C, all findings and determinations made under this PA will be documented in accordance with 36 CFR 800.11 and

consistent with the *Cultural Resources Handbook* developed to implement this PA. The level of documentation will be determined by the nature and complexity of the undertaking and magnitude of effects to historic properties.

A. Confidentiality

Consistent with Section 304 of the NHPA and 36 CFR 800.11(c), PennDOT will ensure that PennDOT, and any consultants assigned to act on behalf of PennDOT, will not disclose to the public any information on the location, character, or ownership of historic properties when such disclosure may cause a significant invasion of privacy, risk harm to the historic property, or impede the use of a traditional religious site by practitioners.

V. Standard Treatments

PennDOT, in consultation with FHWA, the SHPO, ACHP and consulting parties, may develop standard treatments for certain types of historic properties that would be affected by projects reviewed under this PA. Once FHWA, SHPO and ACHP have agreed, in writing, to a standard treatment, PennDOT shall incorporate it into Appendix F and the *Cultural Resources Handbook* and may implement it, as appropriate, to resolve adverse effects. If a standard treatment is the sole measure to resolve adverse effects, no Memorandum of Agreement or Letter of Agreement is needed. When the standard treatment would apply to properties of traditional cultural and religious significance to Indian Tribes or Nations, PennDOT shall consult with appropriate Tribe or Nation in developing the standard treatment. A list of standard treatments in effect is found in Appendix F.

VI. Treatment of Human Remains

If human remains, graves, or grave-associated artifacts are encountered during any archaeological investigations conducted under this PA, or during project construction, all work shall cease in the area of the encounter and PennDOT will ensure that the remains, graves, or grave-associated artifacts are secured and protected. PennDOT will immediately notify the FHWA. FHWA and/or PennDOT will concurrently notify the SHPO and any federally recognized tribes that may attach religious or cultural significance to the affected property. For those Tribes and Nations that have signed an individual Memorandum of Understanding (MOU) with FHWA, the provisions of the MOU will be followed. If historic burials or cemeteries are encountered, PennDOT will follow procedures consistent with Pennsylvania State Law Title 9 P.S.§ 41-47. PennDOT will also take into account guidance in the National Register Bulletin 41, *Guidelines for Evaluating and Registering Cemeteries and Burial Places,* and the 1993 Pennsylvania Historical and Museum Commission (PHMC) *Policy for the Treatment of Burials and Human Remains.* For human remains discovered or potentially affected on Federal lands, PennDOT will notify the federal land managing agency. No activities which might disturb or damage the remains, graves, or grave-associated artifacts, will be conducted until the FHWA, in consultation with consulting parties and other appropriate parties, has determined an appropriate

course of action. When Native American graves are discovered under this provision, FHWA will consult with the appropriate Tribe or Nation in determining an appropriate course of action.

VII. Preparation of Archaeological Materials for Final Disposition

For all archaeological investigations conducted under this PA, FHWA shall ensure that artifacts and records are prepared in accordance with 36 CFR 79 and consistent with the guidelines of the PHMC.

A. Artifacts recovered from Commonwealth property and all associated records will be curated at the State Museum of Pennsylvania or their designee. A copy of the appropriate final Archaeological Report will be included in the submission.

B. When artifacts are recovered from property not owned by the Commonwealth, PennDOT will explain to the property owner the importance of artifact donation and will request that the owner sign a gift agreement donating the artifacts to the State Museum. If the property owner does not wish to donate the artifacts, PennDOT will complete the necessary analyses prior to returning the artifacts, and will submit all records to the State Museum. A copy of the appropriate final Archaeological Report will be included with the submission.

C. FHWA will fund activities necessary to prepare collections for disposition; PennDOT will be responsible for any additional fees relevant to long term curation.

D. Requests by Tribes or local institutions to curate archaeological collections will be considered on a case-by-case basis by FHWA and PennDOT in consultation with the State Museum of Pennsylvania.

VIII. Post-Review Discoveries

If previously unidentified historic properties are discovered after PennDOT has completed its review under this agreement, or if an undertaking affects previously known historic properties in an unanticipated manner, the procedures under 36 CFR 800.13 will be followed. If the discovery is made during construction, the contractor shall follow PennDOT Publication 408 and shall cease work in the area of the discovery. When the discovery consists of human remains, graves or grave-associated artifacts or other properties that may be of interest to federally recognized tribes with ancestral ties to Pennsylvania, FHWA will notify such tribes. For those Tribes that have signed an individual Memorandum of Understanding (MOU) with FHWA, the provisions of the MOU will be followed. Construction shall not resume in the area of the discovery until FHWA has complied with the requirements of 36 CFR 800.13.

IX. Emergencies

Pursuant to 36 CFR 800.12, in event of an emergency declared by the President of the United States and/or the Governor of Pennsylvania, PennDOT shall follow the procedures in the *Programmatic Agreement among the Federal Highway Administration, the Pennsylvania Department of Transportation, the Pennsylvania State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Emergency Relief Program* (January, 14, 2005) or any subsequent amendment to that agreement for review of projects under Section 106.

X. Annual Review and Monitoring

A. FHWA will monitor activities carried out pursuant to this PA in consultation with the ACHP and SHPO. PennDOT shall cooperate with any party in carrying out the monitoring effort.

B. PennDOT, the ACHP, and the SHPO may each establish its own internal monitoring program.

C. During the first year after execution of this PA, PennDOT will meet with the SHPO on a quarterly basis to review the implementation of the PA, to discuss projects, or to suggest improvements. Any unresolved issues or recommendations for improvement or modifications to the implementation of the PA will be forwarded to the FHWA and ACHP for consideration.

D. PennDOT will prepare an annual report on the activities carried out under this PA. The report will include a list of projects and findings made by PennDOT. The report may also identify issues, and make recommendations for improving the implementation of the PA. PennDOT will submit the report to the signatories of this PA within 30 days of the anniversary of the execution of the PA. The report will serve as the basis for an annual review of the PA.

E. Within three months of receipt of the annual report, the FHWA, ACHP, SHPO and PennDOT will consult to review implementation of the terms of this PA. The review will include an assessment of PennDOT qualified staff to ensure that adequate staffing is maintained to implement the PA. Should monitoring activities result in evidence that the requirements of this PA are not being met, FHWA will meet with the SHPO, ACHP, and PennDOT to develop corrective measures. If an individual PennDOT District repeatedly fails to meet the requirements of this PA, FHWA may suspend that District from participating in the PA; in that case FHWA, or the PennDOT Central Office Cultural Resource Section Chief will be responsible for carrying out the requirements of 36 CFR Part 800, or this PA for that District for the duration of the suspension.

XI. Dispute Resolution

A. Except as provided in Stipulation IX. B (below), should any party to this agreement, or a consulting party on an individual FHWA undertaking covered by this agreement, object within 30 days to any actions proposed or findings submitted for review, PennDOT shall consult with the objecting party(ies) to resolve the objection. If PennDOT determines that such objection(s) cannot be resolved, it shall request FHWA's assistance in resolving the objection. If FHWA determines that the objection remains unresolved, FHWA will:

1) Forward all documentation relevant to the dispute to the ACHP in accordance with 36 CFR Section 800.2(b)(2). Upon receipt of adequate documentation, the ACHP shall review and advise FHWA on the resolution of the objection within 30 days. Any comment provided by the ACHP, and all comments from the parties to this Agreement, will be taken into account by FHWA in reaching a final decision regarding the dispute.

2) If the ACHP does not provide comments regarding the dispute within 30 days after receipt of adequate documentation, FHWA may render a decision regarding the dispute. In reaching its decision, FHWA will take into account all comments regarding the dispute from the parties to this Agreement.

3) FHWA's and PennDOT's responsibility to carry out all other actions subject to the terms of this Agreement that are not subject of the dispute remain unchanged. FHWA will notify all parties of its decision in writing before implementing that portion of the undertaking subject to dispute under this stipulation. FHWA's decision will be final.

B. If the SHPO objects to a National Register eligibility determination made by PennDOT or FHWA pursuant to this agreement, and that objection cannot be resolved through consultation among SHPO, FHWA, and PennDOT; OR if the ACHP so requests, FHWA will obtain a determination of eligibility from the Keeper of the National Register in accordance with 36 CFR 800.4(c)(2). If a consulting party or a member of the public objects to a National Register eligibility determination pursuant to this agreement and the objection cannot be resolved through consultation with that party, the FHWA in consultation with PennDOT and the SHPO will determine whether to request a Determination of Eligibility from the Keeper of the National Register of Historic Places.

XII. Amendment

A. Any party to this PA may request that it be amended, whereupon the signatories shall consult to consider such amendment. Authorized representatives of all the original signatories shall sign the amendment; PennDOT's Office of Chief Counsel, the

Pennsylvania Governor's Office of General Counsel, and the Pennsylvania Office of Attorney General shall approve it as to legality and form.

B. The lists of minor projects in Appendix C and the *Cultural Resources Handbook* may be modified by the mutual written agreement of FHWA, PennDOT, and the SHPO, and shall not require a formal amendment to this PA. Upon such agreed upon revisions, PennDOT shall provide the revised appendix to all the parties to the PA.

C. Any other Appendix in this PA may be modified by the mutual written agreement of FHWA, PennDOT, and the SHPO and shall not require a formal amendment to the PA. Upon such agreed upon revisions, PennDOT shall provide the revised appendix to all the parties to the PA.

XIII. Termination

Any signatory to this PA may terminate it by providing thirty (30) days written notice to the other parties, provided that the parties shall consult during the period prior to termination to seek agreement on amendments or other action that would avoid termination. In the event of termination, FHWA shall conduct individual project review pursuant to 36 CFR Part 800.

XIV. Duration

FHWA, PennDOT, SHPO, and the ACHP will review this PA every ten (10) years from the date of execution for modifications or termination. If no changes are proposed and no party objects, the term of the PA will be extended automatically for another ten years without reexecution.

Execution and implementation of this PA evidences that the FHWA has satisfied its Section 106 responsibilities for all individual undertakings of the Federal-aid Highway Program and has afforded the ACHP a reasonable opportunity to comment.

SIGNATORIES:

ADVISORY COUNCIL ON HISTORIC PRESERVATION

John M. Fowler, Executive Director — Date 3/18/10

FEDERAL HIGHWAY ADMINISTRATION

Renee Sigel, Division Administrator — Date

PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER

Jean Cutler — 2/8/2010

Jean Cutler, Director
Bureau for Historic Preservation — Date

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

Scott Christie, PE
Deputy Secretary for Highway Administration — Date

CONCURRING PARTIES:

SENECA NATION

Kathleen Mitchell, THPO — Date

TONAWANDA SENECA NATION

Roger Hill, Chief — Date

PRESERVATION PENNSYLVANIA

Mindy Crawford, Director — Date

FEDERAL HIGHWAY ADMINISTRATION

Renee Sigel

Renee Sigel, Division Administrator

3/8/2010

Date

PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER

_____ _____

Jean Cutler, Director
Bureau for Historic Preservation

Date

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

Scott Christie

Scott Christie, PE
Deputy Secretary for Highway Administration

2/2/2010

Date

CONCURRING PARTIES:

SENECA NATION

_____ _____

Kathleen Mitchell, THPO

Date

TONAWANDA SENECA NATION

_____ _____

Roger Hill, Chief

Date

PRESERVATION PENNSYLVANIA

_____ _____

Mindy Crawford, Director

Date

FEDERAL HIGHWAY ADMINISTRAT ION

Renee Sigel, Division Administrator — Date

PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER

Jean Cutler, Director
Bureau for Historic Preservation — Date

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

Scott Christie, PE
Deputy Secretary for Highway Administration — Date

CONCURRING PARTIES:

SENECA NATION

Kathleen Mitchell, THPO — Date

TONAWANDA SENECA NATION

Roger Hill, Chief — Date

PRESERVATION PENNSYLVANIA

Melinda G. Crawford Ex Director
Mindy Crawford, Director — 2/5/2010 Date

PENNSYLVANIA ARCHAEOLOGICAL COUNCIL

_____ _____

Richard Geidel, President Date

SOCIETY FOR PENNSYLVANIA ARCHAEOLOGY

_____ _____

Paul Nevin, President Date

Approved as to Legality and Form

BY Michael K. Kline 2/3/2010

for Chief Counsel Date Jms 2/1/2010

BY _____ 2-12-10

Deputy General Counsel Date

BY Amy M. Elliott 2-24-10

Deputy Attorney General Date

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APPENDIX Z

REPAYMENT OF PRELIMINARY ENGINEERING COSTS

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U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: **Information:** Repayment of Preliminary Engineering Costs

Date: June 26, 2008

Dwight A. Horne

From: Dwight A. Horne
Director, Office of Program Administration

Reply to
Attn. of: HIPA-10

To: Division Administrators

The purpose of this memorandum is to clarify FHWA's policy regarding the time limit for Federal-aid funded preliminary engineering (PE) projects which have not progressed to the right-of-way (ROW) or the construction phase. Many questions have arisen recently regarding repayment of funds expended on projects for which no reasonable progress has been made. This memorandum provides additional guidance on when to grant time extensions to the States.

Section 102(b) of title 23, United States Code, as amended by SAFETEA-LU, requires a State to repay all Federal-aid reimbursements for PE costs on any project that has not advanced to ROW acquisition or construction within 10 years after Federal-aid funds are first made available. Part 630.112(c)(2) of title 23, Code of Federal Regulations (CFR), provides States a slightly longer timeframe in that ROW or construction must be started by the close of the tenth fiscal year following the fiscal year in which the project is authorized. Since sufficient discretion is provided to the Secretary in 23 U.S.C. 102(b), Divisions may adhere to the CFR timeframe when determining project time limits.

Where project termination is directly related to compliance with another Federal law, FHWA has had a longstanding policy of not mandating repayment of PE funds. For instance, if the FHWA and a State determined that a project would not be advanced as a result of findings during the National Environmental Policy Act (NEPA) process, no payback of PE costs would be required. To do otherwise could skew the NEPA process by causing a State to favor a "build" alternative, regardless of the environmental impacts, to avoid having to repay the PE costs associated with the NEPA review.

It is FHWA's view that 23 U.S.C. 102(b) is intended to address the matter of PE projects remaining active for indefinite periods of time. While an outright waiver of repayment of PE costs is not prescribed under this section, States may request a time extension from FHWA for repayment of Federal funds on a project that has been stalled. The request should be accompanied with sufficient justification to the Division offices. Division Administrators may grant an extension of time to begin the subsequent phase of work only if the justification is

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determined reasonable and beyond the State's control. These determinations must be documented by the Divisions and be a part of the project records.

Some examples of appropriate time extensions may include:

- Litigation resulting in delay or stoppage of preliminary project design.
- Complex project consultations involving Federal, State and local agencies as well as sovereign Nations.
- Projects funded by a Congressional earmark with specific, narrow language to "plan" or "design" the project. Requiring repayment of these funds would essentially violate Congressional intent as laid out in 31 USC 1301(a), the "purpose statute".
- Where the public involvement process has altered the State's plan for satisfying the project's purpose and need.
- Projects that utilize a unique implementation or funding approach that the State is not accustomed to carrying out, such as development of public-private partnerships or other innovative financing strategies to help finance the project.

Shifting political priorities, insufficient transportation budgets and staffing should not be considered stand alone justifications for time extensions.

If a time extension is not approved, the project should be withdrawn and all Federal reimbursements credited to the Federal-aid funding program code from which the PE funds originated. The withdrawn funds and corresponding obligation authority are available to the State to use on other Federal-aid projects that meet the eligibility requirements of the original program code. Additionally, projects for which PE funds were withdrawn might eventually progress to ROW and/or construction. In these instances, the State DOT may submit a request to reinstate the PE costs incurred as of the date of the withdrawal. Division offices should not approve project reimbursements for PE costs due to redesigns caused by excessive delays to the project.

Above all, Division offices should continue to work with their State counterparts to ensure a process is in place to regularly identify those preliminary engineering projects which are nearing or are beyond their ten year limit. Additionally, Divisions should ensure that States' accounting systems have the capability to accurately identify and accumulate applicable PE costs, whether generated in-house, or via consultant contract(s), should payback be necessary. Consideration for increased emphasis in this area should be determined in the context of the Division offices' overall risk assessment process, which may also be a topic of review by FHWA Headquarters.

Questions about this policy should be referred to Vincent Barone at 202-366-4652.

Attachments: Memoranda Superseded by Repayment of PE Costs Memorandum

10/21/99 Terminated Preliminary Engineering Projects - Payback of Federal Funds
8/07/98 Engineering Cost Reimbursement Section 1304 of the TEA-21 Implementing Guidance

REPAYMENT OF PRELIMINARY ENGINEERING COSTS

This guidance is consistent with FHWA policy concerning repayment of preliminary engineering costs and is applicable when Federal-aid funded projects have not advanced to the right of way or construction phase within 10 years after Federal funds are made available. FHWA recognizes that there are circumstances that may warrant time extensions or project termination. This guide provides direction to the Department in requesting preliminary engineering time extensions and requesting waiver of repayment of Federal funds for terminated projects. Effective project development, adherence to schedules and fiscally constrained programs are expected to reduce the occurrence of such time extensions and terminations.

FHWA Policy

The FHWA policy contained in Title 23 USC 102(b) as amended by SAFETEA-LU reads;

> (b) Engineering Cost Reimbursement.--If on-site construction of, or acquisition of right-of-way for, a highway project is not commenced within 10 years (or such longer period as the State requests and the Secretary determines to be reasonable) after the date on which Federal funds are first made available, out of the Highway Trust Fund (other than Mass Transit Account), for preliminary engineering of such project, the State shall pay an amount equal to the amount of Federal funds made available for such engineering. The Secretary shall deposit in such Fund all amounts paid to the Secretary under this section.

The attached June 26, 2008 memorandum provides further clarification of this policy with references to both 23 USC 102(b) and 23 CFR 630.112(c)(2) and also addresses FHWA's policy concerning payback as follows:

> *"Where project termination is directly related to compliance with another Federal law, FHWA has had a longstanding policy of not mandating repayment of Preliminary Engineering (PE) funds. For instance, if the FHWA and a State determined that a project would not be advanced as a result of findings during the National Environmental Policy Act (NEPA) process, no payback of PE costs would be required"*

Preliminary Engineering Time Extensions

The Department must develop a systematic process for identifying projects as they approach the time limits identified in the regulations. All requests for preliminary engineering time extensions should be signed by the Deputy Secretary for Planning. Consultation with the FHWA transportation engineer should occur prior to the transmittal of the request. Requests shall include:

- All Federal-aid project numbers along with the original project authorization date(s).
- Amount of Federal and State funds obligated and expended.
- Estimated cost to complete PE, ROW, and construction and amounts programmed on the STIP/TIP or the appropriate region's long range transportation plan.
- Narrative discussion of circumstances that have delayed project development.
- Chronology of key project actions.
- Proposed project schedule of critical milestones

Project Termination and Payback

Significant increases in project construction costs, growing infrastructure maintenance needs, and insufficient Federal and State funds to meet those needs have resulted in increased focus on Federal and State investment decisions and on fiscal constraint in project planning and programming. In Pennsylvania, it is necessary to make significant program adjustments that will focus limited Federal and state resources on projects to maintain the existing transportation infrastructure. As a result, the termination of many existing projects that are not affordable given Pennsylvania's significant infrastructure needs will need to be considered.

The Department may terminate projects unilaterally upon notification to FHWA and pay back Federal funds expended. Alternatively, the Department may seek a waiver of the FHWA payback requirements when terminating a project, in which case the termination must be requested by the PennDOT Secretary of Transportation. Consultation with the Program Center and the Metropolitan/Rural Planning Organization is recommended prior to making the request.

Project termination, Post-NEPA decision
Payback will be required for projects that are terminated after a NEPA document is approved and environmental clearance is given (Record of Decision, Finding of No Significant Impact or Categorical Exclusion). However, if a re-evaluation of a NEPA decision provides substantial new information that warrants the selection of the No-Build Alternative, payback is not required.

Project termination, Pre-NEPA decision
Where the Department, in consultation with the FHWA, decides to terminate a Federal-aid project, a waiver of repayment may be requested by the Department. The following should be considered and documented, if applicable, in the request for a waiver of repayment:

- The project has a low benefit/cost ratio as a result of escalating costs for the proposed build alternatives. A discussion of funding constraints and need for the funds on other transportation projects with a greater benefit cost ratio should also be included in the discussion.

- The lack of support by the public and state and local officials and major regulatory and resource agency concerns.
- Project needs as identified in the NEPA process are no longer valid. If the need for the project was related to infrastructure, safety or congestion, a substantive evaluation must be included documenting why the Project Need is not longer valid.

Pre- NEPA decision, scope change

During preliminary engineering and NEPA process, circumstances may change. This could include funding availability, land use, environmental features, or public controversy. If circumstances change, a project in the preliminary engineering phase is not required to be carried through the NEPA process concluding with the selection of the No-Build Alternative. New solutions to the identified Project Needs can be analyzed at anytime with no or limited requirements to start at the beginning of the NEPA process. Solutions that have lower costs, minimized environmental impacts and less controversy can be analyzed at any time. However, the Project Needs must be addressed.
Prior to proceeding with low cost alternatives, these types of improvements must be re-evaluated to determine whether they can reasonably satisfy the Project Need. This can include the solutions typically evaluated during the NEPA study, such as TDM (traffic demand management) or TSM (transportation system management) alternatives. If the Department and FHWA decide to proceed with a lower cost alternative which was not previously analyzed and dismissed, the Department is required to re-scope the project and proceed with the NEPA process. If the alternative was previously officially dismissed from further NEPA review, the Department is required to document the changed circumstances and how the alternative would fully or partially addresses the Project Needs.

No-Build Decision

When a No-Build Alternative is selected through the NEPA decision making process, payback is not required. Choosing the No-Build Alternative eliminates the possibility of constructing a project with the same scope to address the previously documented Project Needs with Federal participation. The State or a local sponsor could pursue the project using non-Federal highway funding. Selecting the No-Build Alternative eliminates FHWA participation for the foreseeable future in a project to address the same Project Needs.

Program Improvements

Certain improvements in the planning, programming and project development processes are underway and additional measures need to be taken to optimize the project planning, selection, and development process in Pennsylvania.

- Statewide project selection processes are under development to be used more consistently by MPO/RPO's that focus on transportation asset management principles and cost benefit prioritization.

- The new Project Development process will result in more accurate project scopes of work and reach stakeholder consensus prior to programming on the STIP to reduce and/or eliminate project scope expansion.
- Project cost estimating and scheduling needs to improve to facilitate the implementation and delivery of projects within budget and on-time.
- Bridge and pavement asset management systems should be further developed to improve needs assessments and prioritization of projects.
- Inactive projects should be closed or developed in a timely manner to ensure effective utilization of Federal obligations.
- Program management should be improved to optimize the uses of limited funds and human resources and should include:
  - Systematic identification of all PE projects over 10 years for termination or time extension requests from FHWA
  - Improved delivery of projects in accord with the TIP and letting schedules.

FHWA expects that these improvements in the planning, programming, and project development processes will be implemented and that they will significantly reduce the need for time extensions and termination of projects in the future.

If you have any general questions on federal payback requirements or time extensions, please contact David Cough at 717.221.3411 or david.cough@dot.gov. For project specific questions, please contact the FHWA environmental specialist and transportation engineer assigned to the project.

APPENDIX AA

EA REEVALUATION TRANSMITTAL FORM

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Re-evaluation Transmittal Form

Date _____

County _____
S.R. _____
Type of NEPA Document _____
Federal-Aid Project Number _____
Package# _____

Division Administrator
Federal Highway Administration
228 Walnut Street Room 528
Harrisburg, PA 17101-1720

The attached reevaluation document has been prepared for the subject project.

Based upon our review of the reevaluation, we have concluded that there have been no significant changes in the proposed project, the affected environment, anticipated impacts or proposed mitigation measures since the original NEPA clearance was given.

☐ Approved

☐ Disapproved

Comments:

_____ _____

Director, Bureau of Project Delivery FHWA Date

Attachment

cc: District Executive, District ____
Chief, Project Scheduling, Specifications, and Constructability Section
Chief, Highway Design and Technology Section
Project Development Engineer, Bureau of Project Delivery

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APPENDIX AB

MINOR PROJECTS DESIGN PROCEDURES FOR CONSULTANT DESIGNED PROJECTS

AB.0 INTRODUCTION

The Minor Projects Design Procedures for Consultant Designed Projects applies to all projects scoped as minor projects except for limited circumstances as approved by the District Executive. A listing of typical minor projects is provided in Publication 10, Design Manual Part 1, *Transportation Program Development and Project Delivery Process*, Chapter 2, Defining a Transportation Project. These procedures are only applicable to Local Lead projects (projects being led by a Local Project Sponsor) when their design consultant meets certain experience requirements outlined in Publication 740, *Local Project Delivery Manual*, Chapter 3. These procedures are not applicable to design-build projects and projects designed in-house.

For minor projects designed by consultants, the Department Quality Control (QC) reviews and approvals in final design do not occur. QC reviews for minor projects are solely the responsibility of the design consultant. The Department is responsible for funding and fiscal administration.

AB.1 PRELIMINARY DESIGN

During preliminary design, work performed by the design consultants will be submitted for Department review and approval. It is important to resolve all issues in preliminary design and to have a very clear scope of work for the project prior to final design.

The following activities that typically occur during preliminary engineering will be reviewed and approved by the Department:

- District Safety Review Committee
- Line, Grade and Typical Section
- Design Field View (DFV)
- Design Exceptions
- Environmental Clearance
- Environmental Commitment Mitigation Tracking System (ECMTS) DFV matrix
- Type, Size and Location (TS&L)

All required Central Office approval requests must be submitted from the District. For more information on preliminary design activities refer to Publication 10C, Design Manual Part 1C, *Transportation Engineering Procedures*, Chapter 3, Preliminary Engineering Procedures.

AB.2 FINAL DESIGN

The design consultant will be responsible for the final design. The District will not review or approve any submittals from the design consultant during final design except for the following which typically occur in final design, and as noted in Section AB.2.C:

- Foundation Report
- Hydrologic and Hydraulic Report (not applicable to Local Lead projects)
- Pavement Design Approval request (for Local Lead projects, only applies if more than 500 ft of work on a state route)

- Right-of-Way Clearance submission
- Utility Clearance submission
- Railroad Clearance submission
- Permit Applications (not applicable to Local Lead projects)
- Technically Infeasible Forms
- Proprietary Items
- Permanent and Temporary Traffic Signal Plans
- Road User Liquidated Damages
- Third Party Agreements
- Plans, Specifications and Estimate (PS&E)
- Traffic Control Plan (only applies to Local projects, and only if involving a detour route on a state route)

For more information on final design activities refer to Publication 10C, Design Manual Part 1C, *Transportation Engineering Procedures*, Chapter 4, Final Design Plan Development.

A. Quality Control (QC) by Design Consultant. The design consultant will perform the QC review process as outlined in the consultant's scope of work and the consultant's Quality Control Plan. The QC plan must include development of design review checklists for each type of review and associated criteria. The consultant is also responsible for executing their Quality Assurance (QA) procedures which ensures the QC procedures are performing as intended.

B. Sealing. All plans must have the design consultant's professional engineering seal and/or professional land surveying seal as required. The District will not seal any plans.

C. Approval and Signatures. When the District does not perform a review and the subsequent approval, the District is not required to sign the plans. For example, traffic control plans, which have a box for the District Traffic Engineer signature, will be revised so that no such box appears on the plans. Similarly, the District Bridge Engineer will not sign the structure plans.

As required per Title 75 Pa.C.S., *Vehicles*, §6109(d) and Title 67 PA Code, *Transportation*, §212.5, the District will review and sign all permanent and temporary traffic signal plans. The design consultant will submit signal plans to the District for review, approval, and signature.

The Right-of-Way plans must be signed and approved by the Department. Right-of-Way plans for Local Lead projects are not signed by the Department unless right-of-way is being acquired on behalf of the Department.

The District Executive, Deputy Secretary and Secretary of Transportation will continue to sign the title sheet of all appropriate plans. See Publication 14M, Design Manual Part 3, *Plans Presentation*, for more guidance on required signatures.

D. Status Updates. The design consultant must provide the District with monthly project status update reports for the duration of final design. The updates will include a brief summary of any project issues and an Open Plan schedule update per Publication 615, *Scheduling Manual - Procedures for Design Schedules*. The District may also hold periodic progress/status meetings with the design consultant if the project warrants.

Any deviations from approved design documents will be included in the status reports. The design consultant is also responsible for notifying the District of circumstances that require reevaluation of the NEPA documentation. Those circumstances include: (1) changes to the project scope, impacts and/or mitigation; and (2) the passage of three or more years since a major authorization or phase change.

E. Environmental Commitments. The design consultant is responsible for the ECMTS in accordance with Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix T, Environmental Commitments and Mitigation Tracking System (ECMTS) Process. This includes updating the ECMTS matrix with additional mitigation commitments that arise during final design.

F. Third Party Coordination. The design consultant's responsibility for third party coordination during final design should be clearly identified during preliminary engineering. The design consultant will offer the Department the opportunity to participate in all third party coordination activities for which the consultant is identified as responsible. Third party coordination includes, but is not limited to, the following entities:

- Public Involvement
- Emergency Responders
- School Districts
- Local Governments
- Adjacent Property Owners
- Local Businesses
- Local Police
- State Police (requires Department participation)
- Other project stakeholders

G. Grouped Projects. If a minor project is grouped with other projects that are designed by other parties, then the design consultant will coordinate the design, traffic control and any other design issues directly with the other designers. The District should group projects in preliminary design, but if grouping of projects occurs in final design, the District is responsible to inform all necessary consultants of the grouping.

AB.3 LETTING AND POST BID

A. Plans Specifications & Estimate (PS&E) and Project Letting. After the consultant's PS&E review, the design consultant will submit the PS&E to the District, with a letter certifying that all QC/QA reviews have been performed. In this certification letter, the consultant will also list all reviews which the consultant has performed including all third party coordination performed. See page AB - 6 for a sample certification letter.

Upon receiving the consultant's certification letter, the District will review and approve the PS&E package prior to advertisement in accordance with Publication 51, *Plans, Specifications and Estimate Package Delivery Process Policies and Preparation Manual*. As part of the PS&E review, the District will complete the *PS&E Certification List* in Publication 51, and attach the form to the Project Development Checklist in ECMS. The District will use the process outlined in Publication 51 and upload documents into EDMS (Electronic Document Management System) and advertise the project.

During the advertisement period, the design consultant is responsible for preparing answers for all questions in coordination with the District.

For information on advertising and letting see Publication 51.

B. QA Review by District. The District will perform a Quality Assurance review on all minor projects. These QA reviews are to be conducted to ensure that broader projects requirements are met and should only include value-adding comments. The QA reviews will occur after advertisement, but prior to let. The District Quality Assurance Form on page AB - 5 will be completed as part of this QA review and will be posted to the Project Development Checklist in ECMS. If a "No" is checked on the District QA Form, take appropriate action to resolve the issue(s). Projects should not be let until all issues are resolved from the QA review.

C. QA Review by Central Office. Central Office will perform Quality Assurance reviews of a sampling of minor projects. In addition, Central Office may request to review any project they deem appropriate. These QA reviews will occur after advertisement in coordination with the District.

AB.4 PROCURING OF DESIGN CONSULTANTS

A. Advertisement and Selection. The project advertisement, both project specific and open-end agreements, must identify that a project could follow the Minor Projects Design Procedures and the selection criteria in the advertisement should consider the quality of the consultant's QC/QA program. The consultant's statement of interest, technical proposal, and prequalification package must include details of their QC/QA plans specific to the minor project process. The selection team members will evaluate the adequacy of the submission, especially the QC/QA details, in accordance with Publication 93, *Policy and Procedures for the Administration of Consultant Agreements*. The design consultant's scope of work must clearly identify that the design consultant is solely responsible for the project QC during final design and that the Minor Projects Design Procedures will be followed.

If a project has been exempted by the District Executive, the advertisement will specify that Appendix AB procedures are not applicable.

B. Consultant Accountability. As with all projects, the design consultant for minor projects is responsible for submitting a design which is in conformance with all Department standards, specifications, and publications and which meets the standard of care for design professionals. Any design errors, mistakes or omissions that do not reflect a standard of care, which are identified by the Department, will be the responsibility of the consultant to rectify, at no cost to the Department, in accordance with Publication 93, *Policy and Procedures for the Administration of Consultant Agreements*, Chapter 5, Consultant Agreement Support, Section 5.7, Design Error Process. The consultant will be held responsible for payment of all costs incurred above what the Department's cost would have been without design errors that are determined to be the responsibility of a consultant, including but not limited to, design and review costs, actual construction costs, and delay costs.

AB.5 EXEMPTED PROJECTS

As stated in Section AB.0, minor projects can be exempted from the Minor Projects Design Procedures for limited circumstances as approved by the District Executive.

Districts must provide a list of exempted projects to the Bureau of Project Delivery, Highway Design and Technology Section Chief. The list must be provided annually by the end of January for all exempted projects that were bid in the previous calendar year including reason(s) why each project was exempted.

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District Quality Assurance Form

ECMS#: _____ **Project name:** _____
County: _____ **Reviewer:** _____
SR/Sec: _____ **Date:** _____

The Quality Assurance review is to be conducted to ensure that broader project requirements are met, in conformance with Department policy and procedures, rather than specific details involved in a quality control review. The Quality Assurance review will include the following items at a minimum:

If "No" is checked, please provide comment. Attach additional sheets as necessary.

	YES	NO	N/A
1. Design is in conformance with the Design Field View decisions.	☐	☐	☐
2. Design is in conformance with Safety Review.	☐	☐	☐
3. Design is in conformance with ProTeam decisions (as applicable).	☐	☐	☐
4. Design addresses all mitigation measures from NEPA.	☐	☐	☐
5. Design in accordance with approved TS&L and Foundation Report.	☐	☐	☐
6. Correct Roadway Construction Standards utilized (i.e., barrier height, guide rail, end treatments, etc).	☐	☐	☐
7. Specifications are in accordance with Department policy.	☐	☐	☐

8. Other comments:

_____
_____
_____

Post one completed form per project to Project Development Checklist in ECMS.

SAMPLE CERTIFICATION LETTER

May 21, 2012

_____ County
SR _____, Section _____
ECMS # _____
Plans, Specifications and Estimate Certification

Mr. /Ms. _____
District Executive
Engineering District 7-0
Attention: _____

Dear Mr. /Ms. _____

We are submitting a complete set of plans, specifications and estimate for the _____ County, SR _____ Section _____ project. We hereby certify that a complete quality control and a quality assurance check have been performed. In addition, the following reviews have been performed:

- Constructability
- Final Plans Check
- Final Structure Plans
- Final Roadway Plans
- Traffic Control Review
- Signing and Pavement Markings
- ADA curb ramp reviews
- Environmental Commitments
- ECMTS Final Design matrix
- PS&E

Third party coordination performed in final design includes detour coordination with _____ Township, _____ School District, state police, and ABC Warehouse _____for driveway access during construction. Public involvement includes a public meeting on ___/___/___.

Please contact _____ at (___) ____-____ if you have any concerns or questions.

Sincerely,

Mr./Ms. _____

_____ Design Consultant Company

APPENDIX AC

PLANNING AND PROJECT DEVELOPMENT GUIDANCE FOR ROUNDABOUTS

Appendix AC, Planning and Project Development Guidance for Roundabouts, is being rewritten. In the interim, refer to the 2015 DM-1X edition for general roundabout information on public involvement, education and references. Refer to Appendix AI, Intersection Control Evaluation (ICE) Policy, for evaluating alternatives, including roundabouts, for intersections.

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APPENDIX AD

STUDY PROCESS TO EVALUATE BRIDGE CLOSURE AND REMOVAL

AD.0 BRIDGE REDUNDANCY ELIMINATION PROCESS

The purpose of this GIS-based process is to identify bridges for removal that are operationally redundant. As part of bridge asset management, the inventory of bridges should be optimized by removing state- and locally-owned bridges that are operationally redundant. Removing operationally redundant bridges provides a long-term cost savings without negatively impacting traffic.

The MPOs and RPOs should work with PennDOT Districts and local municipalities to develop a list of bridges that are operationally redundant. Those bridges will be prioritized and systematically added to the TIP for removal. The MPOs and RPOs will be the lead for the study. This process can be used to evaluate bridges at a regional, county, or corridor level, or be used to evaluate single or multiple bridge locations for a specific project.

The process below provides a methodology for identifying bridges that are candidates for removal. The methodology uses GIS-based screening, combined with additional study and coordination with transportation stakeholders. The results of this process will be incorporated into the Linking Planning and NEPA screening forms for proposed bridge removal projects as part of the process for selecting and prioritizing TIP projects.

Bridges being evaluated for the program shall not be currently on the TIP for major rehabilitation or replacement.

AD.1 THE PROCESS FOR IDENTIFYING OPERATIONALLY REDUNDANT BRIDGES FOR REMOVAL IS AS FOLLOWS:

A. Step 1. Obtain bridge data utilizing the Bridge Management System (BMS) for state and local Bridges from the Geographic Information Division at ra-penndotmaps@pa.gov. Enter DM-1 Bridge Request in the Subject Line. The Division will provide Geographic Information System formatted files.

Note: The BMS system is designed to store data on every highway-related structure in Pennsylvania that has a length of 8' or greater for State bridges and greater than 20' for Local bridges.

The downloaded shape files have 177 attributes; among them are:

- BMS ID
- BMS BRKEY
- Year Built
- County
- PennDOT Engineering District
- Location
- Owner/Agency Administration Area
- Feature Carried
- Feature Intersected
- AADT
- ADTT
- Detour Length (May need to request from the District Bridge Unit)
- Federal Aid Route
- Structure Length
- Structure Type
- Posted Status

- Whether the structure is structurally deficient, operationally obsolete, or both
- Sufficiency Rating

B. Step 2. Generate a map using the BMS data downloaded from Step 1. The following additional data items drawn from existing county, MPO/RPO data layers, layers downloaded from Pennsylvania Spatial Data Access (PASDA) (http://www.pasda.psu.edu/), or available through PA DOT Arc GIS Online shall be incorporated on the map. (If a data item listed below is not relevant to your area it is not necessary to include):

- State and local roads with labels
- Rivers, creeks and streams with labels
- Railroads with labels
- BMS Bridge IDs
- Areas of proposed industrial, commercial, and residential development (e.g., from county and local comprehensive plans and zoning maps)
- Structures already selected for closure and removal; programmed on the TIP, listed on the TYP and from current or previous studies
- Locations of emergency management services (police, fire, ambulance, and hospitals)
- Important agricultural locations (e.g., active agriculture, ag security areas, ag easements)
- If available, additional layers such as location of schools. County GIS Departments and the GNIS layers available from PASDA are good sources.

In addition to the symbology in the map legend for the layers listed above, some additional symbology will aid analysis:

- AADT - < 99 (orange); 100-199 (yellow); 200-499 (blue); ≥ 500 (green)
- Detour Length (Circle the bridge point in blue if detour length is less than 5 miles)

Note: Do not include any bridges on a two or three digit PA Travel Route. These bridges will not be considered for removal.

C. Step 3. Evaluate and determine where the area for the operationally redundant bridge identification process will be implemented (county wide or localized within county or specific region). Coordinate with the PennDOT district and state, county and local planning partners once data on map is verified.

D. Step 4. Develop and prioritize initial list of operationally redundant structures utilizing the following criteria. The first set of criteria can be queried in the GIS:

- AADT < 200 and detour length < 5 miles
- AADT ≥ 200 and < 500 and detour length < 2 miles
- Structure is SD or FO
- Structure is already posted
- Year Built
- Length of dead end road (after closure) measured from both sides of the bridge

These criteria require coordination with local stakeholders and the PennDOT district:

- EMS Network does not utilize this structure
- Programmed future maintenance:
  - Previously Completed
  - Scheduled
  - Length of any associated construction (< 1 mile) and the right-of-way footprint

E. Step 5. Update the map showing results from the analysis in Step 4. Indicate in the map legend those bridges with:

- Possible for Closure (red) - Collect additional data (Step 6)
- Not Possible for Closure (green) - No further evaluation

F. Step 6. Export Bridge layers from GIS into an Excel spreadsheet. Work with the District Bridge unit to add the following data items to the spreadsheet for further evaluation of potential bridges. Some of this data must be collected in the field or if possible obtained from available agency records:

- AADT (This is provided in BMS, however a current traffic count at the bridge is ideal as well as a traffic count on the detoured traffic route.)

- Length of Dead End Streets - Measured along the proposed center line from both sides of the bridge.

- Length of New Roadway Relocation - Measured along proposed center line.

- Subdivision and Land Development Ordinance Requirement - Maximum length of cul-de-sac allowed by governing body ordinance.

- Residential Dwelling Units - The number of dwelling units on each side of the bridge that connect residences to the road. Calculate the units by using the newest edition of the ITE Trip Distribution for Residential Dwelling Units versus the AADT.

- Future residential, commercial, and industrial development as indicated in local and county comprehensive plans and zoning ordinances.

- Business Access Points - The number of driveways on each side of the bridge that connect the business to the road. This should include farms.
  Note: Up-to-date aerials can be helpful and may replace field view in remote areas; however, field view is preferable.

- Historic Status - Identify if bridge is on the National Register of Historic Places, or eligible for National Register.

- Lane Count of Bridge - Is bridge posted for one-lane? (Verify during field work.)

- Roadway Width in RMS - Measure from edge to edge of pavement or curb to curb. (Verify during field work.)

- Normal Travel Time and Detour Travel Time along designated detour route.

- Percent Change in Travel Time - The formula is:

$$\left[\left(\frac{\text{Detour Time}}{\text{Normal Travel Time}}\right) - 1\right] * 100\%$$

- Sidewalks - Are sidewalks present leading to the bridge? (Verify during field work or with Video Log.)

- Utilities - Are utilities carried by the bridge or crossed by the bridge? (Verify during field work.)
- Railroad Presence - Is the bridge over a railroad?
- Define Function of the Road - Determine if road is regional or local based on access points and AADT. (This differs from FHWA functional classification.)
- Flooding/Road Closure - List of roads typically closed due to flooding. (Contact county emergency services for a list of roads.)
- Scour Critical Bridge Indicator - Category A, B, C or D.
- Bridge Risk Assessment - This information may be obtained from PennDOT for your area.
- Cost of Replacing Bridge - If known costs are unavailable, assume:
  - Length × width (24 ft minimum) = area
  - Area × price per square foot ($650 per square foot, 2013 dollars)

  Note: Widths of less than 24 ft could be considered operationally obsolete.
- Cost Per Vehicle - Divide the cost of replacing bridge by AADT for the cost per vehicle.

G. Step 7. Evaluate data. Evaluate all the factors in determining the selected bridges for potential closure and removal:

- AADT - Should be evaluated in two different ways:
  - Determine if the traffic is local or regional according to the access points.
  - Consider if traffic can be handled on another road.
- Length of Dead End Street - Review municipalities' subdivision and land development ordinances for dead end streets and cul-de-sac lengths. If requirements are not met, evaluate zoning and future developments to determine if opportunities exist for rerouting the dead end street.
- The potential for environmental impacts to natural resources, cultural resources, and socioeconomic resources resulting from any construction, such as a cul-de-sac, resulting from bridge closure or removal. The LPN screening forms and MPMS IQ (https://www.dot7.state.pa.us/mpms_iq/) provide a GIS query to help identify environmental resources in the vicinity of the proposed project.
- Right-of-way footprint for acquisition and residential/economic impacts.
- Residential Dwelling Units - Use this information to determine the number of people affected and to determine usage, regional or local traffic crossing the bridge.
- Future Residential, Commercial, and Industrial Development - Use this information to determine the future need for the crossing being considered for removal.
- Business Access Points - Use this information to determine regional or local traffic crossing the bridge.
- Function of Road - Regional or local traffic; for example, considering local traffic it would be less likely recommended for closure then regional due to the fact that regional traffic has more options for traversing the transportation network.
- Lane Count of Bridge - If bridge is one lane, consideration must be given that this bridge is probably operationally obsolete. Cost of replacement will be increased; when bridge is replaced it will become a two-lane bridge. This may be a more favorable bridge to consider closing than a two-lane bridge.

- Time Studies - Establish an acceptable threshold for the study area for detour time. Emergency response should be evaluated based on a time study and should not increase response by a significant amount of time. School bus routes should also be evaluated based on a time study.

- Percent Change in Travel Time - This is another indicator of the effect on local traffic if bridge was closed.

- Roadway Width - If width of roadway is less than 20 ft, the bridge could be a candidate for closure.

- Sidewalks - If sidewalks are present, consider the impacts to pedestrian movements if the bridge is removed.

- Utilities Carried by Bridge - If utilities are carried by the bridge, consider the impacts if the bridge is removed. PUC files should be investigated to determine what PUC Orders exist regarding maintenance or ownership of the structure.

- Railroad Presence - PUC files should be investigated to determine what PUC Orders exist regarding maintenance/ownership of the structure.

- Flooding/Road Closure - This should be analyzed in two different ways:

    - If road floods in the vicinity of bridge, the bridge could be a candidate for closure and removal.

    - If a bridge is a candidate for closure and removal, the surrounding network of roads should be checked to ensure a flooding issue does not exist on the other roads. Consider the impact to emergency services.

- Age of Bridge, Size and Risk Assessment - When evaluating competing bridges look at long term cost by: age of bridge, size (square foot), and risk assessment (if available from PennDOT).

- Historic status - Between two similar bridges, the historic status may be used to determine which bridge remains in service.

- Lane Count of Bridge - Evaluate one-lane bridge versus two-lane bridge; consider keeping the two-lane bridge open instead of the one-lane bridge.

- Cost Per Vehicle - This should be used to evaluate bridges on a more proportional cost/benefit comparison.

The spreadsheet should provide enough data to create a list of recommended bridges to consider for closure and removal. However, due to the proximity of two or more bridges that may be considered, a head to head evaluation should be completed with all competing bridges for closure that serve that same general area. This will be based more on a cost than transportation impact.

H. Step 8. Perform field views/studies for structures meeting the criteria and selection process addressed above. Verify the following:

- Economic Impacts
- Residential Impacts
- Traffic Data
- Detour Route
    - No SD structures on Detour Route
- Environmental Impact Footprint
- Right-Of-Way Acquisition Footprint
- Utility Impacts

I. Step 9. Re-evaluate structures based on field view findings.

- Develop final list of operationally redundant bridges in cooperation with planning partners and PennDOT districts.
- Develop mitigation strategies based on planning partner recommendations.

J. Step 10. Perform implementation and mitigation strategies.

- Present study to elected officials.
- Issue press release to all state, county and local planning partners with list of operationally redundant bridges.
- "Town Meeting" with public to present list of operationally redundant bridges, cost savings and mitigation strategies.
- Coordination with PennDOT Planning and Programming to develop LPN screening forms for proposed bridge removal TIP projects that incorporate mitigation strategies:
  - Installation of a cul-de-sac.
  - Installation of signage indicating bridge closure and dead-end roadway.
  - Installation of signage for Detour until the bridge is removed.
  - NBIS inspection costs covered until bridge is removed.
  - Costs associated with removal of bridge once closed.
  - Costs associated with press releases notifying public on bridge maintenance costs being deferred due to closure or removal candidate.
  - Funds to relocate roadway if dead-end roadway not feasible.
  - Any associated construction must not involve construction of new structures other than storm water management structures.
  - Funds to improve local transportation network in vicinity of bridge.

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Bridge Elimination Candidates in XX County

BRIDGE_ID1	BRKEY	Latitude Deg	Min	Sec	Longitude Deg	Min	Sec	LOCATION	LENGTH	Proposed Width	Area	450.00	DECK AREA Sqft

BRKEY	FCARRIED	FINTER	TYPE	YR BUILD	POST STATUS	SINGLE TON	COMBO TON	DECK	SUP	SUB	CULV	SD	FO	SUFFRATE

BRKEY	MUN CODE	ADT	DETOUR	CURB to CURB	STUDY CODE	G_R CODE	Length of Dead End Street north/east	Length of Dead End Street south/west	SALDO Requirement

BRKEY	Residential Access Points	Business Access Points	Historic Register Status	Lane Count	Roadway width	Normal Travel Time	Detour Travel Time	% Change in travel Time

BRKEY	Sidewalks	Function of roadway	Flooding	Cost	Risk	Assessment	Reason not to move forward	PennDOT

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APPENDIX AE

DEPARTMENT FORCE BOX CULVERTS REVIEW PROCEDURES

AE.0 INTRODUCTION

All Department Force precast reinforced concrete box culverts and precast concrete products (Department Force Box Culvert projects) will be procured using ECMS as per Publication 23, *Maintenance Manual*, Section 16.9. Department Force Box Culverts are those projects where Department Force prepares the site, the box culvert is delivered and placed through a construction contract, and Department Force finalizes the work.

AE.1 CLEARANCES

(1) Utility Clearance is not required prior to advertisement, bid opening and Notice to Proceed for Department Force Box projects. ECMS will continue to check for these items and the error that results is to be overridden with the statement: "Department Force Box - clearance not required at this time but will be obtained prior to field work requiring this clearance." The pre-bid schedule should reflect the required time to obtain these clearances. Work cannot commence in areas that require clearance until the appropriate clearance has been obtained.

(2) Right-of-Way is not required prior to advertisement, bid opening and Notice to Proceed is hereby waived for Department Force Box projects. ECMS will continue to check for these items and the error that results is to be overridden with the statement: "Department Force Box - clearance not required at this time but will be obtained prior to field work requiring this clearance." The pre-bid schedule should reflect the required time to obtain these clearances. Work cannot commence in areas that require clearance until the appropriate clearance has been obtained.

(3) CEE Clearance is not required prior to advertisement, bid opening and Notice to Proceed is hereby waived for Department Force Box projects. ECMS will continue to check for these items and the error that results is to be overridden with the statement: "Department Force Box - clearance not required at this time but will be obtained prior to field work requiring this clearance." The pre-bid schedule should reflect the required time to obtain these clearances. Work cannot commence in areas that require clearance until the appropriate clearance has been obtained.

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APPENDIX AF

MEMORANDUM OF UNDERSTANDING (FOOTPATHS ON DCNR LANDS CROSSING STATE HIGHWAYS)

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Merged Copy of Agreement No. 220679 and 220679 A

MEMORANDUM OF UNDERSTANDING
(Footpaths on DCNR Lands Crossing State Highways)

THIS MEMORANDUM OF UNDERSTANDING, made and entered into this 26th day of September 2005, by and between the Department of Transportation, an executive agency of the Commonwealth of Pennsylvania, acting through its proper officials (PENNDOT),

And

the Department of Conservation and Natural Resources, an executive agency of the Commonwealth of Pennsylvania, acting through its proper officials (DCNR) .

WITNESSETH:

WHEREAS, Sections 501 and 502 of the Administrative Code of 1929 (71 P .S. §§ 181 and 182) require Commonwealth agencies to coordinate their work and activities with other Commonwealth and agencies; and,

WHEREAS, PENNDOT has exclusive jurisdiction and control over State designated highways throughout the Commonwealth (71 P .S. § 512 (a) (10) ; 36 P.S. § 670-420); and,

WHEREAS, DCNR, from time to time, desires to create or facilitate the creation of footpaths for public use and enjoyment on land owned or controlled by DCNR; and,

WHEREAS, DCNR, from time to time, desires to connect sections of such footpaths across State-designated highways, and;

WHEREAS, certain minimum conditions and standards must be met in relation to the occupancy of a State highway right of way for the safety of both motorists and trail users; and,

WHEREAS, DCNR and PENNDOT have signified their willingness to work together to ensure the safe and effective coordination and movement of footpath users and motor vehicle traffic at affected footpath/highway crossings.

WHEREAS, DCNR has established a system of State Forest Hiking Trails, a number of which exist on land owned or controlled by a person or entity other than DCNR ; and,

WHEREAS, State Forest Hiking Trails are only for pedestrian use ; and

WHEREAS, the system of State Forest Hiking Trails currently includes eighteen (18) designated hiking trails totaling nearly 1,000 miles with almost 800 miles traversing State Forest lands; and,

WHEREAS, over 200 miles of this system of State Forest Hiking Trails traverse public and private lands not owned or controlled by DCNR; and,

WHEREAS, these eighteen (18) trails are significant outdoor tourism assets and are important to the regional tourism economies associated with these trails and the public lands related to this trail system ; and,

WHEREAS, there may be the need to occasionally create new crossings associated with designated State Forest Hiking Trails on lands not controlled by DCNR.

NOW, THEREFORE, the parties to this memorandum set forth the following as their understanding :

1) DEFINITIONS. - The following words and terms shall have the following meanings in this MOU, unless the context clearly indicates otherwise :

a) Crossing -- any at-grade intersection of a Footpath and a State highway.

b) Highway-A roadway on the system of State highways, including the entire width between right-of-way lines, over which PENNDOT has jurisdiction.

c) Footpath - any path, paved or unpaved, existing on lands owned or controlled by DCNR, or any path, paved or unpaved, identified by DCNR as part of the system of State Forest Hiking Trails which is to be used by pedestrians only.

d) Footpath Sponsor - any group or organization that DCNR allows to create or maintain a Footpath upon DCNR owned or controlled lands or who creates or maintains a Footpath as a part of the State Forest Hiking Trail system.

e)State Forest Hiking Trail - a pedestrian-only trail designated by DCNR as such pursuant to Section 308 of the Conservation and Natural Resources Act, Act No. 18 of June 28, 1995, P.L. 89, 71 P .S . Section 1340.308, entitled `Trails and Greenways."

2) SCOPE OF MEMORANDUM - This MOU shall only apply to situations where a Footpath will cross a Highway at-grade . This MOU does not apply to separated grade crossings, such as bridges or tunnels . This MOU does not apply to the Appalachian National Scenic Trail.

3) CROSSING APPLICATION PROCEDURE . -

a) When proposing to create a Crossing, DCNR will provide to PENNDOT a proposed plan (Crossing Plan) depicting the Crossing intersection, showing any and all proposed signage, roadway markings and any proposed audible or flashing warning devices to be placed on the Footpath approaches and the Highway itself.

b) Appropriate PENNDOT personnel will provide assistance and guidance to DCNR personnel in generating the Crossing Plan, as necessary.

c) PENNDOT will review the final crossing plan and, if acceptable, approve the plan. If deemed necessary, PENNDOT will complete a traffic safety study (*See* Attachment A for description of Traffic Safety Study) to identify all appropriate trail and traffic safety conditions . PENNDOT will complete a maximum of ten (10) traffic safety studies within any calendar year, unless it exercises its discretion to complete additional studies. If negative traffic safety conditions are identified, with or without having preformed a traffic safety study, PENNDOT may take one of the following actions:

i) make changes to the Crossing Plan to mitigate such negative traffic safety conditions; or,

ii) require that DCNR make changes to the Crossing Plan to mitigate such negative traffic safety conditions.

d) No proof of financial responsibility, security, or Highway Occupancy Agreement will be required because DCNR is assuming secondary responsibility for Footpaths as set forth below.

4) CROSSING RESPONSIBILITY - PENNDOT. - PENNDOT will maintain the Highway and facilities located thereon, including but not limited to, signs and roadway paving markings, as, depicted in the Crossing Plan.

5) CROSSING RESPONSIBILITY - DCNR.- DCNR, or its designated Footpath Sponsor, will maintain all Footpaths and facilities located thereon as depicted on the approved Crossing Plan in such a manner as to safely accommodate the proposed Footpath and

any usage incident to the operation of the Footpath. DCNR will be secondarily responsible for maintenance of all Footpaths and facilities located thereon as depicted on the approved Crossing Plan.

6) UTILITY OCCUPANCY. - In the event that any non-carrier public utility or any wireless telecommunications company requests permission from DCNR to place, bury, or otherwise affix any facilities upon, in or adjacent to the Crossing(s), DCNR will ensure that DCNR or the Footpath Sponsor, will notify PENNDOT so that PENNDOT can ensure that the Utility complies with 67 Pa . Code § 459 et seq ., in regard to any facilities within PENNDOT right of way .

7) TRAFFIC PROTECTION AND MAINTENANCE . - Where any work is being performed in a Crossing, DCNR will ensure that DCNR or the Footpath Sponsor implements proper maintenance and protection of traffic as approved by PENNDOT's District Traffic Engineer pursuant to PENNDOT's Design Manuals and Specifications.

8) SUPPLEMENTAL MEMORANDA OF UNDERSTANDING- Any changes, corrections, or additions to this Memorandum of Understanding, will be in writing in the form of a letter signed by both parties, setting forth therein the proposed change, correction or addition . The terminology and provisions of such letter will conform to the requirements of the Office of General Counsel pertaining to memoranda of understanding, and this letter will be subject to the same requirements concerning execution and approval as the original Memorandum of Understanding . In addition, such letter will provide that the terms and conditions to the original Memorandum of Understanding that are not remain in full force and effect. Such letter will become an amendment to the Memorandum of Understanding upon full execution and approval thereof.

9) COMPLIANCE. - DCNR will ensure that its employees, agents, contractors and Footpath Sponsors comply with the terms of this MOU .

10) UNDERSTANDING BETWEEN EXECUTIVE AGENCIES . - This Memorandum of Understanding is not intended to, and does not create, any contractual rights and obligations with respect to the signatory agencies or any other parties .

11) DISPUTE RESOLUTION . - Any disputes arising hereunder between DCNR and PENNDOT shall be submitted to the Office of General Counsel for final resolution . The parties hereby acknowledge the foregoing as the terms and conditions of their understanding.

Attachment A
Traffic Safety Study for Footpaths on DCNR Lands Crossing State Highways

Elements :

Type of Highway	
Highway Speeds	- Design Speed
	- Posted Speed
	- Running Speed
Traffic Volumes	- Classification of Volumes
	- ADT and Peak Hours
Pedestrian Volumes	- Classification of Volumes
ADT and Peak Hours	- Seasonal Use
Geometric Review	- Horizontal and Vertical Curvature
	- Approach Grades
	- Roadway Crown and Super elevation
	- Roadway Surface Type and Condition
	- Roadway Width
	- Existing Pavement Markings and Signs
	- Intersection Angle
	- Intersection Sight Distance (Driver and Pedestrian)
Sight Distances	- Stopping Sight Distance
	- Passing Sight Distance

Accident Analysis
Roadside Obstructions
Roadside Development - Presence of buildings (kiosks, residences, garages, etc .), activities generated by such buildings or parking facilities .

Safety Study

The study should determine if there is sufficient sight distance to allow the pedestrians to safely cross the state highway and if there are any roadside obstructions or development that limits the visibility of the pedestrians . Additionally, the study should determine what mitigation is required for the motorists and pedestrians . The analysis must be completed using the current version of the Departments manuals, AASHTO's A Policy on Geometric Design of Highways and Streets and FHWA's Manual on Uniform Traffic Control Devices .

Procedures for Implementation of Memorandum of Understanding between PENNDOT and DCNR on Footpaths Crossing State Routes

Following are excerpts, explanations and procedures applicable to the MOU with DCNR on footpath crossings:

Definitions

a) Crossing – any at-grade intersection of a Footpath and a State highway.
b) Highway – a roadway on the system of state highways, including the entire width between right-of-way lines, over which PENNDOT has jurisdiction.
c) Footpath – any path, paved or unpaved, existing on lands owned or controlled by DCNR, or any path, paved or unpaved, identified by DCNR as part of the system of State Forest Hiking Trails which is to be used by pedestrians only.
d) Footpath Sponsor – any group or organization the DCNR allows creating or maintaining a Footpath upon DCNR owned or controlled lands or who creates or maintains a Footpath as a part of the State Forest Hiking Trail system.
e) State Forest Hiking Trail – a pedestrian-only trail designated by DCNR as such pursuant to Section 308 of the Conservation and Natural Resources Act, Act No. 18 of June 28, 1995, P.L. 89, 71 P.S. Section 1340.308, entitled 'Trails and Greenways."

Applicability

The MOU is applicable only to Footpaths (pedestrian-only recreational trails) that are on lands own or controlled by DCNR or are a State Forest Hiking Trail. It only applies to at-grade Footpaths; it is not applicable to crossings that are grade separated, including bridges, tunnels and culverts. The MOU is not applicable to the Appalachian National Scenic Trail.

Financial Responsibility

A major component of the HOA process is not part of the MOU process – the need to establish financial responsibility. This is because DCNR has agreed to assume secondary maintenance responsibility for crossings covered under the MOU, as amended, and at-grade footpath crossings will not typically require substantial maintenance.

Maintenance Responsibility

The MOU is clear on maintenance responsibilities, whereas the HOA process leaves this issue open to debate on each new agreement. Under the MOU, DCNR or its designee will maintain all footpath and trail facilities as depicted on the approved crossing plan. The Department will maintain the highway and highway facilities depicted in the crossing plan.

Application Procedures

DCNR, when proposing to create a Crossing, will provide the appropriate PENNDOT District office with a proposed Crossing Plan depicting the Crossing intersection. The DCNR District forester will be the primary point of contact with DCNR. Attached is a list of the current DCNR District foresters. The Crossing Plan will show all proposed signage, roadway markings and any proposed audible or flashing warning devices to be placed on the Footpath approaches and the Highway itself.

The PENNDOT District Office staff will provide assistance and guidance to DCNR during their preparation of the Crossing Plan, as requested by DCNR. Additionally the District Office will review the Crossing Plan and, if acceptable, approve the plan. If the PENNDOT District Office determines that a traffic safety study is needed to identify trail and traffic safety conditions, it will complete a traffic safety study using Attachment A of the MOU. PENNDOT will complete a maximum of ten (10) traffic safety studies per calendar year, statewide, unless PENNDOT chooses to perform additional studies. If adverse or negative traffic safety conditions are identified, whether a study was performed or not, the Department will take one of the following actions:

i) make changes to the Crossing Plan to mitigate the traffic safety condition and notify DCNR of those changes; or,

ii) require DCNR to make changes to the Crossing Plan to mitigate the traffic safety condition and resubmit the plan to PENNDOT.

Tracking System

The Utilities and Right-of-Way Section will develop a tracking/log system for the crossings developed under this MOU. The system will be located in the P Drive. Upon PENNDOT District approval of the Crossing Plan, the District must transmit the following information to the Right of Way Section for each Crossing: name of trail sponsor; name of trail; County; State route number, and segment offset.

Thank you for your assistance in implementing this new procedure. Please contact me if you have any questions.

DCNR – BUREAU OF FORESTRY – DISTRICT OFFICES

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717-352-2211
FAX: 717-352-3007

#2 BUCHANAN
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McConnellsburg, PA 17233-8204
717-485-3148
FAX: 717-485-9283

#3 TUSCARORA
C. Edward Bortzfield
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Blain, PA 17006-9434
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Del: Rt. 30E

#5 ROTHROCK
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Huntingdon, PA 16652
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FAX: 814-643-6304

#6 GALLITZIN
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814-226-1901
FAX: 814-226-1704

#9 MOSHANNON
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FAX: 814-765-0621

#10 SPROUL
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Renovo, PA 17764
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FAX: 570-923-6014

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Bradley W. Elison
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Scranton, PA 18503-2021
570-963-4561
FAX: 570-963-3048

#12 TIADAGHTON
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S. Williamsport, PA 17702-7425
570-327-3450
FAX: 570-327-3444

#13 ELK
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#14 CORNPLANTER
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FAX: 814-723-0270

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Coudersport, PA 16915-0673
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FAX: 814-274-7459
Del: 3150 E. Second St.

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Wellsboro, PA 16901
570-724-2868
FAX: 570-724-6575

#17 VALLEY FORGE
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610-582-9660
FAX: 610-582-9692

#18 WEISER
Mark W. Deibler
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Cressona, PA 17929
570-385-7800
FAX: 570-385-7804
Del: 141 Gordon Nagle Tr

#19 DELAWARE
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HC 1, Box 95A
Swiftwater, PA 18370-9723
570-895-4000 or **4001**
FAX: 570-895-4041

#20 LOYALSOCK
Richard A. Glinski
274 Arbutus Park Road
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570-387-4255
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PENN NURSERY
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137 Penn Nursery Road
Spring Mills, PA 16875-9621
814-364-5150
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APPENDIX AG

STAFFORD ACT AND OTHER FLOOD HAZARD MITIGATION ASSISTANCE GRANT PROPERTY PROCESSES

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CONTENTS LIST

Stafford Act and Other Flood Hazard Mitigation Assistance Grant Property Processes

Attachment A: Example of alternative analysis tabular comparison
Attachment B: Template cover letter from FHWA to PEMA
Attachment C: Template cover letter for NFIP submission
Attachment D: Example template letter of support from municipality
Attachment E: Form RW-321 Agreement of Clarification
Attachment F: Template cover letter for PEMA submission

LIST OF ACRONYMS

BOPD	Bureau of Project Delivery (PennDOT)
CE	Categorical Exclusion
CEES	Categorical Exclusion Expert System
CLOMR	Conditional Letter of Map Revision
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance Grant
H&H	Hydrologic and Hydraulic
HDTS	Highway Design and Technology Section (PennDOT)
HEC-RAS	Hydrologic Engineering Centers River Analysis System
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
LOMR	Letter of Map Revision
LPN	Linking Planning and NEPA
NEPA	National Environmental Policy Act of 1969
NFIA	National Flood Insurance Act of 1968
NFIP	National Flood Insurance Program
OCC	Office of Chief Counsel (PennDOT)
PDM	Pre-Disaster Mitigation
PEMA	Pennsylvania Emergency Management Agency
PHMC	Pennsylvania Historical and Museum Commission
RAS	River Analysis System
RFC	Repetitive Flood Claims
ROW	Right-of-Way
SHPO	Pennsylvania State Historic Preservation Office
SRL	Severe Repetitive Loss
TCE	Temporary Construction Easement
TIP	Transportation Improvement Plan

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APPENDIX AG

STAFFORD ACT AND OTHER FLOOD HAZARD MITIGATION ASSISTANCE GRANT PROPERTY PROCESSES

This appendix describes procedures for utilizing property protected by the U.S. Federal Emergency Management Act (FEMA) Hazard Mitigation Grant Program (HMGP). The HMGP is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) at 42 USC 5170c. FEMA regulations for implementing the HMGP can be found at 44 CFR Part 206, Subpart N and 44 CFR Part 80. HMGP is part of FEMA's Hazard Mitigation Assistance (HMA) program. FHWA regulations implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act specifically require compliance with the Stafford Act. 49 CFR §24.8(n).

The Stafford Act was enacted by Congress in 1988 and provides the legal authority for the federal government to provide assistance to states and localities during declared major disasters and emergencies. The act also establishes the HMGP, which provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Hazard mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects. While there is a wide range of mitigation measure options, a frequently used measure includes removing buildings and purchasing property to restrict future development. This guidance specifically relates to the use of property for PennDOT projects that was acquired by others with an HMGP grant using Stafford Act funding (Stafford Act property).

The HMGP program in Pennsylvania is administered by FEMA through the Pennsylvania Emergency Management Agency (PEMA). Generally, parcels purchased with an HMGP grant will be owned by the local municipality and will indicate the use of grant funding in the deed for the property. Occasionally, HMGP property may be owned by an entity other than the local municipality, such as another state agency, a county, or a qualified conservation organization. In those situations, the current owner will need to perform the role of the municipality described in this policy.

After December 3, 1993, municipalities applying for HMGP grants were required to enter into agreements with FEMA about the future use of the property to be acquired. Section 404(b) (2) (B) of the Stafford Act provides that these agreements must assure that:

i. Any property acquired, accepted or from which a structure will be removed pursuant to the project will be dedicated and maintained in perpetuity for a use that is compatible with open space, recreational, or wetlands management practices;
ii. No new structure will be erected on the property acquired, accepted, or from which a structure was removed under the acquisition or relocation program other than---
    I. a public facility that is open on all sides and functionally related to a designated open space or recreational use;
    II. a restroom; or
    III. a structure that the Administrator approves in writing before the commencement of the construction of the structure; and
iii. After receipt of the assistance, with respect to any property acquired, accepted, or from which a structure was removed under the acquisition or relocation program—

I. no subsequent application for additional disaster assistance for any purpose will be made by the recipient to any Federal entity; and
II. no assistance referred to in subclause (I) will be provided to the applicant by any Federal source.

Since May 4, 1994, FEMA has implemented these provisions of the Stafford Act by requiring that the terms quoted above be included as restrictive covenants in the deeds that convey the Stafford Act property to the municipality as stated per 44 CFR §206.434(e). Most PennDOT projects on Stafford Act property are consistent with these restrictions so long as they are public facilities that are open on all sides and are functionally related to a designated open space or recreational use. For example, PennDOT highway and bridge projects are public facilities and are usually designed to be open on all sides. They are also functionally related to the designated uses of the Stafford Act property because they provide access for the public and emergency personnel. Some PennDOT projects are acceptable uses of the property (i.e. trails) and while the coordination process described here-in would still be required in order to transfer land ownership, PennDOT may not need to prove the facility was part of the pre-existing federal-aid transportation system.

On December 3, 2007, FEMA adopted new regulations governing the acquisition of property for open space under its various grant programs. These regulations can be found at 44 CFR Part 80. New land use and oversight requirements found in Part 80 at 44 CFR §80.19. Part 80 generally disfavors use of Stafford Act property for paved roads, highway or bridge projects, but FEMA retains authority to approve any use of Stafford Act property that it determines compatible with the regulations, as stated in 44 CFR §80.19(a). Part 80 also includes a specific exception that allows improvements to pre-existing federal-aid transportation systems where FEMA determines that competing federal interests are unavoidable and FEMA has analyzed the floodplain impacts for compliance with 44 CFR §60.3, as stated in 44 CFR §80.19(a) (1) (ii).

> "Pre-existing federal aid transportation system" is an existing transportation system that *could be* eligible for a federal aid program. Whether or not the federal funds are utilized as part of the project is not relevant to the determination.

This guidance outlines the procedures that PennDOT will follow to obtain a determination from FEMA, through PEMA, that a PennDOT project using Stafford Act property is compatible with FEMA's Part 80 regulations. Following the guidance will result in a more streamlined process and allow project managers to anticipate a project schedule appropriate for the needs of the project. This guidance does not apply to FHWA-recognized emergency projects that qualify as an emergency repair under 23 USC 125; FHWA recognized emergency projects may proceed without a compatible use determination.

The primary steps of the Stafford Act compatible use determination process are:

1. Identify parcels funded by the Stafford Act.
2. Determine alternatives and conduct a detailed analysis including hydrologic and hydraulic studies of the identified alternatives.
3. Determine if the project must affect the parcel.

4. Determine if the project is a "pre-existing federal-aid transportation system", as stated in 44 CFR 80.19 (1) (ii). This determination is made during scoping and documented during FHWA coordination.
5. Coordinate with the municipality and agencies and document coordination efforts.

Other HMA Grant Programs

The HMGP is only one of three current Hazard Mitigation Assistance (HMA) programs administered by FEMA. Other HMA programs include the Pre-Disaster Mitigation Grant Program (PDM) authorized by Section 203 of the Stafford Act and the Flood Mitigation Assistance Program (FMA), which is authorized by Section 1366 of the National Flood Insurance Act of 1968 (NFIA) at 42 USC 4104c. The PDM is designed to offer funding for projects that reduce the overall risk to the population and structures for future hazard events. FMA funding is used to assist state and local governments in funding cost-effective actions that reduce or eliminate the risk of flood damage to buildings, manufactured homes, and other structures insured under the National Flood Insurance Program (NFIP).

In addition to the current HMA programs, other grant programs existed and resulted in the purchase of property for flood hazard mitigation. These programs include the Repetitive Flood Claims (RFC) grant program; and the Severe Repetitive Loss (SRL) grant program. Both the RFC and the SRL were authorized by the NFIA and offered grants only for disasters declared prior to June 1, 2009.

Property acquired under one of these other HMA programs may also be burdened with a deed restriction for open space and a determination from FEMA will be needed before the property can be used for a PennDOT project. The procedures outlined in this guidance for "Stafford Act" (HMGP) properties should be followed for all other HMA identified properties.

AG.1 IDENTIFY STAFFORD ACT PROPERTIES

Identify and document Stafford Act properties within a project area during project planning; and again, during project scoping. Stafford Act properties are often documented on the project's Linking Planning and the National Environmental Policy Act (NEPA) (LPN) level 2 screening form and the information is then carried through and confirmed on the project's scoping document in the Categorical Exclusion Expert System (CEES). A map layer showing Stafford Act and other HMA properties is also available on the PennDOT One Map system, at https://www.dot7.state.pa.us/OneMap. The layer within PennDOT One Map may include both candidate Stafford Act properties, as well as funded Stafford Act properties. Confirmation of whether funding was actually used will be determined in the next section during the deed review. PennDOT One Map should be consulted periodically throughout the project design process to identify newly acquired properties with Stafford Act funding.

Impacts to Stafford Act properties may not be known until preliminary design; however, if properties are present in the project area, increase the estimated length of the project schedule when planning and programming the project on the transportation improvement program (TIP). Most of the additional time will be needed during preliminary engineering.

> Note the presence of any Stafford Act properties within the project vicinity during secondary source review, prior to the scoping field view. Due to their overall complexity, projects with potential impacts to Stafford Act properties that otherwise qualify as categorical exclusion evaluations should be scoped as Level 2 CEs. Invite FHWA to the scoping field view, regardless of the project funding source. If it is known that there will be no use of the Stafford Act property, or if the use is known to be only temporary, a Level 2 CE is not required.

AG.2 ESTABLISH STAFFORD ACT PROPERTY BOUNDARIES DURING SCOPING

Once a Stafford Act property is identified, establish the Stafford Act property boundaries to determine if right-of-way (ROW) will be required from the property for construction of the project. Stafford Act property boundaries follow the parcel boundary and are defined in the property deed.

Look for language in the deeds that references FEMA, the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the National Flood Insurance Act of 1968, the Hazard Mitigation Grant Program or one of the other HMA programs. Typically, deed review occurs in preliminary design; however, due to the length and complexity of this process, deed review of the Stafford Act (or other HMA funded parcels) should occur during scoping.

Discuss with FHWA during the scoping field view whether the project qualifies as a "pre-existing federal-aid transportation system", which is considered by FEMA an allowable use of Stafford Act properties. Regardless of the funding source used for a project, it may still be eligible for federal funding sources and could qualify as a federal-aid transportation system. Include FHWA's preliminary determination in the scoping document.

Allow time in the project schedule for a detailed alternatives analysis with hydrologic and hydraulic (H&H) modeling on several alternatives. The number of alternatives that would require H&H modeling will be determined based on project and site specifics. Anticipate a minimum of one year of agency coordination, prior to finalizing ROW.

AG.3 STAFFORD ACT PROPERTY IMPACTS

In order to address the needs of a project, ROW may need to be acquired from a Stafford Act property. The general policy of PennDOT is to acquire required ROW in fee simple, except where lesser interests are required for specific limited purposes (See PennDOT Publication 14M (DM-3), Section 3.1). When acquiring ROW from a Stafford Act property, PennDOT will acquire permanent ROW as an easement for highway purposes, except for lesser interests. Lesser interests, such as temporary construction easements,

slope easements, aerial easements, drainage easements, etc., will be acquired in conformity with PennDOT Publication14M and Publication 378.

> **NOTE:** Consider practicable design alternatives to avoid permanent and temporary impacts to Stafford Act funded parcels.

Refer to **Figure AG.1** for an overview of the coordination process if a temporary construction easement or permanent ROW is required from a Stafford Act property.

Temporary Construction Easement Impacts

Compatible use determinations are not necessary when the only acquisition from a Stafford Act property is a temporary construction easement (TCE). If no permanent ROW is required, and a transportation project requires only a TCE from a Stafford Act parcel, send a notification letter to FEMA, through PEMA. The District project manager will coordinate with PennDOT Bureau of Project Delivery (BOPD), Highway Design and Technology Section (HDTS) to develop the letter.

HDTS will send the notification letter to PEMA — Hazard Mitigation Division, Bureau of Recovery and Mitigation, 1310 Elmerton Avenue, Harrisburg, PA 17110, a minimum of 30 days prior to contractor "Notice to Proceed" and include the following:

- Brief project description, including allowable uses of the TCE (i.e. material storage, equipment storage; erosion and sediment pollution controls)
- Anticipated notice to proceed date to contractor and duration of the TCE use
- Figure showing location of the TCE
- Description of standard the TCE conditions per DM-3 and contractor restoration obligations per PennDOT Publication 408 (i.e. contractor on site responsible for security of TCE, no permanent alterations, etc.)

PEMA will forward the notification letter to FEMA and any other appropriate parties.

Permanent ROW Impacts

If project scoping indicates that permanent ROW impacts to a Stafford Act property seem likely, the District project manager will coordinate with HDTS and the District environmental manager to perform a detailed alternatives analysis during the NEPA process. HDTS will take the lead coordinating the technical alternatives analysis process with PEMA.

Alternatives Analysis

The engineering alternatives analysis will determine: if there is a public benefit of the proposed use of the Stafford Act property; if there is no practicable alternative to using the property; or, if undue hardship to the community will result if non-restricted lands are used. In this guidance, a practicable alternative is an alternative where construction is technically feasible, economically justified, and environmentally acceptable.

If the alternatives analysis indicates that permanently impacting a Stafford Act property is the best option, then it will demonstrate that PennDOT has given proper consideration to other options and found them to be impracticable. The detailed alternatives analysis will include hydraulic modeling on alternatives, when the hydraulic modeling is the determining factor in the analysis. For example, if an alternative is dismissed due to roadway geometry, potential impacts to other sensitive resources, safety concerns, or lack of nearby sites that are not Stafford Act properties, then a hydraulic analysis is not needed for that alternative. If two or more alternatives have not been dismissed, their hydraulic impacts can be compared to the non-avoidance alternative's hydraulic analysis.

The objective of the alternatives analysis is to determine if there is a practicable alternative to using the Stafford Act property. If there isn't a practicable alternative, the analysis will clearly document why not. This process is strongly analogous to the analysis completed under Section 4(f).

Include the following components in the alternative analysis:

1. Purpose and Need
2. Project Description
3. Discuss whether the project can meet the purpose and need, but not be built on Stafford Act properties.
4. Description of each alternative, including the no-build alternative and the no-encroachment alternatives
    a. Major features and differences of each alternative
    b. Acreage of land acquisition, including temporary and permanent, compared to total property area for each alternative
    c. Hydraulic analysis of each alternative that meets the project purpose and need and has not been dismissed as an alternative for other reasons. The hydraulic analysis includes Effective, Existing, and Proposed Conditions models, in accordance with FEMA requirements
        i. H&H summary of results
        ii. Check-RAS (River Analysis System) program to verify compliance with current FEMA model standards (optional). Check-RAS can only be used if Hydrologic Engineering Centers River Analysis System (HEC-RAS) was the model utilized in H&H analysis.
        iii. Flood insurance rate maps (FIRM)
        iv. Discuss any letter of map revisions (LOMR) or conditional letter of map revisions (CLOMR) since the FIRM was published
        v. Discuss any known new encroachments or changes to encroachments that may not be shown on FIRMs, LOMRs, or CLOMRs
        vi. Discuss freeboard requirements as required per locally adopted floodplain management ordinance
        vii. Discuss any changes in velocity (its effect on wildlife passage, beneficial floodplain value, stream morphology, scour, etc.)
        viii. Tabular comparison of all models and key parameters and differences
    d. Environmental impacts (NEPA considerations)
    e. Project cost estimate

f. Construction details (including demolition)
g. Is the alternative practicable (within reasonable natural, social, or economic constraints)?
h. Is there an undue hardship to the community if the alternative is chosen?

5. Prepare a tabular comparison of alternatives, including denoting major features and differences, general impacts, cost, ROW requirements, environmental impacts, hydraulic characteristics (if applicable), advantages, disadvantages, etc. An example tabular comparison is provided as **Attachment A**. Column headings should be project specific and compare the project needs and resources present.
6. If the preferred alternative would require permanent acquisition of Stafford Act property, include a discussion explaining why there is no alternative, other than the proposed project's preferred alternative, on which this construction is technically feasible, economically justified, and environmentally acceptable. Discuss the basis of selection of preferred alternative and why proposed action must be located in floodplain (if applicable).

If there is no practicable alternative to acquiring ROW from a Stafford Act funded property, the alternative selected must adhere to requirements set forth in 44 CFR 60.3, which establishes requirements based on the FEMA designated flood zone where the project is located. For projects within a detailed study area (i.e. Zone AE, A1-30) with an established floodway, H&H analysis must demonstrate that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge. For projects within other designated zones or without an established floodway, please refer to 44 CFR 60.3 for requirements.

> **NOTE:** Within a detailed study area, FEMA considers no increase as 0.00 feet. An increase above 0.00 feet is allowed, if a CLOMR application is submitted and approved. The CLOMR application process timeline would be in addition to the compatible use justification process. Following construction of the project, prepare a LOMR application, if there is a modeled increase of flood levels.

The alternative analysis will be conducted as part of the project's NEPA analysis. Environmental resources need to be identified for each of the alternatives. The NEPA document will assess the selected alternative project impacts and document Stafford Act property impacts. Ensure project compliance with Section 106 of the National Historic Preservation Act and PennDOT Publication No. 689 – *The Transportation Development Process: Cultural Resources Handbook.* Complete consultation with the Pennsylvania State Historic Preservation Office (SHPO), prior to submission of the Compatible Use Determination Request to PEMA.

FHWA Coordination

If the preferred alternative requires ROW acquisition on Stafford Act funded properties, the District project manager will coordinate with PennDOT HDTS. PennDOT HDTS will take the lead with the remainder of the process. PennDOT HDTS will describe the proposed transportation improvement project to FHWA and request FHWA correspondence that (1) acknowledges FHWA's review and analysis of the project

alternatives study and H&H reports for technical sufficiency, and (2) confirms that the project is "part of a pre-existing federal-aid transportation system". Specifically, the FHWA Program Development Team environmental representative should provide a letter that documents the following (a template of items to be included in the letter is included as **Attachment B**):

1. FHWA's participation in the project alternatives study (as applicable),
2. FHWA's review of the H&H report for technical sufficiency (as appropriate) and whether or not FHWA believes that the project will have any calculable hydraulic impacts,
3. Whether or not FHWA recommends that FEMA determine the project be considered "part of a pre-existing federal-aid transportation system" based on FHWA's federal-aid funding eligibility determination (and if so what federal funds would be eligible to be spent on the project), and
4. FHWA concurrence with respect to the transportation need(s) for the project.

If FHWA determines that the project is not considered part of a pre-existing federal-aid transportation system, HDTS should additionally draft a letter to FEMA that explains why the overall project is compatible with the Part 80 Open Space requirements. Examples of items to consider in drafting this letter include whether the project benefits the Stafford Act property by providing necessary access, the overall impact of the project on the floodplain, and any mitigation that will be performed as part of the project.

NFIP, Municipality, and/or County Coordination

Next, coordinate with both the Commonwealth's NFIP coordinator and the municipality (property owner). PennDOT will supply FEMA with evidence that the proposed project supports federal, state, and local floodplain management requirements. This component must be supported with a written statement from the local floodplain administrator and the Commonwealth's NFIP Coordinator.

> **NOTE:** In Pennsylvania, the state NFIP coordinator can be contacted at the Department of Community & Economic Development, Attn: NFIP Coordinator, 400 North Street, 4th Floor, Harrisburg, PA 17120-0225

PennDOT must coordinate with the Commonwealth's NFIP Coordinator to determine that the H&H analysis of the selected alternative meets the requirements of 44 CFR 60.3, the Pennsylvania Flood Plain Management Act of 1978, Act 166, and 25 PA Code Chapter 106. Coordination with the NFIP coordinator will include:

1. Cover letter describing the project and request a review of the H&H analysis (template included as **Attachment C**)
2. H&H analysis and report of selected alternative
3. Electronic version of HEC-RAS models, including Effective, Duplicate Effective (if applicable), Existing, and Proposed models.

The District project manager will coordinate with the municipality, which is the current owner of the Stafford Act funded parcel(s). Coordination with the municipality should include:

1. Cover letter describing the project and request to transfer a portion of Stafford Act property to a PennDOT highway easement with the underlying fee interest to remain with the affected municipality.
2. Parcel maps or site alignment maps that reflect the legal description as stated in the deed. Lot and subdivision numbers (if applicable) must be labeled and the exact limit of the proposed project must be highlighted.

The District project manager will assist the municipality in their review and preparation of their letter to PEMA, Hazard Mitigation Division, Bureau of Recovery and Mitigation. An example of a municipality letter to PEMA stating their support of a transportation improvement project that affects Stafford Act funded lands is provided as **Attachment D**.

Concurrently, if the municipality supports the project, an Agreement of Clarification should be provided for municipality signature. The District project manager will provide the municipality with an agreement of clarification for signature, using Form RW-321. Form RW-321 is provided as **Attachment E** and can be obtained from the District ROW Administrator. Contact the Office of Chief Counsel, Real Property Division, with any questions related to completing Form RW-321.

PEMA Coordination

Once FHWA, the state NFIP coordinator, and the affected municipality have responded favorably, early coordination with PEMA is recommended. A face-to-face meeting to introduce the project and circumstances will help to inform PEMA of the upcoming submittal, offer an opportunity for project discussion and answer questions, and identify project specific needs in the Compatible Use Determination Request process. Attendees at the meeting should be:

- PennDOT District project manager
- PennDOT District environmental manager
- PennDOT District ROW representative
- PennDOT BOPD-HDTS representative
- PennDOT BOPD-ROW representative
- FHWA Program Development Team environmental representative
- Municipality/county/property owner representative
- PEMA Hazard Mitigation Division, Bureau of Recovery and Mitigation
- PEMA Area Office (Eastern, Central, or Western)

Prepare minutes of the meeting to clearly document the project discussions that occurred.

AG.4 FEMA COMPATIBLE USE DETERMINATION REQUEST

Subsequent to the meeting with PEMA, any project specific requirements for the FEMA coordination should be clear and PennDOT can proceed in drafting the compatible use determination request package. The package will be submitted to PEMA, Hazard Mitigation Division, Bureau of Recovery and Mitigation, for their review and concurrence, prior to submitting to FEMA.

Minimum contents of the compatible use determination request:

1. Cover letter to PEMA that includes project description, project purpose and need, summary results of alternative analysis, and request for a compatible use determination. The letter states that PennDOT will only use the requested ROW for purposes compatible with open space, recreational, or wetland management practices and that no other structures or improvements shall be erected on the premises other than the stated transportation improvements included in the enclosed documents. A template example of a cover letter appropriate for PEMA submission is provided as **Attachment F**.
2. Alternative analysis including all items listed in section AE.3 of this guidance.
3. FHWA correspondence documenting their review of the project and confirmation that the project is part of a "pre-existing federal-aid transportation system". If applicable, also include HDTS correspondence to FEMA that explains why the overall project is compatible with the Part 80 Open Space requirements.
4. Municipality concurrence
5. Deed(s)
6. Parcel maps or preliminary right-of-way plans which reflect the legal descriptions as stated in the deed(s). The exact limit of the proposed project must be highlighted. Written confirmation from PennDOT must be included that demonstrate the subject property and maps are correctly related. FEMA has requested that a state agency certify that the property boundary stated in the deed matches what is provided on mapping. PennDOT should provide the confirmation.
7. Evidence that the proposed project supports federal, state, and local floodplain management requirements, supported with a written statement from the local floodplain administrator (to be included in PEMA's cover letter submission to FEMA Headquarters through the FEMA Region III office) and the state NFIP Coordinator.
8. Brief description of the type of NEPA document being prepared, status of the project's Cultural Resources Section 106 process, and type of state and federal permitting required for the project.
9. The Agreement of Clarification (Form RW-321), signed by the municipality (Director of PEMA signs agreement prior to FEMA submission)
10. PEMA concurrence (to be included in PEMA's cover letter submission to FEMA)
11. Other items requested at the pre-submission PEMA meeting.

Separate from the FEMA compatible use determination request package, but submitted to PEMA concurrently, include a document that summarizes comments/requests from the pre-submission PEMA meeting and how they were addressed in the package.

Submit the document to PEMA and schedule a face-to-face meeting two weeks subsequent to submission to provide an opportunity for PEMA to discuss the project with PennDOT and request any clarifications needed. Continue to coordinate with PEMA to remain current on status of the review and continue to provide clarification, if needed. Once document is deemed complete by PEMA, PEMA will forward it to FEMA for their review, as appropriate. Continue regular communication with PEMA to obtain updates on the review progress.

Following PEMA's concurrence and submission to FEMA, the NEPA document for the project can be submitted for review and approval. Project impacts need to be adequately assessed (particularly floodplain impacts) in the document. The pending approval of the FEMA compatible use request must be acknowledged in the document.

> **NOTE:** Even though NEPA approval may take place as indicated above, there is risk in proceeding with final design activities and acquisition of other ROW parcels if these activities are dependent on FEMA's approval of the use of the Stafford Act property. It would be prudent to limit final design and other activities to those that will be needed regardless of whether FEMA approves the use of the property or not. If FEMA does not approve the request, a re-evaluation of the NEPA document will be necessary.

AG.5 FEMA COMPATIBLE USE APPROVAL

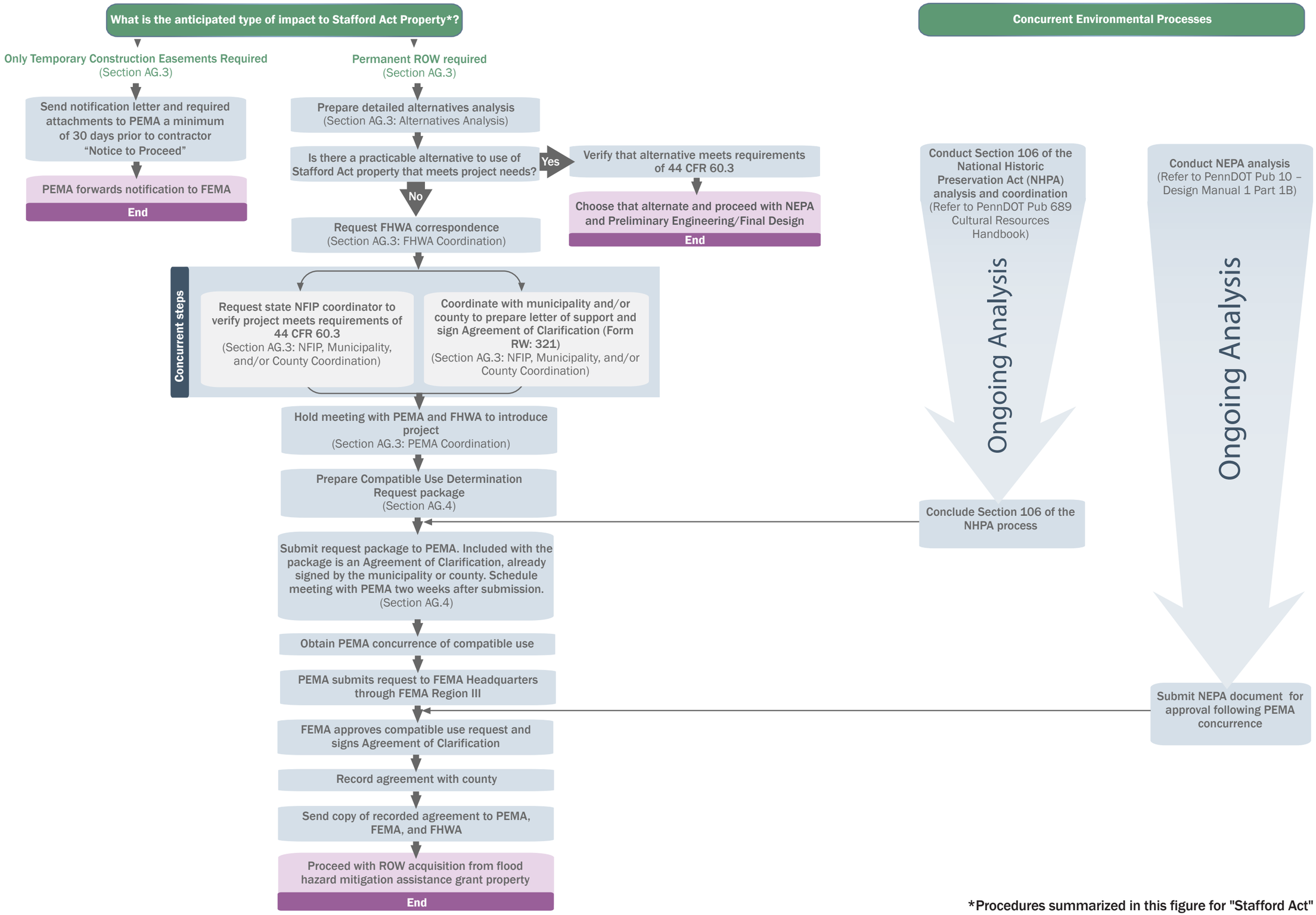
FEMA will approve and concur with the compatible use request by signing the agreement of clarification. It will need to be signed between the affected municipality, Director of PEMA, and FEMA in order to document FEMA's compatible use determination.

PEMA is responsible for the coordination and signing of the agreement of clarification. After signature, PEMA will provide the original executed agreement of clarification to HDTS. The District ROW Unit will record the agreement in the county where the parcel is located. The agreement of clarification will be indexed in the grantor and grantee indices in the name of the municipality. The recordation can be completed as part of the final ROW settlement agreement with the municipality. HDTS will then send a copy of the recorded agreement to PEMA and FEMA for their records, and provide FHWA with documentation of the compatible use determination made by FEMA. Recordation of the agreement of clarification allows PennDOT to acquire permanent ROW on Stafford Act properties.

AG.6 LATE FINDING OF PROJECT IMPACTS ON STAFFORD ACT PROPERTY

Should a project impact a Stafford Act property, but not be identified until ROW acquisition or anytime within the design process, PennDOT must complete the TCE notification or compatible use request, as appropriate. A NEPA re-evaluation will be required, if environmental approval has been received. The project manager should contact HDTS as soon as possible to begin the process and determine that no other practicable alternative exists to using Stafford Act lands. Anticipate significant project schedule delays if this occurs late in the project development process.

Figure AG.1: Stafford Act Property Impacts Process Flow Chart



*Procedures summarized in this figure for "Stafford Act" (HMGP) properties should also be followed for all other HMA identified properties.

Attachment A, Table 1. Alternative Analysis Matrix

(Column and row headings should be adapted based on the specific project. Add additional columns as needed. Shade blocks red that lead to an alternative not being practicable. Shade the preferred alternative green.)

Project Name/Location

Date

Alternatives[1]	Bridge Construction Method[2]	Project Purpose and Needs[3]		Detour[4]	Bridge Length	Length of Approach Construction	Anticipated Construction Time	Parcel Impacts[5]	Stafford Act Funded Property Impacts[6]	Area Impacted on Stafford Act Properties	Length of Stream Impacts	Change in Water Surface Elevation (WSEL) from Existing	NEPA Impacts[7]	
No Build Alternative														
Alternative 1 - Bridge Rehabilitation														
Alternative 2 - On-Alignment Bridge Replacement - Bridge Type #1														
Alternative 3 - On-Alignment Bridge Replacement - Bridge Type #2														
Alternative 4 - Off-Alignment Bridge Replacement 100 ft. Downstream														
Alternative 5 - Off-Alignment Bridge Replacement 100 ft. Upstream														
Alternative 6 - Off-Alignment Bridge Replacement outside of all Stafford Act Parcels														

[1] Include all feasible alternatives that meet the project needs to avoid the Stafford Act protected property - examples are included in table; add or delete alternatives as needed.

[2] Half width vs full width.

[3] Add project needs to the table as necessary; describe if the alternatives meets the project need.

[4] Include length of detour, if detour route requires improvements, any detour route limitations.

[5] Include number of residential or business displacements and other impacts such as those to a park or trail.

[6] Include parcel numbers, parcel locations, and total number of parcels impacted.

[7] Add NEPA impact columns that are relevant in selecting the alternative.

Attachment B: Template correspondence from FHWA to PEMA

Date

Mr. Tom Hughes
PEMA
Bureau of Recovery and Mitigation
1310 Elmerton Avenue
Harrisburg, PA 17110

Dear Mr. Hughes:

The proposed project involves the *xxxx* of the *xxxx* over *xxxxx creek/stream/river* in *Municipality, County*. The roadway approach work will involve *xxxx*. The Federal Highway Administration (FHWA) has participated in the project alternatives analysis and also reviewed the hydrologic and hydraulic report for technical sufficiency. We have confirmed that the project has no calculable hydraulic impacts.

FHWA recommends that the Federal Emergency Management Agency (FEMA) determine the project to be "part of a pre-existing federal-aid transportation system" due to its eligibility for federal-aid funding and the importance of this *bridge/roadway* to transportation in *xxxx* County. The *xxxx* of the existing *xxxx* is eligible for FHWA *xxxx (name the type of funding)*. This route is vitally important to transportation in *xxxx* County and FHWA has concurred with the need to *xxxx* (*replace/rehab/etc.)*. If you have any questions, please contact *xxxx*.

Sincerely,

Division Administrator

Enclosures

Attachment C: Template correspondence from PennDOT to NFIP Coordinator

Date

Mr. Dan Fitzpatrick
State Coordinator National Flood Insurance Program
Department of Community and Economic Development
400 North Street, 4th Floor
Harrisburg, PA 17120

Dear Mr. Fitzpatrick:

The proposed project involves the *xxxx* of the *xxxx* over *xxxxx creek/stream/river* in *Municipality, County*. The roadway approach work will involve *xxxx*. The proposed project is located within the vicinity of a Hazard Mitigation Assistance grant property. The Pennsylvania Department of Transportation (PennDOT) requests your review of the hydrologic and hydraulic (H&H) report prepared for this project. Included for your review are the H&H analysis and report and an electronic version of the HEC-RAS models. Upon your review, please send notification of your agreement that the project meets the regulations of the National Flood Insurance Program, as contained in 44 CFR 60.3, and PA Act 166, The Pennsylvania Flood Plain Management Act of 1978.

Sincerely,

XXXXXXX
Highway Design and Technology Section
PennDOT – Bureau of Project Delivery

Enclosures

Attachment D: Example template letter of support from municipality

Date

Richard D. Flinn Jr., Director
PEMA
1310 Elmerton Avenue
Harrisburg, PA 17110

Dear Mr. Flinn:

xxxx Borough/Township has reviewed the plans for the replacement of the bridge on *xxxx* over *xxxx Creek/Run/River*. On *Date, xxxx Borough/Township* met and approved the request from the Pennsylvania Department of Transportation (PennDOT) to utilize portions of properties acquired through the Robert T. Stafford Relief and Emergency Assistance Act (*or other hazard mitigation program). Project Description* will be located in accordance with the attached plan and involves the following parcels.

Parcel	**Right of Way (easement)**	**Temporary Construction Easement (TCE)**
202	*144 SF*	*0 SF*
203	*400 SF*	*50 SF*
204	*1000 SF*	*100 SF*
205	*10000 SF*	*1000 SF*
Total	***11,544 SF***	***1150 SF***

In accordance with the terms and provisions of the Robert T. Stafford Relief and Emergency Assistance Act *(or other hazard mitigation program)*, the areas noted above will be conveyed as a highway easement with the underlying fee interest to remain with *xxxx Borough/Township*.

Sincerely,

Attachment E: Form RW-321 Agreement of Clarification

Prepared By:

pennsylvania
DEPARTMENT OF TRANSPORTATION

Return To:

Site Location:

RW-321

COUNTY	
S.R. - SECTION	
MUNICIPALITY	
PARCEL NO(s).	

AGREEMENT OF CLARIFICATION (Stafford Act)

THIS AGREEMENT OF CLARIFICATION, to land use restrictions and exceptions in accordance with Federal and Commonwealth requirements is made among owner(s) of property described below, heirs, executors, administrators, successors, and/or assigns, hereinafter, whether singular or plural, called the OWNER, and the Commonwealth of Pennsylvania, acting through the Pennsylvania Emergency Management Agency, hereinafter called the COMMONWEALTH, and the United States of America, acting through the Federal Emergency Management Agency, hereinafter called FEMA,

W I T N E S S E T H

WHEREAS OWNER is the fee owner of real property, hereinafter called PROPERTY, assigned the above referenced parcel identification numbers and further identified in exhibit "A"; and

WHEREAS, the Robert T. Stafford Disaster Relief and Emergency Assistance Act ("The Stafford Act"), 42 USC §5121 et seq., identifies the use of disaster relief funds under § 5170c, the Hazard Mitigation Grant Program, hereinafter called HMGP, to provide the process for a community, the COMMONWEALTH, to apply for federal funds to be used to acquire interests in property, including the purchase of structures in the floodplain, to demolish and/or remove the buildings, and to convert and maintain the land use of such property as open space in perpetuity; and

WHEREAS, OWNER acquired its interest in the PROPERTY as the subgrantee, or the successor in interest of a subgrantee, of a grant to the COMMONWEALTH under the HMGP; and

WHEREAS, the terms of the Stafford Act, its implementing regulations (44 CFR Part 206, Subpart N and 44 CFR Part 80), the FEMA-COMMONWEALTH agreement, and the COMMONWEALTH-local agreement require that the subgrantee agree to terms that are intended to restrict the use of the land to open space in perpetuity in order to protect and preserve natural floodplain values, referenced in deed exceptions recorded as follows: ; and

WHEREAS, 44 CFR § 80.19(a)(1) provides that allowable uses of property dedicated and maintained in perpetuity as open space for the conservation of natural floodplain functions may include parks for outdoor recreational activities; wetlands management; nature reserves; cultivation; grazing; camping (except where

Attachment E: Form RW-321 Agreement of Clarification

adequate warning time is not available to allow evacuation); unimproved, unpaved parking lots; buffer zones; and other uses FEMA determines compatible with 44 CFR Part 80; and

WHEREAS, 44 CFR § 80.19(b) provides that after acquiring the property interest, the subgrantee, including successors in interest, shall convey any interest in the property only if the FEMA Regional Administrator, through the COMMONWEALTH, gives prior written approval of the transfer; and

WHEREAS, the Commonwealth of Pennsylvania, acting through the Department of Transportation, hereinafter PENNDOT intends to construct a highway project to construct or improve the above mentioned State Route as further described in exhibit "B", hereinafter called the PROJECT; and

WHEREAS, PENNDOT has determined that completion of the PROJECT will require PennDOT to obtain an easement for highway purposes across a portion of the PROPERTY; and

WHEREAS, based on sound engineering, applicable regulations and procedures, PENNDOT has given proper consideration to other options to meet the purposes and needs of the PROJECT and has found them to be impracticable; and

WHEREAS, the COMMONWEALTH, in consultation with FEMA, has determined that there reasonably is no land, other than the alignment for the PROJECT described in exhibit "B", on which this construction is technically feasible, economically justified and environmentally acceptable; and

WHEREAS, based on information provided by PENNDOT, the Federal Highway Administration, hereinafter FHWA, has advised FEMA that the PROJECT is an improvement to a pre-existing Federal-aid transportation system or is otherwise necessary to serve competing Federal interests; and

WHEREAS, based on information provided by the COMMONWEALTH, FEMA has analyzed floodplain impacts associated with the PROJECT for compliance with 44 CFR § 60.3 or higher standards, and

WHEREAS, based on information provided by the COMMONWEALTH, FEMA has determined that the PROJECT will be constructed in a manner compatible with 44 CFR Part 80 and other applicable regulations related to floodplains;

NOW, THEREFORE, in consideration of the sum of the mutual covenants contained herein, the parties, intending to be legally bound, agree as follows:

1. The above recitals are incorporated into and made an integral part of this Agreement of Clarification.

2. The COMMONWEALTH and FEMA hereby approve acquisition of an easement for highway purposes on the PROPERTY through condemnation or agreement in lieu of condemnation by PENNDOT using its ordinary processes and procedures. The areal extent of this easement for highway purposes shall be no greater than the minimum necessary for the PROJECT.

3. OWNER shall remain the fee owner of the PROPERTY and shall retain a reversionary interest in the area of the easement for highway purposes. In the event that OWNER or its successors exercises this reversionary interest, the terms and conditions of the HMGP grant award and the associated property conveyance shall continue to restrict any future use of the PROPERTY by OWNER or its successors.

4. Nothing in this AGREEMENT OF CLARIFICATION shall be interpreted to eliminate, amend, change or in any way modify the recorded deed exceptions on the portions of the PROPERTY outside

Attachment E: Form RW-321 Agreement of Clarification

the easement for highway purposes. The PROPERTY shall otherwise remain subject to the terms and conditions of the HMGP grant award and the associated property conveyance.

5. Should any provision of this Agreement of Clarification or application thereof to any person or circumstance be found to be invalid or unenforceable, the rest and remainder of the provisions of this Agreement of Clarification and their application shall not be affected and shall remain valid and enforceable.

6. The restrictions and other requirements described in this Agreement of Clarification shall run with the land and be binding on the Owner's successors, assigns and lessees or their authorized agents, employees or persons acting under their direction and control.

7. This Agreement of Clarification shall not be amended, modified or terminated except by a written instrument executed by and between the titleholder of the PROPERTY at the time of the proposed amendment, modification or termination, the COMMONWEALTH and FEMA, which written instrument shall be recorded with county register of deeds.

Attachment E: Form RW-321 Agreement of Clarification

IN WITNESS WHEREOF, the parties have executed this Agreement of Clarification:

_____	_____
OWNER DATE	COMMONWEALTH OF PENNSYLVANIA DATE
name:	Pennsylvania Emergency Management Agency
title:	name:
	title:

STATE OF PENNSYLVANIA COUNTY OF _____ On this _____ day of _____, 20____, before me, _____, the undersigned officer, personally appeared _____ _____, who acknowledged _____self to be the _____ [*title*] of _____ [*name of entity*], and that as such _____ _____ [*title*], being authorized to do so, executed the foregoing instrument for the purposes contained in it by signing on behalf of the entity as _____ [*title*]. In witness whereof, I hereto set my hand and official seal. _____ [*Signature*] _____ [*Title*] [*Seal*]	STATE OF PENNSYLVANIA COUNTY OF _____ On this _____ day of _____, 20____, before me, _____, the undersigned officer, personally appeared _____ _____, who acknowledged _____self to be the _____ [*title*] of the Pennsylvania Emergency Management Agency], and that as such _____ _ [*title*], being authorized to do so, executed the foregoing instrument for the purposes contained in it by signing on behalf of the entity as _____ [*title*]. In witness whereof, I hereto set my hand and official seal. _____ [*Signature*] _____ [*Title*] [*Seal*]

_____
FEDERAL EMERGENCY MANAGEMENT AGENCY DATE
name:
title:

Attachment E: Form RW-321 Agreement of Clarification

STATE OF PENNSYLVANIA
COUNTY OF _____

On this _____ day of _____, 20____, before me, _____, the undersigned officer, personally appeared _____ _____, who acknowledged _____self to be the _____ [*title*] of the Federal Emergency Management Agency, and that as such _____ _____ [*title*], being authorized to do so, executed the foregoing instrument for the purposes contained in it by signing on behalf of the entity as _____ [*title*].

In witness whereof, I hereto set my hand and official seal.

_____ [*Signature*]
_____ [*Title*]

[*Seal*]

Attachment F: Template correspondence from PennDOT to PEMA RE: package submittal

Date

Mr. Tom Hughes
PEMA
Bureau of Recovery and Mitigation
1310 Elmerton Avenue
Harrisburg, PA 17110

Dear Mr. Hughes,

SR *xxxx* over *xxxxx creek/stream/river* is in poor condition due to (*list deficiencies and provide project description*). The Pennsylvania Department of Transportation (PennDOT) has analyzed alternatives and determined replacement of the bridge *on-alignment/off-alignment* is the safest option for the travelling public, construction is technically feasible, economically justified, and environmentally acceptable.

Many alternatives were considered, but no practicable alternative exists to using restricted lands funded by the *Robert T. Stafford Disaster Relief and Emergency Assistance Act/National Flood Insurance Act of 1968*. PennDOT therefore requests the Pennsylvania Emergency Management Agency (PEMA) and the Federal Emergency Management Agency's (FEMA) review of the attached Compatible Use Justification package to determine if required right of way (ROW) can be utilized for the pre-existing, federal aid transportation improvement project. PennDOT will only use the requested ROW for purposes compatible with open space, recreational, or wetland management practices, and no other structures or improvements shall be erected on the premises other than the stated transportation improvements included in the enclosed documents.

We will contact you soon to schedule a meeting to discuss this matter. In the meantime, if you have any questions, feel free to contact me at *phone number* or *email*.

Sincerely,

Name, title
Highway Design and Technology Section
PennDOT – Bureau of Project Delivery

DM-1X, APPENDIX AH

RISK MANAGEMENT FOR PROJECT DEVELOPMENT

Portions of this document were developed utilizing the Caltrans "*Project Risk Management Handbook: A Scalable Approach*", June 2012; and FHWA's "*Final Guide for the Process of Managing Risk on Rapid Renewal Projects*", April 2016.

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AH.1 Risk Management Introduction

Every project has risks, regardless of size or complexity, and each risk will have a negative or positive effect on at least one project objective (cost, time, scope, or quality). Thus, risk management, in the context of the planning, design, construction, and operation of a transportation project, is the process to better understand and to optimize project performance by anticipating and planning for potential problems or "threats" and potential improvements or "opportunities". The sections of this document provide the following guidance:

- **Section AH.1, *Risk Management Introduction***, provides PennDOT's definition, objectives, and benefits for risk management.
- **Section AH.2 *Risk Management Levels, Responsibilities, and Project Integration***, provides details for the scalable approach to risk management, which is based on project complexity.
- **Section AH.3, *Risk Management Process***, explains each step of the risk management process.
- **Section AH.4, *How to Use the Appropriate Risk Management Tool***, contains information on how the PennDOT Risk Management Template is used to capture each of the risk management steps.
- **Section AH.5, *Appendices***, contains a glossary, risk response examples, and an outline for a risk management plan.

AH.1.A. Risk Management Defined

Risk can be characterized by probability of occurrence and level of impact on a project. Throughout the project life cycle, a future event that may occur at any time in a project's life cycle is a risk. It has a probability of occurrence and an uncertain impact if it does occur. However, *do not confuse risks with issues*. While a risk is an uncertain event that has a probability associated with it, negative issues are problems that the project team is facing right now, requiring an immediate response. Consider risk management as a *proactive* activity, while issue management is *reactive*. In other words, an issue is something that needs to be resolved and a risk is something that could affect your project in the future based on the current phase of project development, delivery and operational management.

Risk vs. Issue Example

Risk – potential weather delays during construction

⇨ account for potential delays in construction schedule

Issue – two weeks of rain have delayed construction

⇨ consider additional shifts, overtime to maintain schedule

A formal risk management approach helps to optimize project performance (i.e., cost and schedule) in planning, design and construction phases. Through risk management, PennDOT can better address the questions of "How much will it cost?" and "How long will it take?" Risk management enables PennDOT to anticipate threats and opportunities and subsequently evaluate and plan for them. This includes mitigating threats and opportunities to project performance in terms of cost (e.g., additional design costs and construction work orders) and schedule (e.g., negative float, delays and missed let dates).

Risk management is an ongoing process, beginning at the conception of a project and continuing through construction and facility operation. The process has basic components as summarized in **Exhibit 1, *Risk Management Features and Questions*.** Each component has a corresponding simple question that can help identify options for how to address that component. Integration of the risk management into PennDOT's project development process is presented in **Section AH.4**.

Risk Management Feature	Simple Question
Risk Management Scalability	What's the **appropriate level of risk management which can be cost effectively applied** for this project?
Risk Identification	What risks might **negatively or positively** affect achieving the project objectives?
Qualitative Risk Analysis	What is the **likelihood** of risk occurrence and level of **impact** of a risk occurring in descriptive or qualitative terms of high, medium, and low?
Quantitative Risk Analysis	**How** could a risk affect the project in terms of **cost and schedule**?
Planning and Response	**What** can be done to mitigate the risk?
Ownership and Communication	**Who** will be responsible to manage risk, follow up on mitigation actions and coordinate and communicate?

EXHIBIT 1, RISK MANAGEMENT FEATURES AND QUESTIONS

AH.1.B. Risk Management Objectives

PennDOT's objectives for adopting a formal risk management approach include:

- Enhance project team communication regarding risk identification and monitoring;
- Improve project performance by anticipating, managing and mitigating risks;
- Expand project team understanding resulting in fewer surprises;
- Enhance project management and risk management culture;
- Manage public expectations;
- Integrate risk identification with initial project planning;
- Strengthen communication between planning partners, Districts and Central Office;
- Improve estimates of project budgets, milestones, and contingencies; and
- Allow better cash flow predictability, balance of let dates, and management of TIP (Transportation Improvement Program).

The risk management process addresses project performance in terms of cost and schedule. The assessment especially helps teams focus on high severity risk with a mitigation approach that considers the cost-benefit. While risks are typically discussed throughout PennDOT projects, generally documentation and management of those risks is informal. The process of risk management involves formal documentation of risks, assessing likelihood and impact of each risk, establishing the proactive actions to accommodate the threat or opportunity, and monitoring and updating status of the list of risks throughout all phases of a project. This documentation is readily captured in what is called a *Risk Register* that is created early in the project development process. The register should be maintained and monitored throughout the project's life to realize the most benefit.

AH.1.C. Benefits

Risk Management Benefits

- Reduce potential for cost overruns
- Increase on-time delivery
- Fewer surprises

PennDOT's risk management process provides enhanced fiscal management for the planning, design, and construction and system operations programs. Through this process, PennDOT can better predict cash flow needs, balance let dates, maintain the TIP effectively, and system management and preservation. Additionally, important project delivery benefits, such as reducing the potential for cost overruns and increasing the likelihood of on-time delivery through better management, will generally result in fewer surprises.

The Project Team Includes	
Planning Partner (MPO or RPO)	Traffic Engineer
Project Stakeholders	Geotechnical Engineer
Planning and Programming Manager	Storm Water Management Engineer
Portfolio Manager	Right-of-Way Personnel
Project Manager	Utilities Personnel
Design Team	Construction personnel (suggested at the ACE level)
Environmental Manager	
Bridge Engineer	Other Specialists as Required

The PennDOT risk management process includes a simple to use tool, optimizes project performance, and ensures that the process becomes a foundation for successful project management. Through its execution, risk management will be a foundation for successful project management and team collaboration. This collaboration of the various disciplines on the project team is essential so that 1) potential risks are not overlooked, and 2) experienced team members provide an appropriate assessment of risk probability and impact.

It is also important to note another intangible (and likely tangible) benefit of the risk management approach. Setting appropriate contingency and float respectively for cost and schedule can help to reduce some of the "guess work" often associated with each.

PennDOT's Risk Management approach features and benefits are summarized in **Exhibit 2, *Features and Benefits***.

Feature	Benefit
Scalable Approach	The appropriate level of risk management including the level of risk analysis and mitigation is applied based on project size and complexity.
Team	Risk management is based on a prioritization of risks. The expertise of team members is leveraged by having the team identify and assess the risks, as well as identify mitigation strategies within the functional area of their expertise (e.g., design, construction, right-of-way, regulatory permits, drainage, utilities, hydraulics, geotechnical, etc.)
Project Delivery Risk Manager	A Project Delivery Risk Manager is an assigned position on a Complex, high dollar value project (see **Exhibit 3, *Risk Management Level Selection***) to assist the Project Manager in the development and implementation of the project risk management plan.
Ownership of Risks and Responsibilities	A risk owner is a person or entity (e.g., work unit) that has been given the authority, responsibility, and resources to manage a particular risk and is accountable for doing so**.** This assignment should be made based on who is best able to manage that risk. Risk owners support the Project Manager/Project Delivery Risk Manager in risk monitoring and implementation of a selected response. It should not be assumed that Project Delivery Risk Manager does all the work to manage the risk; but rather serve as a process facilitator.
Risk-Based Decision-Making	Project values such as cost, schedule, and quality should be balanced when making decisions. This practical focus results in a need to have a formal risk management program with objectives to improve project performance (cost, schedule, disruption and longevity).

EXHIBIT 2, FEATURES AND BENEFITS

AH.2 Risk Management Levels, Responsibilities, and Project Integration

This section provides information on PennDOT's approach to a scalable risk management process, who is responsible for risk management on both a project level and Department level, and how risk management is integrated with PennDOT's project development process. The objectives include:

- Providing a consistent methodology for performing project risk management activities;
- Providing techniques and tools for project risk management; and
- Providing information on how project risk management fits with the overall project management process at PennDOT.

AH.2.A. Risk Management Levels – Scalable Approach

PennDOT's risk management process is inherently scalable based on project complexity, which is defined in Publication 10, DM-1, Chapter 2. These project complexities (Non-Complex (Minor), Moderately Complex, Most Complex (Major)) help determine the depth of risk assessment and the appropriate level of risk management in terms of both the number of potential risks captured on a risk register (i.e., fewer for a minor project) as well as the amount of assessment and analysis required.

The PennDOT risk management process includes three levels of risk management based on project complexity and is cross referenced with approximate cost. Level 1 entails the basic level of risk management where the team can select from a list of common risks or add risks not found on the level 1 register. Levels 2 and 3 require a greater level of risk management, but differ in the type of analysis required (qualitative or quantitative).

Exhibit 3, *Risk Management Level Selection*, details the levels of risk management along with the strategies and tools that facilitate each level. All projects have risks, and the level of effort should be commensurate with risk management level.

A correlation of the risk management process steps for each level of risk management is provided in **Section AH.3**.

Risk Mgmt Level	Complexity*	Project Cost (all phases)	Risk Strategy and Tools	Project Delivery Risk Manager
1	**Non-complex (Minor)**	<=$5M	Level 1 Register Recommended	Project Manager
		$5M-10M	Level 1 Register	Project Manager
	Resurfacing or preventive maintenance	<=$30M	Level 1 Register Recommended	Project Manager
		>$30M	Level 1 Register	Project Manager
2	**Non-complex**	>=$10M	Level 2 Register, **Qualitative** Analysis, Risk Response	Project Manager
	Moderately Complex	<=$10M	Level 2 Register, **Qualitative** Analysis, Risk Response	Project Manager
3	**Moderately Complex**	>$10M to $100M	Level 3 Register, **Quantitative** Analysis, Risk Response	Project Manager
	Most Complex[1] (Major)	<=$25M	Level 3 Register, **Quantitative** Analysis, Risk Response Risk Management Plan Recommended	Project Manager
		>$25M to $100M	Level 3 Register, **Quantitative** Analysis, Risk Response Risk Management Plan	Assign a Project Delivery Risk Manager or establish assistance within project team
		>$100M	Conduct Risk Workshop FHWA Risk Management Tool or Level 3 Register, **Quantitative** Analysis, Risk Response Risk Management Plan	-Assign Project Delivery Risk Manager -Consider scope of work for project consultant to provide information for the workshop -Establish Risk Management Team

EXHIBIT 3, RISK MANAGEMENT LEVEL SELECTION **Complexity Levels are defined in DM-1, Chapter 2.*

1 Risk management should be an integrated and integral component of project management for most projects. Preparing consultant Work Breakdown Structures for conducting workshops and other/additional support activities may be warranted for Most Complex projects.

AH.2.B. Roles and Responsibilities

Risk management requires effort, teamwork, and forward-thinking. It must be planned, resourced, and facilitated to provide accurate analyses and defendable decisions. Risk management is a change in philosophy that is intended to reduce project surprises and to enhance two key areas of project performance -- cost and schedule. Risk management helps document much of what PennDOT performs now and allows for adding contingency to cover high severity risks.

For most small projects, the Project Risk Management is typically the responsibility of the Project Manager. However, this responsibility could be an assigned position, or an exclusive position based on the project size, complexity, and cost. **Exhibit 4, *Project Level Risk Roles and Responsibilities*** and **Exhibit 5, *PennDOT Management Level Risk Roles and Responsibilities*** provides the basic team member and PennDOT management roles and responsibilities. It is a useful guide, but is not intended to limit how risk management might be accomplished or adapted on all projects. The key is to ensure risk management is established for a project and then monitored and updated throughout the project. District members from the statewide Risk Management Team (involved in developing this policy) can be a resource in sorting out roles and responsibilities. The approach may vary by District.

Position	Roles and Responsibilities
Project Manager / Project Delivery Risk Manager	• Promote and facilitate risk management for the project; • Coordinate project team meetings to develop the project's risk register and develop and implement the Risk Management Plan; and • Assign risks to those risk owners best able to mitigate and monitor the risks. This provides the PM with leadership support while delivering projects and sharpens the shared focus on potential cost and schedule increases and delays. • Track, monitor, and update risks and the effectiveness of risk response actions. ✓ Ensure proactive response to all risks and opportunities that will impact the successful delivery of the project. ✓ Ensure quality of the risk data in the risk register. ✓ Produce risk management reports including risk management results, major issues, and concerns for Department management. • Incorporate risk management into project meetings; • Elevate issues to District management for resolution as necessary; and • Encouraging risk management learning among team members from one project to the next (building on what works well and adjusting that which may not).
Project Team Members	• Assist Project Manager / Project Delivery Risk Manager with the identification, assessment, and monitoring of risks; • Suggest appropriate risk response strategies; • Assist in identifying risk owners and developing risk response strategies; and • Perform risk response steps when appropriate.

Position	Roles and Responsibilities
Risk Owner	• May be a project team member, District discipline lead, or other project stakeholder including local stakeholders; • Assess and suggest appropriate risk mitigation strategies and action plans for assigned risks; • Develop and/or update the identified risk strategy; and • Inform the Project Manager if the risk becomes a real event. Events that have occurred are no longer risks.
District Project Delivery Risk Management Coordinator	• Provide expertise, guidance, and assistance to the Project Manager / Project Delivery Risk Manager; • Assist and coordinate with the Portfolio Manager in obtaining expert services as needed; and • Interface with Central Office.

EXHIBIT 4, PROJECT LEVEL RISK ROLES AND RESPONSIBILITIES

Position	Roles and Responsibilities
Project Team	Participants can include Project Manager, Project Delivery Risk Manager, Project Team Members and Risk Owners. **Monitor, review, update** - Risk monitoring and periodic review and update tasks required input from the various positions: • Identify, analyze, and plan response actions for newly arising risks, and add them to the risk register; • Assign additional risk response actions to the Risk Owner; and • Retire (change status from Active to Retire) risks whose opportunity to impact the project has elapsed, or whose residual impact on the project is deemed to have reached an acceptable level. • Reviews value/benefits from risk management following project completion, identifying and sharing lessons learned.
District Design Management	District Design Management can include positions including the Portfolio Manager, Plans Engineer, Design Services Engineer • Support Project Manager with the implementation of risk management requirements; • Provide risk management direction and assistance; • Coordinate with BOPD (Bureau of Project Delivery) to obtain expert risk management services, as needed; and • Consult with the Project Manager on significant risk management issues.
Chief, Highway Delivery Division	• Leads, champions, sponsors and implements risk management at program level by developing and maintaining policies, guidance, procedures, practices, training and expertise; • Provides Central Office risk management coordination; • Supports the District Project Delivery Risk Management Coordinators; • Ensures consistent application of risk management practices; and • Facilitates procurement of risk management specialists as needed.
District Executives	• Ensure that risk management is followed; and • Appoint District Project Delivery Risk Management Coordinator. • Recognize team and individual risk management accomplishments and significant progress
ADEs (Asst. District Engineer)	• Ensure risk management has the resources required to achieve the desired results; • Ensure Project Managers comply with risk management policies; and • Ensure risks are communicated.

EXHIBIT 5, PENNDOT MANAGEMENT LEVEL RISK ROLES AND RESPONSIBILITIES

Project Integration

Risk management is an integral component of project management and recognized project management technique that will help the Project Manager to better assess and manage key project performance factors. In some cases, risk management should help to even speed up design while maintaining a sharp focus on critical risks.

How can you manage a project without managing the risks?

While the formalized approach requires development and maintenance of a risk register, the register becomes a key communication tool to efficiently focus attention on individual risks. Through this sharp focus, risks are controlled so that informed decision making can be provided in a timely manner.

Although risks can and should be discussed with project team members and management at any time during the duration of a project, it is desirable to have "checkpoints" to ensure the project does not unnecessarily proceed on a course of action that may not be feasible and may be changed later by a decision-maker. Thus, integrating risk management into the project development process becomes critical, valuable, and time saving. **Exhibit 5, *PennDOT Management Level Risk Roles and Responsibilities*** provides an outline for integration.

Integrating risk management requires developing an initial risk register as early in the project as feasible, monitoring and developing mitigation strategies for each risk by the assigned risk owner, and discussing the risks at project meetings and when project discipline leads can most effectively discuss and address risk coordination. **Exhibit 6, *Project Risk Management Integration*** provides opportunities within PennDOT's project development process phases where risk management should be incorporated.

Project Phase	Risk Integration
Planning	If project complexity is unknown consider the level 1 register to supplement PennDOT Connects and NEPA screening process, and consider risk mitigation strategies. Communication with MPOs/RPOs and local municipalities per PennDOT Connects may help to identify unforeseen risks. Risk management is consistent with the PennDOT Connects Policy, enhancing stakeholder focus and interaction.
Programming (TIP development)	Risk management tool (especially quantitative analysis) can help project team validate the estimated cost and schedule
Scoping	Risk management can be used to evaluate and support the alternatives analysis
Design Field View	Look to integrate potential risks that are identified in the cost-driver analysis for estimating, construction schedule issues, and constructability review output.
Final Design	Look to integrate potential risks that are identified in the cost-driver analysis for estimating, construction schedule issues, and constructability review output.
PS&E (Engineer's Estimate)	Many of the risks that would occur in the design phase should be retired by this phase.
Construction	The construction team should take a fresh look at any risks that were identified during the design phase and were categorized for occurring during the construction phase. Likewise, risks could be identified and categorized for potential occurrence during the maintenance phase.

EXHIBIT 6, PROJECT RISK MANAGEMENT INTEGRATION

- Create the initial risk register through a Team brainstorming discussion during or immediately after the Scoping Field View. Planning Partners may have developed a planning level risk register as part of Linking Planning and NEPA. This list should be incorporated into the initial design risk register.
- Include project risks as a regular agenda item for project meetings so that mitigation strategies can be incorporated into the project holistically. Remember that the risk register is a living document where risks can be added, along with the appropriate risk owner, and retired as necessary.
- Perform a formal review of the risks as part of the Design Field View, Constructability Review, and the Final Design Office Meeting. The expectation is that functional disciplines are already in attendance at these major milestone meetings and can provide input and perspective for discussions involving risk. This could include a short team brainstorming to make sure there are no new risks or retire those risks that did not occur.
- Components of risk management are already included in other PennDOT project processes such as the cost estimation and cost-driver analysis (Publication 352), scheduling (Publication 615), constructability reviews (Publication 10X), and value engineering (Publication 10X).
- Risk management can be performed by external experts or internal staff.

How to Incorporate Risk Management into a PennDOT Project

The process to incorporate risk management into a PennDOT project consists of a series of steps, which are applied at the outset of the project and verified throughout the project. The major process steps are illustrated in **Exhibit 7, *Risk Management Process Overview***. Detailed information on the Risk Management Process is provided in **Section AH.3, *Risk Management Process***.

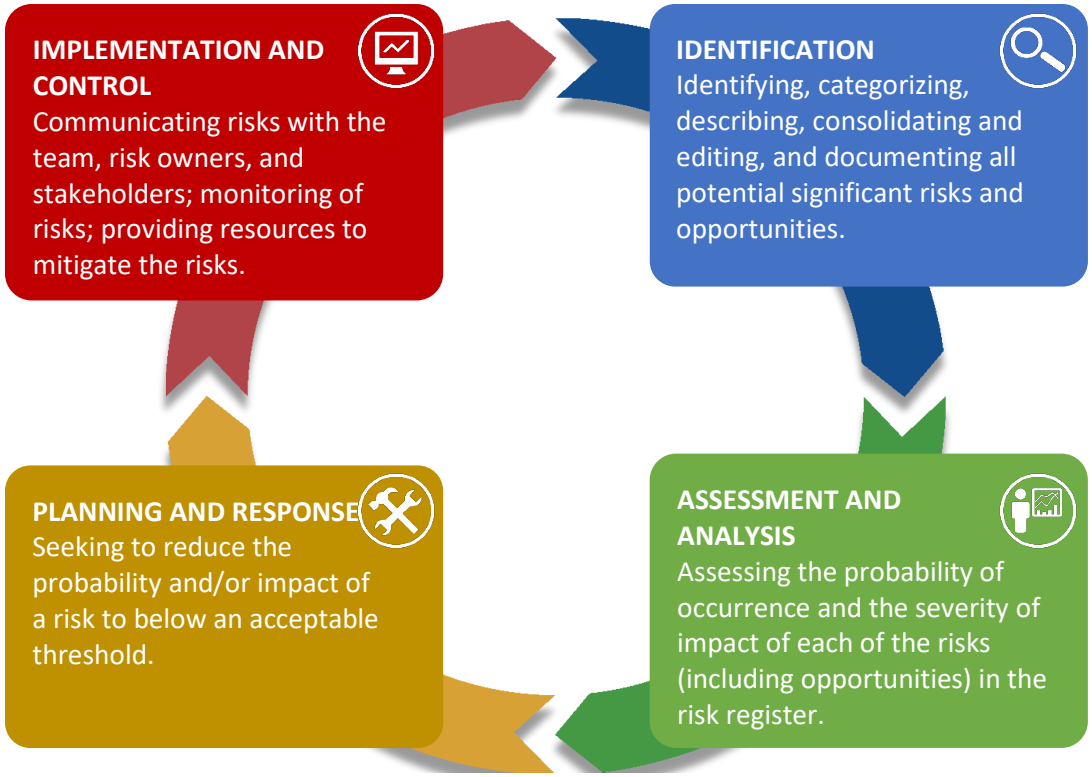

EXHIBIT 7, RISK MANAGEMENT PROCESS OVERVIEW

AH.2.C. Risk Management Tools

The key to successful risk management implementation is the ability to utilize tools that are easy to understand and can be applied to highway projects of varying sizes and types to help proactively identify, plan for, assess, and manage project risks to meet schedule and budget goals. The cost values for risk management should be generally similar to developing costs for delivering a project. The key is for the project team and subject matter experts to help advise as to those potential costs associated with risks. This results in orders of magnitude when reviewing the entire list of risks and impacts in terms of both cost and schedule. Over time, appropriate levels of risk management investment costs should be more than offset in terms of better bids, fewer surprises (work orders), and helping to limit supplements in design.

The tools for PennDOT's risk management were developed to meet the scalability requirement levels as shown in **Exhibit 3, *Risk Management Level Selection***

The recommended levels are to be understood as minimum requirements. The project team may choose to work at a higher scalability level than required. However, the project team should consider other factors to determine what level of risk management effort is needed. These factors may include:

- Project type
- Project location and the community it serves
- Project duration
- Project stakeholders
- Political sensitivity

Any of these factors may warrant employing a higher scalability level.

Two tools are provided to assist in the identification, analysis, planning and implementing a plan for risk management. The current Excel version of the risk management tools are provided in the ECMS file cabinet (select top menu -> References, then drop down -> File Cabinet).
http://www.dot14.state.pa.us/ECMS/SVCOMFileCabinet?action =SEARCH

Folder	Name
ADV – General Requirements	Project Delivery Risk Management – SHRP2 Template
ADV – General Requirements	Project Delivery Risk Management – SHRP2 User Guide
ADV – General Requirements	Project Delivery Risk Management – PennDOT Risk Register

PennDOT Risk Management Template

The PennDOT Risk Management Template is a risk analysis tool for non-complex, moderately complex, and some major complex projects. The risk management approach strongly encourages project integration, and using information from other project evaluation tools and processes. The risk management template simply helps to focus on the highest severity risks and to ensure that a risk owner will follow up appropriately. Risks identified early in project planning and development can also help inform these other review and analysis tools as well. It is important to keep in mind that low severity risks will typically not warrant mitigation or attention.

Level 1 (**Level 1 Analysis, *page 32***) entails the basic level of risk management with a risk list provided to assist with risk identification. Levels 2 and 3 provide a more detailed level of risk management, but differ in the type of analysis required. Level 2 (**Level 2 Analysis*, page 34***) is typically a qualitative analysis, while the Level 3 is quantitative, providing the opportunity to further define risk impacts in terms of dollars for the budget and days for the schedule. To facilitate convenient data entry, the Excel spreadsheet contains drop-down menus for data selection where applicable, calculations for risk scores, pop-up explanations of data fields, and a guidance worksheet. The template, over time, will help foster good risk management habits and thinking.

Section AH.4, *How to Use the Appropriate Risk Management Tool*, describes how each risk management step can be accomplished and documented by the risk management tool.

FHWA Risk Management Tool

The FHWA risk management tool contains additional features to support a complete risk management planning process. Features include project structuring and cost-benefit analysis for selection of risk responses. This tool is recommended for the complex project which contain a substantial number of risks that can have significant detrimental impact on a budget and schedule. Using this tool will require up front planning and a two-day team workshop, which needs to be accounted for during contract development. Note that any "normal" risks may be evaluated as low impact and low probability. The two-day workshop would be applicable to Most Complex projects that have many risks.

The FHWA Risk Management tool can also be used to evaluate project alternatives. Through an individual analysis of each alternative, beginning from the same starting point or base condition, the FHWA tool can provide cost and schedule impacts that can be compared directly to one another.

While the FHWA tool may also be used and scaled down for non-complex and moderately complex projects, training or consultation with personnel that have experience with the FHWA tool is recommended.

AH.3 Risk Management Process

Exhibit 8, *Risk Management Process*, provides a description for each step in the risk management process. Each step is then explained in greater detail in this section.

Step	Description
Define Project Base	• Define the "base" project scenario against which threats and opportunities can subsequently be identified, assessed, and eventually managed.
Identification	• Identify a comprehensive set of threats and opportunities. This is accomplished by brainstorming scenarios that might change the base project performance. This is also a useful way to temper overly optimistic project planning tendencies. • Categorize each risk by the phase that risk might occur.
Assessment and Analysis	• Assess the "severity" of each of the threats and opportunities in the risk register, and then prioritize them on that basis. • Generally accomplished by subjectively assessing the risks (i.e., the probability of the scenario occurring and what are the impacts if it does) and then analytically combining the risks to determine changes in performance measures and thereby severity. • Analytically combine the base and risks to determine the project performance measures (e.g., ultimate project escalated cost and schedule).
Risk Management Planning and Response	• Identify and evaluate possible ways to proactively reduce risks and exploit opportunities, focusing on the most severe. • Evaluate each possible action in terms of its cost-effectiveness, considering changes in both base factors (e.g., additional cost) and risks (e.g., reduced probability), and select those that are cost-effective. • Consider subsequently re-analyzing the project performance measures for this risk mitigation program, based on which budgets and milestones can be established.

Risk Management Implementation and Control	• Implement the Risk Management Plan as the project proceeds by monitoring the status of risk mitigation activities and changes in risk and monitoring budget and milestones, especially with respect to contingencies.
	  • This might involve periodic updates at regular intervals or at major milestones or changes.
	  • Example: contingencies might be reduced as engineering reports or designs are completed and risks are avoided or mitigated.

EXHIBIT 8, RISK MANAGEMENT PROCESS

AH.3.A. Initial Project Risk Management Meeting

At the outset of each project, a Project Risk Meeting will be held independently or in conjunction with the project kick-off meeting or Scoping Field View. The first time that the Project Team Members meet, the Project Manager should brief the team on the following:

- ✓ The importance and objectives of the project risk management process;
- ✓ The roles and responsibilities;
- ✓ The risk register;
- ✓ The communication check points;
- ✓ Key risk management activities in the project schedule; and
- ✓ The expectation that risk will be managed, documented and reported via a formal process.

The team will identify what events might occur and thus change the project relative to the base conditions. The threats and opportunities are then listed in the risk register for later risk management activities.

AH.3.B. Define Project Base

Preparing project information for risk management is a necessary and valuable first step in the risk management process. It provides the "base" for identifying threats and opportunities, assessing them, and eventually managing them. It also documents the current state or base line for future reference. Information needed to define the base includes:

- Brief Project Description
- Project Scope, Strategy/Status, and Key Conditions and Assumptions
- Initial cost estimate without contingencies
- Initial design and construction schedules without contingencies
- Project "Disruption" Estimate

Define Project Base
Defining the project base requires a baseline schedule and cost estimate without contingencies so that the project team can easily separate and compare the base from potential project risks.

Formally, this process is called Structuring. Structuring can help facilitate subsequent risk identification and assessment (especially when a risk is already considered and addressed in the base conditions). For example, if a complex right-of-way issue is already accounted for by an appropriate design schedule, then what might be considered a schedule risk is already a part of the base project conditions and should **not** be considered as a risk. By understanding the structuring of the project, risks can more easily be identified for either qualitative or quantitative risk assessments.

AH.3.C. Identification

Risk identification is an essential step in the risk management process. It determines what might happen that could affect the objectives of the project and how those things might happen. It produces a deliverable — the project risk register – that documents the risks and their characteristics. The risk register is subsequently strengthened through the qualitative or quantitative risk analysis, risk response, and risk monitoring processes. Risk identification is an iterative process because new risks may become known as the project progresses through its life cycle, previously-identified risks may drop out, and other risks may be updated. Great teams ask frequent "what if" questions—this is no different.

A challenge in risk identification is avoiding confusion between **causes** of risk, the actual risks, and the **effects** of risks. A risk may have one or more causes and, if it occurs, one or more effects.

- ***Causes*** are definite events or circumstances in the project or its environment, which give rise to uncertainty. Examples include the need to use an unproven new technology or the lack of skilled personnel. Causes themselves are not uncertain since they are facts or requirements, so they are not the primary focus of the risk management process.
- ***Risks*** are uncertainties which, if they occur, would affect the project objectives either negatively (threats) or positively (opportunities). Examples include the possibility that planned completion targets might not be met, escalation rates might fluctuate, or that requirements may be misunderstood.
- ***Effects*** are unplanned variations from project objectives, which arise as a result of risks occurring. Examples include early milestone completion, exceeding the authorized budget, or failing to meet agreed quality targets. Effects are contingent events, unplanned potential future variations which will not occur unless the risks happen. As effects do not yet exist, and they may never exist, they cannot be managed directly through the risk management process. Including causes or effects in a list of identified risks obscures genuine risks, which may then not receive the appropriate degree of attention they deserve.

One way to clearly separate risks from their causes and effects is to use a description with required elements to provide a **three-part structured "risk statement":**

"As a result of (If) ____(cause), then ____(risk) may occur, which would lead to ____(effect)."

Examples Include:

- "As a result of using a new technology (a definite requirement), unexpected design problems may occur (an uncertain risk), which would lead to overspending on the project (an effect on the budget objective)."
- "Because our District has never done an interchange project like this before (fact = cause), we might misunderstand the requirements (uncertainty = risk), and our project would not meet the performance criteria (contingent possibility = effect on objective)."

At the risk identification stage, the impacts on cost and time are not analyzed – this analysis occurs later through either a qualitative or quantitative assessment.

Risk Register Development

A risk register is a tool that project teams can use to document and address project risks throughout the project life cycle. It is a living document – a comprehensive listing of risks and the way they are being addressed as part of the project risk management process. The risk register is maintained as part of the project file that also includes information related to uncertainties in the cost estimate and schedule.

Why use a risk register? - A new project team is formed for every project and disbanded when the project is complete. Also, project team members sometimes change, and the project experiences change over the duration of the project. Communication among project team members about the project objectives, costs, risks, etc., is vital. The risk register communicates project risks and helps the team members understand the status of the risks as a project moves from inception to completion.

How is a risk register used? - A risk register is best used as a living document throughout the project's entire life cycle, from project inception through construction, to record the evolution of project risks. There is no prescription for how extensive a project's risk register should be. The project team should decide the most beneficial use of the risk register, with the shared objective of minimizing the risk impact.

Managers should use the risk register as a management tool to provide a framework for reviews and updating that identifies, assesses, manages, and reduces risks (and exploits opportunities) to acceptable levels. Managers should also use risk registers for learning and application for future projects.

How is a risk register developed? - Development of the risk register, as well as the entire risk management process, is a Team process. The Design Project Manager initiates and "owns" the project risk management process until the project is moved to construction. The Project Manager should involve all functional design units, along with input from construction, in the risk management process from inception to hand-off to the construction team for their information.

Additionally, communication and consultation with project stakeholders is a crucial factor in developing and updating the risk register. It helps everyone to understand the risks and trade-offs that must be made in a project. This communication ensures that all parties are fully informed, and thus avoids unpleasant surprises and unreasonable expectations. The actual risk register is developed by the Team members in a brainstorming session either during or after a field view.

Identifying potential risks (threats and opportunities) can use any combination of the following:

- Challenging of assumptions (i.e., don't assume everything will go as planned),
- Looking for "newness" (e.g. new materials, technology, or processes),
- Knowledge of the project or similar projects (consider referring to past risk registers for similar projects),
- Consultation with others who have significant knowledge of the project or its environment,
- Consultation with others who have significant knowledge of similar projects, and
- The experience of project stakeholders or others in the organization.

When to monitor and update the risk register
• TIP Development (or possibly as early as a planning study) • Scoping Field View • Design Field View • Constructability Review • Value Engineering • FDOM or 90% Plans • Project Status Meetings

The information is entered into the risk register spreadsheet. Each risk is assigned to a member of the project team who becomes its Risk Owner. This fosters a greater understanding and awareness of all risks among the entire team.

The risk register is reviewed and updated throughout the project. Risk registers are developed for all three levels of risk management. Each risk register should be prepared as the initial cost and schedule estimates of a project (at Planning/Programming) are developed.

Application to Different Risk Management Levels

Level 1 - Since Level 1 projects contain minimal risks, the Team can start by brainstorming risks and reviewing and selecting applicable Level 1 risks. These basic risk statements can be further clarified or comments added within the PennDOT tool based on the project. The risk register layout within the PennDOT tool is presented in **Exhibit 14, *Level 1 Risk Register Development***.

Levels 2 and 3 - For Levels 2 and 3 risk management, risk identification involves Team members brainstorming and developing a risk statement that contains the causes and effects encountered for each risk. The risk statements are described in section 3.C. While this approach takes more effort than the Level 1 risk identification, a proper risk statement helps the Team to better assess the risk, develop a response to the risk, and to understand the original intent when the Team reviews the risk register later in the project. Note that the Level 1 Risk Register can also be reviewed for potential risks that were not identified by the project team members.

Risk Identification Methodology

The basic risk identification methodology is described in the following process.

1) Circulate base information to the participants beforehand to ensure participants in risk identification are already familiar with the project scope, strategy, conditions, and assumptions. This will promote more effective discussion and proactive thinking during the risk identification exercise.
2) Before the actual risk identification exercise, ask each expert to document any issues or concerns. This helps to ensure participant buy-in and subsequent consensus. In a facilitated meeting or workshop environment with the experts (PennDOT and external experts as necessary), have a qualified facilitator lead the identification of risks, minimizing bias. This is generally done by:
   a) Analysis (e.g., evaluation of scope, key assumptions and conditions, and project strategy or project phase); and
   b) Then, through group brainstorming (e.g., existing concerns of project team and reviewers, issues identified during structuring, and judgment or experience from other similar projects); and
   c) Finally, through comparison with the Level 1 Risk Register. After preliminary brainstorming and developing a list of risks based on the knowledge of the Team members, the Level 1 risks can be used to add any additional risks that may have been overlooked. Reviewing the Level 1 risks serves as memory prompts or shopping lists of issues that have been observed on other projects.

      Note that this review of the Level 1 risks should only be used after the brainstorming and analysis to avoid prepopulating a risk register and therefore stifling creativity and jeopardizing buy-in.

AH.3.D. Risk Assessment and Analysis

After identifying risks and opportunities, the next step is to understand the importance that each risk and opportunity has on the project's performance measures. By assessing the "severity" of each risk an action plan can be developed which assists in making better project decisions.

Qualitative vs. Quantitative
Qualitative - Prioritize risks for further analysis or action by assessing probability of occurrence and impact (low, medium, high). **Quantitative** - Analyze the effect of identified risks on overall project objectives with values for cost and schedule impacts.

To assess the severity (impact times probability) of each risk in the *risk register*, and then prioritize them on that basis is generally done by: 1) subjectively assessing the relevant risk factors (i.e., impacts if the scenario occurs and the probability of the scenario occurring), either qualitatively (e.g., "high" vs. "low", where these descriptors are quantitatively defined by ranges of values) or quantitatively (in terms of mean-values or, for quantitative risk analysis, full probability distributions); and then 2) analytically combining the risk factors to determine changes in project performance measures and thereby severity.

Level 1, 2 or 3-Risk Identification	
Complete the information in the following risk register columns	
Column	**Contents**
Status	Select "Active" or "Retired." A risk is retired when it has no further possibility of impacting the project.
ID #	Enter a unique identifying number for the risk.
Risk Type	Enter either a "Threat" or an "Opportunity."
Category	Select one of the categories for the risk. (Environmental, Design, ROW-RR-Utilities, Construction, Organizational, PM, External)
Risk Factor or Title	Provide a descriptive title for the risk.
Description	Write a complete description of the event and its potential impacts on the project if this risk were to occur. See Section 3-2 for the structure of the risk statement.
Current Status/ Assumptions	If applicable, describe what we currently know about the risk and any assumptions made.
Risk Owner	Enter the name of the Team member responsible for this risk.
Updated	Enter the date the risk was identified.

EXHIBIT 9, RISK REGISTER COLUMNS AND DESCRIPTION

Level 1 – Risk Register

While the assessment and analysis for Level 1 is not as intensive as Levels 2 and 3, the project team should still consider and weigh potential impacts on cost and schedule, then determine which risk to assign to an owner to monitor and mitigate.

Level 2 – Qualitative Risk Analysis

Qualitative risk analysis, for Level 2 projects, includes methods for prioritizing the identified risks for further action, such as risk response. This analysis assigns a Risk Rating to each risk in the risk register. The risk ratings help to determine where the greatest effort should be focused in responding to the risks. They facilitate structured risk response action and resource allocation. The three ratings for Level 2 projects are:

- "High" – Priority for risk response.
- "Medium" – Risk response as time and resources permit.
- "Low" – No risk response required at this time.

Why is the Qualitative Analysis used? - *Qualitative* analysis involves characterizing the likelihood and consequences in terms of non-quantitative ratings. A risk might be assessed to have a High (H) likelihood of occurrence and a corresponding Medium (M) cost impact and Low (L) schedule impact if it occurs along with a numerical rating (e.g., 1 through 5). On the benefit side, qualitative assessments may be relatively quick to conduct and provide a simple visual rating (depending on the method used).

Drawbacks of qualitative assessments can include the following:

- Ratings can be vague, if qualitative ratings are not tied to specific values (e.g., what does a "High" likelihood of occurrence really mean?). As a result, different people can interpret qualitative ratings in different ways, which might lead to inaccuracies or problems in developing consensus. This underscores the importance of experience, good judgement, and team discussion.
- If the ratings (e.g., for likelihood and consequence) are not combined, then no overall measure of the risk is possible, which means that the register of risks cannot be ranked or prioritized.

How is the Qualitative Analysis performed? - Qualitative risk analysis for Level 2 projects entails assigning a risk rating to each risk in the risk register. The risk ratings for probability and impact can then be combined for an overall risk ranking (based on risk severity). The risk rankings determine where the greatest effort should be focused in responding to the risks. Note the impact rating scale is exponential to increase the severity of "High" and "Very High" impacts. They facilitate structured risk response

Risk Matrix						
Probability Rating	5 – Very High					
	4 – High					
	3 – Medium					
	2 – Low					
	1 – Very Low					
		1 Very Low	2 Low	4 Medium	8 High	16 Very High
		Impact Rating				

EXHIBIT 10, PROBABILITY AND IMPACT RATINGS

action and resource allocation. The overall ranking for each risk is then used to prioritize mitigating actions.

The risk matrix in **Exhibit 10** is used to determine the importance of each risk impact based on the probability and impact ratings. Each word descriptor of the rating has an associated number; the product of the probability number and impact number defines the risk score.

For a particular impact, the combination of the probability rating of the risk occurring and the impact rating positions the risk into one of the three colored zones in the risk matrix. The color of the zone indicates the priority of the risk for risk response: red zone signifies high importance, yellow is medium importance, and green is low importance.

For example, a risk having a "Medium" probability and a "High" impact falls into the red zone. Its impact score is 3 x 8 = 24.

When and Why is the Qualitative Analysis updated? - Team members revisit qualitative risk analysis during the project's life cycle, typically at a project's milestones. When the Team repeats or revisits qualitative analysis for individual risks, trends may emerge in the results. These trends can indicate the need for additional risk management action on particular risks or even show whether a risk mitigation plan is working.

A description of how to input this information into PennDOT's Risk Management tool is presented in **Section AH.4**.

Level 3 – Quantitative Risk Analysis

Quantitative risk analysis is a way of numerically estimating the probability that a project will meet its cost and time objectives. Quantitative analysis is based on a simultaneous evaluation of the impact of all identified and quantified risks.

This analysis starts with the project's schedule and its cost estimate. The degree of uncertainty in each schedule activity and each line-item cost element is represented by a probability distribution. The probability distribution is usually specified by determining the optimistic, the most likely, and the pessimistic values for the activity or cost element. This is typically called the "3-point estimate". The three points are estimated by the project team or other subject matter experts who focus on the schedule or cost elements one at a time. By evaluating the resulting cost and time estimates for each of these three estimate points, it is possible to answer such questions as:

- How likely is the current plan to come in on schedule or on budget?
- How much contingency reserve of time and/or money is needed to provide a sufficient degree of confidence?

Why is the Quantitative Analysis used? - As the number of project risks increases (Level 2 and 3 projects), the possibility of impacts to the project schedule and cost increases. A quantitative risk analysis is a further refinement to the risk management process which considers numerical values to develop a probabilistic scrutiny of the project. This analysis:

- Quantifies the possible outcomes for the project and assesses the probability of achieving specific project objectives,
- Provides a quantitative approach to making decisions when there is uncertainty, and

- Creates realistic and achievable cost, schedule or scope targets.

How is the Quantitative Analysis performed? - The Project Delivery Risk Manager leads the project team in quantifying cost and schedule risks by developing the "3-point estimate".

- The probability of the risk occurring is expressed by two values: "Low" and "High" that cover the range.
- Three-point estimates are used for cost and schedule impacts. The three-point estimate consists of determining the "Low" (optimistic), "High" (pessimistic) and "Most Likely" values for the cost and time. The most likely value may be omitted if it cannot be established credibly.

The cost impacts include direct costs only; they exclude any cost of delay. Schedule impacts are expressed in days of potential delay due to the risk. Some risks may not have both cost and schedule impacts.

A description of how to input this information into PennDOT's Risk Management tool is presented in **Section AH.4.**

When and Why is the Quantitative Analysis updated? - Team members revisit quantitative risk analysis during the project's life cycle. When the Team repeats quantitative analysis for individual risks, trends may emerge in the results. These trends can indicate the need for additional risk management action on particular risks or even show whether a risk mitigation plan is working.

AH.3.E. Risk Planning and Response

Risk planning and response is the process of developing strategic options, and determining actions, to enhance opportunities and reduce threats to the project's objectives. As described in **Section AH.2**, a project team member is assigned to take responsibility for each risk response. This process ensures that each risk requiring a response has a known owner monitoring the responses, although the owner may delegate implementation of a response to someone else.

Risk Response Strategies

Risk response consists of specific options that are available during a particular project development phase to recover project cost or schedule. Typically, each such option is available only through that particular project phase, and then is no longer available, or its recovery value is substantially reduced, after a particular point. Thus, the risk response is a decision point/strategy to *avoid, transfer (allocate), mitigate, or accept* a project risk. Also note the equivalent strategies for opportunities (i.e., *exploit, share, and enhance*). **Exhibit 11, *Risk Response Strategies*** includes definitions for each of these risk response strategies. **Section AH.5.B.** provides Risk Response Examples. Some actions may use more than one of these strategies. The intent of using these strategies is to spur the development of possible risk management actions.

Implementation of these efforts will require resources (e.g., additional design hours, additional coordination efforts, use of more expensive materials). The results of the management actions will be mitigation of the probability of occurrence of a risk and/or a reduction in the impact. For an opportunity, increase in the probability and impact.

For Threats	For Opportunities
Avoid. • Remove threat cause or change project approach. • Not all threats can be avoided or eliminated, and for others, this approach may be too expensive or time-consuming.	***Exploit.*** • Exploit is an aggressive response strategy, best reserved for those "golden opportunities" having high probability and impacts.
Transfer. • Find another party willing to take responsibility for its management and bear the liability of the threat should it occur. • Ensure that the threat is owned and managed by the Team member or stakeholder best able to deal with it effectively. • Usually involves payment of a premium, and the cost-effectiveness of this must be considered.	***Share.*** • Allocate ownership of an opportunity to another party who is best able to maximize its probability of occurrence and increase the potential benefits if it does occur. • Allow sharing in the potential benefits (e.g., Construction Value Engineering Proposals).
Mitigate. • Reduce the probability and/or impact of an adverse event (threat) to acceptable threshold. • Take early action to reduce the probability and/or impact of a threat is often more effective than repairing damage after risk has occurred. • May require resources or time and is a tradeoff between doing nothing versus mitigation cost.	***Enhance.*** • Modify the "size" of the positive risk. • Increase probability and/or impact, and maximizing benefits realized for the project. • If the probability can be increased to 100 percent, this is effectively an exploit response.
Acceptance. • When it is not possible or practical to respond to the risk by the other strategies, or a response is not warranted by the importance of the risk. • When the Project Manager and the project team decide to accept a risk, they are agreeing to address the risk if and when it occurs. • A contingency plan or workaround plan may be developed for that eventuality.	

EXHIBIT 11, RISK RESPONSE STRATEGIES

Risk Assessment Bias

Bias must be recognized and addressed. The goal of risk-factor assessment is to obtain accurate, defensible assessments. As mentioned previously, subjective assessments are usually required to assess risks (likelihood of occurrence and impact) but are subject to bias. Bias essentially comes in two forms:

- "Motivational bias" occurs when someone says something that contradicts what they believe. This bias can be difficult to detect and counter but is often present when participants have a high stake in a project's continued survival or other conflict of interest. It can also occur when experts intentionally inject some conservatism into their assessments or intentionally exclude some scenarios.
- "Cognitive bias" occurs when someone believes something that is inconsistent with the facts. Most people will overestimate what they know about a particular topic, which leads to over-optimism and to underestimating uncertainty.

Risk bias can be addressed by ensuring and facilitating open discussions with Team members during the assessment and encouraging participants to share the basis and assumptions of their input. Project teams tend to be overly optimistic in the early phases of project development. Risk management helps to temper or tamp down this natural tendency.

Responding to Risks

Following identification and analysis of project risks, the project team acts in response to the risks to improve the odds in favor of project success. Ultimately, it is not possible to eliminate all threats or take advantage of all opportunities – but they will be documented to provide awareness that they exist and have been identified. Successful risk response will change/update the risk profile through the project life cycle, and risk exposure will often diminish. Risk response involves:

- ***Prioritizing*** and determining which risks warrant a response and identifying which strategy is best for each risk;
- ***Assigning*** an action to the Risk Owner to identify options for mitigating the probability or impacts of each threat or increasing the probability/impact of an opportunity. The Risk Owner takes the lead and can involve experts available to the project;
- ***Evaluating*** each option for potential mitigation of the risk and cost of implementing the option.
- ***Selecting*** the best option for the project;
- ***Adjusting*** project budget and schedule; justify changes for as necessary; and
- ***Assigning*** an action to the Risk Owner to execute the selected response action. The Risk Owner is the lead and may assign specific tasks to other resources to have the response implemented and documented.

If the project team judges that a risk should be accepted, it may assign an action to the Risk Owner to prepare a contingency plan if deemed necessary. Accepted risks should be communicated as necessary to higher levels of management, particularly when there is a "need to know".

Project Contingency

Even after proactive risk management, there will be residual risks, which PennDOT must accept and thus accommodate in the budget and schedule. Typically, this is done by establishing and controlling contingencies for cost and for schedule, over and above the base cost and schedule. These contingencies can be established at various levels of conservatism or levels of confidence in their sufficiency—the higher the level of conservatism, the higher the chance that the contingencies will be sufficient. However, the more funds that must be committed to the project means those funds are not made available for other projects. This underscores the need for a balanced approach, judgement, and big picture thinking.

AH.3.F. Risk Management Implementation and Control

The implementation and control of a Risk Management Plan consists of three main elements designed to optimize project performance:

1) plans for individual risk reduction actions;

2) protocols for contingency management; and

3) protocols for recovery plans.

Because project conditions, and hence risks, inherently change as a project moves through the development process, the Risk Management Plan is intended to be an evolving document, adjusting as the project develops. This in turn requires monitoring (e.g., of the progress and results of specific risk reduction action, of specific risks in the risk register, and of contingency) and periodic updating (e.g., of residual risks, of risk reduction plans, and of contingency requirements).

Risk Perspective Can Enhance Decisions

When considering risk mitigation methodology:

- Recognize the impacts of the decision;
- The impact of responding to a risk may make sense in the short term (e.g., saves design costs, allows Team to meet schedule), but risk impact should be considered in context of the entire project.

For example, the impact of a few unknown conditions can affect construction where the window of an environmental activity requires the project to be suspended. While the direct cost to resolve an unknown condition may be less than the cost of a site visit, *the overall impact of the change may be a significant delay to the contract if not recognized.*

It is the Project Delivery Risk Manager who has the overall responsibility for implementing the plan. For small projects, Level 1 and 2, the Project Delivery Risk Manager might simply be the Project Manager, whereas for larger projects (which might require significant effort) it could be another person. The Project Delivery Risk Manager will then typically delegate responsibility for various elements of the plan to those who are in the best position to monitor and complete them. The Project Delivery Risk Manager will then follow-up to ensure that those delegated elements have been completed. This needs to be done as efficiently as possible to prevent wasting precious resources. For example, it is envisioned that risk management status will be incorporated into regular project status meetings. Similarly, risk management status should be incorporated into project status meeting minutes, and distributed in a timely fashion. Delegation and tracking should be as efficient as possible.

Risk Reduction Actions – A set of actions are specified for reducing individual risks. These actions must be successfully carried out to realize any risk reduction, although the actual amount of risk reduction, and typically to a lesser extent their cost and schedule to implement, will be uncertain beforehand. However, such actions can be adjusted (e.g., stopped) as their projected performance or need changes.

Risk Monitoring and Updating

Continuous monitoring by the Project Delivery Risk Manager and the project team ensures that new and changing risks are detected and managed and that risk response actions are implemented and effective. Risk monitoring continues for the life of the project. Because project conditions, and hence risks, inherently change as a project moves through the development process, the Risk Management Plan is intended to be an evolving document (and strategy), adjusting and adapting as the project develops.

Risk Monitoring and Updating

Risk monitoring and updating should occur at project status meetings and at the following project development milestones:

- Scoping Field View
- Design Field View
- Constructability Review
- Value Engineering
- FDOM or 90% Plans
- Project status meeting

When and Why is the risk register updated? - Risk identification, and therefore maintaining the risk register, is an iterative process because new risks may become known as the project progresses through its life cycle, previously-identified risks are retired, and other risks may be updated. Risks change as the base project evolves, as conditions change, and new information becomes available. Eventually, each risk happens (and is mitigated) or does not happen (and can be "retired"). Generally, specific types of risk can only happen during specific project phases, after which they cannot occur. For example, a design risk will generally occur during the design phase, after which it can no longer occur. If the risk does not happen during design, its chance of occurrence drops to zero, and it can be "retired" after design. Thereafter, a review and discussion of the risk register at the beginning of each subsequent phase of the project is highly recommended.

Development of the Risk Management Plan

Developing a formal risk management document is a matter of documenting the process and decisions made throughout the process. As discussed previously, this is a living document which should be updated as the project progresses. Level 1 and 2 projects might use a risk register as the only formal Risk Management Plan, whereas Level 3 projects should have a formal Risk Management Plan following the outline provided in **Section AH.5.C.**

Level 3-What's in the formal Risk Management Plan? - The ***risk management plan*** report documents specific actionable items to deal with threats and opportunities. Additionally, it provides a consistent format for assigning and documenting these resources. The plan consists of management actions to:

- ✓ proactively mitigate specific high-priority risks;
- ✓ establish and maintain adequate budget and schedule to accommodate remaining risks; and
- ✓ modify the project as necessary if the established budget or schedule is inadequate despite proactive management actions.

Risk Management Plan Essentials

Answers the essential questions about risk management:

- Who will manage the risk?
- What will be done?
- When will it be done?
- How will they do it?
- What resources are likely to be required?
- What are the likely benefits?

A Risk Management Plan should contain the following items:

1. Introduction (brief project summary with respect to risk management and any notes relevant to project structuring, contingencies, and base assumptions)
2. Risk management strategy and approach
   a. Team member risk management roles and responsibilities (e.g., who is assuming the role of Project Delivery Risk Manager)
   b. Communication strategy (basic, what are the communication needs and how will each be met)
3. Risk register including
   a. Risk identification
   b. Risk assessment, and analysis
   c. Risk Response Planning (risk owners identified and responsible if a risk is triggered)
4. Implementation strategy (including risk monitoring and updating, information gathering and distribution)
5. Supporting documentation and reports (can include output from risk management workshops, meetings, etc.)

AH.4 How to Use the Appropriate Risk Management Tool

For development of a risk management assessment, PennDOT has included two tools. The first tool is an Excel template, initially developed by Caltrans and adapted to be PennDOT specific, which provides for the creation of the Risk Register (needed for Levels 1, 2, and 3 analyses), the Qualitative analysis (Level 2), and the Quantitative analysis (Level 3). Additionally, the FHWA Risk Management tool is provided for complex projects with many risks. It is recommended that this tool be used with the assistance of the Highway Design and Technology Section (HDTS). These tools are in the ECMS file cabinet (select top menu -> References, then drop down -> File Cabinet).

http://www.dot14.state.pa.us/ECMS/SVCOMFileCabinet?action =SEARCH

Folder	Name
ADV – General Requirements	Project Delivery Risk Management – SHRP2 Template
ADV – General Requirements	Project Delivery Risk Management – SHRP2 User Guide
ADV – General Requirements	Project Delivery Risk Management – PennDOT Risk Register

Exhibit 12, *Risk Management Process and Levels* provides a correlation of the risk management process steps for each level of risk management.

AH.4.A. Entering Data into the Risk Register

The sections below walk through the data entry process for the PennDOT risk management tool for each of the risk management levels. Although the tool has separate tabs for the Level 1, 2, and 3 analysis types, creation of the Risk Register is the same for each and described only in the Level 1 analysis.

Level 1 Analysis

Upon completion of the Risk Identification, the Team or Project Manager can start developing the risk register by completing the information in the following risk register columns.

Definitions for each of these columns are provided in **Exhibit 13, *Level 1 Risk Register Columns***. The columns are illustrated in **Exhibit 14, *Level 1 Risk Register Development*** circled in blue .

The remaining columns, circled in gold , on **Exhibit 14, *Level 1 Risk Register Development*** provide locations for identifying how each risk may affect the project. The "Potential for Impact on" categories include Cost and Schedule.

An "X" is placed in the appropriate column(s) to indicate a potential project impact for a particular risk. Mitigation strategies for each potential impact should be developed and carried through the project with documentation in project status meetings, and at project milestone meetings.

Risk Management Level	Identification	Assessment and Analysis	Planning and Response	Implementation and Control
Level 1 **Tool:** L1 Register	Select **Status** as "active" for each risk. Add risks specific to the project. Select **Category** to indicate phase when risk impact will occur. Filter **Status** column for "active" **Risks**. Remove filter to add **Risks** at milestone reviews.	Indicate Potential for impact on **Cost** and/or **Schedule.**	Add mitigation or specify a risk owner as needed in the **Comments / Assumptions**.	Monitor and provide Updated date for when risk **Status** or **Comments/ Assumptions** change.
Level 2 **Tool:** L2 Qualitative	Brainstorm risks, develop **Risk Statement** (cause, uncertain event, effect), then **Risk Title** (short description). Select **Category.** Review/copy L1 Register **Risks** for any applicable risk that should also be considered. Develop **Risk Statement**s for any new or additional risks.	Determine **Probability**, **Cost Impact**, and **Time Impact** through qualitative ratings ("Very Low", "Low", "Medium", "High", "Very High"). Analyze results of **Cost Score** by color (Green, Yellow, Red) and numerically for multiple reds to differentiate level of severity. Consider the Red and Yellow **Time** and **Cost Scores** for mitigation.	Select a **Strategy**: For Threats: Avoid, Transfer, Mitigate or Accept For Opportunities: Exploit, Share, Enhance or Accept Develop the **Response Actions**. Assign a **Risk Owner**.	Communicate risks with the Team, risk owners, and stakeholders; monitoring of risks; providing resources to mitigate the risks. – Change **Status** (column 1) to "Retired" as project enters a new phase unless risk may occur in a subsequent project phase. – Update **Current Status/ assumptions**, and enter **Updated** dates.
Level 3 **Tool:** **L3** Quantitative	Brainstorm risks, develop **Risk Statement** (cause, uncertain event, effect), then **Risk Title** (short description). Select **Category**. Review/copy L1 Register **Risks** for any applicable risk that should also be considered. Develop **Risk Statement**s for added risks.	Determine ranges for **Probability**, **Cost Impact ($)**, and **Time Impact (days)**. Cost and time impacts require data for the low and high range, and/or the most likely. Analyze results of probable **Cost Impact**, and **Time Impact**. The highest values on the register should be considered for mitigation.	Select a **Strategy**: Threats: Avoid, Transfer, Mitigate or Accept Opportunities: Exploit, Share, Enhance or Accept Develop the **Response Actions**. Assign a **Risk Owner**. Develop a Risk Mgmt. Plan.	Communicate risks with the Team, risk owners, and stakeholders; monitoring of risks; providing resources to mitigate the risks. – Change **Status** (column 1) to "Retired" as project enters a new phase unless risk may occur in a subsequent project phase. – Update **Current Status/ assumptions**, and enter **Updated** dates.

EXHIBIT 12, RISK MANAGEMENT PROCESS AND LEVELS

Level 1 Risk Register	
Column	Contents
Status	Select "Active" or "Retired." A risk is retired when it has no further possibility of impacting the project.
ID #	Enter a unique identifying number for the risk.
Risk Type	Indicate either a Threat or Opportunity.
Category	Select one of the categories for the risk. (Environmental, Design, RW-RR-Utilities, Construction, External, Organizational, or PM)
Risk Factor	Provide a descriptive title for the risk.
Comments/Assumptions	If applicable, describe what is currently known about the risk and any assumptions made. This can be a useful "risk diary".
Risk Owner	Enter the name of the Team member responsible for the risk.
Update	Enter the date the risk was identified/created.

EXHIBIT 13, LEVEL 1 RISK REGISTER COLUMNS

LEVEL 1 RISK REGISTER	Project Name:	"Example Project"	MPMS No:		Project Manager:	"PM Name"	
Risk Selections Select "Active" Status for applicable risks; Filter Status to review currently "active risk", remove filter when updating and selecting additional risks as project develops					Potential for Impact On:		
Status	ID #	Category	Risk Factor	Comments/Assumptions	Cost	Schedule	Risk Owner	Updated
Active	1	Design	Design incomplete at PS&E					
	2	Design	Unexpected geotechnical or groundwater issues					
	3	Design	Changes to materials/geotechnical/foundation					
	4	Design	Foundation and geotechnical tasks (foundation drilling and material testing) not identified and included in project workplan					
	5	Design	Inaccurate assumptions on technical issues in planning stage					
	6	Design	Additional survey required					
	7	Design	Bridge site data incomplete					
	8	Design	Existing structures planned for modification not evaluated for scour potential and structural capacity					

EXHIBIT 14, LEVEL 1 RISK REGISTER DEVELOPMENT

Level 2 Analysis

The project team assesses each identified risk in turn and determines:

- The **rating for the probability of the risk occurring**, and
- The **rating of cost and time impact of each risk**, should it occur.

To assist with this identification, **Exhibit 15, *Definitions of Impact and Probability Ratings*** provides a standard definition of risk probability and impact ratings. The cost impact ratings may be easier to apply

if expressed in terms of dollars. The ratings for the project serve as a consistent frame of reference for the project team in assessing the risks during the life of the project.

This Exhibit is intended as a guide – the project team may define dollar and time ranges as appropriate for the project. The impacts are to the overall project. Schedule delay applies to risks that are on the critical path (the longest path). During the Planning and Design phases, delays that impact the project let date may be of primary interest. During construction, delays impact project completion.

Rating →	Very Low	Low	Medium	High	Very High
Cost Impact of Threat	Insignificant cost increase	<5% cost increase	5 – 10% cost increase	10 – 20% cost increase	>20% cost increase
Cost Impact of Opportunity	Insignificant cost reduction	<1% cost decrease	1 – 3% cost decrease	3 – 5% cost decrease	>5% cost decrease
Schedule Impact of Threat	Insignificant slippage	<1 month slippage	1 – 3 months slippage	3 – 6 months slippage	>6 months slippage
Schedule Impact of Opportunity	Insignificant improvement	<1 month improvement	1 – 2 months improvement	2 – 3 months improvement	>3 months improvement
Probability	1–9%	10–19%	20–39%	40–59%	60–99%

EXHIBIT 15, DEFINITIONS OF IMPACT AND PROBABILITY RATINGS

The description of the column entries is presented in **Exhibit 16, *Level 2, Risk Tool Column Definitions***, the columns include the following information:

Level 2 Risk Ratings and Response	
Column	**Contents**
Risk Rating	The **Cost Score** and **Time Score** are derived when the user selects: "Very High"= 5, "High"=4, "Medium"=3, "Low"=2 or "Very Low"=1 **Probability**: "Very High", "High", "Medium", "Low" or "Very Low" **Cost Impact**: "Very High", "High", "Medium", "Low" or "Very Low" **Time Impact**: "Very High", "High", "Medium", "Low" or "Very Low"
Rationale	Describe the reasons the Team selected this risk rating.
Risk Response Strategy	Enter a strategy – Avoid, Transfer, Mitigate, Exploit, Share, Enhance, or Accept. Definitions are provided in **Exhibit 16**.
Risk Response Actions	Identify the course of action to minimize the impact (or maximize the benefit) to the project—note: you will usually find it helpful to list each action or step with a verb in order to make it actionable and clear. See examples on next page: verify, address, include.

EXHIBIT 16, LEVEL 2, RISK TOOL COLUMN DEFINITIONS

The risk matrix in **Exhibit 17, *Level 2 Risk Probability and Impact Matrix*** is used to determine the importance of each risk impact based on the probability and impact ratings. Each word descriptor of the rating has an associated number; the product of the probability number and impact number defines the risk score.

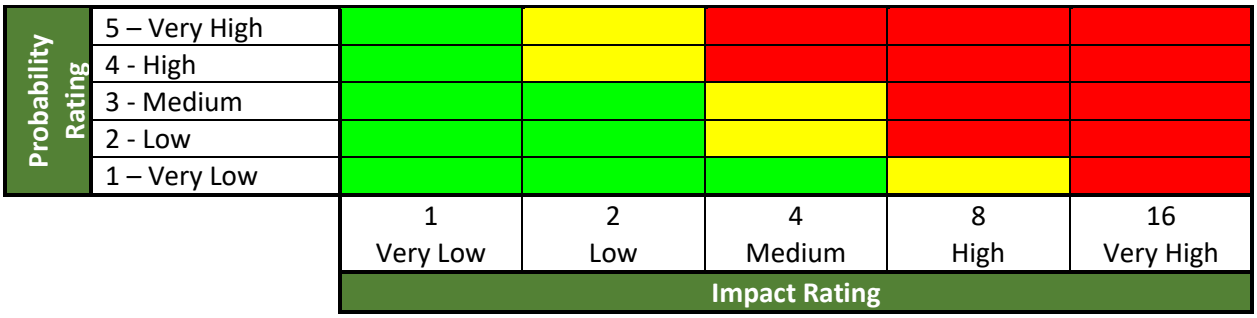

EXHIBIT 17, LEVEL 2 RISK PROBABILITY AND IMPACT MATRIX

For a particular impact, the combination of the probability rating of the risk occurring and the impact rating positions the risk into one of the three colored zones in the risk matrix. The color of the zone indicates the priority of the risk for risk response: red zone signifies high importance, yellow is medium importance, and green is low importance. For example, a risk having a "Medium" probability and a "High" impact falls into the red zone. Its impact score is 3 x 8 = 24. The qualitative analysis is entered into the following columns as shown in **Exhibit 18**.

Risk response strategies and actions are described in **Exhibit 16.** Mitigation strategies for each risk should be carried through the project with documentation in project status meetings, and at project milestone meetings. The Risk Probability and Impact matrix is highly visual and may have value in making presentations, communicating with management, etc.

Level 2 – Risk Probability and Impact Columns	
Column	Contents
Probability	Select the probability level from the drop-down list.
Cost Impact	Select the cost impact level from the drop-down list.
Time Impact	Select the time impact level from the drop-down list.
Rationale	Describe the rationale for these assessments.

EXHIBIT 18, RISK PROBABILITY AND IMPACT COLUMNS

LEVEL 2 - RISK REGISTER Qualitative, w Impacts				Project Name:	Example Project		MPMS No:		Project Manager:	PM Person						
Risk Identification							Risk Assessment						Risk Response			
Status	ID #	Type	Category	Risk Title	Risk Statement	Current status/assumptions	Probability	Cost Impact	Cost Score	Time Impact	Time Score	Rationale	Strategy	Response Actions	Risk Owner	Updated
Active	160	Threat	Design	Survey File	Inaccuracies or incomplete information in the survey file could lead to rework of the design.		3-Medium	2 -Low	6	4 -Medium	12		Mitigate	Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.	PM/RE	11/24/2015
Active	161	Threat	Environmental	Challenge to EIR	Potential lawsuits may challenge the environmental report, delaying the start of construction or threatening loss of funding.		1-Very Low	4 -Medium	4	8 -High	8		Mitigate	Re-sequence the work to enable ROW Certification	ROW Person	11/24/2015
Active	162	Threat	ROW-RR-Utilities	Delay of ROW Acquisition	Due to the large number of parcels and businesses, may have to use the condemnation process to acquire R/W, which could delay start of construction by up to one year, increasing construction costs and extend the time for COS.		3-Medium	4 -Medium	12	8 -High	24		Accept	Ensure storage space will be available	PM	11/24/2015
Active	163	Threat	Construction	Buried Objects	Unanticipated buried man-made objects uncovered during construction require removal and disposal resulting in additional costs.		3-Medium	4 -Medium	12	4 -Medium	12		Accept	Include a Supplemental Work item to cover this risk.	PM	11/24/2015
Active	164	Threat	Design	Supplemental Environmental Review	A design change that is outside of the parameters contemplated in the Environmental Document triggers a additional review which causes a delay due to the public comment period.		3-Medium	4 -Medium	12	8 -High	24		Avoid	Monitor design changes against ED to avoid reassessment of ED unless the opportunity outweighs the threat	Design Manager	11/24/2015
Active	165	Threat	Environmental	Nesting birds	Nesting birds, protected from harassment, may delay construction during the nesting season.		2-Low	2 -Low	4	8 -High	16		Mitigate	Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.	PM/RE	11/24/2015
Active	166	Threat	ROW-RR-Utilities	Additional ROW	Due to the complex nature of the staging, additional right of way or construction easements may be required to complete the work as contemplated, resulting in additional cost to the project.		3-Medium	8 -High	24	8 -High	24		Mitigate	Re-sequence the work to enable ROW Certification	ROW Person	11/24/2015
Active	167	Threat	Construction	Hazardous Materials	Hazardous materials encountered during construction will require an on-site storage area and potential additional costs to dispose		2-Low	2 -Low	4	1 -Very Low	2		Accept	Ensure storage space will be available	PM	11/24/2015

Risk Assessment						Risk Response	
Probability	Cost Impact	Cost Score	Time Impact	Time Score	Rationale	Strategy	Response Actions
3-Medium	2 -Low	6	4 -Medium	12		Mitigate	Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.
1-Very Low	4 -Medium	4	8 -High	8		Mitigate	Re-sequence the work to enable ROW Certification
3-Medium	4 -Medium	12	8 -High	24		Accept	Ensure storage space will be available
3-Medium	4 -Medium	12	4 -Medium	12		Accept	Include a Supplemental Work item to cover this risk.
3-Medium	4 -Medium	12	8 -High	24		Avoid	Monitor design changes against ED to avoid reassessment of ED unless the opportunity outweighs the threat
2-Low	2 -Low	4	8 -High	16		Mitigate	Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.
3-Medium	8 -High	24	8 -High	24		Mitigate	Re-sequence the work to enable ROW Certification
2-Low	2 -Low	4	1 -Very Low	2		Accept	Ensure storage space will be available

EXHIBIT 19, LEVEL 2 RISK QUALITATIVE ANALYSIS WITH IMPACT RATING

Level 3 Analysis

Quantitative risk analysis is a way of numerically estimating the probability that a project will meet its cost and time objectives. The degree of uncertainty in each schedule activity and each line-item cost element is represented by a probability distribution. To perform this analysis, the Project Delivery Risk Manager leads the Team in quantifying cost and schedule risks.

- The probability of the risk occurring is expressed by two values: "Low" and "High" that cover the range.
- Three-point estimates are used for cost and schedule impacts. The three-point estimate consists of determining the "Low" (optimistic), "High" (pessimistic) and "Most Likely" values for the cost and time. The most likely value may be omitted if it cannot be established credibly, leaving a range of low to high.

The qualitative risk analysis information is entered into the following columns as defined in **Exhibit 20** and indicated in **Exhibit 21**.

Level 3 – Risk Probability and Impact Columns	
Column	**Contents**
Probability	Enter the "Low" to "High" values.
Cost Impact	If there is a cost impact, enter a "Low" and "High" cost. If there is reason for a credible "Most Likely" cost, enter it; otherwise, leave this entry blank. If no cost impact, leave these cells blank.
Time Impact	If there is a time impact, enter a "Low" and "High" time in days. If there is reason for a credible "Most Likely" time, enter it; otherwise, leave this entry blank. If there is no time impact, leave these cells blank.
Rationale	Describe the rationale or basis for these assessments. Try to be specific and as concise as reasonably possible.

EXHIBIT 20, LEVEL 3 RISK PROBABILITY AND IMPACT COLUMNS

"Probable Cost" is calculated from the average value of the Probability range multiplied by the average value of the Cost Impact range.

"Probable Time" is calculated from the average value of the Probability range multiplied by the average value of the Time Impact range.

The risks are prioritized for risk response in descending order of their "Probable Cost" and/or "Probable Time".

Risk response strategies and actions are the same as described previously in this section. Mitigation strategies for each risk should be carried through the project with documentation in project status meetings, and at project milestone meetings. For complex projects a formal risk report should be developed.

LEVEL 3 - RISK REGISTER Quantitative	Project Name:	Example Project	MPMS No:		Project Manager:	PM Person

Risk Identification							Risk Assessment											Risk Response			
							Probability		Cost Impact ($)				Time Impact (days)								
Status	ID #	Type	Category	Title	Risk Statement	Current status/assumption	Low	High	Low	Most likely	High	Probable	Low	Most likely	High	Probable	Rationale	Strategy	Response Actions	Risk Owner	Updated
Active	160	Threat	Design	Survey File	Inaccuracies or incomplete information in the survey file could lead to rework of the design.		40	60	$ 100,000		$ 300,000	$ 100,000						Mitigate	Verify that the survey file is accurate and complete	Sam Owner	10/12/2015
Active	161	Threat	Environmental	Challenge to EIR	Potential lawsuits may challenge the environmental report, delaying the start of construction or threatening loss of funding.		0	10	$ 500,000	$ 800,000	$ 1,200,000	$ 42,000	60		150	5		Mitigate	Address concerns of stakeholders and public during environmental process	EIR Person	11/23/2015
Active	162	Threat	ROW	Delay of ROW Acquisition	Due to the large number of parcels and businesses, may have to use the condemnation process to acquire ROW, which could delay start of construction by up to one year, increasing construction costs and extend the time for completion		40	60	$ 500,000	$ 750,000	$ 2,000,000	$ 542,000	180		365	136		Accept		ROW Person	11/23/2015
Active	163	Threat	Construction	Buried Objects	Unanticipated buried man-made objects uncovered during construction require removal and disposal resulting in additional costs.		20	40	$ 200,000		$ 400,000	$ 90,000						Accept	Include a Supplemental Work item to cover this risk.	PM	11/24/2015
Active	164	Threat	Design	Supplemental EIR	A design change that is outside of the parameters contemplated in the Environmental Document triggers additional review which causes a delay due to the public comment period.		10	30	$ 100,000	$ 200,000	$ 400,000	$ 47,000	0		60	6		Avoid	Monitor design changes against ED to avoid reassessment of ED unless the opportunity outweighs the threat	Design Manager	11/24/2015
Active	165	Threat	Environmental	Nesting birds	Nesting birds, protected from harassment, may delay construction during the nesting season.		0	20	$ 150,000		$ 300,000	$ 23,000	0		30	2		Mitigate	Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.	PM/RE	11/24/2015
Active	166	Threat	ROW	Additional ROW	Due to the complex nature of the staging, additional right of way or construction easements may be required to complete the work as contemplated, resulting in additional cost to the project.		40	60	$ 500,000	$ 750,000	$ 1,000,000	$ 375,000						Mitigate	Re-sequence the work to enable ROW Certification	ROW Person	11/24/2015
Active	167	Threat	Construction	Hazardous Materials	Hazardous materials encountered during construction will require an on-site storage area and potential additional costs to dispose		20	40	$ 100,000		$ 300,000	$ 60,000						Accept	Ensure storage space will be available	PM	11/24/2015

Risk Assessment

Probability		Cost Impact ($)				Time Impact (days)				
Low	High	Low	Most likely	High	Probable	Low	Most likely	High	Probable	Rationale
40	60	$ 100,000		$ 300,000	$ 100,000					
0	10	$ 500,000	$ 800,000	$ 1,200,000	$ 42,000	60		150	5	
40	60	$ 500,000	$ 750,000	$ 2,000,000	$ 542,000	180		365	136	
20	40	$ 200,000		$ 400,000	$ 90,000					
10	30	$ 100,000	$ 200,000	$ 400,000	$ 47,000	0		60	6	
0	20	$ 150,000		$ 300,000	$ 23,000	0		30	2	
40	60	$ 500,000	$ 750,000	$ 1,000,000	$ 375,000					
20	40	$ 100,000		$ 300,000	$ 60,000					

EXHIBIT 21, RISK MANAGEMENT TOOL LEVEL 3-QUANTITATIVE ANALYSIS

AH.4.B. Risk Analysis (FHWA tool)

Using the FHWA tool, the Team can perform an analysis of the risk ranking based on severity, which will help to identify the risks and opportunities that will be selected for Risk Response/Mitigation. The anticipated cost and schedule performance can provide the total project performance if none of the risks are mitigated. The Team can select risks to mitigate, identify costs associated with the mitigation as well as the amount of risk reduction, and then review the "mitigated" project performance.

Why was this tool developed? - To support a systematic approach to the practice of risk management for rapid renewal projects SHRP2 (Strategic Highway Research Program) undertook a research project titled Guide for the Process of Managing Risk on Rapid Renewal Contracts (Project R09). The resulting Guide explains risk and how it can impact projects and defines a systematic approach to risk management. The Guide identifies six steps necessary to a formal risk management approach, provides case study examples for each step of the process, and includes extensive checklists and supplemental materials for conducting risk management on relatively simple rapid renewal projects. The supplements include annotated training materials, an animated presentation introducing the risk management process, forms for documenting the process, and a Microsoft Excel template (with User's Guide) that presents a hypothetical project using sample data to provide an example of how to document the process and automatically conduct the necessary analyses for successful rapid renewal risk management.

Can the project team use this product independently? - Yes, it can be done and should be considered for applicable projects if there is expected benefit in doing so. The product includes a user's guide that will allow a project team to work through the risk management template. However, to expedite the project, it is recommended that trained HDTS staff, or a trained consultant work with the project team in developing the template. Utilization of this tool requires some upfront data gathering (project description, parameters and assumptions, design and construction schedules, and initial project costs without contingencies), and a two-day Team charrette. For additional alternatives, anticipate extending the charrette ½ to one day per additional alternative.

Details on the FHWA SHRP2 Risk Management tool are provided in the ECMS file cabinet (select top menu -> References, then drop down -> File Cabinet).

http://www.dot14.state.pa.us/ECMS/SVCOMFileCabinet?action =SEARCH

Folder	Name
ADV – General Requirements	Project Delivery Risk Management – SHRP2 Template
ADV – General Requirements	Project Delivery Risk Management – SHRP2 User Guide
ADV – General Requirements	Project Delivery Risk Management – PennDOT Risk Register

AH.5 Appendices

AH.5.A. Glossary

Base - value exclusive of threat and opportunity (i.e., per specific set of assumptions).

Bias - Error in value (e.g., due to conservatism).

Contingency - Value in addition to base cost and schedule intended to cover risks and other uncertainties (e.g., for project cost and for project schedule).

Contingency Plan - A set of predefined actions to be taken when a negative risk occurs.

Impact - Effect or consequence of an action or the failure to take action.

Mitigation - The act of alleviating a harmful circumstance. **Risk mitigation** seeks to reduce the probability and/or impact of a threat to below an acceptable threshold or to enhance/exploit the probability/ and/or impact of an opportunity.

Opportunity - A risk that will have a positive impact on a project objective if it occurs.

Probability - Likelihood of the occurrence of any event.

Qualitative Risk Analysis - The process of prioritizing risks by assessing the probability and impact of project risk(s) to classify risks qualitative of high, medium, and low for prioritized risk response planning.

Quantitative Risk Analysis - The process of analyzing the values of cost and time. The results of a qualitative analysis can help differentiate risks that may have identical qualitative results (e.g., a qualitative analysis for low probability and high impact results in medium severity; high probability and low impact also results in medium severity).

Recovery - Actions to reduce project cost and/or schedule (e.g., scope reductions), typically in reaction to exceeding available contingency.

Residual Risk - Risks that remain even after developing responses to the project's original risks.

Risk - A defined uncertainty that can impact the outcome of a project including cost, schedule, scope or quality. A risk has a cause and, if it occurs, a consequence. (**Project Risk** - An uncertain event or condition that, if it occurs, has a positive or negative impact on at least one project objective.)

Risk Allocation - Placing responsibility for a risk to a party through a contract. The fundamental tenets of risk allocation include allocating risks to the party best able to manage them, allocating risks in alignment with project goals, and allocating risks to promote Team alignment with customer-oriented performance goals.

Risk Analysis - process of calculating project performance including risks, and often the sensitivity of that performance to the various risks (i.e., to prioritize the risks for further assessment or for risk mitigation), based on previous structuring and risk identification and assessment. As used elsewhere,

sometimes refers broadly to identification and assessment, as well as analysis, of risks, interchangeably with risk assessment.

Risk Assessment - A component of risk management that bridges risk identification and risk analysis in support of risk allocation.

Risk Avoidance - Changing the project plan to eliminate the risk or to protect the project objectives from its impact. It is a tool of the risk response planning process.

Risk Documentation - Recording, maintaining, and reporting assessments; handling analysis and plans; and monitoring results. It includes all plans, reports for the Project Manager and decision authorities, and reporting forms that may be internal to the Project Manager.

Risk Event - A discrete occurrence that may affect a project in either a positive or negative way.

Risk Identification - Determining which risks might affect the project and documenting their characteristics. Tools used include brainstorming and checklists.

Project Delivery Risk Manager - Facilitates the risk management process and acts as gatekeeper for the risk register.

Risk Management - The systematic process of planning for, identifying, analyzing, responding to, and monitoring project risk. Risk management involves people, processes, tools, and techniques that will help the project manager maximize the probability and consequences of positive events and minimize the probability and consequences of adverse events. Project risk management is most effective when first performed early in the life of the project and is a continuing responsibility throughout the project.

Risk Management Plan - Documents how the risk processes will be carried out during the project. This is the output of risk management planning.

Risk Owner - A person assigned to monitor the risk(s) and inform the project manager of any changes in the status of the risk.

Risk Register - A document detailing all identified risks, including description, cause, probability of occurrence, impact(s) on objectives, proposed responses, owners, and current status.

Risk Template - The PennDOT Risk Management tool that contains a risk register for each of the three levels of risk management.

Risk Trigger - Symptoms and warning signs that indicate whether a risk is becoming a near-certain event and a contingency plan/response plan should be implemented.

Severity (or risk severity) - a measure of a risk's impact on project performance, e.g., by combining values of changes in cost and schedule due to that risk.

Structuring - process of defining base project performance, e.g., by reviewing/abstracting available detailed project performance estimates, adequately for purpose of risk management process.

Threat - A risk that will have a negative impact on a project objective if it occurs.

AH.5.B. Risk Response Examples

The following list provides a few risks along with various responses such as mitigate, avoid or accept.

	Risk Statement	Risk Response
Design	Inaccuracies or incomplete information in the survey file could lead to rework of the design.	**Mitigate**: Work with Surveys to verify that the survey file is accurate and complete. Perform additional surveys as needed.
	A design change that is outside of the parameters contemplated in the Environmental Document (ED) triggers a review which causes a delay due to the public comment period.	**Avoid**: Monitor design changes against ED to avoid reassessment of ED unless the opportunity outweighs the threat.
Environmental	Potential lawsuits may challenge the environmental report, delaying the start of construction or threatening loss of funding.	**Mitigate**: Address concerns of stakeholders and public during environmental process. Schedule additional public outreach.
	Nesting birds may delay construction during the nesting season.	**Mitigate**: Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.
Right-of-Way	Due to the complex nature of the staging, additional right-of-way or construction easements may be required to complete the work as contemplated, resulting in additional cost to the project.	**Mitigate**: Re-sequence the work to enable right-of-way certification.
	Due to the large number of parcels and businesses, the condemnation process may have to be used to acquire right-of-way, which could delay start of construction by up to one year, increasing construction costs and extending the time completion.	**Mitigate**: Work with right-of-way and project management to prioritize work and secure additional right-of-way resources to reduce impact.
Construction	Hazardous materials encountered during construction will require an on-site storage area and potential additional costs to dispose.	**Accept**: Ensure storage space will be available.
	Unanticipated buried artificial objects uncovered during construction require removal and disposal resulting in additional costs.	**Accept**: Include a Supplemental Work item to cover this risk.

AH.5.C. Risk Management Plan Outline

1. **Introduction**

   Project Name and Location

   Brief project summary with respect to risk management

   Potential macro-level risks and any considerations for mitigation/minimization

2. **Risk Management Strategy and Approach**

   Provide a brief summary overview of the strategy that will be used to manage, mitigate and minimize potential risks, involved with the particular risk.

   Team member risk management roles and responsibilities (e.g., who is assuming the role of Project Delivery Risk Manager)

   Communication strategy – basic listing of communication needs and how each will be met

3. **Risk Register**
   a. **Risk Identification (Reference Risk Model/Register)**

      Using this guide, procedures and risk register model, identify all potential risks.

   b. **Assessment and Analysis**

      Qualitative (Level 2) Use the techniques outlined in this guide to perform the assessment.

      Quantitative (Level 3) When necessary, use the techniques outlined in this guide to perform the assessment.

   c. **Risk Response Planning (Reference Risk Model/Register)**

      Determining who, what group or groups will have responsibility for avoiding or mitigating identified risks. Risk owners identified and responsible if a risk is triggered.

4. **Implementation**

   Including risk monitoring and updating, information gathering and distribution.

5. **Supporting documentation and reports**

   Include output from risk management workshops, photographs, meetings, newspaper articles, community documents (e.g., local government meeting minutes), etc.

DM-1X, APPENDIX AI

INTERSECTION CONTROL EVALUATION (ICE) POLICY

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AI.1. Intersection Control Evaluation (ICE) Policy Introduction

The primary goal of virtually all roadway projects, whether new construction or retrofitting existing infrastructure, is to deliver a project that improves safety and/or mobility of the traveling public while being economically viable and promoting a sustainable roadway network. Perhaps the greatest opportunity for realizing this goal lies at at-grade intersections, where crossing traffic patterns potentially place users of various modes in conflict with each other and creates delay. Therefore, transportation practitioners should work to ensure the most prudent intersection control type is deployed at each intersection on Pennsylvania's public roadways. Though engineering judgement is often required in selecting the most 'appropriate' intersection design, a multitude of quantifiable factors can be evaluated to help facilitate an informed decision-making process.

The Pennsylvania Department of Transportation (PennDOT) has developed an Intersection Control Evaluation (ICE) policy to aid in this effort. To support this policy, PennDOT has created a framework for a range of activities to support objective evaluations of intersection control strategies. The framework is intended to guide users through sequential steps in conducting the evaluation and is not intended as a rigid process, although completion of forms is required to document project decisions. Users are encouraged to consider the evaluation context of a given project and adapt the ICE framework accordingly. This could result in early, sketch level evaluations to support quick planning level decisions while the framework is set up to provide detailed and robust evaluation activities to address complex projects. ICE replaces the current process of signal justification for intersections in the Commonwealth. ICE is intended to be flexible and adaptive by the user for a given project context. ICE activities could potentially be streamlined on some projects while other projects may require relatively more extensive analyses. The users should use their judgment to apply the ICE framework in the way that meets project needs and the objectives of the ICE Policy. Ultimately, this ICE policy is intended to foster thoughtful consideration of alternative intersection types and ensure a holistic, quantitative analysis is completed when selecting an intersection control type for intersections across the Commonwealth.

AI.1.A. Background

Intersections play an essential role in the roadway network and offer connections to different routes and facilities while providing necessary access to adjacent residential, commercial, and industrial developments. Intersections are comparatively discrete, comprising a small portion of total road system mileage, but account for a high percentage of all crashes, especially severe crashes that produce injuries and fatalities. In Pennsylvania, crashes at intersections represent nearly 40 percent of all crashes and 25 percent of all fatal and major injury crashes.

In recent years, a number of new or innovative intersection designs have been introduced across the United States, with a record of enhancing safety and improving operations, along with varying degrees of other benefits. Through a re-imagining of the combination of geometric design and traffic control, planners, engineers, and designers are now able to better choreograph the movement of people and vehicles across and through intersections. Previously, the most common solution to intersection challenges involved all-way stop or conventional signalization scenarios, or an interchange. Proven options now include roundabouts, cross-over based designs, and U-turn based designs. ***Appendix A*** *includes a description of at-grade intersection design concepts applied throughout the United States.*

Experience to date with these designs suggests a potential for greater safety and operational benefits could be realized at a system level with broader implementation.

Consequently, a consistent and objective evaluation, founded upon performance-based criteria, is needed. Nationally, states have adopted Intersection Control Evaluation (ICE) policies in recent years, and FHWA is promoting such policies and providing support through the Every Day Counts initiative. To the extent that ICE may add to the time and cost of the overall project development and delivery process, it is acknowledged that this represents an investment in supporting PennDOT's efforts to deliver better transportation solutions including newer, innovative designs, to the citizens of the Commonwealth.

AI.1.B. Purpose of Intersection Control Evaluations

Modifying or creating new intersections are typically undertaken for one or more of the following reasons:

- As a safety focused project;
- As a congestion mitigation project;
- As part of a corridor project;
- A change of access to an adjacent parcel of land or land development project;
- A community improvement, streetscape, or pedestrian- or bicycle-focused project
- Occasionally, changes to intersections, including signal modernization or lane reconfiguration, may be part of pavement widening/rehabilitation or bridge projects.

The purpose of ICE is to consistently consider and screen from among many proven combinations of geometry and traffic control when a new intersection or existing intersection modification is first contemplated. The goal of ICE is to better inform the decision-making of the road agency to identify and select an alternative that meets the project purpose and reflects the overall best value, in terms of specific performance-based criteria within available resources. As with most transportation studies, ICE is scalable, meaning the corresponding level of effort for screening and analysis should be commensurate with the magnitude and nature of the project – less effort for simple, more effort for complex. The premise of an ICE is the same whether it involves new intersections or modification to existing intersections.

AI.2. Applicability

An ICE is **required** when a project on the state roadway system or receiving state or federal funds includes the following:

- Creation of a new intersection
- Creation of a medium volume or high volume driveway (See **Exhibit 1**; **Note:** Usage, per Publication 312, refers to one-way volume)
- Adding a leg to an existing intersection that is not a minimal use driveway (See **Exhibit 1**; **Note:** Usage, per Publication 312, refers to one-way volume)
- Adding a through lane or turning lane at an existing intersection, or changing the lane configuration at an existing intersection
- Changing control at an existing intersection
- Full-depth reconstruction of an existing intersection
- Lane configuration or control changes at ramp terminal intersections
- Points of access requests in accordance with the Points of Access policy

This includes projects adding, removing, or modifying a traffic signal, and it includes Highway Occupancy Permit (HOP) applications.

An ICE is **not** required for intersection projects if any of the following apply:

- A project is municipal-led on locally maintained roadways, and no PennDOT or federal funds are used.
- Work involved does not include any substantive changes proposed to an intersection (e.g., a project limited only to “mill and fill” pavement resurfacing with no change to intersection geometry or control).
- The minor street is a “very low volume” roadway (per AASHTO, routes with AADT less than 400 vehicles per day).
- The intersection is a minimal use driveway. (See **Exhibit 1**; **Note:** Usage, per Publication 312, refers to one-way volume)
- The intersection is a low volume driveway that does not form an additional leg of an existing intersection. (See **Exhibit 1**; **Note:** Usage, per Publication 312, refers to one-way volume)

Driveway Type	Usage
Minimal Use	Not more than 25 vehicles per day
Low Volume	More than 25 but less than 750 vehicles per day
Medium Volume	More than 750 but less than 1500 vehicles per day
High Volume	More than 1500 vehicles per day

Note: Usage, per Publication 312, refers to one-way volume

EXHIBIT 1. DRIVEWAY DEFINITIONS PER PA CODE TITLE 67, CHAPTER 441.1

PennDOT encourages municipalities to perform an ICE for projects they lead on locally maintained roadways, but ultimately it is the choice of the municipality.

For interchanges, an ICE is required for ramp terminal intersections. For example, if a diamond form is selected, an ICE should be used to consider and recommend a control strategy at the ramp terminal intersection, with options including stop control, signalized, or yield (roundabouts). Cross over ramp terminal forms, such as a diverging diamond, fall into the category of signalized control strategies.

AI.3. Conducting an Intersection Control Evaluation

ICE activities are the same for any intersection project regardless of the sponsor or project catalyst. An ICE must be prepared under the supervision of a licensed Professional Engineer in the Commonwealth of Pennsylvania. Except for municipal-led projects on locally maintained roadways that do not use PennDOT funds, PennDOT shall retain final approval authority for the ICE.

Project Catalyst

Projects may be initiated for a variety of reasons – traffic operations, safety, multimodal access, land access, and community redevelopment are examples of potential project catalysts. The catalyst for a project will guide the choice of a control strategy, and the effectiveness of a control strategy will be determined by the degree to which it addresses the catalyst.

Design Year

Analysis should be completed for the year the project opens to traffic and a design year. For HOP applications the design year is 5 years beyond the open-to-traffic year. For other projects, the design year is 20 years beyond the open-to-traffic year unless otherwise specified by the District Traffic Engineer (DTE).

Scope of Intersection Control Evaluation

ICE is generally focused on the isolated intersection or intersections under consideration; however, evaluations may need to expand beyond the study intersections if:

- Queue spillback is anticipated to impact the operations of adjacent intersections;
- Modifications are being made to an intersection within a coordinated signal system;
- Queue spillback onto a freeway is likely (for ramp terminal intersections); or
- Determined to be appropriate by the DTE or their designee.

Modifications to multiple intersections require an ICE to be completed for each intersection or as a grouping of intersections if the intersections do not operate independently of each other.

AI.4. Implementation

The ICE activities generally consist of three stages; however, not all three may be required to select a preferred intersection control strategy. As previously documented, the scope of an ICE is scalable commensurate to the analysis required to select a viable control strategy for the intersection and some projects will only require one or two stages.

The three stages require more detailed analyses with each iteration until a single intersection control strategy is identified. In complex configurations, the promising strategy could include a series of intersection locations:

- Stage 1: Screening – completed during a project's scoping stage
- Stage 2: Initial Control Strategy Assessment – completed following a project's scoping stage
- Stage 3: Detailed Control Strategy Assessment – completed prior to Design Field View

At the completion of each stage, the appropriate PennDOT ICE form should be completed and submitted to the District Traffic Engineer (DTE) or their designee. Completing the Stage 1 ICE form is required for all projects outlined in the "applicability" section of this document, and Stage 2 and Stage 3 forms are **required** if prior stages did not identify a single control strategy. The breadth of supporting documentation appended to the form should be commensurate with the level of analysis required to identify the preferred control strategy. ***Appendix B*** *contains the PennDOT ICE forms. The intent of these forms is to ultimately be housed on a website (directly or as a web-based form) where they can also be submitted and entered into a statewide database.*

Stage 1: Screening

The purpose of this stage is to establish a list of viable traffic control strategies for the intersection. For PennDOT- or municipal-initiated projects, this should typically occur prior to initiating a scoping meeting. For HOP applications, the applicant's engineers should discuss which viable control strategies to assess at the scoping meeting with PennDOT staff. **Exhibit 2** illustrates the party typically responsible for compiling ICE form information and supporting analysis for common project types.

Project Type	Typical Agency/Party to Complete Stage 1 ICE
PennDOT projects	PennDOT staff or their consultants
PennDOT projects with a municipal lead	Municipal staff or their consultants, with assistance from PennDOT
Municipal project without PennDOT funds	Local agency staff or their consultants, if municipal agency chooses to use ICE
Highway Occupancy Permit (HOP)	Applicant

EXHIBIT 2. AGENCY/PARTY TYPICALLY RESPONSIBLE FOR COMPLETING ICE FORMS BASED ON PROJECT TYPE

Exhibit 3 illustrates the Stage 1 activities, while **Exhibit 4** provides a discussion of each potential, successive step. FHWA's CAP-X spreadsheet tool is helpful in Stage 1. It conducts critical lane volume

analysis to determine basic lane needs and viability of alternative intersections and roundabouts from a traffic operations perspective.

Ultimately, the analysis in Stage 1 may result in three possible outcomes (identified by the blue boxes in **Exhibit 3**):

1) A preliminary analysis of the existing conditions identifies a single viable control strategy as meeting the needs of the project and addressing the catalyst. A Stage 1 ICE form is completed by the party identified in **Exhibit 2**, and further stages of ICE are not completed.

2) A preliminary analysis indicates multiple control strategies as viable and meeting the needs of the project. Stage 1 ICE form is completed by the party identified in **Exhibit 2**. Results of the analysis should be shared with the DTE and the project team to determine next steps and scope, as the analysis transitions into Stage 2.

3) Though a project includes construction on a state roadway at the study intersection, the magnitude of construction does not warrant an ICE (e.g., the project involves relatively minor work such as resurfacing or other maintenance activities). In this case it is not necessary to complete an ICE form.

For outcomes requiring an ICE, the completed Stage 1 ICE form is submitted to the DTE or their designee for approval. Stage 1 should be completed as part of the scoping process.

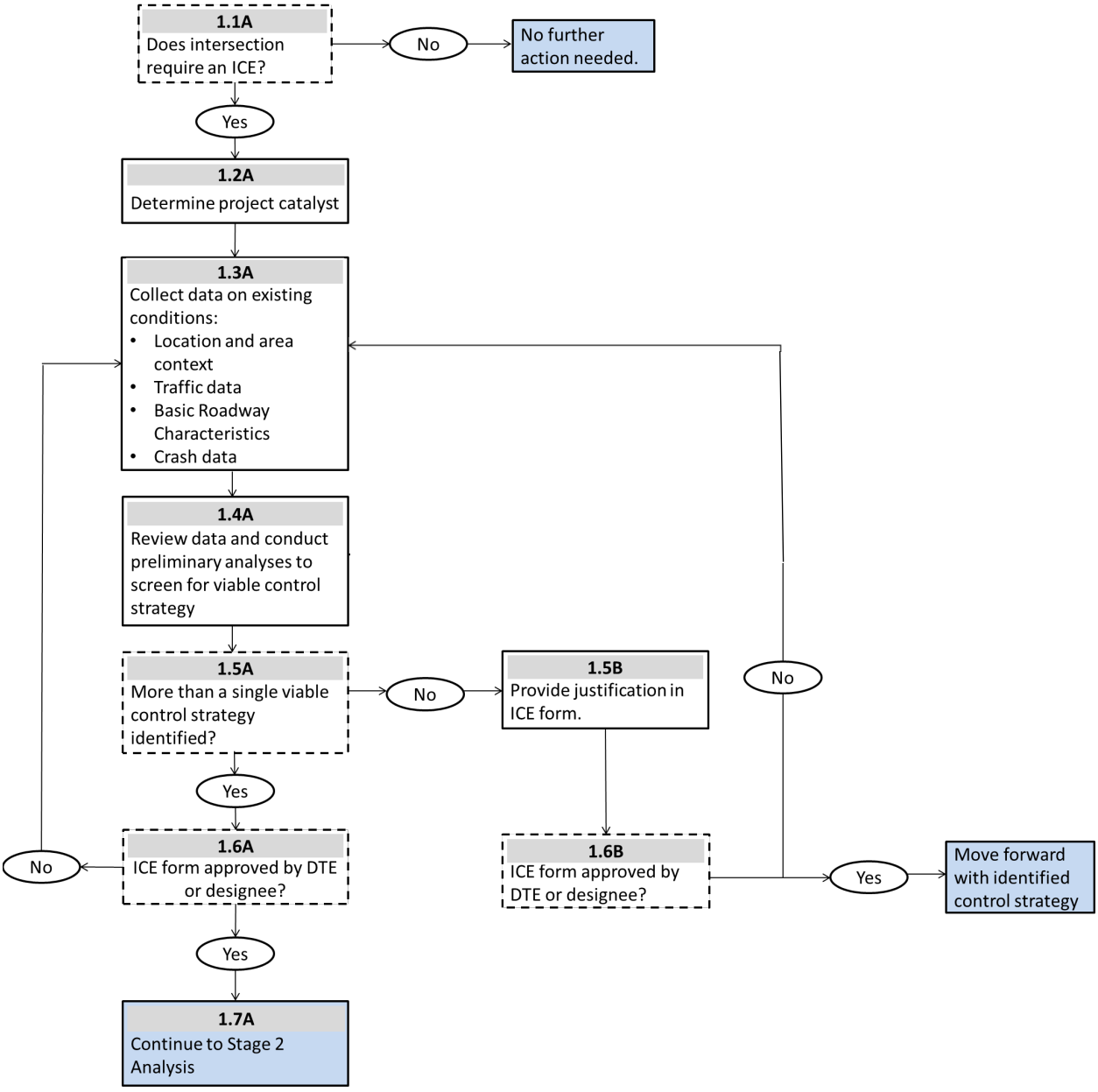


EXHIBIT 3. INTERSECTION CONTROL EVALUATION: STAGE 1 – SCREENING

Step		Description
1.1A	Does intersection require ICE?	Determine if the study intersection requires an Intersection Control Evaluation based on the criteria established in the Applicability section of this document.
1.2A	Determine project catalyst	Determine the catalyst for the project. The catalyst is essentially the purpose and need of a project without the environmental regulatory implications of that term. A catalyst can be determined without collecting data.
1.3A	Collect data on existing conditions	If ICE is applicable, it is necessary to collect certain minimum information about the existing conditions. This includes the location and area context, traffic data, basic roadway characteristics, crash data, multimodal use, existing and future land use, and community goals and objectives. Specific requirements for this data can be found in the PennDOT ICE Policy spreadsheet and in **Appendix C**.
1.4A	Conduct preliminary analyses to screen for viable control strategies	Data collected should be input to the PennDOT ICE tool to aid in identifying various traffic control strategies. The spreadsheet does not provide quantitative results for each area of evaluation (e.g., bicycle/pedestrian accommodations, community support, etc.), so engineering judgement should be applied in evaluating these aspects.
1.5A	More than a single viable control strategy identified?	The PennDOT ICE Policy spreadsheet tool can be used to help identify "viable" traffic control strategies for the intersection; however, discretion lies with the Professional Engineer (PE) overseeing the evaluation to determine feasibility. Efforts/results should be coordinated with PennDOT throughout the evaluation to ensure acceptance of the results/conclusions.
1.5B	Provide justification in ICE form	If a preferred intersection control strategy is identified through preliminary analyses, justification should be included in the completed Stage 1 ICE form and it should be submitted to the DTE or designee for concurrence/approval. Factors used for justification should include the following: • Existing safety and congestion issues • Plans for the roadway based on an adopted corridor study • The spacing of nearby intersections or driveways and how they conform to adopted access management guidelines • The adjacent environment and land uses • Area context (urban, suburban, or rural) • Community goals and objectives • Future anticipated traffic volumes • Pedestrian and bicycle usage and needs • The breakdown and percentage of types of vehicles • Design vehicle accommodation • Sight distance • Available right of way • Environmental constraints • Available funds for construction • Support of the local users, local agencies, and local government
1.6A	ICE form approved by DTE or designee?	If the ICE form is approved, the proposed control strategies can be prepared for Stage 2: Control Strategy Assessment.
1.6B	ICE form approved by DTE or designee?	If the ICE form is not approved, the DTE or designee may require additional data collection to help identify viable control strategies.
1.7A	Continue to Stage 2 Analysis	If the ICE form is approved, the proposed improvements to the intersection traffic control type can proceed to design.

EXHIBIT 4. STAGE 1 PROCEDURAL STEPS

Stage 2: Initial Control Strategy Assessment

If Stage 1 identified a single preferred control strategy, Stage 2 is not necessary. If Stage 1 helped narrow down a list of potential intersection control strategies but did not select a single one, Stage 2 is intended to help differentiate any remaining control strategies with a more detailed vetting. Prior to conducting additional analyses, conceptual designs must be developed for each alternative. These conceptual designs are essential for communicating control strategy concepts to the public and evaluating factors such as, cost, right-of-way impacts, and environmental impact on a site-specific basis. Additionally, traffic operations analysis and safety analysis are conducted. PennDOT's Intersection Control Evaluation (ICE) Tool is used to compute the net present value and benefit-cost ratio in Stage 2. Evaluation of other factors such as community preferences and consistency with future land use and transportation plans for the surrounding area is captured with outreach to local agencies and the general public. **Exhibit 5** illustrates the Stage 2 activities, while **Exhibit 6** discusses the potential steps encountered within Stage 2. Ultimately, the analysis in Stage 2 may result in two possible outcomes (identified by the blue boxes in **Exhibit 5**):

1) Through more detailed analysis, a single control strategy is identified as preferred. A Stage 2 ICE form should be completed, and the supporting analyses (e.g., HCM operational analysis, HSM safety analysis) should be conducted. Analysis results may be appended to the form or documented in a memo.

2) The analysis of the conceptual designs failed to clearly distinguish a single control strategy above the others. Results of the analysis should be shared with the DTE and applicable staff to determine next steps and scope, as the analysis transitions into Stage 3.

For each possible outcome listed above, the completed Stage 2 ICE form is submitted to the DTE or their designee for approval. Stage 2 is typically completed immediately following the scoping portion of a project.

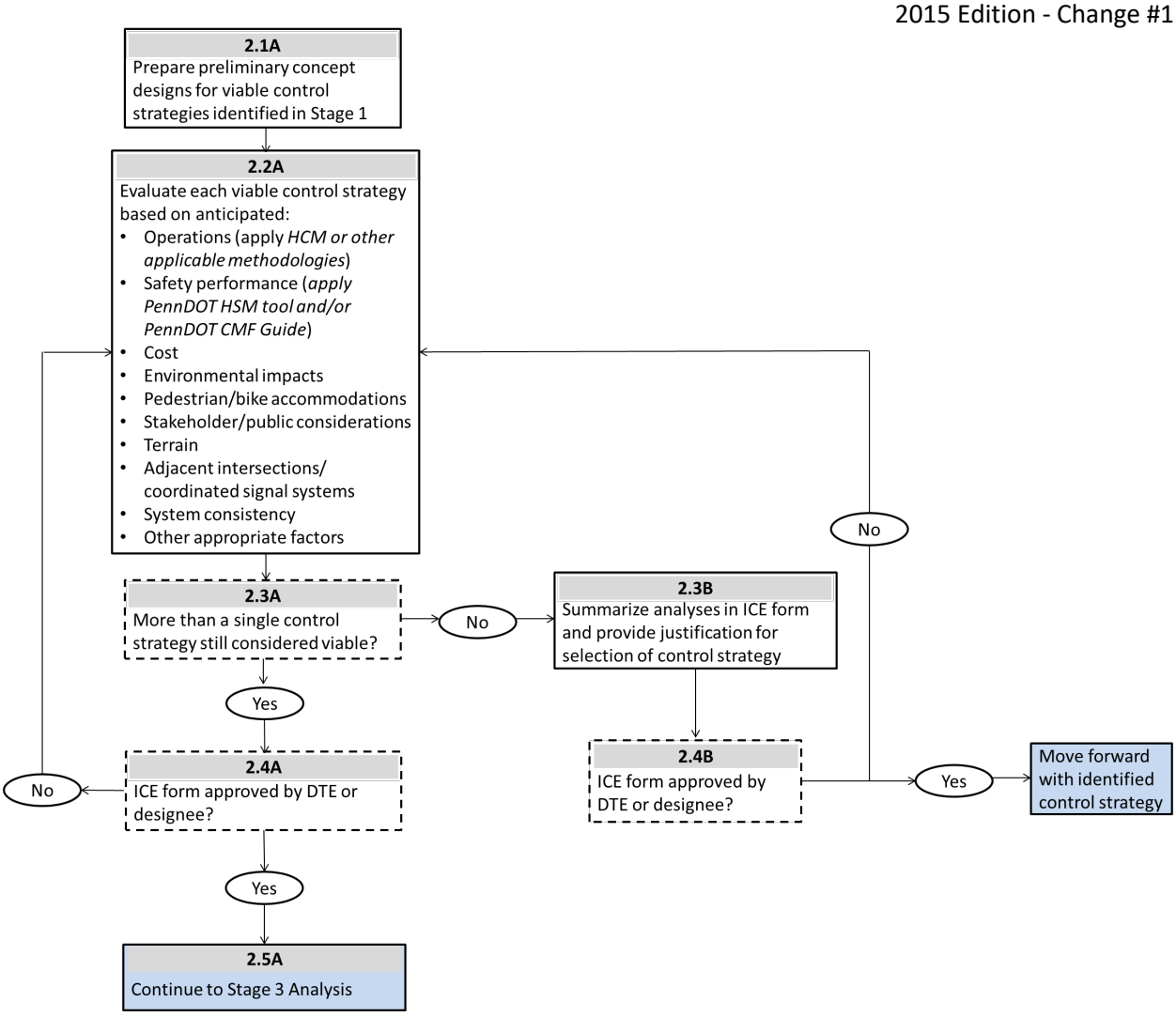


EXHIBIT 5. INTERSECTION CONTROL EVALUATION: STAGE 2 – INITIAL CONTROL STRATEGY ASSESSMENT

Step		Description
2.1A	Prepare preliminary conceptual designs	A layout or conceptual plan showing the proposed geometrics for each intersection control strategy must be included. The plan should document changes from the existing conditions. This conceptual design lays the foundation for much of the evaluation in the subsequent step.
2.2A	Evaluate each control strategy	Based on the conceptual designs, a more detailed analysis of each alternative should be conducted.
2.3A	More than a single control strategy still considered viable?	**Appendix D** provides a more detailed discussion on each of the analysis areas. For an up-to-date list of software to be used in the analyses, refer to Chapter 12 of Publication 46 to ensure the appropriate software is used.
2.3B	Summarize analyses in ICE form and provide justification for selection of control strategy	Discretion lies with the Professional Engineer (PE) overseeing the evaluation to determine whether alternatives are still viable based on the evaluation of the conceptual designs. However, efforts/results should be coordinated with PennDOT throughout the evaluation to ensure acceptance of the results/conclusions.
2.4A	ICE form approved by DTE or designee?	If the ICE form is approved, the proposed control strategies can be prepared for Stage 3: Detailed Control Strategy Assessment.
2.4B	ICE form approved by DTE or designee?	If a preferred traffic control strategy is identified through the analysis of the conceptual designs, a completed ICE form should be submitted with the proper justification appended. If approved by the DTE, the identified control strategy may be moved forward.
2.5A	Continue to Stage 3 Analysis	If the ICE form is not approved, the DTE or designee may require additional analysis and evaluation to help identify viable control strategies.

EXHIBIT 6. STAGE 2 PROCEDURAL STEPS

Stage 3: Detailed Control Strategy Assessment

While Stage 2 saw the development and analysis of conceptual designs, Stage 3 requires a more thorough analysis and/or public vetting of control strategy options. This may involve advancement of design plans, more detailed traffic analysis, more detailed cost estimating and right-of-way need determination, additional assessment of environmental impacts, additional engagement with the public or local officials, or any other activities necessary to identify the preferred alternative. If more detailed design plans will not aid in evaluating the outstanding issues necessary to select a control strategy, it is not necessary to prepare them. For example, further engagement of the community or assessment of multimodal needs may be a differentiating area, and further technical analysis may not be beneficial. Stage 3 activities are, to some extent, customized on a project-by-project basis to address the issues that have prevented a single control strategy from being identified in Stage 1 or Stage 2.

Exhibit 7 illustrates the Stage 3 evaluation, while **Exhibit 8** discusses the potential steps encountered within Stage 3. Stage 3 should ultimately result in one outcome: the selection of a preferred alternative. Stage 3 should be completed prior to the preparation of Design Field View plans.

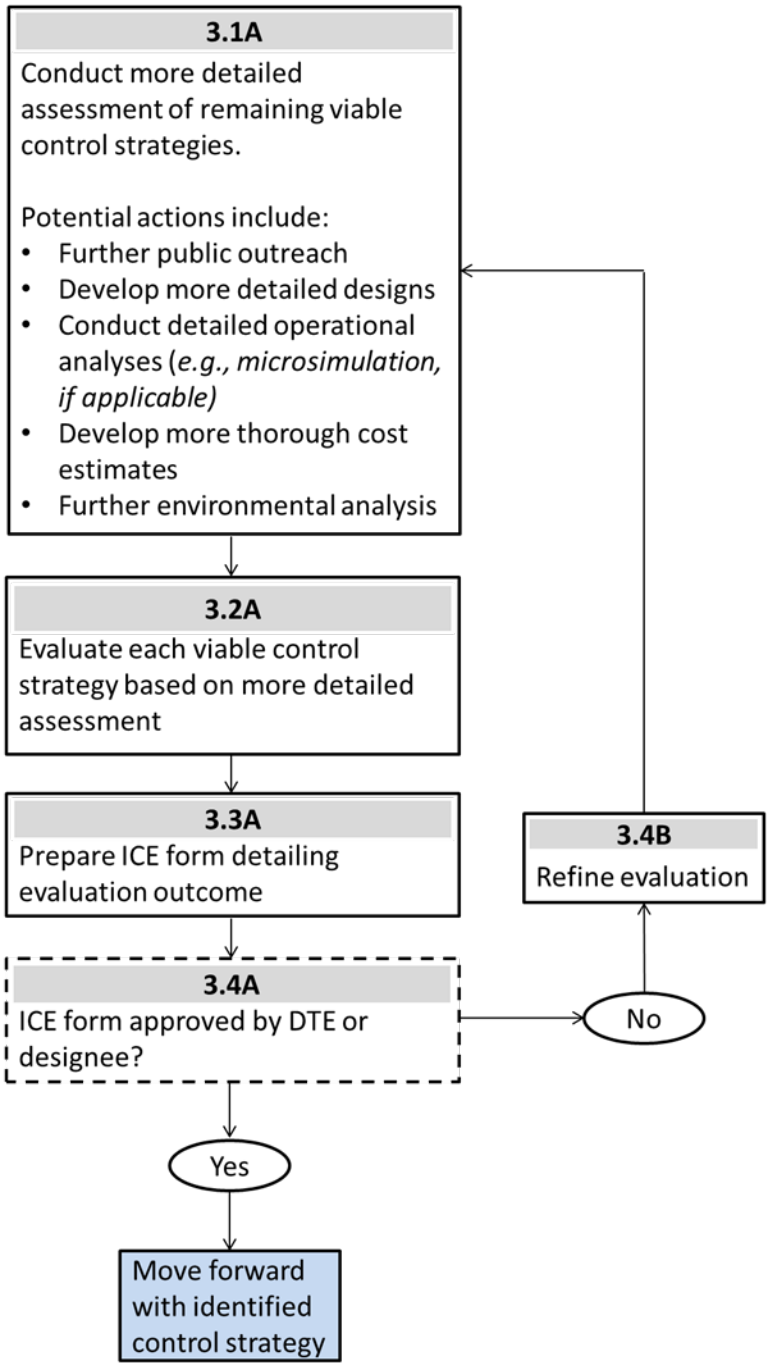


EXHIBIT 7. INTERSECTION CONTROL EVALUATION: STAGE 3 – DETAILED CONTROL STRATEGY ASSESSMENT

Step		Description
3.1A	Conduct more detailed assessment of remaining control strategies	Revisit control strategies remaining after Stage 2 analysis, and further evaluate aspects of the project that will become distinguishing criteria and lead to a selection of a preferred control strategy.
3.2A	Evaluate each viable control strategy based on more detailed assessment	Discretion lies with the Professional Engineer (PE) overseeing the evaluation to determine which control strategy is preferred after the additional assessment. However, efforts/results should be coordinated with PennDOT throughout the evaluation to ensure acceptance of the results/conclusions.
3.3A	Prepare ICE form detailing evaluation outcome	An ICE form should be prepared detailing/justifying the selected control strategy. Supporting documentation should be appended to the form.
3.4A	ICE form approved by DTE or designee?	If the ICE form obtains concurrence/approval from the DTE or designee, then the recommended intersection project can move forward to the Design Field View phase. If the ICE form is not approved, the comments from the DTE or designee should be incorporated into the analysis and justification form. This may include modifications to control strategy designs, operational analyses, or additional evaluations. The party responsible for submitting the ICE is required to re-submit the ICE form after accounting for comments from the DTE or designee. Efforts/results should be coordinated with PennDOT throughout the evaluation to avoid unnecessary iterations.
3.4B	Refine design	If the submission of the ICE form is not approved, the party responsible for submitting the ICE form must revise their analysis or modify their evaluation based on the comments received from the DTE or designee (i.e., repeat Step 3.2A with revisions).

EXHIBIT 8. STAGE 3 PROCEDURAL STEPS

AI.5. Tools and Resources

Exhibit 9 provides links to potentially useful tools and resources when conducting an ICE.

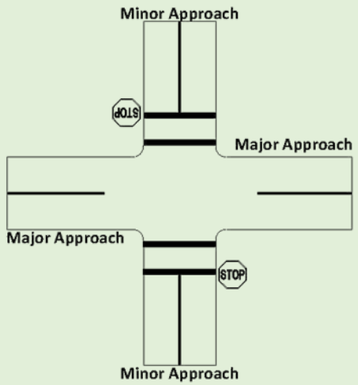
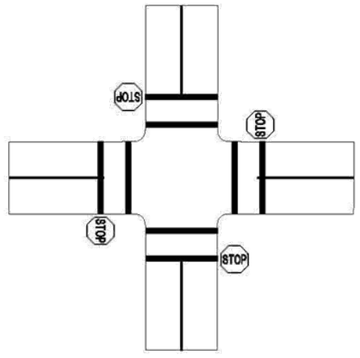
Category	Title	Description	Web Link
Operational and Safety Performance Evaluation Tools	PennDOT HSM Tools A and B	Excel spreadsheet-based calculators to apply Pennsylvania-specific HSM analysis	ECMS File Cabinet
	PennDOT Crash Modification Factor (CMF) Guide	Inventory of crash modification factors and recommended models for Pennsylvania	Appendix of http://www.dot.state.pa.us/public/pubsforms/Publications/PUB%20638.pdf
	Safety Performance for Intersection Control Evaluation (SPICE) Tool	Excel spreadsheet-based safety performance screening tool for conventional and alternative intersection types	Under development by FHWA
	Capacity Analysis for Planning of Junctions (CAP-X) Tool	Excel spreadsheet-based critical lane method operational analysis tool	https://www.fhwa.dot.gov/software/research/operations/cap-x/
	Highway Capacity Manual	Definitive reference for traffic analysis of intersections and underlying basis of many intersection operation software packages	http://www.trb.org/main/blurbs/175169.aspx
Life-Cycle Cost Analysis Tools	PennDOT ICE Tool	Excel spreadsheet-based economic evaluation tool. Modified from NCHRP Project 3-110 tool	Being determined at this time
Intersection Control Type Reference Guides	Unsignalized Intersection Improvement Guide (UIIG)	PDF report documenting safety, mobility, and accessibility improvements to unsignalized intersections	http://toolkits.ite.org/uiig/
	FHWA-SA-13-027: Signalized Intersections Informational Guide, 2nd Edition	PDF report providing guidance on enhancing the safety of signalized intersections	http://safety.fhwa.dot.gov/intersection/conventional/signalized/fhwasa13027/fhwasa13027.pdf
	NCHRP 672 - Roundabouts: An Informational Guide, 2nd Edition	PDF report discussing roundabout design and evaluation	http://www.trb.org/Publications/Blurbs/164470.aspx
	FHWA-SA-14-069: Median U-Turn Intersection Informational Guide	PDF report providing guidance on median U-turn (MUT) intersections	http://safety.fhwa.dot.gov/intersection/alter_design/pdf/fhwasa14069_mut_infoguide.pdf
	FHWA-HRT-09-055: Displaced Left-Turn Intersection	PDF report providing guidance on displaced left-turn intersections	http://www.fhwa.dot.gov/publications/research/safety/09055/09055.pdf
	FHWA-SA-14-070: Restricted Crossing U-Turn Intersection Informational Guide	PDF report providing guidance on restricted crossing U-turn (RCUT) intersections	http://safety.fhwa.dot.gov/intersection/alter_design/pdf/fhwasa14070_rcut_infoguide.pdf

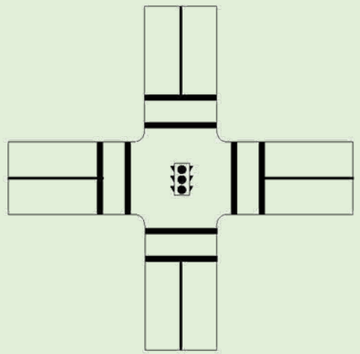
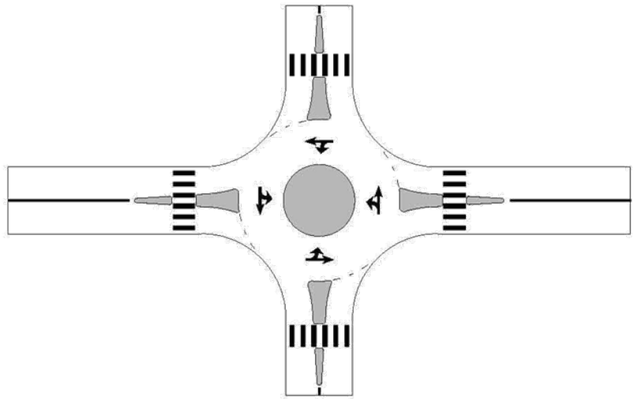
Category	Title	Description	Web Link
	FHWA-HRT-07-032: Traffic Performance of Three Typical Designs of New Jersey Jughandle Intersections	PDF report providing guidance on New Jersey Jughandle intersections	http://www.fhwa.dot.gov/publications/research/safety/07032/07032.pdf
	FHWA-SA-14-068: Displaced Left-Turn Intersection Informational Guide	PDF report providing guidance on displaced left-turn (DLT) intersections	http://safety.fhwa.dot.gov/intersection/alter_design/pdf/fhwasa14068_dlt_infoguide.pdf
	FHWA-SA-09-016: Continuous Green T-Intersections	PDF report providing guidance on continuous green T-intersections	http://safety.fhwa.dot.gov/intersection/innovative/others/casestudies/fhwasa09016/fhwasa09016.pdf
	FHWA-HRT-09-058: Quadrant Roadway Intersection	PDF report providing guidance on quadrant roadway intersections	http://www.fhwa.dot.gov/publications/research/safety/09058/09058.pdf
	FHWA-HRT-09-060: Alternative Intersections/Interchanges: Informational Report (AIIR)	PDF report providing guidance on various alternative intersection control types. Information on MUT, RCUT, and DLT intersections superseded by the individual guidebooks above.	http://www.fhwa.dot.gov/publications/research/safety/09060/09060.pdf

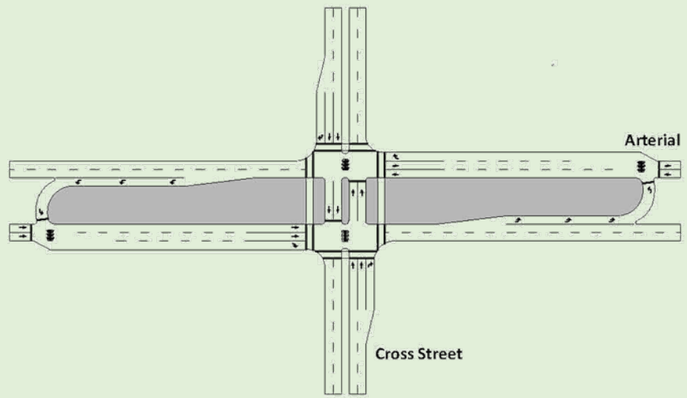
EXHIBIT 9. TOOLS AND RESOURCES FOR CONDUCTING AN ICE

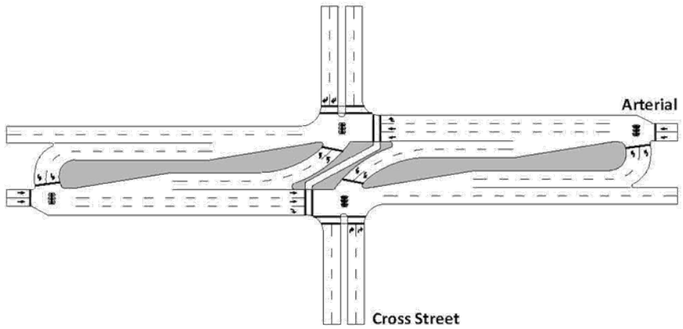
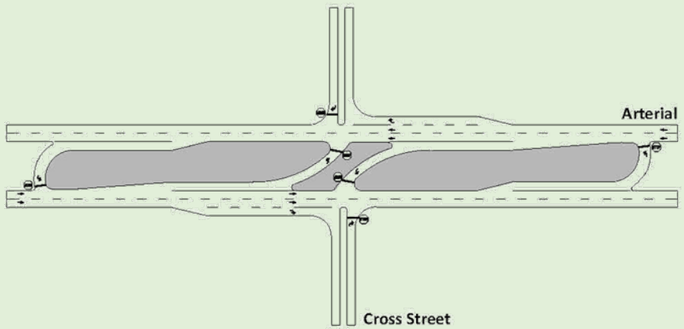
AI.6. Appendices

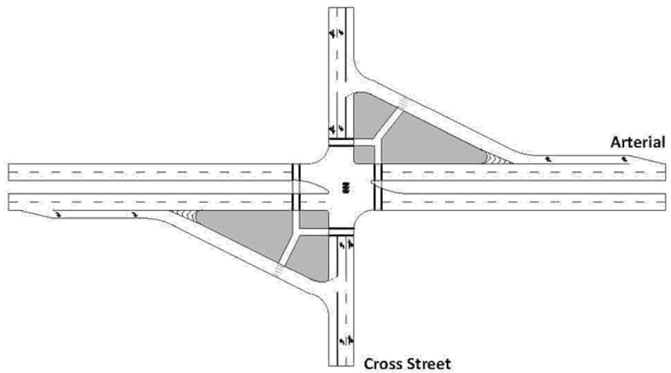
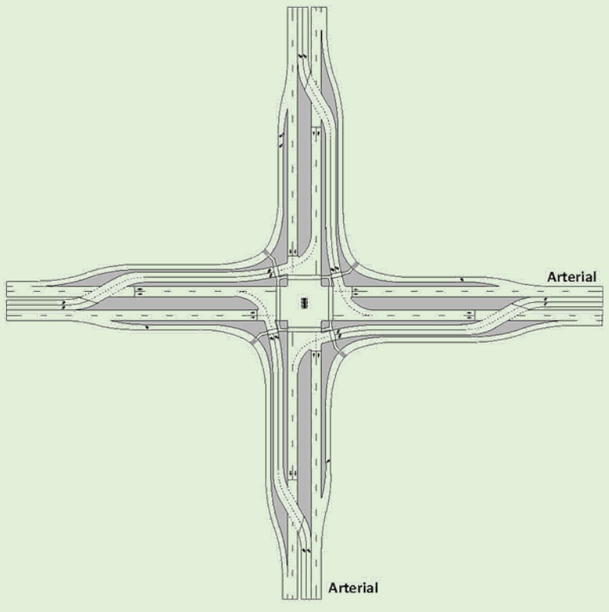
AI.6.A. Intersection Type References

Intersection Control Type			Mode Accommodations			Reference Material	Recommended Analysis Tool
Intersection Name	Illustration[1]	Description	Vehicles	Pedestrians	Bicycles		
Two-way stop-control		Conventional intersection control type in which the minor street approaches are stop-controlled and major street movements do not encounter any traffic control devices.	Through- and right-turning movements on the major street approaches are free-flow movements, while left-turning movements are permissive. All minor street approaches are stop-controlled.	Pedestrians crossing the minor street approaches have right-of-way and are crossing at a stop-controlled location; however, the lack of signalization does not provide any protected pedestrian movement across the major street.	Ride on street in travel lane or bicycle lane (if available), unless multi-use path is present	UIIG	HCS, Synchro
All-way stop-control		Conventional intersection control type in which every approach is stop-controlled.	All vehicles are required to stop before proceeding through the intersection.	All pedestrian crossings are located at the same place as stop signs	Ride on street in travel lane or bicycle lane (if available), unless multi-use path is present.	UIIG	HCS, Synchro

Intersection Control Type			Mode Accommodations			Reference Material	Recommended Analysis Tool
Intersection Name	Illustration[1]	Description	Vehicles	Pedestrians	Bicycles		
Signalized Control		Conventional intersection control type in which each approach is controlled by a traffic signal.	Vehicular movements on each approach are controlled through protected, permissive, or prohibited lights on the traffic signal.	Pedestrian phases can be built into the signal timing to allow for permissive pedestrian crossings at the designated crosswalks. Accessible pedestrian signals and pushbuttons can be utilized.	Ride on street in travel lane or bicycle lane (if available), unless multi-use path is present.	Signalized Intersection Guide, 2nd Edition	HCS, Synchro
Roundabout		A subset of circular intersections that feature yield control of all entering vehicles, channelized approaches, and horizontal curvature and roadway elements to induce desirable vehicle speeds.	Vehicles approaching the intersection must yield to vehicles circulating within the circulatory roadway.	Pedestrian crossings are located only across the legs of the roundabout, typically separated from the circulatory roadway by at least one vehicle length.	Bicyclists may ride in the roadway with vehicles or transition to multi-use paths via bicycle ramps (if present). Bike lanes should not be used at roundabouts.	NCHRP 672	HCS, SIDRA with US HCM Model for designs not supported by HCS

Intersection Control Type			Mode Accommodations			Reference Material	Recommended Analysis Tool
Intersection Name	Illustration[1]	Description	Vehicles	Pedestrians	Bicycles		
Median U-Turn (MUT)		An intersection treatment that eliminates direct left-turns at signalized intersections from major and minor approaches and replaces them with u-turns on the major street	Drivers desiring to turn left from the major road onto an intersecting cross street must first travel through the at-grade, signal-controlled intersection and then execute a U turn at the median opening downstream of the intersection. These drivers then can turn right at the cross street. For drivers on the side street desiring to turn left onto the major road, they must first turn right at the signal controlled intersection and then execute a U turn at the downstream median opening and proceed back through the signalized intersection.	Larger clearance intervals are required for the side street signal phase, and wider medians are often used to accommodate u-turns. Pedestrian crossings are often two-stage.	Ride on street in travel lane or bicycle lane (if available), unless multi-use path is present. Design techniques for direct left turns are available.	FHWA-SA-14-069	CAP-X (planning level) Synchro, SimTraffic VISSIM or similar microsimulation software

Intersection Control Type			Mode Accommodations			Reference Material	Recommended Analysis Tool
Intersection Name	Illustration[1]	Description	Vehicles	Pedestrians	Bicycles		
Signalized Restricted Crossing U-Turn (RCUT), or Superstreet		An intersection design that restricts left-turn and through movements from side street approaches as permitted in conventional designs.	Left-turns and through movements from the minor street are required to turn right onto the main road and then make a U-turn maneuver at a one-way, signalized median opening 400 to 1,000 feet after the intersection. The major street effectively operates as a pair of one-way streets because no movement ever crosses both directions of the major street at once.	Pedestrian crossings of the major road at the RCUT intersection are usually accommodated on one diagonal "Z" path from one corner to the opposite corner, and each crossing is signalized.	Ride on street in travel lane or bicycle lane (if available), unless multi-use path is present. Side street through and left turn movements can use pedestrian crossings to avoid use of U-turn movements.	FHWA-SA-14-070	CAP-X (planning level) Synchro, SimTraffic VISSIM or similar microsimulation software
Unsignalized Restricted Crossing U-Turn (RCUT), or J-Turn			Left-turns and through movements from the minor street are required to turn right onto the main road and then make a U-turn maneuver at a one-way, stop-controlled median opening 400 to 1,000 feet after the intersection.	Unsignalized RCUTs are usually located in rural areas and do not have pedestrian facilities.	Unsignalized RCUTs are usually located in rural areas and do not have bicycle facilities. Direct crossings from minor street to minor street can be facilitated with a cut-through in the median island.		

Intersection Control Type			Mode Accommodations			Reference Material	Recommended Analysis Tool
Intersection Name	Illustration[1]	Description	Vehicles	Pedestrians	Bicycles		
Jughandle		A signalized intersection that uses at-grade ramp connectors between intersecting roadways to facilitate indirect left-turns and/or U-turns. The image shown here has diagonal connectors upstream of the cross street, but loop connectors may also be placed downstream of the cross street.	Major street vehicles attempting to make a left-turn or U-turn utilize a connector ramp either upstream (short diamond-style ramp) or downstream (loop-style ramp) that connects to the minor street approach upstream of the signal.	Depending on the desired inbound and outbound sidewalks, some pedestrians may be required to cross one additional street compared to a conventional signalized intersection. If pedestrians do not interact with the quadrant where a jughandle is located, there is no notable difference compared to a conventional signalized intersection.	Same as conventional intersection. Additional crossing infrastructure is provided at the ramp connector.	FHWA-HRT-07-032	CAP-X (planning level) Synchro, SimTraffic VISSIM or similar microsimulation software
Displaced Left-Turn (DLT)		A signalized intersection where one or more left-turn movements are relocated to the other side of the opposing traffic flow. These movements proceed through the intersection simultaneously with the through movements and eliminates the left-turn phase on the approach. The image shown here has displaced lefts on both streets, but often they are displaced on only one street.	Left-turn movements at the intersection are relocated to the other side of the opposing roadway, eliminating the left-turn phase for the approach at the main intersection. Left-turns are brought across the opposing travel lanes via a signalized intersection several hundred feet upstream of the main intersection. Left-turning vehicles then travel on a new roadway parallel to the opposing lanes and execute the left-turn maneuver simultaneously with the through traffic at the main intersection.	Pedestrians crossing at a DLT intersection may be required to cross more travel lanes than at a conventional intersection, and direction of traffic in those lanes may be counterintuitive to pedestrians. Many DLT intersections are set up for pedestrians to cross in multiple stages with median islands providing a refuge.	Bicyclists can be provided on the road using marked bicycle lanes and design techniques for direct left turns are available. However, special care is required for DLT intersections to consider and address how bicyclists will interact with different paths of vehicles.	FHWA-SA-14-068	CAP-X (Planning Level) VISSIM or similar microsimulation software

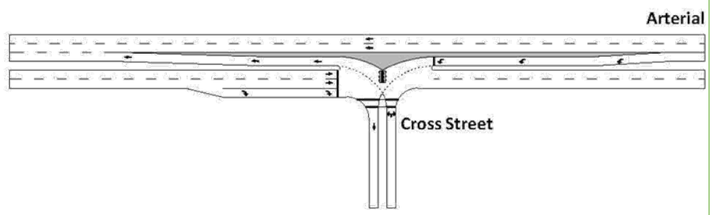
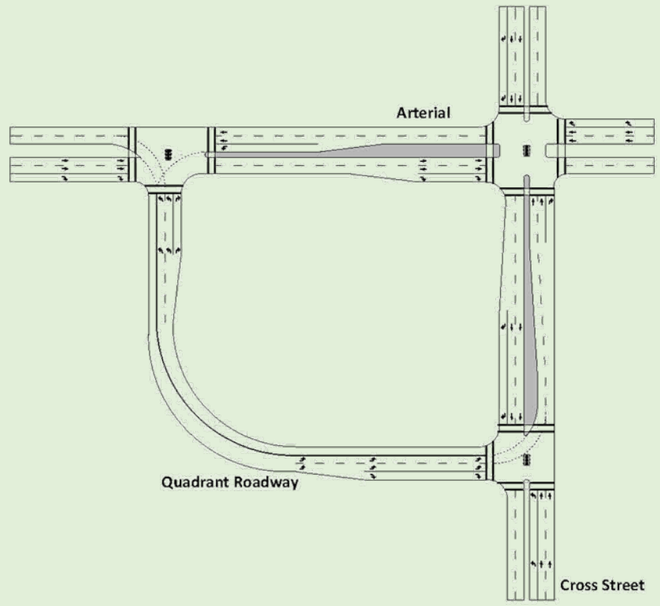
Intersection Control Type			Mode Accommodations			Reference Material	Recommended Analysis Tool
Intersection Name	Illustration[1]	Description	Vehicles	Pedestrians	Bicycles		
Continuous Green Tee		A continuous green tee intersection is a signalized 3-leg intersection that features raised channelization that separates the "top" through movement from the other movements of the intersection, enabling the top through movement to operate unsignalized with no conflicting movement.	Minor street left-turns are channelized, allowing a continuous green signal to be displayed to one of the mainline through movements.	Permissive pedestrian crossings are provided across the minor street at the signal. Due to the continuous flowing nature of through movements on one of the major approaches, pedestrian movements across the mainline should be accommodated at an adjacent intersection or via a mid-block crossing, as appropriate.	Ride on street in travel lane or bicycle lane (if available), unless multi-use path is present.	FHWA-SA-09-016	CAP-X (planning level) Synchro, SimTraffic VISSIM or similar microsimulation software
Quadrant Roadway		A quadrant roadway intersection is intended to eliminate all direct left-turn movements from the main intersection by re-routing them to turns to and from a connector roadway located in one quadrant.	Left-turn movements are rerouted to use a connector roadway (i.e., the quadrant). All left-turns at the main intersection are prohibited, allowing for two-phase signal operation at the main intersection.	Depending on the desired inbound and outbound sidewalks, some pedestrians are required to cross an extra street to make their desired movement compared to a conventional signalized intersection. The two-phase signals reduce the delay incurred by pedestrians at each crossing.	Similar to conventional intersection. Design techniques for direct left turns are available.	FHWA-HRT-09-058 AIIR	CAP-X (planning level) Synchro, SimTraffic VISSIM or similar microsimulation software

EXHIBIT 10. INTERSECTION TYPE REFERENCES

[1] *Source for each illustration: Kittelson & Associates, Inc*

AI.6.B. PennDOT ICE Forms

Pennsylvania Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage I: Screening

Stage 1

To fulfill the requirements of Stage 1 (Screening) of PennDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Engineer (DTE) for the project's location.

Project Information			
Project Name	Project Setting		Project ICE Reference Number
Submitted By	Agency/Company	Email	
Project Purpose and Goals (*What is the catalyst for this project and what are the intended outcomes?*)			
Project Setting Description (*Describe the area surrounding the intersection*)			
County	Project Locality (Township/Borough/City)		
PennDOT District	Project Type (select most appropriate)		
Multimodal Context (*Describe pedestrian, bicycle, and transit activity in the area and the potential for activity based on surrounding land uses and development pattern*)			

Basic Intersection Information					
Major Street					
Major Street Route Number(s)	Major Street Route Name(s)			SR Segment #	SR Offset
Primary Functional Classification	Secondary Functional Class. (if app.)			Existing AADT	Existing Control
Major Street Ownership		Sidewalks are present along:			
Crosswalks? ☐	On-Street Bike Facilities? ☐	Multi-Use Path? ☐	Scheduled Bus Service? ☐	Bus stop at intersection? ☐	
Approach #1	Number of Lanes (Count Shared Lanes as Through):	Left-Turn	Through	Right-Turn	
	AM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
	PM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
Approach #2	Number of Lanes (Count Shared Lanes as Through):	Left-Turn	Through	Right-Turn	
	AM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
	PM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
Minor Street	Existing ☐	New ☐			
Minor Street Route Number(s)	Minor Street Route Name(s)			SR Segment #	SR Offset
Primary Functional Classification	Secondary Functional Class. (if app.)			Existing AADT (if available)	
Minor Street Ownership		Sidewalks are present along:			
Crosswalks? ☐	On-Street Bike Facilities? ☐	Multi-Use Path? ☐	Scheduled Bus Service? ☐	Bus stop at intersection? ☐	
Approach #1	Number of Lanes (Count Shared Lanes as Through):	Left-Turn	Through	Right-Turn	
	AM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
	PM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
Approach #2	Number of Lanes (Count Shared Lanes as Through):	Left-Turn	Through	Right-Turn	
	AM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
	PM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
Approach #3	Number of Lanes (Count Shared Lanes as Through):	Left-Turn	Through	Right-Turn	
	AM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	
	PM Peak Hour Traffic Volumes:	Left-Turn	Through	Right-Turn	

Crash History (Existing Intersections Only)
Append the most recent five-years of crash data for the intersection from the CDART. If the crash data evidences any issues relating to safety performance, discuss briefly here:

Screening Evaluation			
Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.			
Note: FHWA's CAP-X tool is helpful for assessing the viability of alternative intersection forms.			
Control Strategy	**Strategy Viable?**	**Justification**	**Strategy to be Advanced?**
Two-way Stop-Controlled			
All-way Stop-Controlled			
Signalized Control			
Roundabout			
Median U-Turn			
Restricted Crossing U-Turn (RCUT) Signalized			
Restricted Crossing U-Turn (RCUT) Unsignalized			
Jughandle			
Displaced Left-Turn			
Continuous Green Tee			
Quadrant Roadway			
Other			

Resolution				
To be filled out by PennDOT District Traffic Engineer or designee only.				
Project Determination				
Comments				
DTE or Designee Name *(Type)*		Signature		Date

Pennsylvania Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 2: Initial Control Strategy Assessment

Stage 2

To fulfill the requirements of Stage 2 (Intersection Control Strategy) of PennDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Engineer (DTE) for the project's location.

Project Information

Project Name		Project ICE Reference Number
Submitted By	Agency/Company	Email
List all viable intersection control strategies identified in Phase 1 (Screening):		

Operational Analysis

Summarize the results of the peak hour analysis performed for each control strategy. Select analysis year based on guidance in the ICE procedures document.

Overall Intersection Performance

Opening Year

Control Strategy	Analysis Year / Peak Hour Analyzed				Peak Hour Analyzed			
	LOS	V/C	Delay (sec.)	All queues accommodated?	LOS	V/C	Delay (sec.)	All queues accommodated?

Design Year

Control Strategy	Analysis Year / Peak Hour Analyzed				Peak Hour Analyzed			
	LOS	V/C	Delay (sec.)	All queues accommodated?	LOS	V/C	Delay (sec.)	All queues accommodated?

Provide any additional discussion necessary regarding the results of the operational analysis:

Costs

Remaining cognizant of the current level of detail of each control strategy's conceptual design, provide a cost estimate for each. You may want to account for preliminary engineering, required right-of-way acquisitions, construction, and a contingency.

Control Strategy	Cost ($)	Estimate Includes:	Control Strategy	Cost ($)	Estimate Includes:

Safety Performance

Apply the PennDOT HSM Analysis Tool and provide the "Safety B/C" ratio provided by the tool's output. You may wish to append the complete output to this form. For intersection types not accommodated in the tool, manually apply crash modification factors detailed in the ICE policy document or qualitatively describe safety impacts.

Control Strategy	Anticipated Impact on Safety Performance	Predicted Total Crashes	Predicted Fatal & Injury Crashes	Safety B/C

Multimodal Accommodations				
Note the existing/anticipated level of pedestrian/bicyclist activity at the study intersection during the peak hours of the typical day.				
	AM Peak Hour		PM Peak Hour	
	Major Street	Minor Street	Major Street	Minor Street
# of ped. crossings (both approaches, if app.):				
# of bicyclists (both approaches, if app.):				

Summarize the ability of each viable control strategy to accommodate the existing/anticipated level of:

Control Strategy	Pedestrians and Bicycles	Transit Services	Freight Needs

Environmental, Utility, and Right-of-Way Impacts	
Summarize any issues related to environmental, utility, or right-of-way (to include relocations) impacts specific to each control strategy.	

Public Input/Feedback	
Summarize public input received or any stakeholder considerations regarding the control strategies:	

Benefit-Cost Analysis			
Apply the PennDOT ICE Tool and provide the "Net Present Value" and "Benefit-Cost Ratio" from the "Output" tab for each control strategy. The "Benefit-Cost Ratio" is only applicable for improvements to an existing intersection.			
Control Strategy	Net Present Value	Benefit-Cost Ratio	

Control Strategy Evaluation			
Provide a brief justification as to why each of the following is either viable or not viable. If a single control strategy is recommended, select it as the only control strategy to be advanced.			
Control Strategy	Strategy Viable?	Justification	Strategy to be Advanced?

Resolution			
To be filled out by PennDOT District Traffic Engineer or designee only			
Project Determination			
Comments			
DTE or Designee Name		Signature	Date

Pennsylvania Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 3: Detailed Control Strategy Assessment

Stage 3

To fulfill the requirements of Stage 3 (Detailed Control Strategy Assessment) of PennDOT's ICE procedures, complete the following form and append all supporting documentation, which may include detailed design plans of each control strategy analyzed. Completed forms can be submitted to the District Traffic Engineer (DTE) for the project's location.

Project Information		
Project Name		Project ICE Reference Number
Submitted By	Agency/Company	Email
List all viable intersection control strategies identified at the end of Phase 2 (Initial Control Strategy Assessment):		

Additional Analysis	
What issues and/or findings to date have led to a control strategy **NOT** being selected in Stage 2?	
Category	**Description of Issues/Findings**
Describe specific evaluation activities undertaken in Stage 3 analysis to identify a preferred control strategy and discuss the findings:	
Category	**Description of Additional (Stage 3) Analysis**

Public Input/Feedback	
If not discussed as a part of the preceding section, summarize public input received or stakeholder considerations regarding the control strategies:	

Control Strategy Evaluation		
Provide a brief justification as to why each of the following was either selected or not selected after conducting the additional analysis. ICE Stage 3 activities should result in a single control strategy being selected.		
Control Strategy	**Control Strategy Selected?**	**Justification**

Resolution		
To be filled out by PennDOT District Traffic Engineer or designee only		
Project Determination		
Comments		
DTE or Designee Name	Signature	Date

Page 1 of 1

AI.6.C. Data Collection Guidance for ICE

Consistent with Publication 46 (March 2014 version), the following data should be used when conducting an ICE:

TRAFFIC VOLUMES

Determine the traffic volume requirements in coordination with the District Traffic Engineer. The following are typically applicable:

- Hourly intersection approach counts for 24 hours on public roadways
- Turning movement counts for the weekday AM, weekday PM, Saturday midday, and/or Sunday midday peak periods, as appropriate
- Future intersection approach volumes (only needed if Warrant is unmet in existing time period and signal under consideration)
- Future turning movement volumes for the AM and PM peak hours using pre-approved growth rates or future modeling parameters
- Pedestrian and bicycle volumes by approach, if applicable

CRASH DATA

- Crash data for the last five full calendar years.
- Crash diagrams are helpful if crashes are used as justification for the intersection control type. Rationale for crash prediction and/or reduction associated with each control strategy should be documented. Any crash listings appended to ICE forms must include a confidentiality statement.

EXISTING GEOMETRICS

- For existing intersections, it is often helpful to provide an aerial photo or CADD layout of an intersection showing lane configurations with existing striping, lane widths, parking lanes, shoulders and/or curb treatments, medians, pedestrian and bicycle facilities, right of way limits and access driveways or adjacent roadways. The posted speed limit and the current traffic control of each roadway may also be documented. Adjacent structures, overhead utilities, and vaults that may have an impact on control strategy selection such as buildings, bridges, box culverts, power poles, etc. may also be outlined.
- A larger scale map showing the intersection in relationship to parallel roadways and its relationship (including distances) to other access points and controlled intersections (signals, roundabouts, multi-way stop, etc.) is helpful for analysis.

ADDITIONAL DATA

Additional data may be necessary based on the project context, location, and control types analyzed. These could include:

- Community considerations (need and preferences for parking, sidewalks, bike lanes, etc.),
- The locations of schools or other significant land uses, which may require more specialized treatment for pedestrians or vehicles, if applicable.
- Environmental and cultural restraints that may influence selection of a control strategy, such as severe grades, wetlands, parkland, etc.
- Future development plans (which may influence access),

- Types of vehicles utilizing roadway (if unusual),
- Transit routes and frequency,
- Compatibility with corridor plans or local transportation plans,
- Inter-regional Corridor performance, and
- Stakeholder/public input considerations.

AI.6.D. Analysis Considerations

The following sections highlight areas of consideration when evaluating control strategies:

CRASH EVALUATION

Stage 2 evaluations should include HSM analysis. The PennDOT HSM "A" and "B" Tools provide crash prediction for conventional signalized and stop-controlled intersections using safety performance functions (SPFs).

SPFs for roundabouts are currently under development through NCHRP Project 17-70, schedule for completion in spring 2018. Following completion of that project, SPFs should be use for roundabout crash prediction. In the interim, the roundabout CMFs in Chapter 14 of the HSM should be used.

For alternative intersections, the crash modification factors (CMFs) in **Exhibit 11** should be used. These CMFs are proposed for inclusion in FHWA's Safety Performance for Intersection Control Evaluation (SPICE) tool, which is scheduled for completion in early 2018.

Intersection Type	CMF for Total Crashes	CMF for Fatal Injury	Apply CMF to
Displaced Left Turn	0.88	-	Crash Prediction for a Conventional Signalized Intersection
Median U-Turn	0.85	0.70	Crash Prediction for a Conventional Signalized Intersection
Signalized RCUT	0.85	0.78	Crash Prediction for a Conventional Signalized Intersection
Unsignalized RCUT	0.65	0.46	Crash Prediction for a Two-way Stop-controlled Intersection
Continuous Green T	0.96	0.85	Crash Prediction for a Conventional Signalized Intersection
Jughandle	-	0.74	Crash Prediction for a Conventional Signalized Intersection
Diverging Diamond Interchange Ramp Terminal Intersection	0.67	0.59	Crash Prediction of a Signalized "D4" Ramp Terminal Intersection

EXHIBIT 11. ALTERNATIVE INTERSECTION CRASH MODIFICATION FACTORS

STAKEHOLDER/PUBLIC CONSIDERATIONS

Each viable control strategy should be assessed for stakeholder input. Typically the local jurisdictions, other important stakeholders, and potentially the general public should be consulted to determine the acceptability of a control strategy, and consideration should be given to their input. The degree of public involvement in the discussion of control strategies should be determined by the project manager in consultation with local stakeholders and PennDOT

functional units. In any event, stakeholders should be aware of the technical merits of each control strategy.

UNCONVENTIONAL INTERSECTION GEOMETRY EVALUATION

Conventional forms of traffic control are often less efficient at intersections with a skew angle, significant offset, odd number of approaches, or close spacing to other intersections. Roundabouts may be better suited for such intersections, because they do not require complicated signing or signal phasing. Their ability to accommodate high turning volumes makes them especially effective at "Y" or "T" junctions. Roundabouts may also be useful in eliminating a pair of closely spaced intersections by combining them to form a multi-legged roundabout. Intersection sight distance for roundabouts are significantly less demanding than for other conventional intersection treatments.

ADJACENT INTERSECTIONS AND COORDINATED SIGNAL SYSTEMS

The spacing of intersections along a highway corridor should be consistent with the spacing of primary full-movement intersections as shown in the PennDOT Traffic Engineering Manual (Pub. 46). District Traffic Engineer may allow intersection spacing exceptions for roundabouts based on justifiable merits on a case-by-case basis. Generally speaking, positioning a roundabout within a coordinated signal system or very near to an adjacent signal is not preferred, however, under some circumstances it may be an acceptable option. A comprehensive traffic analysis is needed to determine if it is appropriate to locate a roundabout within a coordinated signal network.

SYSTEM CONSISTENCY

On Interregional Corridors or other highways where a corridor study has previously been prepared, any ICE should address the impact on the Interregional Corridor performance or compare control strategies to those recommended in the corridor study.

PEDESTRIAN AND/OR BICYCLE ISSUES

Depending on the volume of users and the sensitivity of the location, one control strategy may be preferred to another entirely for pedestrian and bicycle reasons.

RIGHT-OF-WAY PLAN REVIEW CHECKLIST

County: **S.R.:** **Section:** **Date of Field Review:**

☐ **Preliminary Right-of-Way Plan** ☐ **Final Right-of-Way Plan** ☐ O**ther:**

The signatures below verify that the Right-of-Way Plan is in compliance with Publication 14M, *Design Manual Part 3, Plans Presentation,* including all aspects on the following checklist.

_____ _____

Professional Engineer's Signature Professional Land Surveyor's Signature

	Item	Yes/No	Approximate Location of Deficiency/Other Comments
Were the following existing above ground features verified on the plans?			
1.	Navigable and Non-Navigable Waterways (e.g., streams, rivers, lakes, ponds, creeks, ditches, wetlands, etc.)		
2.	Driveways (Type of Material, Field) and drive pipes		
3.	Buildings (e.g., residential and commercial structures, Outbuildings, etc.); including steps, overhangs, porches, sunroom, decks, etc. within 100' of take area		
4.	Fences (private and limited access) and gates		
5.	Catch basins, manholes, inlets, or other drainage features		
6.	Retaining walls		
7.	Mailbox Structures		
8.	Sidewalks/Walkways (private and/or public)		
9.	Guide Rail or Cable barrier		
10.	Trees, bushes, shrubs, landscaping, planter boxes, property improvements, etc.		
11.	Curbs and gutters		
12.	Non-highway signs (private) and billboards (ADC), including electrical connections		
13.	Encroachment (supports and overhangs)		
14.	Utility poles, lines, and guides (power, telephone, cable, etc.) Applicable easements MUST be noted on plans.		
15.	Water wells, springs, and spring houses		
16.	Oil/natural gas wells.		
17.	Private poles (lighting, etc.)		
18.	Sprinkler Systems		
19.	Monuments (centerline and right-of-way)		
Were the following below ground features verified on the plans?			
20.	Septic systems (leach fields, septic tanks, etc.)		
21.	Underground utilities (gas, water, power, cable, telephone, oil, etc.) Applicable easements MUST be noted on plans.		
22.	Underground storage tanks		
23.	Irrigation systems		
24.	Storm sewers and culverts		
25.	Structural foundation (retaining wall, bridge, building, etc.)		
26.	*Are all topographic items near construction limits identified as (To Remain)?*		
27.	*Does the type of take fit the construction work being performed?*		
28.	*Does there appear to be sufficient room for construction access, including maintenance of traffic?*		
29.	*Did the driveway grade change? If so, was this discussed with the District Right-of-Way Staff?*		

In addition to the items above being verified in the field, the following items must be verified for correctness on the plan sheets:

Title Sheet	**Yes/No**	**Comments**
Authorization language is correct considering type of takings		
Check limits of authorization and condemnation station against detail sheets and table of authorization lengths and/or right-of-way lengths		
Index Sheet		
Check property lines and owners and parcel numbers against detail sheets		
Owner's names as on deed, i.e., single, widow, needed		
General Notes and Typical Sections Sheets		
All easement notes current and match DM-3		
Information about source of existing legal right-of-way widths is correct		
Plan Sheets		
Ditches, cut and fill lines.		
All final drainage features		
Tabulation of Property Information		
Owner information correct as shown on deed(s) or directed by right-of-way. If multiple deeds, still list one area per parcel		
Legal right-of-way, adverses, exceptions correctly accounted for to arrive at effective area		
Residue area correctly calculated and listed by which side of road it's on, LT or RT		
Portion of existing slope, drainage, etc. easements within required right-of-way broken out		
Verification of ownership less than 30 days old when plan sent in for authorization		
Tax map numbers listed if not shown elsewhere in plan		
Unity of Use reviewed for parcel set up as one deed may be split into more than one		

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