

**REQUEST FOR PROPOSALS FOR**

**Fiber Infrastructure  
Operations, Maintenance, and  
Commercialization Services**

**ISSUING OFFICE**

**Pennsylvania Turnpike Commission  
Contracts Administration Department**

**On behalf of the  
Information Technology Department**

**RFP NUMBER # 19-10350-8799**

**DATE OF ISSUANCE**

**December 18, 2019**

# **REQUEST FOR PROPOSALS FOR 19-10350-8799**

## **Fiber Infrastructure Operations, Maintenance, and Commercialization Services**

### **TABLE OF CONTENTS**

<b>CALENDAR OF EVENTS</b>	<b>Page 2</b>
<b>Part I - GENERAL INFORMATION FOR PROPOSERS</b>	<b>Page 3</b>
<b>Part II - INFORMATION REQUIRED FROM PROPOSERS</b>	<b>Page 12</b>
<b>Part III - CRITERIA FOR SELECTION</b>	<b>Page 25</b>
<b>Part IV - WORK STATEMENT</b>	<b>Page 29</b>
<b>GLOSSARY – ACRONYMS AND DEFINITIONS</b>	
<b>APPENDIX A – CONTRACT AGREEMENT</b>	
<b>APPENDIX B – PROPOSER QUESTIONS FORM</b>	
<b>APPENDIX C – REQUIRED FORMS</b>	
<b>APPENDIX D – COMMISSION SECURITY REQUIREMENTS</b>	
<b>APPENDIX E – INSURANCE SPECIFICATION</b>	
<b>APPENDIX F – DIVERSE BUSINESS (DB) REQUIREMENTS</b>	
<b>APPENDIX G – PRICE PROPOSAL</b>	
<b>APPENDIX H – POSITIONS AND PREFERRED QUALIFICATIONS</b>	
<b>APPENDIX I – CONTRACT PLANS</b>	
<b>APPENDIX J – MAP OF THE EXISTING TURNPIKE AND FACILITIES LISTING</b>	
<b>APPENDIX K – SERVICE LEVEL AGREEMENT</b>	
<b>APPENDIX L – I-95 MILEPOSTS</b>	
<b>APPENDIX M – EXISTING FIBER AND CONDUIT</b>	
<b>APPENDIX N – PLANNED PROJECTS</b>	
<b>APPENDIX O – DEMARCATION SITES AND REQUIREMENTS</b>	
<b>APPENDIX P – INDEPENDENT VERIFICATION AND VALIDATION</b>	
<b>APPENDIX Q – SERVICENOW REQUIREMENTS</b>	
<b>APPENDIX R – IT CHANGE MANAGEMENT STANDARDS</b>	
<b>APPENDIX S – MAINTENANCE AND PROTECTION OF TRAFFIC REQUIREMENTS</b>	
<b>APPENDIX T – FIBER MANAGEMENT SYSTEM REQUIREMENTS</b>	
<b>APPENDIX U – CONSTRUCTION QUALIFICATIONS &amp; PREQUALIFICATIONS</b>	
<b>APPENDIX V – CONCEPTUAL DESIGN DRAWINGS</b>	

## CALENDAR OF EVENTS

**RFP# 19-10350-8799**

The Commission reserves the right to make changes or alterations to this schedule as the Commission determines is in its best interest.

Activity	Date	Time
Request for Proposals Issued	December 18, 2019	N/A
Deadline for Proposers to Submit Questions via email to <a href="mailto:RFP-Q@paturndpike.com">RFP-Q@paturndpike.com</a>	January 16, 2020	2:00 PM
Answers to Proposers questions posted to the Commission website at <a href="https://www.paturndpike.com/Procurement/Bidlist.aspx?RTYPE=O">https://www.paturndpike.com/Procurement/Bidlist.aspx?RTYPE=O</a>	January 30, 2020	N/A
Due Date for Proposals	February 18, 2020	2:00 PM
Oral Clarifications/Presentations	Week of March 16, 2020	TBD
Anticipated Notice to Proceed	September 17, 2020	N/A

## PART I

### GENERAL INFORMATION FOR PROPOSERS

**I-1. Purpose.** This request for Proposals (RFP) is seeking an O&M and Commercialization Entity to provide Operations, Maintenance and Commercialization (OMC) Services for Fiber Infrastructure. This RFP provides interested Proposers with sufficient information to enable them to prepare and submit Proposals for consideration by the Pennsylvania Turnpike Commission (Commission) to satisfy a need for Fiber Infrastructure O&M and Commercialization Services.

**I-2. Issuing Office.** This RFP is issued for the Commission by the Contracts Administration Department on behalf of the Information Technology Department.

**I-3. Scope.** This RFP contains instructions governing the Proposals to be submitted and the material to be included therein; a description of the service to be provided; requirements which must be met to be eligible for consideration; general evaluation criteria; and other requirements to be met by each Proposal.

**I-4. Problem Statement.** The Commission is installing Fiber Infrastructure in the Eastern Network via two (2) design-build contracts. The Commission is also considering building out the Western Network in the next 4 to 6 years. The Fiber Infrastructure will provide enhanced connectivity for the Commission's administrative buildings/offices, maintenance buildings, tolling systems, Intelligent Transportation Systems, Smart Work Zones, and other sites and applications; therefore, the Fiber Infrastructure is critical to the Commission's operations and mission. Additionally, the Fiber Infrastructure will become a critical component when the Turnpike moves to Cashless Tolling. A portion of the Fiber Infrastructure will be reserved for Commission's use and a portion would be specifically dedicated for commercialization.

The Commission is seeking a well-qualified O&M and Commercialization Entity capable of operating and maintaining the Fiber Infrastructure. Additionally, the Commission is seeking an O&M and Commercialization Entity with the ability and experience to commercialize the Commercialization Assets to offset the Commission's O&M costs and generate revenue for the Commission. Given the criticality of the Fiber Infrastructure and ongoing expansion efforts, the Commission requires a firm that is flexible and adaptable to changes and can provide O&M and Commercialization Services at a high level of service and reliability. A detailed scope of work is provided in Part IV of this RFP.

**I-5. Type of Contract.** The Commission intends to award one contract as a result of this RFP. It is proposed that if a Contract is entered into as a result of this RFP, it will be a long term contract with the payment mechanism that will be combination of lump sum, fee for services and revenue sharing arrangement between the O&M and Commercialization Entity and the Commission. A sample Contractual Agreement is provided in Appendix A. The Commission may in its sole discretion undertake negotiations with Proposers whose Proposals as to price and other factors show them to be qualified, responsible, responsive, and capable of performing the work.

**I-6. Contractor Integrity Provisions.** Contractor Integrity Provisions will apply to this Contract upon award and the awarded Proposer may be required to complete a Background Qualifications Questionnaire prior to entering into a Contract Agreement with the Commission and attend annual ethics training provided by the Commission. Proposers can find the Contractor Integrity Provisions and other related



documents on the Commissions website at [www.paturnpike.com](http://www.paturnpike.com) (Doing Business, General Information, Integrity Provisions).

Include full disclosure of any potential conflict with the State Adverse Interest Act, 71 P.S. § 776.3, for a State Advisor or State Consultant by the prime or any sub-consultant. If there is no adverse interest, Proposers shall include the following statement: "I have reviewed the State Adverse Interest Act and determined that there is no adverse interest for anyone on this Agreement team." This information should be included in response to **Part II - Section 1. General Information Submittal** of the Proposal.

**I-7. Rejection of Proposals.** The Commission reserves the right to reject any and all Proposals received as a result of this request, or to negotiate separately with competing Proposers.

**I-8. Subcontracting.** Any use of subcontractors by a Proposer must be identified in the Proposal. During the Contract period use of any subcontractors by the selected Proposer, which were not previously identified in the Proposal, must be approved in advance in writing by the Commission.

If a Joint Venture responds to this RFP, the Commission will not accept separate Proposals from joint venture constituents. A firm will not be permitted to submit a Proposal on more than one (1) joint venture for the same RFP. Also, a firm that responds to this RFP as a prime may not be included as a designated subcontractor to another firm that responds to the same RFP. Multiple responses under any of the foregoing situations will cause the rejection of all responses of the firm or firms involved. This does not preclude a firm from being set forth as a designated subcontractor to more than one prime contractor responding to the RFP.

**I-9. Incurring Costs.** The Commission is not liable for any costs the Proposer incurs in preparation and submission of its Proposal, in participating in the RFP process or in anticipation of award of the Contract.

**I-10. Procurement Schedule of Events.** The current Schedule for Key Procurement Dates for this procurement process leading to an award of the Contract is provided in the Calendar of Events, Page 1 of this RFP. The Commission reserves the right to make changes or alterations to this schedule as the Commission determines is in its best interest. All changes to these dates and/or times up to and including the due date for Proposals will be issued as an addendum to this RFP and will become part of this RFP and will be posted to the Commission's website at <https://www.paturnpike.com/procurement/Bidlist.aspx?rtype=o>.

Unless otherwise notified in writing by the Commission, the dates indicated below for submission of items or for other required actions on the part of a Proposer shall constitute absolute deadlines for those activities and failure to fully comply by the time and date stated shall cause a Proposer to be disqualified. All times stated are in Harrisburg, PA local time and are subject to change.

**I-11. Questions and Answers.** There will be no pre-Proposal conference for this RFP. No negotiations, decisions or actions shall be initiated or executed by a Proposer as a result of any oral discussions with any Commission member, employee, and consultant/contractor. Written questions may be submitted to clarify any points in the RFP which may not have been clearly understood. Written questions shall be submitted by email to [RFP-Q@paturnpike.com](mailto:RFP-Q@paturnpike.com) with **RFP 19-10350-8799** in the Subject Line to be

received no later than the date and time provided on the Calendar of Events. All questions and written answers will be issued as an addendum to and become part of this RFP and will be posted to the Commission's website at (<http://www.paturndpike.com/procurement/Bidlist.aspx?rtype=o>), approximately on or before the date provided on the Calendar of Events and only if necessary. Proposers shall use the form provided in Appendix B to submit the questions.

**I-12. Addenda to the RFP.** If it becomes necessary to revise any part of this RFP before the Proposal response date, addenda will be posted to the Commission's website under the original RFP document (<http://www.paturndpike.com/procurement/Bidlist.aspx?rtype=o>). It is the responsibility of the Proposer to periodically check the website for any information or addenda to the RFP.

The Commission may revise a published advertisement. If the Commission revises published advertisement less than ten days before the RFP due date, the due date will be extended to maintain the minimum ten-day advertisement duration if the revision alters the project scope or selection criteria. Firms are responsible for monitoring advertisements/addenda to ensure the submitted Proposal complies with any changes in the published advertisement.

**I-13. Response.** To be considered, Proposals must be delivered to the Pennsylvania Turnpike Commission's Contracts Administration Department, Attention: Wanda Metzger, on or before the date and time provided on the Calendar of Events. The Commission will **not** accept Proposals via email or facsimile transmission.

**Overnight Delivery Address:**

Contracts Administration Department  
Attn: Wanda Metzger  
PA Turnpike Commission  
700 South Eisenhower Blvd.  
Middletown, PA 17057  
Phone: (717) 831-7429

**US Mail Delivery Address:**

Contracts Administration Department  
Attn: Wanda Metzger  
PA Turnpike Commission  
P.O. Box 67676  
Harrisburg, PA 17106

**Please note that use of U.S. Mail, FedEx, UPS, or other delivery method, does not guarantee delivery to the Contracts Administration Department by the above listed time for submission.** Proposers mailing Proposals should allow sufficient delivery time to ensure timely receipt of their Proposals. If the Commission office location to which Proposals are to be delivered is closed on the Proposal response date, due to inclement weather, natural disaster, or any other cause, the deadline for submission shall be automatically extended until the next Commission Business Day on which the office is open. Unless the Proposers are otherwise notified by the Commission, the time for submission of Proposals shall remain the same.

**I-14. Proposals.** To be considered, Proposers should submit a complete response to this RFP, using the format provided in **Part II – Information Required from Proposers** of the RFP. Each submitted Proposal should include **three (3)** hard copies of **Volume I** Submittal, **three (3)** hard copies of **Volume II** Submittal, and **three (3)** hard copies of **Volume III** Submittal. In addition to the hard copies of the Proposal, provide two **complete and exact copies** of the **Volume I, Volume II, and Volume III** Submittals along with all requested documents on CD-ROM or Flash Drive in Microsoft Office or Microsoft Office-compatible format. The electronic copy must be a mirror image of the hard copy.

Proposer should ensure that there is no costing information in the Volume I Submittal. The CD or Flash drive should clearly identify the Proposer and include the name and version number of the virus scanning software that was used to scan the CD or Flash drive before it was submitted. Proposer shall present the Proposal to the Contracts Administration Department only. No other distribution of Proposals will be made by the Proposer. Each Proposal page should be numbered for ease of reference.

An official authorized to bind the Proposer to its Proposal must sign the Proposal. If the official signs the Proposal Cover Sheet (located in Appendix C – Required Forms to this RFP) and the Proposal Cover Sheet is attached to the Proposal, the requirement will be met. For this RFP, the Proposal must remain valid for at least **one-hundred-eighty (180)** calendar days. Moreover, the contents of the Proposal of the selected Proposer will become contractual obligations if a Contract is entered into.

Each and every Proposer submitting a Proposal specifically waives any right to withdraw or modify it, except as hereinafter provided. Proposals may be withdrawn by written or fax notice (fax number (717) 986-8714) received at the Commission's address for Proposal delivery prior to the exact hour and date specified for Proposal receipt.

However, if the Proposer chooses to attempt to provide such written notice by fax transmission, the Commission shall not be responsible or liable for errors in fax transmission. A Proposal may also be withdrawn in person by a Proposer or its authorized representative, provided his/her identity is made known and he/she signs a receipt for the Proposal, but only if the withdrawal is made prior to the exact hour and date set for Proposal receipt. A Proposal may only be modified by the submission of a new sealed Proposal or submission of a sealed modification which complies with the requirements of this solicitation.

**I-15. Economy of Preparation.** Proposals should provide straightforward and concise descriptions of the Proposer's ability to meet the requirements of the RFP. Proposers shall comply with page limits stated by the Issuing Office in **Part II – Information Required from Proposers** of the RFP. All page limits are single sided pages not counting appendices and supporting information.

**I-16. Discussions for Clarification.** Proposers may be required to make an oral or written clarification of their Proposals to the Issuing Office through the Contract Administration Department to ensure thorough mutual understanding and Proposer responsiveness to the solicitation requirements. The Issuing Office will initiate requests for clarification through the Contract Administration Department.

**I-17. Best and Final Offers.** The Issuing Office reserves the right to conduct discussions with Proposers for the purpose of obtaining "best and final offers." To obtain best and final offers from Proposers, the Issuing Office may do one or more of the following: a) enter into pre-selection negotiations; b) schedule oral presentations; and c) request revised Proposals. The Issuing Office will limit any discussions to responsible Proposers whose Proposals the Issuing Office has determined to be reasonably susceptible of being selected for award.

**I-18. Prime Proposer Responsibilities.** The selected Proposer will be required to assume responsibility for all services offered in its Proposal whether or not it produces them. Further, the Commission will consider the selected Proposer to be the sole point of contact with regard to contractual matters.

**I-19. Proposal Contents.** Proposals will be held in confidence and will not be revealed or discussed with competitors, unless disclosure is required to be made (i) under the provisions of any Commonwealth or United States statute or regulation; or (ii) by rule or order of any court of competent jurisdiction. All material submitted with the Proposal becomes the property of the Pennsylvania Turnpike Commission and may be returned only at the Commission's option. Proposals submitted to the Commission may be reviewed and evaluated by any person other than competing Proposers at the discretion of the Commission. The Commission has the right to use any or all ideas presented in any Proposal. Selection or rejection of the Proposal does not affect this right.

In accordance with the Pennsylvania Right-to-Know Law (RTKL), 65 P.S. § 67.707 (Production of Certain Records), Proposers shall identify any and all portions of their Proposal that contains confidential proprietary information or is protected by a trade secret. Proposals shall include a written statement signed by a representative of the company/firm identifying the specific portion(s) of the Proposal that contains the trade secret or confidential proprietary information.

Proposers should note that "trade secrets" and "confidential proprietary information" are exempt from access under Section 708(b)(11) of the RTKL. Section 102 defines both "trade secrets" and "confidential proprietary information" as follows:

Confidential proprietary information: Commercial or financial information received by an agency: (1) which is privileged or confidential; **and** (2) the disclosure of which would cause substantial harm to the competitive position of the person that submitted the information.

Trade secret: Information, including a formula, drawing, pattern, compilation, including a customer list, program, device, method, technique or process that: (1) derives independent economic value, actual or potential, from not being generally known to and not being readily ascertainable by proper means by other persons who can obtain economic value from its disclosure or use; **and** (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy. The term includes data processing software by an agency under a licensing agreement prohibiting disclosure.

65 P.S. §67.102 (emphasis added).

The Office of Open Records has determined that a third-party must establish a trade secret based upon factors established by the appellate courts, which include the following:

- The extent to which the information is known outside of his business;
- The extent to which the information is known by employees and others in the business;
- The extent of measures taken to guard the secrecy of the information;
- The value of the information to his business and to competitors;
- The amount of effort or money expended in developing the information; and
- The ease of difficulty with which the information could be properly acquired or duplicated by others.

*See Crum v. Bridgestone/Firestone North Amer. Tire.*, 907 A.2d 578, 585 (Pa. Super. 2006).

The Office of Open Records also notes that with regard to “confidential proprietary information the standard is equally high and may only be established when the party asserting protection shows that the information at issue is either ‘commercial’ or ‘financial’ and is privileged or confidential, and the disclosure *would* cause substantial competitive harm.” (emphasis in original).

For more information regarding the RTKL, visit the Office of Open Records’ website at [www.openrecords.state.pa.us](http://www.openrecords.state.pa.us).

**I-20. Debriefing Conferences.** Proposers whose Proposals are not selected will be notified of the name of the selected Proposer and given the opportunity to be debriefed, at the Proposer’s request. The Issuing Office will schedule the time and location of the debriefing. The Proposer will not be compared with other Proposers.

**I-21. News Releases.** Proposers shall not issue news releases, internet postings, advertisements or any other public communications pertaining to this RFP without prior written approval of the Issuing Office, and then only in coordination with the Issuing Office.

**I-22. Commission Participation.** Unless specifically noted in this section, Proposers must provide all services to complete the identified work.

To support the O&M and Commercialization Entity in providing the services herein, the Commission shall provide for the following:

- a.) **Access Gates:** The Commission shall allow the O&M and Commercialization Entity to utilize existing access gates to perform the work required by the Contract. The O&M and Commercialization Entity shall submit a request for the use of any existing access gates for Commission review and approval. The O&M and Commercialization Entity shall abide by all Commission rules and key/access policies including but not limited to policy letters 5.03 and 6.03 (available at [https://www.paturnpike.com/yourTurnpike/policy\\_letters.aspx](https://www.paturnpike.com/yourTurnpike/policy_letters.aspx)) relating to access keys and physical access to facilities, equipment, and systems. Additional rules may be stipulated after Contract NTP for physical access items including but not limited to keys, building locks, rack locks, electronic access gates, electronic employee access badges, and access to Commission buildings, facilities, and equipment.

O&M and Commercialization Entity personnel receiving a key will be required to sign an agreement for it, and there shall be a deposit charged to the O&M and Commercialization Entity for the issuance of the key. The deposit will be forfeited if the key is lost, stolen, altered, duplicated, or not received by the Commission’s Facilities Access Coordinator within six (6) months of the due date indicated on the signed agreement. At the Commission’s discretion, a bond may be accepted in lieu of deposits. Refer to Commission policy letter 6.03 for more information regarding policies for Turnpike keys.

- b.) **Office Space:** The Commission shall provide one (1) desk space and computer in the Turnpike Industrial Park (TIP) building for the O&M and Commercialization Entity’s on-site Project Manager.

- c.) **Non-Revenue Privileges:** All Proposer vehicles utilized in the contract shall be granted non-revenue passage privilege in the performance of contract duties. Limitations may apply. If the Proposer abuses this privilege, the Commission shall immediately revoke the privilege.

**I-23. Financial Statements and Price Proposal Submittals.** The Financial Statements Submittal and Price Proposal Submittal shall be placed in a separately sealed envelope within the sealed Proposal and kept separate from the General Information Submittal.

**I-24. Contract Term.** The Contract Term will commence on the Effective Date (as defined in Glossary – Acronyms and Definitions) and will end in twenty-five (25) years after the Effective Date. The Commission shall fix the Effective Date after the Contract has been fully executed by the selected Proposer and by the Commission and all approvals required by Commission contracting procedures have been obtained.

The selected Proposer shall not start the performance of any work prior to the Effective Date of the Contract and the Commission shall not be liable to pay the selected Proposer for any service or work performed or expenses incurred before the Effective Date of the Contract.

**I-25. Proposer's Representations and Authorizations.** Each Proposer by submitting its Proposal understands, represents, and acknowledges that:

- a. All information provided by, and representations made by, the Proposer in the Proposal are material and important and will be relied upon by the Issuing Office in awarding the Contract(s). Any misstatement, omission or misrepresentation shall be treated as fraudulent concealment from the Issuing Office of the true facts relating to the submission of this Proposal. A misrepresentation shall be punishable under 18 Pa. C.S. 4904.
- b. The price(s) and amount of this Proposal have been arrived at independently and without consultation, communication or agreement with any other Proposer or potential Proposer.
- c. Neither the price(s) nor the amount of the Proposal, and neither the approximate price(s) nor the approximate amount of this Proposal, have been disclosed to any other firm or person who is a Proposer or potential Proposer, and they will not be disclosed on or before the Proposal submission deadline specified in the response section of this RFP.
- d. No attempt has been made or will be made to induce any firm or person to refrain from submitting a Proposal on this Contract, or to submit a Proposal higher than this Proposal, or to submit any intentionally high or noncompetitive Proposal or other form of complementary Proposal.
- e. The Proposal is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive Proposal.
- f. To the best knowledge of the person signing the Proposal for the Proposer, the Proposer, its affiliates, subsidiaries, officers, directors, and employees are not currently under investigation by any governmental agency and have not in the last four (4) years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction,

- involving conspiracy or collusion with respect to bidding or proposing on any public contract, except as disclosed by the Proposer in its Proposal.
- g. To the best of the knowledge of the person signing the Proposal for the Proposer and except as otherwise disclosed by the Proposer in its Proposal, the Proposer has no outstanding, delinquent obligations to the Commonwealth including, but not limited to, any state tax liability not being contested on appeal or other obligation of the Proposer that is owed to the Commonwealth.
  - h. Proposer is not currently under suspension or debarment by the Commonwealth, or any other state, or the federal government, and if the Proposer cannot certify, then it shall submit along with the Proposal a written explanation of why such certification cannot be made.
  - i. Proposer has not, under separate contract with the Issuing Office, made any recommendations to the Issuing Office concerning the need for the services described in the Proposal or the specifications for the services described in the Proposal.
  - j. Each Proposer, by submitting its Proposal, authorizes all Commonwealth agencies to release to the Commission information related to liabilities to the Commonwealth including, but not limited to, taxes, unemployment compensation, and workers' compensation liabilities.

**I-26. Indemnification.** The Proposer shall be responsible for, and shall indemnify, defend, and hold harmless the Commission and its Commissioners, officers, employees, and agents (the "Indemnified Parties") from all claims, liabilities, damages, and costs including reasonable attorneys' fees, for bodily injury (including death) and damage to real or tangible personal property arising from or related to the negligence or other tortious acts, errors, and omissions of Proposer, its employees, or its subcontractors while engaged in performing the work of this Agreement or while present on the Commission's premises, and for breach of this Agreement regarding the use or disclosure of proprietary and confidential information where it is determined that Proposer is responsible for any use of such information not permitted by this Agreement. This indemnification obligation shall not be reduced in any way by any limitation on the amount or type of damages, compensation, or benefits payable by Proposer or its subcontractors under any employee benefit act including but not limited to Workers' Compensation Acts, Disability Benefits Acts, or other Employee Benefit Act.

**I-27. Data/Information Security Breach Notification.** "Breach" shall mean any successful unauthorized acquisition, access, use, or disclosure of Commission data that compromises the security or privacy of such data.

"Commission Data" means Commission provided information and Commission related information acquired as a result of the services provided to Commission under this Agreement.

Proposer shall report to the Commission any Breach affecting Commission Data. The notice to be provided to the Commission by Proposer shall be provided without unreasonable delay and no later than within 72 hours of Proposer's discovery of any Breach. A Breach shall be deemed to be discovered on the first day on which the Proposer knows or reasonably should have known of the Breach. The notice to be provided to the Commission by Proposer shall be made in writing to the Commission's Information

Security Officer and shall include the following content: (1) the nature of the Breach; (2) the specific Commission Data affected by the Breach; (3) the steps the Proposer is taking to remediate the Breach; and (4) steps the Proposer is taking to mitigate future Breaches. Following notification of the Breach, Proposer shall cooperate with the Commission's investigation of the Breach and provide any other information regarding the Breach or the Commission Data affected which the Commission may reasonably request. Should notice to individuals whose information was part of Commission Data be required under any applicable data privacy law, including, but not limited to, individual state data breach notice laws or federal laws such as Health Insurance Portability and Accountability Act (HIPAA) and Gramm Leach Bliley Act, Proposer shall provide the Commission with copies of any template notification letters and draft regulatory correspondence for Commission's prior approval. Proposer shall provide any notifications required under the applicable data privacy laws on behalf of the Commission at the request of Commission. The Commission reserves the right to handle any notifications required and shall notify Proposer if the Commission will be handling the required notifications. Upon request, Proposer shall provide the Commission with its cyber-security policies and procedures. Proposer agrees to reimburse the Commission for any and all reasonable costs associated with the Commission's response to Proposer's Breach, including any fees associated with the Commission's investigation of Proposer's Breach, notification costs, and any reasonable offer of credit or identity monitoring product.

**I-28. Security Requirements.** Proposer will comply with the Security Requirements as described in Appendix D – Commission Security Requirements.

**I-29. Performance/Payment Bond.** When awarded the Contract, furnish a Performance Bond, with sufficient surety or sureties, in an amount equal to \$5.0 million. Have the bond specify that the Contracted work will be completed in a manner satisfactory to the Commission. Have the bond state that the Commission is not liable for any expenses incurred through the failure to complete the work as specified, nor liable for any damages growing out of the carelessness of the Contractor, the Contractor's employees, or subcontractors.

Also furnish a Payment Bond in the amount equal to \$5.0 million. Have a corporate surety, legally authorized to transact business in the State and satisfactory to the Commission, execute both bonds. If the Commission decides the bond surety is unsatisfactory, promptly furnish any additional required security to protect the Commission's interests and the interests of all persons, firms, or corporations who/which have furnished material, provided equipment on rental, or supplied/performed labor or services on, or in connection with, the performance of the work for this Contract.

Have participants in a joint venture submit a single Performance Bond and a single Payment Bond, each signed by both the joint participants and by their surety. These bonds are to cover their joint and individual liability. The Performance/Payment Bond(s) shall be furnished and maintained continuously over the course of the Contract Term with the original and any renewals/extensions, if needed, provided to the Commission. Initial bonds shall be furnished in 3 or 5 year terms with annual renewals thereafter.

**I-30. Insurance.** Proposer will comply with the Insurance requirements as described in Appendix E - Insurance Specification.

**I-31. Diverse Business Requirements.** Proposer will comply with the Diverse Business requirements as described in Appendix F – Diverse Business Requirements.



## **PART II**

### **INFORMATION REQUIRED FROM PROPOSERS**

The Proposal must be submitted in the format, including heading descriptions, outlined below. To be considered, the Proposal must respond to all requirements in this part of the RFP. Any other information thought to be relevant, but not applicable to the enumerated categories, should be provided as an appendix to the Proposal. All financial and cost data relating to this Proposal and all Diverse Business cost data should be kept separate from and not included in the **Volume I - General Information, Commercialization Services, and Operation and Maintenance Submittals**. Each Proposal shall consist of three separately sealed Submittals:

1. **Volume I** – this volume shall include the following information:
  - a. General Information Submittal, which shall be a response to **RFP Part II, Section 1**;
  - b. Commercialization Services Submittal, in response to **RFP Part II, Section 2**; and
  - c. Operations & Maintenance Submittal, in response to **RFP Part II, Section 3**.
2. **Volume II** – this volume shall include the following information:
  - a. Diverse Business Participation Submittal, in response to **RFP Part II, Section 4**.
3. **Volume III** – this volume shall include the following information:
  - a. Financial Statements and Other Information, in response to **RFP Part II, Section 5**;
  - b. Price Proposal Submittal, in response to **RFP Part II, Section 6**; and
  - c. Commercialization Operating Model in response to **RFP Part II, Section 7**.

The Proposal submitted in response to this RFP must include, at a minimum, the above-mentioned information presented in the order presented above and in their respective volumes. This provides the Technical Evaluation Team (TET) with an indication of the Proposer's ability to follow the Commission's directions and procedures. Proposers shall comply with page limits (indicated in parenthesis, where applicable) for each applicable response item. Additionally, Proposers must clearly section or tab their Submittals in the order listed above (i.e. each component of the three volumes shall be clearly titled, identified, and presented in the order requested). Failure to follow the required format, forms and content may deem the Proposal as non-responsive.

The Commission reserves the right to request additional information which, in the Commission's opinion, is necessary to assure that the Proposer's competence, number of qualified employees, business organization, and financial resources are adequate to perform the work according to the RFP. The Commission may make such investigations as deemed necessary to determine the ability of the Proposer to perform the work, and the Proposer shall furnish to the Issuing Office all such information and data for this purpose as requested by the Commission. The Commission reserves the right to reject any Proposal if the evidence submitted by, or investigation of, such Proposer fails to satisfy the Commission that such Proposer is properly qualified to carry out the obligations of the agreement and to complete the work specified.

**Volume I: Part II - Section 1 - General Information Submittal.**

The Proposal is required to include the following general Submittals for the Proposer's team to satisfy the requirements of this **Volume I: Section 1 - General Information Submittal**.

A. Proposal Cover Sheet (See Appendix C – Required Forms)

Show the name of your firm, Federal I.D. number, address, name of contact person, contact person's email and telephone number, the date, and the subject: Fiber Infrastructure Operations & Maintenance and Commercialization Services **RFP 19-10350-8799**. The Proposal Cover Sheet must be signed by an individual who is authorized to negotiate terms, render binding decisions and commit your firm's resources. In addition, it is required that all information requested on the Proposal Cover Sheet be provided including information pertaining to location of office performing the work, contact information, listing of all Pennsylvania offices and total number of Pennsylvania employees, and location of company headquarters.

B. Proposal Submittal Check List Form (See Appendix C – Required Forms)

The Proposer must include with their Proposal a completed "Proposal Submittal Check List Form" and the corresponding material, attachments and forms in **Volume I: Section 1 - General Submission**. The Proposer shall not amend the order of or change the contents of the checklist except to provide the required cross reference to its Proposal.

C. Acknowledgement of Addenda Form (See Appendix C – Required Forms)

Proposers shall submit a completed "Acknowledgement of Addenda Form" as part of their proposal.

D. Acknowledgement of the Contract Agreement Review (See Appendix C – Required Forms)

Proposers must acknowledge that they have reviewed the Contract Agreement for the Project and identify any changes or specific modifications in writing that the Proposer considers essential for entering into a Contract Agreement with the Commission for this Project. The Commission reserves the right to consider and accept, in its sole and absolute discretion, any requested changes to the Contract Agreement.

E. Conflicts of Interest

Proposer shall include in this section a statement regarding full disclosure of any potential conflict with the State Adverse Interest of State Advisor or Consultant Statute as instructed in the **Part I – General Information for Proposers, Section I-6 - Contractor Integrity Provisions** of the RFP. Also identify any perceived Conflicts of Interest of the Proposer or sub-contractor of the Proposer's team with regard to this Project and how they would be mitigated. The Commission reserves the right to determine a potential Conflict of Interest in its sole and absolute discretion.

Individuals and firms that are restricted from proposing or joining a Proposer team include, without limitation, the following individuals, firms, and their affiliates:

- KPMG LLP;
- Gannett Fleming;
- Drive Engineering Corp; and
- Hunton Andrews Kurth LLP

F. Transmittal Letter (limit 2 pages)

A duly authorized official of the Proposer must execute the transmittal letter.

G. Table of Contents

Include a clear identification of the material by section and by page number.

H. Executive Summary (limit 5 pages)

Summarize your understanding of the work to be performed and make a commitment to perform the work necessary. This section should summarize the key points of your Submittal. The Executive Summary shall be written in a non-technical style and shall contain sufficient information for the ET members to become familiar with the Proposer's ability to satisfy the requirements of the RFP.

I. Firm Overview (limit 5 pages)

Provide a brief history and description of Proposer's business organization and its expertise in providing O&M Services and Commercialization Services and experience as it relates to the requirements discussed in **Part IV – Work Statement** of the RFP. Include the location of offices and the number and types of executive and professional personnel, engineers, technicians, specialists, consultants or other relevant professional staff in each office, consultants or other relevant professional staff in each office. Discuss your firm's presence in and commitment to the Commonwealth of Pennsylvania. Include a discussion of the specific expertise and services that distinguish your firm.

If you propose to subcontract any portion of the work described in your response, the subcontracted firm or firms must be identified in this section. The role of the firm or firms should be explained along with a description of the specific expertise and services that the firm or firms contribute to the overall value of your proposal. Furthermore, provide an organizational chart which sets forth the Proposer structure, teaming arrangements and reporting requirements.

**Volume I: Part II - Section 2 - Commercialization Services Submittal.**

Proposers are required to provide the following information for the Proposer's team for the purpose of satisfying the requirements of this **Volume I: Section 2 - Commercialization Services Submittal**.

A. Approach to Commercialization Services (limit 20 pages)

Proposer must describe its approach to providing Commercialization Services as described in **Part IV, Section IVA-3** of the RFP, for both the Eastern Network and the Western Network, and leveraging Commercialization Assets described in **Part IV, Section IVA-7** of the RFP. For the purposes of the response, Proposers shall assume the grants and covenants as presented in **Part IV, Section IVA-2** of the RFP. For the purposes of the response, the Proposer shall assume exclusivity for a period of 12 years from the Effective Date in providing commercial wireless services by installing and servicing small cell pole sites within Commission's ROW. In addition, the Proposer shall assume the O&M and Commercialization Entity will have the right to install new cell towers within Commission's ROW and will have an exclusive right to market and provide commercialization services related to such new cell towers for the Contract Term. Approval of location of new Commercialization Assets will be subject to compliance with the Commission's design criteria and Commission operations requirements at the Commission's discretion in accordance with Policy 9.02 – Tower, Monopole and Cell Site Structure Leasing ([https://www.paturnpike.com/yourTurnpike/policy\\_letters.aspx](https://www.paturnpike.com/yourTurnpike/policy_letters.aspx)).

The Commercialization Services approach should demonstrate not only the Proposer's understanding of commercialization, but also key considerations customized to Pennsylvania's geographic region and the market space in which the network will operate. The narrative shall clearly outline the following component factors in the Proposer's approach, separately for each of the Commercialization Services. For each Commercialization Services, the Proposer shall outline the following:

1. Market Size – Proposer's view on the network's addressable market with specific references to customer types, customer counts, locations of potential customers, potential commercial contract types and length, pricing, demand drivers, end customer use cases, and competition.
2. Proposer's Action Plan – Describe how the Proposer plans to market to and acquire customers in each identified commercialization activity utilizing the Commercialization Assets covering the entire network throughout the Contract Term. At a minimum, the action plan should address the following sub-factors:
  - a. Proposer's marketing action plan during the Fiber Optic Network (FON) Design-Build (D-B) phase (i.e. pre-market phase), early operations (ramp-up) phase, and once the network reaches commercial maturity.
  - b. Proposer's specific plans for addressing various customer segments, including how it would address market entry barriers and existing competition (if Proposer is a newer entrant to the market space within which the network will operate), or how it would leverage its existing customer bases and/or assets to generate commercial utilization for the network.
  - c. To the extent possible, Proposer should provide a resource-based narrative around how components of its commercialization plan shall leverage the Fiber Infrastructure provided for the Project, in terms of lengths (fiber-miles), geographical sections needed, and strand count for each Commercialization Services intended to be included in the Proposer's action plan.
3. Commercialization Services Operations and Maintenance Plan – Proposer shall provide a high-level view on any additional incremental operating or maintenance costs or investments that it expects to incur in servicing its commercial customers, which may include the hiring of employees, the development of new assets, or any other ongoing costs as it relates to setting up profitable Commercialization Services throughout the length the Contract;
4. Expansion Plans – Proposer should describe any views it may have on potential network expansion or lateral investment opportunities that the Proposer may view as commercially and financially viable, including key metrics around any additional ROW needed, potential resources required from the Commission (if any), and potential impacts on the Commission;
5. Coordination with the Commission – Proposer shall describe its proposed approach for coordination, tracking and sharing of information such as, on-going asset performance metrics, Commercialization Services contracts and revenues, and plans for developing new Commercial Assets (i.e. laterals, towers, etc.) with the Commission on a regular interval. Proposer shall also outline what information and coordination it will require from the Commission; and
6. Approach to Western Network Expansion – The Proposer shall choose one of two outlined options under **Section IVA-11: Future Phase(s) for Commercialization Services** and describe its

approach under the chosen option including items 1 through 5 above as it related to the Western Network.

Proposer's overall approach to the Commercialization Services including the approach to Western Network should be aligned with the information provided in Appendix G - **Price Proposal** – i.e. the commercialization narrative provided in response to this section should align with the projected commercialization revenues included in the Price Proposal.

Proposer should provide any available verifiable evidence to substantiate its views as outlined in the approach to commercialization narrative, including any secured customer contracts, letter of interest from potential customers, any demonstrable customer demand for the network from the Proposer's existing customer base, or any other quantifiable evidence. Customer contracts and other forms of tangible evidence, such as letters of interest, shall be provided as attachments to **Volume I** and can be marked as confidential information if need be. The reasonability of the commercialization approach will be determined based on the Commission's sole discretion, considering market precedents, existing market conditions, the Commission's estimates, tangible evidence supporting the Proposer's approach, and the level of the Proposer's due diligence conducted to date.

**B. Relevant Experience and Expertise (limit 10 pages)**

Proposer shall provide a narrative statement regarding the Proposer's commercialization experience and expertise as it relates to **Part IVA – Commercialization Services Work Statement** of this RFP.

Describe at least two (2) and no more than five (5) relevant reference projects performed by the Proposer's team within the past ten years that are similar in size, complexity, and services sought by the Commission for this Project. The reference projects should demonstrate your firm's direct experience with providing broadband commercialization services for revenue generation as required in the RFP. Only information provided within this Submittal will be evaluated against criteria set out in **Part III – Criteria for Selection** of the RFP.

In addition to the narrative, with respect to each relevant project or experience included in the Proposal, the Proposer shall include relevant information about projects/entities for which the services were provided – for required information, refer to table below.

Reference Project # 1: Project Name	
Client / Entity Name	
Period of Services Provided	
Categories of Services Provided	Include all services that apply: <ul style="list-style-type: none"> <li>• Dark Fiber Services</li> <li>• Micro-Duct Services</li> <li>• Lit Services</li> <li>• Small Cells Wireless Services</li> <li>• Other _____</li> </ul>
Summary of Services Provided	Descriptions of the Commercialization Services provided and the role of the Proposer. If O&M Services were provided along with Commercialization Services, please describe here.

Reference Project # 1: Project Name	
<b>Project's Performance to date</b>	Key performance measures, including revenue sources and total amount of revenues generated / under contract
<b>Revenue Share and Payment Mechanism</b>	Description of the revenue sharing and payment mechanism for the project
<b>Project Reference</b>	Provide the name of the client entity, including the name, address, and telephone number of the responsible official of the client, company, or agency who may be contacted.

### C. Key Commercialization Personnel (limit 10 pages)

The Proposer shall provide the names, proposed role(s), background and experience, current professional licenses and certifications, office location and availability of the key personnel that would perform the Commercialization Services as described in **Part IVA – Commercialization Services Work Statement** of this RFP. Proposers shall identify the primary person(s) who will be responsible for managing the relationship with the Commission throughout the Contract Term.

Provide an organizational chart of the key personnel listed below, (referred herein as the “Key Commercialization Personnel”), including the relationship between their respective roles, and their previous experience (if any) of working together in such roles. Briefly describe the relevance of each Key Commercialization Personnel’s experience to this Project and why such experience will provide value to the Commission. The organization chart shall indicate the primary point(s) of contact who will work closely with the Commission.

Proposer shall provide detailed resumes (indicating overall experience, professional registrations, and any specific experience relevant to the nature and scope of the Project) for each of the following Key Commercialization Personnel of the Proposer’s proposed team (limit each resume to 2 pages). To the extent that Proposers intend for the following roles (except for the Commercialization Manager) to be filled by the Key Technical Personnel of the same name as outlined in **Volume I: Section 3, Subsection C – Key Technical Personnel** Submittal, Proposers are advised to submit their resumes describing their relevant experiences in both **Volume I: Section 2, Subsection C, and Volume I: Section 3, Subsection C**.

1. **Project Manager:** The Project Manager will be the single point of contact and responsible for the delivery of the Project and will be committed to the Project on a full-time basis. The Project Manager will be the main point of contact with the Commission and will have full authority to commit and bind the Proposer’s resources.
2. **Commercialization Manager:** The Commercialization Manager will be responsible for marketing, developing and managing the Commercialization Services for the generation of revenue from commercial customers and managing the revenue sharing arrangement with the Commission.

Proposers shall describe the approach to ensuring that required qualified resources are available to perform Commercialization Services included in the RFP throughout the Contract Term. A table/chart indicating estimated availability of designated Key Commercialization Personnel and other resources to work on this Project shall be included. While the Commission recognizes the impact of personnel availability and scheduling conflicts, Proposers are urged to designate and submit only those

individuals they reasonably believe will be available for, and intend to assign to work in, the Key Commercialization Personnel role(s) listed in **Volume I: Section 2, Subsection C – Key Commercialization Personnel**.

D. References (limit 2 pages)

Proposer shall provide minimum of three (3) references each for the Project Manager and Commercialization Manager. The references, in each case, must be from projects on which the Key Commercialization Personnel was involved during the past five years.

References shall be provided by previous clients with whom the Key Commercialization Personnel have worked as described above, and shall include the reference's name, position, company or agency, and current contact details (including current address, e-mail address, and telephone number). Proposers are requested to verify the accuracy of the reference's contact details, and are advised that if the contact details are not correct, the Commission may elect to exclude the experience represented by such reference in determining the Key Commercialization Personnel's qualifications and experience.

**Volume I: Part II - Section 3 - Operations and Maintenance Services Submittal.**

Proposers are required to provide the following information for the Proposer's team for the purpose of satisfying the requirements of this **Volume I: Part II - Section 3 - Operations and Maintenance Services Submittal**.

A. Approach to Operations and Maintenance Services (limit 20 pages)

Proposers must describe in detail the approach for O&M Services to be performed as defined in the RFP. The approach section shall present the methodology that the Proposer is planning to follow for each O&M service, provide a description of all required service deliverables/outputs, and provide realistic timelines/schedules (as applicable) that identify the phases and tasks required to complete the O&M Services as defined in **Part IVB – O&M Services Work Statement** of the RFP. The Proposer shall provide process flow charts showing how interactions and work coordination with the Commission shall take place. The Commission encourages innovation in service delivery if substantiated and proven to be effective. Any such innovation shall be highlighted by the Proposer in their approach to O&M Services.

Proposer shall include all draft Contract Plans (including examples of ad-hoc plans) listed in Appendix I and example reports identified in **Part IVB-5 Reports and Project Control** as appendices to the Proposal in response to this section. The draft Contract Plans will not be counted against the page limit requirement for this section.

B. Relevant Experience and Expertise (limit 10 pages)

Proposers shall provide a narrative statement regarding Fiber Infrastructure O&M Services experience and expertise as it relates to **Part IVB – O&M Services Work Statement** of this RFP. Additionally, the Proposer shall include a statement regarding your understanding of the O&M Services requirements as outlined in this RFP and your ability to provide Fiber Infrastructure O&M Services in accordance with the same.

Proposer shall describe the Proposer's experience in the following areas:

1. Experience in providing Fiber Infrastructure O&M Services that are comparable to services sought by the Commission to other clients, especially other governmental entities and / or similar public/private sector transportation organizations and/or private sector telecommunication firms;
2. Business practices that enable the Proposer to perform the required O&M Services and related tasks in an efficient, timely and expeditious manner; and
3. Any other specialized or innovative Fiber Infrastructure O&M Services the Proposer may offer to the Commission.

Describe at least three (3) and no more than five (5) relevant reference projects performed within the past ten (10) years that are similar in size, complexity, and services sought by the Commission for this Project. The reference projects should demonstrate your firm's experience (i) repairing and providing corrective maintenance for fiber optic cable and related infrastructure; and (ii) experience in operating and maintaining a Fiber Management System. Only information provided within this Submittal will be evaluated against criteria set out in **Part III – Criteria for Selection** of the RFP.

For the purpose of this RFP, any experience listed as a relevant qualification shall be those in which the Proposer directly participated in the O&M Services – for required information, refer to table below.

Reference Project # 1: Project Name	
<b>Client / Entity Name</b>	
<b>Period of Services Provided</b>	
<b>O&amp;M Services Provided</b>	Describe services provided, including repairing and corrective maintenance for fiber optic cable and related infrastructure; and operating and maintaining a Fiber Management System
<b>Project's Performance to date</b>	Key performance measures
<b>Project Reference</b>	Provide the name of the client entity, including the name, address, and telephone number of the responsible official of the client, company, or agency who may be contacted.

Provide a list of three clients for which your firm has performed similar work, as described in this RFP, within the past five years. Projects referred to should be identified and the name of the client entity shown, including the name, address, and telephone number of the responsible official of the client, company, or agency who may be contacted.

C. Key Technical Personnel (limit 15 pages)

Provide the names, proposed roles, background and experience, current professional licenses and certifications, office location and availability of the consulting personnel that would perform the Fiber Infrastructure O&M Services as described in **Part IVB – O&M Services Work Statement** of this



RFP. Specifically identify the primary person(s) who will be responsible for managing the relationship with the Commission during this endeavor.

Proposer shall provide an organizational chart of the key personnel listed in Appendix H, referred herein as, (the “Key Technical Personnel”), the relationship between their respective roles, and their previous experience (if any) of working together in such roles. Briefly describe the relevance of each Key Technical Personnel’s experience to this Project and why such experience will provide value to the Commission. The organization chart shall indicate the primary point(s) of contact who will work closely with the Commission.

Proposer shall provide detailed resumes (indicating overall experience, professional registrations, and any specific experience relevant to the nature and scope of the Project) for each of the following Key Technical Personnel of the proposed team (limit each resume to 2 pages) that each person will fulfill for the Project.

Proposers shall describe their approach to ensuring that required qualified resources are available to perform O&M Services included in the RFP throughout the Contract Term. A table/chart indicating estimated availability of designated Key Technical Personnel and other resources to work on this Project shall be included. While the Commission recognizes the impact of personnel availability and scheduling conflicts upon Proposers, Proposers are urged to designate and submit only those individuals they reasonably believe will be available for, and intend to assign to work in, the Key Technical Personnel role(s) listed in Appendix H of the RFP.

#### D. References (limit 10 pages)

The Proposer shall provide minimum of three (3) references the Project Manager, and two (2) references each for the other Key Technical Personnel. The references, in each case, must be from projects on which the Key Technical Personnel was involved during the past five years.

References shall be provided by previous clients with whom the Key Technical Personnel have worked as described above, and shall include the reference’s name, position, company or agency, and current contact details (including current address, e-mail address, and telephone number). Proposers are requested to verify the accuracy of the reference’s contact details, and are advised that if the contact details are not correct, the Commission may elect to exclude the experience represented by such reference in determining the Key Technical Personnel’s qualifications.

### **Volume II: Part II - Section 4 - Diverse Business Requirements Submittal.**

Proposers are required to provide the following information for the purpose of satisfying the requirements of the RFP. **The Diverse Business Requirements Submittal shall be placed in a separate sealed envelope within the sealed Proposal and on a CD-ROM, separate from the Volume I and Volume III Submittals.**

#### A. Diverse Business Requirements (Appendix F)

The Commission’s Diverse Business (DB) requirements for this procurement and a resulting Contract Agreement are identified in Appendix F. There is no minimum participation level (MPL) for Diverse

Businesses established for this Project. The utilization of Diverse Businesses is encouraged and will be considered as a criterion in the evaluation of Proposals and may be considered as a factor in the Commission's selection of an O&M and Commercialization Entity for this Project.

Proposer should note that the Commission's Diverse Business requirements will be applicable for the **Part IVB – O&M Services Work Statement** portion of the RFP (*Please Note: the **Part IVA – Commercialization Services Work Statement** portion of the RFP is excluded from the Commission's Diverse Business Requirements*).

Proposer must include in its Diverse Business participation Submittal that it meets the requirements set forth in the Commission's Diverse Business requirements - Appendix F. In particular, the Proposer shall address the section of the Diverse Business requirements labeled, "Actions Required by Proposer during the procurement/consultant selection phase". In addition, the Diverse Business participation Submittal shall indicate how the Proposer intends to maximize participation and the amount of Diverse Business participation incurred in the Proposal in terms of dollars committed or percentage of total contract amount.

### **Volume III: Part II - Section 5. Financial Statements Submittal.**

The Proposer is required to provide the following information for the Proposer's team for the purpose of satisfying the requirements of the RFP. **The Financial Statements Submittal and Price Proposal Submittal shall be placed in a separate sealed envelope within the sealed Proposal and on a CD-ROM, separate from the Volume I and Volume II Submittals.**

#### **A. Financial Statements and Other Information**

Proposers shall provide the following for the Proposer to demonstrate that the O&M and Commercialization Entity has the financial resources necessary to perform its role on this Project. The Commission reserves the right to request additional financial information if necessary to make this determination.

- Copies of audited financial statements for the Proposer for the three (3) most recent completed fiscal years must be provided to demonstrate financial capability.
- Each financial statement must meet the following:
  - GAAP/IFRS: Financial statements must be prepared in accordance with U.S. GAAP or IFRS. If financial statements are prepared in accordance with principles other than U.S. GAAP or IFRS, a letter must be provided from a Certified Public Accountant discussing the areas of the financial statements that would be affected by a conversion to U.S. GAAP or IFRS. A restatement of the financial information in accordance with U.S. GAAP or IFRS is not required;
  - U.S. Dollars: Financial statements must be provided in U.S. dollars if available. If financial statements are not available in U.S. dollars, the Proposer must include summaries of the income statements, balance sheets and statement of cash flow for the applicable time periods converted to U.S. dollars by a Certified Public Accountant with an explanation as to how they were converted;

- Audited Financial statements: Financial statements must be audited by an independent party qualified to render audit opinions (e.g. a Certified Public Accountant). If audited financial statements are not available for an entity, the Proposal must include unaudited financial statements for such entity, certified as true, correct, and accurate by the chief executive, chief financial officer, treasurer or a duly authorized representative of that entity; and
- English: Financial statement information must be prepared in English. If audited financial statements are prepared in a language other than English, translations of all financial statement information must accompany the original financial statement information.
- If the Proposer is a newly formed entity and does not have independent financial statements, the Proposer shall expressly state that it is a newly formed entity and does not have independent financial statements meeting the requirements of the **Part II - Section 5 - Financial Statements Submittal** and shall provide financial statements otherwise consistent with those required hereby for each of its constituent members.
- If an entity for whom financial statements are submitted files reports with the U.S. Securities and Exchange Commission, then the entity must provide electronic links to the most recently filed Forms 10-K and 10-Q for all such reporting entities.
- Off-Balance Sheet Liabilities: A letter from the CFO, treasurer or equivalent officer of the entity or the certified public accountant for each entity for which financial information is submitted, identifying as applicable each off-balance sheet liability exceeding \$5 million and its associated dollar amount and providing explanation for off-balance sheet treatment.
- Material Changes in Financial Condition: Information regarding any material changes in financial condition for the Proposer's constituent members for the past three years and anticipated for the next reporting period must be provided. If no material change has occurred and none is pending, the Proposer's constituent members, as applicable, shall provide a letter from its CFO, treasurer or equivalent officer so certifying. The letter must be dated not earlier than seven (7) calendar days prior to the Reply Due Date.
- Credit Rating Reports, if available, shall be provided for each of the constituent member firms or debt issued by the constituent member firms.

### **Volume III: Part II - Section 6. Price Proposal Submittal.**

#### **A. Price Proposal (Appendix G)**

Proposers shall submit using a template provided as part of Appendix G - **Price Proposal** of this RFP. Proposers shall pay special attention to additional instructions provided in the Price Proposal and ensure that no changes to the format/template are made to the Price Proposal without express written approval by the Commission. Any error(s) / omission(s) in the Price Proposal shall be brought to the Commission's attention in a timely manner so that the Commission can provide guidance to the Proposers.

Proposers should not include any assumptions in their Price Proposal Submittal. If the Proposer includes assumptions in its Price Proposal Submittal, the Issuing Office may reject the Proposal. Proposers should

direct in writing to the Issuing Office pursuant to **Part I, I-11 Questions and Answers** of this RFP any questions about whether a cost or other component is included or applies. All Proposers will then have the benefit of the Issuing Office's written answer so that all Proposals are submitted on the same basis.

Proposer must complete all applicable tabs/sheets in Appendix G - **Price Proposal** per the directions provided in Appendix G. Unit costs for each line item provided in Appendix G shall be inclusive of all labor, materials, and supporting/incidental tasks in adherence with the requirements and Service Level Agreement (SLA) described within this RFP. Any costs not provided in the Price Proposal will be assumed as no charge to the Commission.

The Commission will reimburse the selected Proposer for work satisfactorily performed after execution of a written Contract and the start of the Contract Term, in accordance with Contract requirements, and only after the Commission has issued a notice to proceed.

All figures provided in the Price Proposal shall be in nominal U.S. Dollars. For ease of use and evaluation, the Price Proposal is organized into the following three (3) sections.

- I. *O&M Services Price Worksheet* – Proposers are required to provide their pricing for (i) Project mobilization activities, including those activities that are anticipated to be one-time service(s); (ii) Re-occurring O&M Services price for the Contract Term; and (iii) Fully loaded rates for units of required O&M Services, materials, personnel, and related activities listed in Appendix G - **Price Proposal**. The Commission has estimated quantities of various O&M Services and activities required annually for the Contract Term. Proposers are required to provide their all-inclusive annual price for required O&M Services and related activities for each year for the Contract Term. All costs should be provided in nominal U.S. Dollars. For more information, refer to Appendix G - **Price Proposal**.
- II. *Commercialization Price Worksheet for the Eastern Network* – Proposers are required to provide their costs and revenues estimates for performing Commercialization Activities for the Eastern Network. Specifically, Proposer is required to provide (i) annual revenues estimates for each Commercialization Service/channel over the Contract Term for the Eastern Network; (ii) Any additional planned capital investment(s) to the base Eastern Network required to achieve the Proposer's projected revenue estimates for the same network; (iii) Annual O&M Services costs associated with performing Commercialization Services for the Eastern Network (*Please Note: Costs associated with the O&M Services for the Commission's Fiber Infrastructure shall be included as part the O&M Services Price Worksheet*); and (iv) Minimum guaranteed annual commercialization revenues to be dedicated to the Commission over the Contract Term. For more information, refer to Appendix G - **Price Proposal**.
- III. *Commercialization Price Worksheet for the Western Network* – As stated in the **Part IVA – Commercialization Services Work Statement**, the Commission may negotiate with the selected Proposer to include Commercialization Activities for the future Western Network expansion project(s). As such, Proposers are required to provide their costs and revenues estimates for performing Commercialization Services for the Western Network. For the purposes of the response, the Proposer shall capture any additional efficiencies expected as a result of having a single O&M and Commercialization Entity responsible for the combined network (i.e., Eastern and Western Networks) as part of this sub-section (i.e. Commercialization Price Worksheet for the Western Network).

Specifically, the Proposer shall provide for this section (i) annual revenues estimates for each Commercialization Service/ channel over the Contract Term for the Western Network; (ii) Any additional planned capital expenditures to the base Western Network required to achieve the Proposer's projected revenue estimates for the same network; and (iii) Annual O&M Services costs associated with performing Commercialization Services for the Western Network. *(Please Note: Costs associated with the O&M Services for the Commission's Fiber Infrastructure shall be included separately as part of the O&M Services Price Worksheet).* For more information, refer to Appendix G - **Price Proposal**.

**Volume III: Part II - Section 7. Commercialization Operating Model Submittal.**

Proposers shall furnish the Commercialization Operating Model to provide supporting assumptions to its projections provided in the Price Proposal in response **Part B of Volume III: Part II - Section 6. Price Proposal Submittal, paragraphs II and III.** While the model mechanics will be at the Proposer's discretion, it should clearly outline the Proposer's calculations used to build out the Eastern Network and Western Network sections of the Price Proposal, including build-up (bottom up and/or top down) of the commercialization revenue calculations and rationale used. The Commercialization Operating Model shall be provided as a dynamic Microsoft Excel file, with clearly marked inputs and outputs. The Commission reserves the sole discretion to assess the reasonability of the Proposer's due diligence conducted and observable evidence for the purpose of evaluating the Proposal.

## **PART III**

### **CRITERIA FOR SELECTION**

**III-1. Mandatory Responsiveness Requirements.** To be eligible for selection, a Proposal shall be (a) timely received from a Proposer; and (b) properly signed by the Proposer, as stated in **PART II: Information Required from Proposers** of the RFP.

**III-2. Technical Nonconforming Proposals.** The two (2) Mandatory Responsiveness Requirements set forth in Section III-1 above (a & b) are the only RFP requirements that the Commission will consider to be non-waivable. The Issuing Office reserves the right, in its sole discretion, to (1) waive any other technical or immaterial nonconformities in the Proposal, (2) allow the Proposer to cure the nonconformity, or (3) consider the nonconformity in the evaluation of the Proposal.

**III-3. Proposal Evaluation.** Proposals will be reviewed, evaluated, and rated by the Technical Evaluation Team (TET) of qualified personnel supported by its advisors based on the evaluation criteria listed below. The ET will present the evaluations to the Professional Services Procurement Committee (PSPC). The PSPC will review the TET's evaluation and provide the Commission with the firm(s) determined to be highly recommended for this assignment.

The Commission will select the most highly qualified firm for the assignment or the firm whose Proposal is determined to be most advantageous to the Commission by considering the TET's evaluation and the PSPC's determination as to each firm's rating based on evaluation criteria specified herein. In making the PSPC's determination and the Commission's decision, additional selection factors may be considered, taking into account the estimated value, scope, approach, complexity and professional nature of the services to be rendered and any other relevant circumstances. Additional selection factors may include, when applicable, the following: geographic location and proximity of the firm, firm's Pennsylvania presence or utilization of Pennsylvania employees for the assignment; equitable distribution of work; diversity inclusion; and any other relevant factors as determined as appropriate by the Commission.

Award will only be made to a Proposer determined to be responsive and responsible in accordance with Commonwealth Management Directive 215.9, Contractor Responsibility Program.

**III-4. Evaluation Criteria.** Proposers should ensure that their Proposals comply with submission requirements as discussed in **Part II – Information Required from Proposers** of this RFP. The following criteria will be used, in order of relative importance from the highest to the lowest, in evaluating each Proposal.

1. Criteria # 1 - Project Approach.

- a. Proposer's approach to perform and manage O&M services required for the Project, with emphasis on the following factors:
  - i. Proposer's understanding of the Commission's objectives for the Project.
  - ii. Proposer's approach to ensuring that adequate materials, equipment, and resources available to perform the work required for this Project.

- iii. Soundness of proposed approach, methodology, and deliverables for conducting O&M services as it relates to the requirements discussed in **Part IVB – O&M Services Work Statement** of the RFP.
  - iv. Extent to which Proposer’s approach for O&M services is substantiated by the Good Industry Practices and standards.
  - v. Proposer’s approach to comply with responsiveness for various O&M services.
  - vi. Quality, completeness and applicability of the Proposer’s approach for O&M services.
  - vii. Proposer’s approach to maintain close coordination with the Commission and other contractors throughout the length of the Project.
  - viii. Responsiveness, organization, and clarity of Proposal.
- b. Proposer’s approach to market, perform and manage Commercialization Services required for the Project, with emphasis on the following factors:
- i. Proposer’s understanding of the Commission’s needs, objectives and scope of work for the Commercialization of the Eastern Network, as well as including the potential for Commercialization of the future Western Network expansion.
  - ii. Soundness of proposed approach and methodology for providing Commercialization Services as it relates to the requirements discussed in **Part II - Section 2A. Commercialization Services Submittal** of the RFP.
  - iii. Extent to which Proposer’s approach for Commercialization Services is substantiated by tangible evidence or observable market trends.
  - iv. Proposer’s approach to maintain close coordination with the Commission and other contractors throughout the length of the Project.
  - v. Responsiveness, organization, and clarity of Proposal.

## 2. Criteria # 2 - Proposer and Personnel Qualifications and Experience

- a. Proposer’s relevant experience and expertise in providing O&M services for projects of a similar size and scope, with emphasis on the following factors:
- i. Proposer’s relevant experience and expertise in conducting Fiber Infrastructure O&M as it relates to the requirements and services discussed in **Part IVB – O&M Services Work Statement** of the RFP and as demonstrated by **Volume I: Part II – Section 3. Operations and Maintenance Services Submittal, Sub-Section B - Relevant Experience**.
  - ii. Proposer’s qualifications, experience and competency of Key Technical Personnel as demonstrated by **Volume I: Part II – Section 3. Operations and Maintenance Services Submittal, Sub-Section C - Key Technical Personnel**.

- iii. Responses of references per **Volume I: Section 3 - Operations and Maintenance Services Submittal Sub-section D – References.**
  - b. Proposer’s relevant experience and expertise in providing Commercialization Services for projects of a similar size and scope, with emphasis on the following factors:
    - i. Proposer’s relevant experience and expertise as demonstrated by **Volume I: Part II – Section 2 – Commercialization Services Submittal, Sub-Section B – Relevant Experience and Expertise.**
    - ii. The Key Commercialization Personnel’s qualification and experience as demonstrated by **Volume I: Part II - Section 2 – Commercialization Services Submittal, Sub-section C – Key Commercialization Personnel.**
    - iii. Responses of references per **Volume I: Part II - Section 2 – Commercialization Services Submittal, Sub-section D – References.**
- 3. Criteria # 3 - Project Cost and Financial Information.

The Commission reserves the right to select a Proposal based upon all the factors listed above and may not choose the firm offering the best Price Proposal. The Commission will select the firm with the Proposal that best meets its needs as described in the RFP, at the sole discretion of the Commission.

- a. Proposer’s ability to comply with instructions provided in Appendix G - **Price Proposal.** For Price Proposal evaluation purposes, the Commission intends to calculate Net Present Value (NPV) of various cash flows proposed by the Proposer based on potential risks associated with such cash flows. The Price Proposal will be evaluated on the following factors:
    - i. Proposer’s requested annual O&M payments from the Commission over the Contract Term.
    - ii. Proposer’s annual Minimum Commercialization Revenue Commitment to the Commission over the Contract Term.
    - iii. Extent to which Proposer’s commercialization revenue projections provided in the Price Proposal are aligned with the approach for Commercialization Services.
    - iv. Net Present Value of effective commercialization revenue share to the Commission over the Contract Term as it may be supported by the Project Approach for the Commercialization Services and tangible evidence and market trends.
  - b. Proposer’s ability to comply with submission requirements as discussed in **Volume III: Part II – Information Required from Proposers** of the RFP, with emphasis on the following factors:



- i. Financial capability of the Proposer to undertake the obligations defined in **Volume III: Part II - Section 5. Financial Statements Submittal** of the RFP.
- ii. Proposer's ability to comply with contract performance security (i.e. required insurance coverage, Performance Bond, Payment Bond) related requirements.

4. Criteria # 4 - Commitment to Diversity and Inclusion.

This refers to the inclusion of Diverse Business firms, as described in **Part II – Information Required from Proposers** of the RFP. Proposer should note that the Commission's Diverse Business requirements will only be applicable for the **Part IVB – O&M Services Work Statement** portion of the RFP – i.e. the **Part IVA – Commercialization Services Work Statement** portion of the RFP is excluded from the Commission's Diverse Business requirements. Participation may be measured in terms of total dollars committed or percentage of total contract amount to certified Diverse Business firms over the Contract Term.

## PART IV

### WORK STATEMENT

The Commission is seeking a firm to provide O&M Services and Commercialization Services for Fiber Infrastructure for a period of up to twenty-five (25) years. The Fiber Infrastructure provides connectivity for the Commission's administrative buildings/offices, maintenance buildings, tolling systems, Intelligent Transportation Systems (ITS), and other sites and applications; therefore, the Fiber Infrastructure is critical to the Commission's operations and mission. The confluence of the Fiber Infrastructure system is situated at the Turnpike Industrial Park (TIP) in Middletown, Pennsylvania where network performance is monitored and controlled by a 24/7 Network Control (NC) First Level Help Desk and Traffic Operations Center (TOC).

The Commission is in the process of installing a fiber optic network east of Harrisburg and the Northeast Extension (I-476) via two Fiber Optic Network System (FON) Design-Build (D-B) projects, described herein as (the "Eastern Network"). The Eastern Network extends from the TIP building east along the Mainline Turnpike (I-76/I-276/I-95) to the Delaware River Bridge and from milepost (MP) A-20 north along the Northeast Extension (I-476). For more information about geographic area to be covered for the Commercialization Services, refer to Appendix J and **Section IV-B-2 Nature and Scope of the O&M Services**. The Commission anticipates that both of these FON D-B projects will be operational by December 31, 2021.

The Commission wishes to enter into a long-term contract with an O&M and Commercialization Entity to provide O&M Services and Commercialization Services for its fiber optic network and related infrastructure assets (the Project). The Project has two major components:

- A. *Commercialization Services*– include providing Commercialization Services for the Eastern Network as presented in **Part IVA – Commercialization Services Work Statement** of the RFP. The O&M and Commercialization Entity will also be responsible for performing O&M services for the Commercialization Assets. For more information, refer to **Section IVA - 9 O&M Services for Commercialization Assets** of the RFP.
- B. *Operations and Maintenance Services* – include services for all existing and future Commission's Fiber Infrastructure installed along the entire length of the Mainline Turnpike and all extensions. For more information, refer to **Part IVB - O&M Services Work Statement** of the RFP.

#### **PART IVA – Commercialization Services Work Statement**

The following sections describe the requirements for Commercialization Services. The O&M and Commercialization Entity will be permitted to market the Commercialization Assets, including any additional Commercialization Assets that it constructs for serving commercial customers for the Contract Term.

#### **IVA - 1. Commercialization Services Objectives.**

The O&M and Commercialization Entity shall perform all duties, tasks, and other responsibilities in accordance with the requirements included in this RFP. In addition to operating and maintaining the Commission's Fiber Infrastructure per the requirements of this RFP, the O&M and Commercialization Entity shall maintain the Commercialization Assets in good condition and operate, maintain and repair them for the Contract Term. *The Proposers shall note that the required O&M Services for the Commission's Fiber Infrastructure are covered in **Part IVB-O&M Services Work Statement**.*

The Commission anticipates that in this role, the O&M and Commercialization Entity will be responsible for the following non-exhaustive list of activities:

- 1 Provide technical input and coordinate with the Commission's FON D-B Contractor(s) to maximize the commercial viability of the Eastern Network;
- 2 Coordinate with the FON D-B Contractor(s) to minimize potential interface risks between the FON D-B Contractor(s) and the commercialization of the Eastern Network;
- 3 Develop and maintain a long-term plan for the commercialization of the Eastern Network. The initial plan and all updates shall be shared with the Commission for review and consultation. For more information, refer to **Section IV-A 4**;
- 4 Pre-market off-take agreements for the Eastern Network during the FON D-B construction phase;
- 5 Market the Commercialization Assets to prospective customers on an on-going basis throughout the Term;
- 6 Make required investments as permitted by this RFP for the construction of additional fiber cables, laterals, small cell towers, and other assets required to provide Commercialization Services to maximize revenues throughout the Contract Term;
- 7 Operate and maintain commercial outside-plant assets (e.g. laterals, poles and related infrastructure) throughout the Contract Term;
- 8 Maintain commercial relationships and service all customer contracts, including the hiring of any incremental staff or deployment of additional assets required for the profitable commercial operation of the Eastern Network;
- 9 Manage contracts/agreements with customers, including Indefeasible Right of Use (IRU) leases, subscription contracts, and others;
- 10 Maintain comprehensive documentation of the Commercialization Assets in the Fiber Management System (FMS);
- 11 Maintain data of, track, and make readily available to the Commission records of all commercialization investments, expenses, and revenues, including IRU fees, O&M costs, small-cell pole leases, micro-duct leases, and subscription fees, etc.

#### **IVA-2. Grants of Rights and Covenants.**

As fully set forth in Exhibit B of the Contract Agreement (Appendix A), the Commission shall grant to the O&M and Commercialization Entity the exclusive right, and the O&M and Commercialization Entity

accepts such right and acknowledges its obligation, to (i) market, develop, operate and maintain the Commercialization Assets, in accordance with the requirements of the RFP.

The O&M and Commercialization Entity shall have, to the fullest extent permitted by Applicable Law, and subject to the requirements of this RFP and the terms of the Contract:

1. An exclusive right to use the Commercialization Assets on the Eastern Network segment solely for the purpose of providing the Commercialization Services; and
2. A non-exclusive right to use any Commission Junction Box in the Eastern Network segment necessary for the operation of the Fiber Infrastructure, subject to the right of the Commission or any Governmental Entity to conduct their normal operating activities.

It is the express intent of the Commission that the O&M and Commercialization Entity shall not be treated as or deemed to be the legal or equitable owner of the Fiber Infrastructure for any purpose under this RFP and the Contract. The O&M and Commercialization Entity's rights hereunder are derived solely from its status as an independent contractor, and not as a tenant, lessee, easement holder, optionee, lienor, mortgagee, purchaser or owner of any other interest in real property.

The O&M and Commercialization Entity shall provide the Commercialization Services at rates set by the O&M and Commercialization Entity on a non-discriminatory basis and in accordance with Applicable Law. In carrying out the Commercialization Services included in this RFP, the O&M and Commercialization Entity shall at all times comply, and require its sub-contractors to comply, with all Applicable Law, including the requirements of the State of Pennsylvania. If there is any conflict between any Applicable Law and the other requirements of this RFP, Applicable Law shall prevail and take precedence over any such conflicting provisions. Neither the O&M and Commercialization Entity nor any of its customers shall assess any rate, rent, fee, charge, fine or other amount in respect of vehicular usage of the Turnpike. In addition, neither the O&M and Commercialization Entity nor any of its customers shall market, develop, design, construct, finance, operate, maintain or use the Fiber Infrastructure and related assets in a manner that would negatively affect the revenues of the Commission, the operations of the Turnpike or the Commission, PennDOT, and other governmental entities', described herein as (the "Governmental Entities") use of the Fiber Infrastructure and related assets.

Additionally, the Commission may provide Governmental Entities with access to the Commission's portion of the Fiber Infrastructure consisting of two (2) 288 count SMFO fiber optic cables, junction boxes and other related assets located within the Commission's ROW for purposes of carrying out their functions such as law enforcement activities, conducting emergency response, and promoting public safety, in each case on the Turnpike or in connection with the operation of the Commonwealth's transportation network as authorized and approved by the Commission.

The O&M and Commercialization Entity shall provide space on the small cell pole and conduit for future Commission installations of devices on the pole. The O&M Commercialization Entity shall consult the Commission as to the anticipated infrastructure to be attached to the small cell pole and account for this in the structural design of the pole to the extent reasonably possible. The O&M Commercialization Entity will provide space on installed small cell poles for the Commission to install Commission infrastructure for uses associated with Turnpike operations; the O&M Commercialization Entity will target

approximately 25% of space on the pole subject to negotiation taking into account the specific equipment to be installed on the pole and the space needs of wireless Commercial End-User.

#### **IVA-3. Permitted Commercialization Services for the Eastern Network.**

The Commission will grant the O&M and Commercialization Entity an exclusive right to perform the following activities, described herein as (the “Commercialization Services”) for the Term, subject to Applicable law:

1. Market micro-ducts on a wholesale basis;
2. Offer dark fiber services on a wholesale basis; and
3. Provide wireline lit fiber services/direct connections to retail customers, including area businesses and employers, residential customers, and Internet Service Providers (ISPs).

In addition to an exclusive right to perform above-mentioned services, the Commission will evaluate the possibility of granting the O&M and Commercialization Entity an exclusive right to install and service small cell poles in the Commission’s ROW for a period of twelve years (12) from the Effective Date for providing commercial wireless services, based on the Proposer’s response to this RFP, including the Proposer’s approach, experience and qualifications to perform such services, estimated capital investment, and estimated commercialization revenue projections for these services.

The O&M and Commercialization Entity will have the right to install new cell towers including macro towers within Commission’s ROW and will have an exclusive right to market and provide commercialization services related to such new cell towers for the Contract Term.

Approval of location of new Commercialization Assets will be subject to compliance with the Commission’s design criteria and Commission operations requirements at the Commission’s discretion in accordance with Policy 9.02 – Tower, Monopole and Cell Site Structure Leasing ([https://www.paturnpike.com/yourTurnpike/policy\\_letters.aspx](https://www.paturnpike.com/yourTurnpike/policy_letters.aspx)).

To the extent the Commission intends to grant the Proposers such rights, the Commission will revise the Contract Agreement (Appendix A) accordingly prior to the Execution Date. Proposers shall present their approach, qualifications, and experience for the Commercialization Services as part of their responses to this RFP. For more information, refer to **Part II – Information Required from Proposers** of the RFP.

#### **IVA-4. Commercialization Plan for the Eastern Network.**

Within 90 calendar days after the Effective Date, the O&M and Commercialization Entity shall prepare and submit a comprehensive and forward-looking commercialization plan to the Commission for review and consultation. This Commercialization Plan shall subsequently be updated and submitted to the Commission on an annual basis by the O&M and Commercialization Entity for the Commission’s review and consultation. The Commercialization Plan should provide rationalization and supporting information for any planned capital investments and O&M costs associated with providing the Commercialization Services, and estimated commercialization revenue projections associated with the planned Commercialization Services.

The Commercialization Plan that shall be submitted to the Commission for review and consultation shall include the following:

1. Planned Commercialization Services for the Contract Term;
2. Nature of the services to be provided;
3. Financial and technical viability of the planned Commercialization Services – i.e. estimated capital expenditures required; estimated annual O&M costs to support the planned Commercialization Services; estimated annual commercialization revenues; commitments from commercial customers to purchase services; and
4. Required coordination with the Commission in terms of ROW usage, permits, approvals, etc.

For the planned investment, capital expenditures and O&M costs associated with the Commercialization Services, the O&M and Commercialization Entity shall bear all risk relating to the amount of revenues that may be generated from the Commercial Activities. The Commission shall have no financial responsibility whatsoever to the O&M and Commercialization Entity or otherwise if the amount of such revenues is insufficient to pay any costs or expenses of the O&M and Commercialization Entity, including, but not limited to, the repayment of any debt or equity arranged by the O&M and Commercialization Entity to finance any portion of the costs related to the Commercialization Assets to support Commercialization Services. Any such debt or equity arranged shall be non-recourse to the Commission and its assets.

For any material change in investments, capital expenditures or O&M costs compared to those in the Commercialization Plan envisioned by the O&M and Commercialization Entity that may be revenue enhancing to the Commission, the O&M and Commercialization Entity shall submit the rationale and the business case for the proposed change(s) for the Commission's review and approval. The Commission retains the right to approve or reject any such change(s) in its entirety or in parts. If the Commission approves the requested change(s), the O&M and Commercialization Entity shall update the Commercialization Plan to reflect such change(s) in a timely manner.

#### **IVA-5. Annual Financial Performance Report for Commercialization Services.**

Within 90 calendar days of the Effective Date's first year anniversary and for each annual anniversary date thereafter, the O&M and Commercialization Entity shall submit the Annual Financial Performance Report to the Commission for review and approval. The Annual Financial Performance Report shall be audited by an accredited audit firm. The audit firm chosen by the O&M and Commercialization Entity must be unaffiliated with the O&M and Commercialization Entity and otherwise be free of any conflict of interest. The O&M and Commercialization Entity shall be responsible for all costs associated with preparing and auditing the Annual Financial Performance Report.

The Annual Financial Performance Report should include financial information, assumptions, commercialization revenues, capital investment, O&M costs, and sources and uses of funds associated with the Commercialization Services. The O&M and Commercialization Entity shall include any other information relating to the Annual Financial Performance Report that the O&M and Commercialization Entity considers to be material or valuable to offering the Commission a better understanding of the O&M

and Commercialization Entity's revenues, investments, and O&M expenses for the reporting period. The Commission and the O&M and Commercialization Entity agree to use the Annual Financial Performance Report as a framework that enables the most effective, efficient and prudent way to serve new and existing commercial customers to maximize benefits to the Commission.

#### **IVA-6. Changes to the Permitted Services for Commercialization.**

Considering the long-term nature of the Contract and potential broad range of uses for Fiber Infrastructure and Commercialization Assets of this scale, the Commission acknowledges that the permitted scope for the Commercialization Services may continue to evolve in the future. For the Contract Term, the O&M and Commercialization Entity shall have a right to propose additional commercial activities beyond those permitted in **Section IVA-3 Permitted Commercialization Services for the Eastern Network** for the Commission's consideration.

The Commission may consider any such proposal where permissible by Applicable Law. The O&M and Commercialization Entity shall submit a comprehensive business case that details potential opportunity(ies) by segment, nature of the services to be provided, estimated capital investment required, additional assets to be constructed, existing utilities to be relocated, acquisition of additional ROW, estimated annual O&M costs associated with the proposed project(s), estimated annual commercialization revenues generated over the Contract Term, revenues to be shared with the Commission, key risks to commercial and financial success, potential impacts on the Commission's operations and/or Fiber Infrastructure, and rationale for why the Commission should consider the proposed project(s). The business case shall demonstrate that the proposed investment provides for a successful long-term, stable and profitable commercial business. All costs associated with preparing such proposals shall be unilaterally borne by the O&M and Commercialization Entity. The Commission retains the right to approve or reject any commercialization proposal(s) submitted by the O&M and Commercialization Entity in its entirety or in parts.

#### **IVA-7. Assets Available for Commercialization Services.**

The Commission will make the following assets, which along with any other fiber or wireless infrastructure developed by the O&M and Commercialization Entity throughout the Contract Term shall comprise the Commercialization Assets, described herein as (the "Commercialization Assets"), available within the Eastern Network for commercialization purposes under this RFP:

1. Three (3) micro-ducts each capable of holding 288 strands of Single Mode Fiber Optic (SMFO) fiber cable;
2. One (1) micro-duct with one (1) 288 strands of SMFO fiber cable installed as a part of the Commission's on-going FON D-B projects;
3. The use of junction boxes constructed on the Eastern Network (unless specifically designated for Commission's use) as part of the Commission's on-going FON D-B projects for splicing and maintenance purposes, subject to the Commission's review and approval; and
4. The permitted use of the Commission's ROW to support Commercialization Services (i.e., small cells pole sites for providing wireless services, cell-tower backhaul connections, etc.), if approved by the Commission per **Part IV, Section IVA-3** of the RFP.

The three (3) micro-ducts and 288 strands fiber cable available for Commercialization Services will span the entire 220 mile geographic scope of the Commission's Eastern Network.

#### **IVA-8. Acceptance of Fiber Infrastructure.**

For the fiber optic network within the Mainline (I-76) east of Harrisburg and the Northeast Extension (I-476) being developed by the FON D-B projects, the FON D-B Contractors will be responsible for testing and ensuring that the fiber is working properly in accordance with **Part IVB, Section FR-1.12** and **FOM-4** of the RFP. During the testing of the fiber, the O&M and Commercialization Entity shall be present on site to witness and confirm that the testing took place and that the Fiber Infrastructure is working properly. In the event of defect or deficiencies in meeting such requirements, the FON D-B Contractor(s) will be responsible for addressing such defects or deficiencies. Upon addressing such defects and deficiencies, the O&M and Commercialization Entity shall then certify that the Fiber Infrastructure meets the requirements specified in **Part IVB, Section FR-1.12** and **FOM-4** of the RFP.

Once the testing of the fiber has occurred, the O&M and Commercialization Entity will be responsible for accepting the fiber and gathering the necessary installation and testing documentation from the FON D-B Contractors.

#### **IVA-9. O&M Services for the Commercialization Assets.**

The O&M and Commercialization Entity shall be responsible for operating and maintaining the Commercialization Assets (including capital/lifecycle, routine, preventative and emergency maintenance) to ensure the safe and reliable operation and the availability of the Commercialization Services.

The O&M and Commercialization Entity shall be responsible for performing O&M Services for the Commercialization Assets associated with the Commercialization Services. These responsibilities of the O&M and Commercialization Entity are as described in **PART IVB - O&M Services Work Statement** of the RFP.

Although the Commission will not be as actively involved in monitoring the Commercialization Services, the O&M and Commercialization Entity shall be responsible for coordinating Commercialization Services with the Commission and notifying the Commission of any O&M work it must perform on the Commercialization Assets within the Commission's ROW. Notifications will follow existing Commission processes at a minimum, i.e. the O&M and Commercialization Entity shall provide all pertinent information for the Commission to know who, what, where, and when O&M Services will be performed.

#### **IVA-10. Laws, Standards, References, Permits, and Technical Specifications.**

The O&M and Commercialization Entity shall be responsible for obtaining required permit(s) from Governmental Entities for the design, construction, operations and maintenance of the Commercialization Assets and ensuring compliance with Applicable Law, regulations, codes, standards, references and requirements included in **Part IVB – 3 Requirements**. The O&M and Commercialization Entity shall be required to follow Applicable Law and all Commission standards for permitting, design, construction, operations and maintenance of Commercialization Assets developed throughout the Contract Term.



#### **IVA-11. Future Phase(s) for Commercialization Services.**

The Commission has plans to expand its fiber optic network along the remaining sections of the Mainline Turnpike (i.e. the TIP west to the Ohio state line) and Turnpike extensions, during the Contract Term. The proposed fiber optic network expansion, described herein as (the “Western Network”), is intended to cover approximately two hundred and forty-seven (247) miles of the east-west mainline from the Ohio state line to Harrisburg, and may additionally include the Amos K. Hutchinson Bypass (13 miles), Beaver Valley Expressway (16 miles), Mon-Fayette Expressway (48 miles) and the Southern Beltway (nineteen miles) as well as any future extensions of the Turnpike, east or west. The Commission’s objective is to have the proposed fiber optic network in place within the next five (5) years to accommodate Cashless Tolling and meet its fiber connectivity requirements. However, the Commission may be interested in exploring potential opportunities to accelerate the completion of the Western Network.

To augment O&M Services and Commercialization Services covered under this RFP, the Commission, at its own discretion, may decide during the Contract Term to negotiate with the O&M and Commercialization Entity to design, build, operate, maintain, and commercialize future fiber optic network expansion(s) on behalf of the Commission.

To support the development of the Western Network, the Commission, at its own discretion, may consider one of the following two options to fund/finance the required capital costs associated with the planned fiber optic network expansion project(s).

1. The Commission will fund all of the capital costs required for the future fiber optic network expansion project(s). For the purpose of responses to this RFP, Proposers should assume that the Western Network will be available for Commercialization Services starting on Contract year six; or
2. The Commission and the O&M and Commercialization Entity will jointly fund the capital costs required for the future fiber network expansion project(s). Proposers selecting this option shall mention the planned capital investment amount contribution for the Western Network – for more information refer to Appendix G – **Price Proposal**. For the purpose of responses to this RFP, Proposers should assume that the Western Network will be available for Commercialization Services starting on Contract year four.

Proposers shall choose one of two above mentioned options, and present their approach to the design, build, operate, maintain, and commercialization of the Western Network for the selected option in their responses to **Part II – Volume I: Section 2A – Approach to Commercialization Services**. The Proposer shall clearly identify which of the above two funding/financing options it is proposing for the Western Network expansion project(s), and the Proposer’s approach should be based on which of these two options is proposed for the Western Network. *Please Note:* The Commission will only review the Proposers’ approach for one funding/financing option stated above.

Contract Agreement Amendment related to Western Network: To the extent the Commission wishes for the Proposers to develop, operate, maintain and commercialize the Western Network, the Commission will amend and restate the Contract Agreement (Appendix A) or otherwise put forward a new Contract Agreement to incorporate provisions related to the Western Network.

#### **IVA-12. Commercialization Services Contracts/Agreements.**

The O&M and Commercialization Entity shall maintain a list of each Commercial Contract/Agreement that is in effect and shall provide to the Commission a copy of such Commercial Contract/Agreement within 10 calendar days of executing such Commercial Contracts/Agreements.

No Commercial Contract(s)/Agreement(s) entered into by the O&M and Commercialization Entity shall impose any obligation or liability upon the Commission to any customers or any of its employees. The O&M and Commercialization Entity shall bear all risk associated with the Commercial Contracts/Agreements entered with its customers and the Commission shall have no liability whatsoever to the O&M and Commercialization Entity or commercial customers/end-users for the non-performance of services and/or provisions included in those Commercial Contracts/Agreements. In the event of a non-compliance event associated with the Commercial Contracts/Agreements, the O&M and Commercialization Entity shall send a written notice to the Commission within five (5) Business Days of the event's occurrence and remediation measure(s) taken or to be taken by the O&M and Commercialization Entity to address the non-compliance event.

#### **IVA-13. Future Proofing of Commercialization Assets.**

Every five years after the Effective Date, the O&M and Commercialization Entity shall conduct an assessment of the Commercialization Assets associated with the Commercialization Services. The purpose of such an assessment is to ensure that the physical condition and technological functionality of these assets are pursuant to Good Industry Practices and commercial demand for services. Based on such assessments, the O&M and Commercialization Entity shall develop a plan that should include an estimated budget, timeline, and the funding sources that will be utilized to restore and/or upgrade Commercialization Assets associated with the Commercialization Services, referred hereinafter as (the "Technology Refresh Plan"). Every three years and within 90 calendar days of each such 3-year anniversary of the Effective Date, the O&M and Commercialization Entity shall schedule a meeting with the Commission to present the findings and recommendations of this Technology Refresh Plan.

The costs associated with this such assessment will be managed as a separate the Letter of Authorization (LOA) from the Commission. The Commission will review the findings and recommendations in the assessment and any revenue and cost impacts related to the Technology Refresh Plan. Should the Commission approve any recommendations in the Technology Refresh Plan, adjustments to the Contract Agreement that are mutually agreeable to the Commission and O&M and Commercialization Entity shall be made.

#### **IVA-14. Maintenance and Inspection of Records.**

The O&M and Commercialization Entity shall keep and maintain all its books, records and documents relating to the Commercialization Services and any payments received pursuant to each Commercial Agreement. The O&M and Commercialization Entity shall make all of its books, records and documents relating to the Commercialization Services available for inspection by the Commission upon request by the Commission without any charge/costs to the Commission. The Commission may conduct any such inspection upon forty-eight (48) hours' prior written notice, or unannounced and without prior notice. When conducting any inspection, the Commission may make extracts and take notes, subject to its

confidentiality obligations included in this RFP. The O&M and Commercialization Entity shall retain all of its books, records and documents related to the Commercialization Services until the end of the Contract.

The O&M and Commercialization Entity shall provide all assistance reasonably requested by the Commission in connection with any reporting requirements the Commission must comply with under any Applicable Law and implementing regulations.

#### **IVA-15. Handback of Fiber Infrastructure.**

The O&M and Commercialization Entity, upon the expiration of the Contract or Termination Date, whichever is earlier, shall, at no charge to the Commission hand back all Fiber Infrastructure, including the Commercialization Assets within the Commission's ROW, to the Commission and ensure that the Fiber Infrastructure meets all of the requirements included in the RFP.

Any new assets developed in support of the Commercialization Services in the Commission's ROW shall become part of the Commission's Fiber Infrastructure upon the expiration of the Contract or Termination Date, whichever is earlier. The ownership of any assets developed outside of the Commission's ROW (i.e. laterals and related infrastructure) shall remain with the O&M and Commercialization Entity.

The O&M and Commercialization Entity shall transfer to the Commission all of the O&M and Commercialization Entity's right, title and interest in and to the Commercialization Assets located within the Commission's ROW.

#### **PART IVB – O&M Services Work Statement**

The O&M and Commercialization Entity shall be flexible, adaptable, and willing to extend its services to accommodate the ongoing expansion of the Commission's Fiber Infrastructure and meet the Commission's service level requirements. The Commission seeking an O&M and Commercialization Entity that can provide high levels of service and ensure uninterrupted availability of the network. The Proposer must have a sound understanding and approach to required services and must demonstrate the ability to coordinate contract activities with multidisciplinary Commission teams and other contractors as the Fiber Infrastructure is expanded.

The following sections describe the Fiber Infrastructure to be operated and maintained under this Contract; requirements for O&M services; the Letter of Authorization (LOA) and annual contract review process that adds needed flexibility to accommodate changes in the Fiber Infrastructure assets and services; and planning/reporting mechanisms for project control.

#### **IVB-1. Objectives.**

- a. General.** The O&M and Commercialization Entity shall perform required O&M services for the Commission's Fiber Infrastructure at a high level of service and availability as provided in Appendix K. The O&M and Commercialization Entity shall perform all duties, tasks, and all other responsibilities required by this RFP in accordance with American National Standards Institute (ANSI) and National Electrical Installation Standards (NEIS)

standard 301 (ANSI/NEIS 301 standards) and recognized industry best practices. The O&M and Commercialization Entity shall keep the Fiber Infrastructure in good condition and repair for the Contract Term. Performance and service delivery shall be managed via the Commission's ServiceNow system as described in the RFP.

The O&M and Commercialization Entity will provide the Commission with services that meet or exceed the expectations set forth in the RFP. The O&M and Commercialization Entity will provide, manage, and supervise a highly skilled and technical labor force capable of performing the O&M services required to ensure complete and reliable operation of the Fiber Infrastructure. The O&M portion of the Contract shall be performance based, where performance measures will be tracked and measured against a Service Level Agreement (SLA).

**b. Specific.** Specific O&M services objectives of the Contract are as follows:

- i. Secure a technical labor force that is highly skilled and knowledgeable in fiber optic network O&M and that can support the expansion of the Fiber Infrastructure while maintaining the Commission's ongoing operations;
- ii. Implement an O&M plan that is innovative, flexible, and adaptable to changes, upgrades, new implementations, and additions and/or decommissioning of services and systems;
- iii. Ensure systematic and diligent usage of ServiceNow and a Fiber Management System; and
- iv. Ensure an accounting structure that captures, controls, and predicts costs precisely and is simple to audit.

**IVB-2. Nature and Scope of the O&M Services.** The nature and scope is to perform O&M services for the Commission's Fiber Infrastructure. Generally, "The Work" shall include:

- i. O&M of the Fiber Infrastructure as defined in this RFP;
- ii. Initial setup and ongoing maintenance of a Fiber Management System;
- iii. Fulfilling Commission requests for maintenance and future integrations within specified response times;
- iv. Providing services in connection with the O&M and ongoing expansion of the Fiber Infrastructure including potential installations, design, and review of Plans, Specifications, and Estimates (PS&E); and
- v. Protecting the Fiber Infrastructure from unwanted physical access or intrusion.

The O&M and Commercialization Entity shall provide O&M services as required to maintain the Commission's Fiber Infrastructure in accordance with this RFP and associated appendices, including all labor, consumables, spare parts, repair, rebuild, and replacement for all planned and unplanned service of the Fiber Infrastructure. O&M services scope shall include all corrective and emergency maintenance as required and recommended by the manufacturers of the Fiber Infrastructure systems and components.

Maintenance Work shall also include handling and on-site storage and disposal of all waste generated during O&M activities in full compliance with all federal, state and local laws.

- a. Geographic Area to be Covered.** Eventually, the geographic scope is expected to include the entire 552 miles of the Pennsylvania Turnpike. However, the initial geographic area to be covered will encompass the Commission's Eastern Network and the Commission's existing Fiber Infrastructure as described below.

Existing Fiber Infrastructure is present along the sections of the Turnpike mainline both east and west of the TIP Building; on Commission bridges and tunnels throughout the Turnpike system; and Turnpike extensions including:

- Beaver Valley Expressway (I-376);
- Amos K. Hutchinson Bypass (PA-66);
- Southern Beltway (PA-576); and
- Mon-Fayette Expressway (PA-43).

Refer to Appendix L for milepost re-designation of the Mainline Turnpike, formerly I-276 (MP T356.4 to MP T359), now I-95 (MP H40 to MP H43). Appendix M provides an inventory of existing Commission fiber and conduit.

The Commission has plans to expand its fiber backbone along the remaining sections of the Mainline Turnpike (i.e. The Western Network, extending from the TIP west to the Ohio state line) and Turnpike extensions, during the Contract Term.

Proposers must have an understanding of the Commission's ongoing efforts to expand the Fiber Infrastructure. The O&M and Commercialization Entity shall accept, grow, and adjust to changes to the Fiber Infrastructure resulting from Commission projects. The O&M and Commercialization Entity shall extend its services as required to accommodate the Commission's ongoing Fiber Infrastructure expansion.

Appendix N provides a list of the Commission's planned projects as part of its Fiscal Year 2020 10-year Capital Plan. *Please Note:* projects in Appendix N identified as "Highway Program" projects are most applicable to the Contract. Appendix N is not intended to be comprehensive list of all projects or activities that may require Proposer participation or coordination.

The Pennsylvania Turnpike is divided into five (5) maintenance districts as follows:

- District One (1): T-0.00 to T-100.00. Also includes the Beaver Valley Expressway, the Amos K. Hutchinson Expressway, the Southern Beltway, and Mon-Fayette Expressway
- District Two (2): T-100.00 to T-201.30

- District Three (3): T-201.30 to T-302.70
- District Four (4): T-302.70 to the Delaware River Bridge at T-357.70
- District Five (5): A-20.00 to A-130.00

- b. Commission Assets to be Covered.** The Commission's Fiber Infrastructure includes all dark and lit fiber, conduit, Junction Boxes (JB); splice enclosures, distribution/splice housings (rack or wall mounted), distribution panels and ports, and any cabling or ancillary hardware used to terminate, patch, or bridge fibers between buffer tubes. For the purposes of this RFP, the term Fiber Infrastructure is inclusive of all existing Fiber Infrastructure (in the roadway) and all future Fiber Infrastructure (in the roadway) resulting from Commission expansion projects.

Fiber optic cable shall be organized into four (4) distinct logical groups based on function and/or availability for Proposer commercialization:

1. Backbone Fiber;
2. Distribution Fiber;
3. Lateral Fiber; and
4. Commercialization Fiber.

*Please Note:* For the purposes of this RFP, Backbone Fiber and Distribution Fiber are logically separated to ease explanation; however, the fiber may not be physically separated. The same responsibilities shall apply to all Commission Fiber Infrastructure assets, with the exception of Commercialization Fiber. The O&M and Commercialization Entity's responsibilities for Commercialization Fiber is defined later in this section.

In the two (2) FON D-B contract areas, the Commission's "Backbone Fiber" consists of 288-strand SMFO, which connects (or will connect in the future) backbone demarcation site / network hub locations listed in Appendix O. The network hub sites serve as communications hubs. Backbone Fiber is only accessible at these sites and functions as the main backhaul for the Commission's fiber optic network. In comparison to Distribution Fiber, the Commission's Backbone Fiber, has significantly less points of access, termination, and penetration than the Distribution Fiber to facilitate a higher level of security and protection from damage. A 50-foot slack loop of backbone fiber is installed in each JB.

In the two (2) FON D-B contract areas, the Commission's "Distribution Fiber" consists of 288-strand SMFO which is constructed in conformance with the Commission's ITS construction standards to be more readily accessible and to enable relatively easy connection to existing tolling locations, current and future ITS devices, and other devices placed along the roadway. In comparison to Backbone Fiber, the Commission's Distribution Fiber trades some degree of protection and security for ease of access. Construction in this manner provides access to Distribution Fiber conduits at specially

designed JB spaced apart approximately 2,400 feet. Each JB includes a 50-foot coil of Distribution Fiber. Distribution Fiber is (or will be) intersected by a lateral cable at the Commission's seventy-five (75) existing interchanges and existing/future demarcation sites as provided in Appendix O.

Existing Fiber Infrastructure locations may not include both Backbone Fiber and Distribution Fiber. Fiber counts at these existing locations vary. Appendix M provides an inventory of existing Commission Fiber Infrastructure.

The Commission's "Lateral Fiber" consists of various strand count SMFO which is constructed in conformance with the Commission's ITS construction standards to provide connections between the Commission's Fiber Optic Network and roadside equipment such as ITS equipment, tolling locations, and other devices placed along the roadway. Lateral fiber optic cable installation (strand count, etc.) may vary per site requirements.

The "Commercialization Fiber" consists of 288-strand SMFO, within the areas of the two (2) FON D-B contracts, which is constructed in the same manner as the Commission's Backbone Fiber. However, the Commercialization Fiber shall not be terminated at the backbone demarcation sites/network hub locations listed in Appendix O. As previously noted, three (3) empty ducts will also be available to the O&M and Commercialization Entity for commercialization purposes.

In all areas of the Commission's fiber, the O&M and Commercialization Entity shall be responsible for the O&M of all the Commission's Fiber Infrastructure up to the demarcation points where fiber optic terminations are installed and connected to Commission network electronics. Fiber is terminated to allow access to the Fiber Infrastructure at specified points. The Commission will continue to operate and maintain its own network electronics.

More information pertaining to the **Commission Assets to be Covered** can be found in Appendix M (Existing Fiber and Conduit) and Appendix O (Demarcation Sites and Requirements).

**IVB-3. Fiber O&M Requirements (FR).** The O&M and Commercialization Entity shall abide by all requirements stipulated in this RFP and its associated appendices. The purpose of these requirements are to:

- Describe the systems that will be used to manage the Contract, knowledge and documentation, assets, service delivery, and performance;
- Promote transparency and teamwork;
- Ensure that the Fiber Infrastructure is installed, operated, and maintained in accordance with Good Industry Practice and in accordance with the latest American National Standards Institute (ANSI) and National Electrical Installation Standards (NEIS) standard 301 (ANSI/NEIS 301 standards);
- Provide standards required for the O&M and Commercialization Entity's performance and O&M of the Fiber Infrastructure; and

- Incentivize the O&M and Commercialization Entity to minimize the times during which the Fiber Infrastructure experiences diminished performance and/or outages.

## **FR-1 General Requirements.**

*Unless otherwise noted, all requirements as detailed below are applicable to services performed for both Commission's Fiber Infrastructure and Commercialization Assets. Any exceptions or caveats regarding the requirement(s) in terms of Commercialization Assets are provided in italics.*

**FR-1.1 Transition.** Proposers must perform all preparations and due diligence necessary to immediately take on full responsibility for all aspects of the Contract upon NTP. Since the Commission does not currently have a Fiber Infrastructure O&M Contract in place, a transition of O&M responsibilities from an existing contractor to the Proposer shall not be necessary. However, the initial ramp-up of the Contract resulting from this RFP will require the O&M and Commercialization Entity to perform many tasks that would be required in a traditional transition. Namely, the O&M and Commercialization Entity shall be required to coordinate closely with the FON D-B Contractor(s), the Commission's existing Infrastructure Cabling Maintenance and Communication Systems Installation Contractor (RFP # 16-10350-7303), and other entities as necessary to ensure the comprehensive transfer of knowledge required to collect and input Fiber Infrastructure data into the Fiber Management System as described in **FOM-3** of this RFP.

Likewise, the O&M and Commercialization Entity shall be required to participate, cooperate, and coordinate/work closely with future O&M contractors to transfer knowledge and transition O&M services smoothly when the Contract resulting from this RFP ends or is terminated.

The O&M and Commercialization Entity shall develop and submit comprehensive Transition Plans to the Commission for approval within the timeframe described in Appendix K. The Transition Plans shall include but not be limited to a detailed timeline/transition schedule, risks and risk mitigation strategies, detailed descriptions of all activities necessary to ensure a smooth transition/service continuity, and identification of critical actions to minimize operational impacts, ensure the successful transfer of knowledge, and gather data for all fiber. The O&M and Commercialization Entity shall develop and provide a separate Transition Plan for entry (beginning of the Contract) and exit (end of the Contract) transitions.

**FR-1.2 Letter of Authorization (LOA) and Annual Contract Review.** All work performed under this Contract shall be authorized via signed LOA from the Commission's Contract Manager. No work shall be performed that has not been authorized by an LOA and any work performed without an LOA cannot be invoiced.

There will be two types of LOA utilized in the Contract:

- Standard LOA: issued every twelve (12) months as a part of the standard annual contract review. Authorizes and establishes a budgetary ceiling for all Standard LOA Services; and
- Separate LOA: issued on an as-needed basis and at the Commission's discretion. Authorizes and establishes a budgetary ceiling for Separate LOA Services, project-based work, and supplements. All work completed under Separate LOA shall be invoiced and paid separately.



Appendix G provides a table identifying LOA designations and payment information for each service and service scenario described in **Section IVB-4 Services**. Refer to Appendix G for all cost information pertaining to this RFP.

Generally, Standard LOA shall be used to authorize services whenever possible (i.e. for planned projects and if schedules allow and/or coincide with the Annual Review and Standard LOA process, even if a service is identified as Separate LOA). Standard LOA shall also be used to authorize estimated yearly budgets for recurring services.

Separate LOA shall be used to authorize project-based work and services as necessary (i.e. if schedules do not allow and/or coincide with the Annual Review and Standard LOA process; for unplanned projects; for services with no guarantee of Commission utilization during the Contract Term; and for other ad-hoc needs). Separate LOA shall also be used to authorize services exceeding the yearly budget established in the Standard LOA.

To submit for any LOA, the O&M and Commercialization Entity must submit a work estimate including, at a minimum, a detailed description of issues to be addressed, work to be performed, expected results of the work, a work schedule, and itemized costs directly related to the work to be performed.

The Commission reserves the right to reject any LOA submission by the O&M and Commercialization Entity in its entirety, strike individual line-item costs, or reduce/increase the quantity of assets associated with any work for any reason. The number of line-items costs that may be struck from the work estimate shall not be limited for any reason or in any fashion. If the Commission should choose to strike line-item costs from the work estimate, the Commission may still authorize any parts of the work estimate not specifically struck out.

If the Commission strikes an item or reduces the quantity of assets covered, the O&M and Commercialization Entity shall stop performance of work in support of the affected assets upon expiration of the LOA covering the performance of that work. Future invoices for work performed shall have the affected assets removed.

For Standard LOA, the O&M and Commercialization Entity shall work closely with the Commission's Contract Manager to develop estimates for work to be performed during the Standard LOA period (lasting twelve (12) months) before the next annual contract review period. The O&M and Commercialization Entity will make best attempts to understand all Contract items that have changed since the previous review and shall include updated price submittal worksheets for the next twelve (12) months reflecting the agreed-upon costs as provided in Appendix G, and any changes that may have occurred since the previous LOA. *Please Note:* The Commission understands that unit prices (as provided in Appendix G – O&M Services Price Worksheets) could fluctuate in between Standard LOA periods due to unforeseen circumstances or economic volatility. Because of this, the Proposer shall be given the opportunity to submit a formal request to revisit unit prices in-between Standard LOA periods if the Proposer's reasons for doing so are substantiated. The Commission reserves the right to approve or deny these requests based on evidence provided by the O&M and Commercialization Entity to substantiate potential unit price revisions between Standard LOA periods.

For Separate LOA, the O&M and Commercialization Entity shall work with the Commission's Contract Manager to understand the nature of the project and/or problem and develop a work estimate specific for the separate authorization. Work to be performed by Separate LOA will vary and shall be approved by the Commission on a case-by-case basis. If the Commission requests a work estimate from the O&M and Commercialization Entity, it shall not guarantee the O&M and Commercialization Entity the work. The Commission reserves the right to solicit estimates utilizing other means including but not limited to separate contracts and self-performance of the work.

As discussed later in this RFP, in some cases Separate LOA will be issued to address items the Commission considers to be an emergency or a priority. In this case, the Commission will notify the O&M and Commercialization Entity and the O&M and Commercialization Entity shall make all attempts to provide the Separate LOA submission material in an expeditious manner.

For any LOA submission, the Commission reserves the right to reject all or parts of an LOA submission before authorizing the work to be performed.

The O&M and Commercialization Entity and Commission shall discuss required Contract Plans at each annual contract review. With the exception of the first submission, required Contract Plans must be updated as necessary and submitted for review 60 calendar days prior to each annual contract review. The O&M and Commercialization Entity shall maintain a change log to track changes to plans over time.

If no changes or updates to Contract Plans are necessary, the O&M and Commercialization Entity shall notify the Commission that Contract Plans do not require changes or updates and thus shall remain the same as in the previous submission. In this case, the O&M and Commercialization Entity shall notify the Commission 60 calendar days prior to each Annual Contract Review.

**FR-1.3 Additions and Decommissioning of Systems and Tasks.** Given the potential longevity of the Contract resulting from this RFP, the Commission recognizes that it is likely that various Fiber Infrastructure assets will either need to be added or decommissioned during the length of Contract. The O&M and Commercialization Entity must remain open and flexible to changes to Fiber Infrastructure under this contract and to participate in all transitions resulting from these changes. Changes pertaining to new or decommissioned Fiber Infrastructure will be made through contract addenda and will be addressed via the Standard LOA and Annual Contract Review process.

“Additions” shall be defined as the inclusion of new Fiber Infrastructure and related tasks which were not part of the Contract upon execution. Service Level Agreement (SLA) requirements pertaining to existing Fiber Infrastructure shall apply to new Fiber Infrastructure immediately upon inclusion, or in rare cases, new SLA may be created for new Fiber Infrastructure with significantly different or unique performance needs. New Fiber Infrastructure and related tasks shall become part of the Contract after agreement.

“Decommissioning” shall be defined as the removal of specific Fiber Infrastructure and related tasks from the Contract. Decommissioned Fiber Infrastructure and related tasks shall be removed from the Contract at the Commission's sole discretion.

The O&M and Commercialization Entity shall operate and maintain all additions to the Fiber Infrastructure deployed/integrated throughout the Contract Term. The O&M and Commercialization

Entity shall halt services immediately for any Fiber Infrastructure decommissioned during the Contract Term.

**FR-1.4 O&M Services Invoicing.** The O&M and Commercialization Entity shall submit monthly invoices in a format acceptable to the Commission. Invoices shall contain all supporting documentation and other required information as deemed necessary by the Commission to substantiate the charges being invoiced. Payments for LOA(s) shall be made per the description in the LOA. Invoices shall only be submitted and approved for work specifically authorized via a LOA. Separate invoices shall be submitted for Standard LOA and Separate LOA tasks.

The O&M and Commercialization Entity shall submit all invoiced costs based upon the unit costs for each line item proposed in Appendix G. Additionally, the O&M and Commercialization Entity shall clearly indicate any items sent for repair on each invoice. All labor and expenses (outside of standard parts replacement) must be included in the line item unit costs submitted in the Price Proposal. All incidental charges shall be included in the line item costs.

The total cost of a monthly invoice shall equal the sum of the product of a line item's monthly unit cost times the total quantity of line item units plus the cost of replacement parts and performance incentives less performance disincentives. Each month's monthly line item cost will be based upon the agreed-upon line item unit cost for that contract year, submitted in the Proposer's Price Proposal and approved via LOA.

Incentives and disincentives shall be applied to invoices by the Commission consistent with the description in FR-2 and Appendix K.

Ticket acknowledgment and resolution incentives and disincentives shall be applied to the invoice which includes the month that the incident was closed. The total will be calculated as the sum of all incentives less all disincentives accrued within that month. The O&M and Commercialization Entity shall submit documentation showing each ticket's incentive or disincentive along with the invoice. Incentives for Availability as defined in FR-2.2 shall be applied once at the end of each Contract Year. Disincentives for the submission of project documents including plans, reports, etc. shall be applied to the monthly invoice in which the project document was submitted.

If a Performance Statistic Revision Request (See Section FR-2.3) is approved by the Commission, any changes resulting from the request shall be credited on the next monthly invoice.

Final payment for each invoice is contingent upon all conditions of the Contract being met. The Commission reserves the right to withhold and/or adjust payment for work not completed, unsatisfactory work, or work that is deemed inadequate and/or not meeting the requirements set forth in this RFP and its associated appendices. The Commission reserves the right to perform audits and make inquiries at its sole discretion.

**FR-1.5 Personnel and Qualifications.** The O&M and Commercialization Entity shall provide a dedicated workforce of Proposer-employed service technicians with demonstrated competency and specialized experience in maintaining fiber optic network hardware comparable to that used in the Fiber Infrastructure. The O&M and Commercialization Entity shall establish and provide an O&M workforce

to perform the services and duties set forth in this RFP and shall, without exception, be adequately staffed to perform all work necessary for the O&M of the Fiber Infrastructure.

The O&M and Commercialization Entity shall assemble, manage, and supervise their staff to ensure high levels of service and availability as provided in Appendix K while utilizing a management structure that promotes and delivers cost efficiency, accountability, and accurate cost predictability.

The Commission reserves the right to conduct job performance evaluations and require the O&M and Commercialization Entity to take corrective actions with personnel when deemed necessary by the Commission. The O&M and Commercialization Entity's staff must provide services that meet or exceed all general requirements and performance requirements. The Commission reserves the right to deny any person from working on this Contract.

Minimum required positions and desired experience/qualifications are provided in Appendix H.

**FR-1.5.1 Vehicles and Transportation.** The O&M and Commercialization Entity shall provide their personnel with adequate vehicles to safely travel, transport tools/equipment, and carry out their respective duties regardless of weather conditions and site location. Vehicles must be equipped to reach Commission sites in snowy and icy conditions even when roads have not been plowed. Vehicles shall be supplied, owned/leased, and maintained by the O&M and Commercialization Entity at its own expenses.

**FR-1.5.2 Training and Clearances.** The O&M and Commercialization Entity shall provide its staff adequate training and clearances needed to safely perform their duties and maintain expertise.

Training shall include obtaining and keeping current professional certifications and/or licenses. The O&M and Commercialization Entity shall keep all technical skills up to date. O&M and Commercialization Entity staff must be trained on all systems that they will be working on, including software utilized in the Contract. Future systems are likely to necessitate additional and/or ongoing training. Due to uncertainty surrounding future systems, training for any future system shall be determined via annual contractual review.

Training shall also include maintenance response training, detailing how the O&M and Commercialization Entity will coordinate with the Commission to monitor, alert on, acknowledge, resolve, and determine root cause of issues affecting the performance of the Fiber Infrastructure including situations where a temporary fix must be put in place until a long-term solution is determined.

Commission staff may participate in any applicable training conducted by the O&M and Commercialization Entity at no additional cost to the Commission. The O&M and Commercialization Entity shall give the Commission two (2) weeks' minimum notice of applicable training.

Training shall consist of hands-on training as well as formal classroom lectures. Training shall cover all topics necessary to develop and/or maintain expertise in O&M of the Fiber Infrastructure, as well as the O&M of the Fiber Management System as described in **FOM-3** of this RFP.

**FR-1.5.3 Safety and Security.** The O&M and Commercialization Entity shall be solely responsible for the safety and security of its personnel during their working hours while present at Commission locations.

The O&M and Commercialization Entity is responsible for providing policies, procedures, safety equipment, and proper safety training for the protection of their employees and the public while performing the services required by this RFP.

The O&M and Commercialization Entity is required to follow all safety requirements including but not limited to those outlined in the National Electric Safety Code (NESC), the Occupational Safety and Health Administration (OSHA), Commission safety and security policies, Maintenance and Protection of Traffic (MPT) requirements, and other guidelines applicable to safely and securely performing the services herein.

**FR-1.5.4 Commission Policies.** The O&M and Commercialization Entity shall adhere to all Commission personnel policies. The O&M and Commercialization Entity shall reference the most recent Commission policy letters, available at [https://www.paturnpike.com/yourTurnpike/policy\\_letters.aspx](https://www.paturnpike.com/yourTurnpike/policy_letters.aspx).

**FR-1.5.5 Test Equipment and Specialty Tools.** The O&M and Commercialization Entity shall be responsible for provisioning all standard and specialty tools, test equipment, and any other items required to efficiently and effectively perform O&M services for the Fiber Infrastructure at no cost to the Commission.

**FR-1.5.6 Spare Parts.** The O&M and Commercialization Entity shall maintain adequate reserve stocks of cabling, racks, assemblies, special parts, and other spares to meet or exceed the SLA requirements. The O&M and Commercialization Entity shall be responsible to procure, maintain, and store adequate spare parts at its own facilities. The O&M and Commercialization Entity shall maintain adequate replacement parts used often in the course of maintenance in their maintenance vehicles. A lack of spare parts shall not be an acceptable excuse for not meeting the performance requirements of the Contract. The Commission will pay for spare parts purchased by the O&M and Commercialization Entity, but only after they are used for corrective and emergency maintenance necessary to repair the Commission's Fiber Infrastructure.

**FR-1.6 Independent Verification & Validation.** The O&M and Commercialization Entity and Commission shall engage a third-party Independent Verification and Validation (IV&V) Vendor in accordance with Appendix P on a quarterly basis.

**FR-1.7 ServiceNow System.** The O&M and Commercialization Entity shall be required to use the Commission's instance of ServiceNow. ServiceNow is accessible over the public internet and shall be available to both the Proposer and the Commission at all times, except during planned outages for upgrade/changes approved by the Change Review Board (CRB). Appendix Q provides a list of requirements pertaining to the ServiceNow System. ServiceNow shall be utilized for the following:

- Service Request Ticketing;
- Knowledge Base and Documentation;
- SLA Management; and
- Reporting.

The O&M and Commercialization Entity shall be required to coordinate with the Commission and its ServiceNow providers for the initial setup and configuration of ServiceNow for use in the Contract. Additionally, the O&M and Commercialization Entity shall be responsible for coordinating with the Commission and its ServiceNow providers to obtain user accounts and roles necessary to use the system as indicated in this RFP. The O&M and Commercialization Entity shall coordinate and work with the Commission and its ServiceNow providers for the performance of all potential software development, enhancements, and configuration changes that may be necessary for the intended usage of ServiceNow in the Contract. The O&M and Commercialization Entity shall ensure the ServiceNow System as described in this RFP is setup and fully functional for its intended use in the Contract within the timeframe stipulated in Appendix K.

Generally, the O&M and Commercialization Entity shall be responsible for three categories of tasks within the ServiceNow system. The three ServiceNow task categories serve to delineate responsibilities for performing tasks within ServiceNow and define the items that the O&M and Commercialization Entity shall include in the costs submitted in Appendix G. The three categories of ServiceNow tasks are as follows:

- Usage tasks;
- Coordination only tasks; and
- Coordination and development role tasks.

Usage tasks shall be defined as ServiceNow tasks that shall be performed by the O&M and Commercialization Entity using built in features of ServiceNow and do not require elevated administrator (known as “admin” in ServiceNow) or elevated development roles. The O&M and Commercialization Entity shall be responsible for all aspects of these tasks. The costs for the O&M and Commercialization Entity’s usage of these features included in ServiceNow and any coordination performed by the O&M and Commercialization Entity with a third-party provider (e.g. the Commission’s ServiceNow support provider or other third-party) shall be included in the unit costs submitted in Appendix G. Costs of the third-party to coordinate with the O&M and Commercialization Entity shall not be included in the unit costs. Costs of coordination performed by the third-party provider may be negotiated via separate LOA or through the Commission’s existing work order system.

Coordination only tasks shall be defined as ServiceNow tasks that require an elevated admin or elevated development role to perform. Coordination only tasks shall not be performed by the O&M and Commercialization Entity in ServiceNow. Rather, the O&M and Commercialization Entity shall be responsible for coordination only with the Commission and its ServiceNow support provider or other third-party. Subsequently, the ServiceNow support provider or other third-party shall perform the task. The costs for the O&M and Commercialization Entity’s effort to coordinate with the third-party provider shall be included within the unit costs for **FOM-7.1** provided in Appendix G. The costs of a third-party provider to coordinate with the O&M and Commercialization Entity and the costs for the third-party to perform the tasks shall not be included in the monthly costs. Coordination efforts and tasks performed by a third-party provider may be negotiated via separate LOA or the Commission’s existing work order system.

Coordination and development role tasks shall be defined as ServiceNow tasks that the O&M and Commercialization Entity shall perform that require minor development roles in addition to an Information Technology Infrastructure Library (ITIL) role (also known as a “fulfiller” role) within ServiceNow. The O&M and Commercialization Entity shall perform these tasks but must coordinate and work closely with the Commission and its ServiceNow support provider or other third-party. Please note that coordination and development tasks do not refer to software development (“enhancements”) and/or changes to the Commission’s ServiceNow software. Rather, these tasks include ServiceNow tasks requiring development roles in ServiceNow, such as configuring and scheduling reports. Any coordination and development role tasks performed by the O&M and Commercialization Entity shall adhere to the Commission’s development standards and procedures, including but not limited to Quality Assurance (QA) test script creation and QA testing as applicable. Additionally, coordination and development role tasks shall be performed consistent with the Commission’s change processes and standards described in Appendix R. The costs for the O&M and Commercialization Entity’s effort to perform coordination and development role tasks, including all testing required, shall be included within the unit costs for **FOM-7.1** provided in Appendix G. The costs of coordination performed by a third-party with the O&M and Commercialization Entity for a particular development role task shall not be included in the monthly costs. The costs of coordination performed by a third-party may be negotiated via separate LOA or the Commission’s existing work order system.

Base user roles that shall be granted to the O&M and Commercialization Entity within ServiceNow are listed in Appendix Q. *Please Note:* the roles listed in Appendix Q are shown as they appear in ServiceNow base user roles documentation available online via the ServiceNow website.

**FR-1.7.1 ServiceNow Service Request System.** The O&M and Commercialization Entity shall be required to use the ServiceNow Service Request System (SSRS). SSRS tickets shall be utilized for all services provided under the Contract. SSRS ticketing shall follow existing Commission ServiceNow workflows and policies. The O&M and Commercialization Entity is responsible to acknowledge and resolve all SSRS tickets assigned to them. The Commission reserves the right to combine like SSRS tickets (i.e. multiple tickets for the same issue or tickets that otherwise duplicate or subdivide a task) at its sole discretion.

SSRS tickets currently used by the Commission include the following:

- Incidents – opened for maintenance (break/fix) services and are assigned a maintenance priority;
- Problems – opened for multiple interrelated incidents that have the same root cause and are assigned a maintenance priority. Also, opened for incidents resolved with a temporary workaround/solution and require additional maintenance response to implement a permanent fix;
- Changes – opened for all changes. Must follow the Commission’s IT Change Management Standard provided in Appendix R; and
- Service catalog requests and tasks – utilized for all other services/requests.

Generally, SSRS tickets shall have the state of “new,” “in progress,” “resolved,” and “closed.” SSRS ticket states of “on hold” and “canceled” may be used as needed.

“Open state” shall be defined as any SSRS ticket state that is not resolved, closed or canceled. For incident and problem tickets, open states shall be utilized in the calculation of Ticket Acknowledgement and Resolution as defined in **FR-2.1** and Availability as defined in **FR-2.2**.

In some cases, multiple incidents may arise from the same root cause. In these cases, the state “on hold” shall be used while the underlying problem is identified. A problem ticket shall be created, and the related incident tickets shall be linked to the problem ticket. Once the problem ticket is resolved and closed, ServiceNow will automatically resolve the incidents linked to the problem without manual intervention.

“On hold” may be used when work is dependent on an outside vendor or entity, for instance, a vendor maintenance contractor or warranty provider. “On hold” may also be used in cases where an O&M and Commercialization Entity’s technician is gathering additional information or instruction. In some cases, tickets in “On hold” may not be considered in an “Open State”. In these cases, the O&M and Commercialization Entity must submit a Performance Statistics Revision Request as stated in **FR-2.3** to revise the time spent in “Open State.”

The state “cancelled” shall be used when a service request ticket must be cancelled for any reason.

The SSRS shall capture timestamps and store them upon the change of state for all SSRS tickets. Timestamps shall be utilized for SLA performance tracking of ticket acknowledgement and resolution as well as the Availability Requirement as defined in **FR-2**.

An example of the basic SSRS ticketing response/resolution process is as follows:

1. Once an SSRS ticket is opened and assigned (or reassigned) to the O&M and Commercialization Entity, the SSRS shall notify the O&M and Commercialization Entity of a ticket necessitating acknowledgement (ticket state shall be “new”).
2. The O&M and Commercialization Entity shall acknowledge these notifications, assign a technician, and dispatch personnel to the work site (ticket state changes to “in progress”).
3. The O&M and Commercialization Entity shall perform all work necessary to resolve the SSRS ticket. The O&M and Commercialization Entity must then notify the Commission that the ticket has been resolved via changing the state to resolved, making a phone call to NC, and updating the SSRS ticket notes (ticket state changes to “resolved”).
4. The Commission shall verify that all work to resolve the ticket has been performed. ServiceNow is configured to automatically close resolved tickets after five (5) calendar days.

All activities performed to resolve SSRS tickets shall be documented in the SSRS ticket. The O&M and Commercialization Entity shall complete and fill out all SSRS ticket fields without exception. The O&M and Commercialization Entity shall provide progress updates with a frequency appropriate to the impact and urgency of the ticket. Please refer to FR-1.14 for priority assignments based on the impact and urgency of SSRS tickets. For incidents and problems, the O&M and Commercialization Entity shall provide hourly progress updates at a minimum as indicated in **FOM-2.4**.



SSRS incident/problem ticket information shall be supplemented as indicated in **FOM-2** and as described below. In addition to standard SSRS ticket fields, the O&M and Commercialization Entity shall supplement ticket information via ticket notes or attachments including but not limited to the following as applicable:

- Detailed description of failure, issue, or service required;
- Source of failure notification or alarm;
- Notification method (i.e. ticket only, phone call, or both);
  - Notes containing time of phone calls received and/or placed;
- Site condition information e.g. weather, accidents, fire, flood, downed trees, etc.;
- Root Cause Analysis/related problem (when applicable);
- Actions taken (both successful and unsuccessful);
- Troubleshooting and diagnostics steps taken;
- Parts replaced (Type, Model, etc.);
- Spare parts used (Type, Model, etc.);
- Detailed description of modifications made (as applicable);
- Digital photo documentation;
- Workarounds or temporary solutions implemented;
- Outstanding issues needing further corrective action; and
- Notes/Recommendations.

The O&M and Commercialization Entity shall also indicate the following:

- Completed with a permanent solution; or
- Completed with a workaround or temporary solution (requires notification to NC immediately upon discovery, the opening of a related problem ticket, and a return visit for a permanent fix).

Any issue necessitating a workaround or temporary solution must have a written explanation of why the issue could not be permanently resolved while on-site and why a return visit for additional corrective maintenance is necessary. This information must be logged in detail in the SSRS ticket notes or via an attachment.

*Please Note:*

- *The Commission shall not be actively monitoring for incidents and/or problems for Commercialization Assets. Likewise, the Commission shall not create and assign SSRS tickets for FOM-2 Maintenance (Break/Fix) services for Commercialization Assets;*

- *The O&M and Commercialization Entity is not required to use the SSRS for FOM-2 Maintenance (Break/Fix) Services for Commercialization Assets.*
- *Incident/problem monitoring and response for Commercialization Assets is the sole responsibility of the O&M and Commercialization Entity.*
- *Any changes to Commercialization Assets as a result of maintenance must be captured in the Fiber Management System.*

**FR-1.7.1.2 Configuration Items.** ServiceNow utilizes a Configuration Management Database (CMDB) to store and track information for deployed assets known as Configuration Items (CI). Generally, SSRS tickets use CI to identify assets affected by or associated with an SSRS ticket.

The O&M and Commercialization Entity shall provide the Commission and its ServiceNow providers with all Fiber Infrastructure information necessary to create CI within ServiceNow. CI shall be defined as deployed point-to-point fiber connections (spans) in the Commission's Fiber Infrastructure network; a CI shall be created for each span. CI shall be prioritized as indicated in **FR-1.14** and **FOM-2.1**.

The O&M and Commercialization Entity shall be responsible for exporting information fields from the Fiber Management System (FMS) as described in **Section IV-4 FOM-3**. The O&M and Commercialization Entity shall coordinate with the Commission and its ServiceNow providers to determine the information fields and export formats required for the creation of CI. The O&M and Commercialization Entity shall provide all required information fields as specified by the Commission and its ServiceNow providers and in a format easily imported into ServiceNow. The Commission and its ServiceNow providers shall use the information exports from the FMS to create CI within ServiceNow.

The O&M and Commercialization Entity shall provide the required information fields for all existing and future point-to-point connections. The O&M and Commercialization Entity shall ensure information is kept up-to-date and shall provide the Commission and its ServiceNow providers with new information, i.e. for new connections, and/or updates to existing information as necessitated by changes or Commission projects within 5 Business Day of the change.

**FR-1.7.2 ServiceNow Knowledge Base.** The O&M and Commercialization Entity is required to develop and maintain comprehensive Contract documentation to enhance visibility and centralize/consolidate required Contract Plans, Standard Operating Procedures (SOP), reports, and other documents related to the Contract. The O&M and Commercialization Entity shall be responsible for uploading and updating the ServiceNow Knowledge Base (KB) with documentation for the Contract Term. The O&M and Commercialization Entity will be required to use the KB to submit and store documentation in the form of "KB articles." KB articles shall follow the Commission's KB article templates to be provided to the O&M and Commercialization Entity after NTP.

The O&M and Commercialization Entity shall coordinate with the Commission and ServiceNow support entity to create a Fiber Infrastructure O&M KB and obtain existing knowledge base article templates (or create new templates if necessary) for use in the Contract.

The O&M and Commercialization Entity is required to upload specified project documents, reports, and Contract Plans to the KB in electronic form. The KB shall be the repository for specified Submittal and

storage of specified project documents only. The KB shall not be utilized for the submission and storage of specific project plans, e.g. a Fiber Relocation Plan, Computer Aided Design and Drafting (CADD) drawings, or MPT plans for a specific project. These types of plans shall be managed via a project-based documentation management platform described in Section **FR-1.8**.

All documentation shall be kept up to date by the O&M and Commercialization Entity and updated/submitted as necessary to reflect the most current information. For instance, if an SOP changes during the Contract Term, the O&M and Commercialization Entity shall be responsible for revising the applicable KB article. The O&M and Commercialization Entity shall organize and maintain the KB in a manner acceptable to the Commission.

Contract Plans required to be included in the KB are identified in Appendix I. SLA pertaining to task plans, documentation, and report submissions are included in Appendix K.

**FR-1.7.3 ServiceNow SLA Management.** The ServiceNow System shall be utilized to track and report adherence to SLA. The Commission's ServiceNow provider shall configure the SLA as described in **FR-2** and Appendix K in ServiceNow for the Contract. The O&M and Commercialization Entity shall utilize ServiceNow to track, monitor, and generate SLA reports via the ServiceNow Reporting module and/or performance dashboards. The Commission views ServiceNow dashboards as a powerful tool for SLA management; therefore, performance dashboards shall be created and used by both the Commission and O&M and Commercialization Entity to monitor and manage SLA.

*For Commercialization Assets, ServiceNow shall only be used to track, manage, and report SLA applicable to services performed for Commercialization Assets. Appendix K identifies Commission SLA in which performance of services for Commercialization Assets are exempt.*

**FR-1.7.4 ServiceNow Reporting and Dashboards.** The O&M and Commercialization Entity shall be required to create and run a variety of reports via the ServiceNow reporting module. The O&M and Commercialization Entity shall prepare and submit the ServiceNow Reports described in **Section IVB-5 Reports and Project Control** of this RFP.

Additionally, the O&M and Commercialization Entity shall be required to create and utilize ServiceNow dashboards to monitor performance, open incidents, age of tasks, and a variety of other metrics in near-real time. ServiceNow dashboards are customizable and can be configured to suit the user dependent on their specific needs and/or areas of focus.

*Please refer to Section IV-5 Reports and Project Control for applicability of this requirement regarding services performed for Commercialization Assets.*

**FR-1.8 Project Document Management System.** For project-specific plans, the O&M and Commercialization Entity shall utilize a Project Document Management System (PDMS) for storing, maintaining, cataloging, searching, controlling, accessing, and promptly and conveniently retrieving all Project-related documents in an electronic format. Plans required for submission via the PDMS are identified in Appendix I.

The O&M and Commercialization Entity shall use a PDMS designated and provided by the Commission. The O&M and Commercialization Entity shall submit a request to the Commission identifying O&M and Commercialization Entity staff who will need user accounts for the PDMS. Subsequently, the Commission shall issue user accounts to the designated O&M and Commercialization Entity staff.

Access to the PDMS shall be subject to the Commission's Security Requirements as stipulated in Appendix D.

**FR-1.9 General Procedure.** The O&M and Commercialization Entity shall keep the Commission fully informed on Fiber Infrastructure O&M and Commercialization Services and shall consult with the Commission's designated personnel on policy and procedural inquiries. The O&M and Commercialization Entity shall adhere to all Commission policies and procedures whether or not they are explicitly stated in this RFP.

O&M services shall be requested and performed through the assignment of ServiceNow tickets. All service interruptions or failures will be reported to the O&M and Commercialization Entity via the Commission's SSRS described in **FR-1.7.1** Reporting over radio, telephone, e-mail, and/or other mutually agreed upon means may also be utilized in addition to the ServiceNow System. The O&M and Commercialization Entity shall acknowledge and resolve ServiceNow tickets consistent with the general requirements in **Section IVB-3 FR-1** and within the performance requirements detailed in **Section IVB-3 FR-2**.

For safety and security purposes, if the O&M and Commercialization Entity intends to make a field visit for any reason, it must notify the appropriate maintenance facility in advance of the field visit. The O&M and Commercialization Entity must obtain the maintenance facility contact information from the Commission's Contract Manager at the start of the project. Prior to working within the Commission's Right-of-Way (ROW), the O&M and Commercialization Entity shall inform the Commission's Contract Manager. The following information shall be provided:

- Location of work (mileposts);
- Make, year, and model of vehicle(s);
- Color of vehicle(s) and markings;
- State in which registered and license tag number(s);
- Contact information (including phone number) for responsible office parties;
- Number of workers to be on-site;
- Field contact name and information - with cellular number;
- Brief scope of work - impact (working on shoulders, off roadway, etc.); and
- General time frame.

The Commission's Contract Manager will provide this information to the Duty Officer at the Operations Center. On each day of work the O&M and Commercialization Entity should telephone the Duty Officer at the Operations Center at 866-332-5889 or \*11 by cellular and ask for the Duty Officer. The Duty

Officer will need the location and vehicle description along with a telephone number for contact. Duty Officers keep a log of those on the Turnpike system so that they know who is working along the roadway, where work is being performed, and what work is being done.

In the case of emergency response, the O&M and Commercialization Entity shall communicate directly with the Duty Officer at the Operations Center to inform them of the emergency work to be conducted. Subsequently, the O&M and Commercialization Entity shall inform the Commission's Project Manager. If the work location is within an ongoing construction zone, the O&M and Commercialization Entity must also coordinate with the Commission's Construction Manager and Contractor in that area.

**FR-1.10 Coordination Requirements.** The O&M and Commercialization Entity shall coordinate all activities with the Commission such that impacts to the Commission's normal activities are minimized. The Commission's ongoing Fiber Infrastructure expansion efforts require close coordination between services provided by the O&M and Commercialization Entity and work performed by Other Contractors. The O&M and Commercialization Entity shall coordinate its activities with Commission staff and other persons directly or indirectly impacted by the Work including Other Contractors and agencies in addition to the Commission.

The O&M and Commercialization Entity shall keep the Commission informed on all coordination activities and work with other entities and agencies as necessary without placing the burden of responsibility back on the Commission.

The O&M and Commercialization Entity shall fully cooperate at all times with Other Contractors performing work or services so that:

- (i) The O&M and Commercialization Entity and the Other Contractor can perform their respective duties to the Commission and in accordance with Applicable Law; and
- (ii) The Commission is not in breach of its obligations under its Agreement(s).

The O&M and Commercialization Entity shall allow any Other Contractor reasonable access to Project Sites and the Fiber Infrastructure at such times as such Other Contractor may reasonably require for the performance of its obligations under the terms of its contracts with the Commission. The O&M and Commercialization Entity shall coordinate with the Other Contractors in respect of the O&M and Commercialization Entity's obligations under this Agreement that interface with the services to be provided by the Other Contractors under the terms of their contracts with the Commission.

Notably, the O&M and Commercialization Entity shall be required to work in close coordination with the ITS, Communications, and Technology O&M Contractor (ICT Contractor) on a regular basis. During Commission projects, the O&M and Commercialization Entity shall be required to coordinate closely with a variety of Other Contractors. Other entities, agencies, and contractors may include but are not limited to:

- Pennsylvania Department of Transportation (PennDOT);
- Pennsylvania Emergency Management Agency (PEMA);

- Federal Emergency Management Agency (FEMA);
- Facility Operations;
- County and local agencies;
- Law enforcement agencies;
- Environmental agencies;
- Other contractors (construction, power, ITS, etc.);
- Communications and other service providers;
- Software and application vendors;
- Original Equipment Manufacturers (OEM); and
- Pennsylvania Turnpike Commission Consulting Engineers.

The Commission shall notify the O&M and Commercialization Entity in advance of the identity of any Other Contractor and of the nature of the work or services which such Other Contractor is to perform on the Project Site. Additionally, the Commission shall ensure that each Other Contractor is contractually obligated to cooperate with the O&M and Commercialization Entity and agrees to the activities to be carried out by the O&M and Commercialization Entity and any Other Contractor in order to ensure that the Proposer and the other Contractor can perform their respective duties to the Commission and in accordance with Applicable Law.

Prior to any Other Contractor carrying out its work or services on the Project Site, the Commission shall require Other Contractors to provide the following information to the O&M and Commercialization Entity:

- (i) A description of the type, design and duration of the work or services to be carried out by the Other Contractor;
- (ii) The parts of the Project Site subject to the work or services to be carried out by the Other Contractor; and
- (iii) Contact details for the relevant site manager of the Other Contractor.

**FR-1.11 Inquiry Response.** The O&M and Commercialization Entity shall acknowledge and respond to all Commission inquiries regarding O&M tasks. Generally, the O&M and Commercialization Entity shall be responsible for keeping the Commission fully informed on overall Fiber Optic Network (FON) operations, O&M, and Commercialization Services. The O&M and Commercialization Entity shall consult with the Commission's designated personnel on policy and procedural activities which bear on the general system function.

Appendix K defines disincentives for failure to respond to Commission inquiries.

**FR-1.12 Fiber Optic Testing.** As required for services listed in **Section IVB-4**, the O&M and Commercialization Entity shall perform full fiber optic testing as necessary to ensure fiber optic cabling

is completely operational and within Commission specifications. The O&M and Commercialization Entity shall test all individual fiber optic strands of the fiber optic cable using calibrated equipment. Testing performed by the O&M and Commercialization Entity shall include at a minimum:

- Optical Time-Domain Reflectometer (OTDR) Test at 1550 and 1625 nm, bi-directional
- Optical Return Loss (ORL) Test at 1550, and 1625 nm, bi-directional
- Insertion Loss (IL) Test at 1550, and 1625 nm, bi-directional
- Polarization Mode Dispersion (PMD) Test from 1260-1640 nm, uni-directional
- Chromatic Dispersion (CD) Test from 1260-1640 nm, uni-directional
- Attenuation Profile (AP) Test: from 1260-1640 nm, uni-directional

Loss shall not exceed the loss requirements listed in PennDOT Publication 408 Section 1204.2(b). Total loss for each fiber shall not exceed .35dB/km at 1310nm and .25dB/km at 1550nm + .1dB / splice + .5 dB/connector. No event shall exceed .3 dB loss. Any splice with a loss exceeding .2 dB shall be remade until its loss falls below .2 dB.

**FR-1.13 Maintenance and Protection of Traffic.** The O&M and Commercialization Entity shall comply with all Maintenance and Protection of Traffic (MPT) requirements. The O&M and Commercialization Entity shall perform all O&M services in accordance with all current permitted lane use days, times, holiday/event restrictions, and all other applicable MPT standards.

Appendix S provides a reference of MPT standards, holiday/special event restrictions, and lane closure liquidated damages. However, the O&M and Commercialization Entity shall be responsible for obtaining and complying with all MPT standards, special provisions, current lane use charts, holiday/special event restrictions, etc. throughout the Contract Term.

The O&M and Commercialization Entity is responsible for developing MPT plans and specifications that conform to the PTC standards. The O&M and Commercialization Entity shall utilize the current Maintenance and Protection of Traffic Special Provision and PTC Standard Drawing (PTS 900 Series) as appropriate to perform the Work. The O&M and Commercialization Entity shall develop plans for critical areas not covered by standards. The following shall also be satisfied by the MPT drawings and specifications:

- No lane or shoulder restrictions that conflict with the Minimum Lane Requirements or Holiday or Event restrictions;
- Travel lanes shall never be reduced to a width less than 12 ft;
- Do not exceed a maximum work zone of four (4) miles in length for operations not behind barrier, or the limit in the Pennsylvania Turnpike Standard (PTS) drawing if less; and
- The O&M and Commercialization Entity shall comply with the Maintenance and Protection of Traffic Special Provisions as provided by the Commission.

A Lane Closure Liquidated Damage for extended lane use will be assessed against the O&M and Commercialization Entity for each lane closure or traffic obstruction that results in the number of travel lanes being less than the minimum required or the specified holiday and special event restrictions, when such lane closure or obstruction is caused by the O&M and Commercialization Entity's operations, whether or not work is being performed. The time periods set forth in minimum lane closure charts or the specified holiday and special event restrictions in Appendix S outline the O&M and Commercialization Entity's working time limitations for traffic control and lane closure pattern(s). A "lane" is an unrestricted, active travel lane or ramp of at least 12 feet or as specified by the contract documents and includes all Interchange and Service Plaza ramps and shoulders. Special event restrictions include the exit(s) used by both eastbound and westbound travelers and one exit upstream both eastbound and westbound. The Commission understands that situations may arise (for instance, a critical repair being performed which necessitates MPT to be in place beyond acceptable lane use) where some leniency will be granted to the O&M and Commercialization Entity. These cases shall be addressed on a case-by-case basis. The O&M and Commercialization Entity shall submit a written request to the Commission for review and approval, which could result in extended lane use or performance statistic revisions to fairly accommodate the situation at hand.

The Lane Closure Liquidated Damage to be assessed per hour for each lane closure or obstruction that results in the number of travel lanes being less than the minimum required or the specified holiday restrictions. Should a lane closure or obstruction overlap the areas indicated above, the higher Lane Closure Liquidated Damage will be assessed for the entire area affected by the lane closure or obstruction. Lane Closure Liquidated Damages are provided in Appendix S.

The O&M and Commercialization Entity and the Commission recognize that extended lane use beyond that permitted by the contract documents results in damage to the Commission in terms of the effect of the delay on the use of the Project and upon the public convenience, and results in adverse revenue impacts to the Commission. By executing this Contract, the O&M and Commercialization Entity acknowledges that the Lane Closure Liquidated Damage is not a penalty but a reasonable per diem forecast of the damage incurred by the Commission due to the O&M and Commercialization Entity's failure to maintain the requisite minimum number of lanes open to unobstructed travel or the specified holiday restriction. When it becomes evident that the O&M and Commercialization Entity's operation(s) will result in extended lane use and a Lane Closure Liquidated Damage, the Commission will direct the O&M and Commercialization Entity to take immediate action to bring the Project into conformance with the required lanes or the specified holiday restriction. The O&M and Commercialization Entity's operations will be suspended until the O&M and Commercialization Entity demonstrates to the satisfaction of the Commission that proper measures, including adequate planning, scheduling and coordination, have been taken to complete the operations within working time and lane closure limitations. No contract SLA time extensions or Performance Statistic Revision Requests will be granted for suspension of any operation which resulted in a Lane Closure Liquidated Damage assessment.

The Commission will be responsible for identification and documentation of Lane Closure Liquidated Damages. The entire amount will be assessed for any portion of the hour for which a lane closure or obstruction exists. The Commission will have the right to apply as payment for such Lane Closure Liquidated Damages any money which is due to the O&M and Commercialization Entity by the Commission. At the discretion of the Commission, the Lane Closure Liquidated Damage may be waived or reduced for failure to open the minimum number of travel lanes if such cause is beyond the control of



the O&M and Commercialization Entity, i.e., Act of God, catastrophic events, and/or accidents not related or caused by the O&M and Commercialization Entity's operations. The waiver or reduction of Lane Closure Liquidated Damages will not operate as a waiver on the part of the Commission of any of its rights under the Contract.

Appendix S provides a reference to additional MPT standards and requirements, Minimum Lane Charts, and Lane Closure Liquidated Damages.

**FR-1.14 Maintenance Priorities.** Maintenance (Break/Fix) Services described in **Section IVB-4 FOM-2** shall be classified in four (4) tiers of maintenance priority based on impact and urgency as shown in Table 1.

*Table 1 - Impact and Urgency Priorities*

<b>Impact</b>	<b>Urgency</b>	<b>Priority</b>
1 - High	1 - High	1 - Critical
1 - High	2 - Medium	2 - High
1 - High	3 - Low	3 - Moderate
2 - Medium	1 - High	2 - High
2 - Medium	2 - Medium	3 - Moderate
2 - Medium	3 - Low	4 - Low
3 - Low	1 - High	3 - Moderate
3 - Low	2 - Medium	4 - Low
3 - Low	3 - Low	5 - Planning

Generally, incident tickets shall be assigned a priority consistent with the overall severity of the incident and potential impacts to Commission operations and public safety. Incident tickets shall be assigned a priority based upon occurrence of Connectivity Events and Unavailability Events as defined below:

- Connectivity Event – incidents that impact connectivity to the fiber network via primary fiber routes. The fiber network remains available and connectivity persists via redundant paths.
- Unavailability Event – incidents that impact the availability of the fiber network. The fiber network (or portion thereof) is down and connectivity is lost. Includes events where redundancy does not exist, primary and redundant paths are both down, and/or a location becomes isolated from the rest of the network.

Table 2, below, summarizes maintenance priority assignments. By default, the Priority field in ServiceNow is read-only and must be set by selecting Impact and Urgency values.

*Table 2 - Maintenance Priorities*

<b>Maintenance Priority</b>	<b>Event Type / Impacted Facilities</b>
Low	All Connectivity Events

<b>Maintenance Priority</b>	<b>Event Type / Impacted Facilities</b>
Moderate	Unavailability Event impacting 1 or 2 ITS devices
High	Unavailability Event impacting tolling points, maintenance buildings, demarcation sites, and/or multiple (3 or more) ITS devices
Critical	Initial: Unavailability Event impacting the TIP, or Eastern Regional Office (ERO), or two (2) Core Optical Hub Locations.  **Future: Unavailability Event impacting the TIP, ERO, Western Regional Office (WRO), or four potential (4) Core Optical Hub Locations

*Please Note:* \*\* denotes a future potential requirement based on preliminary network designs after Commission expansion projects beyond the base scope of the Fiber Infrastructure included in the Contract. This information is provided for reference only and should not be considered in the costs provided by the O&M and Commercialization Entity in Appendix G. Any future costs will be captured in the Annual Standard LOA review. The future locations identified, more specifically the four (4) potential Core Optical Hub Locations are subject to change.

*This requirement shall not apply to FOM-2 Maintenance (Break/Fix) services performed for Commercialization Assets.*

**FR-1.14.1 Priority Escalations.** The Commission reserves the right to escalate or de-escalate any ServiceNow ticket to a different priority at its sole discretion. Generally, SSRS tickets shall be escalated by Commission IT or engineering staff. However, escalation powers shall be held by the following Commission personnel:

- Chief Technology Officer (CTO);
- Chief Financial Officer (CFO);
- Chief Operating Officer (COO);
- Chief Executive Officer (CEO);
- Director of Technology Infrastructure;
- Manager of Transportation Tech & Communication;
- Communication Systems Program Manager;
- Transportation Technologies Manager;
- Network Engineer on Call;
- Network Control; and
- TOC Duty Officers.

Any ServiceNow ticket that has not been resolved within the appropriate timeframe may be escalated to the next highest maintenance priority as deemed necessary by the Commission. When a ticket priority level is escalated, the ticket will inherit the SLA for the newly assigned priority immediately – escalated acknowledgment and resolution thresholds shall begin at the time of escalation to a higher priority. When a ticket priority is de-escalated, acknowledgment and resolution thresholds shall be measured beginning at the time of original notification.

*Please Note:* Incentives shall not apply to escalated tickets if the O&M and Commercialization Entity exceeds the resolution threshold for incentive of the original ticket priority before or at the time of escalation to a higher priority.

The Commission shall have sole authority over the classification and reclassification of maintenance ticket priority. However, the Commission understands that the reclassification of maintenance ticket priority may impact SLA and incentives/disincentives. Because of this, the O&M and Commercialization Entity shall have the option to submit a Performance Statistic Revision Request as indicated in **FR-2.3** for disputes regarding the escalation/reclassification of incident tickets.

*This requirement shall not apply to FOM-2 Maintenance (Break/Fix) services performed for Commercialization Assets.*

**FR-1.15 Contract Plans.** The O&M and Commercialization Entity shall develop, implement, manage, and, as required, update a variety of Contract Plans. Appendix I lists all required Contract Plans, details required contents of each plan, and indicates whether the plan is to be submitted via the KB or the PDMS. Appendix K provides SLA for the submission of the Contract Plans.

All Contract Plans shall be submitted, stored, and accessible to the Commission at all times via the KB described in **FR-1.7.2** and the PDMS described in **FR-1.8**. The O&M and Commercialization Entity shall update and maintain all contract plans as necessary and as indicated in this section and **FR-1.2**.

Proposers shall submit a detailed draft of all Contract Plans as an appendix to **Volume I: Section 3 - Operation and Maintenance Services Submittal** in response to this RFP. The draft Contract Plans will not be counted against the page limit requirement for **Volume I: Section 3**. All final Contract Plans must be submitted to the Commission for review and approval within the timeframes detailed in Appendix K. If the Contract Plans or any chapter/section therein is not approved, the O&M and Commercialization Entity shall be required to revise and resubmit the plans at no charge to the Commission until the plan is approved in its entirety. Contract Plans shall be provided in a text-searchable PDF format as applicable (subject to approval by the Commission) and submitted via a system designated by the Commission (e.g., SharePoint, Microsoft Teams). An identical copy of the Contract Plans shall be uploaded as appropriate to the ServiceNow KB or PDMS.

**FR-1.15.1 Operations & Maintenance Manual.** The O&M and Commercialization Entity shall develop and submit a comprehensive O&M Manual to the Commission for review and approval. The O&M Manual shall include a chapter/section that details the O&M and Commercialization Entity's specific approach for each individual Standard LOA O&M service as described in **Section IVB-4**. Each chapter/section shall provide links/reference to the applicable SOP and OEM recommended practices.

The O&M Manual is intended to be the O&M and Commercialization Entity's plan for completing all required tasks adequately and in accordance with the requirements of the Contract.

Major elements of the O&M Manual shall include, but not be limited to:

1. Description of activities which will ensure that all manufacturers' maintenance requirements are met or exceeded;
2. Description of activities which will ensure that all O&M and Commercialization Entity supplied/installed hardware and Fiber Infrastructure components work with Commission equipment to meet all RFP requirements;
3. Process describing regular reporting mechanisms to keep the Commission informed of maintenance activities and condition of all hardware and components;
4. Description of the O&M and Commercialization Entity's use of the Commission's instance of ServiceNow and the FMS;
5. Description of actions to be taken by the O&M and Commercialization Entity prior to the Termination Date to ensure that the transition of O&M responsibilities to the Commission or other party will not impact the efficient operation of the Fiber Infrastructure; and
6. Process for delivering to the Commission all required reports and documentation as set forth in the RFP.

The O&M Manual shall include repair, maintenance, and parts bulletins for all Fiber Infrastructure components, as well as O&M procedures for the Fiber Management System. The O&M Manual shall include a listing of manufacturers; make, model, and style of hardware; and a Recommended Spare Parts List (RSPL) for all listed Fiber Infrastructure components. RSPL shall include listings for part name, manufacturer name, part number, recommended quantity and vendor source. As indicated in **FR-1.5.5**, the O&M and Commercialization Entity shall be responsible for managing all spare parts and hardware inventories necessary to meet SLA without aid from the Commission.

Throughout the Contract Term, the O&M and Commercialization Entity shall provide the Commission with incremental O&M Manual updates for any hardware or components that are replaced or added and that are not listed in the original O&M Manual. Furthermore, the O&M and Commercialization Entity shall be required to update the O&M Manual with applicable ad-hoc plans developed at the request of the Commission, for instance, Recurring Issues Maintenance Response Plans (See **FOM-2.10**).

The Commission may request updates at any time to the O&M Manual and impose restrictions based on the Commission's maintenance or construction activities. The O&M and Commercialization Entity will be responsible making the necessary revisions and adjustments resulting from restrictions due to Commission activities. Additionally, comments and changes to the O&M Manual shall be discussed every year during the LOA and Annual Contract Review process to address opportunities for improvement and to address any new/additional assets or services.

The intent of the O&M Manual is to provide the Commission with visibility into the O&M and Commercialization Entity's daily operations, SOP, best practices, and specific approach to providing the

required services and meeting/exceeding the SLA. The O&M Manual shall be a “contract handbook” that describes in detail the O&M and Commercialization Entity’s plans to execute and ensure efficient high-quality work required by this RFP and its associated appendices.

*Please Note:* The O&M Manual shall not include plans for specific Commission projects, i.e. O&M and Commercialization Entity’s plans/drawings for MPT or specific work plans pertaining to a Commission construction project, roadway rehabilitation project, new device installation, etc. All project specific plans shall be developed separately on an ad-hoc basis and submitted/stored in the PDMS.

**FR-1.15.1.1 Standard Operating Procedures.** Within the O&M Manual, the O&M and Commercialization Entity shall develop and maintain a library of OEM SOP for all assets and tasks included in the Contract. If deemed necessary by the Commission, guidelines in addition to the OEM recommended practices shall be incorporated by the O&M and Commercialization Entity into the approved SOP.

If OEM recommended practices do not exist for a particular Fiber Infrastructure asset, the O&M and Commercialization Entity shall develop SOP to be used in lieu of OEM recommended practices with the approval of the Commission.

SOP shall promote performance improvement, consistency, professionalism, and efficiency by establishing standard guidelines and procedures for O&M and Commercialization Entity staff to follow while performing their duties under the Contract.

Comments and changes to SOP shall be discussed every year during the LOA and Annual Contract Review process to address opportunities for improvement and develop SOP for new services.

**FR-1.15.2 Organization and Staff Plan.** The O&M and Commercialization Entity shall develop and submit a comprehensive Organization and Staff Plan to the Commission for review and approval within the timeframe described in Appendix K.

The Organization and Staff Plan shall include but not limited to a description of how absences will be covered, how staff changes will be managed and controlled, and how additional service requests will be handled. The Organization and Staff Plan shall include plans for initial, ongoing, and supplemental training for O&M and Commercialization Entity staff. Additionally, the Organization and Staff Plan shall include plans for the safety and security of O&M and Commercialization Entity staff while performing their duties under the Contract.

The Organization and Staff Plan shall identify and describe the multi-disciplinary teams necessary to perform the work required. The Organization and Staff Plan shall indicate key personnel and provide a clear breakdown of positions and the duties to be performed by each staff member. The Organization and Staff Plan shall include a detailed Organization Chart to clearly demonstrate reporting structures and organization of teams. Key personnel shall be defined as O&M and Commercialization Entity personnel who are essential to managing and/or carrying out the work included in the Contract and whose absence would be expected to negatively impact tasks/services and/or deliverables. Backup staffing for key personnel shall be required of the O&M and Commercialization Entity and indicated in the Organization and Staff Plan. Backup staffing for key personnel shall ensure that key positions are filled by qualified

staff at all times in the event of an absence, or in the event that replacements need to be found. Changes to key personnel must be tracked and controlled by the O&M and Commercialization Entity. When necessary, permanent replacements of key personnel must be made within a reasonable amount of time.

Any changes or additions by the O&M and Commercialization Entity to personnel identified in the bid package must be submitted to the Commission in a written Personnel Change Request and is subject to Commission review.

**FR-1.15.3 Document and Data Management Plan.** The O&M and Commercialization Entity shall develop a Document and Data Management Plan (DDMP) detailing the O&M and Commercialization Entity's plan to establish, implement, populate, manage, and maintain the KB and PDMS. Please refer to Appendix I for more information pertaining to the required contents of DDMP. The O&M and Commercialization Entity shall submit the DDMP to the Commission for approval within the timeframes stipulated in Appendix K.

**FR-1.16 Environmental Requirements.** As necessary for construction related services, the O&M and Commercialization Entity shall comply with all current and future environmental requirements set forth in Applicable Law, technical guidance and policy, and all environmental related approvals required by the Commission and all applicable Governmental Entities. The O&M and Commercialization Entity is responsible for securing all other environmental approvals and permits in accordance with Applicable Law. The O&M and Commercialization Entity shall be responsible for design, construction, monitoring, inspection, and maintenance as well as all required environmental mitigation measures during the Contract Term.

**FR-1.17 Commission Engineering Standards.** As necessary for construction related services, the O&M and Commercialization Entity shall comply with all current and future Commission engineering standards available at [https://www.paturmpike.com/business/engineering\\_standards.aspx](https://www.paturmpike.com/business/engineering_standards.aspx).

Additional requirements, specifications, and special provisions may apply for specific Separate LOA projects. The O&M and Commercialization Entity shall be required to coordinate with the Commission to obtain this information as necessary.

**FR-1.18 CADD Standards.** Different types of software applications used by the O&M and Commercialization Entity may not be compatible with those used by the Commission. Therefore, the O&M and Commercialization Entity must either prepare their data, using the same software application(s) as those used by the Commission, or provide electronic deliverables, which can be read and used directly by the Commission's software applications. The term "compatible" means that data can be accessed directly by the Commission's software without translation, preprocessing, or post processing of the data files.

1. General - All drawings including construction plans, profiles, typical sections, cross sections, shop drawings, details, schematics, etc. to be provided under this contract shall be accomplished and developed using computer-aided design and drafting (CADD) software and procedures conforming to the following criteria.
2. Graphic Format - All CADD data shall be supplied in either the DWG/DGN format. The O&M and Commercialization Entity shall ensure that all digital files and data (e.g., model files, reference files

and resource files) are compatible with the Commission's primary CADD system being used at the time of the transfer of the files and adhere to the standards and requirements specified herein. It is the responsibility of the O&M and Commercialization Entity to ensure this level of compatibility. The Commission's primary CADD software is Autodesk Civil 3D 2018. No translations will be accepted.

### 3. CADD Standards

- a. CADD drawings shall be prepared in accordance with the current edition of the Commission's CADD Standards Manual. All other CADD Standards not covered by the Commission's CADD Standards Manual must be in accordance with the current edition of PennDOT Highway Plans Presentation Manual, Publication 14M. Standard drawing size for DWG, DGN and PDF files shall be ANSI D (34" x 22") and the Commission's CADD Standard file naming conventions for model and sheet files shall be used. The use of "half-size" plan sheets is not permitted. All plan sheets shall be full size.
- b. The O&M and Commercialization Entity must submit a written request for approval of any changes or additions to the Commission's established CADD standard. No deviations from the Commission's established CADD standard will be permitted unless prior written approval of such deviation has been received from the Commission.

### 4. CADD/PDF Plan File Submission

- a. All CADD files and data developed under this contract must be delivered to the Commission as part of the Final Deliverables.
- b. CADD files being transferred to the Commission must be organized in the folder structure as outlined in the Commission's CADD Standard. Special attention should be paid to CADD files that were originally stored differently than this standard.
- c. All CADD and PDF plans will be reviewed for compliance to the Commission's CADD and presentation standards.
- d. Before CADD files and data are delivered the following procedures must be performed:
  - (1) Make sure all reference files are attached without device or directory specifications.
  - (2) Include all resource files, both graphic and non-graphic, required for the project (i.e. color tables, pen tables, special font, shape, linetype, hatch patterns, blocks, user command files, reference files (Xref's), LandXML COGO, Alignment and DTM files). All blocks/cells not provided as Commission-furnished materials must be provided to the Commission as a part of the electronic digital deliverables.
  - (3) Include any standard sheets (i.e. survey abbreviation sheets, standard symbol sheets) necessary for a complete project.
  - (4) Document any fonts, tables, etc., developed by the O&M and Commercialization Entity or not provided among the Commission furnished materials. The O&M and Commercialization Entity shall obtain Commission approval before using anything other than the Commission's standard fonts, line types, tables, or cells.
- e. Each plan sheet shall have its own separate PDF file.
- f. For As-Built PDF's, files will be submitted as either single sheet or multi-sheet PDF's (as

directed by the Commission Project Manager). This set must not include layer information.

- g. PDF files generated directly from the CADD software shall be created with a print quality of 300 DPI. Plans that require physical seal and signature shall be scanned with a print quality of 300 DPI.

**FR-2 Performance Requirements.** The O&M and Commercialization Entity shall be responsible for the performance of the Commission's Fiber Infrastructure up to the demarcation points as defined in this RFP.

The Commission's Fiber Infrastructure shall meet the fiber performance requirements as defined in this RFP at all times throughout the Contract Term. If at any time a given fiber optic segment has degraded service, the O&M and Commercialization Entity shall repair or replace the defective component.

If the O&M and Commercialization Entity fails to meet the requirements, the O&M and Commercialization Entity shall be subject to disincentives (as stipulated in Appendix K). It is important to note that the O&M and Commercialization Entity has the opportunity to earn incentives for exceptional performance and high levels of service.

The Commission reserves the right to conduct reviews and/or verification of services performed by the O&M and Commercialization Entity at any time. The O&M and Commercialization Entity shall perform all the tasks required to operate and maintain all assets included in the Contract and adhere to all Commission policies, procedures, general requirements, and performance requirements set forth in this RFP without exception. Performance requirements are covered in detail in Appendix K.

Unsatisfactory performance or operation shall be reported to the O&M and Commercialization Entity in writing in an Unsatisfactory Performance Notice. Upon receiving this notice, the Proposer shall take immediate action to remediate the issues described in the notice.

As part of the O&M and Commercialization Entity's remedial actions, the O&M and Commercialization Entity shall submit a Performance Improvement Plan stating the O&M and Commercialization Entity's plans, intentions, and steps to take to improve their performance and avoid Unsatisfactory Performance Notices in the future. Performance Improvement Plans shall include but not be limited to updates to Contract Plans, SOP, personnel assignments, and any other applicable change necessary to bolster future performance. Performance Improvement Plans shall be prepared at the cost of the O&M and Commercialization Entity.

The O&M and Commercialization Entity shall not receive any additional compensation for remedial actions performed in order to address an Unsatisfactory Performance Notice.

**FR-2.1 Ticket Acknowledgment and Resolution.** For all maintenance and repairs of the Fiber Infrastructure, the O&M and Commercialization Entity's acknowledgement and resolution will be tracked and reported via ServiceNow. The O&M and Commercialization Entity is required to acknowledge and resolve ServiceNow incident tickets on a 24/7 basis.



Appendix K details the required ticket acknowledgement and resolution times for each maintenance priority and/or ticket type. Ticket acknowledgement and resolution times shall apply to all ServiceNow tickets pertaining to the Fiber Infrastructure and shall differ per maintenance priority.

“Acknowledgement” shall be defined as the O&M and Commercialization Entity (as indicated in the notification method column in Appendix K) verifying the receipt of a ServiceNow ticket by assigning a technician to the incident. The state of incident tickets shall be “new” when initially opened, until a technician is assigned. Then the ticket state shall be changed to “in progress”

“Resolution” shall be defined as the O&M and Commercialization Entity having completed all work required to address an incident ticket and changing the incident state to “resolved.” The state of a ServiceNow ticket shall remain in an Open State until the O&M and Commercialization Entity performs all necessary work to resolve the ticket. After the O&M and Commercialization Entity performs all necessary work, the ServiceNow ticket state shall be changed to “resolved.”

Resolution shall only be valid if the O&M and Commercialization Entity technician(s) completely corrected the non-desirable condition before changing the incident status to resolved. In the case of a temporary solution, resolution shall only be valid if the temporary solution restores operations and an associated problem ticket has been opened before resolving the incident. The state of a service request ticket shall be changed from "resolved" back to "in progress" if the Commission determines that the issue at hand has not been adequately resolved – in this case, the ticket shall be considered “falsely resolved,” incentives shall no longer apply to that ticket, and the resolution duration of the ticket shall include the time in which the ticket was in a falsely resolved state.

The O&M and Commercialization Entity shall be required to acknowledge and resolve SSRS incident/problem tickets on a 24/7 basis in order to meet SLA. Acknowledgement and resolution of non-incident/problem service tickets completed via service catalogue requests and/or changes may be completed during regular business hours, dependent on priority.

“Business hours” are defined to be from 7:30a to 5:30p Monday through Friday excluding Commission holidays. Commission holidays are as follows:

- New Year’s Day;
- Martin Luther King, Jr. Day;
- President’s Day;
- Good Friday;
- Memorial Day;
- Independence Day;
- Labor Day;
- Veteran’s Day;
- Thanksgiving Day; and
- Christmas Day.

Ticket resolution occurring between the Resolution Threshold for Incentive and the Resolution Threshold for Disincentive shall be considered normal performance of work and shall not constitute an incentive or disincentive. See Appendix K for incentives/disincentives and acknowledgement/resolution thresholds.

*This requirement shall not apply to FOM-2 Maintenance (Break/Fix) services performed for Commercialization Assets.*

**FR-2.2 Availability Requirement.** The Availability Requirement shall be based on the cumulative incident or problem ticket time for high and critical priority Unavailability Events within a twelve (12) month SLA period. Cumulative Downtime shall be defined as the total time in a twelve (12) month period in which the Fiber Infrastructure has new, in progress, on hold or otherwise open SSRS tickets for high and critical priority Unavailability Events as defined in **FR-1.14**. For the purposes of the Availability Requirement, the term “ticket” shall be inclusive of ServiceNow incident and problem tickets.

The Commission shall provide a yearly incentive to the O&M and Commercialization Entity for minimizing Cumulative Downtime. Appendix K provides time thresholds required to earn incentives, as well as incentive dollar amounts.

Cumulative Downtime will be calculated by summing the Open State Duration(s) of the appropriate tickets within the SLA period. Open State Duration shall be defined as the total time a ticket is in an Open State during the SLA period.

Prior to closure of a ticket in the resolved state, the Commission reserves the right to verify that the issue was corrected. If the Commission finds that the issue has not been adequately corrected, the Commission reserves the right to change “falsely resolved” tickets back to an open state. In these cases, Open State Duration shall include the time in which the ticket is in a falsely resolved state.

If it is determined that the repair required for the service request is not the responsibility of the O&M and Commercialization Entity, the ticket time shall not be included in the Cumulative Downtime for the SLA period.

In some cases, a ticket may be resolved by switching from the original fiber(s) to another previously unused fiber(s) as a temporary workaround to quickly restore connectivity. In these cases, a separate problem ticket shall be opened, and the O&M and Commercialization Entity shall restore the original fiber(s) to an acceptable condition and/or provide a permanent fix to resolve the problem as indicated in **FOM-2.7** and within the timeframes stipulated in Appendix K. Cumulative Downtime shall only apply to the original incident if a temporary solution has been implemented.

Cumulative Downtime shall be calculated and reported to the Commission via ServiceNow Reporting described in Section **FR-1.7.4**.

*This requirement shall not apply to services performed for Commercialization Assets.*

**FR-2.3 Performance Statistic Revision Requests.** The O&M and Commercialization Entity shall have the option to submit a Performance Statistic Revision Request to the Commission if an issue out of the

O&M and Commercialization Entity's control affects performance or the resolution of a ServiceNow ticket. A Performance Statistic Revision Request may be submitted if the O&M and Commercialization Entity believes a performance statistic was affected by a planned outage or change, or misclassification of maintenance priority. The Commission shall allow for the revision to performance statistics if the O&M and Commercialization Entity can submit adequate proof that the issue was indeed out of their control.

The O&M and Commercialization Entity shall submit Performance Statistic Revision Requests in writing within ten (10) Business Days of the creation of the ticket. The Commission shall respond to within ten (10) Business Days of receipt of the O&M and Commercialization Entity's Performance Statistic Revision Request, indicating if the affected performance statistic will be modified. The Commission shall reserve the right to approve or deny a Performance Statistic Revision Request at its discretion. Any responses received from the Commission, and the decisions therein, shall be final. If a Performance Statistic Revision Request is approved, any changes resulting from the request shall be credited on the next monthly invoice.

*Performance Statistic Revision Requests shall only apply to SLA applicable to services performed for Commercialization Assets. Appendix K identifies Commission SLA in which performance of services for Commercialization Assets are exempt.*

**IVB-4 Fiber O&M Services (FOM).** The O&M and Commercialization Entity is expected to perform all O&M services necessary to meet the requirements detailed in **Section IVB-3** "Fiber O&M Requirements" whether or not enumerated in this section. The O&M and Commercialization Entity shall respond to all ServiceNow tickets and perform all actions necessary to close ServiceNow tickets. If deficiencies or situations affecting minimum standards for performance develop during the Contract Term that are not specifically addressed herein, it shall be the O&M and Commercialization Entity's responsibility to correct the deficiencies and manage such situations such that the Fiber Infrastructure will be maintained in the condition required by this RFP and associated appendices.

The Commission currently anticipates that the O&M and Commercialization Entity's responsibilities will primarily include, but are not necessarily limited to, the following:

- Ensuring that the Commission's Fiber Infrastructure remains fully operational between demarcation sites (the Commission will retain responsibility for the operations of Commission network electronics and other infrastructure not included in the Fiber Infrastructure as defined in this RFP);
- Implementing, operating, and maintaining a robust Fiber Management System;
- Coordinating with the Commission and its contracted partners for all work related to and/or potentially impacting the Fiber Infrastructure;
- Relocating facilities when necessitated by Commission construction projects;
- Providing engineering design support to the Commission in relation to the Fiber Infrastructure;
- Filing reports and obtaining certifications as required by applicable law;
- Maintaining required insurance;
- Reporting to the Commission as required;

- Providing such administrative services, plans, and reports as may be set forth in the RFP; and
- In the event of a prolonged service outage, implementing a contingency plan to ensure uninterrupted service of the Commission's Fiber Infrastructure, and maintaining and updating such contingency plan as required.

The O&M and Commercialization Entity shall be available to perform the required O&M services twenty-four (24) hours a day, seven (7) days a week to ensure high levels of network performance. Currently, the Commission maintains a TOC and NC center to support ongoing activities, including network monitoring. The Commission anticipates continuing to perform monitoring activities for the Commission's Fiber Infrastructure.

The O&M and Commercialization Entity shall be notified of any incidents affecting the Fiber Infrastructure by the Commission, ICT Contractor, or other affiliated contractor. All incident notifications and service requests will be sent to the O&M and Commercialization Entity via ServiceNow as well as the methods indicated in Appendix K based upon service priority and/or incident severity.

The services described in this section shall apply to all existing and future Commission Fiber Infrastructure assets. **Part IV - Section IVB-2 Commission Assets to be Covered** identifies services that are not explicitly required by the Commission for Commercial Fiber. Given the potential longevity of the Contract, the Commission anticipates future additions to the fiber network which may impact the tasks described below. For the purposes of the cost Submittal for this RFP, the Proposer shall follow the instructions and prepare Price Proposal worksheets provided in Appendix G. For convenience, a matrix of LOA designations for O&M services is provided in Table 3 below. Please refer to Appendix G for detailed information regarding LOA designations and costing information.

*Table 3 - FOM Services LOA Designations Matrix*

<b>FOM Section</b>	<b>Standard LOA</b>	<b>Separate LOA</b>
FOM-1.1 Response and Requests	✓	✓
FOM-1.2 Resources	✓	
FOM-1.3 Fiber Marking Requirements	✓	
FOM-1.4 Coordination Efforts	✓	
FOM-1.5 Construction Meetings and On-Site Construction	✓	
FOM-1.6 Incorrect Fiber Location and/or Mark-Out	✓	
FOM-2.1 Corrective and Emergency Maintenance	✓	✓
FOM-2.2 Acknowledgement of ServiceNow incident Tickets	✓	
FOM-2.3 Technician Dispatch	✓	
FOM-2.4 Hourly Maintenance Updates	✓	
FOM-2.5 Original Equipment Manufacturer's Recommended Practices	✓	
FOM-2.6 Maintenance Testing	✓	
FOM-2.7 Implementation of Temporary Solutions	✓	
FOM-2.8 Resolution of ServiceNow Incident Tickets	✓	

<b>FOM Section</b>	<b>Standard LOA</b>	<b>Separate LOA</b>
FOM-2.9 Root Cause Analysis	✓	
FOM-2.10 Recurring Issues Maintenance Response	✓	✓
FOM-3.1 FMS Inventory Management	✓	
FOM-3.2 FMS Importing and Exporting	✓	
FOM-3.3 FMS Reporting/Queries	✓	
FOM-3.4 ESRI/GIS Integration	✓	
FOM-3.5 FMS Training	✓	✓
FOM-4.1 New Fiber Installation	✓	✓
FOM-4.2 Management of Existing Fiber	✓	✓
FOM 5.1 New Lateral Installation	✓	✓
FOM-5.2 Temporary and Relocated Fiber Optic Cable	✓	✓
FOM-5.3 Fiber Connections to Cashless Tolling	✓	✓
FOM-6.1 ICT Contractor	✓	
FOM-6.2 New Project Designs and Rehab Projects	✓	
FOM-6.3 Fiber Optic Network Design Build Contractor	✓	
FOM-6.4 Network Design Tasks	✓	✓
FOM-7.1 On-Site Maintenance Management	✓	
FOM-7.2 Professional Services Review	✓	✓
FOM-7.3 SLA Management	✓	
FOM-7.4 Documentation Management	✓	
FOM-7.5 Contract Management	✓	

As indicated in Section **FR-1.7.2**, **FR-1.8**, **FR-1.15**, and **FOM-7**, the O&M and Commercialization Entity shall develop, maintain, and manage detailed project plans and comprehensive documentation for all work performed.

*Unless otherwise noted, all services as detailed below are applicable to both Commission's Fiber Infrastructure and Commercialization Assets. Any exceptions or caveats regarding the services(s) in terms of Commercialization Assets are provided in italics.*

**FOM-1 Locating and Mark-Out Services.** The O&M and Commercialization Entity shall be responsible for locating Fiber Infrastructure system-wide at the request of the Commission. This includes, but is not limited to, any backbone fiber optic cable, distribution fiber optic cable, and laterals from the backbone to various connection points including from ITS cabinets to the ITS devices that are located along the Pennsylvania Turnpike. The O&M and Commercialization Entity is responsible for the location of the fiber optic cable only. A list of existing fiber and conduit located along the Pennsylvania Turnpike can be found in Appendix M and **Section IVB-2 Commission Assets to be Covered**. All other utilities do not need to be recorded as a part of this effort. The O&M and Commercialization Entity will perform mark-out services along the entire length of the mainline Pennsylvania Turnpike and all Extensions.

The O&M and Commercialization Entity shall coordinate with the Commission to complete locate requests. Locate requests shall be submitted and managed through ServiceNow. The O&M and Commercialization Entity shall have interactive access to the system and be able to track and update the status of individual locate requests. See Appendix Q for additional information pertaining to ServiceNow. The O&M and Commercialization Entity shall provide a monthly summary of locating activity.

Locating shall be performed utilizing standard utility locating equipment and existing tracer wire or other locating means as necessary. The O&M and Commercialization Entity will provide all personnel, office services, vehicles, tools and materials necessary for the safe and proper locating and mark-out of the fiber optic cable.

All existing fiber ducts located on the roadway have tracer wire installed within one (1) of the four (4) innerducts. Existing lateral runs may not contain a tracer wire within the existing fiber duct. The O&M and Commercialization Entity will be provided with As-Built Documents as well as the Fiber Inventory in order to efficiently locate the existing fiber optic cable. Should the situation arise in which the fiber cannot be located via tracer wire, the O&M and Commercialization Entity must develop a preferred method for providing the location of the fiber optic cable that will need to be reviewed and approved by the Pennsylvania Turnpike Commission. Locations identified to be missing tracer wire shall be documented in the FMS system.

**FOM-1.1 Response and Requests.** The O&M and Commercialization Entity shall perform locate and mark-outs for engineering design project, construction project, and maintenance and emergency repair requests. The O&M and Commercialization Entity shall be responsible for all work required to properly locate and mark-out any fiber located along the Pennsylvania Turnpike. The O&M and Commercialization Entity shall acknowledge and resolve all ServiceNow locate and mark-out requests assigned to them.

For engineering design project and construction project requests, the O&M and Commercialization Entity is to respond to the site within three (3) Business Days of receiving the ticket. For maintenance and emergency repair requests, refer to Appendix K for SLAs for locating and mark-out services. Mark-out services shall be available 24/7/365 in order to protect the fiber optic cable from any activities that may cause service disruptions.

**FOM-1.2 Resources.** The Commission currently has approximately 32 centerline miles of fiber optic cable and 90 miles of conduit existing, in construction or in design. A table of these locations is included in Appendix M. Additional fiber optic cable will be installed as a part of the two (2) FON D-B projects along the Mainline Turnpike from MP 247.40 to MP H-42.70 and along the Northeast Extension from MP A-20.00 and MP A-131.00.

The O&M and Commercialization Entity will be provided available existing as-built documentation. If as-built information is not available, the O&M and Commercialization Entity shall work with the Commission to identify the approximate location of the installed fiber optic cable. The O&M and Commercialization Entity is responsible for verifying the gathered information on the existing fiber optic cable prior to locating any fiber optic cable, junction boxes, or splice cases. All verified information will be input into the Fiber Management System for future locating and mark-outs. See Section **FOM-3** for additional information on the Fiber Management System.

**FOM-1.3 Fiber Marking Requirements.** For the fiber optic cable markings, the O&M and Commercialization Entity shall use marking paint and flags following American Public Works Association (APWA) and 811 standards. After locating and marking the fiber optic cable, the O&M and Commercialization Entity is required to take photographs of all marked out facilities for each ticket. The O&M and Commercialization Entity must inform the Commission within three (3) Business Days of the located request, via ServiceNow, that the work has been completed and the fiber has been accurately marked.

After each winter season, the O&M and Commercialization Entity shall patrol the entire Turnpike system and identify missing or damaged fiber markers. The O&M and Commercialization Entity will be responsible for replacing any missing or damaged fiber markers. The O&M and Commercialization Entity shall coordinate these efforts with the Commission in order to avoid any duplicating efforts. The O&M and Commercialization Entity is required to provide documentation of these repairs and the materials used. Additionally, the field technician shall be required to keep and submit a log for all patrolling activities.

**FOM-1.4 Coordination Efforts.** The O&M and Commercialization Entity will utilize the ServiceNow ticketing system for all locating and mark-out tickets and requests made. The O&M and Commercialization Entity shall be responsible for acknowledging ServiceNow tickets within the timeframes stipulated within this section and in Appendix K. The O&M and Commercialization Entity must verify the ServiceNow locate ticket has been completed by maintaining a record of all requests indicating the time and date the site was visited and the type of facilities marked. Refer to Section Appendix Q for additional information on the ServiceNow requirements.

**FOM-1.5 Construction Meetings and On-Site Construction.** The O&M and Commercialization Entity does not need to be present for on-site construction or construction meetings unless requested by the Commission. For construction meetings that the Commission requires the O&M and Commercialization Entity's attendance. The O&M and Commercialization Entity attendance may be achieved remotely, if practicable. Remote attendance shall be accomplished using a collaboration system (i.e. WebEx, Microsoft Teams, etc.). For the construction meetings that directly involve or impact the fiber, the O&M and Commercialization Entity will need to be physically present for the meetings.

**FOM-1.6 Incorrect Fiber Location and/or Mark-Out.** In the event that fiber optic cables are located and/or marked-out incorrectly by the O&M and Commercialization Entity, the O&M and Commercialization Entity shall be held responsible for any and all damages that occur as a result. In addition to any fiber optic cable that is located incorrectly, the O&M and Commercialization Entity shall also be held responsible for any damage or destruction that might occur. The Proposer shall be held accountable for fixing these damages at their own cost in adherence with the requirements and processes defined for **FOM-2**.

**FOM-2. Maintenance (Break/Fix) Services.** The O&M and Commercialization Entity shall be responsible to maintain complete, reliable operation of the fiber optic network and all related Fiber Infrastructure. The O&M and Commercialization Entity shall be responsible for performing all corrective and emergency maintenance for the Commission's Fiber Infrastructure to ensure safe and reliable

operation and availability of the network as stipulated in this RFP and associated appendices. The O&M and Commercialization Entity shall be responsible for providing MPT as indicated in **Section IVB-3**.

Uninterrupted service is required seven (7) days per week, twenty-four (24) hours per day via the Commission's primary fiber network and the Commission's redundant network (e.g. leased circuits and/or geographically diverse network separate from the fiber path). This level of service requires around-the-clock availability of troubleshooting and corrective repair teams to handle all service problems, interruptions, and emergencies. The O&M and Commercialization Entity shall maintain the Commission's Fiber Infrastructure utilizing industry best practices, including any preventative measures as deemed necessary by the O&M and Commercialization Entity to minimize the occurrence of incidents requiring corrective or emergency response. Proposers shall highlight any innovations in their approach to minimizing the occurrence of incidents, service disruptions, and/or degradation in the **Volume I: Section 3 – Operations and Maintenance Services Submittal**. As previously indicated in **FR-2.2**, the Commission shall provide a yearly incentive to the O&M and Commercialization Entity to encourage a proactive approach to monitor, identify, and preempt potential incidents.

*Please note the following exceptions to **FOM-2**:*

1. The O&M and Commercialization Entity shall not be responsible for maintaining the Commission's inside plant only fiber. Inside plant only fiber shall be defined as fiber that exists entirely within a Commission building and does not leave the premises;
2. The O&M and Commercialization Entity shall not be responsible for maintaining campus only fiber, i.e. fiber that connects multiple buildings at one site/location. For example, Everett Maintenance has campus only fiber connecting the five (5) buildings located on the campus;
3. The O&M and Commercialization Entity shall not be responsible for replacing fiber jumper cables from fiber distribution panels to fiber equipment; and
4. The O&M and Commercialization Entity shall not be responsible for the Commission's legacy systems, the performance of those legacy systems, or the system performance of the Commission-owned network electronics. *Please Note:* This statement is not in reference to legacy roadway fiber. The O&M and Commercialization Entity shall be responsible for managing legacy fiber as indicated in **FOM-4.2**.

The Commission will monitor the network and notify the O&M and Commercialization Entity of any failures/incidents in the Commission's WAN related to the Fiber Infrastructure. The O&M and Commercialization Entity will be responsible to repair the Fiber Infrastructure within the acceptable response times stipulated in Appendix K. All other Commission services will be the responsibility of the Commission.

*Please Note – the statements in the bulleted list below apply to all FOM-2 subtasks for Commercialization Assets:*

- *The Commission shall not be actively monitoring for incidents and/or problems for Commercialization Assets. Likewise, the Commission shall not create and assign SSRS tickets for FOM-2 Maintenance (Break/Fix) services for Commercialization Assets.*



- *The O&M and Commercialization Entity is not required to use the SSRS for FOM-2 Maintenance (Break/Fix) Services for Commercialization Assets.*
- *Incident/problem monitoring, maintenance, and emergency response for Commercialization Assets is the sole responsibility of the O&M and Commercialization Entity and shall be performed in accordance with recognized industry best practices, i.e. the subtasks below are not explicitly required for Commercialization Assets (with the exception of FOM-2.5 and FOM-2.6, which are required for Commercialization Assets).*
- *Commission SLA for FOM-2 services do not apply to Commercialization Assets.*

**FOM-2.1 Corrective and Emergency Maintenance.** The O&M and Commercialization Entity shall perform corrective and emergency maintenance for the Commission’s Fiber Infrastructure without limitation. The O&M and Commercialization Entity shall be responsible for all work required to resolve incidents and repair the Commission’s Fiber Infrastructure. In the case of a fiber break/cut or incidental damage, the O&M and Commercialization Entity shall be responsible for replacement of pavement, conduit, JB, fiber optic cabling; splicing; termination; and all other work necessary to restore the Fiber Infrastructure to a completely operational state. The O&M and Commercialization Entity shall perform all repairs and incidental construction in accordance with the applicable Commission and/or PennDOT standards.

The O&M and Commercialization Entity shall acknowledge and resolve all ServiceNow incident tickets assigned to them. As indicated in **Section FR-1.14**, maintenance priorities shall be used to distinguish corrective maintenance incidents and emergency maintenance incidents. Additionally, the O&M and Commercialization Entity shall submit incident tickets for corrective maintenance issues observed while in the field.

The O&M and Commercialization Entity shall provide all labor and consumables to resolve ServiceNow incident tickets and restore proper operations within the time timeframes stipulated in Appendix K. Additionally, the Proposer shall be responsible for handling, on-site storage, and disposal of all waste generated during maintenance activities in full compliance with federal, state, local, and any other applicable law.

In the event of a Fiber Infrastructure incident, the ICT Contractor or the Commission shall notify/coordinate fiber repairs and maintenance with the O&M and Commercialization Entity. The O&M and Commercialization Entity shall be fully responsible for any and all repairs and ensuring fiber is completely operational before resolving the ServiceNow ticket and leaving the site.

“Corrective Maintenance” means, with respect to low or moderate priority SSRS tickets, the maintenance, repair, reconstruction, rehabilitation, restoration, renewal, or replacement of any worn-out, obsolete, deficient, damaged, or under-performing element of the Fiber Infrastructure required in order to resolve Connectivity Events and Unavailability Events as defined in **FR-1.14**.

“Emergency Maintenance” means, with respect to high or critical priority SSRS tickets, the maintenance, repair, reconstruction, rehabilitation, restoration, renewal, or replacement of any worn-out, obsolete, deficient, damaged, or under-performing element of the Fiber Infrastructure required in order to resolve Unavailability Events as defined in **FR-1.14**.

For all incidents requiring maintenance, the O&M and Commercialization Entity shall prioritize fixing fibers based on the priorities/connection types as defined in **Section FR-1.14** and documented in the FMS.

Appendix M provides an inventory of existing Commission conduit and fiber.

**FOM-2.2 Acknowledgment of ServiceNow Incident Tickets.** The O&M and Commercialization Entity shall be responsible for acknowledging ServiceNow tickets within the timeframes stipulated in Appendix K.

*Please Note:* Generally, the ICT Contractor is responsible for first response and initial triage/troubleshooting of ServiceNow tickets created for networking issues. If the ICT Contractor determines that there is an incident with the Fiber Infrastructure requiring corrective or emergency maintenance, the ICT Contractor will assign a ServiceNow ticket to the O&M and Commercialization Entity. However, if there is a known break in fiber cable (for instance, a backhoe fade), the ICT contractor will not be engaged for first response and triage/troubleshooting. In these cases, the incident shall be assigned directly to the O&M and Commercialization Entity.

**FOM-2.3 Technician Dispatch.** The O&M and Commercialization Entity shall dispatch technicians to troubleshoot and perform corrective maintenance when notified of an incident.

**FOM-2.4 Hourly Maintenance Updates.** The O&M and Commercialization Entity shall provide the Commission with hourly updates while performing high and critical priority corrective maintenance. The primary purpose of these updates shall be to ensure the Commission is fully informed on the status of emergency maintenance tickets. The O&M and Commercialization Entity shall provide the Commission with estimated timeframes to resolve the incident ticket and inform the Commission of any temporary solutions that must be implemented by the O&M and Commercialization Entity to restore operations before/while a permanent fix is made. The O&M and Commercialization Entity shall provide hourly updates to the Commission for all open high and critical incident tickets via SSRS ticket notes.

**FOM-2.5 Original Equipment Manufacturer's Recommended Practices.** At a minimum, the O&M and Commercialization Entity shall follow approved SOP and OEM recommended practices for corrective and emergency maintenance of the Fiber Infrastructure.

**FOM-2.6 Maintenance Testing.** The O&M and Commercialization Entity shall perform fiber optic testing prior to performing maintenance to isolate/troubleshoot issues as necessary. The O&M and Commercialization Entity shall perform fiber testing after performing maintenance to ensure incidents are fully resolved and the network is completely operational in adherence with Commission testing specifications in **FR-1.12**.

The Commission understands that in some cases, a full battery of fiber testing may not be practicable to perform after repairs. For instance, if a fiber cut impacts many locations, testing all end to end connections may not be feasible or practical. However, the O&M and Commercialization Entity shall be responsible for verifying communications are restored and the fiber is operating within acceptable loss ranges. In these cases, the O&M and Commercialization Entity shall coordinate with the Commission to determine the required testing activities.

**FOM-2.7 Implementation of Temporary Solutions.** The Commission understands that in some cases, it will be necessary for the O&M and Commercialization Entity to implement temporary solutions in response to Unavailability Events to lessen operational impacts and restore the Commission’s fiber network as quickly as possible. For instance, the O&M and Commercialization Entity may be permitted to utilize aerial fiber while working on a permanent fix for damaged underground fiber.

The O&M and Commercialization Entity shall inform the Commission of any temporary solutions to be implemented prior to performing the implementation. The Commission shall reserve the right to approve, deny, or request alternative temporary solutions to be implemented by the O&M and Commercialization Entity. All temporary solutions shall be in accordance with Commission construction and safety standards as well as applicable federal, state, and local law.

If a temporary solution must be implemented, the O&M and Commercialization Entity shall implement the solution, resolve the SSRS ticket, and notify NC. Immediately, the O&M and Commercialization Entity shall open a problem ticket and link the problem ticket to the original incident ticket.

The O&M and Commercialization Entity shall develop and submit a Permanent Solution Plan to the Commission for review and approval within the timeframes stipulated in Appendix K. Required contents of the Permanent Solutions Plan are provided in Appendix I. Subsequently, the O&M and Commercialization Entity shall perform the approved permanent solution within the timeframes stipulated in Appendix K, beginning at the time in which the implementation of the permanent solution is in the O&M and Commercialization Entity’s control. For example, the O&M and Commercialization Entity may have to wait for another contractor to perform work before a permanent solution can be implemented to resolve a problem. In these cases, the problem ticket shall remain in the state of “new” until the O&M and Commercialization Entity can feasibly begin working, at which point the ticket shall be assigned and the state shall change to “in progress”.

*Permanent Solution Plan(s) are not required to be submitted to the Commission for Commercialization Assets; however, changes to the Commercialization Assets must be captured in the Fiber Management System.*

**FOM-2.8 Resolution of ServiceNow Incident Tickets.** The O&M and Commercialization Entity shall perform all the necessary work to resolve Fiber Infrastructure incidents. The O&M and Commercialization Entity shall resolve ServiceNow tickets only after the Fiber Infrastructure has been fully restored and tested for complete, reliable operation.

In cases where a temporary solution has been implemented, the O&M and Commercialization Entity shall resolve the original ServiceNow incident ticket, notify NC, and open a related problem ticket as indicated in **FR-2.2**.

*Root Cause Analysis Report(s) are not required to be submitted to the Commission for Commercialization Assets.*

**FOM-2.9 Root Cause Analysis.** The O&M and Commercialization Entity shall perform root cause analysis and submit a Root Cause Analysis Report to the Commission after the resolution of any moderate,

high, or critical ServiceNow incident ticket. The O&M and Commercialization Entity shall perform root cause analysis and submit a Root Cause Analysis Report for all Recurring Issue(s) regardless of maintenance priority. Refer to **FOM-2.10** for more information pertaining to Recurring Issues.

The Root Cause Analysis Report shall detail the underlying cause of the incident; identify related systems, functions, and/or operations that may be affected by the incident; and recommend any future changes necessary to prevent the incident from occurring in the future.

The O&M and Commercialization Entity shall upload all Root Cause Analysis Reports to the KB and attach or reference them to the original ServiceNow tickets necessitating the within the timeframes stipulated in Appendix K.

*Recurring Issue Maintenance Response Plan(s) are not required to be submitted to the Commission for Commercialization Assets.*

**FOM-2.10 Recurring Issues Maintenance Response.** Recurring Issues shall be defined as any incident that occurs two (2) or more times within a three (3) month period. Recurring Issues may necessitate additional maintenance response beyond typical corrective or emergency maintenance at the discretion of the Commission.

In any case where a recurring issue affects safety or critical operations, at the request of the Commission, the failure or failed component(s) shall be submitted for failure analysis by the respective manufacturer(s) or an unaffiliated third-party failure analysis firm. The O&M and Commercialization Entity shall track the status of failure analyses performed by any third-party within ServiceNow. Upon receiving the third-party failure analysis, the Commission may request the O&M and Commercialization Entity to perform upgrades, modifications, and/or other changes recommended by the third-party failure analysis.

In some cases, root cause analysis performed by the O&M and Commercialization Entity or a third-party failure analysis may expose the need for preventative maintenance to remedy an issue where a permanent fix is not practicable or cost effective (e.g., due to a design flaw, a problematic location, an environmental factor, etc.). At the request of the Commission, the O&M and Commercialization Entity shall develop a Recurring Issue Maintenance Response Plan and implement/perform preventative maintenance for unique cases uncovered by root cause analysis or third-party failure analysis.

**FOM-3 Fiber Management System.** The O&M and Commercialization Entity shall procure, implement, and use a robust third-party Commercial off-the-shelf (COTS) Fiber Management System (FMS).

*Please Note:* The Commission does not have an existing Fiber Asset Management System. The Commission is currently considering OSP Insight as the preferred third-party FMS solution; however, the O&M and Commercialization Entity is encouraged to propose an equivalent third-party system for use in the Contract. The Commission desires a cloud-based FMS solution.

The O&M and Commercialization Entity shall procure/license the FMS application on the Commission's behalf. The Commission shall own the FMS instance and all associated data, customizations, and integrations. The O&M and Commercialization Entity shall be responsible for all initial setup and ongoing O&M of the FMS during the Contract Term. The O&M and Commercialization Entity shall develop a

Fiber Management System Implementation Plan and submit it for Commission approval within the timeframes stipulated in Appendix K. Appendix I provides more information regarding the Fiber Management System Implementation Plan.

Upon termination or end of the Contract, the O&M and Commercialization Entity shall relinquish all FMS privileges including access to information, databases, customizations, integrations, user profiles, etc. associated with the FMS at no additional cost to the Commission. Subsequently, the Commission (or contracted partner) shall take over O&M responsibilities of the FMS.

O&M and Commercialization Entity and Commission personnel shall be assigned user permissions/access rights consistent with their work responsibilities. The FMS shall allow for Single Sign-On (SSO) or Active Directory (AD) integration for user authentication and access control. The FMS shall utilize three levels of user permissions via the following user account types/roles:

1. “View users” shall have read-only access;
2. “Edit users” shall have the ability to administer the system and enter/edit information; and
3. “Security users” shall have the ability to administer user accounts and access rights. The security role shall be separate from other user roles (e.g., security users will not have edit rights unless also granted an edit role).

The O&M and Commercialization Entity shall allocate ten (10) user licenses for Commission use. Additionally, the O&M and Commercialization Entity shall allocate five (5) user licenses for the ICT Contractor for view user read-only access. The Commission shall primarily require use of view user credentials. The Commission does not envision using edit user rights to make edits to FMS data; however, designated Commission personnel shall be granted edit user rights and security user rights. The Commission shall reserve the right to administer the system, administer user accounts, and make edits to the FMS when/if necessary.

The O&M and Commercialization Entity shall adhere to industry best practices regarding the O&M of the FMS. Specifically, the O&M and Commercialization Entity shall:

1. Establish a single internal owner of the FMS database who has the authority to make updates and/or delegate update responsibilities to designated qualified personnel;
  - a. The FMS owner shall be solely responsible for the FMS and the accuracy of its associated data;
  - b. The FMS owner shall ensure all information is current and up to date;
  - c. The FMS owner shall be the single point of contact for all FMS related queries, needs, and or coordination with the Commission and its contracted partners;
2. Ensure awareness of all changes to the Commission’s physical and logical network. The O&M and Commercialization Entity shall be responsible for coordinating with the Commission and its contracted partners to understand when, where, and what changes will take place. Subsequently, the O&M and Commercialization Entity shall make all necessary updates in the FMS within the timeframes indicated in Appendix K;

3. Validate and verify all data inputs and changes in the FMS. The O&M and Commercialization Entity shall use sample testing to confirm all FMS data is complete and accurate. The O&M and Commercialization Entity shall monitor the performance and integrity of FMS data on a consistent and ongoing basis;
4. Provide regular reports to internal management and the Commission. These reports shall focus on metrics of interest of the O&M and Commercialization Entity's internal management personnel and Commission staff; and
5. Train and require internal teams to utilize the system. Instill trust and reliance on FMS data.
  - a. All personnel that have edit rights to the FMS must be thoroughly trained on the FMS and database management best practices.

In the case of a disaster, the O&M and Commercialization Entity shall adhere to the Commission's standards for Recovery Point Objective (RPO) and Recovery Time Objective (RTO) for data recovery of Tier 2 Production Applications. The O&M and Commercialization Entity shall ensure RTO of 1-3 days and RPO 24-48 hours for the FMS.

Refer to Appendix T for requirements pertaining to the FMS.

The FMS and all associated tasks shall adhere to Commission Security Requirements as provided in Appendix D and the Commission's IT Change Management Standards as provided in Appendix R.

**FOM-3.1 FMS Inventory Management.** The O&M and Commercialization Entity shall utilize the FMS to develop and maintain a comprehensive inventory and map of the Commission's Fiber Infrastructure assets. For the purposes of this RFP, the term "inventory" is inclusive of FMS maps. The O&M and Commercialization Entity shall be responsible for all initial setup, data collection, data entry, and mapping in the system. The O&M and Commercialization Entity shall adhere to accuracy and mapping standards including but not limited to the following:

- 1) PennDOT Publication 122M Surveying and Mapping Manual;
- 2) The Commission's Design Consistency Guidelines, Chapter 2 (Appendix 11);
- 3) FGDC-STD-007.2-1998 Geospatial Positioning Accuracy Standards, Part 2: Standards for Geodetic Networks;
- 4) User Guidelines for Single Base Real Time GNSS Positioning; and/or
- 5) As directed by the Commission.

Data collection, data entry, and mapping to support the FMS is viewed as a significant task which must be completed initially (and updated) within the timeframes stipulated in Appendix K. A key aspect of data collection shall include coordination with design build contractors as well as working with Commission network engineers to develop a splicing and termination plan to support the Commission's fiber network build out and support Cashless Tolling by October 2022 as indicated in **FOM-6.4**.

The O&M and Commercialization Entity shall be responsible for O&M and routine updates to the FMS. The O&M and Commercialization Entity shall populate and maintain the FMS with up-to-date and accurate inventories of all Fiber Infrastructure assets in the Contract as changes occur (e.g., expansion of the Commission's Fiber Infrastructure, changes resulting from temporary connections, fiber relocations, etc.). The O&M and Commercialization Entity shall keep a detailed change log for all changes made to the FMS.

The FMS shall be capable of reporting the individual status of and mapping the location of all fiber optic strands and Fiber Infrastructure assets as defined in this RFP. The FMS shall allow for the following inventory management/documentation capabilities:

- Geographic Information System (GIS) mapping of all fiber optic cable installations, including Global Positioning System (GPS) coordinates, geospatial X & Y coordinates, and cable heights/depths;
- Tracking status of Commission Fibers (used, unused, allocated, under repair, etc.);
- A description for each fiber and statement of how it is being used;
- A method of adding, modifying, and deleting fiber related assets from the system;
- Reporting capability;
- Mobile device access and ability to add data while in the field using a non-survey grade data collection tool;
  - All field data entered shall require validation and approval by the FMS owner before going into production;
- Ability to create custom information fields; and
- Photo repository of all installed fiber distribution enclosures and splicing enclosures.

FMS inventory elements shall include but not be limited to the following:

- Buildings/facilities/shelters (building name, address, point of contact, phone, etc.);
- Access points (JB, hand holes/manholes);
- Cable spatial information;
- Cable sequential markings (silk screen markings, spool #'s);
- Cable span information;
  - Capacity/utilization, dark and lit fibers;
  - Type of installation (aerial, underground, etc.)
  - Ports used;
  - Data paths;
  - Priority; and

- Light wave lengths used on fiber.
- Customer information (i.e. devices, and/or locations serviced);
- Slack loop location and measurements;
- Duct bank spatial information;
  - Duct and super duct (group of ducts);
- Termination ports/points (i.e. termination panels);
- Splice points and distribution panels;
- Splicing information, trays, and schematics;
- Testing data and information; and
- Warranty information including current status and end date; and
- Additional information by the request of the Commission.

**FOM-3.2 FMS Importing and Exporting.** The O&M and Commercialization Entity shall utilize exporting and importing functionality of the FMS to perform a variety of tasks. The O&M and Commercialization Entity shall perform FMS imports/exports as necessary to perform the Work and at the request of the Commission. Tasks necessitating FMS imports/exports may include but not be limited to the following:

1. Coordination and information sharing with the Commission and other agencies/entities such as PennDOT, utility companies, construction contractors, etc.;
2. Creation and updating of ServiceNow CI as indicated in **FR-1.7**;
3. Creation of map overlays;
4. Review of construction designs, network designs, etc.;
5. Commission GIS system updates; and
6. Fiber locating and mark-out.

Notably, after the initial setup and population of the FMS inventory is complete, the O&M and Commercialization Entity shall utilize import/export functions to provide FMS information to the Commission and its ServiceNow providers for the purposes of creating CI in ServiceNow as indicated in **FR-1.7.1.2**. Subsequently, the O&M and Commercialization Entity shall provide the Commission and its ServiceNow providers with exports as necessary to update existing CI and/or create CI for new/future deployments.

The O&M and Commercialization Entity shall maintain maps of all PTC Fiber Infrastructure in a digital format that can be exported and used in CADD and GIS software. The O&M and Commercialization Entity shall ensure all GIS Submittals conform to the following:

- Available via REST-based API (preferred);



- Capability to view photos from the FMS repository (preferred, not required);
- ESRI File Geodatabase Format (for disconnected data submissions);
- The horizontal datum will be referenced to NAD 83 (2011) PA SPC South and the vertical datum will be referenced to the North American Vertical Datum of 1988 (NAVD 88). All reported positional data will have resulted from the techniques and requirements of **FOM-3.1** and will include all FMS inventory elements;
- The location of each feature shall have an accuracy that meets, at a minimum, the accuracy standards identified in **FOM-3.1**; and
- The O&M and Commercialization Entity will be responsible for locating and marking Fiber Infrastructure as required for Commission Projects and maintenance activities during the Contract Term.

The O&M and Commercialization Entity shall ensure all CADD Submittals conform to the Commission's CADD requirements as provided in **FR-18**.

**FOM-3.3 FMS Reporting/Queries.** The O&M and Commercialization Entity shall be required to run a variety of reports/queries in the FMS. Reports/queries shall include but not be limited to the following critical reports:

1. Route Detail – Run a route to find each object along the route and verify route accuracy;
2. Taper Report – Plot out future routes by seeing which ports and fibers are available;
3. Capacity Report – Provides a real-time view of how much open capacity exists across the cables within a fiber network down to the individual strand;
4. Leased Fibers – Determine who is leasing each fiber (if necessary, in the future);
5. Hardware / Materials – Lists all the hardware and material types in your network and gives length totals for fiber and cable sheath;
6. Work Order Summary – Status report of the work orders and information related to a work order;
7. Impact Report – Identify which routes will be impacted if a splice point were moved;
8. Cable Span Analysis – Reports overall fiber capacity for your entire network;
9. Network Statistics – Track the quantity of all your database objects over time. Often used for auditing purposes.

The O&M and Commercialization Entity shall ensure the Commission can run and/or view FMS reports/queries at any time. The O&M and Commercialization Entity shall provide FMS reports and/or answer queries upon Commission request.

**FOM-3.4 ESRI/GIS Integration.** The O&M and Commercialization Entity shall provide Environmental Systems Research Institute (ESRI) GIS integration for FMS. The Commission desires all Fiber Infrastructure information to be maintained within the FMS and be viewable within the Commission's GIS system for the purposes of visualizing data. Additionally, the GIS and FMS integration

shall include the ability to push GIS business layers to the FMS to create map overlays, view PTC locations, construction information, and other information as necessary and practicable. Data shared between the Commission's GIS system and the FMS shall be dynamic.

The GIS integration must be compatible with the following versions of ESRI software, as applicable:

- ArcGIS Enterprise 10.5.1 and greater
- ArcGIS Desktop 10.5.1 and greater
- ArcGIS Pro 2.3 or greater.

The O&M and Commercialization Entity shall coordinate and work with the Commission's program support group for GIS integrations and all GIS related configurations.

**FOM-3.5 FMS Training.** The O&M and Commercialization Entity shall provide three (3), 8-hour formal in-person FMS training sessions to an anticipated ten (10) designated Commission personnel per session in a workshop/classroom setting. In-person training shall be conducted at the Commission's TIP building. The FMS training sessions shall be recorded and any training materials (including handouts, supplemental information, software vendor training videos, online self-guided training, etc.) shall be provided by the O&M and Commercialization Entity. The Commission reserves the right of future internal use of any and all recorded training and training materials provided by the O&M and Commercialization Entity, at no additional cost to the Commission. The O&M and Commercialization Entity shall provide the Commission with a minimum of thirty (30) calendar days' notice in advance of all training activities. Training for the FMS shall include basic navigation, functionality, and proper usage of the software. Specifically, the O&M and Commercialization Entity shall provide training including but not be limited to the following functions of the FMS that are of particular importance to the Commission:

- Running reports and queries;
- Looking up splicing and termination details;
- Identifying dark and lit fiber for use in future integrations; and
- Administering user accounts and access rights.

In addition to the initial 24 hours of in-person training, the O&M and Commercialization Entity shall provide additional in-person training at the request of the Commission.

Written or electronic training materials on the FMS shall be maintained, updated, and continually available for refresher training, or new employee training between training sessions at the Commission's request. Training for all new personnel as their employment begins, and training as necessary to address changes in technology may be conducted through the use of webinars, self-paced on-line trainings, and/or videos.

**FOM-4. Witnessing and Acceptance.** The O&M and Commercialization Entity shall be responsible for witnessing and accepting any new fiber testing/installations that occur on the Turnpike. The O&M and Commercialization Entity will not be responsible for the testing of any existing legacy fiber optic cable

located on the Turnpike. The Commission will provide the O&M and Commercialization Entity with information related to the existing operating fiber optic cable that will be accepted as a part of this Contract.

**FOM-4.1 New Fiber Installation.** As a part of construction projects, including the Fiber Optic Network System (FON) Design Build (D-B) Contract, the backbone fiber optic cable will be installed by the FON D-B Contractor. The FON D-B Contractor will also be responsible for testing and ensuring the fiber is working properly in accordance with **FR-1.12**. During the testing of the fiber, the O&M and Commercialization Entity is required to be on site to witness and confirm that the testing took place and is working properly. Once the testing of the fiber has occurred, the O&M and Commercialization Entity will be responsible for accepting the fiber and gathering the necessary installation and testing documentation from the construction contractor. The installation, testing, and acceptance information collected from the contractor will be pulled into a deliverable list to be submitted to the Commission. The deliverable list and supporting documentation will be uploaded to the FMS. For more information on the FMS, refer to **FOM-3**.

The O&M and Commercialization Entity will be required to attend the construction meetings, specifically the design portion on the construction meeting. Attendance at these meetings may be achieved remotely, if practicable. The O&M and Commercialization Entity will also be required to inform the contractor of any information or work that will need to be completed. After the testing and acceptance of the fiber has occurred and is officially operating properly, the O&M and Commercialization Entity will accept responsibility for the O&M of the new fiber as a part of this Contract. These requirements will apply to future fiber design and installation projects, other than the FON D-B projects.

**FOM-4.2 Management of the Existing Fiber.** The Commission currently has existing fiber optic cable installed on various sections of Commission roadways as detailed in Appendix M. The O&M and Commercialization Entity shall take responsibility of operating and maintaining the existing lit fiber optic cable. The O&M and Commercialization Entity will accept that existing fiber optic cable strands currently in use by devices that are operational. The O&M and Commercialization Entity shall be responsible for maintaining the active existing cable strands in accordance with **FOM-2**.

The O&M and Commercialization Entity will not be responsible for accepting existing dark fiber optic cable strands. All existing fiber optic cable strands shall remain untouched unless the O&M and Commercialization Entity chooses to utilize the existing fiber to connect to equipment. If the O&M and Commercialization Entity chooses to utilize existing fiber optic cable strands, the O&M and Commercialization Entity must test and prove that the fiber optic cable is functioning properly. The O&M and Commercialization Entity shall identify and propose alternate means of connecting new or existing equipment if the existing fiber optic cable is found to be unsuitable for use. Should the existing fiber optic cable be damaged as a part of this effort, the O&M and Commercialization Entity will be held accountable for replacing these connections at their own cost. An inventory and location of the Commission's existing fiber optic cable can be found in Appendix M.

**FOM-5 Trunk Connections.** The O&M and Commercialization Entity shall install additional Communications Assets as requested by the Commission. Communications Assets may include, but not be limited to, new fiber optic cable laterals from the backbone, temporary fiber optic cable, or new/relocated backbone fiber optic cable. The Commission reserves the right to use other contractors for

Communications Assets installations and implementations at its sole discretion. The O&M and Commercialization Entity shall be responsible for operation and maintenance of these Communications Assets after installation and testing. In the event that the Communications Asset is installed by other contractors, the O&M and Commercialization Entity shall witness and accept testing, in accordance with **FOM-4**, before assuming responsibility of the O&M of the Communications Assets.

**FOM-5.1 New Lateral Installations.** The O&M and Commercialization Entity shall install new fiber optic cable laterals as requested by the Commission. The civil infrastructure (cabinets, conduits, junction boxes) will typically be installed from the nearest backbone junction box to a termination point by others under a separate contract. The O&M and Commercialization Entity shall be responsible for furnishing and installing the new fiber optic cable lateral from the backbone junction box through the conduit to a termination point. The termination point will either be within a cabinet or a building. The O&M and Commercialization Entity shall splice the fiber lateral to the backbone in an environmentally sealed enclosure and terminate the fiber on a patch panel in the cabinet/building in accordance with the approved plans. Communications Assets installed by the O&M and Commercialization Entity shall be tested by the O&M and Commercialization Entity in accordance with Commission Standards and procedures. The O&M and Commercialization Entity shall be on site within two weeks of notification to begin the installation of the fiber optic cable lateral.

In certain instances, the O&M and Commercialization Entity may be required to install the civil infrastructure. For these requests, the O&M and Commercialization Entity shall contract with a contractor to construct the required infrastructure. The contractor shall meet the construction qualifications identified in Appendix U.

**FOM-5.2 Temporary and Relocated Fiber Optic Cable.** The O&M and Commercialization Entity shall install temporary fiber optic cable as requested by the Commission. During widening and/or reconstruction projects, the Commission may require temporary fiber optic cable to replace the existing fiber optic cable. The temporary installation will typically be aerial fiber optic cable on utility poles installed by the construction contractor. The O&M and Commercialization Entity shall be involved with the design process to ensure the design meets their requirements for the temporary installation. The temporary fiber optic cable counts may be less than the existing cable. During the design process, the O&M and Commercialization Entity shall provide the fiber counts for the temporary fiber necessary to keep all active fiber strands active on the temporary fiber.

The O&M and Commercialization Entity shall be responsible for furnishing and installing the temporary fiber optic cable on the utility poles installed by others. The O&M and Commercialization Entity may also relocate the existing fiber to the utility poles. The O&M and Commercialization Entity will splice the temporary fiber optic cable to the existing fiber at both ends of the temporary fiber. If the existing fiber is connected to any devices or demarcation points, the O&M and Commercialization Entity will connect these locations to the temporary fiber. Temporary connections to existing devices that are not connected to the existing fiber will not be required.

Upon completion of the widening and/or reconstruction project, the O&M and Commercialization Entity shall be responsible for furnishing and installing the permanent relocated fiber optic cable in conduit constructed as part of the project. The O&M and Commercialization Entity shall splice the new fiber optic cable at either end to the existing fiber optic cable. The new fiber optic cable type and strands shall

match the existing fiber optic cable type and strands. Any temporary connections to existing devices or demarcation points shall be connected in a permanent manner to the new fiber optic cable. The O&M and Commercialization Entity shall be responsible for testing any fiber optic cable and connections installed. All changes to the new permanent fiber optic cable shall be documented and stored in the FMS.

**FOM-5.3 Fiber Connections to Cashless Tolling.** The Commission will be moving to a Cashless Tolling system at each of the Turnpike new tolling gantries. The O&M and Commercialization Entity shall be responsible for installing new fiber optic cable connections to the Cashless Tolling points as requested by the Commission.

As a part of the Fiber Optic Network System (FON) Design-Build (D-B) Contract, a junction box will be installed at each Cashless Tolling site located on the Turnpike. The junction box will be installed within 50 feet of the work zone area and will contain a 50-foot slack coil inside. There are twenty (20) Cashless Tolling sites located on the Turnpike. The FON D-B Contractor will be responsible for making the lateral connections to any Cashless Tolling building that is currently constructed on the Turnpike. The effort conducted by the FON D-B Contractor for the constructed Cashless Tolling building will include connecting, splicing, and terminating the fiber optic cable. The O&M and Commercialization Entity will be responsible for making the lateral connection between the junction box and the future Cashless Tolling buildings. A list of the existing and future Cashless Tolling sites can be found in Appendix O - Demarcation Sites and Requirements. In the scenario where the Cashless Tolling building is not constructed, the O&M and Commercialization Entity will be responsible for installing a new rack inside the building and connecting, splicing and terminating the fiber optic cable.

The O&M and Commercialization Entity shall be responsible for maintenance of fiber including all labor, consumables, spare parts, repair, rebuild, and replacement for all planned and unplanned services. The O&M and Commercialization Entity shall be responsible for furnishing, installing, and splicing the fiber during construction of the Cashless Tolling buildings. Conduits from a junction box on the backbone to a junction box at the Cashless Tolling building, shall be provided and installed by the Cashless Tolling contractor during construction. The O&M and Commercialization Entity shall be required to pull Distribution Fiber from a junction box located on the backbone to a splice in a junction box at the Cashless Tolling building. The O&M and Commercialization Entity shall splice and pull Distribution Fiber from the junction box, enter the Cashless Tolling building, and route the fiber to a designated fiber rack. The fiber rack shall be provided and installed by the O&M and Commercialization Entity. Appendix V provides conceptual design drawings for fiber at demarcation sites (for Cashless Tolling sites, please refer to the “non-hub locations” drawings).

**FOM-6 Coordination Tasks.** The O&M and Commercialization Entity will be required to coordinate and work with other entities, agencies, and contractors in addition to the Commission as indicated in **FR-1.10**. The O&M and Commercialization Entity shall keep the Commission informed on all coordination activities and actively work with the other entities, agencies, and contractors without placing the burden of responsibility back on the Commission.

**FOM-6.1 ICT Contractor.** The O&M and Commercialization Entity will be required to coordinate and work with the ICT Contractor. In the case that there is an incident that occurs, responsibility coordination between the O&M and Commercialization Entity and the ICT Contractor will be handled through tickets in the ServiceNow System. Tickets may be assigned to either the O&M and

Commercialization Entity or the ICT Contractor. The ServiceNow ticket process is further outlined in **FR-1.7.1**.

There may be some cases where both the O&M and Commercialization Entity and the ICT Contractor will need to work together, possibly report to the site location in order to determine and resolve an ongoing issue. The O&M and Commercialization Entity will be required to attend ICT Contract coordination meetings as necessary.

**FOM 6.2 New Project Designs and Rehab Projects.** Throughout the Contract Term, the Commission anticipates that new project designs or rehab projects will be added along the Turnpike. The O&M and Commercialization Entity must plan for the coordination of approximately twenty (20) new projects or rehab projects per year. The O&M and Commercialization Entity will be required to attend 2 meetings per project that are specifically related to any new project designs or rehab projects taking place on the Pennsylvania Turnpike. Attendance at these meetings may be achieved remotely, if practicable. The O&M and Commercialization Entity must provide insight on the fiber optic cable needs for these new projects or rehab projects and submit plans in response. These new project designs or rehab project plans will be submitted through the use of the PDMS as indicated in **FR-1.8**.

**FOM-6.3 Fiber Optic Network Design Build Contractor.** The O&M and Commercialization Entity will be required to coordinate with the Fiber Optic Network System (FON) Design-Build (D-B) Contractor upon NTP. After NTP, the O&M and Commercialization Entity is expected to notify the FON D-B Contractor of any anticipated work within 14 calendar days. The O&M and Commercialization Entity will need to lead the instruction related to the dark fiber that was installed as a part of the FON D-B Contract. The O&M and Commercialization Entity will need to instruct the FON D-B Contractor of the efforts that need to be made to ensure that the dark fiber is installed and operating properly. This work may include but is not limited to fiber splicing designs, fiber allocation, fiber terminations, fiber terminations at the demarcation sites, and network designs. A list of the demarcation sites that require a connection are provided in Appendix O.

**FOM-6.4 Network Design Tasks.** Although the Commission's network engineers shall be responsible for final network designs, the O&M and Commercialization Entity shall utilize the FMS and work closely with the Commission's engineers and the Commission's contracted partners (D-B Contractors, consultants, etc.) to coordinate, develop, and implement network designs, plans, modifications, and integrations. For example, this service could be utilized for a new ITS deployment, new tolling point, or integration with PennDOT's network. The O&M and Commercialization Entity shall ensure efficient and economical use of Fiber Infrastructure as part of this service. The O&M and Commercialization Entity shall adhere to the Commission's change management standards in Appendix R for Network Design Tasks and all work arising therefrom.

Based on the locations of new, modified, or integrated network components, equipment, buildings, facilities, etc. the O&M and Commercialization Entity shall utilize the FMS to provide the Commission and its contracted partners with network design information/specifications and distribution/termination plans. The O&M and Commercialization Entity shall:

- Determine connectivity requirements;
  - Which fibers should be used based on strand/span priority;

- Where fibers need to be spliced and terminated;
- Point-to-point connections, data paths, and ports; and
- Ensure fiber and span priorities are physically and logically separated and adequately protected (i.e. ensure critical connections are not grouped with low priority connections).

After determining connectivity requirements and any other necessary network design specifications, the O&M and Commercialization Entity may be responsible for pulling, splicing, and terminating fibers as necessary. For FON D-B Contractor installations, the O&M and Commercialization Entity shall be responsible for coordinating and working with FON D-B Contractors to obtain all applicable information to update and maintain the FMS. Information fields shall include those required for FMS inventory elements in **FOM-3.1**.

The O&M and Commercialization Entity shall provide fiber distribution/termination plans for all locations in Appendix O in coordination with FON D-B Contracts EN-00232-03-02 & EN-00232-03-03 splicing and termination schedules. The O&M and Commercialization Entity shall be provided with the FON D-B Contractor and Commission network engineer designs, determine connectivity requirements and span priorities as indicated in the bulleted list above, and provide the Commission with distribution/termination plans. The current target date for the completion of these distribution/termination plans is April 1, 2021. Subsequently, the O&M and Commercialization Entity shall provide plans for future connections as requested by the Commission. Conceptual design drawings for hub and non-hub sites are provided in Appendix V for O&M and Commercialization Entity reference. *Please Note:* The drawings provide examples for fiber running north and south; the same logic can be applied to fiber running east and west.

## **FOM-7 Administrative Tasks.**

**FOM-7.1 On-Site Maintenance Management.** The O&M and Commercialization Entity shall provide a Project Manager to oversee and coordinate all work stated within the Contract. The Project Manager shall work on-site at the TOC. Appendix H provides preferred qualifications for the Project Manager. The O&M and Commercialization Entity shall discuss the proposed Project Manager's experience and its application to the Contract. The Project Manager shall perform all tasks required to adequately manage personnel who will perform work required by the Contract. The O&M and Commercialization Entity shall also identify a contact number for the Contract work that should be available twenty-four hours a day, 365 days per year via mobile telephone. The O&M and Commercialization Entity shall have the ability to dispatch the qualified personnel to address issues in accordance with the SLA requirements listed in Appendix K. The O&M and Commercialization Entity shall review all criteria set forth by the Commission in the RFP in consideration of the individuals proposed for the assignment.

The Project Manager or the Deputy Project Manager must be in attendance in-person for the bi-weekly project coordination meetings. The project coordination meetings will be held at the Commission's TIP building. A total of 26 project coordination meetings will be held per year. The O&M and Commercialization Entity will be responsible for preparing an agenda and a draft of the meeting minutes following each meeting held. The O&M and Commercialization Entity shall submit the recorded meeting minutes to the Turnpike.

The Project Manager will be expected to ensure all administrative tasks on the project are completed.

**FOM-7.2 Professional Services Review.** The O&M and Commercialization Entity shall have the ability to provide Professional Engineering Design Services and be able to prepare a complete set of plans to remove, repair, install, relocate or adjust the fiber optic cable system as required by the Commission as a result of maintenance, improvement projects or projects performed by others on Commission property. Plans provided by the O&M and Commercialization Entity shall be sufficient to be included in the Commission's construction plans, advertised for bids by the Commission or provided to a blanket contractor. All resulting design plans, contracts, specifications, cost estimates, schedules and material lists shall become the property of the Commission. Designs may be developed as part of a standalone project or for inclusion in a design project by others. Development of plans, specifications, and/or estimates may be required and will be determined on a project by project basis.

The O&M and Commercialization Entity shall provide Professional Engineering Review Services and submit recommendations regarding the approval of fiber optic cable system installation and relocation plans when proposed and prepared by other professional engineering firms under contract with the Commission. The O&M and Commercialization Entity shall review and approve plans to protect, adjust, or relocate the backbone and distribution fiber optic cable system.

All Professional Engineering Services, as determined by the Commission, shall be performed by an engineer licensed in the state of Pennsylvania. The Commission reserves the right to utilize other Design Section Engineering contracts to perform this work. If the right to utilize other Design Section Engineering contracts is exercised the O&M and Commercialization Entity shall be required to perform QA/QC review of the contingent design work to ensure conformity of the existing fiber optic system if directed by the Commission.

**FOM-7.3 SLA Management.** This RFP is for a performance-based contract utilizing the ServiceNow Service Request System (SSRS) to track and monitor the performance of the O&M and Commercialization Entity via ticket acknowledgement and resolution times as well as Availability as detailed in **FR-2**. Performance requirements shall apply to the existing assets as described in this RFP and are subject to change via Annual Contract Review. SLA requirements are detailed in Appendix K.

As part of SLA management, the O&M and Commercialization Entity shall provide the Commission with the following services to promote transparency and adherence to performance guidelines:

- Ticket acknowledgment and resolution tracking, monitoring, and reporting;
- Availability tracking, monitoring, and reporting;
- Performance Statistic Revision Requests; and
- Performance Improvement Plan Development.

Availability to date shall be available to the Commission on-line in real time via ServiceNow. In addition, the O&M and Commercialization Entity shall submit SLA Reports as indicated in **Section IVB-5 Reports and Project Control**. The Commission shall approve of the content to be included in SLA Reports and may request additional performance statistics to be included in the future. The O&M and



Commercialization Entity shall utilize ServiceNow to calculate, track, monitor, and generate SLA Reports.

The O&M and Commercialization Entity may submit a Performance Statistic Revision Request to the Commission if any issue out of the O&M and Commercialization Entity's control affects performance or the resolution of a ticket. A Performance Statistic Revision Request may be submitted if the O&M and Commercialization Entity believes a performance statistic was affected by a planned outage or change. The Commission shall allow for the revision to performance statistics if the O&M and Commercialization Entity can submit adequate proof that the issue was indeed out of their control. The Commission shall reserve the right to approve or deny a Performance Statistic Revision Request at its discretion. If a Performance Statistic Revision Request is approved, any changes resulting from the request shall be credited on the next monthly invoice.

The O&M and Commercialization Entity shall develop and submit a Performance Improvement Plan as stated in **FR-2** if an Unsatisfactory Performance Notice is received from the Commission.

*As previously indicated, Appendix K identifies Commission SLA in which performance of services for Commercialization Assets are exempt.*

**FOM-7.4 Documentation Management.** The O&M and Commercialization Entity shall maintain, develop, and store project documentation. Document management shall include updating and maintaining the KB, PDMS, and SSRS ticket records. The KB shall include Contract Plans, SOP, and reports/project control documents. The PDMS shall include project specific documentation and plans.

SSRS ticket records shall serve as a comprehensive record of activities performed under the Contract.

This service includes the development of the Contract Plans identified in Appendix I. Contract Plans are intended to guide O&M and Commercialization Entity personnel while performing work and establish SOPs. Contract Plans shall increase efficiency and effectiveness, while providing the Commission with insight and awareness of how tasks are performed on a daily basis. Annual updates to Contract Plans intentionally coincide with each LOA, where plans must be updated and revised to address any known issues with previous plans and to ensure that the O&M and Commercialization Entity can meet Contract requirements throughout the following LOA period. Project specific plans are required for a variety of tasks and shall vary dependent on the specific project at hand.

Reports and project controls are generally intended to promote transparency/teamwork and to target delivery of information particularly valuable to the Commission.

Documentation relating to this contract shall be available to the Commission at any time. The O&M and Commercialization Entity shall develop additional documentation as it relates to this Contract at the request of the Commission. The Proposer shall develop and submit the DDMP to the Commission as indicated in **FR-1.15.3**.

**FOM-7.5 Contract Management.** The O&M and Commercialization Entity is required to participate in the management of the Contract executed by this RFP. Unless specifically noted as the responsibility of another party in this RFP, the O&M and Commercialization Entity shall be responsible

for all activities necessary to provide the Commission with functional and reliable systems listed in **Section IVB-2 b. Commission Assets to be Covered.**

The O&M and Commercialization Entity shall develop and submit a Contract Management Plan to the Commission

**FOM-7.5.1 Contract Change Management.** The O&M and Commercialization Entity is required to abide by the Commission's policies and processes for all changes regarding the Contract. As noted previously in this RFP, changes likely to occur during the life of the Contract include but are not limited to the following:

- Geographic Area to be Covered;
- Commission Assets to be Covered;
- Requirements;
- SLA (Appendix K);
- Services and associated Contract Plans; and
- Reports and Project Controls.

Changes to the Contract shall be addressed during Annual Contract Reviews. The standard LOA process shall authorize changes to be implemented. All changes shall be officially added or subtracted via Contract Addenda. Contract changes shall have no impact on the line-item pricing previously provided in the O&M and Commercialization Entity's Price Proposal.

**FOM-7.5.2 Letters of Authorization/Annual Contract Reviews.** The O&M and Commercialization Entity shall attend and participate in contract reviews every year with the Commission. The Commission and the O&M and Commercialization Entity shall discuss contractual items including but not limited to project status, contractual issues, and recommended changes. LOA shall be developed and issued as described in **FR-1.2**. The O&M and Commercialization Entity shall perform work authorized in Standard LOA and Separate LOA.

**FOM-7.5.3 Contract Issue Mitigation.** If contractual issues arise that cannot be adequately resolved during an Annual Contract Review, the O&M and Commercialization Entity shall follow the Commission's process to appeal contractual issues at the sole discretion of the Commission. It shall be the understanding of the O&M and Commercialization Entity and the Commission that the Contract shall promote working together to solve contractual issues and avoid placing blame on one another.

**FOM-7.5.4 Executive Updates.** The O&M and Commercialization Entity shall provide the Commission with Executive Updates regarding all Contract management items as requested by the Commission. Executive updates shall be in addition to executive meetings and presentations detailed in **Section IVB-5 Reports and Project Control.**

**FOM-7.5.5 O&M Services Invoicing.** The O&M and Commercialization Entity shall submit invoices for all O&M services performed under the Contract, excluding all O&M services performed in support of

the Commercialization Services, at regular one-month intervals. As previously stated in this RFP, the Commission shall incentivize exceptional performance of the O&M and Commercialization Entity and disincentivize poor performance of the O&M and Commercialization Entity.

All invoicing shall be performed in accordance with **FR-1.4**.

**IVB-5 Reports and Project Control (RPC).** The O&M and Commercialization Entity shall submit all reports electronically to the Commission via the ServiceNow KB. Refer to Appendix K for due dates/timeframes for the submission of reports and project control deliverables. Given the potential for changes to assets, tasks, SLA, etc., the reports and project control mechanisms listed herein shall be subject to changes via contractual reviews and change control processes set forth previously in this RFP.

Meetings shall be held in person with the Commission’s communications systems and information technology staff.

#### **RPC-1 Standard Reports.**

**RPC-1.1 Monthly LOA Status Report.** A monthly LOA status report will be provided to the Commission to track the status of tasks described in all active standard and separate LOA(s). Monthly LOA Status Reports shall list all completed tasks from the LOA work plan as well as tasks yet to be completed. The LOA Status Report shall highlight potential issues with completing the work estimate of the LOA within the assigned timeframe and budget.

These reports shall be submitted to the Commission on or before the 5th calendar day of each month for the immediately preceding month.

**RPC-1.2 Service Reports.** The O&M and Commercialization Entity shall submit Service Reports as indicated in **Section IVB-4 “Services.”** Report requirements differ slightly for each service requiring submission of reports. Reference each section for descriptions of each required report. All past reports shall be available to the Commission online via the KB at any time.

The following table lists required service reports detailed in **Section IVB-4 “Services”**:

<b>Service #</b>	<b>Report Title</b>	<b>Frequency</b>
FOM-2.9	Root Cause Analysis Report	Ad-Hoc
FOM-3.3	FMS Reports/Queries	Ad-Hoc

*As previously noted, the O&M and Commercialization Entity is not required to submit Root Cause Analysis Reports for Commercialization Assets.*

**RPC-1.3 Annual Report.** The O&M and Commercialization Entity shall provide the Commission with an annual O&M and engineering report that defines the existing Fiber Infrastructure, identifies risks and risk mitigation strategies, and provides executive level recommendations with estimated implementation costs for budgeting. Recommendations shall address needs for future enhancements and potential deployments that could be made to improve the Commission’s systems.

The Annual Report shall include an abstract and executive summary written in terminology meaningful to Commission management and others generally familiar with the subject matter. The Annual Report shall describe methodology and analytics used to develop the recommendations in the report. The Annual Report shall include supporting documentation such as forms, questionnaires, copies of technical analyses, investigations of new technologies, etc. The Annual Report shall recommend a time-phased project plan for implementing the recommendations provided.

Additionally, the Annual Report shall reference current inventories for all assets maintained under the Contract. Any planned inventory changes should be noted.

**RPC-2 ServiceNow Reports and Dashboards.** ServiceNow Reports and dashboards shall include but not be limited to the following:

- Reports:
  - SLA Reports
    - Ticket Acknowledgement and Resolution statistics;
    - Cumulative Downtime (See **FR-2.2**) to date;
    - SLA breach details; and
  - Recurring issues.
- Dashboards:
  - Number of Open Incidents;
  - Number of Open tasks;
  - Number of Unassigned tasks;
  - Age of Open Tasks;
  - Staff Assigned to Tasks; and
  - Additional items by request.

The O&M and Commercialization Entity shall coordinate and work with the Commission and its ServiceNow providers to configure ServiceNow reports and dashboards.

*Please Note:*

- *For Commercialization Assets, ServiceNow shall only be used to track, manage, and report SLA applicable to services performed for Commercialization Assets. Appendix K identifies Commission SLA in which performance of services for Commercialization Assets are exempt.*
- *Recurring issues reports are not required for Commercialization Assets.*
- *Dashboards shall not include FOM-2 statistics for Commercialization Assets.*

### **RPC-3 Meetings and Presentations.**

**RPC-3.1 Project Manager Meetings.** The O&M and Commercialization Entity's Project Manager shall meet in person with Commission staff at a Commission specified location to prioritize work and review previous reports, projects, and managerial-level contractual items on a monthly basis. The O&M and Commercialization Entity shall come prepared with all applicable reports and an agenda of old and new items for discussion. The O&M and Commercialization Entity shall be required to keep minutes of these meetings and provide them to the Commission staff involved.

**RPC-3.2 Executive Meetings.** The O&M and Commercialization Entity is required to attend and present at in person executive meetings at a Commission specified location at the request of the Commission. The purpose of these meetings shall be to provide Commission executives with updates and/or discuss major executive-level contractual items.

**RPC-3.3 Annual Presentation.** The O&M and Commercialization Entity shall develop and give an in person Annual Presentation to Commission executives and key staff involved with the Contract. The Annual Presentation shall be developed around increasing efficiency, improving performance, and reducing costs. The Annual Presentation shall be held as an open forum to discuss the Annual Report in detail and the O&M and Commercialization Entity shall field questions from Commission staff.

\*\*\*\*\*

# GLOSSARY

---

## Acronyms and Definitions



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

**Pennsylvania Turnpike Commission  
RFP NUMBER # 19-10350-8799  
GLOSSARY – ACRONYMS AND DEFINITIONS**

**Fiber Infrastructure: Operations, Maintenance, and Commercialization Services Project**

<b>Acronym</b>	<b>Definition</b>
AD	Active Directory
ANSI	American National Standards Institute
AP	Attenuation Profile
APWA	American Public Works Association
CADD	Computer Aided Design and Drafting
CD	Chromatic Dispersion
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CI	Configuration Items
CIO	Chief Information Officer
CMDB	Configuration Management Database
COO	Chief Operating Officer
COTS	Commercial Off-the-Shelf
CRB	Change Review Board
CTO	Chief Technology Officer
DB	Diverse Business
D-B	Design-Build
DDMP	Document and Data Management Plan
ERO	Eastern Regional Office
ESRI	Environmental Systems Research Institute
FEMA	Federal Emergency Management Agency
FEMO	Facilities and Energy Management Operations
FMS	Fiber Management System
FON	Fiber Optic Network Systems
GIS	Geographic Information System
GPS	Global Positioning System
HIPAA	Health Insurance Portability and Accountability Act
ICT	ITS, Communications, and Technology
IL	Insertion Loss
IT	Information Technology
ITIL	Information Technology Infrastructure Library
ITS	Intelligent Transportation Systems
IV&V	Independent Verification and Validation
JB	Junction Box
KB	ServiceNow Knowledge Base

<b>Acronym</b>	<b>Definition</b>
LAN	Local Area Network
LOA	Letter of Authorization
MP	Milepost
MPL	Minimum Participation Level
MPT	Maintenance and Protection of Traffic
NC	Network Control
NEIS	National Electrical Installation Standards
NESC	National Electric Safety Code
NTP	Notice to Proceed
O&M	Operations and Maintenance
ODF	Optical Distribution Frame
OEM	Original Equipment Manufacturers
ORL	Optical Return Loss
OSHA	Occupational Safety and Health Administration
OTDR	Optical Time-Domain Reflectometer
PDMS	Project Document Management System
PEMA	Pennsylvania Emergency Management Agency
PennDOT	Pennsylvania Department of Transportation
PMD	Polarization Mode Dispersion
PS&E	Plans, Specifications, and Estimates
PSP	Pennsylvania State Police
PSPC	Professional Services Procurement Committee
PTS	Pennsylvania Turnpike Standard
QA	Quality Assurance
RFP	Request for Proposals
RPO	Recovery Point Objective
RSPL	Recommended Spare Parts List
RTO	Recovery Time Objective
RTKL	Right-to-Know Law
SLA	Service Level Agreement
SMFO	Single Mode Fiber Optic
SOP	Standard Operating Procedures
SSO	Single Sign-On
SSRS	ServiceNow Service Request System
SWZ	Smart Work Zones
TET	Technical Evaluation Team
TIP	Turnpike Industrial Park
TOC	Traffic Operations Center
WAN	Wide Area Network
WRO	Western Regional Office



All capitalized terms used in this Request for Proposals (RFP) shall have the meanings set forth below.

**“Addenda” or “Addendum”** means each amendment to this RFP issued by the Issuing Office.

**“Additional Fee”** is defined in Section 4(a)(iii) of the OMC Agreement.

**“Agreement”** is defined in the preamble to the OMC Agreement.

**“Annual Financial Performance Report”** is defined in **Part IV – Section IVA-5. Annual Financial Performance Report for Commercialization Services.**

**“Applicable Law”** means any statute, law, code, regulation, ordinance, rule, common law, judgment, judicial or administrative order, decree, directive, or other requirement having the force of law or other governmental restriction (including those resulting from the initiative or referendum process) or any similar form of decision of or determination by, or any interpretation or administration of any of the foregoing by, any Governmental Entity which is applicable to the Fiber Infrastructure, Commercialization Services, O&M Services, or any relevant Person, whether taking effect before or after the date of the RFP, the Proposal, or the OMC Agreement. Applicable Law excludes Governmental Approvals.

**“Backbone Fiber”** is a 288-strand Single Mode Fiber Optic (SMFO) cable being installed by the D-B Contractor(s) which connects (or will connect in the future) backbone demarcation site / network hub location.

**“Base Fee”** is defined in Section 4(a)(ii) of the OMC Agreement.

**“Breach”** means any unauthorized acquisition, access, use, or disclosure of Commission Data that compromises the security or privacy of such data.

**“Business Day”** means any day that is not a Saturday, a Sunday or a federal public holiday.

**“Cashless Tolling”** allows all PTC customers to pay without stopping at tollbooths electronically.

**“Change in Costs”** means, with respect to any Compensation Event, the effect of that Compensation Event (whether of a one-off or recurring nature, and whether positive or negative) upon the actual or anticipated costs, losses or liabilities of Contractor, including, as relevant, the following:

- (a) the reasonable costs of complying with the requirements of Compensation Events, including the reasonable costs of preparation of designs and estimates;
- (b) the costs of continued employment of, or making redundant, staff who are no longer required;
- (c) the costs of employing additional staff;
- (d) reasonable professional fees;

(e) the effects of costs on implementation of any insurance reinstatement in accordance with this Agreement, including any adverse effect on the insurance proceeds payable to Contractor (whether arising from physical damage insurance or business interruption insurance (or their equivalent)) with respect to that insurance reinstatement and any extension of the period of implementation of the insurance reinstatement;

(f) operating costs, or life cycle, maintenance or replacement costs;

(g) any expenditure which is treated as a capital expenditure in accordance with GAAP or equivalent auditing standards utilized and generally accepted in Contractor's country of incorporation of such party;

(h) any deductible or increase in the level of deductible, or any increase in premium under or with respect to any insurance policy; and

(i) Losses;

provided, that in no circumstances will any Change in Costs include:

(A) any impact to Contractor's revenues from Commercialization Services, financing costs, or costs arising from Contractor's obligations to any Person that contracts Contractor pursuant to a Commercial Contract/Agreement for access to the Commercialization Assets, including but not limited to: (I) Losses that arise in consequence of Contractor receiving revenues from Commercial Activities later than the date that it would have received them in the absence of a Compensation Event; (II) the loss of Commercial Revenues; or (III) any other Loss or consequential damage that arises in consequence of Contractor's loss or delayed receipt of revenues from Commercialization Services; and

(B) any Loss resulting from Contractor's compliance with any authorization, requirement, or order issued (x) pursuant to Section 214(d) of the Telecommunications Act or (y) 66 Pa.C.S.A. § 1505(a).

**"Change in Law"** means the introduction or repeal (in whole or in part) of, the amendment, alteration, or modification to, or the change in interpretation of (in each case including, to the extent applicable, by retroactive effect), any Applicable Law, standards, practices or guidelines issued or published by any Governmental Entity that occur at any time after the Setting Date are either:

(a) binding on Contractor; or

(b) if not binding on Contractor, both (i) typically complied with in the construction or relevant maintenance industries, and (ii) necessary in order to comply with Good Industry Practice or the provisions of this Agreement,

excluding, however, any such introduction, repeal, amendment, alteration, modification, or change in relation to:

(i) the Telecommunications Act or any Applicable Law of the Commonwealth, to the extent any such introduction, repeal, amendment, alteration, modification, or change (I) results in (x) Contractor being designated a common carrier, (y) the application of common carrier regulations to Fiber Infrastructure, or (z) the illegality of the location or operation of any Commercialization Assets, or (II) applies to Contractor or the Fiber Infrastructure by virtue of Contractor's election to become a common carrier under the Telecommunications Act or any Applicable Law of the Commonwealth prior to the occurrence of such Change in Law;

(ii) any Applicable Law of the Commonwealth passed or adopted but not yet effective as of the Setting Date; and

(iii) any federal, Commonwealth, or local tax law of general application (it being understood that any change in federal, Commonwealth, or local tax laws will not be deemed of general application if such change is solely directed at, and the effect of which is solely borne by, Contractor or similar projects).

**“Commercial Agreements Register”** has the meaning set forth in **Section 2(e)** of **Exhibit B** of the OMC Agreement.

**“Commercial Capital Expenses”** mean all expenses associated with:

a. Any actual documented costs, reviewed and agreed upon between the Commission and Contractor, arising from incremental construction of Commercialization Assets which are in addition to those built by the Commission's FON D-B projects, on or off of the Commission's ROW.

b. Any non-marketing actual documented costs arising from specific customer acquisitions (e.g. customer premise installations, onboarding) that are not ongoing in nature.

**“Commercial Contract”** or **“Commercial Agreement”** means any commercial contract relating to the Fiber Infrastructure entered into by Contractor with non-Commission entities for the purpose of providing Commercialization Services.

**“Commercial End-User”** means any Person that contracts with the Contractor pursuant to a Commercial Contract for access to the Commercialization Assets.

**“Commercial Lateral”** means any physical extension of the Fiber Infrastructure consisting of fiber optic cable, conduit, and/or junction boxes for the purpose of conducting Commercialization Services.

**“Commercialization Assets”** means Fiber Infrastructure developed by the Commission that will be made available to the O&M and Commercialization Entity for the performance of Commercialization Services, as described in **Part IV, Section IVA-7. Assets Available for Commercialization Activities**, and any new assets developed by the O&M and Commercialization Entity, including any Commercial Laterals.

**“Commercialization Fiber”** is a 288-strand Single Mode Fiber Optic (SMFO) cable being installed by the D-B Contractor(s) as part of the Commercialization Assets.

**“Commercialization Operating Model”** means the dynamic Microsoft Excel calculation model to be submitted as a part of the Proposal in response to this RFP as a part of the Proposer’s Price Proposal, as defined in **Part II, Volume III: Section 5. Financial Statements and Price Proposal Submittal, Paragraph C.**

**“Commercialization Services”** means any lawful sale of the Commercialization Services as defined in **Part IV – Section IVA-3. Permitted Commercialization Services for the Eastern Network** conducted using the Commercialization Assets for the purpose of creating, sustaining, and maximizing the Commercialization Asset’s commercial revenues from non-Commission entities, as described in **Part IV, Section IVA-1. Commercialization Services Objectives.**

**“Commercialization Term”** is defined in Section 5(a) of the OMC Agreement.

**“Commission Data”** means Commission-provided information and Commission-related information acquired as a result of the services provided to Commission under this Agreement.

**“Commission”** means the Pennsylvania Turnpike Commission.

**“Commission’s Fiber Infrastructure”** means all Fiber Infrastructure reserved for the Commission’s use. Includes backbone fiber, distribution fiber, and lateral fiber as defined in **Part IV, Section IVB-2 b. Commission Assets to be Covered.**

**“Communications Assets”** may include, but not be limited to, new fiber optic cable laterals from the backbone, temporary fiber optic cable, or new/relocated backbone fiber optic cable.

**“Compensation Event”** is defined in Section 1 of Part 1 of **Exhibit D.**

**“Compensation Event Recourse”** is defined in Section 2 of Part 1 of **Exhibit D.**

**“Confidential Information”** is defined in Section 19(a) of the OMC Agreement.

**“Configuration Items”** are generally, any component or other service asset that needs to be managed in order to deliver an IT service.

**“Configuration Management Database”** is a Service Now database that is utilized to store, track, and maintain information for configuration items.

**“Conflicts of Interest”** is defined in **Part II - Section I General Information Submittal.**

**“Connectivity Event”** are incidents that impact connectivity to the fiber network via primary fiber routes. The fiber network remains available and connectivity persists via redundant paths.

**“Contract” or “Contract Agreement”** means this agreement (including the Fiber Infrastructure: O&M and Commercialization Services RFP, all its appendices, forms, exhibits, and the Proposer’s response to this RFP), as amended from time to time.

**“Contractor”** is defined in the preamble to the OMC Agreement.

**“Corrective Maintenance”** means, with respect to low or moderate priority SSRS tickets, the maintenance, repair, reconstruction, rehabilitation, restoration, renewal, or replacement of any worn-out, obsolete, deficient, damaged, or under-performing element of the Fiber Infrastructure required in order to resolve Connectivity Events and Unavailability Events as defined in **FR-1.14**.

**“Cumulative Downtime”** is the total time in a twelve (12) month period in which the Fiber Infrastructure has new, active, or otherwise open SSRS tickets for high and critical priority Unavailability Events

**“D-B Contracts”** means the two Design-Build contracts which are responsible for designing and installing the Backbone, Distribution, and Commercialization fiber along the mainline PA Turnpike and referred to as “Design/Build Project for Fiber Optic Network Installation Between MP 247.40 to MP H-42.70” and along the Northeast Extension “Design/Build Project for Fiber Optic Network Installation Between MP 333.30 to MP A-130.60”.

**“D-B Contractor(s)”** mean the Commission’s Fiber Optic Network System (FON) Design-Build (D-B) contractors which will undertake the design-build responsibilities of constructing the Fiber Infrastructure along the Eastern Network, as defined in **Part IV Work Statement**.

**“Detailed Compensation Event Notice”** is defined in Section 3(b)(i) of Part 1 of **Exhibit D**.

**“Detailed Relief Event Notice”** is defined in Section 3(b)(i) of Part 1 of **Exhibit D**.

**“Distribution Fiber”** is a 288-strand Single Mode Fiber Optic (SMFO) cable being installed by the D-B Contractor(s) in conformance with the Commission’s ITS construction standards to be more readily accessible and to enable relatively easy connection to existing tolling locations, current and future ITS devices, and other devices placed along the roadway.

**“Diverse Business” or “Diverse Business Requirements”** means a (i) disadvantaged business, (ii) minority-owned business, (iii) women-owned business, (iv) service-disabled veteran-owned business or (v) veteran-owned small business that has been certified by a third-party certifying organization recognized by the Commission. The Commission currently recognizes the following third-party certifying organizations: (i) the National Minority Supplier Development Counsel; (ii) the Women’s Business Development Enterprise National Council; (iii) the Small Business Administration; (iv) the Department of Veteran Affairs; and (v) the Pennsylvania Unified Certification Program.

**“Eastern Network”** as defined in **Part IV Work Statement**.

**“Effective Date”** is defined in the preamble to the OMC Agreement.

**“Emergency Maintenance”** means, with respect to high or critical priority SSRS tickets, the maintenance, repair, reconstruction, rehabilitation, restoration, renewal, or replacement of any worn-out, obsolete, deficient, damaged, or under-performing element of the Fiber Infrastructure required in order to resolve Unavailability Events as defined in **FR-1.14**.

**“Fiber Infrastructure”** means all dark and lit fiber, conduit, junction boxes (JB), splice enclosures, distribution/splice housings (rack or wall mounted), distribution panels and ports, and

any cabling or ancillary hardware used to terminate, patch, or bridge fibers between buffer tubes, which are located within the Commission's Right-of-Way.

**"FMS"** means Fiber Management System.

**"FON"** means Fiber Optic Network.

**"Force Majeure Event"** means the occurrence of any of the following events after the date of this Agreement that directly causes either Party (the "Affected Party") to be unable to comply with all or a material part of its obligations under this Agreement:

- (a) war, civil war, invasion, violent act of foreign enemy or armed conflict;
- (a) nuclear, chemical or biological contamination unless the source or cause of the contamination is brought to or near the Project Site by Contractor, or is a result of any breach by the Contractor of the terms of this Agreement;
- (b) ionizing radiation unless the source or cause of the ionizing radiation is brought to or near the Project Site by the Contractor, or is as a result of any breach by the Contractor of the terms of this Agreement; or
- (c) an act of Terrorism.

**"Good Faith"** means observance of reasonable commercial standards of fair dealing in a given trade or business.

**"Good Industry Practice"** means the exercise of the degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from time to time from a skilled and experienced designer, engineer, constructor, maintenance contractor or operator or developer seeking in Good Faith to comply with its contractual obligations, Applicable Law and Governmental Approvals, using accepted standards and criteria for design, construction, and repair normally used on similar projects in the same locality, and engaged in the same type of undertaking in the same locality under similar circumstances and conditions, including environmental conditions.

**"Governmental Approvals"** means all approvals, permits, permissions, consents, licenses, certificates (including sales tax exemption certificates) and authorizations (whether statutory or otherwise) which are required from time to time in connection with the Project to be issued by the Commission or any Governmental Entity.

**"Governmental Entity"** means the government of the United States of America, the Commonwealth of Pennsylvania, the cities and counties within the Commonwealth of Pennsylvania and any other agency, or subdivision of any of the foregoing, including any federal, state, or municipal government, and any court, agency, special district, commission or other authority exercising executive, legislative, judicial, regulatory, administrative or taxing functions of, or pertaining to, the government of the United States of America, the Commonwealth of Pennsylvania or the cities and counties within the Commonwealth of Pennsylvania.

**“ICT Contractor”** is the Commission’s Intelligent Transportation Systems (ITS), Communications, and Technology Operations and Maintenance (O&M) contractor.

**“Initial Compensation Event Notice”** is defined in Section 3(a)(iii) of Part 1 of **Exhibit D**.

**“Initial Facilities Installation Proposal”** means an initial proposal from any Person other than the Contractor to lease, construct, or operate facilities on, over, or under the ROW for purposes of (i) selling bandwidth, telecommunication, or other similar services, (ii) selling access to dark fiber optic cable, or (iii) selling access to conduit for the purpose of supporting digital data communications.

**“Initial Relief Event Notice”** is defined in Section 3(a)(iii) of Part 2 of **Exhibit D**.

**“Issuing Office”** refers to the issuer of this RFP document, the Commission’s Information Technology Department.

**“Lateral Fiber”** consists of various strand count Single Mode Fiber Optic (SMFO) cable which is constructed in conformance with the Commission’s ITS construction standards to provide connections between the Commission’s Fiber Optic Network and roadside equipment such as ITS equipment, tolling locations, and other devices placed along the roadway.

**“Losses”** mean any loss, damage, injury, liability, obligation, claim, causes of action, cost, response cost, expense (including reasonable attorneys’ fees), fee, charge, judgment, penalty, or fine. Losses include injury to or death of persons, damage or loss of property, and harm or damage to natural resources.

**“Minimum Annual Guaranteed Revenue”** is defined in the Proposal.

**“Net Commercialization Revenue”** means the gross annual revenues resulting from Contractor’s Commercialization Activities minus Contractor’s annual operations and maintenance expenses relating to its Commercialization Activities.

**“OMC Agreement”** means the agreement entered into by the Commission and the O&M and Commercialization Entity with respect to the O&M Services and the Commercialization Services.

**“O&M and Commercialization Entity”** means the Proposer selected by the Commission, in accordance with the RFP, to deliver the Project.

**“O&M Services”** refers to O&M Services to be performed by the O&M and Commercialization Entity on the Commission’s Fiber Infrastructure pursuant to the RFP, as defined in **Part IVB W - Fiber Infrastructure: O&M Services Work Statement**.

**“O&M Term”** is defined in Section 5(a) of the OMC Agreement.

**“Open State”** is any ServiceNow ticket state that is not resolved, closed, or canceled.

**“Open State Duration”** is the total time a ticket is in an Open State during the SLA period.

**“Operating Activities”** is defined in Section 1(f)(ii) of **Exhibit B**.

**“Parties”** means collectively, the Commission and Contractor.

**“Payment Bond”** means one or more payment bonds, as more particularly set forth in **Part I, Section I-29**.

**“Performance Bond”** means one or more performance bonds, as more particularly set forth in **Part I, Section I-29**.

**“Person”** is defined in Section 19(a) of the OMC Agreement.

**“Project”** means the performance of O&M and Commercialization Services pursuant to this RFP.

**“Proposal”** means the proposal submitted by Contractor to the Commission in response to the RFP.

**“Proposer”** means each firm or team of firms that submit a Proposal to the Commission in response to the RFP.

**“Reasonable Efforts”** mean all those steps (if any) in the power of the relevant Party that are capable of producing the desired result, being steps which a prudent, determined, and commercially reasonable Person desiring to achieve that result would take; provided that “Reasonable Efforts” does not mean that, subject to its other express obligations under this Agreement, the relevant Party is required to expend funds, except for those necessary to meet the reasonable costs reasonably incidental or ancillary to the steps to be taken by the relevant Party (including its reasonable travel expenses, correspondence costs, and general overhead expenses).

**“Recurring Issues”** is any incident that occurs two (2) or more times within a three (3) month period.

**“Relief Event”** is defined in Section 1 of Part 2 of **Exhibit D** of the OMC Agreement.

**“Relief Event Recourse”** is defined in Section 2 of Part 2 of **Exhibit D** of the OMC Agreement.

**“RFP”** means the Request for Proposals for Fiber Infrastructure Operations, Maintenance, and Commercialization Service issued by the Commission.

**“ROW”** means the real property owned by the Commission, which extends from limited access right-of-way line to limited access right-of-way line, as shown in the plans, documents and the geographic information system maps.

**“ServiceNow”** is a cloud-based IT services, IT operations, and IT business management Software as a Service (SaaS) solution.

**“ServiceNow Knowledge Base”** is a central repository for the storage of contract plans, standard operating procedures reports, and other documents related to the contract as described in FR-1.7.2.

**“Setting Date”** means fifteen (15) days prior to the due date for the Proposals.



**“SLA” (Service Level Agreement(s))** means the Operation & Maintenance levels of service expected by the Commission, which will be measured against performance measures identified within Appendix K of the RFP.

**“Submittal”** means any document, work product or other written or electronic product or item required under this RFP to be delivered or submitted to the Commission for review, comment, approval or otherwise.

**“Technology Refresh Plan”** is defined in Section **IV-A13. Future Proofing of Commercialization Assets.**

**“Telecommunications Act”** means the Telecommunications Act of 1996 (Pub. LA. No. 104-104, 110 Stat. 56 (1996)), as amended (and any regulation or order of the FCC with respect thereto).

**“Telecommunications Carrier”** has the meaning set forth in the Telecommunications Act.

**“Telecommunications Service”** has the meaning set forth in the Telecommunications Act.

**“Terrorism”** means activities against Persons or property of any nature:

- (a) that involve the following or preparation for the following:
  - (i) use or threat of force or violence; or
  - (ii) commission or threat of an act that interferes with or disrupts an electronic, communication, information or mechanical system; and
- (b) when one or both of the following applies:
  - (i) it appears that the intent is to intimidate or coerce the Commission, a Governmental Entity or the civilian population or any segment of the civilian population, or to disrupt any segment of the economy;
  - (ii) it appears that the intent is to intimidate or coerce the Commission or a Governmental Entity, or to further political, ideological, religious, social or economic objectives or to express (or express opposition to) a philosophy or ideology; and
- (c) that are criminally defined as terrorism for purposes of Commonwealth or federal Applicable Law.

**“Turnpike”** means the system of roads for which the Commission has operational and tolling responsibility.

**“Unavailability Event”** mean an incident or problem impacting the Commission’s Fiber Infrastructure as described in **Part IV, Section IVB-3 FR-1.14.**

**“Unsatisfactory Performance”** means Contractor’s unsatisfactory performance or operation of the Fiber Infrastructure as required in **Part IV, Section FR-2.**

**“Unsatisfactory Performance Notice”** means a report of Unsatisfactory Performance by Contractor.

**“Western Network”** refers to the Commission’s contemplated 247-mile westward fiber optic network expansion along the remaining sections of the Mainline Turnpike (i.e. the TIP west to the Ohio state line) and Turnpike extensions, as defined in **Part IV – Section IVA-11. Future Phase(s) for Commercialization Services.**

\*\*\*\*\*

# APPENDIX A

---

## Contract Agreement



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

**OMC AGREEMENT**

This **OMC AGREEMENT** is made this \_\_\_\_\_ day of \_\_\_\_\_, 2020 (the “**Effective Date**”) between the **Pennsylvania Turnpike Commission** (“**Commission**”), an instrumentality of the Commonwealth of Pennsylvania, with principal offices at 700 South Eisenhower, Blvd., Middletown, Pennsylvania 17057 (mailing address: P. O. Box 67676, Harrisburg, PA 17106-7676);

**AND**

(*name of contractor*) (“**Contractor**”), a (*state*) (*form of business organization*), with its principal office at (*address*).

**WITNESSETH:**

**WHEREAS**, the Commission desires to satisfy a need for fiber infrastructure operations, maintenance, and commercialization services;

**WHEREAS**, by Act No. 211 of the General Assembly of the Commonwealth of Pennsylvania, approved May 21, 1937, and its amendments, the Commission is authorized and empowered to enter into this Agreement with Contractor;

**WHEREAS**, the Commission desires to retain the services of Contractor upon the following terms; and

**WHEREAS**, the Commission is entering into this Agreement in the Commission’s proprietary capacity and not in furtherance of a regulatory function;

**NOW, THEREFORE**, in consideration of these mutual covenants, and intending to be legally bound, the Parties agree as follows:

**1.** Definitions.

Capitalized terms used in this Agreement but not otherwise defined have the meanings set forth in the Glossary – Acronyms and Definitions attached as **Exhibit A**.

**2.** Contractor’s Scope of Work.

a. Contractor shall perform the O&M Services described in RFP # 19-10350-8799 dated (*date of solicitation*), titled Request for Proposals for Fiber Infrastructure Operations, Maintenance, and Commercialization Service (“**RFP**”) and Contractor’s proposal dated (*date of contractor’s proposal*) (**the “Proposal”**) in accordance with the rights and obligations set forth in the RFP and Proposal, including all related Appendices or exhibits, and this Agreement. The RFP and Proposal are made a part of and incorporated into this Agreement by reference.

b. Contractor, on an exclusive basis, shall perform the Commercialization Services for the Eastern Network as described in Part IVA of the RFP and **Exhibit B**.

c. In the event that the Commission pursues expansion of the Fiber Infrastructure in the Western Network, the Commission and Contractor shall negotiate in Good Faith with respect to the design, construction, operation, maintenance, and commercialization of the Western Network.

### 3. Commission's Responsibilities.

The Commission shall comply with its responsibilities set forth in Part I, I-22 of the RFP. In addition, the Commission shall furnish Contractor access to key personnel and relevant documents for performing the Services.

### 4. Compensation.

a. For the work, Services, and material as defined in this Agreement, the Commission shall pay Contractor the following fees with respect to Contractor's O&M Services as more specifically set forth in the Price Proposal and Part IV FR-1.4 of the RFP:

- (i) A one-time mobilization/Project initiation fee;
- (ii) An annual fixed fee for the O&M Services (**the "Base Fee"**); and
- (iii) For the first five (5) years of the Term, the fees for "Additions" (as defined in Part IV FR-1.3 of the RFP) (**the "Additional Fee"**), as invoiced by Contractor pursuant to Part IV FR-1.4 of the RFP;

b. Contractor shall, on a monthly basis, pay to the Commission the greater of (i) one-twelfth (1/12) of the Minimum Annual Guaranteed Revenue, or (ii) [●] percent ([●]%) of the Net Commercialization Revenue for the Eastern Network.

c. The Parties shall, during the fifth (5<sup>th</sup>) year of the Agreement, negotiate in Good Faith the Additional Fee for the remaining Term.

d. All payments required under this Section 4 will be paid in accordance with the terms and conditions set forth in Part IV FR-1.4 of the RFP.

e. The Contractor agrees that the Commission may set off the amount of any state tax liability or other obligation of Contractor or its subsidiaries to the Commonwealth against any payments due Contractor under any contract with the Commission.

### 5. Duration of Agreement and Renewal.

a. The term of this Agreement with respect to the O&M Services (**the "O&M Term"**) and the Commercialization Services (**the "Commercialization Term"**) is twenty-five (25) years and commences on the Effective Date. The Commercialization Term may be extended for ten (10) additional years by a writing signed by both Parties.

b. Contractor acknowledges that the Commercialization Term and the O&M Term begin on the Effective Date, which may be prior to the completion of the installation of the Fiber Infrastructure.

**6. Termination; Transition.**

a. The Commission may terminate this Agreement in whole or in part:

(i) upon thirty (30) days' prior written notice in the event that Contractor materially breaches this Agreement and fails to cure such breach within thirty (30) days after receiving notice of the breach;

(ii) immediately (without an opportunity to cure) upon written notice: (A) if Contractor fails to comply with the Confidentiality Provisions; (B) upon a data/information security breach under Section 15 below; or (C) if (1) all or a substantial portion of Contractor's assets are transferred to an assignee for the benefit of creditors or to a receiver or trustee in bankruptcy; (2) a proceeding is commenced by or against Contractor for relief under bankruptcy or similar laws and such proceeding is not dismissed within sixty (60) days; or (3) Contractor is adjudged bankrupt or insolvent; or

(iii) for any or no reason upon [sixty (60)] days' prior written notice to Contractor.

b. In the event that Contractor fails to cure any Unsatisfactory Performance described in an Unsatisfactory Performance Notice within thirty (30) Business Days after receiving the Unsatisfactory Performance Notice, the Commission may (i) terminate this Agreement in whole or in part and obtain any third party services necessary to cure the Unsatisfactory Performance at Contractor's expense, or (ii) obtain any third party services necessary to cure the Unsatisfactory Performance at Contractor's expense and require Contractor to continue to perform all other obligations and responsibilities under this Agreement.

c. Contractor may terminate this Agreement in whole upon thirty (30) days' prior written notice in the event that the Commission materially breaches Section 4 of this Agreement.

d. In the event of termination by the Commission under Section 6(a)(iii) or Contractor under Section 6(b), the Commission shall pay Contractor an amount equal to following:

(i) Commercial Capital Expenses outstanding; plus

(ii) reasonable and documented costs relating to the termination of Commercial Agreements in effect as of the date of termination of this Agreement; plus

(iii) subcontractor breakage costs.

e. Upon a Force Majeure Event, the terms and conditions set forth in **Exhibit C** apply.

f. Upon the expiration or earlier termination of this Agreement, Contractor shall, at its own expense, transfer all right, title, and interest in the Fiber Infrastructure, the Commercialization Assets within the Commission's ROW, and the Commercial Contracts/Agreements to the Commission in accordance with Part IVA-15 of the RFP, and cooperate with the Commission to transition the O&M Services and the Commercialization Services to the Commission or the Commission's designee.

**7. Insurance.**

Contractor has and shall maintain the insurance coverage set forth in Appendix E (*Insurance Specification*) of the RFP, and has furnished to the Commission the certificates of insurances evidencing such coverage.

**8. Assignment and Delegation.**

Contractor may not transfer, assign, or delegate any obligations of this Agreement, in whole or in part, without prior written consent from the Commission. Contractor shall not engage the services of any person or persons currently employed by the Commission, except with the Commission's approval.

Contractor shall neither assign this Agreement, in part or in whole, nor the right to any monies due it under this Agreement. Any part of the work to be done or material furnished under this Agreement shall not be sublet except to those firms indicated as part of the team in the Proposal, without the Commission's prior consent.

**9. Governing Law.**

This Agreement will be interpreted according to the laws of the Commonwealth of Pennsylvania.

**10. Representations and Warranties.**

Contractor represents and warrants as follows:

a. Contractor is duly organized, validly existing, and in good standing under the laws of (state of incorporation) and is in good standing and qualified to do business in the Commonwealth of Pennsylvania. Contractor has the power and authority to execute, deliver, and perform its obligations under this Agreement, and has duly authorized the execution, delivery, and performance of this Agreement. This Agreement is a legal, valid, and binding obligation of Contractor, enforceable against it in accordance with its terms.

b. It shall comply with all Applicable Laws and obtain in its name all necessary permits and licenses to perform its obligations under this Agreement.

c. It is the sole and exclusive owner of the entire right, title, and interest in and to the Deliverables, free and clear of any liens, security interests, or other encumbrances, or it has secured or will secure all necessary and valid licenses, consents, permissions, and releases for the Commission's ownership and use of the Deliverables.

d. There are no conflicting claims with respect to Contractor's rights or obligations referenced in this Agreement, and Contractor has not executed and will not execute any agreement or other instrument in conflict with its obligations or rights in this Agreement; and Contractor has not knowingly executed and will not knowingly execute any agreement or other instrument in conflict with its obligations or rights set forth in this Agreement.

e. The Deliverables, the Commercialization Services, and the O&M Services do not and will not infringe or misappropriate the proprietary and intellectual property rights of any person or entity.

f. It will perform the O&M Services and the Commercialization Services in a professional and workmanlike manner and in accordance with the standard of care prevailing among providers of similar services.

g. Contractor shall keep all Commercial Laterals in good operating condition and repair.

#### **11. Work for Hire; Ownership.**

a. Except for third party licensed software and software previously developed by Contractor, all Deliverables, including but not limited to source code, software, specifications, plans, designs and engineering, drawings, data, information, or other written, recorded, photographic, or visual materials, trademarks, service marks, copyrights, or other Deliverables produced by Contractor or any subcontractor in the performance of this Agreement shall be deemed **"Work Product"**. All Work Product is considered services for hire. Accordingly, all Work Product is the exclusive property of the Commission. Contractor agrees to notify the Commission in writing before using any of Contractor's previously developed software for services provided under this Agreement. Contractor and the Commission will honor all applicable preexisting licenses, copyrights, trademarks, service marks, and patents. If Contractor purchases the right to any license, the agreements for the use or ownership of such license will be placed in the name of the Commission along with all other rights and obligations. In addition, Contractor will mark all Commission content or previously unprotected work product designated by the Commission with a notice as follows: "Pennsylvania Turnpike Commission, (Year)".

b. The Commission exclusively owns all right, title, and interest in the Commission's ROW, including the Fiber Infrastructure and any new assets added to and materials used by Contractor for the O&M Services and Commercialization Services and affixed to the Fiber Infrastructure within the ROW. Contractor exclusively owns all right, title, and interest in the Commercial Laterals located outside of the ROW.

#### **12. Audit/Retention of Records.**

a. Contractor shall comply with the requirements set forth in SectionIVA-5 of the RFP.

b. Contractor shall, and shall cause its subcontractors to, maintain books and records related to performance of this Agreement and necessary to support amounts charged to the Commission in accordance with Applicable Law, the terms and conditions of this Agreement, and



generally accepted accounting practices. Contractor shall, and shall cause its subcontractors to, maintain these books and records for a minimum of three (3) years after the later of: (i) the expiration or earlier termination of this Agreement, (ii) the Commission's final payment to Contractor, or (iii) completion of any audit or litigation. Contractor shall make all books and records available for review or audit by the Commission, its representatives, and other Governmental Entities with monitoring authority upon reasonable notice and during normal business hours. Contractor agrees to cooperate fully with any such review or audit. If any audit indicates overpayment to Contractor, the Commission shall adjust future or final payments otherwise due. If no payments are due and owing to Contractor, or if the overpayment exceeds the amount otherwise due, Contractor shall immediately refund all amounts which may be due to the Commission. Failure to maintain the books and records required by this Section establishes a presumption in favor of the Commission for the recovery of any funds paid by the Commission under this Agreement for which adequate books and records are not available to support the purported disbursement.

### **13. Dispute Resolution.**

All questions or disputes regarding any matter involving this Agreement or its breach shall be referred to the Board of Claims of the Commonwealth of Pennsylvania pursuant to 62 Pa.C.S.A. § 1701 *et seq.* If the Board of Claims either refuses or lacks jurisdiction, these questions or disputes shall proceed as provided in 42 Pa.C.S.A. § 7301 *et seq.* (Statutory Arbitration). The panel of arbitrators will consist of a representative of each of the Parties and a third party chosen by the representatives, or if the representatives are unable to choose, by the American Arbitration Association.

### **14. Indemnification.**

Contractor shall be responsible for, and shall indemnify, defend, and hold harmless the Commission and its Commissioners, officers, employees, agents, and representatives from any Losses arising from or relating to (a) loss of life, bodily injury, or damage to real or tangible personal property caused by the negligence or other acts, errors, and omissions of Contractor, its employees, or its subcontractors while engaged in performing this Agreement or while present on the Commission's premises or ROW, (b) Contractor's performance of the Commercialization Services or O&M Services, (c) a breach of any of Contractor's representations or warranties in this Agreement, the RFP, the Proposal, or other related documents, (d) a data/information security breach as described in Section 15, and (e) a breach of this Agreement regarding the use or disclosure of Confidential Information where it is determined that Contractor is responsible for any use or disclosure of such information not permitted by this Agreement. The indemnification obligation is not limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or its subcontractors under Workers' Compensation Acts, Disability Benefits Acts, other Employee Benefit Act, or insurance policies.

### **15. Data/Information Security Breach Notification.**

Contractor shall report to the Commission any Breach affecting Commission Data. The notice to be provided to the Commission by Contractor shall be provided without unreasonable delay and no later than within 72 hours of Contractor's discovery of any Breach. A Breach is deemed

discovered on the first day on which Contractor knows or reasonably should have known of the Breach. The notice to be provided to the Commission by Contractor must be made in writing to the Commission's Information Security Officer and include the following content: (a) the nature of the Breach; (b) the specific Commission Data affected by the Breach; (c) the steps Contractor is taking to remediate the Breach; and (d) steps Contractor is taking to mitigate future Breaches. Following notification of the Breach, Contractor shall cooperate with the Commission's investigation of the Breach and provide any other information regarding the Breach or the Commission Data affected which the Commission may reasonably request. Should notice to individuals whose information was part of Commission Data be required under any applicable data privacy law, including, but not limited to, individual state data breach notice laws or federal laws such as HIPAA and Gramm Leach Bliley Act, Contractor shall provide the Commission with copies of any template notification letters and draft regulatory correspondence for Commission's prior approval. Contractor shall provide any notifications required under the applicable data privacy laws on behalf of the Commission at the request of the Commission. The Commission reserves the right to handle any notifications required and shall notify Contractor if the Commission will be handling the required notifications. Upon request, Contractor shall provide the Commission with its cyber-security policies and procedures. Contractor agrees to reimburse the Commission for any and all reasonable costs associated with the Commission's response to Contractor's Breach, including any fees associated with the Commission's investigation of Contractor's Breach, notification costs, and any reasonable offer of credit or identity monitoring product.

#### **16. Liquidated Damages.**

a. By executing this Agreement, Contractor agrees to the delivery and acceptance requirements of this Agreement, including but not limited to the performance requirements set forth in Appendix K (*Service Level Agreement*) to the RFP and the maintenance and protection of traffic requirements set forth in Appendix S (*Maintenance and Protection of Traffic*) to the RFP. If such requirements are not met, such non-performance will interfere with the Commission's program. In the event of any such failure to perform, it would be impractical and extremely difficult to establish the actual damage for which Contractor is the material cause. The Commission and Contractor therefore agree that, in the event Contractor fails to satisfy the requirements set forth in Appendix K (*Service Level Agreement*) or Appendix S (*Maintenance and Protection of Traffic*) to the RFP, the amount of damage shall be the amount set forth in Appendix K (*Service Level Agreement*) in the column labeled "Resolution Disincentive (per hour past threshold)" or Appendix S (*Maintenance and Protection of Traffic*) in the table labeled "Lane Closure Liquidated Damages", as applicable, and further agree that Contractor shall pay such amount as liquidated damages, not as a penalty. Such liquidated damages are in lieu of all other damages arising from Contractor's failure to perform the relevant performance and/or maintenance and protection of traffic requirements.

b. Contractor shall pay liquidated damages within thirty (30) days after receiving notice from the Commission; provided, however, that the Commission may collect such damages by deducting them from the invoices submitted under this Agreement or any other agreement Contractor has with the Commission, by collecting them through Contractor's performance security, if any, or by billing Contractor as a separate item.

c. To the extent that Contractor's failure to perform is caused by the occurrence of a Compensation Event or a Relief Event, the terms set forth in **Exhibit D** apply.

**17. Compensation Events; Relief Events.**

In the event that a Compensation Event or a Relief Event occurs, the Parties shall comply with the terms and conditions set forth in **Exhibit D**.

**18. Contractor Integrity Provisions.**

The Contractor Integrity Provisions are attached as **Exhibit E** and made a part of this Agreement.

**19. Confidentiality Provisions.**

a. As a consequence of the performance of its duties with the Commission, Contractor may learn, be given, or become aware of certain information, including, but not limited to, matters pertaining to internal communications, information, proprietary information, individually identifiable health information, trade practices, business operations, or other sensitive information ("**Confidential Information**"). Regardless of how transmitted or received by Contractor, whether by receipt, sending, or merely becoming available to Contractor through its relationship to the Commission, Contractor agrees to maintain and treat all such Confidential Information as proprietary and confidential, and shall not discuss, reveal, or use such Confidential Information for any purpose outside the performance of this Agreement. Confidential Information shall not include any information that (i) is or becomes available to the public other than as a consequence of a breach by any individual, a partnership, a corporation, an association, a limited liability company, a joint stock company, a trust, a joint venture, an unincorporated organization (each a "**Person**") of any fiduciary duty or obligation of confidentiality, including, without limitation, catalogues, publications, product descriptions, and sales literature that the Commission has distributed to the public generally; or (ii) information which at the time of disclosure to Contractor is in the public domain; or (iii) is disclosed as required by a final, unappealable court order and no suitable protective order, or equivalent remedy, is available; or (iv) Contractor was aware of prior to its disclosure to Contractor by the Commission from a source not bound by a confidential obligation and Contractor provides the Commission written notice of such fact prior to the execution of this Agreement or promptly upon Contractor's learning that the information was Confidential Information; or (v) information which Contractor can demonstrate with competent written evidence was independently developed by or for Contractor without use of or reliance on the Confidential Information.

b. Contractor shall cause its employees and subcontractors to comply with the Confidentiality Provisions; and take appropriate action against its employees, officers, and subcontractors for any and all violations of this Agreement.

c. With respect to any subcontractors that Contractor wishes to employ to perform any of its obligations under any agreement with the Commission, Contractor agrees to require any such approved subcontractor to execute written confidentiality agreements that require each such subcontractor and its employees to comply with all the requirements set forth above.

d. Contractor agrees that any breach of these Confidentiality Provisions may result in civil and/or criminal penalties for Contractor, its officers, employees, and subcontractors.

e. Notwithstanding any other provision to the contrary, Contractor agrees that these provisions survive the termination of this Agreement and any and all agreements between Contractor and the Commission.

f. Contractor agrees to treat the Confidential Information in the same way Contractor treats its own most confidential information, but in no event with less than a commercially reasonable standard of care, and to inform each employee, subcontractor, agent, or representative of these provisions.

g. Contractor shall immediately notify the Commission of any information which comes to its attention which does or might indicate that there has been any loss, misuse, or prohibited disclosure of Confidentiality Information.

h. Contractor shall return to the Commission at the expiration or earlier termination of this Agreement or at any time upon demand any and all Confidential Information (including any and all copies, abstracts, compilations, or analyses thereof and memoranda related thereto or incorporating the Confidential Information). In the alternative, Contractor may request consent from the Commission, which consent may be granted or denied in the Commission's sole discretion, to destroy all such Confidential Information and provide a certificate of destruction to the Commission signed by Contractor. Contractor further agrees that neither it, nor its employees, agents, or representatives (or its subcontractors and their employees, agents, or representatives) will copy, in whole or in part, any such Confidential Information without the prior written consent of the Commission.

i. Contractor agrees that if it has had or will have an SSAE16 audit, it shall comply with and abide by the findings of such audit to protect Confidential Information.

## **20. Use of Unmanned Aircraft Systems.**

Contractor shall not use or operate Unmanned Aircraft Systems (UAS) without the written consent of the Commission. Such consent shall be determined upon review and authorization of a written request from Contractor by the Commission's Legal Department and UAS program managers. If approved, Contractor shall execute a separate Authorization to Operate UAS or other applicable third-party agreement prepared by the Commission's Legal Department setting forth the necessary indemnification, release, and insurance requirements. The Authorization shall define the requirements Contractor must follow in order to operate UAS within the Commission's ROW and other property. Contractor shall conduct all approved UAS operations in accordance with Small Unmanned Aircraft Rule (Part 107) (14 CFR Part 107) of the Federal Aviation Administration (FAA) Regulations.

## **21. Execution in Counterparts.**

This Agreement may be executed in counterparts, including counterparts transmitted electronically or by facsimile, each of which shall constitute an original of this Agreement.

**22. Entire Agreement.**

This Agreement (together with any writings either attached as exhibits or incorporated by reference (including the RFP and the Proposal (together with all Appendices and exhibits attached or incorporated by reference))), constitutes the entire understanding between the Parties and there are no other oral or extrinsic understandings of any kind between the Parties.

**23. Modification.**

This Agreement may be modified only by a writing signed by both Parties.

**[SIGNATURES ARE SET FORTH ON THE NEXT PAGE]**

**IN WITNESS WHEREOF**, the **Pennsylvania Turnpike Commission** and **(Contractor Name)** have executed this OMC Agreement by their duly authorized officers on the date written above.

ATTEST:

PENNSYLVANIA TURNPIKE COMMISSION

\_\_\_\_\_  
Ann Louise Edmunds  
Assistant Secretary-Treasurer

\_\_\_\_\_  
Date

\_\_\_\_\_  
Yassmin Gramian  
Chair

\_\_\_\_\_  
Date

APPROVED AS TO FORM AND LEGALITY:

\_\_\_\_\_  
Albert C. Peters II  
General Litigation & Contracts Counsel

\_\_\_\_\_  
Date

\_\_\_\_\_  
Pennsylvania Attorney General

\_\_\_\_\_  
Date

ATTEST:

*(Contractor Name)*

Signature\_\_\_\_\_

\_\_\_\_\_  
Date

Signature\_\_\_\_\_

\_\_\_\_\_  
Date

Name\_\_\_\_\_

Name\_\_\_\_\_

Title\_\_\_\_\_

Title\_\_\_\_\_

Federal Tax ID No.\_\_\_\_\_

**EXHIBIT A**

Glossary – Acronyms and Definitions

The capitalized terms used in the OMC Agreement have the meanings set forth in the Glossary – Acronyms and Definitions appended to the RFP.

\*\*\*\*\*

**EXHIBIT B**Commercialization Terms1. Grant of Rights

a. Subject to the terms and conditions of the Agreement, the Commission hereby grants to Contractor the exclusive right, and Contractor accepts such right and acknowledges its obligation, to operate and maintain the Fiber Infrastructure in accordance with the terms of the Agreement. Subject to Contractor's compliance with the Agreement, during the term of the Agreement, Contractor has:

i. to the fullest extent permitted by Applicable Law, and subject to the terms of the Agreement, including but not limited to Part IVA-2 of the RFP, an exclusive right to use the Commercialization Assets on the Eastern Network segment solely for the purpose of providing Commercialization Services; and

ii. a non-exclusive right to use any Commission Junction Box in the Eastern Network segment necessary for the operation of the Fiber Infrastructure, subject to the right of the Commission or any Governmental Entity to conduct the Operating Activities (as defined in Section 1(f) below).

b. It is the express intent and agreement of the Parties that the Agreement is in no way deemed to constitute a lease to Contractor (whether an operating lease or a financing lease) or, except as expressly provided in this **Exhibit B**, a grant (regardless of the characterization of such grant, including by way of easement, purchase option, conveyance, lien, or mortgage) in each case, of any right, title, interest, or estate in the Fiber Infrastructure or of any assets incorporated into, appurtenant to, or in any way connected with the Project. It is the express agreement and intent of the Parties that Contract not be treated as or deemed to be the legal or equitable owner of the Fiber Infrastructure or the Eastern Network for any purpose under the Agreement. Contractor's rights are derived solely from its status as an operator and independent contractor as described in the Agreement, and not as a tenant, lessee, easement holder, optionee, lienor, mortgagee, purchaser, or owner of any other interest in real property. The payments to be received by Contractor under the Agreement are not payments in the nature of rent or fees with respect to the real property or purchase price of real property.

c. Any interconnection between the Commercialization Assets and any facility of the Commission will be made by Contractor only in accordance with the provisions of the RFP. Nothing herein shall require the Commission to provide any equipment used to transmit signals over or "light" the Commercialization Assets. Except as set forth in the RFP or as may be separately agreed to in a facility services agreement between the Commission and Contractor, Contractor is solely responsible for providing, installing, and



maintaining all electronics, including optical transmitters, receivers, and repeaters, used to “light” the Commercialization Assets.

d. Neither Contractor nor any Commercial End-User (or any of its customers) shall assess any rate, rent, fee, charge, fine, or other amount in respect of vehicular usage of the Turnpike. In addition, neither the Contractor nor any Commercial End-User shall develop, design, construct, finance, operate, maintain, or implement the Project or use the Commercialization Assets in a manner that would materially adversely affect the Net Commercialization Revenues of the Commission, the operations of the Turnpike or the Commission’s use of the Fiber Infrastructure.

e. Contractor shall not use the Commercialization Assets to engage in any business or activity other than business or activities conducted for the purposes of the Project or otherwise expressly permitted under the Agreement.

f. Without limiting any other right of the Commission hereunder:

i. the Commission may use the Commission’s Fiber Infrastructure as part of the Commission’s operation of the Turnpike (including, without limitation, the operation of electronic toll collection systems, intelligent transportation systems, intelligent vehicle highway systems, traffic cameras, dynamic message signs, autonomous vehicle systems, and connected vehicle systems);

ii. the Commission may provide Governmental Entities with access to the Commission’s Fiber Infrastructure, as further described in Section IVA-2 of the RFP for purposes of carrying out law enforcement activities, conducting emergency response, and promoting public safety, in each case on the Turnpike or in connection with the operation of the Commonwealth’s transportation network; and

iii. any Governmental Entity may use the Commission’s Fiber Infrastructure for the purposes described in clause (ii) of this Section 1(f) as authorized and approved by the Commission, (such activities, collectively, the “**Operating Activities**”).

## 2. Certain Covenants and Confirmations

a. To the fullest extent permitted by Applicable Law, the Commission agrees that it shall not use, and it shall not permit any other Person to use, any part of the Commission’s Fiber Infrastructure in any manner that directly competes with Contractor’s performance of the Commercialization Services; provided that, for the avoidance of doubt, the Parties agree that none of the Operating Activities violate (or shall be deemed to violate) this Section 2(a).

b. Nothing herein shall constitute a grant to Contractor of an exclusive right of physical access to the Turnpike, including the Eastern Network.

c. Subject to Section 2(a), the Commission may grant to any Telecommunications Carrier a right of physical access to the Turnpike (other than to the Commercialization Assets) in order for such Telecommunications Carrier to construct facilities that provide, and in order to provide, wholesale or retail Telecommunications Services.

d. Contractor agrees that:

i. (A) to the extent it provides wholesale access to the Commercialization Assets to any Telecommunications Carrier, Contractor shall do so at rates set by Contractor on a non-discriminatory basis and shall otherwise provide access to the Commercialization Assets and charge rates (if any) in accordance with Applicable Law, and (B) without prejudice to the rights of the Commission, the Commission has the right to enforce this clause (i) for the benefit of any Telecommunications Carrier; and

ii. wherever Contractor conducts Commercialization Services over the Commercialization Assets, the Commercialization Assets will house capacity of at least [●] strands of fiber optic cable.

e. At all times during the term of the Agreement, Contractor shall maintain a list of each Commercial Agreement that is in effect (the “**Commercial Agreements Register**”) and shall provide to the Commission a copy of the then-current version of such list within three (3) Business Days of Contractor’s receipt of a request from the Commission for a copy of such list. Such list shall include:

i. the name of the Commercial End-User that is party to such Commercial Agreement;

ii. the effective date and the termination date of such Commercial Agreement;

iii. the amount of pre-payment, if any, made by the Commercial End-User to Contractor; and

iv. a description of the service being provided by Contractor to the Commercial-End User.

f. If the Commission receives an Initial Facilities Installation Proposal from any Person other than Contractor, then, subject to Applicable Law, the Commission shall

promptly notify Contractor and refer such Person to Contractor so that Contractor and such Person may negotiate terms of service over the Commercialization Assets; provided, that after the fiftieth (50th) day following the date of such notice from the Commission, the Commission may negotiate, accept, or reject such Initial Facilities Proposal in its sole discretion; provided further, that, to the fullest extent permitted by Applicable Law, Contractor is not required by the Commission to grant access to the Commercialization Assets under any such Initial Facilities Installation Proposal.

3. Revenues from Commercial Activities

Contractor acknowledges and agrees that, except to the extent expressly provided otherwise in this **Exhibit B** or the Agreement, (a) Contractor bears all risk relating to the amount of revenues that may be generated from the Commercialization Services, and (b) the Commission has no financial responsibility whatsoever to Contractor or otherwise if the amount of such revenues is insufficient to pay any costs or expenses of Contractor, including, but not limited to, the repayment of any debt or equity arranged by Contractor to finance the Commercialization Assets.

**EXHIBIT C**Force Majeure Events

1. General. The provisions of this **Exhibit C** apply with respect to Force Majeure Events; provided that the occurrence or continuance of a Force Majeure Event does not (a) excuse a Party from performing any payment obligations contemplated under the Agreement or (b) affect the Commission's entitlement to offset liquidated damages against payments otherwise then due and payable by the Commission.

2. No Breach of Obligations. Neither Party may bring a claim for a breach of obligations under the Agreement by the other Party or incur any liability to the other Party for any Losses incurred by that other Party if a Force Majeure Event occurs and the Affected Party is prevented from carrying out its obligations by that Force Majeure Event.

3. Consultation. Promptly (and in any event within ten (10) Business Days) after the occurrence of a Force Majeure Event, the Parties shall consult with each other in Good Faith and use all Reasonable Efforts to agree on appropriate terms to mitigate the effects of the Force Majeure Event and facilitate the continued performance of the Agreement.

4. Failure to Agree; Right to Terminate.

a. If:

i. as a result of a Force Majeure Event, the Affected Party is unable to comply with any of its material obligations under the Agreement for a continuous period of more than one hundred eighty (180) days after the date such Force Majeure Event occurred; and

ii. within such one hundred eighty (180) day period, the Parties are unable to agree on appropriate terms to mitigate the effects of the Force Majeure Event and facilitate the continued performance of the Agreement, either Party may deliver notice to the other Party that it wishes to terminate the Agreement (**"Force Majeure Termination Notice"**). A Force Majeure Termination Notice must (A) provide a proposed date of termination and (B) be delivered to the other Party at least thirty (30) days before such proposed date of termination.

b. If the Commission delivers a Force Majeure Termination Notice to Contractor, this Agreement will terminate on the date of termination stated in such Force Majeure Termination Notice.

c. If Contractor delivers a Force Majeure Termination Notice to the Commission, the Commission shall, within fifteen (15) Business Days after receiving such notice, deliver a notice to Contractor stating that the Commission either:

i. accepts that the Agreement will terminate on the date stated in the Force Majeure Termination Notice; or

ii. requires the Agreement to continue.

d. If the Commission issues a notice accepting termination in accordance with Section 4(c)(i) or fails to deliver a response notice, the Agreement will terminate on the date set out in the Force Majeure Termination Notice delivered by Contractor in accordance with Section 4(a)(ii) of this **Exhibit C**.

e. If the Commission delivers a notice requiring the Agreement to continue in accordance with Section 4(c)(ii), the Agreement will not terminate and will continue until the Commission provides at least 30 days' prior written notice to Contractor that it wishes the Agreement to terminate. Until such time as the Commission terminates the Agreement in accordance with this Section 4(e):

i. Contractor shall, to the extent practicable, continue to perform its obligations under the Agreement;

ii. if a Force Majeure Event directly causes Contractor to be unable to comply with its obligations under the Agreement, then, for the period following the Commission's delivery of the notice described in Section 4(c)(ii), Contractor's noncompliance is deemed to have not occurred for purposes of the Agreement and the Commission shall not assess [liquidated damages] under Section 16 of the Agreement in respect of such Force Majeure Event;

iii. if a Force Majeure Event directly causes an Unavailability Event, then, for the period following the Commission's delivery of the notice described in Section 4(c)(ii), such Unavailability Event is deemed to have not occurred for purposes of the Agreement and the Commission will not assess liquidated damages in respect of such Force Majeure Event; and

iv. Unless otherwise agreed by Contractor, if the Force Majeure Event has a material adverse impact on Contractor's ability to carry out the Commercialization Services (as determined by comparing the amount of revenues from Commercialization Services Contractor will lose while the Force Majeure Event persists to the amount of such revenues that Contractor forecasts in the Commercialization Operating Model), then the Commission may not require the Agreement to continue for more than twelve (12) months following the date on which the Commission delivers a notice under Section 4(a)(ii).

5. Cessation of Force Majeure Event. The Affected Party shall notify the other Party as soon as practicable after the Force Majeure Event ceases or no longer causes the Affected Party to be unable to comply with its obligations under the Agreement. Following such notification, the Commission and Contractor shall continue to perform their respective obligations under the Agreement on the terms existing immediately prior to the occurrence of the Force Majeure Event.

**EXHIBIT D**Part 1. Compensation Events

1. Definition. **“Compensation Event”** means any of the following events:

a. The D-B Contractor(s)’ failure to achieve Substantial Completion of the Fiber Infrastructure in accordance with the Project Schedule (as each term is defined in the D-B Contract);

b. Contractor’s non-acceptance of the Fiber Infrastructure under Part IVA-8 of the RFP for the Fiber Infrastructure’s failure to perform as required in Part IVB, Section FR-1.12, and FOM-4 of the RFP; and

c. A Change Order directed by the Commission;

except, in each case, to the extent that the occurrence of a Compensation Event is attributable to a breach of this Agreement, Applicable Law, or any Governmental Approval by, or any negligent act or negligent omission of, Contractor.

2. Entitlement to Claim. If a Compensation Event directly causes, or is reasonably likely to directly cause, Contractor to do any one or more of the following:

a. fail to materially comply with its obligations or exercise its rights under this Agreement or;

b. incur material additional or increased costs,

Contractor may claim one or more of the following in accordance with the terms and conditions of this **Exhibit D (“Compensation Event Recourse”)**:

i. relief from compliance with its obligations under this Agreement; and/or

ii. compensation for any Change in Costs that Contractor has incurred or will incur as a direct result of such Compensation Event.

3. Notice and Information for Compensation Events.

a. If a Compensation Event occurs and Contractor desires to make a claim as set forth above, Contractor shall promptly after the date that Contractor first became aware of the relevant Compensation Event and the effect that is the subject of Contractor’s claim (and in any event within 30 days) submit an initial Compensation Event notice to the Commission:

i. identifying the relevant Compensation Event (including any details then available to Contractor after having made due inquiry);

ii. stating Contractor’s intention to claim Compensation Event Recourse; and

iii. explicitly labeling the notice as an **“Initial Compensation Event Notice”**.

b. In addition, Contractor shall promptly after the date that Contractor first became aware of the relevant Compensation Event and the effect that is the subject of Contractor’s claim (and in any event within forty-five (45) days) submit a notice to the Commission:

i. identifying the notice as a **“Detailed Compensation Event Notice”**;

ii. providing full details of the relevant Compensation Event (as available to Contractor after having made due inquiry), including the nature of the Compensation Event, date of occurrence, its duration (to the extent that the Compensation Event and its effects have ceased) or estimated duration (to the extent that the Compensation Event and its effects have not ceased) and the portions of the Project affected;

iii. providing full details of any claimed extension of time, relief from obligations, or compensation for Change in Costs;

iv. giving details of any steps that Contractor has taken or will take to mitigate the effect of the Compensation Event in accordance with Section 4 below (Mitigation);

v. identifying the type and amount of insurance that may be applicable and amounts that have been or are anticipated to be collected under such insurance; and

vi. providing evidence reasonably satisfactory to the Commission demonstrating that Contractor has or will incur a Change in Costs.

c. Contractor shall submit an updated Detailed Compensation Event Notice every thirty (30) days until the Compensation Event has ended, and a final Detailed Compensation Event Notice within ten (10) Business Days after the Compensation Event ends.

d. If Contractor fails to deliver a notice or provide the information required in a notice, then with respect to the relevant Compensation Event and without prejudice to any other rights or remedies of the Commission under this Agreement:

i. Contractor is not entitled to any Compensation Event Recourse to the extent that the quantum of compensation sought was increased or the ability to mitigate was adversely affected as a result of Contractor’s failure; and

ii. if Contractor fails to deliver notice or provide information for ninety (90) days or more, Contractor’s right to claim any Compensation Event Recourse with respect to such Compensation Event will be of no further force or effect.

4. Mitigation. Contractor shall use Reasonable Efforts to mitigate the delay and any other consequences of any Compensation Event that is the subject of an Initial Compensation Event Notice or a Detailed Compensation Event Notice.

5. Burden of Proof. Contractor bears the burden of proving both the occurrence of a Compensation Event and its resulting direct and adverse impacts on Contractor.

6. Grant of Relief and Compensation for Compensation Events.

a. Contractor's right to Compensation Event Recourse is conditioned on Contractor's satisfaction of all of the following:

i. Contractor strictly complies with all Notice and Mitigation obligations set forth in Part 1 of this **Exhibit D**;

ii. Contractor demonstrates to the reasonable satisfaction of the Commission that a Compensation Event has occurred; and

iii. Contractor demonstrates to the Commission's reasonable satisfaction that the Compensation Event was the direct cause or is reasonably likely to be the direct cause of:

A. Contractor's inability to comply with its obligations under the Agreement; and/or

B. Contractor's incurring Change in Costs.

b. If Contractor satisfies the conditions set forth above, Contractor is entitled to Compensation Event Recourse as follows:

i. In the case of Contractor's failure to comply with its obligations or to exercise its rights under the Agreement, (A) Contractor is excused from performing its relevant obligations under the Agreement until the Compensation Event has ceased and (B) any time limitations applicable to the exercise of Contractor's rights under the Agreement (other than its rights to make a claim for a Compensation Event) will be extended by such time as is reasonable for such a Compensation Event.

ii. In the case of Contractor incurring additional or increased Change in Costs, subject to Section 7 of Part 1 of this **Exhibit D**, the Commission shall, within forty-five (45) days after receiving an undisputed written claim by Contractor supported by all relevant information, pay Contractor the Change in Costs actually incurred by Contractor as a direct result of the relevant Compensation Event.

iii. If an Unavailability Event would not have occurred but for the occurrence of the relevant Compensation Event, the Commission will not assess, and Contractor will not be liable for, liquidated damages in respect of such event.

iv. If any Contractor breach of this Agreement would not have occurred



but for the occurrence of the Compensation Event, such breach will be deemed to have not occurred for the purposes of this Agreement.

v. The Commission shall give Contractor such relief from its ongoing obligations under the Agreement as is reasonable given the nature of the Compensation Event and Contractor's ongoing obligations.

c. Within thirty (30) days after receiving a final Detailed Compensation Event Notice, the Commission shall notify Contractor of its determination as to Contractor's entitlement to Compensation Event Recourse.

d. After receiving such notice from the Commission, Contractor shall promptly (but in any event within ten (10) Business Days after receiving the notice) notify the Commission in writing of whether it accepts or disputes the Commission's determination. If Contractor does not dispute the Commission's determination within such ten (10) -Business Day period, Contractor is deemed to have accepted the determination.

e. If Contractor disputes the Commission's determination, the Parties shall resolve the matter in accordance with the dispute resolution procedures set forth in Section 13 of the Agreement.

f. If Contractor accepts or is deemed to have accepted the Commission's determination, Contractor will have irrevocably waived and released any claim with respect to the alleged Compensation Event.

7. Failure to Agree. If:

a. the Commission disagrees (i) that a Compensation Event has occurred (or as to its consequences) or (ii) that Contractor is entitled to relief under Part 1 of this **Exhibit D**; or

b. the Parties do not agree on the extent of any Compensation Event Recourse from Contractor's ongoing obligations under this Agreement,

the Parties shall resolve the matter in accordance with the dispute resolution procedures set forth in Section 13 of the Agreement.

8. Sole Remedy. Except for any rights it may have under Section 6(b) of the Agreement, Contractor's sole remedy in relation to a Compensation Event is the operation of Part 1 of this **Exhibit D**. For the avoidance of doubt and without limitation, the Parties agree that (a) any compensation payable pursuant to Part 1 of this **Exhibit D** on account of a Compensation Event caused by the Commission's breach of the Agreement shall constitute liquidated damages (and not a penalty) and (b) such compensation is fair and reasonable to compensate Contractor for the losses that it will incur as a result of such breach.

Part 2. Relief Events1. Definition. **“Relief Event”** means any of the following events:

- a. any Change in Law;
- b. any Force Majeure Event;
- c. any flood;
- d. any fire, explosion or earthquakes;
- e. any tornado or named windstorm and ensuing storm surges;
- f. any riot or civil commotion;
- g. any blockage or embargo;
- h. any official or unofficial strike, lockout, go-slow, or other labor dispute, generally affecting the construction industry or a significant sector of it;
- i. any accidental loss or damage to the Fiber Infrastructure; or
- j. any material interruption to, or interference with, Contractor’s work caused by the entry onto the Fiber Infrastructure by a Governmental Entity empowered to enforce Applicable Law for purposes of carrying out such Governmental Entity’s law enforcement duties; *provided* that such entry onto the Fiber Infrastructure is not attributable to any investigation of, or action by, Contractor, its subcontractors or any Commercial End-User;

except, in each case, to the extent that the occurrence of a Relief Event is attributable to a breach of the Agreement, Applicable Law, or any Governmental Approval by, or any negligent act or negligent omission of, Contractor.

2. Entitlement to Claim. If a Relief Event directly causes, or is reasonably likely to directly cause, Contractor to fail to materially comply with its obligations or exercise its rights under this Agreement, Contractor may claim relief from compliance with its obligations under the Agreement (including the payment of liquidated damages) (**“Relief Event Recourse”**).

3. Notice and Information for Relief Events.

a. If a Relief Event occurs and Contractor desires to make a claim as set forth above, Contractor shall promptly after the date that Contractor first became aware of the relevant Relief Event and the effect that is the subject of Contractor’s claim (and in any event within thirty (30) days) submit an initial Relief Event notice to the Commission:

- i. identifying the relevant Relief Event (including any details then available to Contractor after having made due inquiry);
- ii. stating Contractor’s intention to claim Relief Event Recourse; and

iii. explicitly labeling the notice as an **“Initial Relief Event Notice”**.

b. In addition, Contractor shall promptly after the date that Contractor first became aware of the relevant Relief Event and the effect that is the subject of Contractor’s claim (and in any event within forty-five (45) days) submit a notice to the Commission:

i. identifying the notice as a **“Detailed Relief Event Notice”**;

ii. providing full details of the relevant Relief Event (as available to Contractor after having made due inquiry), including the nature of the Relief Event, date of occurrence, its duration (to the extent that the Relief Event and its effects have ceased) or estimated duration (to the extent that the Relief Event and its effects have not ceased) and the portions of the Project affected;

iii. providing full details of any claimed extension of time or relief from obligations;

iv. giving details of any steps that Contractor has taken or will take to mitigate the effect of the Relief Event in accordance with Section 4 below (Mitigation); and

v. identifying the type and amount of insurance that may be applicable and amounts that have been or are anticipated to be collected under such insurance.

c. Contractor shall submit an updated Detailed Relief Event Notice every thirty (30) days until the Relief Event has ended, and a final Detailed Relief Event Notice within ten (10) Business Days after the Relief Event ends.

d. If Contractor fails to deliver a notice or provide the information required in a notice, then with respect to the relevant Relief Event and without prejudice to any other rights or remedies of the Commission under this Agreement:

i. Contractor is not entitled to any Relief Event Recourse to the extent that the ability to mitigate was adversely affected as a result of Contractor’s failure; and

ii. if Contractor fails to deliver notice or provide information for ninety (90) days or more, Contractor’s right to claim any Relief Event Recourse with respect to such Relief Event will be of no further force or effect.

4. Mitigation. Contractor shall use Reasonable Efforts to mitigate the delay and any other consequences of any Relief Event that is the subject of an Initial Relief Event Notice or a Detailed Relief Event Notice.

5. Burden of Proof. Contractor bears the burden of proving both the occurrence of a Relief Event and its resulting direct and adverse impacts on Contractor.

6. Grant of Relief for Relief Events.

a. Contractor's right to Relief Event Recourse is conditioned on Contractor's satisfaction of all of the following:

i. Contractor strictly complies with all Notice and Mitigation obligations set forth in this Part 2 of **Exhibit D**;

ii. Contractor demonstrates to the reasonable satisfaction of the Commission that a Relief Event has occurred; and

iii. Contractor demonstrates to the Commission's reasonable satisfaction that the Relief Event was the direct cause or is reasonably likely to be the direct cause of Contractor's inability to comply with its obligations under the Agreement.

b. If Contractor satisfies the conditions set forth above, Contractor is entitled to Relief Event Recourse as follows:

i. In the case of Contractor's failure to comply with its obligations or to exercise its rights under this Agreement, (A) Contractor is excused from performing its relevant obligations under the Agreement until the Relief Event has ceased and (B) any time limitations applicable to the exercise of Contractor's rights under the Agreement (other than its rights to make a claim for a Relief Event) will be extended by such time as is reasonable for such a Relief Event.

ii. If an Unavailability Event would not have occurred but for the occurrence of the relevant Relief Event, the Commission will not assess, and Contractor will not be liable for, liquidated damages in respect of such event.

iii. If any Contractor breach of this Agreement would not have occurred but for the occurrence of the Relief Event, such breach will be deemed to have not occurred for the purposes of the Agreement; and

iv. The Commission shall give Contractor such relief from its ongoing obligations under the Agreement as is reasonable given the nature of the Relief Event and Contractor's ongoing obligations.

c. Within thirty (30) days after receiving a final Detailed Relief Event Notice, the Commission shall notify Contractor of its determination as to Contractor's entitlement to Relief Event Recourse.

d. After receiving such notice from the Commission, Contractor shall promptly (but in any event within ten (10) Business Days after receiving the notice) notify the Commission in writing of whether it accepts or disputes the Commission's determination. If Contractor does not dispute the Commission's determination within such ten (10) -Business Day period, Contractor is deemed to have accepted the determination.

e. If Contractor disputes the Commission's determination, the Parties shall resolve the matter in accordance with the dispute resolution procedures set forth in Section 13 of the Agreement.

f. If Contractor accepts or is deemed to have accepted the Commission's determination, Contractor will have irrevocably waived and released any claim with respect to the alleged Relief Event.

7. Failure to Agree. If:

a. the Commission disagrees (i) that a Relief Event has occurred (or as to its consequences) or (ii) that Contractor is entitled to relief under Part 2 of this **Exhibit D**; or

b. the Parties do not agree on the extent of any Relief Event Recourse from Contractor's ongoing obligations under this Agreement,

the Parties shall resolve the matter in accordance with the dispute resolution procedures set forth in Section 13 of the Agreement.

6. Sole Remedy. Except for any rights it may have under Section 6(b) of the Agreement, Contractor's sole remedy in relation to a Relief Event is the operation of Part 2 of this **Exhibit D**.

**EXHIBIT E****CONTRACTOR INTEGRITY PROVISIONS**

It is essential that those who seek to contract with the Pennsylvania Turnpike Commission (“**Commission**”) observe high standards of honesty and integrity. They must conduct themselves in a manner that fosters public confidence in the integrity of the Commission contracting and procurement process.

**I. DEFINITIONS.** For purposes of these Contractor Integrity Provisions, the following terms shall have the meanings found in this Section:

- a. “Affiliate”** means two or more entities where (a) a parent entity owns more than fifty percent of the voting stock of each of the entities; or (b) a common shareholder or group of shareholders owns more than fifty percent of the voting stock of each of the entities; or (c) the entities have a common proprietor or general partner.
- b. “Consent”** means written permission signed by a duly authorized officer or employee of the Commission, provided that where the material facts have been disclosed, in writing, by prequalification, bid, proposal, or contractual terms, the Commission shall be deemed to have consented by virtue of the execution of this contract.
- c. “Contractor”** means the individual or entity that has entered into this contract with the Commission, and “**Contractor Related Parties**” means any affiliates of the Contractor and the Contractor’s executive officers, Pennsylvania officers and directors, or owners of 5% or more interest in the Contractor
- d. “Financial Interest”** means either:
  - i. Ownership of more than a five percent interest in any business; or
  - ii. Holding a position as an officer, director, trustee, partner, employee, or holding any position of management.
- e. “Gratuity”** means tendering, giving, or providing anything of monetary value including, but not limited to, cash, travel, entertainment, gifts, meals, lodging, loans, subscriptions, advances, deposits of money, services, employment, or contracts of any kind. See Commission Policy 3.10, Code of Conduct.
- f. “Non-bid Basis”** means a contract awarded or executed by the Commission with Contractor without seeking bids or proposals from any other potential bidder or offeror.

**II.** In furtherance of this policy, Contractor agrees to the following:

- 1.** Contractor shall maintain the highest standards of honesty and integrity during the performance of this contract and shall take no action in violation of state or federal laws or

regulations or any other applicable laws or regulations, or other requirements applicable to Contractor or that govern contracting or procurement with the Commission.

2. Contractor shall establish and implement a written business integrity policy, which includes, at a minimum, the requirements of these provisions as they relate to Contractor activity with the Commission and Commission employees and which is made known to all Contractor employees. Posting these Contractor Integrity Provisions conspicuously in easily-accessible and well-lighted places customarily frequented by employees and at or near where the contract services are performed shall satisfy this requirement.
3. Contractor, its affiliates, agents, employees and anyone in privity with Contractor shall not accept, agree to give, offer, confer, or agree to confer or promise to confer, directly or indirectly, any gratuity or pecuniary benefit to any person, or to influence or attempt to influence any person in violation of the Public Official and Employees Ethics Act, 65 Pa.C.S. §§1101 et seq.; the State Adverse Interest Act, 71 P.S. §776.1 et seq.; Commission Policy 3.10, Code of Conduct or in violation of any other federal or state law in connection with performance of work under this contract, except as provided in this contract.
4. Contractor shall not have a financial interest in any other contractor, subcontractor, or supplier providing services, labor, or material under this contract, unless the financial interest is disclosed to the Commission in writing and the Commission consents to Contractor's financial interest prior to Commission execution of the contract. Contractor shall disclose the financial interest to the Commission at the time of bid or proposal submission, or if no bids or proposals are solicited, no later than Contractor's submission of the contract signed by Contractor.
5. Contractor certifies to the best of its knowledge and belief that within the last five (5) years Contractor or Contractor Related Entities have not:
  - a. been indicted or convicted of a crime involving moral turpitude or business honesty or integrity in any jurisdiction;
  - b. been suspended, debarred or otherwise disqualified from entering into any contract with any governmental agency;
  - c. had any business license or professional license suspended or revoked;
  - d. had any sanction or finding of fact imposed as a result of a judicial or administrative proceeding related to fraud, extortion, bribery, bid rigging, embezzlement, misrepresentation or anti-trust; and
  - e. been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or civil anti-trust investigation by any federal, state or local prosecuting or investigative agency.

If Contractor cannot so certify to the above, then it must submit along with its bid, proposal or contract a written explanation of why such certification cannot be made and the Commission will determine whether a contract may be entered into with the Contractor.

The Contractor's obligation pursuant to this certification is ongoing from and after the effective date of the contract through the termination date thereof. Accordingly, the Contractor shall have an obligation to immediately notify the Commission in writing if at any time during the term of the contract it becomes aware of any event which would cause the Contractor's certification or explanation to change. Contractor acknowledges that the Commission may, in its sole discretion, terminate the contract for cause if it learns that any of the certifications made herein are currently false due to intervening factual circumstances or were false or should have been known to be false when entering into the contract.

6. Contractor shall comply with the requirements of the Lobbying Disclosure Act (65 Pa.C.S. §13A01 et seq.) regardless of the method of award. If this contract was awarded on a Non-bid Basis, Contractor must also comply with the requirements of the Section 1641 of the Pennsylvania Election Code (25 P.S. §3260a).
7. When Contractor has reason to believe that any breach of ethical standards as set forth in law, Commission Policy 3.10, Code of Conduct, or these Contractor Integrity Provisions has occurred or may occur, including but not limited to contact by a Commission officer or employee which, if acted upon, would violate such ethical standards, Contractor shall immediately notify the Commission contracting officer or the Chief Compliance Officer in writing.
8. Contractor, by submission of its bid or proposal and/or execution of this contract and by the submission of any bills, invoices or requests for payment pursuant to the contract, certifies and represents that it has not violated any of these Contractor Integrity Provisions in connection with the submission of the bid or proposal, during any contract negotiations or during the term of the contract, to include any extensions thereof. Contractor shall immediately notify the Commission in writing of any actions for occurrences that would result in a violation of these Contractor Integrity Provisions. Contractor agrees to reimburse the Commission for the reasonable costs of investigation incurred by the Chief Compliance Officer for investigations of the Contractor's compliance with the terms of this or any other agreement between the Contractor and the Commission that results in the suspension or debarment of the Contractor. Contractor shall not be responsible for investigative costs for investigations that do not result in the Contractor's suspension or debarment.
9. Contractor shall cooperate with the Chief Compliance Officer in investigating any alleged Commission agency or employee breach of ethical standards and any alleged Contractor non-compliance with these Contractor Integrity Provisions. Contractor agrees to make identified Contractor employees available for interviews at reasonable times and places. Contractor, upon the inquiry or request of the Chief Compliance Officer, shall provide, or if appropriate, make promptly available for inspection or copying, any information of any type or form deemed relevant by the Chief Compliance Officer to Contractor's integrity and compliance with these provisions. Such information may include, but shall not be limited to, Contractor's business or financial records, documents or files of any type or form that refer to or concern this contract. Contractor shall incorporate this paragraph in any agreement, contract or subcontract it enters into in the course of the performance of



this contract/agreement solely for the purpose of obtaining subcontractor compliance with this provision. The incorporation of this provision in a subcontract shall not create privity of contract between the Commission and any such subcontractor, and no third party beneficiaries shall be created thereby.

- 10.** For violation of any of these Contractor Integrity Provisions, the Commission may terminate this and any other contract with Contractor, claim liquidated damages in an amount equal to the value of anything received in breach of these Provisions, claim damages for all additional costs and expenses incurred in obtaining another contractor to complete performance under this contract, and debar and suspend Contractor from doing business with the Commonwealth. These rights and remedies are cumulative, and the use or non-use of any one shall not preclude the use of all or any other. These rights and remedies are in addition to those the Commission may have under law, statute, regulation, or otherwise.

# APPENDIX B

---

## Proposal Questions Form



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			Proposer Name:		
#	Page	Section	Section Description	Proposer Question	Commission Response
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					

# APPENDIX C

---

## Required Forms

12/2/2019



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

## PROPOSAL COVER SHEET

### Pennsylvania Turnpike Commission Fiber Infrastructure Operations, Maintenance, and Commercialization Services

**RFP# 19-10350-8799**

**Enclosed in three separately sealed submittals is the proposal for the Proposer identified below for the above referenced RFP:**

Proposer Information:	
Proposer Company Name	
Proposer Mailing Address	
Proposer Website	
Proposer Contact Person/Title	
Contact Person's Phone Number	
Contact Person's Fax Number	
Contact Person's Email Address	
Proposer Federal ID Number	
Location of Headquarters	
Location of Office(s) Performing the Work	
Listing of all Pennsylvania Offices and Total Number of Pennsylvania Employees	
Submittals Enclosed and Separately Sealed:	

<input type="checkbox"/> Technical Submittal <input type="checkbox"/> Diverse Business Participation Submittal <input type="checkbox"/> Cost Submittal	
Signature	
Signature of an official authorized to bind the Proposer to the provisions contained in the Proposer's proposal: _____	
Print Name	
Title	

**An official authorized to bind the Proposer to its provisions must sign the proposal. If the official signs this Proposal Cover Sheet and the Proposal Cover Sheet is attached to the proposal, the requirement will be met.**

## PROPOSAL SUBMITTAL CHECK LIST FORM

### Pennsylvania Turnpike Commission Fiber Infrastructure Operations, Maintenance, and Commercialization Services

Information	Mark “Checked” if Submitted
-------------	-----------------------------------

#### Fiber Infrastructure: O&M and Commercialization Project RFP Submission

<b>Volume I – General Information Submission</b>	
■ Section 1 - General Information Submittal	<input type="checkbox"/>
■ Section 2 - Commercialization Services Submittal	<input type="checkbox"/>
■ Section 3 - Operations and Maintenance Services Submittal	<input type="checkbox"/>
<b>Volume II – Diverse Business Requirements Submission</b>	
■ Section 4 - Diverse Business Requirements Submittal	<input type="checkbox"/>
<b>Volume III – Financial Statements and Price Proposal Submission</b>	
■ Section 5 - Financial Statements Submittal	<input type="checkbox"/>
■ Section 6 - Price Proposal Submittal	<input type="checkbox"/>
■ Section 7 - Commercialization Operating Model Submittal	<input type="checkbox"/>

By executing this checklist, Proposer acknowledges that its Proposal has been prepared to fully accomplish the scope of services and other requirements associated with the Project in accordance with the RFP.

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_ Title: \_\_\_\_\_

**ACKNOWLEDGEMENT OF ADDENDA FORM****Pennsylvania Turnpike Commission  
Fiber Infrastructure Operations, Maintenance, and  
Commercialization Services**

**Instructions:** Complete Part I or Part II, whichever is applicable.

---

**PART I:** Listed below are the dates of issue for each Addendum received in connection with the RFP.

Addendum # 1, Dated \_\_\_\_\_

Addendum # 2, Dated \_\_\_\_\_

Addendum # 3, Dated \_\_\_\_\_

---

**PART II:**

☐ **No Addendum was received in connection with this RFP.**

---

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_ Title: \_\_\_\_\_

Firm Name: \_\_\_\_\_

**ACKNOWLEDGEMENT OF THE CONTRACT AGREEMENT REVIEW****Pennsylvania Turnpike Commission  
Fiber Infrastructure Operations, Maintenance, and  
Commercialization Services**

**Instructions:** Proposers must acknowledge that they have reviewed the Contract Agreement (Appendix A) for the Project and identify any changes or specific modifications in writing that the Proposer considers essential for entering into a Contract Agreement with the Commission for this Project. The Commission reserves the right to consider and accept, in its sole and absolute discretion, to requested changes in the Contract Agreement.

☐ **The Contract Agreement was reviewed in connection with this RFP.**

---

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_ Title: \_\_\_\_\_

Firm Name: \_\_\_\_\_

**List all proposed changes / modifications to the Contract Agreement (if any) below:**

- 1.
- 2.
- 3.



# APPENDIX D

---

## Commission Security Requirements



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES



**APPENDIX D – RFP 19-10350-8799**  
**COMMISSION SECURITY REQUIREMENTS**  
**Revised: 06/01/19**

**General Security Requirements**

Vendor shall supply all hosting equipment (hardware and software) required for performance of the contract and ensure maintenance and replacement as necessary to maintain compliance with the Service Level Agreement(s).
The vendor shall warrant all system/software to be delivered free of malware or other malicious or destructive code.
In the event of adverse risk findings through an audit or assessment, the vendor shall cooperate with the Commission in remediating any risks to the system, including complying with requests to temporarily take the system offline or otherwise limit access to the system during remediation if warranted.
Vendors must have a plan for compliance with all applicable breach notification laws, including Pennsylvania's Breach of Personal Information Notification.
The Commission must be notified in writing within 72 hours of the earliest indication or report of a potential breach or unintended disclosure of confidential information.
Incident response actions that may affect confidential information must be conducted quickly and with ample resources. Vendor must hire a professional third-party incident response team if its inhouse resources do not have sufficient skill or availability.
The Commission shall have the right to view all incident response evidence, reports, communications, and related materials, affecting Commission systems, upon request.
If requested by the Commission, or if required by law, the vendor, at its own cost and expense, shall notify in writing all persons affected by the incident.
The vendor is responsible for hardening all devices to run only the services required to support the application. All unnecessary services must be disabled (for example, UPnP, SLP, etc.).
If Commission user service disruptions are expected, the change must be approved by the Change Review Board (CRB) before implementation.
No generic user accounts for shared resources will be permitted.
Audit logs must be implemented for all systems. All actual or attempted violations of system security must generate an audit log. Audit logs must be secured against unauthorized access or modification.
All account credentials (username/password) must be encrypted during transmission.
All administrator account passwords and SNMP community strings must be changed from the manufacturer's default values to a hardened value.



**APPENDIX D – RFP 19-10350-8799**  
**COMMISSION SECURITY REQUIREMENTS**  
**Revised: 06/01/19**

**Hosted/Cloud-Based Security Requirements**

The Commission's data must be located and remain within the continental United States.
Vendor shall use commercially reasonable resources and efforts to maintain adequate internet connection bandwidth, service capacity, and ensure its data center and/or other vendors performing subcontracted services have industry standard physical, technical, human, and administrative controls.
Vendor shall house all services and equipment in an operational environment that meets industry standards including climate control, fire and safety hazard detection, redundancy, electrical needs, and physical security.
If Commission employee access is required, then the latest version of ADFS (Active Directory Federated Services), using the latest version of SAML, must be used for authentication and authorization, and the Identity Source must be either the Commission's on-premise ADFS installation or the Commission's Azure AD instance.
When SAML authentication is used for cloud-hosted systems, the vendor must use Provider-side Initiated authentication.
All cloud-based/hosted systems using HTTPS, or any other protocol using SSL/TLS, must use TLS 1.2 or later with a key size no smaller than 2048 bits.
For public-facing systems, the vendor shall utilize a third-party certificate provider who is a recognized and trusted authority in the industry.
The vendor is responsible for sending the Commission system/network vulnerability scan results upon request.
The vendor will supply firewall and IPS logs for malicious intrusion and access attempts into hosted Commission systems upon request.
Vendors must have, and upon request by the Commission, shall provide copies of its information security policies that cover the following elements: <ul style="list-style-type: none"><li>- Data classification and privacy</li><li>- Security training and awareness</li><li>- Systems administration, patching, and configuration</li><li>- Application development and code review</li><li>- Incident response</li><li>- Workstation management, mobile devices, and antivirus</li><li>- Backups, disaster recovery, and business continuity</li><li>- Regular audits and testing</li><li>- Requirements for third-party business partners and contractors</li><li>- Compliance with information security or privacy laws, regulations, or standards</li></ul>
The vendor shall allow the Commission, or an agreed upon third party, to perform security assessments, vulnerability assessments, or audits of systems that contain Commission data.
For systems hosted off the Commission's network, an industry-accepted endpoint protection solution must be operated on all hosting servers.



**APPENDIX D – RFP 19-10350-8799**  
**COMMISSION SECURITY REQUIREMENTS**  
**Revised: 06/01/19**

**On-Prem/Physically-Connected Security Requirements**

The Commission's IT Security Team must be allowed to scan, for security vulnerabilities, any new equipment and/or changes to existing equipment before implementation.
The Commission's IT Security team must be given administrator-level access to all installed equipment for incident response and security assessment.
All Microsoft Windows-based systems, connected to the Commission's network, will be joined to the Commission's Active Directory domain and will be patched by the Commission's IT staff on a monthly-basis at a minimum.
The vendor is responsible for updating all non-Windows systems, not operated or administered by the Commission, to the vendors' latest recommended level.
If remote access is needed, the vendor must use HorizonView. If using VPN for remote access, a Commission owned, and managed device is required.
If local connectivity to the Commission's network is needed, a Commission-owned and managed device is required. Vendor-owned devices are not permitted to be connected to the network.
The vendor's system/software must co-exist with all industry accepted endpoint software with no exceptions.
The vendor must provide the necessary directory and file exclusions to allow the system/software to operate as intended.

# APPENDIX E

---

## Insurance Specification



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

Before starting any work, including testing, and until completion and final payment is made for the work, or final acceptance of the work, the Proposer will obtain and maintain, at its own expense, the following minimum levels of insurance. Proposer shall be responsible for ensuring that all Subcontractors hired by the Proposer are properly insured. Proposer shall not permit any Subcontractor to start work until such evidence has been provided and approved by the Proposer.

- a) All insurance shall be procured from insurers authorized or approved to do business in the Commonwealth and having an A.M. Best Rating of not less than “A-, Class VIII”.
- b) Except as otherwise expressly provided in this Agreement, Proposer or its Contractors will be responsible for paying all insurance deductibles and self-insurance retentions and the Commission will have no liability for deductibles, self-insured retentions or claim amounts in excess of the required coverage.
- c) Unless specified otherwise, each policy must provide coverage on an “occurrence” basis.
- d) Each policy must state that coverage cannot be cancelled or allowed to lapse by insurance company action except after thirty (30) days prior written notice (or ten (10) days for non-payment of premium) by mail, or email, has been provided to the Commission. In the event of cancellation or non-renewal of coverage(s) for any reason, it is the Proposer’s responsibility to replace coverage to comply with the Contract requirements so there is no lapse of coverage for any time period.

If the insurance carriers will not issue or endorse their policy(s) to comply with the above it is the responsibility of the Proposer to report any notice of cancellation or non-renewal to the Commission within the time periods indicated above.

- e) Proposer shall provide the Commission with Certificates of Insurance, showing the insurance coverages listed below ten (10) days prior to the start of work of this Project and thereafter upon renewal or replacement of each coverage. The Proposer shall not begin any work, including testing, until the Commission has reviewed and approved the Certificate of Insurance.

Failure of the Commission to demand such certificate or other evidence of full compliance with these insurance requirements or failure of the Commission to identify a deficiency from evidence that is provided shall not be construed as a waiver of Proposer's obligation to maintain such insurance.

Upon completion of the contract, an additional certificate(s) of insurance evidencing coverage shall be provided to the Commission with final application for payment.

- f) The Commission, and its Commissioners, officers, employees and agents shall be added as ADDITIONAL INSURED(S) on all required liability policies (except Workers' Compensation, Professional Liability & Crime) for ongoing operations and completed operations on a primary and non-contributory basis.

There shall be no "Insured versus Insured Exclusion" on any policies; all policies will provide for "cross liability coverage".

- g) Waiver of Rights of Subrogation: Proposer shall waive all rights of recovery against the Commission and all the additional insureds for loss or damage covered by any of the required insurance (except Professional Liability).
- h) The amount of insurance in the required coverages shall not be construed to be a limitation of the liability on the part of the Proposer.
- i) The carrying of insurance described below shall in no way be interpreted as relieving the Proposer of any responsibility or liability under the contract.
- j) Any type of insurance or any increase in limits of liability which the Proposer requires for its own protection or on account of statute shall be its own responsibility and at its own expense.
- k) Proposer shall promptly notify the Commission and the appropriate insurance company(ies) in writing of any accident(s)/breach(es) as well as any claim, suit or process received by the insured Proposer arising in the course of operations under the contract. The Proposer shall forward such documents received to its insurance company(ies), as soon as practicable, or as required by its insurance policy(ies).
- l) The Commission reserves the right to request a true and complete copy of each insurance policy and/or each renewal or replacement insurance policy, including any and all endorsements thereto.
- m) All insurance specifications, including but not limited to coverage and limits, shall be reviewed as appropriate and any changes shall be addressed as required.

**REQUIRED COVERAGES - the following may be provided through a combination of primary and excess policies in order to meet the minimum limits set forth below:**

**1. Workers' Compensation and Employer's Liability:**

Provided in the State in which the work is to be performed and elsewhere as may be required and shall include:

- a) Workers' Compensation Coverage: Statutory Requirements
- b) Minimum Limits of Liability:  
Employers Liability Limits not less than:
 

Bodily Injury by Accident:	\$500,000 Each Accident
Bodily Injury by Disease:	\$500,000 Each Employee
Bodily Injury by Disease:	\$500,000 Policy Limit
- c) If applicable, coverage shall be included for the United States Longshoremen's and Harbor Workers Act, The Federal Employers Liability Act and the Jones Act.

**2. Commercial General Liability:**

Provided on standard ISO forms or an equivalent form including Premises and Operations, Independent Contractors, Products and Completed Operations, Broad Form Property Damage, Contractual Liability, and Personal Injury and Advertising Injury.

- a) Minimum Limits of Liability:  
Occurrence Form with the following limits:
  - (1) General Aggregate: \$2,000,000
  - (2) Products/Completed Operations  
Aggregate: \$2,000,000
  - (3) Each Occurrence: \$1,000,000
  - (4) Personal and Advertising Injury: \$1,000,000
- b) There shall be no endorsement or modification of the CGL coverage limiting the scope of coverage for liability arising from explosion, collapse, and underground property damage or for work within fifty (50) feet of a railroad.
- c) The policy shall be endorsed to amend the definition of "occurrence" regarding faulty workmanship to ensure that any 'resulting damage' to the Lead Contractor's work caused by faulty workmanship of subcontractors is considered an occurrence and, therefore, a covered claim.



3. **Automobile Liability:**

- a) Coverage to include All Owned, Hired and Non-Owned Vehicles (or “Any Auto”). If Proposer does not have any Owned Vehicles, Proposer is still required to maintain coverage for Hired and Non-Owned Vehicles as either a stand-alone policy or endorsed onto the Commercial General Liability policy above
- b) Minimum Limits of Liability:  
Per Accident Combined Single Limit                      \$1,000,000

4. **Commercial Umbrella Liability:**

- a) Policy(ies) to apply on a Following Form Basis of the following:
  - (1) Commercial General Liability,
  - (2) Automobile Liability, and
  - (3) Employers Liability Coverage.
- b) Minimum Limits of Liability:  
Occurrence Limit:    \$10,000,000  
Aggregate Limit:    \$10,000,000

5. **Professional Liability (can be combined with Network Security and Privacy Liability):**

- a) The definition of “Covered Services” shall include the services required in the Work Statement of this contract.
- b) Minimum Limits of Liability:  
Per Claim:    \$10,000,000  
Aggregate:     \$10,000,000
- c) If the policy is issued on a claims-made form, the following requirements will apply:
  - 1. The retroactive date must be on or before the start of work under this contract;
  - 2. In the event of policy cancellation or non-renewal, the Proposer must purchase “tail coverage/an extended reporting period” or maintain coverage for a period of three (3) years after the completion of their work/final payment.

6. **Network Security and Privacy Liability (can be included under Professional Liability):**

- a) Proposer shall maintain the following coverage including but not limited to:
  - (1) Network Security Liability for third party liability arising out of hacking, network system intrusions, unauthorized access/use to data or systems, distribution of malicious code, denial of service and cyber extortion.
  - (2) Privacy Liability for third party liability arising out of breach of privacy, inclusive of confidential and proprietary business information, HIPAA violations and other breaches of personally identifiable information and /or protected health information that may arise from their work with this contract.
- b) Minimum Limits of Liability:

Per Claim:	\$10,000,000
Aggregate:	\$10,000,000
- c) Privacy Breach notification and Credit Monitoring: \$10,000,000 Per Occurrence

7. **Crime Insurance:**

- a) Include the Employee Theft and Theft, Disappearance and Destruction coverage parts. The Employee Theft Coverage part shall include the Clients' Property Endorsement (ISO Form CR 04 01, or its equivalent).
- b) Minimum Limits of Liability: Per Occurrence: \$1,000,000

8. **Property Coverage/Installation Floater:**

Provided on an All Risk, Replacement Cost basis for Proposer's property including but not limited to:

- a) Owned, leased or borrowed property,
- b) Materials to be part of the project (on-site and off-site),
- c) Property in the course of installation and while in transit to the installation site,
- d) Spare parts, test equipment and specialty tools,
- e) Documentation/Valuable Papers
- f) Loss of Business Income and Extra Expense

9. **Pollution Liability Insurance:**

Covering losses caused by pollution incidents that arise from the operations of the Proposer as described under the Work Statement of this contract and encompassing all parcels within the Project. This is to include all work completed by the Proposer, including testing and/or removal of any and all pollutants.

- a) Minimum Limits of Liability:
  - Occurrence Limit: \$1,000,000
  - Aggregate Limit: \$1,000,000
- c) Such coverage may be written on either an occurrence or claim-made basis, however, if written on a claims-made basis, coverage shall continue to be carried for a period of three years following the Termination Date.
- b) Coverage shall, at a minimum, be extended to cover any transportation and non-owned off-site disposal and shall include all claims related to bodily injury, property damage (including diminution of value), and clean-up and remediation costs.

# APPENDIX F

---

## Diverse Business (DB) Requirements



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

**Pennsylvania Turnpike Commission**  
**DIVERSE BUSINESS (DB) REQUIREMENTS**

**Diverse Business Participation.** The Commission is committed to Diverse Business (DB) participation on competitive contracting opportunities. Firms or entities that have not previously performed work or provided services to the Commission are encouraged to respond to the solicitations. RFPs may include DB participation as part of the criteria for the evaluation of proposals, and the Commission may consider DB participation as a selection factor.

**Minimum Participation Level (MPL).** The minimum participation level (MPL) for the inclusion of DBs will be established in the RFP/advertisement as a percentage.

**(a) General Requirements.** Section 303 of Title 74 of the Pennsylvania Consolidated Statutes, 74 Pa.C.S. § 303, requires proposer on contracts funded pursuant to the provisions of Title 74 (Transportation) and 75 (Vehicle Code) administered and issued by the Commission to make Good Faith Efforts to solicit subconsultants that are Diverse Businesses (DBs) as defined in Section 303. The DB requirements of Section 303 apply to this contract.

Section 303 requires proposers to make Good Faith Efforts, as described below, to solicit subconsultants that are DBs during the proposal process to maximize participation of DBs in competitive contracting opportunities.

The Commission is committed to participation by DBs and will enforce the requirements of Section 303 and this section. Failure to make Good Faith Efforts and demonstrate such Good Faith Efforts in the solicitation of subconsultants may result in the proposer being declared ineligible for the contract.

Proposers shall document and submit to the Commission all Good Faith Efforts, as described in this section, to solicit subconsultants that are DBs during the solicitation process.

Proposers are encouraged to utilize and give consideration to consultants offering to utilize DBs in the selection and award of contracts.

Proposers shall not discriminate on the basis of gender, race, creed or color in the award and performance of contracts in accordance with 62 Pa.C.S. §3701.

Failure to comply with the requirements of Section 303 or this specification may result in the imposition of sanctions as appropriate under section 531 of the Procurement Code, 62 Pa.C.S. § 531 relating to debarment and suspension.

The Commission's Director of the Office of Diversity and Inclusion, or designee, is designated the Responsible Official who shall supervise the DB program and ensure that the Commission complies with the DB program.

**(b) Definitions.** The following definitions apply to terms used in this specification:

**1. Disadvantaged Business** – A business that is owned or controlled by a majority of persons, not limited to members of minority groups, who are subject to racial, social, ethnic prejudice or cultural bias.

**2. Diverse Business** – A disadvantaged business, minority-owned or women-owned business or service-disabled veteran-owned or veteran-owned small business that has been certified by a third-party certifying organization.

**3. Minority-owned Business** – A business owned and controlled by a majority of individuals who are African Americans, Hispanic Americans, Native Americans, Asian Americans, Alaskans or Pacific Islanders.

**4. Professional Services** – An industry of infrequent, technical or unique functions performed by independent contractors or consultants whose occupation is the rendering of the services, including: (1)

design professional services as defined in 62 Pa.C.S. § 901 (relating to definitions); (2) legal services; (3) advertising or public relations services; (4) accounting, auditing or actuarial services; (5) security consultant services; (6) computer and information technology services; and (7) insurance underwriting services.

**5. Pro Forma Effort**-The act of completing a form or document identifying efforts to solicit DBs for a project in order to satisfy criteria with little or no expectation that the DBs contacted or identified will perform any of the work.

**6. Service-Disabled Veteran-Owned Small Business** – A business in the United States which is independently owned and controlled by a service-disabled veteran(s), not dominant in its field of operation, and employs 100 or fewer employees.

**7. Subconsultant**- Any individual, partnership, firm, or corporation entering into a contract with the prime consultant for work under the contract, including those providing professional and other services.

**8. Third-party Certifying Organization** – An organization that certifies a small business, minority-owned business, women-owned business or veteran-owned small business as a diverse business. The term includes: (1) the National Minority Supplier Development Council; (2) the Women’s Business Development Enterprise National Council; (3) the Small Business Administration; (4) The Department of Veteran Affairs; (5) the Pennsylvania Unified Certification Program.

**9. Veteran-owned Small Business** –A small business owned and controlled by a veteran or veterans.

**10. Women-Owned Business** – A business owned and controlled by a majority of individuals who are women.

**(c) Actions Required by Proposer during the procurement/consultant selection phase**

**1. Submission Requirements – Consultant Responsiveness.**

- a. **Minimum Participation Level (MPL) Documentation** - If the documentation submitted with the proposal demonstrates that the proposer has identified DBs sufficient to meet the MPL established for this contract, the proposer will be deemed to have satisfied the DB requirement during this phase. The proposer is required to provide the business name and business address of each DB and supporting documentation that includes proof of certification.

If the consultant’s proposal demonstrates the consultant’s inability to meet the MPL established for this contract, the proposer shall demonstrate Good Faith Efforts with its proposal. Failure to submit the required documentation demonstrating Good Faith Efforts as further described below with the proposal may result in a rejection of the proposal.

- b. If no MPL has been established for this contract, the proposer is required to either provide a statement of intent that it will self-perform 100% of the work for the agreement, or demonstrate Good Faith Efforts to solicit subconsultants that are DBs. In either case documentation shall be provided with the proposal.

Failure to submit the required information identified above with the proposal may result in a rejection of the proposal.

**2. Good Faith Effort Requirements:** The documentation of Good Faith Efforts must include the business name and business address of each DB considered. Supporting documentation must also include proof of certification and any explanation of Good Faith Efforts the proposer would like the Commission to consider. Any services to be performed by a DB are required to be readily identifiable to the agreement. Good Faith efforts are demonstrated by seeking out DB participation in the project given all relevant circumstances. The Commission requires the proposer to demonstrate more than Pro Forma Efforts. Evidence of Good Faith Efforts includes, but is not limited to:

- a. Consultant solicits through all reasonable and available means the interest of all certified DBs with the capacity to perform the scope of work set forth in the agreement.
- b. The proposer must provide written notification at least 5 business days before proposals are due to allow the DBs to respond to the solicitation.
- c. The proposer must determine with certainty if DBs are interested by taking appropriate steps to follow up initial solicitations.
- d. The proposer must make efforts to select portions of the work to be performed by DBs to include, where appropriate, breaking out contract work into economically feasible units to facilitate DB participation;
- e. It is the proposer's responsibility to make a portion of the work available to DBs and, to select those portions of the work, so as to facilitate DB participation.
- f. The proposer shall provide evidence of such negotiations that include the names, addresses, and telephone numbers of DBs considered; A description of the information provided regarding the required work and services for the work selected for subconsultants; and evidence as to why additional agreements could not be reached for DBs to perform the work.
- g. Proposers cannot reject or withhold solicitation of DBs as being unqualified without sound reasons based on a thorough investigation of their capabilities.
- h. The DB's standing within its industry, membership in specific groups, organizations or associations and political or social affiliations (for example union v. non-union employee status) are not legitimate causes for the rejection or non-solicitation of proposals in the proposer's efforts to meet the Good Faith Efforts requirement.
- i. Efforts to assist interested DBs in obtaining bonding, lines of credit or insurance.

**3. Actions Taken by the Commission.** As part of the proposal review process, the Commission will review the submissions to determine whether the proposer has complied with Section 303 and this requirement in the selection of DB subconsultants. The Commission will determine whether the proposer has either met the MPL or provided acceptable documentation as noted above. The Commission reserves the right to contact proposers for clarification during the review and negotiation process.

If the Commission determines that the proposer has failed to either meet the MPL or provide acceptable documentation as noted above, the proposal may be rejected.

**(d) Consultant Requirements During Performance of Services.**

**1. Replacement of a DB Subconsultant.** Consultant must continue good faith efforts through completion of the contract. The obligation to make Good Faith Efforts to solicit subconsultants for any type of service extends to additional work required for any service which is identified to be performed by a DB. If at any time during the performance of the work, it becomes necessary to replace or add a subconsultant that is a DB, the consultant, as appropriate, shall immediately notify the Commission and seek approval in writing in accordance with the Agreement of the need to replace the DB, which notice shall include the reasons for the replacement. If a prime consultant who originally indicated that it would self-perform all

work subsequently decides to use a subconsultant for any work under the contract, the consultant must submit documentation of all Good Faith Efforts as to the work for which a subconsultant is obtained.

**2. Records.** Maintain project records as are necessary to evaluate DB compliance and as necessary to perform the reporting function addressed below. Maintain all records for a period of 3 years following acceptance of final payment. Make these records available for inspection by the Commission, its designees or agents. These records should indicate:

**2.a.** The number of DB and non-DB subconsultants and the type of services performed on or incorporated in this project.

**2.b.** The progress and efforts made in seeking out DB subconsultant organizations and individual DB consultants for work on this project to increase the amount of DB participation and/or to maintain the commitments made at the time of the proposal to DBs.

**2.c.** Documentation of all correspondence, contacts, telephone calls, and other contacts made to obtain the service of DBs on this project.

**3. Reports.** Maintain monthly reports and submit reports as required by the Commission concerning those contracts and other business executed with DBs with respect to the records referred to in subsection (e)2. above in such form and manner as prescribed by the Commission. At a minimum, the Reports shall contain the following:

**3.a** The number of Contracts with DBs noting the type of services provided, including the execution date of each contract.

**3.b** The amounts paid to each DB during the month, the dates of payment, and the overall amounts paid to date. If no payments are made to a DB during the month, enter a zero (\$0) payment.

**3.c** Upon request and upon completion of individual DB firm's work, submit paid invoices or a certification attesting to the actual amount paid. In the event the actual amount paid is less than the award amount, a complete explanation of difference is required.

#### **4. Subconsultant Contracts**

**4.a.** Subcontracts with DB firms will not contain provisions waiving legal rights or remedies provided by laws or regulations of the Federal Government or the Commonwealth of Pennsylvania or the Commission through contract provisions or regulations.

**4.b.** Prime consultant will not impose provisions on DB subconsultants that are more onerous or restrictive than the terms of the prime's contract with non-DBs.

**4.c.** Executed copies of subcontracts/purchase orders are to be received by the Commission before the commencement of work by the DB.

**5. Payments to DB Subconsultants.** Payments to DBs are to be made in accordance with the prompt payment requirements of Chapter 39, Subchapter D of the Procurement Code, 62 Pa.C.S. §3931 et seq. Performance of services by a DB subconsultant in accordance with the terms of the contract entitles the subconsultant to payment.

**(e) Actions to be Taken by Commission After Performance of Services.** Following completion of



the Consultant's services, the Director of the Commission's Office of Diversity and Inclusion or his/her designee will review the overall DB participation to assess the Consultant's compliance with Section 303 and this contract. Appropriate sanctions may be imposed under 62 Pa.C.S. § 531 (relating to debarment or suspension) for a Consultant's failure to comply with Section 303 and the requirements of the contract.

# APPENDIX G

---

## Price Proposal



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

**PLEASE COMPLETE THE ATTACHED EXCEL WORKBOOK ENTITLED  
“APPENDIX G. Price Proposal”**



---

Pennsylvania Turnpike Commission

---

Fiber Infrastructure: O&M and Commercialization Project RFP

---

Appendix G. Price Proposal

---

**General Instructions:**

- 1. This workbook contains three sections, the "O&M Services", "Eastern Network", and "Western Network" sections, each marked by a blank divider tab. They correspond to the RFP as follows:
  - i. O&M Services Price Worksheet - Paragraph A-I of Volume III: Part II - Section 6. Price Proposal Submittal
  - ii. Eastern Network Price Worksheet - Paragraph A-II of Volume III: Part II - Section 6. Price Proposal Submittal
  - iii. Western Network Price Worksheet - Paragraph A-III of Volume III: Part II - Section 6. Price Proposal Submittal
- 2. O&M Services Price Worksheet is organized into the following three worksheets:
  - i. One-Time Costs Worksheet
  - ii. Recurring Costs Worksheet
  - iii. Unit Costs Worksheet
- 3. Proposers are required to complete all "green" cells highlighted for completion, as instructed in the instructions tabs. Please note that "grey" colored cells are calculated.
- 4. All values / inputs shall be submitted in nominal U.S. Dollars.
- 5. For the purposes of evaluation, the Commission will calculate NPV's based on a Contract Execution Date of September 30, 2020, and assume D-B completion of the Eastern Network in December 31st, 2021. (e.g. on the Templates, "Contract Year #1" represents October 1st, 2020 to September 30, 2021, and so on.)
- 6. **Proposers should ensure that all required information is provided in the Price Proposal.**

This Worksheet is Intentionally Left Blank

----> Go to next worksheet

Instructions to Proposers	
1.) COSTS ARE TO BE PROVIDED PER THE DIRECTIVES IN THE SHEET ENTITLED "LOA DESIGNATIONS & COSTING INFO"	
2.) THE PROPSEER SHALL PROVIDE THEIR PROPOSED PRICE IN ALL "GREEN" COLORED CELLS (SHOWN TO THE RIGHT FOR EXAMPLE). ALL COSTS TO BE PROVIDED AS POSITIVE NUMBERS FOR THE PURPOSE OF THIS TEMPLATE	\$ -
3.) ALL GREY COLORED CELLS (SHOWN TO THE RIGHT FOR EXAMPLE) WILL CALCULATE AUTOMATICALLY BASED ON THE PTC PROVIDED QUANTITY AND THE PROPOSED PRICE ENTERED IN THE ASSOCIATED "GOLD" CELL(S)	\$ -
4.) THE PROPOSER SHALL FILL OUT ALL O&M WORKSHEETS COMPLETELY AND ACCURATELY.	
5.) ALL COSTS SHALL REPRESENT THE TOTAL UNIT COST BEING PROPOSED TO THE COMMISSION AND SHALL INCLUDE ALL MATERIAL COSTS, O&M LABOR, OVERHEAD, AND PROFIT.	

		<b>Costs Worksheet ID</b>  <b>Legend/Location:</b> OT-# = One-Time Costs Worksheet item S-# = Recurring Costs Worksheet item U-# = Unit Costs Worksheet item
<b>IV-4 Services</b>	<b>LOA Designations and Costing Information</b>	
	Standard LOA shall be used to authorize an estimated yearly budget for all FOM-1 services.  Separate LOA shall be used to authorize FOM-1 services exceeding the yearly budget established in the Standard LOA.	
<b>FOM-1 Locating and Mark-Out Services</b>	The Proposer shall provide costs for the yearly estimated quantity of hours (including costs of all labor and materials) in the Recurring Costs Worksheet	Recurring Costs Worksheet: • S-1; and • S-2
FOM-1.1 Response and Requests	Costs for this service shall be included in the unit price(s) in the Recurring Costs Worksheet.	Incidental to S-1 and S-2
FOM-1.2 Resources	Costs for this service shall be included in the unit price(s) in the Recurring Costs Worksheet.	Incidental to S-1 and S-2
FOM-1.3 Fiber Marking Requirements	Costs for this service shall be included in the unit price(s) in the Recurring Costs Worksheet.	Incidental to S-1 and S-2
FOM-1.4 Coordination Efforts	Costs for this service shall be included in the unit price(s) in the Recurring Costs Worksheet.	Incidental to S-1 and S-2
FOM-1.5 Construction Meetings and On-Site Construction	Costs for this service shall be included in the unit price(s) in the Recurring Costs Worksheet.	Incidental to S-1 and S-2
FOM-1.6 Incorrect Fiber Location and/or Mark-Out	Costs for this service shall be included in the unit price(s) in the Recurring Costs Worksheet.	Incidental to S-1 and S-2
	<b>Standard LOA</b> shall be used to authorize an estimated yearly budget for all FOM-2 services, except FOM-2.10.  <b>Separate LOA</b> shall be used to authorize FOM-2 services exceeding the yearly budget established in the Standard LOA.  The Proposer shall provide unit prices for each item that may be used in the course of corrective and emergency maintenance in the <b>Unit Costs Worksheet</b> .  Unit prices provided in the FOM-2 unit price column(s) shall be used to determine invoiced costs for the resolution of incidents and problems in accordance with the requirements set forth in Section IV-3 and Section IV-4 FOM-2 of the RFP based upon the actual quantities of items used to resolve the incident or problem during the course of maintenance.	
<b>FOM-2. Maintenance (Break/Fix) Services</b>		Unit Costs Worksheet U-1 through U-20 as applicable
FOM-2.1 Corrective and Emergency Maintenance	Costs for this service shall be included in the FOM-2 column(s) unit prices in the Unit Costs Worksheet.	Incidental to FOM-2 Unit Costs
FOM-2.2 Acknowledgment of ServiceNow Incident Tickets	Costs for this service shall be included in the FOM-2 column(s) unit prices in the Unit Costs Worksheet.	Incidental to FOM-2 Unit Costs
FOM-2.3 Technician Dispatch	Costs for this service shall be included in the FOM-2 column(s) unit prices in the Unit Costs Worksheet.	Incidental to FOM-2 Unit Costs
FOM-2.4 Hourly Maintenance Updates	Costs for this service shall be included in the FOM-2 column(s) unit prices in the Unit Costs Worksheet.	Incidental to FOM-2 Unit Costs
FOM-2.5 Original Equipment Manufacturer’s Recommended Practices	Costs for this service shall be included in the FOM-2 column(s) unit prices in the Unit Costs Worksheet.	Incidental to FOM-2 Unit Costs
FOM-2.6 Maintenance Testing	Costs for this service shall be included in the FOM-2 column(s) unit price for line item U-18 only in the Unit Costs Worksheet.	U-18
FOM-2.7 Implementation of Temporary Solutions	Costs for this service shall be included in the FOM-2 column(s) unit prices in the Unit Costs Worksheet.	Incidental to FOM-2 Unit Costs
FOM-2.8 Resolution of ServiceNow Incident Tickets	Costs for this service shall be included in the FOM-2 column(s) unit prices in the Unit Costs Worksheet.	Incidental to FOM-2 Unit Costs
FOM-2.9 Root Cause Analysis	Costs for this service shall be included in the FOM-2 column(s) unit price for line item U-19 only in the Unit Costs Worksheet.	U-19
	<b>Separate LOA</b> shall be used to authorize costs for all Commission requests for: • Third-party failure analysis; • Upgrades, modifications, and/or other changes; • Development of Recurring Issue Maintenance Response Plans; • Implementation and performance of preventative maintenance and/or other activities identified in the Recurring Issue Maintenance Response Plan until the next Annual Contract Review/Standard LOA period.  If directed by the Commission, <b>Standard LOA</b> shall be used to authorize costs for the continuation of the activities identified in the Recurring Issue Maintenance Response Plan. The continuation of these activities shall be determined on a case-by-case basis during the Annual Contract Review/LOA process and all associated costs shall be included in the Standard LOA FOM-2 budget established for the next Standard LOA period.  There is no requirement for the Commission to utilize the work defined by this task and its services at any point during the Term of the Contract. No costs pertaining to this task shall be included in the Proposer's Cost Submittal in any way, shape, or form.	
FOM-2.10 Recurring Issues Maintenance Response		N/A - Separate LOA
<b>FOM-3 Fiber Management System</b>	<b>Standard LOA</b> shall be used to establish a yearly budget for all recurring FOM-3 services.	Varies
	<b>Standard LOA</b> shall be used to authorize all costs for initial setup and configuration of the FMS. Costs for this line item shall include the following: • Procurement and licensing of the FMS on behalf of the Commission; • Development of the Fiber Management System Implementation Plan; • Execution of the Fiber Management System Implementation Plan; • Configuration of user profiles and permissions; • Data collection and validation: (Level of effort is anticipated to include data collection for ~220 miles of D-B fiber as described in Section IV-2 B. Commission Assets to be Covered, existing Commission fiber as provided in Appendix I, and all splicing/termination information based on the distribution/termination plans required in FOM-6.4 (Appendix K Fiber Termination Plans). Please refer to FOM-6.4 (Appendix K Fiber Termination Plans) in this sheet for quantities of terminations. Quantity of splices are anticipated to be 1:1 with the quantity of required terminations as provided in this sheet; and • Data entry and mapping (inclusive of all data collected and validated).	
FOM-3 Initial Setup and Configuration	This line item shall be a <b>one-time cost</b> , and shall not recur on a yearly Standard LOA basis.	OT-1
FOM-3 Ongoing O&M (FMS Admin Role)	Costs for this service shall be included in the FOM-3 unit price in the Recurring Costs Worksheet.	S-3

		<b>Costs Worksheet ID</b>  <b>Legend/Location:</b> OT-# = One-Time Costs Worksheet item S-# = Recurring Costs Worksheet item U-# = Unit Costs Worksheet item
<b>IV-4 Services</b>	<b>LOA Designations and Costing Information</b>	
FOM-3.1 FMS Inventory Management	Costs for this service shall be included in the FOM-3 unit price(s) in the Recurring Costs Worksheet.	Incidental to OT-1 and S-3
FOM-3.2 FMS Importing and Exporting	Costs for this service shall be included in the FOM-3 unit price(s) in the Recurring Costs Worksheet.	Incidental to OT-1 and S-3
FOM-3.3 FMS Reporting/Queries	Costs for this service shall be included in the FOM-3 unit price in the Recurring Costs Worksheet.	Incidental to S-3
	Costs for this service shall be included in the FOM-3 unit price in the One-Time Costs Worksheet.	
FOM-3.4 ESRI/GIS Integration	Separate LOA shall be used to authorize any additional future FMS integrations, if requested by the Commission. There is no requirement for the Commission to request future FMS integrations at any point during the Term of the Contract. No costs pertaining to potential future FMS integrations shall be included in the Proposer's Cost Submittal in any way, shape, or form.	Incidental to OT-1
	<b>Standard LOA</b> shall be used to authorize the initial 24 hours of formal in-person FMS training. This line item shall be a <b>one-time cost</b> , and shall not recur on a yearly Standard LOA basis. Costs provided for this line item shall include: <ul style="list-style-type: none"><li>• 24 hours of training at the Commission's TIP building to an anticipated ten (10) designated Commission personnel and five (5) ICT Contractor personnel in a classroom/workshop setting; and</li><li>• Providing the Commission recorded training sessions and training materials as stated in the RFP for the Commission's future use.</li></ul> If requested by the Commission, <b>Separate LOA</b> shall be used to authorize any additional training. There is no requirement for the Commission to request additional training at any point during the Term of the Contract. No costs pertaining to additional training shall be included in the Proposer's Cost Submittal in any way, shape, or form.	
FOM-3.5 FMS Training		OT-2
	<b>Standard LOA</b> shall be used to authorize FOM-4 services when possible (i.e. for planned projects if schedules allow and/or coincide with the Annual Review and Standard LOA process). Standard LOA shall be used to authorize an estimated yearly budget for witnessing and accepting new fiber installations FOM-4.1 New Fiber Installation (other future projects).  <b>Separate LOA</b> shall be used to authorize FOM-4 services as necessary for unplanned projects other ad-hoc witnessing and acceptance needs. Separate LOA shall also be used to authorize FOM-4.1 services exceeding the yearly budget established in the Standard LOA.	
<b>FOM-4. Witnessing and Acceptance</b>		Varies
FOM-4.1 New Fiber Installation (D-B Contracts EN-00232-03-02 & EN-00232-03-03)	<b>Standard LOA</b> shall be used to authorize costs for witnessing and acceptance of fiber installed via D-B contracts EN-00232-03-02 & EN-00232-03-03.	OT-3
FOM-4.1 New Fiber Installation (other future projects)	<b>Standard LOA</b> shall be used to authorize costs for witnessing and acceptance of fiber installed via future contracts.	S-7
FOM-4.2 Management of the Existing Fiber (O&M of existing Fiber as provided in Appendix I)	Costs for this service shall be included in the FOM-2 column(s) unit prices in the Unit Costs Worksheet.	Incidental to FOM-2 Unit Costs
FOM-4.2 Management of the Existing Fiber (Testing and proving operation of lit dark fiber strands for utilization)	<b>Separate LOA</b> shall be used to authorize costs related to testing and proving operation of existing dark fiber strands for utilization.	Unit Costs Worksheet U-18
	<b>Standard LOA</b> shall be used to authorize FOM-5 services when possible (i.e. for planned projects if schedules allow and/or coincide with the Annual Review and Standard LOA process).  <b>Separate LOA</b> shall be used to authorize FOM-5 servics as necessary, and as indicated below.  The Proposer shall provide unit prices for each item in the FOM-5 column in the Unit Costs Worksheet that will be used in the course of .  Unit prices provided in the FOM-5 unit price column shall be used to determine invoiced costs for new lateral installations, temporary and relocated fiber optic cable, and fiber connections to Future Open Road Tolling locations beyond the scope of the new building locations included in Appendix K in accordance with the requirements set forth in Section IV-3 and Section IV-4 FOM-5 of the RFP based upon the actual quantities of items used to complete the work.	
<b>FOM-5 Trunk Connections</b>		Varies
	Costs for this service shall be based on the FOM-5 column unit prices in the Unit Costs Worksheet.	
FOM-5.1 New Lateral Installations	<b>Separate LOA</b> shall be used to authorize costs for this service. There is no requirement for the Commission to utilize the work defined by this task at any point in the contract.	Unit Costs Worksheet U-1 through U-20 as applicable
	Costs for this service shall be based on the FOM-5 column unit prices in the Unit Costs Worksheet.	
FOM-5.2 Temporary and Relocated Fiber Optic Cable	<b>Separate LOA</b> shall be used to authorize costs for this service. There is no requirement for the Commission to utilize the work defined by this task at any point in the contract.	Unit Costs Worksheet U-1 through U-20 as applicable
	For the initial D-B Contracts EN-00232-03-02 & EN-00232-03-03, costs for this task shall be authorized via Standard LOA. Separate cost item (OT-4) shall be automatically calculated and filled in the One-Time Costs Worksheet per the unit prices and estimated quantities provided in the FOM-5.3 Unit Costs Calculator in the Unit Costs Worksheet. This line item (OT-4) shall be a one-time cost, and shall not recur on a yearly Standard LOA basis. Costs for the associated network design tasks shall be included in the given quantities for FOM-6.4 Network Design Tasks (Appendix K Fiber Termination Plans). The costs for this task shall be based on 15 new buildings for Open Road Tolling Sites (as listed in Appendix K).	Unit Costs Worksheet - FOM-5.3 Unit Costs Calculator. Lump Sum total is automatically filled in the One-Time Costs Worksheet item OT-4
FOM-5.3 Fiber Connections to Open Road Tolling	Costs for fiber connections to Future Open Road Tolling locations beyond the scope of the new building locations included in Appendix K, shall be authorized by Separate LOA based on the FOM-5 column unit prices in the Unit Costs Worksheet.	Unit Costs Worksheet U-1 through U-20 for future work.



		<b>Costs Worksheet ID</b>  <b>Legend/Location:</b> OT-# = One-Time Costs Worksheet item S-# = Recurring Costs Worksheet item U-# = Unit Costs Worksheet item
<b>IV-4 Services</b>	<b>LOA Designations and Costing Information</b>	
	<b>Standard LOA</b> shall be used to authorize costs for incidental coordination tasks anticipated to be performed by the FMS Admin and Project Manager roles as well as network design tasks (future) when possible (i.e. for planned projects if schedules allow and/or coincide with the Annual Review and Standard LOA process).	
<b>FOM-6 Coordination Tasks</b>	<b>Separate LOA</b> shall be used to authorize costs for unplanned or emergency network design tasks (future).	Varies
FOM-6.1 ICT Contractor	Costs for this service shall be included in the FOM-3 Ongoing O&M (FMS Admin Role) unit price in the Recurring Costs Worksheet.	Incidental to S-3
FOM 6.2 New Project Designs and Rehab Projects	Costs for this service shall be included in the FOM-3 Ongoing O&M (FMS Admin Role) unit price in the Recurring Costs Worksheet.	Incidental to S-3
FOM-6.3 Fiber Optic Network Design Build Contractor	Costs for this service shall be included in the FOM-3 Ongoing O&M (FMS Admin Role) unit price in the Recurring Costs Worksheet.	Incidental to S-3
FOM-6.4 Network Design Tasks (Future)	<b>Separate LOA</b> shall be used to authorize future network design tasks.	N/A - Separate LOA
	<b>Standard LOA</b> shall be used to authorize fiber distribution/termination plans for all locations provided in <b>Appendix K</b> . This line item shall be a <b>one-time cost</b> , and shall not recur on a yearly Standard LOA basis.  Costs for this task shall be based on the following PTC estimated quantities of terminations:  Mainline TIP to Delaware River Bridge (29 sites): <ul style="list-style-type: none"><li>• Backbone Fiber Terminations = 264</li><li>• Distribution Fiber Terminations = 1,440</li></ul> Northeast Extension (22 sites): <ul style="list-style-type: none"><li>• Backbone Terminations = 216</li><li>• Distribution Fiber Terminations = 900</li></ul>	
FOM-6.4 Network Design Tasks (Appendix K Fiber Termination Plans)		OT-5
<b>FOM-7 Administrative Tasks</b>	<b>Standard LOA</b> shall be used to authorize costs for all FOM-7 tasks, except FOM-7.2.	Recurring Costs Worksheet
FOM-7.1 On-Site Maintenance Management	Costs for this service shall be included in the unit price in the Recurring Costs Worksheet.	S-5
	<b>Standard LOA</b> shall be used to authorize costs for this service when possible (i.e. for planned projects if schedules allow and/or coincide with the Annual Review and Standard LOA process).  <b>Separate LOA</b> shall be used to authorize costs for this service as necessary. There is no requirement for the Commission to utilize the work defined by this service at any point in the contract.	
FOM-7.2 Professional Services Review		N/A - Separate LOA
FOM-7.3 SLA Management	Costs for this service shall be included in the FOM-7.1 On-Site Maintenance Management and Administrative Tasks unit price in the Recurring Costs Worksheet.	Incidental to S-5
FOM-7.4 Documentation Management	Costs for this service shall be included in the FOM-7.1 On-Site Maintenance Management and Administrative Tasks unit price in the Recurring Costs Worksheet.	Incidental to S-5
FOM-7.5 Contract Management	Costs for this service shall be included in the FOM-7.1 On-Site Maintenance Management and Administrative Tasks unit price in the Recurring Costs Worksheet.	Incidental to S-5
FOM-7.5.1 Contract Change Management	Costs for this service shall be included in the FOM-7.1 On-Site Maintenance Management and Administrative Tasks unit price in the Recurring Costs Worksheet.	Incidental to S-5
FOM-7.5.2 Letters of Authorization/Annual Contract Reviews	Costs for this service shall be included in the FOM-7.1 On-Site Maintenance Management and Administrative Tasks unit price in the Recurring Costs Worksheet.	Incidental to S-5
FOM-7.5.3 Contract Issue Mitigation	Costs for this service shall be included in the FOM-7.1 On-Site Maintenance Management and Administrative Tasks unit price in the Recurring Costs Worksheet.	Incidental to S-5
FOM-7.5.4 Executive Updates	Costs for this service shall be included in the FOM-7.1 On-Site Maintenance Management and Administrative Tasks unit price in the Recurring Costs Worksheet.	Incidental to S-5
FOM-7.5.5 Invoicing	Costs for this service shall be included in the FOM-7.1 On-Site Maintenance Management and Administrative Tasks unit price in the Recurring Costs Worksheet.	Incidental to S-5
<b>OTHER COSTS</b>	<b>Standard LOA</b> shall be used to authorize all costs in this category	Varies
FR-1.1 Transition (Entry Transition)	Costs for this service shall be included in the costs for FOM-3 Initial Setup and Configuration in the One-Time Costs Worksheet	Incidental to OT-1
FR-1.1 Transition (Exit Transition)	Costs for this service shall be determined via the final Annual Contract Review and included in the final Standard LOA	N/A
FR-1.6 Independent Verification & Validation	Costs for this service shall be included in the unit price in the Recurring Costs Worksheet.	S-6
FR-1.7 ServiceNow System	Costs for this service shall be included in the unit price in the Recurring Costs Worksheet.	Incidental to S-5
	<b>Standard LOA</b> shall be used to authorize an estimated yearly budget for MPT costs.  <b>Separate LOA</b> shall be used to authorize MPT costs exceeding the yearly budget established in the Standard LOA.	
FR-1.13 Maintenance and Protection of Traffic	The Proposer shall provide unit costs for MPT in the <b>Unit Costs Worksheet</b>	U-20
IV-5 Reports and Project Contol (RPC-1 through RPC-3)	Costs for this service shall be included in the unit price in the Recurring Costs Worksheet.	Incidental to S-5



Pennsylvania Turnpike Commission

Fiber Infrastructure: O&M and Commercialization Project RFP

O&M Price Worksheet

ID	FOM-5.3 Unit Costs Calculator (For O&M Services Costs Worksheet)				
	Item	Unit	PTC Estimated Quantity	Proposed FOM-5.3 Unit Price	Total Cost
1	Fiber Optic Cable, SM, 288 Strand	LF	3000	\$ -	\$ -
2	Fiber Optic Splice Enclosure	EA	15	\$ -	\$ -
3	Cable Racks Inside Building	EA	30	\$ -	\$ -
4	Fiber Terminations	EA	384	\$ -	\$ -
5	Fusion Splice	EA	384	\$ -	\$ -
6	Fiber Testing	Site	15	\$ -	\$ -
LUMP SUM TOTAL for Services Costs Worksheet Item OT-4					\$ -

ID	O&M Service	Unit	Total Cost
FOM-3 Fiber Management System:			
OT-1	Initial Setup and Configuration (Includes Data Collection and Data Entry)	Lump Sum	s
OT-2	Provide FMS Training to the Commission (each training class/session)	EA	\$ -
FOM-3 SUBTOTAL			\$ -
FOM-4 Witnessing and Acceptance:			
OT-3	New Fiber Installations (D-B Contracts EN-00232-03-02 & EN-00232-03-03)	Lump Sum	\$ -
FOM-4 SUBTOTAL			\$ -
FOM-5 Trunk Connections:			
OT-4	Fiber Connections to Cashless Tolling (D-B Contracts EN-00232-03-02 & EN-00232-03-03)	Lump Sum	\$ -
FOM-5 SUBTOTAL			\$ -
FOM-6 Coordination Tasks:			
OT-5	Network Design Tasks (Appendix K Fiber Termination Plans)	Lump Sum	\$ -
FOM-6 SUBTOTAL			\$ -

ONE-TIME O&M SERVICES TOTAL COSTS
ONE-TIME O&M SERVICES COSTS GRAND TOTAL \$ -

ID	Task	Unit	Estimated Yearly Quantity	Unit Price O&M Year 1 (US Dollars)	Unit Price O&M Year 2 (US Dollars)	Unit Price O&M Year 3 (US Dollars)	Unit Price O&M Year 4 (US Dollars)	Unit Price O&M Year 5 (US Dollars)	Unit Price O&M Year 6 (US Dollars)
FOM-1 Locating and Mark-Out Services:									
S-1	Low and Moderate Priority (Engineering and Construction Project Requests)	Hours	750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
S-2	High and Critical (Emergencies)	Hours	50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-3 Fiber Management System:									
S-3	Ongoing O&M - FMS Admin	Hours	2080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-4 Witnessing and Acceptance:									
S-4	New Fiber Installations (Future Projects)	Hours	80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-7 Administrative Tasks:									
S-5	On-Site Maintenance Management and Administrative Tasks	Hours	2080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER:									
S-6	FR-1.6 Independent Verification and Validation	Lump Sum	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual O&M Services Totals (US Dollars)									
				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

RECURRING O&M SERVICES TOTAL COSTS	
GRAND TOTAL: Estimated Recurring O&M Services (YEARS 1-25)	\$ -

ID	Task	Unit	Estimated Yearly Quantity	Unit Price O&M Year 7 (US Dollars)	Unit Price O&M Year 8 (US Dollars)	Unit Price O&M Year 9 (US Dollars)	Unit Price O&M Year 10 (US Dollars)	Unit Price O&M Year 11 (US Dollars)	Unit Price O&M Year 12 (US Dollars)
FOM-1 Locating and Mark-Out Services:									
S-1	Low and Moderate Priority (Engineering and Construction Project Requests)	Hours	750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
S-2	High and Critical (Emergencies)	Hours	50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-3 Fiber Management System:									
S-3	Ongoing O&M - FMS Admin	Hours	2080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-4 Witnessing and Acceptance:									
S-4	New Fiber Installations (Future Projects)	Hours	80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-7 Administrative Tasks:									
S-5	On-Site Maintenance Management and Administrative Tasks	Hours	2080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER:									
S-6	FR-1.6 Independent Verification and Validation	Lump Sum	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual O&M Services Totals (US Dollars)									
				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

RECURRING O&M SERVICES TOTAL COSTS	
GRAND TOTAL: Estimated Recurring O&M Services (YEARS 1-25)	\$ -

ID	Task	Unit	Estimated Yearly Quantity	Unit Price O&M Year 13 (US Dollars)	Unit Price O&M Year 14 (US Dollars)	Unit Price O&M Year 15 (US Dollars)	Unit Price O&M Year 16 (US Dollars)	Unit Price O&M Year 17 (US Dollars)	Unit Price O&M Year 18 (US Dollars)
FOM-1 Locating and Mark-Out Services:									
S-1	Low and Moderate Priority (Engineering and Construction Project Requests)	Hours	750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
S-2	High and Critical (Emergencies)	Hours	50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-3 Fiber Management System:									
S-3	Ongoing O&M - FMS Admin	Hours	2080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-4 Witnessing and Acceptance:									
S-4	New Fiber Installations (Future Projects)	Hours	80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-7 Administrative Tasks:									
S-5	On-Site Maintenance Management and Administrative Tasks	Hours	2080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER:									
S-6	FR-1.6 Independent Verification and Validation	Lump Sum	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual O&M Services Totals (US Dollars)									
				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

RECURRING O&M SERVICES TOTAL COSTS	
GRAND TOTAL: Estimated Recurring O&M Services (YEARS 1-25)	\$ -

ID	Task	Unit	Estimated Yearly Quantity	Unit Price O&M Year 19 (US Dollars)	Unit Price O&M Year 20 (US Dollars)	Unit Price O&M Year 21 (US Dollars)	Unit Price O&M Year 22 (US Dollars)	Unit Price O&M Year 23 (US Dollars)	Unit Price O&M Year 24 (US Dollars)
FOM-1 Locating and Mark-Out Services:									
S-1	Low and Moderate Priority (Engineering and Construction Project Requests)	Hours	750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
S-2	High and Critical (Emergencies)	Hours	50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-3 Fiber Management System:									
S-3	Ongoing O&M - FMS Admin	Hours	2080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-4 Witnessing and Acceptance:									
S-4	New Fiber Installations (Future Projects)	Hours	80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
FOM-7 Administrative Tasks:									
S-5	On-Site Maintenance Management and Administrative Tasks	Hours	2080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER:									
S-6	FR-1.6 Independent Verification and Validation	Lump Sum	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual O&M Services Totals (US Dollars)									
				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

RECURRING O&M SERVICES TOTAL COSTS	
GRAND TOTAL: Estimated Recurring O&M Services (YEARS 1-25)	\$ -

ID	Task	Unit	Estimated Yearly Quantity	Unit Price O&M Year 25 (US Dollars)	Total Cost ( US Dollars)
FOM-1 Locating and Mark-Out Services:					
S-1	Low and Moderate Priority (Engineering and Construction Project Requests)	Hours	750	\$ -	\$ -
S-2	High and Critical (Emergencies)	Hours	50	\$ -	\$ -
FOM-1 SUBTOTAL				\$	-
FOM-3 Fiber Management System:					
S-3	Ongoing O&M - FMS Admin	Hours	2080	\$ -	\$ -
FOM-3 SUBTOTAL				\$	-
FOM-4 Witnessing and Acceptance:					
S-4	New Fiber Installations (Future Projects)	Hours	80	\$ -	\$ -
FOM-4 SUBTOTAL				\$	-
FOM-7 Administrative Tasks:					
S-5	On-Site Maintenance Management and Administrative Tasks	Hours	2080	\$ -	\$ -
FOM-7 SUBTOTAL				\$	-
OTHER:					
S-6	FR-1.6 Independent Verification and Validation	Lump Sum	4	\$ -	\$ -
OTHER SUBTOTAL				\$	-
Annual O&M Services Totals (US Dollars)					
				\$ -	\$ -

RECURRING O&M SERVICES TOTAL COSTS	
GRAND TOTAL: Estimated Recurring O&M Services (YEARS 1-25)	\$ -

			O&M SERVICES YEAR # 1			O&M SERVICES YEAR # 2			O&M SERVICES YEAR # 3		
ID	Item	Unit	FOM-2 Unit Price (Low and Moderate Priorities)	FOM-2 Unit Price (High and Critical Priorities)	FOM-5 Unit Price	FOM-2 Unit Price (Low and Moderate Priorities)	FOM-2 Unit Price (High and Critical Priorities)	FOM-5 Unit Price	FOM-2 Unit Price (Low and Moderate Priorities)	FOM-2 Unit Price (High and Critical Priorities)	FOM-5 Unit Price
U-1	Microduct Bundle	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-2	Micro-trenching	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-3	Trenching and Backfill, Type I	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-4	Trenching and Backfill Type II	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-5	Directional Bore	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-6	Round Lid Junction Box	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-7	Flexible Delineator Post	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-8	Fiber Optic Cable, SM, 288 Strand	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-9	Fiber Optic Termination Panel	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-10	Fiber Optic Splice Enclosure	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-11	Cable Installation Inside Building	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-12	Cable Racks Inside Building	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-13	Fiber Terminations	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-14	Wall Penetrations	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-15	Temporary Aerial Fiber Optic Cable, 288 Strand	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-16	35' Wood Poles	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-17	Fusion Splice	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-18	Fiber Testing	Hour	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-19	Root Cause Analysis	Hour	\$ -	\$ -	N/A	\$ -	\$ -	N/A	\$ -	\$ -	N/A
U-20	Maintenance and Protection of Traffic	Mile	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SINGLE UNIT TOTALS			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

NOTES:

- 1.) UNIT PRICES WILL BE USED FOR FOM-2 MAINTENANCE (BREAK/FIX) AND FOM-5 TRUNK CONNECTIONS WORK IN ACCORDANCE WITH THE INFORMATION PROVIDED FOR FOM-2 AND FOM-5 IN THE LOA DESIGNATIONS & COSTING INFO SHEET AND NOTES 4, 5, AND 6 BELOW.
- 2.) ALL ITEMS LISTED ABOVE ARE TO BE PROVIDED IN ACCORDANCE WITH SPECIFICATIONS INCLUDED PROVIDED IN CONTRACT EN-00232-03-02 & EN-00232-03-03
- 3.) ALL UNIT PRICES ARE FOR FURNISHED AND INSTALLED ITEMS. ALL COSTS SHALL REPRESENT THE TOTAL UNIT COST BEING PROPOSED TO THE COMMISSION AND SHALL INCLUDE ALL MATERIAL COSTS, O&M LABOR, OVERHEAD, AND PROFIT.
- 4.) THE PROPOSER SHALL BE BOUND TO THE UNIT PRICES PROPOSED FOR FOM-2 ITEMS DURING THE FIRST 12 MONTHS OF THE CONTRACT. UNIT PRICES PROVIDED IN THIS COSTS WORKSHEET SHALL BE CONSIDERED THE PROPOSER'S "BASE PRICE." THEREAFTER, UNIT PRICES WILL BE EVALUATED AND APPROVED DURING EACH STANDARD LOA PERIOD.
- 5.) THE PROPOSER SHALL BE BOUND TO THE UNIT PRICES PROPOSED IN THE FOM-5.3 UNIT COSTS CALCULATOR USED TO DETERMINE LUMP SUM COSTS FOR ITEM OT-4 IN THE ONE-TIME COSTS WORKSHEET. QUANTITIES MAY BE SUBJECT TO CHANGE.
- 6.) THE PROPOSER SHALL BE BOUND TO THE UNIT PRICES PROPOSED FOR FOM-5 ITEMS DURING THE FIRST 12 MONTHS OF THE CONTRACT. UNIT PRICES PROVIDED IN THIS COSTS WORKSHEET SHALL BE CONSIDERED THE PROPOSER'S "BASE PRICE." THEREAFTER, UNIT PRICES WILL BE EVALUATED AND APPROVED DURING EACH STANDARD LOA PERIOD, OR BY SEPARATE LOA IF NECESSARY FOR SPECIFIC PROJECTS.



			O&M SERVICES YEAR # 4			O&M SERVICES YEAR # 5		
ID	Item	Unit	FOM-2 Unit Price (Low and Moderate Priorities)	FOM-2 Unit Price (High and Critical Priorities)	FOM-5 Unit Price	FOM-2 Unit Price (Low and Moderate Priorities)	FOM-2 Unit Price (High and Critical Priorities)	FOM-5 Unit Price
U-1	Microduct Bundle	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-2	Micro-trenching	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-3	Trenching and Backfill, Type I	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-4	Trenching and Backfill Type II	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-5	Directional Bore	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-6	Round Lid Junction Box	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-7	Flexible Delineator Post	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-8	Fiber Optic Cable, SM, 288 Strand	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-9	Fiber Optic Termination Panel	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-10	Fiber Optic Splice Enclosure	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-11	Cable Installation Inside Building	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-12	Cable Racks Inside Building	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-13	Fiber Terminations	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-14	Wall Penetrations	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-15	Temporary Aerial Fiber Optic Cable, 288 Strand	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-16	35' Wood Poles	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-17	Fusion Splice	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-18	Fiber Testing	Hour	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
U-19	Root Cause Analysis	Hour	\$ -	\$ -	N/A	\$ -	\$ -	N/A
U-20	Maintenance and Protection of Traffic	Mile	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SINGLE UNIT TOTALS			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

This Worksheet is Intentionally Left Blank

----> Go to next worksheet

**Eastern Network Commercialization Services Price Worksheet Instructions:****General**

1. Provide all values in nominal USD amounts, on a cash flow basis (i.e. not accrual basis).
2. Proposer shall complete all light green cells as inputs; Grey cells are automatically calculated and not alterable.
3. Provide all input amounts as positives, including expense / cash outflow lines. The only lines that may be negative are the grey calculated totals cells.
4. All projections submitted on this worksheet (with the exception of the Minimum Revenue Commitment line) are non-binding and intended to provide the Proposer's base case view of the network's commercialization revenues generation potential; for evaluation purposes, the Commission will primarily weigh responses provided herein based on the level of diligence that has been conducted to date, supporting evidence and documents, and the quality of the Proposer's rationale provided in Commercialization Narrative and Commercialization Operating Model.

**Commercialization Services Revenues - Eastern Network**

5. Provide the estimated gross commercialization revenue amounts from the Proposer's business plan, submitted in accordance with **Part A of Volume I: Part II - Section 2 - Commercialization Services Submittals**
6. Commercialization revenues should be broken down between the allotted end-user categories, as defined in **Part IVA-3. Permitted Commercialization Services for the Eastern Network**.

**Annual O&M Costs for Commercialization Services - Eastern Network**

7. Provide the estimated annual O&M costs required to achieve the estimated commercialization revenues. All costs that do not fall under 'Commercial Capital Expenses' as defined below shall be deemed to be O&M Costs, and allotted to one of the three categories provided herein.
8. Annual O&M Costs for Commercialization Assets should include costs allocated to the operations and maintenance of the Commercialization Assets made available for Commercialization Services.

**Commercial Capital Expenses - Eastern Network**

9. Propose a Commercial Capital Expenses projection, as defined in the Glossary of the RFP, for the purpose of calculating the net revenue share. Commercial Capital Expenses for each year shall not exceed 50% of each year's Net Cash Flow before Commercial Capital Expenses. Should the actual Commercial Capital Expenses, in any year, be in excess of 50% of the Net Cash Flow before Commercial Capital Expenses of the year in which it's incurred, the Proposer may capitalize such costs to be expensed against the Net Revenue Share in future years.

**Minimum Guaranteed Revenue Commitment to the Commission**

10. This will represent the Proposer's binding annual revenue commitment to the Commission. Proposer shall have discretion as it relates to the timing of when the minimum guaranteed revenue commitment starts (i.e. Contract Year X). Additionally, Proposers should note that Minimum Guaranteed Revenue Commitment for Small Cell should be listed separately.

**Net Revenue Share Percentage for the Eastern Network**

11. Proposed Revenue Share % for the Eastern Network shall be minimum 50% or higher.







This Worksheet is Intentionally Left Blank

----> Go to next worksheet

**Western Network Commercialization Services Price Worksheet Instructions:****General**

1. All instructions listed in the Eastern Network Instructions tab shall apply to this Western Network Template, except for the minimum guaranteed revenue share commitment.

**Proposed Construction Funding for the Western Network**

2. In cell D17, use the drop down menu to select an option for the construction funding method for the Western Network, pursuant to **Part IVA-11. Future Phase(s) for Commercialization Services.**
3. Should the Proposer select "Private + Commission funds Western Network", which corresponds to option 2 within **Part IVA-11. Future Phase(s) for Commercialization Services.**, the Proposer must provide total amount of private funding pledged in support of the construction of the Western Network in cell D18.
4. If Proposer elects to partially fund the Western Network through selecting "Private + Commission funds Western Network", it is envisioned that this upfront capital investment will be entirely compensated for through the Proposed Commission Payment to Amortize Private Construction Funding, to be paid by the Commission.
5. A red error messages will result in cell E18 if any of the following are true:
  - i. "Commission funds Western Network" is selected but there is a value other than "0" in cell D18 or in cell D23 (the sum of Proposed PTC Payment to Amortize Private Construction Funding).
  - ii. "Private + Commission funds Western Network" is selected but "0" is selected in cell D18 or in cell D23 (the sum of Proposed PTC Payment to Amortize Private Construction Funding).

**Commercialization Revenues, O&M, and CAPEX for the Western Network**

6. Note that the Contract Term is fixed at 25 years, and it is assumed for evaluation purposes on this Price Worksheet that:
  - i. For the scenario where the Commission funds the Western Network, Proposers are required to assume that first year of operations on the Western Network to be Contract Year # 6 of the Contract Term.
  - ii. For the scenario where Private + Commission jointly funds the Western Network, Proposers are required to assume that first year of operations on the Western Network to be Contract Year # 4 of the Contract Term.

The input cells under Commercialization Services Revenues, Annual O&M Costs for Commercialization Services, and Commercial Capital Expenses will be locked / unlocked accordingly and should be filled in as such.

**Net Revenue Share Percentage for the Western Network**

7. For the Western Network, Proposed Revenue Share % shall be minimum 50% or higher.









Proposed Revenue Share % (same as in Eastern Network Template)	
Proposed Revenue Share % (minimum 50% or higher)	50%

Select Funding Source ----->>>	Commission funds Western Network	
Proposer Funding Amount (in \$ dollars) {MAX = \$50,000,000}	\$ -	OK

Total	Contract Year # 17	Contract Year # 18	Contract Year # 19	Contract Year # 20	Contract Year # 21	Contract Year # 22	Contract Year # 23	Contract Year # 24	Contract Year # 25
<b>Capital Payment related to Private Capital (ONLY FILL IF ELECTING PRIVATE + COMMISSION FUNDS ABOVE)</b>									
Proposed PTC Payment related to Capital Payment	\$	-							
<b>Commercialization Services Revenues - Western Network</b>									
Micro-Duct(s) Services	\$	-							
Dark Fiber Services	\$	-							
Wireline Lit Services	\$	-							
Small Cells	\$	-							
New Cell Towers	\$	-							
All Other Sources of Revenues Not Included Above	\$	-							
<b>Total Commercialization Services Revenues - Western Network</b>	<b>\$</b>	<b>-</b>							
<b>Annual O&amp;M Costs for Commercialization Services - Western Network</b>									
Annual Maintenance Costs for Commercialization Services	\$	-							
Annual Operating Costs for Commercialization Services	\$	-							
Any Other Annual O&M Costs for Commercialization Services Not Included Above	\$	-							
<b>Total O&amp;M Costs for Commercialization Services - Western Network</b>	<b>\$</b>	<b>-</b>							
<b>Net Cashflow before Commercial Capital Expenses - Western Network</b>									
Net Cashflow before Commercial Capital Expenses	\$	-							
<b>Commercial Capital Expenses - Western Network</b>									
Commercial Capital Expenses for Net Revenue Sharing	\$	-							
<b>Total Commercial Capital Expenses - Western Network</b>	<b>\$</b>	<b>-</b>							
<b>Net Commercialization Revenues - Western Network</b>									
Net Commercialization Revenues - Western Network	\$	-							

# APPENDIX H

---

## Positions and Preferred Qualifications



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

*Please Note:* \*\* Denotes Key Technical Personnel

This Appendix is not intended to be a comprehensive list of all positions and responsibilities that may be required to perform the work. All positions require a valid driver's license.

**\*\* Project Manager**

Responsibilities

- Works on-site at the TOC
- Oversees and coordinates all work performed under the Contract
- Serves as the single and first point of contact with Commission's Contract Manager(s)
- Oversees project staff day-to-day activities and ensure Commission standards are being met or exceeded
- Conducts employee reviews and manages staff performance
- Reviews, recommends, and develops SOP
- Track/monitor budgets, inventories, project status, LOA
- Informs Commission Staff of contract and budget status
- Presents contract accomplishments and areas for improvement annually to Commission executives
- Ensures that all the requirements of the Contract are met
- Ensures personnel are performing to meet or exceed requirements
- Prepares status update documents, executive presentations, LOA scope and budget
- Attends/assigns Change Management meetings
- Ability to assign a Deputy Project manager to cover absences and directly oversee some aspects of the work.
- Coordination with the Commission, third party companies and professional consulting firms retained by the Commission to determine the needs and schedule specific maintenance and other fiber related activities.
- Ability to identify active and upcoming construction contracts and evaluate general construction schedules to determine if there will be a potential impacts to the System.

Preferred Qualifications

- Ten (10) years experience in management of maintenance and operations of Fiber Infrastructure.
- College degree in related field such as engineering, information technology, communications, etc.
- Excellent ability to write technical reports and correspondence
- Excellent ability to communicate technical information in layman's terms
- Direct experience with fiber optic communications
- Experience in managing large projects with many moving parts and interdependencies
- Knowledge and ability to review work/job orders, develop work estimates, prioritize projects, and delegate responsibilities
- Ability to be on call 24 hours/day

## **\*\* Systems/Network Engineer**

### Responsibilities

- Technical support for field technicians, management, etc.
- Systems design
- Systems installation, testing, troubleshooting, and preparation of technical specifications
- Preparation of technical reports, contract plans, SOPs, and recommendations
- Trains personnel on technical aspects of systems and operations
- Responds to technical inquiries
- Works with FMS Admin to develop fiber distribution/termination plans, network designs, etc.
- Performs root cause analyses and develops recurring issues management plans

### Preferred Qualifications

- Ten (10) years experience in design of Fiber Optic Communications and electronics
- College degree in electrical, communications, or systems engineering
- Knowledge of all systems to be maintained in the Contract
- Knowledge and understanding of the interdependencies of equipment
- Ability to make recommendations and/or assist the Commission regarding technically complex items
- Ability to be on call 24 hours/day

## **\*\* Lead Technician/Specialist**

### Responsibilities

- Supervise technicians
- Report to the Service Manager / Systems Engineer
- Monitor the SSRS for tickets and notifications
- Assist maintenance technicians with difficult fixes and or items requiring more experience.
- Troubleshooting, isolating, and resolving errors or malfunctions with field equipment
- Coordinate with Commission dispatchers and other entities
- Track activities, scan barcodes, and complete maintenance forms and checklists
- Cabling of various electrical and communications components
- Maintain and procure inventories
- Work independently without supervision
- Adhere to Commission policies
- Manage vendor maintenance contracts
- Witnessing of fiber optic testing
- Experience in fiber optic splicing

### Preferred Qualifications

- At least six (6) years of increasing responsibility and experience in maintaining the applicable systems.
- Minimum of High School Diploma or GED (College degree in electronics/technology is preferred)
- Ability to read site plans and electrical schematics
- Knowledge of network and communications protocols
- Experience of fiber optic distribution installation methods
- Experience in fiber optic and wireless communications, splicing, testing, etc.
- Certified by an accredited Fiber Optic Supplier
- Ability to work outside in all conditions
- Ability to sit or stand for extended periods of time
- Ability to troubleshoot and identify issues / the proper steps to correct them
- Ability to delegate responsibilities as necessary
- Safety training
- Bucket Truck safety
- Ability to be on call 24 hours/day

## **Communications/Network Technicians**

This job(s) can be fulfilled by more than one person. All work performed must be done under Technician's expertise.

### **Responsibilities**

- Maintain Fiber Infrastructure assets
- Locate and mark fiber
- Collect and document field data
- Troubleshooting, isolating, and resolving errors or malfunctions
- Acknowledging notifications and performing corrective maintenance
- Coordinate with Commission dispatchers and lead technicians/specialists
- Track activities and acknowledge/resolve maintenance tickets and service requests
- Cabling of various electrical and communications components
- Swap out parts and maintaining records of inventory changes through the course of work
- Work independently without direct supervision
- Adhere to Commission policies
- Perform network integrations and installations
- Maintain standard configurations, manage network configurations
- Perform fiber optic splicing

### **Preferred Qualifications**

- Minimum of High School Diploma or GED (College degree in electronics/technology is preferred)
- At least three (3) years of increasing responsibility and experience in Fiber Infrastructure maintenance, installation, and repair
- Ability to read site plans and electrical schematics
- Knowledge of network switches and routers and communications protocols
- Experience of fiber optic and wireless communications, splicing, testing, etc.
- Experience of fiber optic distribution installation methods
- Certified by an accredited Fiber Optic Supplier
- Ability to work outside in all conditions
- Ability to sit or stand for extended periods of time
- Ability to troubleshoot and identify issues / the proposer steps to correct them
- Safety training
- Bucket Truck safety
- Ability to be on call 24 hours/day



## **\*\* FMS Administrator**

### Responsibilities

- Maintain and support software applications and system software configurations
- Maintain the FMS and ServiceNow System, including databases and monitoring
- Take ownership of FMS mapping and data
- Maintain interfaces with Commission applications
- Perform routine software updates and upgrades for the FMS
- Monitor software upgrades
- Maintain logical security
- Troubleshoot software and application issues
- Troubleshoot end-user network issues
- Manage user accounts and permissions
- Coordinate and provide FMS information, reports, and network design recommendations

### Preferred Qualifications

- A minimum of five (5) years practical experience in IT / software management and maintenance
- A college degree in computer science, IT, networking, or related field
- Experience with Transportation Operations systems
- Strong ability to troubleshoot and provide software, network, and general computer support
- Ability to be on call 24 hours/day

## **Foreman**

### Responsibilities

- Oversee and ensure that all safety rules are always being followed at all sites
- Produce work schedules in accordance with the availability of employees, contractors and labor laws and monitor the attendance of crew
- Coordinate daily tasks according to priorities and plans, adjusting as necessary due to weather, supply delivery and personnel
- Ability to delegate responsibilities and individual projects to the crew and contractors.
- Recruit, hire, mentor, manage and train employees and contractors
- Provide for adequate resources and staffing to meet safety needs, regulations, best practices, laws and project schedule
- Emphasis on the safe use of tools, machinery and equipment including training on safety gear, helmets, and procedures
- Develop and oversee quality standards on all sites
- Monitor and manage project budgets on all sites
- Resolve conflicts or miscommunication that may happen on site quickly and amicably
- Report project status to supervisors, site engineers and officials regularly

### Preferred Qualifications

- High school diploma or certification in a skilled trade (electrician, carpenter)
- 4+ years' experience as a construction foreman
- Extensive knowledge of construction best practices, equipment maintenance and use, and OSH guidelines
- Understanding of use and maintenance of electrical and fiber systems
- Ability to read drawings, plans and blueprints and convey this information to others
- Excellent organizational and leadership skills
- Ability to communicate and report effectively
- Aptitude in math and strong problem-solving abilities
- Good physical condition and stamina

## **Equipment Operator**

### Responsibilities

- Operate all heavy equipment according to all relevant legislation, policies and procedures
- Safely and effectively operate heavy equipment as needed to perform on projects
- Safely and effectively uses small/light mechanical equipment
- Perform daily safety and maintenance checks
- Interact with construction general laborers and/or crew members who are facilitating specifications for the project
- Interact with members of the public in a courteous and respectful manner
- Clean heavy equipment as scheduled and/or required
- Ensure heavy equipment is safely and securely stored
- Advise the Foreman of any requirements for maintenance or repairs
- Participate in routine maintenance
- Perform other related duties
- Properly follow all Company policies and procedures for safe working procedures and environment
- Adhere to Commission policies

### Preferred Qualifications

- Minimum of High School Diploma or GED
- Must have a valid Commercial Driver's License (CDL)
- Minimum of two years of experience in the operation and maintenance of heavy-duty equipment
- Ability to be on call 24 hours/day

# APPENDIX I

---

## Contract Plans



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

RFP Reference	Plan Title	Summary	Ad-hoc / By Request	KB Submission	PDMS Submission
FR-1.1	Entry Transition Plan	Comprehensive Transition Plan to ensure a smooth transition upon NTP. Addresses coordination requirements, transition teams, transition tasks, and transfer of knowledge and responsibilities. Provides a detailed timeline/transition schedule, risks and risk mitigation strategies, detailed descriptions of all activities necessary to ensure a smooth transition/service continuity, and identification of critical actions needed to minimize operational impacts and ensure the successful transfer of knowledge.		X	
FR-1.1	Exit Transition Plan	Comprehensive Transition Plan to ensure a smooth transition at the end or termination of the Contract. Addresses coordination requirements, transition teams, transition tasks, and transfer of knowledge and responsibilities. Provides a detailed timeline/transition schedule, risks and risk mitigation strategies, detailed descriptions of all activities necessary to ensure a smooth transition/service continuity, and identification of critical actions needed to minimize operational impacts and ensure the successful transfer of knowledge.		X	
FR-1.7	ServiceNow System Plan	Details all tasks and activities required for proper ServiceNow usage. Addresses coordination with the Commission and its ServiceNow partners for the setup of ServiceNow for use in the contract, creation of CI, SOP for SSRS ticket acknowledgement and resolution, initial submissions and ongoing maintenance of the KB, and configuration of SLA, reports, performance dashboards, etc.		X	
FR-1.12	Fiber Optic Testing Plan	Details SOP for fiber testing.		X	
FR-1.15.1	Operations and Maintenance Manual: • FOM-1 Locating and Mark-Out Services • FOM-2 Maintenance (Break/Fix) Services • FOM-3 Fiber Management System • FOM-4 Witnessing and Acceptance • FOM-5 Trunk Connections • FOM-6 Coordination Tasks • FOM-7 Administrative Tasks	Describes in specific detail the Proposer's plan and approach for each service and sub-task individually. Provides SOPs for each service and subtask for enhanced visibility into day-to-day O&M practices and procedures.		X	
FR-1.15.2	Organization and Staff Plan	Identifies and describes the multi-disciplinary teams required to perform the work. Address how absences of key personnel are handled, and how changes to personnel will be managed. Provides a breakdown of positions and duties, and provides an organization chart. Additionally, the plan must address initial, ongoing, and supplemental training as well as safety and security of Proposer staff.		X	
FR-1.15.3	Document and Data Management Plan	Describes methods by which all KB and PDMS related documents, data, and records shall be uniquely coded, stored, accessed in real-time as may be necessary and/or retrieved. The retrieval system shall allow for prompt, convenient retrieval of any Project-related document in a user-friendly format. Identifies routing, filing, control, access, and retrieval methods for all documents. Provides approach to facilitate fast and convenient sharing of data including procedures and use of the Commission specified file sharing platform for accessing all Project-related documents. Defines methods for production, checking, storage and retrieval of all documents and data that shall support records required to be submitted by the Proposer to the Commission under the Project-related documents or any other Project-related records that the Commission requires.		X	
FR-2	Performance Improvement Plan	Proposer's plans, intentions, and steps to take to improve their performance and avoid Unsatisfactory Performance Notices in the future. Performance Improvement Plans shall include but not be limited to updates to Contract Plans, SOP, personnel assignments, and any other applicable change necessary to bolster future performance.	X	X	
FOM-2.7	Permanent Solution Plan	Identifies all work necessary to perform a temporary to permanent solution. The plan must include references to all related incident / problem tickets. The plan shall also provide a detailed description and account of the temporary solution implemented to restore operations for the original incident ticket. Provides a schedule and plan to complete the permanent solution within the timeframes stipulated in Appendix K. Depending on the work required for the permanent solution, plans may be submitted to the KB, PDMS, or a combination of both.	X	X	X

RFP Reference	Plan Title	Summary	Ad-hoc / By Request	KB Submission	PDMS Submission
FOM-2.10	Recurring Issues Maintenance Response Plan	Identifies additional maintenance measures to implement to prevent or mediate recurring issues. Provides a preventative maintenance plan and schedule to remedy recurring issues for unique cases uncovered via root cause analysis or third party filure analysis.	X	X	
FOM-3	Fiber Management System Implementation Plan	Describes in detail the Proposer's approach to implementing the FMS. The Plan shall include methods of data collection, approach to initial setup and input of data into the FMS, identification of key FMS personnel, and identification of risks and risk mitigation strategies. Provides a detailed FMS implementation Schedule with milestones and dependencies. Additionally, the plan will identify how FMS data will be exported for the creation of CI in ServiceNow.		X	
FOM-7.5	Contract Management Plan	Describes the Proposer's approach and identifies resources for managing the contract and ensuring all administrative tasks are performed in accordance with RFP requirements. Identifies processes, software, and systems for managing LOA submissions, scheduling of resources, invoicing, etc.		X	
Varies	Project Specific Plans - including but not limited to: <ul style="list-style-type: none"><li>• FR-1.13 MPT Plans</li><li>• FOM-5.1 New Lateral Installation Plans</li><li>• FOM-5.2 Temporary and Relocated Fiber Optic Cable Plans</li><li>• FOM-5.3 Fiber Connections to Cashless Tolling Plans</li></ul>	Varies - Contents and types of plans required will be determined via LOA process. Standard LOA will be used when possible and Separate LOA will be used as necessary. Plans could include MPT plans/drawings, fiber pulling/installation plans, splicing and termination plans, locating and markout plans, etc.	X		X

## APPENDIX J

---

### Map of the Existing Turnpike and Facilities Listing



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES





Scranton

This map shows the Scranton and Harrisburg area, highlighting the Delaware River and the bridge crossing the state line between New Jersey and Pennsylvania. The river is shown in blue, and the bridge is marked with a red line. The map also shows major roads and green spaces. Labels for Scranton, Harrisburg, DB-Contract 1, DB-Contract 2, and the Delaware River Bridge/New Jersey State Line are present.

DB-Contract 2

DB-Contract 1

Harrisburg

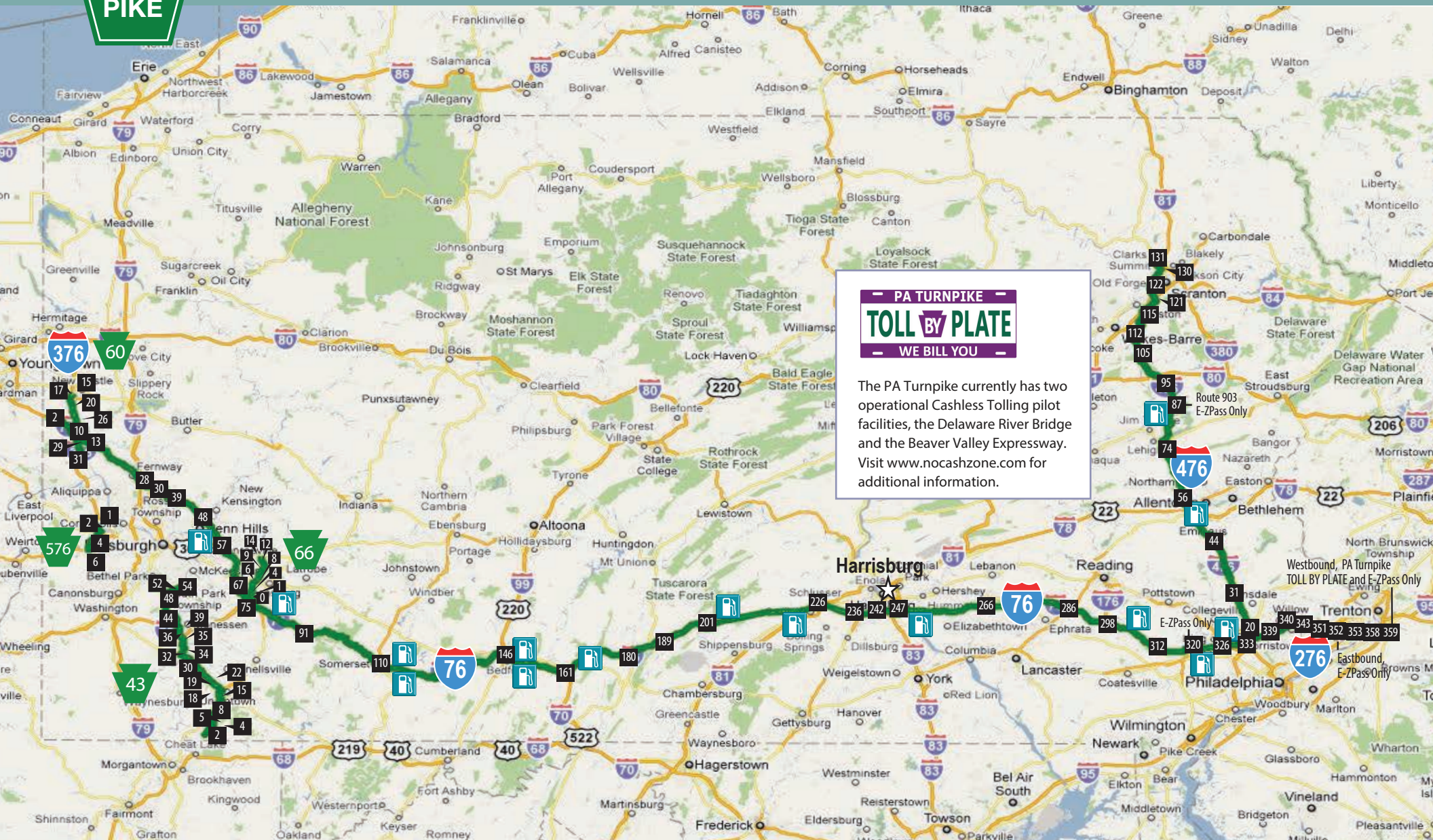
Delaware River  
Bridge/New  
Jersey State Line





# The Pennsylvania Turnpike System Map

Website: [www.paturnpike.com](http://www.paturnpike.com)  
Customer Service: **800.331.3414**

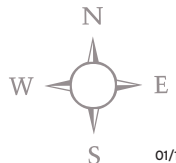


Toll-free travel and toll rate information:  
**866.976.TRIP (8747)**



**877.PENN.PASS**  
**(736.6727)**  
Customer Service

**\*11** Emergency Assistance  
on the Pennsylvania Turnpike





# The Pennsylvania Turnpike

## Simplified Map - Western Section

Website: [www.paturnpike.com](http://www.paturnpike.com)  
Customer Service: **800.331.3414**



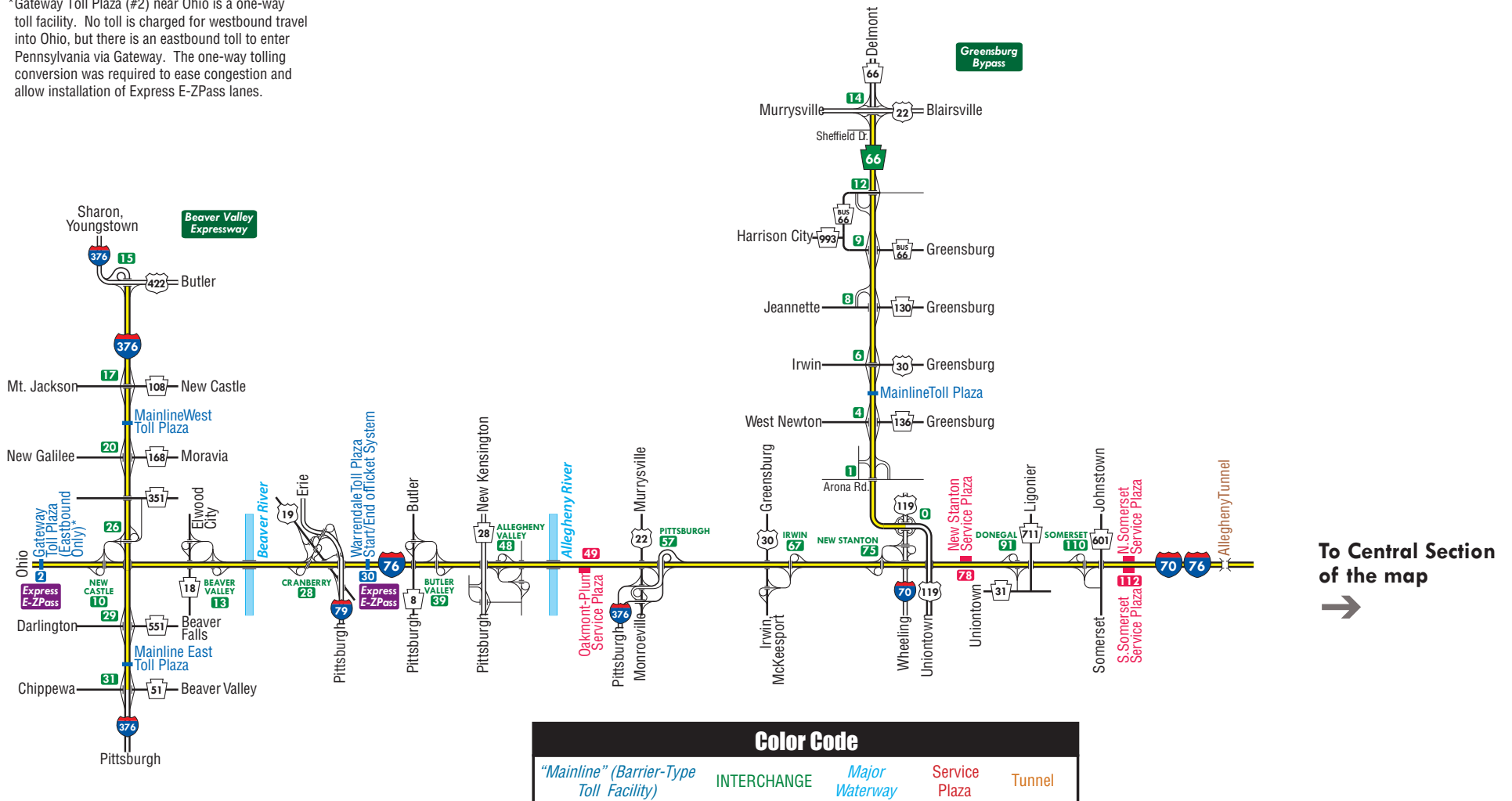
Toll-free travel and toll rate information:  
**866.976.TRIP (8747)**



**877.PENN.PASS**  
**(736.6727)**

**\*11** Emergency Assistance  
on the Pennsylvania Turnpike

\*Gateway Toll Plaza (#2) near Ohio is a one-way toll facility. No toll is charged for westbound travel into Ohio, but there is an eastbound toll to enter Pennsylvania via Gateway. The one-way tolling conversion was required to ease congestion and allow installation of Express E-ZPass lanes.







# The Pennsylvania Turnpike

## Simplified Map - Central Section

Website: [www.paturnpike.com](http://www.paturnpike.com)  
Customer Service: **800.331.3414**



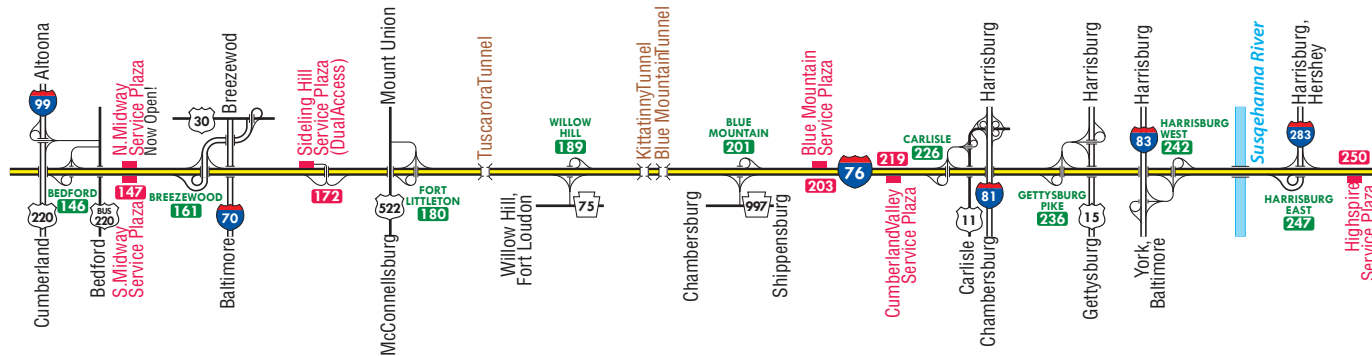
Toll-free travel and toll rate information:  
**866.976.TRIP (8747)**



**877.PENN.PASS**  
**(736.6727)**

**\*11** Emergency Assistance  
on the Pennsylvania Turnpike

To Western Section  
of the map



To Eastern Section  
of the map



### Color Code

"Mainline" (Barrier-Type  
Toll Facility)

INTERCHANGE

Major  
Waterway

Service  
Plaza

Tunnel



# The Pennsylvania Turnpike

## Simplified Map - Eastern Section

Website: [www.paturnpike.com](http://www.paturnpike.com)  
Customer Service: 800.331.3414



Toll-free travel and toll rate information:  
**866.976.TRIP (8747)**



**877.PENN.PASS (736.6727)**  
Customer Service

**\*11** Emergency Assistance  
on the Pennsylvania Turnpike

### Color Code

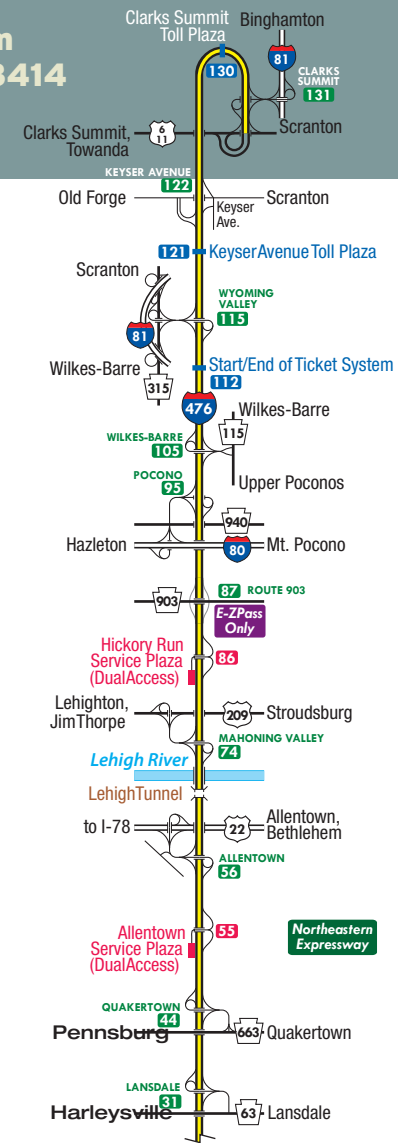
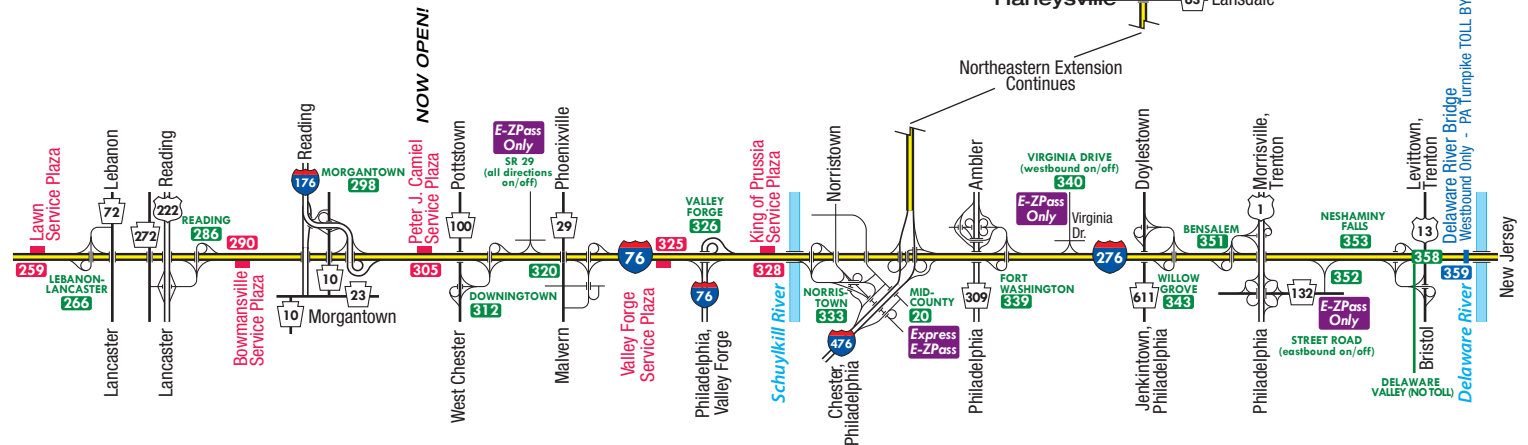
"MAINLINE" (BARRIER-TYPE TOLL FACILITY)	INTERCHANGE	MAJOR WATERWAY	SERVICE PLAZA	TUNNEL
---	-------------	----------------	---------------	--------



The PA Turnpike currently has two operational Cashless Tolling pilot facilities, the Delaware River Bridge and the Beaver Valley Expressway.

Visit [www.nocashzone.com](http://www.nocashzone.com) for additional information.

To Central Section of the map

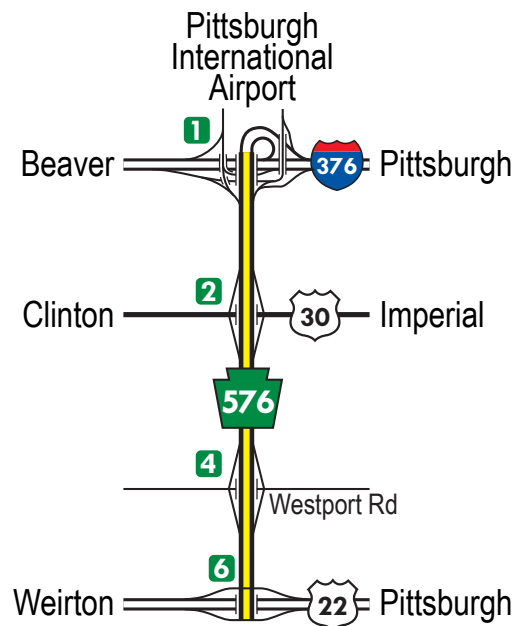




# The Pennsylvania Turnpike

## Simplified Map - PA Turnpike 576

Website: [www.paturnpike.com](http://www.paturnpike.com)  
Customer Service: **800.331.3414**



Color Code				
"Mainline" (Barrier-Type) Toll Facility	INTERCHANGE	Major Waterway	Service Plaza	Tunnel



Toll-free travel and toll rate information:  
**866.976.TRIP (8747)**



**877.PENN.PASS**  
**(736.6727)**

**\*11** Emergency Assistance  
on the Pennsylvania Turnpike

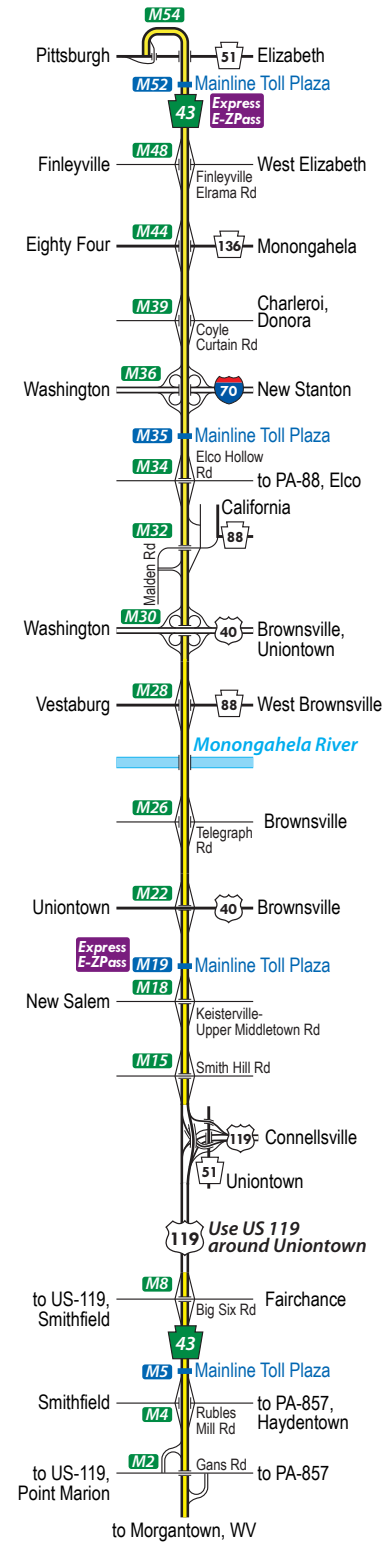


# The Pennsylvania Turnpike

## Simplified Map - Mon/Fayette Expressway PA Turnpike 43

Website: [www.paturnpike.com](http://www.paturnpike.com)  
Customer Service: **800.331.3414**

Color Code				
<i>"Mainline" (Barrier-Type) Toll Facility</i>	INTERCHANGE	<i>Major Waterway</i>	<i>Service Plaza</i>	Tunnel



Toll-free travel and toll rate information:  
**866.976.TRIP (8747)**



**877.PENN.PASS (736.6727)**

**\*11 Emergency Assistance  
on the Pennsylvania Turnpike**



# The Pennsylvania Turnpike

## Interchange Listing

Website: [www.paturnpike.com](http://www.paturnpike.com)  
Customer Service: 800.331.3414

### Mainline I-76/I-276

2	GATEWAY (One-way toll eastbound only)
10	NEW CASTLE (Ramp, no toll)
13	BEAVER VALLEY (Ramp, no toll)
28	CRANBERRY (Ramp, no toll)
30	WARRENDALE (Start/End of Ticket System)
39	BUTLER VALLEY
48	ALLEGHENY VALLEY
57	PITTSBURGH
67	IRWIN
75	NEW STANTON
91	DONEGAL
110	SOMERSET
146	BEDFORD
161	BREEZEWOOD
180	FORT LITTLETON
189	WILLOW HILL
201	BLUE MOUNTAIN
226	CARLISLE
236	GETTYSBURG PIKE
242	HARRISBURG WEST
247	HARRISBURG EAST
266	LEBANON-LANCASTER
286	READING
298	MORGANTOWN
312	DOWNINGTOWN
320	SR29 (E-ZPass ONLY)
326	VALLEY FORGE
333	NORRISTOWN
339	FORT WASHINGTON
340	VIRGINIA DRIVE (WESTBOUND E-ZPass ONLY)
343	WILLOW GROVE
351	BENSALEM
352	STREET ROAD (EASTBOUND E-ZPass ONLY)
353	NESHAMINY FALLS (Start/End of Ticket System)
358	DELAWARE VALLEY (Ramp, no toll)
359	DELAWARE RIVER BRIDGE (WESTBOUND PA Turnpike TOLL BY PLATE and E-ZPass ONLY)

### Northeast Extension I-476

20	MID-COUNTY
31	LANSDALE
44	QUAKERTOWN
56	LEHIGH VALLEY
74	MAHONING VALLEY
87	ROUTE 903 (E-ZPass ONLY)
95	POCONO
105	WILKES-BARRE
112	WYOMING VALLEY TOLL PLAZA
115	WYOMING VALLEY RAMP
121	KEYSER AVENUE MAINLINE TOLL PLAZA
122	KEYSER AVENUE RAMP
130	CLARKS SUMMIT TOLL PLAZA
131	CLARKS SUMMIT RAMP



The PA Turnpike currently has two operational Cashless Tolling pilot facilities, the Delaware River Bridge and the Beaver Valley Expressway. Visit [www.nocashzone.com](http://www.nocashzone.com) for additional information.

### Turnpike I-376 (PA 60)

15	US 422
17	PA 108 MT. JACKSON ROAD
18	WEST MAINLINE TOLL PLAZA
20	PA 168 MOROVIA
26	I-76 PA TURNPIKE
29	PA 55 TO PA 18 BEAVER FALLS
30	EAST MAINLINE TOLL PLAZA
31	PA 51 CHIPPEWA

### Turnpike 66

0	US 119 I-70 TO PA TURNPIKE
1	ARONA ROAD
4	PA 136 WEST NEWTON, GREENSBURG MAINLINE TOLL PLAZA
6	US 30 IRWIN, GREENSBURG
8	PA 130 JEANETTE, GREENSBURG
9	HARRISON CITY, GREENSBURG
12	BOQUET, FORBES ROAD
14	BLAIRSVILLE, MURRYSVILLE

### Turnpike 43 - Mon/Fayette Expressway PA/WV State Line to Uniontown

M2	GANS ROAD
M4	RAMP/TOLL PLAZA
M5	MAINLINE TOLL PLAZA
M8	BIG SIX ROAD

### Uniontown to Brownsville

M15	OLD PITT ROAD
M18	SEARIGHTS ROAD
M19	MAINLINE TOLL PLAZA
M22	REDSTONE WAY
M26	BULL RUN ROAD
M28	PA ROUTE 88

### US 40 to PA 51

M30	US 40
M32	CALIFORNIA
M34	ELCO
M35	MAINLINE TOLL PLAZA
M36	I-70
M39	CHARLEROI/DONORA
M44	PA ROUTE 136 - NEW EAGLE
M48	FINLEYVILLE
M52	MAINLINE TOLL PLAZA
M54	PA ROUTE 51 - JEFFERSON HILLS

### Turnpike 576

S1	I-376 (PA ROUTE 60)
S2	US ROUTE 30, CLINTON, IMPERIAL
S4	BALD KNOB ROAD
S6	US ROUTE 22



Toll-free travel and toll rate information:  
**866.976.TRIP (8747)**



**877.PENN.PASS (736.6727)**

**\*11 Emergency Assistance on the Pennsylvania Turnpike**

## Maintenance Building Locations

Maintenance Location	Milepost	District
Homewood Maintenance	T-11.8	1
Gibsonia Maintenance	T-39.5	1
Harrison City Maintenance	T-63.2	1
Donegal Maintenance	T-88.8	1
Greensburg Maintenance (Toll 66)	G-7.1	1
Searights Maintenance (Toll 43)	M-18.1	1
Jefferson Hills (Toll 43)	M-51.4	1
Somerset Maintenance	T-113.9	2
Kegg Maintenance	T-132.2	2
Everett Maintenance	T-154.4	2
Burnt Cabins Maintenance	T-186.0	2
Newville Maintenance	T-214.2	3
New Cumberland Maintenance	T-243.8	3
Mount Gretna Maintenance	T-265.5	3
Bowmansville Maintenance	T-288.3	3
Devault Maintenance	T-316.3	4
Plymouth Meeting Maintenance	T-333.3	4
Trevose Maintenance	T-353.1	4
Quakertown Maintenance	A-43.7	5
Slatington Maintenance	A-70.1	5
Pocono Maintenance	A-94.5	5
Wyoming Valley Maintenance	A-114.5	5



**Pennsylvania Turnpike Commission Offices**

<b>Turnpike Offices</b>	<b>Location</b>
Western Regional Office (WRO)	New Stanton, PA
Turnpike Industrial Park (TIP)	Highspire, PA
Central Administration Building (CAB)	Highspire, PA
Eastern Regional Office (ERO)	King of Prussia, PA

## Turnpike PSP Stations

PSP Station	Troop	County	Address
Bowmansville	T	288.3W (Lancaster)	443 Panorama Drive, Denver, PA 17517
Everett	T	154.4E (Bedford)	1605 Ashcom Road, Suite 2 Everett, PA 15537-7217
Gibsonia	T	39.6W (Allegheny)	3000 Haberlein Road, Gibsonia, PA 15044
Highspire*	T	247.3, Exit 247 (Dauphin)	P.O. Box 67676, Harrisburg, PA 17106-7676
King of Prussia	T	330.2E (Montgomery)	251 Flint Hill Road, King of Prussia, PA 19406
New Stanton	T	Toll 66, Exit 1 (Westmor.)	2200 North Center Ave., New Stanton, PA 15672-9602
New Stanton	T	50.5N, Toll 43 (Allegh.)	Gill Hall Road, Finleyville, PA 15332, (Jefferson Hills sub station)
Newville	T	214.2W (Cumberland)	248 Center Road, Newville, PA 17241
Pocono	T	94.5, Exit 95 (Carbon)	HCR #1, P.O. Box 18, White Haven, PA 18661
Somerset	T	113.9E (Somerset)	177 Menser Road, Somerset, PA 15501
* = Troop HQ			

# APPENDIX K

---

## Service Level Agreement



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

**PLEASE NOTE THE FOLLOWING:**

**THIS SLA SHALL COVER PARTIAL AND FULL MONTHS OF SERVICE.**

**SLA BEGINS FOR NEW DEPLOYMENTS IMMEDIATELY AFTER TESTING AND ACCEPTANCE.**

**FOR PERFORMANCE REQUIREMENTS AND LANE CLOSURE LIQUIDATED DAMAGES PERTAINING TO MAINTENANCE AND PROTECTION OF TRAFFIC (MPT), PLEASE REFER TO APPENDIX S.**

Table 1 - FOM-1 Locating and Mark-out Services SLA

FOM-1 Ticket Priority	Notification Method	Acknowledgement Time Threshold (Disincentive Applies After)	Acknowledgment Disincentive (Per 10 min. past threshold)	Resolution Time for Incentive	Resolution Incentive	Normal Resolution Timeframe (No incentive or disincentive)	Resolution Time for Disincentive	Resolution Disincentive (per hour past threshold)
Low and Moderate (Engineering and Construction Project Requests)	Ticket	4 hours	\$ 40.00	Less than 8 hours	\$ 50.00	8 hours - 48 hours	Greater than 48 hours	\$ 125.00
High and Critical (Emergencies)	Phone Call + Ticket	1 hour	\$ 60.00	Less than 2 hours	\$ 75.00	2 hours - 4 hours	Greater than 4 hours	\$ 200.00
NOTE: All time shall be interpreted as consecutive hours beginning at the time of ticket creation unless otherwise indicated All time past the resolution threshold for disincentive shall be rounded up to the nearest whole hour.								

Table 2 - FOM-2 Maintenance (Break/Fix) Services SLA – NOT APPLICABLE TO FOM-2 SERVICES FOR COMMERCIALIZATION ASSETS

FOM-2 Ticket Priority	Notification Method	Acknowledgement Time Threshold (Disincentive Applies After)	Acknowledgment Disincentive (Per 10 min. past threshold)	Resolution Time for Incentive	Resolution Incentive	Normal Resolution Timeframe (No incentive or disincentive)	Resolution Time for Disincentive	Resolution Disincentive (per hour past threshold)
Low	Ticket	4 hours	\$ 45.00	Less than 24 hours	\$ 25.00	24 hours - 48 hours	Greater than 48 hours	\$ 100.00
Moderate	Ticket	2 hours	\$ 115.00	Less than 12 hours	\$ 60.00	12 hours - 24 hours	Greater than 24 hours	\$ 300.00
High	Phone Call + Ticket	1 hour	\$ 270.00	Less than 6 hours	\$ 135.00	6 hours -10 hours	Greater than 10 hours	\$ 500.00
Critical	Phone Call + Ticket	0.5 hour	\$ 375.00	Less than 4 hours	\$ 190.00	4 hours - 8 hours	Greater than 8 hours	\$ 1,250.00
NOTE: All time shall be interpreted as consecutive hours beginning at the time of ticket creation unless otherwise indicated. All time past the resolution threshold for disincentive shall be rounded up to the nearest whole hour.								

Table 3 - FOM-2.7 Implementation of Temporary Solutions – Temporary to Permanent Solutions SLA - NOT APPLICABLE TO FOM-2.7 SERVICES FOR COMMERCIALIZATION ASSETS

Ticket Priority	Notification Method	Resolution Threshold for Incentive	Resolution Incentive	Normal Resolution Timeframe (No incentive or disincentive)	Resolution Time Threshold for Disincentive	Resolution Disincentive (per day past threshold)
Low	Problem Ticket	Less than 5 business days	\$500	5 business days - 20 business days	Greater than 20 business days	\$3,000
Moderate	Problem Ticket	Less than 5 business days	\$500	5 business days - 20 business days	Greater than 20 business days	\$3,000
High	Problem Ticket	Less than 5 business days	\$500	5 business days - 20 business days	Greater than 20 business days	\$3,000
Critical	Problem Ticket	Less than 5 business days	\$500	5 business days - 20 business days	Greater than 20 business days	\$3,000
NOTE: All time shall be interpreted as consecutive hours beginning at the time of ticket creation unless otherwise indicated. All time past the resolution threshold for disincentive shall be rounded up to the nearest whole hour.						



Table 4 - FOM-3 Fiber Management System SLA

RFP ID	Fiber Management System Component	Requirement	Initial Due	Updates due	Disincentive
FOM-3	Fiber Management System	Provide Proposer staff and the Commission with user profiles and roles	Within 5 business days after NTP	Within 5 business days of change	\$50 per user per day late
FOM-3.1	FMS Inventory Management	Perform all initial data collection, data entry, and mapping in the FMS per mapping and accuracy standards. Ensure all required data is captured and entered in the FMS.	Within 180 calendar days after NTP	Within 10 business days of change	\$200 per day late
FOM-3.2	FMS Importing and Exporting	a) Perform export of FMS data for the purposes of creating CI in ServiceNow b) Perform imports and exports as required by request	a) See ServiceNow SLA (FR-1.7.1.2) b) Within 3 business days of request	a) See ServiceNow SLA (FR-1.7.1.2) b) Within 3 business days of request	a) See ServiceNow SLA (FR-1.7.1.2) b) \$150 per day late
FOM-3.3	FMS Reporting/Queries	Provide reports and respond to queries as required	See Reports SLA (RPC-1.2)	See Reports SLA (RPC-1.2)	See Reports SLA (RPC-1.2)
FOM-3.4	ESRI/GIS Integration	Coordinate and work with the Commission's program support group for GIS integrations and all GIS configurations. Ensure the FMS and GIS system integration is fully functional.	Within 30 calendar days after NTP	Within 10 business days of change	\$200 per day late

Table 5 - FR-1.7 ServiceNow System SLA

RFP ID	ServiceNow System Component	Requirement	Initial Due	Updates due	Disincentive
FR-1.7	ServiceNow System	Obtain user profiles and roles for all Proposer staff	Within 5 business days after NTP	Within 5 business days of change	\$50 per user per day late
FR-1.7.1.2	Configuration Items	Create configuration items for all required FMS assets from FMS export	Within 180 calendar days after NTP	Within 10 business days of change	\$150 per day late
FR-1.7.2	ServiceNow Knowledge Base	Create KB and upload all required contract plans and documents	See Contract Plans SLA and Reports SLA	See Contract Plans SLA and Reports SLA	See Contract Plans SLA and Reports SLA
FR-1.7.3	ServiceNow SLA Management	Coordinate configuration of SLA and ensure SLA system is functional	Within 30 calendar days after NTP	Within 10 business days of change	\$150 per day late
FR-1.7.4	ServiceNow Reporting and Dashboards	Configure and create required ServiceNow reports and dashboards	Within 30 calendar days after NTP	Within 10 business days of change	\$150 per day late

Table 6 - FR-2.2 Availability Requirement SLA - NOT APPLICABLE TO COMMERCIALIZATION ASSETS

Maintenance Priority	Cumulative Downtime Threshold for Incentive (Yearly)	Incentive
High	Less than 20 Hours	\$2,000
Critical	Less than 10 Hours	\$5,000



Table 7 - Separate LOA Services SLA

Separate LOA Services	Service Level Requirement	Incentive	Disincentive
All Separate LOA Services	Perform Separate LOA services within the agreed upon schedule in the LOA	TBD by LOA	TBD by LOA
All Separate LOA Services	Perform Separate LOA services per requirements set forth in the LOA	TBD by LOA	TBD by LOA

Table 8 - FR-1.15 Contract Plans SLA

RFP ID	Plan Title	Initial Due Date	Updates Due	Disincentive
FR-1.1	Entry Transition Plan	Within 30 calendar days after NTP	N/A	\$100 per day late
FR-1.1	Exit Transition Plan	a) 180 calendar days prior to Contract end date; or b) Within 45 calendar days upon notice of Contract termination	N/A	\$100 per day late
FR-1.7	ServiceNow System Plan	Within 60 calendar days after NTP	60 days prior to each LOA/Annual Contract Review	\$100 per day late
FR-1.12	Fiber Optic Testing Plan	Within 60 calendar days after NTP	60 days prior to each LOA/Annual Contract Review	\$100 per day late
FR-1.15.1	Operations and Maintenance Manual: • FOM-1 Locating and Mark-Out Services • FOM-2 Maintenance (Break/Fix) Services • FOM-3 Fiber Management System • FOM-4 Witnessing and Acceptance • FOM-5 Trunk Connections • FOM-6 Coordination Tasks • FOM-7 Administrative Tasks	Within 60 calendar days after NTP	60 days prior to each LOA/Annual Contract Review	\$100 per day late
FR-1.15.2	Organization and Staff Plan	Within 60 calendar days after NTP	60 days prior to each LOA/Annual Contract Review	\$100 per day late
FR-1.15.3	Document and Data Management Plan	Within 60 calendar days after NTP	60 days prior to each LOA/Annual Contract Review	\$100 per day late
FR-2	Performance Improvement Plan	Within 3 business days of receiving an Unsatisfactory Performance Notice	60 days prior to each LOA/Annual Contract Review	\$100 per day late
FOM-2.7	Permanent Solution Plan	Within 3 calendar days after implementing a temporary solution/opening problem ticket	N/A	\$100 per day late
FOM-2.10	Recurring Issues Maintenance Response Plan	Within 60 calendar days after NTP	60 days prior to each LOA/Annual Contract Review	\$100 per day late
FOM-3	Fiber Management System Implementation Plan	Within 30 calendar days after NTP	60 days prior to each LOA/Annual Contract Review	\$100 per day late
FOM-7.5	Contract Management Plan	Within 60 calendar days after NTP	60 days prior to each LOA/Annual Contract Review	\$100 per day late
Varies	Project Specific Plans: • FR-1.13 MPT Plans • FOM-5.1 New Lateral Installation Plans • FOM-5.2 Temporary and Relocated Fiber Optic Cable Plans • FOM-5.3 Fiber Connections to Cashless Tolling Plans	Per the date/timeframe agreed upon in LOA	N/A	\$100 per day late



Table 9 - IV-6 Reports and Project Controls SLA

RFP ID	Report	Frequency	Due	Disincentive
RPC-1.1	Monthly LOA Status Report	Monthly	On or before 5th calendar day of each month	\$50 per day late
RPC-1.2	Root Cause Analysis Report	Ad-Hoc	Within 5 business days of ticket resolution	\$50 per day late
RPC-1.2	FMS Reports/Queries	a) Online available at all times b) Ad-Hoc by request	a) Available at all times to the Commission b) Within 3 business days of request	a) \$50 per occurrence of unavailable report b) \$100 per day late
RPC-1.3	Annual Report	Annually		
RPC-2	ServiceNow Reports	Online available at all times	Available at all times to the Commission	\$50 per occurrence of unavailable report
RPC-2	ServiceNow Dashboards	Online available at all times	Available at all times to the Commission	\$50 per occurrence of unavailable dashboard
RPC-3.1	Project Manager Meetings	Monthly	1st Wednesday of each month	\$50 per failure to attend or failure to reschedule a minimum of 3 business days before the original date
RPC-3.2	Executive Meetings	Ad-Hoc	To be determined	\$100 per failure to attend or failure to reschedule a minimum of 3 business days before the original date
RPC-3.3	Annual Presentation	Annually	To be determined	\$100 per failure to attend or failure to reschedule a minimum of 3 business days before the original date





# APPENDIX L

---

## I-95 Mileposts



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

An agreement between PennDOT and the Pennsylvania Turnpike Commission have resulted in the re-designation of a section of I-276 (between mileposts 356.4 and 359 on the Mainline Turnpike) to become Interstate 95.

This effort necessitated changes in signage, route, milepost numbers, directional designations, and interchange numbering.

The re-designation required that the roadway be re-mileposted. The existing PA Turnpike 276 sections mileposts are designated as running from East to West from about milepost 356.4 to milepost 359. The portion of the new Interstate 95 section covering the same roadway is designated as running from North to South from milepost 40 to milepost 43, respectively. For example; existing milepost 358 will now be new milepost 42 and existing milepost 359 will now be mile marker 43 approximately.

New Interchange Numbering Scheme:

I/C Name	Previous Route	Previous I/C and Milepost Number	<i>New Route</i>	<i>New I/C and Milepost Number</i>
Delaware River Bridge	T	359	<i>H</i>	<i>43</i>
Delaware Valley	T	358	<i>H</i>	<i>42</i>

# APPENDIX M

---

## Existing Fiber and Conduit



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

East/West Mainline										
Project	Status	Station - Station	MP - MP	LF	Miles	Direction	Fiber Installed	Location	Year Installed	Remarks
MP 0 - Gateway Toll Plaza	Complete									NO CONDUIT
Gateway Mainline Toll Plaza MP 1.43										
MP 1.5 - 10	Complete	102+50 - 495+00	1.85 - 9.3	39,250	7.43	WB		Center of shoulder	2009	ENDS AT RAMP P
New Castle I/C MP 10.70										
Homewood Mtce MP 11.84						EB				
Beaver Valley I/C MP 12.87										
Beaver River Bridge, MP 12-14	In Design				2.00					
Cranberry I/C MP 28.47										
MP 28 - 31	In Design				3.00					
Warrendale Mainline Toll Plaza MP 31.00										
MP 31- 38	Complete	134+00 - 477+00	31.3 - 37.8	34,300	6.50	WB		Center of shoulder	2012	
MP 38 - 40	Complete		37.93 - 39.62							NO CONDUIT
Butler Valley I/C MP 39.10										
Gibsonia Mtce MP 39.59						WB				
MP 40 - 44	Under Construction	556+00 - 781+00	39.3 - 43.6	22,500	4.26	WB		Center of shoulder		
MP 44 - 48	Complete	781+00 - 968+50	43.6 - 47.05	19,134	3.62	WB		Center of shoulder	2016	
Allegheny Valley I/C MP 47.73										
Alleg River Bridge, MP 47-49	Complete	968+50 - 1007+00	47.05 - 47.8	3,850	0.73	WB		Center of shoulder	2010	CROSSES RAMPS B & C
		999+64 - IC	47.65		0.00					CROSSES MAINLINE AND HEADS TO INTERCHANGE
		1007+00 - 1031+00	47.8 - 48.2	2400	0.45					Thru Alleg River Bridge
		1031+00 - 1067+00	48.2 - 48.9	3,600	0.68	WB		Center of shoulder		
MP 49 - 53	In Design				4.00					
MP 53 - 57	In Design				4.00					
Pittsburgh I/C MP 56.56										
MP 57 - 62	In Design				5.00					
Harrison City Mtce MP 63.22						WB				
MP 62 - 67	In Design				5.00					
Irwin I/C MP 67.22										
MP 67 - 75*	Complete	319+00 - 687+00	67.59 - 74.59	36,800	6.97	WB		Center of shoulder	2011	(NOT SHOWN ON PLANS - TABS ONLY)
New Stanton I/C MP 75.39										
MP 75 - 85	Complete									NO CONDUIT
Donegal Mtce MP 88.76						WB				
MP 85 - 94	Complete									NO CONDUIT
Donegal I/C MP 90.69										
MP 94 - 99	Complete									NO CONDUIT
MP 99 - 102*	Complete	5260+75 - 5426+50	99.1 - 101.7	16,570	3.14	EB		Center of shoulder	2016	
MP 102 - 109	In Design				7.00					
Somerset I/C MP 109.91										
MP 109 - 121	Complete									NO CONDUIT
Somerset Mtce MP 113.82						EB				
MP 124 - 131	In Design				7.00					
Kegg Mtce MP 132.32						WB				
MP 131 - 134	In Design				3.00					
Bedford I/C MP 145.50										
MP 149 - 155	In Design				10.00					
Everett Mtce MP 154.42										
Breezewood I/C-Breezewood Connector MP 161.50										
MP 162 - 172 (Fog System)	Complete	142+00 - 149+00	162.05 - 171.4	53,450	10.12	EB	Yes	EOP	2006	SIGN IN MEDIAN, CONDUIT CROSSES EB LANES, RUNS ALONG EOP (RIGHT SHOULDER)
(4 CONDUITS)		149+00 - 182+00				EB	Yes	NEAR ROW LINE		CONDUIT RUNS OUT IN GRASS NEAR ROW LINE
Contract #04-019-RCN4		182+00 - 361+50				EB	Yes	EOP		CONDUIT CROSSES COMES IN AND RUN IN EB EOP (RIGHT SHOULDER)
		361+50 - 418+25				EB	Yes	MEDIAN		CONDUIT CROSSES AND BEGINS TO RUN IN THE MEDIAN (EB LEFT SHOULDER)
		418+25 - 493+00				EB	Yes	EOP		CONDUIT CROSSES AND BEGINS TO RUN IN THE EB EOP (RIGHT SHOULDER)
		493+00 - 666+25				WB	Yes	MEDIAN		CONDUIT CROSSES AND BEGINS TO RUN IN THE MEDIAN (WB LEFT SHOULDER)
		666+25 - 676+50				WB	Yes	EOP		CONDUIT CROSSES AND BEGINS TO RUN IN THE WB EOP (RIGHT SHOULDER)
Fort Littleton I/C MP 179.44										
MP 180 - 186	In Design				6.00					
Burnt Cabins Mtce MP 185.95						EB				
Willow Hill I/C MP 188.59										
MP 186 - 199	Complete									NO CONDUIT
Blue Mountain I/C MP 201.29										
MP 199 - 202*	Complete	182+69 - 234+00	199.34 - 201.75	12,682	2.40	WB	Yes	Center of shoulder	2013	(not shown on plans - project limits)
		234+00 - 309+00				EB		Center of shoulder		

MP 202 - 206*	Under Construction	309+00 - 369+25	201.75 - 202.7	27,587	5.22	EB		Center of shoulder		(not shown on plans - project limits)
		369+25 - 581+00	202.7 - 206.85			WB		Center of shoulder		
MP 206 - 210*	Complete	581+00 - 794+00	206.9 - 210.9	20,929	3.96	WB		Center of shoulder	2014	(not shown on plans - project limits)
MP 210 - 215*	Complete	794+00 - 108+72	210.9 - 215.3	23,100	4.38	WB		Center of shoulder	2009	
Newville Mtce MP 214.27						WB				
MP 215 - 220*	Complete	107+22 - 371+67	215.3 - 220.3	26,327	4.99	WB		Center of shoulder	2012	(not shown on plans - project limits)
MP 220 - 227*	Complete	371+67 - 711+00	220.3 - 226.7	33,228	6.29	WB		Center of shoulder	2017	(not shown on plans - project limits)
Carlisle I/C MP 226.54										
Bridge EB-103 MP 228.54*	Complete			280	0.05	WB			2017	4" CONDUIT IN WB PARAPET
Gettysburg I/C MP 236.21										
Bridge EB-121 MP 238.45*	Complete			710	0.13					4" CONDUIT IN BOTH PARAPETS
Harrisburg West I/C MP 241.87										
MP 242 - 245*	Complete	145+00 - 335+69	242.05 - 245.65	19,475	3.69	WB		Center of shoulder	2018	
		335+69	245.65							CONDUIT PLACED ACROSS MAINLINE Ties to manhole off of SRB
New Cumberland Mtce MP 243.85						EB				
SRB MP 245 - 247	Complete	396+00 - 412+00	246.8 - 247.1	1,950	0.37	WB	Yes	Center of shoulder	2008	
		412+00 - 415+50	247.1 - 247.15			WB				ITS CONDUITS HEAD NORTH OUTSIDE PAVEMENT INTO GRASS, UNDER EISENHOWER BLVD AND TIE INTO EXISTING MAN HOLE TO BUILDING
Harrisburg East I/C MP 247.38										
Swatara Creek Bridge, MP 251*	Complete	249+00 - 310+00	250.3 - 251.45	5,155	0.98	WB		Center of shoulder	2017	
Mount Gretna Mtce MP 265.54						EB				
Lebanon-Lancaster I/C MP 266.45										
Reading I/C MP 286.10										
Bowmansville Mtce MP 288.33						WB				
Morgantown I/C MP 298.33										
MP 298 - 302.5	In Design				4.50					
MP 302.5 - 308	In Design				5.50					
MP 308 - 312	In Design				4.00					
Downingtown I/C MP 311.93										
MP 312 - 320	In Design				8.00					
Devault Mtce MP 316.26						WB				
SR 0029 Slip Ramp MP 320		1034+00 - 1055+00				EB		Center of Shoulder		
MP 320 - 326	In Design				6.00					
Valley Forge I/C MP 326.62										
MP 326 - 331*	Complete	114+65 - 127+50	326.05 - 326.4	29,035	5.50	EB	Yes	Center of shoulder	2008	IN SHOULDER ALONG THE MAINLINE
		127+50	326.4				Yes			METAL CASING ACROSS MAINLINE TO WB SIDE
		109+00 - IC 9+25	326.05 - IC			EB	Yes	Center of shoulder		ALONG RAMP D TO THE INTERCHANGE
		127+50 - 340+50	326.4 - 330.45			EB	Yes	Center of shoulder		CROSSING RAMP C AND ALONG MAINLINE (316-328 ALONG ERO RAMP)
		340+50 - 407+50	330.45 - 331.7			EB	Yes	EOP		SHIFTS TO OUTSIDE OF GUIDE RAIL
MP 331 - MP 333 (Norristown)*	Complete	407+50 - 498+00	331.75 - 333.4	3,633	0.69	EB	Yes	Center of shoulder	2006	Project completed by Amber R.
ERO MP 330.2							Yes			
Norristown I/C MP 333.28							Yes			
Plymouth Meeting Mtce MP 333.3						EB	Yes			
Mid-County I/C MP 333.33							Yes			
Junction to Northeast MP 333.86							Yes			
Norristown I/C to MP A20	Complete	502+00 - 516+00	333.5 - 333.8	5,863	1.11	EB		EOP	2017	Project completed by Amber R. This connects the conduit at the access gate to Old Plymouth Maintenance along the mainline, on the ramp and joins at A20.
		505+00(ML) - 155+00(NE)	333.55 - A20.3			WB/NB		EOP		CONDUIT RUNS ALONG MAINLINE, PARALLEL TO RAMP P AND UP TO NORTHEAST EXT. (Sta 155 +00 = Sta 36+50 ahd)
Fort Washington I/C MP 338.36										
Virginia Drive Slip Ramp MP 339.80										
Willow Grove I/C MP 342.91										
Bensalem I/C MP 351.49										
Street Road Slip Ramp MP 351.90										
Neshaminy Falls Mainline Plaza MP 353										
Treose Mtce MP 353.1						EB				
195 Connector D-10*	Complete	137+00 - 549+00 Mainline		10,275	1.95	EB		EOP & SHOULDER	2018	
		Ramp D 40+00 - Ramp D 59+00								ALONG RAMP TO TOLL PLAZA BUILDING
195 Connector Section B*	Complete	107+00 - 127+00		15,170	2.87	WB		EOP	2015	
		127+00 - Street Road Slip Ramp				EB		EOP		CROSSES MAINLINE AT STA 127+00 AND HEADS DOWN SLIP RAMP
		127+00 - 155+25				EB		EOP		
		155+25 - 166+50				WB		EOP		
		166+50 - 206+00				EB		EOP		

(DRB Open Road Tolling)		349+50 - 458+50				EB		EOP	2015	
Delaware Valley I/C MP 357.84										
DRB Mainline Plaza 358.11										
Totals					167.68					
Northeast Extension										
Project	Status	Station - Station	MP - MP	LF	Miles	Direction	Fiber Installed	Location	Year Installed	Remarks
MP A20-26		36+50 - 43+90	A20.3 - A20.45	28,279	5.36	SB		Center of shoulder	2014	
		43+90 - 319+29	A20.45 - A25.65			NB				
Junction from Mainline MP A20										
MP A26 - A31	Complete	319+29 - 618+81	A25.65 - A31.35	29,952	5.67	NB		Center of shoulder	2017	
Lansdale I/C MP A30.13										
MP A31 - A38	Under Construction	79+40 - 437+25	A31.35 - A38.15	9,235	1.75	NB		Center of shoulder		Sta 618+81 Bk = Sta 79+40 Ahd. Lateral crossings at MP A33.09 and A37.74. Steel conduit installed on existing structures at MP A35.6, A35.8, and A36.1.
MP A38 - A44	In Design				6.00					
Quakertown Mtce MP A43.74						NB				
Quakertown I/C MP A43.77										
MP A44 - A48	In Design				4.00					
MP A48 - A53	In Design				5.00					
MP A53 - A57	In Design				4.00					
Lehigh Valley I/C MP A57.31										
Slatington Mtce MP A70.07						NB				
Mahoning Valley I/C MP A75.86										
Pocono I/C MP A94.59										
Pocono Mtce MP A94.64						SB				
Wilkes-Barre I/C MP A105.44										
Wyoming Valley Mainline Toll Plaza MP A114.44										
Wyoming Valley I/C MP A112.41										
Wyoming Valley Mtce MP A114.56						SB				
Keyser Avenue Mainline Toll Plaza MP A121.23										
Keyser Avenue I/C MP A122.01										
Clarks Summit Mainline Toll Plaza MP A130.25										
Clarks Summit I/C MP A130.64										
Totals					31.78					
Mon-Fayette										
Project	Status	Station - Station	MP - MP	LF	Miles	Direction	Fiber Installed	Location	Year Installed	Remarks
Rubles Mill Road (SR 3007) I/C MP M3.8										
Mainline Toll Plaza MP M4.66										
PENNDOT OWNED MP 7.84-13.8										
US 119 I/C MP M14.00										
Old Pittsburgh Road (T-986) I/C MP M14.5										
Searights Mtce MP M18.2						SB				
Mainline Toll Plaza MP M19.5										
Redstone Way (US 40) I/C MP M21.9										
MFE M13.8-M26*	Complete	502+00 - 509+50	M13.8 - M26	57,485	10.89	SB	Yes	EOP	2007	SR 0119 - RAMP S-119S
		509+50 - 519+00/RAMP STA 27+00				SB	Yes	Center of shoulder		ALONG RAMP S-119S
		27+00 - 42+50				SB	Yes	EOP		ALONG RAMP S-119S
		42+50 - 109+00				SB	Yes	Center of shoulder		
		109+00 - 762+00					Yes	MEDIAN		RUNS IN MEDIAN - AT STRUCTURES CONDUIT RUNS IN SB RIGHT ABUTMENT
		762+00 - 779+00				NB	Yes	EOP		
Bull Run Road (SR 4003) I/C MP M25.9										
Mainline Toll Plaza MP M34.96										
Charleroi/Donora I/C MP M39.17										
Monongahela - New Eagle (PA 136) I/C MP M44.13										
Finleyville I/C MP M48.11										
Jefferson Hills State Police MP M0.5						NB				
Jefferson Hills Mtce MP M51.40						NB				
Mainline Toll Plaza MP M52										
Totals					10.89					
Southern Beltway										
Project	Status	Station - Station	MP - MP	LF	Miles	Direction	Fiber Installed	Location	Year Installed	Remarks
S0 - S1.3 (Section 54A)	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
US 30 I/C MP S1.42										
S1.3 - S3.3 (Section 54B)	Complete						Yes		2004	CONDUIT INSTALLED - NO PLANS

Westport Road I/C MP S3.70										
S3.3 - S5.6 (Section 54C)	Complete						Yes		2004	CONDUIT INSTALLED - NO PLANS
US 22 I/C MP S5.58										
S5.6 - S8.8 (Section 55-A1)*	Under Construction	389+00 - 572+50		16,397	3.11	WB		EOP		
S8.8 - S11.3 (Section 55-A2)	In Design				2.50					
S11.3 - S14.3 (Section 55-B)*	Under Construction	715+50 - 869+00		14,271	2.70	WB		EOP		
S14.3 - S16 (Section 55-C1-1)*	Under Construction	869+00 - 951+22		8,222	1.56	WB		EOP		
S16 - S18 (Section 55-C1-2)	In Design				2.00					
S17 - S19 (Section 55-C2-1)	In Design				1.00					
Totals					12.87					
Amos K Hutchinson Bypass (Greensburg - 66)										
Project	Status	Station - Station	MP - MP	LF	Miles	Direction	Fiber Installed	Location	Year Installed	Remarks
G0 - G1.15 (Section 70A)	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
WRO, MP G0.6						NB				
G1.15 - G2.9 (Section 70B)	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
G2.9 - G4.9 (Section 71)	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
PA 136 I/C MP G4.03										
Mainline Plaza MP G4.7										
G4.9 - G6.9 (Section 72A)	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
US 30 I/C MP G6.29										
Greensburg Mtce MP G7.1						NB				
PA 130 I/C MP G7.78										
G6.9 - G8.9 (Section 72B)	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
Old PA 66 I/C MP G9.39										
G8.9 - G11.5 (Section 73A)	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
G11.5 - G13.41 (Section 73B)	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
Totals					0.00					
Beaver Valley Expressway										
Project	Status	Station - Station	MP - MP	LF	Miles	Direction	Fiber Installed	Location	Year Installed	Remarks
Mainline Toll Plaza MP B30.50										
Beaver Falls I/C MP B28.79										
I-76 I/C MP B25.71										
B31.03 - B14.63	Complete									NO CONDUIT - ORIGINAL CONSTRUCTION
PA 168 I/C MP B19.96										
Mainline Toll Plaza MP B18.07										
PA 108 I/C MP B16.28										
Totals					0.00					

# APPENDIX N

---

## Planned Projects



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES



# FY 2020 Ten Year Capital Plan Review

---



## FY 2020 Ten Year Capital Plan (YOE)

Program	Category	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	Total FINAL PLAN
Highway	Roadway/Safety	170,052,500	121,665,660	40,501,979	62,760,775	91,683,948	106,722,771	75,893,964	109,409,579	106,864,724	90,929,643	976,485,544
Highway	Bridge,Tunnels & Misc Structure	68,476,640	77,790,750	79,917,597	48,254,824	57,794,877	64,165,820	76,240,239	78,527,446	80,503,239	94,843,963	726,515,396
Highway	Total Reconstruction	148,433,200	156,692,190	162,678,406	191,370,438	140,744,877	161,753,512	260,900,427	280,657,216	317,832,613	314,580,815	2,135,643,693
Highway	Interchanges (w/o Cashless)	37,345,000	72,779,800	92,043,684	116,714,171	112,730,962	100,810,474	38,758,938	12,618,506	6,663,211	78,286	590,543,031
Highway	Highway Miscellaneous	38,403,879	29,492,290	34,318,047	38,000,019	37,969,490	37,659,482	39,350,471	40,530,985	28,825,860	29,690,636	354,241,158
Highway	Total (w/o Cashless)	462,711,219	458,420,690	409,459,714	457,100,227	440,924,154	471,112,058	491,144,038	521,743,733	540,689,647	530,123,343	4,783,428,822
FEMO	Re-capitalization	1,465,000	185,400	190,962	196,691	202,592	208,669	214,929	221,377	228,019	234,859	3,348,498
FEMO	Sustainment	9,250,000	5,572,300	10,301,339	10,610,379	11,603,996	11,952,116	12,310,679	12,680,000	13,060,400	16,844,622	114,185,830
FEMO	Compliance	3,720,000	1,133,000	4,068,552	4,059,481	3,866,123	3,999,496	4,400,083	4,550,533	4,687,049	4,827,661	39,311,977
FEMO	New Energy Initiative	6,368,136	9,928,310	2,115,579	2,179,046	1,906,765	1,848,041	1,903,482	1,960,586	2,019,404	2,079,986	32,309,334
FEMO	Facilities Design	11,465,000	6,525,050	18,277,162	24,848,612	15,247,217	20,797,377	29,540,854	19,481,202	28,806,352	22,624,767	197,613,592
FEMO	Total	32,268,136	23,344,060	34,953,593	41,894,209	32,826,692	38,805,698	48,370,027	38,893,698	48,801,223	46,611,895	386,769,232
Fleet Equipment	Fleet Equipment	14,000,000	14,420,000	14,852,600	15,298,178	15,757,123	17,389,111	17,910,784	18,448,108	19,001,551	19,571,598	166,649,054
Technology	Functional Business Software	15,397,994	4,969,750	9,335,920	9,998,452	5,796,370	6,202,116	6,625,796	6,568,756	4,929,002	7,541,719	77,365,877
Technology	Infrastructure HW / SW	7,002,006	7,931,000	6,073,653	6,255,862	7,569,047	7,796,118	8,030,002	8,270,902	7,928,596	10,046,754	76,903,939
Technology	Toll Collection / Operations	2,600,000	2,935,500	3,023,565	2,731,818	2,813,772	2,666,330	2,746,320	2,828,710	380,031	0	22,726,046
Technology	Total	25,000,000	15,836,250	18,433,138	18,986,132	16,179,189	16,664,565	17,402,118	17,668,368	13,237,630	17,588,473	176,995,862
EN-00115	Cashless Tolling Conversion	18,228,000	54,847,500	75,132,938	43,162,717	74,171,031	46,486,890	56,836,889	40,093,888	18,494,843	3,131,456	430,586,152
	Grand Total (PSEXP)	552,207,355	566,868,500	552,831,982	576,441,462	579,858,190	590,458,323	631,663,857	636,847,795	640,224,894	617,026,764	5,944,429,121
	Reimbursed Funds	15,600,000	20,000,000	20,000,000	0	0	0	0	0	0	0	55,600,000
	Grand Total (PSNET)	536,607,355	546,868,500	532,831,982	576,441,462	579,858,190	590,458,323	631,663,857	636,847,795	640,224,894	617,026,764	5,888,829,121

[illegible]

FY 2020 Ten Year Capital Plan (YOE)														
Program	Program Category	Project	Project Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Overall Result
Highway	Roadway/Safety	T-210.00R001	Bituminous Resurfacing, MP 210-215 SMA	0	0	0	0	0	0	0	0	0	0	0
Highway	Roadway/Safety	T-215.00R001	Bituminous Overlay MP 215-220 SMA, Repro	65,000	206,000	0	0	0	0	0	0	0	0	271,000
Highway	Roadway/Safety	T-226.00R002	Bituminous Overlay MP 226-235, Reprofile EB	65,000	1,287,500	15,701,320	0	0	0	0	0	0	0	17,053,820
Highway	Roadway/Safety	T-249.70R001	Higspire SP Auxiliary Truck Parking	175,000	1,236,000	5,569,725	0	0	0	0	0	0	0	6,980,725
Highway	Roadway/Safety	T-258.77R001	Lawn Service Plaza Auxiliary Truck Parki	7,270,000	0	0	0	0	0	0	0	0	0	7,270,000
Highway	Roadway/Safety	T-268.00R001	Bituminous Resurfacing MP 268 - 275	1,920,000	0	0	0	0	0	0	0	0	0	1,920,000
Highway	Roadway/Safety	T-282.00R002	MP 282-292 Bituminous Overlay	12,090,000	7,683,800	0	0	0	0	0	0	0	0	19,773,800
Highway	Roadway/Safety	T-286.09R001	Bituminous Overlay Reading Interchange	110,000	0	0	0	0	0	0	0	0	0	110,000
Highway	Roadway/Safety	T-292.00R002	Bituminous Overlay, MP 292-299	200,000	0	0	0	0	0	0	0	0	0	200,000
Highway	Roadway/Safety	T-299.00R002	Bituminous Overlay, MP 299-306	12,090,000	5,191,200	0	0	0	0	0	0	0	0	17,281,200
Highway	Roadway/Safety	T-312.00R002	Bituminous Overlay MP 312-319 Full Depth	65,000	206,000	0	0	0	0	0	0	0	0	271,000
Highway	Roadway/Safety	T-326.00R001	Bituminous Overlay, MP 326-334 SMA	6,540,000	0	0	0	0	0	0	0	0	0	6,540,000
Highway	Roadway/Safety	T-333.28R001	Bituminous Overlay MP333.28 NorristownIC	60,000	206,000	0	0	0	0	0	0	0	0	266,000
Highway	Roadway/Safety	T-334.00R002	Bituminous Overlay, MP 334-340, CMB, Ft	1,150,000	13,055,250	0	0	0	0	0	0	0	0	14,205,250
Highway	Roadway/Safety	T-353.00R001	Bituminous Overlay, MP 353-355	5,590,000	0	0	0	0	0	0	0	0	0	5,590,000
Highway	Roadway/Safety	T-353.00R002	Concrete Median Barrier Install,MP353-355	65,000	206,000	0	0	0	0	0	0	0	0	271,000
Highway	Roadway/Safety	Result		170,052,500	121,665,660	40,501,979	62,760,775	91,683,948	106,722,771	75,893,964	109,409,579	106,864,724	90,929,643	976,485,544
Highway	Bridge,Tunnels & Misc Structure	A-043.91S001	Rehabilitation of Ramp Bridge NB-216	110,000	334,750	0	0	0	0	0	0	0	0	444,750
Highway	Bridge,Tunnels & Misc Structure	A-051.36S00X	Design (NB-326/327/328 Bridge Painting)	110,000	1,184,500	0	0	0	0	0	0	0	0	1,294,500
Highway	Bridge,Tunnels & Misc Structure	A-058.88S001	NB-360 Rapid Superstructure Replacement	3,054,000	0	0	0	0	0	0	0	0	0	3,054,000
Highway	Bridge,Tunnels & Misc Structure	A-059.22S001	NB-363 Rapid Mainline Replacement	310,000	175,100	0	0	0	0	0	0	0	0	485,100
Highway	Bridge,Tunnels & Misc Structure	A-059.41S001	NB-364/NB-376 Rapid Mainline Replacement	20,000	463,500	583,495	382,454	2,476,119	7,419,354	7,641,935	0	0	0	18,986,858
Highway	Bridge,Tunnels & Misc Structure	A-070.26S006	2021 Lehigh Tunnel In-Depth Insp/Rehab	0	0	0	0	562,754	1,043,347	597,026	0	0	0	2,203,127
Highway	Bridge,Tunnels & Misc Structure	A-072.52S001	MP A72.52 NB-605 Mainline Replacement	20,000	103,000	424,360	546,364	450,204	0	0	0	0	0	1,543,927
Highway	Bridge,Tunnels & Misc Structure	A-088.59S001	NB-610 Hawk Falls Bridge Replacement	400,000	463,500	0	0	0	0	0	0	0	0	863,500
Highway	Bridge,Tunnels & Misc Structure	A-099.00S001	Bridge Rehabilitations MP A-99 to A-128	40,000	0	0	0	0	0	0	0	0	0	40,000
Highway	Bridge,Tunnels & Misc Structure	A-105.11S001	NB-637/NB-638 Overhead Bridge Replacemnt	720,000	515,000	424,360	2,294,727	11,029,986	6,144,153	0	0	0	0	21,128,226
Highway	Bridge,Tunnels & Misc Structure	A-110.00S001	Widen/redeck Mainline NB-647	30,000	370,800	530,450	546,364	405,183	0	0	0	0	0	1,882,797
Highway	Bridge,Tunnels & Misc Structure	A-120.68S001	MP A120.68 NB-709 Overhead Replacement -	10,000	0	0	0	0	0	0	0	0	0	10,000
Highway	Bridge,Tunnels & Misc Structure	A-130.23S001	MP A130.23 NB-751 Mainline Replacement	5,470,000	9,888,000	2,280,935	0	0	0	0	0	0	0	17,638,935
Highway	Bridge,Tunnels & Misc Structure	C-001.14S001	Elimination of Bridge S-9370 MP C-001.14	30,000	0	0	0	0	0	0	0	0	0	30,000
Highway	Bridge,Tunnels & Misc Structure	EN-00050	Biennial Bridge Inspection - Systemwide	0	0	530,450	2,403,999	2,476,119	2,550,403	2,985,131	3,074,685	3,800,310	3,914,320	21,735,417
Highway	Bridge,Tunnels & Misc Structure	EN-00051	Bridge Painting - Systemwide	0	0	0	1,092,727	1,125,509	1,159,274	1,194,052	1,229,874	2,533,540	2,609,546	10,944,523
Highway	Bridge,Tunnels & Misc Structure	EN-00052	Open-End Bridge Repairs - Systemwide	0	0	0	3,278,181	9,904,478	10,201,612	10,507,660	10,822,890	12,667,701	13,047,732	70,430,253
Highway	Bridge,Tunnels & Misc Structure	EN-00054	Bridge Projects - Systemwide	0	0	0	12,369,342	22,095,764	42,341,094	47,177,961	51,126,840	65,238,659		240,349,661
Highway	Bridge,Tunnels & Misc Structure	EN-00154	Accelerated Bridge Reconstruction for A5	40,000	0	0	0	0	0	0	0	0	0	40,000
Highway	Bridge,Tunnels & Misc Structure	EN-00155	Permit Loads	72,000	61,800	63,654	65,564	67,531	69,556	71,643	73,792	76,006	78,286	699,833
Highway	Bridge,Tunnels & Misc Structure	EN-00195	CY 16-17 Biennial Tunnel Inspection	1,064,000	0	0	0	0	0	0	0	0	0	1,064,000
Highway	Bridge,Tunnels & Misc Structure	EN-00196	CY 19-20 Biennial Tunnel Inspection	1,310,000	2,060,000	0	0	0	0	0	0	0	0	3,370,000
Highway	Bridge,Tunnels & Misc Structure	EN-00197	Biennial Tunnel Inspection Systemwide	0	0	1,060,900	1,650,018	2,251,018	2,318,548	2,985,131	3,074,685	3,166,925	3,261,933	19,769,157
Highway	Bridge,Tunnels & Misc Structure	EN-00199	CY 18-19 Biennial Bridge Inspection	1,600,000	0	0	0	0	0	0	0	0	0	1,600,000
Highway	Bridge,Tunnels & Misc Structure	EN-00200	CY 18 Open End Bridge Repairs	560,006	0	0	0	0	0	0	0	0	0	560,006
Highway	Bridge,Tunnels & Misc Structure	EN-00231	CY 19 Open End Bridge Repairs	6,240,000	515,000	0	0	0	0	0	0	0	0	6,755,000
Highway	Bridge,Tunnels & Misc Structure	EN-00245	CY 20 Open End Bridge Repairs	0	5,974,000	891,156	0	0	0	0	0	0	0	6,865,156
Highway	Bridge,Tunnels & Misc Structure	EN-00XX3	Design (CY 20-21 Biennial Bridge Inpsection)	510,000	1,648,000	742,630	0	0	0	0	0	0	0	2,900,630
Highway	Bridge,Tunnels & Misc Structure	EN-00XX4	Bridge Technologies	30,000	30,900	31,827	32,782	33,765	34,778	35,822	36,896	38,003	39,143	343,916
Highway	Bridge,Tunnels & Misc Structure	EN-00XX5	Open End Design - Systemwide	0	103,000	6,259,310	1,027,163	112,551	115,927	119,405	122,987	126,677	130,477	8,117,499



FY 2020 Ten Year Capital Plan (YOE)														
Program	Program Category	Project	Project Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Overall Result
Highway	Bridge,Tunnels & Misc Structure	EN-00XX6	FY 20 Open End Design	100,000	0	0	0	0	0	0	0	0	0	100,000
Highway	Bridge,Tunnels & Misc Structure	H-043.40S001	Delaware River Bridge	100,000	515,000	795,675	819,545	844,132	1,738,911	0	0	0	0	4,813,263
Highway	Bridge,Tunnels & Misc Structure	T-013.21S001	WB-211 Beaver River Bridge Replacement	120,000	103,000	0	0	0	0	0	0	0	0	223,000
Highway	Bridge,Tunnels & Misc Structure	T-028.01S002	MP 28.01 WB-308 Overhead Bridge	75,000	206,000	795,675	0	0	0	0	0	0	0	1,076,675
Highway	Bridge,Tunnels & Misc Structure	T-056.56S001	Pittsburgh Int Bridge Collision Repair	120,000	442,900	0	0	0	0	0	0	0	0	562,900
Highway	Bridge,Tunnels & Misc Structure	T-075.58S001	Collision Damage Repairs B-483A	150,000	1,802,500	0	0	0	0	0	0	0	0	1,952,500
Highway	Bridge,Tunnels & Misc Structure	T-090.20S001	Donegal Slope Remediation	1,200,000	1,545,000	0	0	0	0	0	0	0	0	2,745,000
Highway	Bridge,Tunnels & Misc Structure	T-109.93S001	Rehabilitation of Bridge B-348 MP 109.93	0	0	0	240,400	967,938	0	0	0	0	0	1,208,338
Highway	Bridge,Tunnels & Misc Structure	T-110.12S001	MP 110.12 B-502 Overhead Replacement	2,100,000	0	0	0	0	0	0	0	0	0	2,100,000
Highway	Bridge,Tunnels & Misc Structure	T-122.18S002	Allegh Tunnel Transportation Improvement	300,000	1,030,000	3,182,700	3,278,181	3,376,526	4,637,096	4,776,209	4,919,495	6,333,850	6,523,866	38,357,925
Highway	Bridge,Tunnels & Misc Structure	T-129.94S001	B-499/B-346 Rapid Superstructure Replace	0	0	0	0	0	0	0	0	0	0	0
Highway	Bridge,Tunnels & Misc Structure	T-130.93S001	Culvert Rehabilitation B-302/B-303	110,000	1,390,500	0	0	0	0	0	0	0	0	1,500,500
Highway	Bridge,Tunnels & Misc Structure	T-141.59S001	MP 141.59 B-507 Overhead Replacement	1,625,000	0	0	0	0	0	0	0	0	0	1,625,000
Highway	Bridge,Tunnels & Misc Structure	T-144.85S001	MP 144.85 B-510 Overhead Replacement	530,000	0	0	0	0	0	0	0	0	0	530,000
Highway	Bridge,Tunnels & Misc Structure	T-148.06S001	MP T148.06 B-140 Mainline Replacement	600,000	824,000	3,394,880	5,354,362	4,614,586	0	0	0	0	0	14,787,828
Highway	Bridge,Tunnels & Misc Structure	T-185.89S001	Rehabilitation of B-562/B-561	0	0	0	0	0	0	0	0	0	0	0
Highway	Bridge,Tunnels & Misc Structure	T-186.20S004	Tuscarora Tunnel Rehabilitation	28,420,000	37,080,000	47,210,050	21,635,995	0	0	0	0	0	0	134,346,045
Highway	Bridge,Tunnels & Misc Structure	T-197.48S003	Blue Mountain/Kittatinny Tunnel Rehab	700,000	3,708,000	3,819,240	1,092,727	562,754	0	0	0	0	0	9,882,721
Highway	Bridge,Tunnels & Misc Structure	T-197.48S006	Blue/Kitt Tunnels - Portal Upgrade	0	0	0	0	0	0	0	0	0	0	0
Highway	Bridge,Tunnels & Misc Structure	T-228.54S001	MP 228.54 EB-103 Mainline Replacement	10,000	0	0	0	0	0	0	0	0	0	10,000
Highway	Bridge,Tunnels & Misc Structure	T-238.09S001	MP 238.09 EB-117 Mainline Replacement	7,826,634	0	0	0	0	0	0	0	0	0	7,826,634
Highway	Bridge,Tunnels & Misc Structure	T-241.96S001	Redeck Ramp Bridge EB-203	480,000	2,884,000	0	0	0	0	0	0	0	0	3,364,000
Highway	Bridge,Tunnels & Misc Structure	T-250.09S001	MP 250.09 EB-311 Overhead Replacement	600,000	1,751,000	5,728,860	0	0	0	0	0	0	0	8,079,860
Highway	Bridge,Tunnels & Misc Structure	T-252.39S001	EB-317/321/324/405 Bridge Painting	1,260,000	0	0	0	0	0	0	0	0	0	1,260,000
Highway	Bridge,Tunnels & Misc Structure	T-272.65S001	MP 272.65 EB-511 Overhead Replacement	0	0	318,270	546,364	450,204	0	0	0	0	0	1,314,837
Highway	Bridge,Tunnels & Misc Structure	T-286.48S00X	Design (Redeck ramp Bridge EB-541)	0	0	318,270	655,636	2,025,916	3,130,040	0	0	0	0	6,129,862
Highway	Bridge,Tunnels & Misc Structure	T-290.32S00X	MP 290.32 EB-550 Overhead Replacement	0	0	0	437,091	787,856	579,637	1,910,484	7,379,243	0	0	11,094,311
Highway	Bridge,Tunnels & Misc Structure	T-336.53S002	Elimination of Bridge DB-132 MP 336.53	20,000	103,000	0	0	0	0	0	0	0	0	123,000
Highway	Bridge,Tunnels & Misc Structure	T-347.60S001	MP 347.60 DB-207 Overhead Replacement	30,000	103,000	0	327,818	562,754	579,637	477,621	0	0	0	2,080,830
Highway	Bridge,Tunnels & Misc Structure	T-348.25S001	MP 348.25 DB-210 Overhead Replacement ca	180,000	309,000	530,450	546,364	337,653	0	0	0	0	0	1,903,466
Highway	Bridge,Tunnels & Misc Structure	T-349.38S001	MP 349.38 DB-213 Overhead Replacement	30,000	103,000	0	0	0	347,782	597,026	614,937	633,385	0	2,326,130
Highway	Bridge,Tunnels & Misc Structure	T-349.56S001	Elimination of Bridge DB-214 MP 349.56	40,000	0	0	0	0	0	0	0	0	0	40,000
Highway	Bridge,Tunnels & Misc Structure	T-359.00S002	Delaware River Bridge Replacement	0	0	0	0	0	0	0	0	0	0	0
Highway	Bridge,Tunnels & Misc Structure	Result		68,476,640	77,790,750	79,917,597	48,254,824	57,794,877	64,165,820	76,240,239	78,527,446	80,503,239	94,843,963	726,515,396
Highway	Total Reconstruction	A-031.00T001	MP A31-A38 Total Reconstruction	75,790,000	40,005,200	16,390,905	0	0	0	0	0	0	0	132,186,105
Highway	Total Reconstruction	A-037.50T001	MP A38-A44 Total Reconstruction	7,335,000	7,132,588	16,125,680	41,982,571	46,055,821	82,888,096	59,105,589	0	0	0	260,625,345
Highway	Total Reconstruction	A-044.00T001	MP A44-A48 Total Reconstruction	3,000,000	309,000	641,845	5,896,420	56,275	0	0	0	0	0	9,903,540
Highway	Total Reconstruction	A-048.00T001	MP A48-A53 Total Reconstruction	2,200,000	1,648,000	5,887,995	4,753,362	2,813,772	2,318,548	1,791,078	614,937	0	0	22,027,693
Highway	Total Reconstruction	A-053.00T001	MP A53-A57 Total Reconstruction	2,200,000	1,030,000	2,355,198	10,446,470	19,021,099	8,114,919	7,235,957	3,197,672	8,360,683	1,043,819	63,005,816
Highway	Total Reconstruction	EN-00040	Design Management -Total Reconstructions	3,600,000	3,399,000	3,500,970	3,605,999	3,714,179	3,825,604	3,940,373	4,058,584	4,180,341	4,305,752	38,130,802
Highway	Total Reconstruction	EN-00048	Total Reconstructions - Systemwide	0	0	0	0	0	0	173,137,583	266,882,629	305,291,590	309,231,245	1,054,543,046
Highway	Total Reconstruction	T-028.45T001	MP 28 - 31 Total Reconstruction	3,548,000	30,422,389	34,664,908	9,014,998	0	0	0	0	0	0	77,650,294
Highway	Total Reconstruction	T-040.00T001	MP 40-48 Total Reconstruction	11,962,000	0	0	0	0	0	0	0	0	0	11,962,000
Highway	Total Reconstruction	T-049.00T001	MP 49-53 Total Reconstruction	4,086,000	5,634,100	2,482,506	1,092,727	2,251,018	3,477,822	1,552,268	0	0	0	20,576,441
Highway	Total Reconstruction	T-053.00T001	MP 53-57 Total Reconstruction	9,237,500	7,502,723	6,635,930	1,092,727	2,251,018	2,318,548	1,552,268	0	0	0	30,590,713
Highway	Total Reconstruction	T-057.00T001	MP 57 - 67 Total Reconstruction	3,270,000	2,039,400	0	0	0	0	0	0	0	0	5,309,400
Highway	Total Reconstruction	T-099.00T002	MP 99-109 Total Reconstruction	5,937,000	44,599,000	50,180,570	41,113,853	0	0	0	0	0	0	141,830,423



Program	Program Category	Project	Project Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Overall Result
Highway	Total Reconstruction	T-129.00T001	MP 128-134 Total Reconstruction	1,100,000	927,000	5,909,213	60,154,621	61,902,985	51,008,059	0	0	0	0	181,001,878
Highway	Total Reconstruction	T-149.50T002	MP 149-155 Total Reconstruction	2,873,700	540,750	0	0	0	0	0	0	0	0	3,414,450
Highway	Total Reconstruction	T-179.50T001	MP 180-186 Total Reconstruction	0	0	0	0	0	0	0	0	0	0	0
Highway	Total Reconstruction	T-202.00T001	MP 202-206 Total Reconstruction(Constr)	414,000	0	0	0	0	0	0	0	0	0	414,000
Highway	Total Reconstruction	T-298.00T001	MP 298-302 Total Reconstruction	840,000	1,030,000	1,676,222	5,452,708	1,553,202	6,642,640	9,994,218	3,443,647	0	0	30,632,637
Highway	Total Reconstruction	T-302.00T001	MP 302-308 Total Reconstruction	660,000	2,377,240	5,102,929	6,763,980	1,125,509	1,159,274	2,591,093	2,459,748	0	0	22,239,773
Highway	Total Reconstruction	T-308.00T001	MP 308-312 Total Reconstruction	5,055,000	6,035,800	7,611,958	0	0	0	0	0	0	0	18,702,758
Highway	Total Reconstruction	T-312.00T003	MP 312-320 Total Reconstruction	2,975,000	2,060,000	3,511,579	0	0	0	0	0	0	0	8,546,579
Highway	Total Reconstruction	T-319.00T001	MP 320-326 Total Reconstruction	2,350,000	0	0	0	0	0	0	0	0	0	2,350,000
Highway	Total Reconstruction	Result		148,433,200	156,692,190	162,678,406	191,370,438	140,744,877	161,753,512	260,900,427	280,657,216	317,832,613	314,580,815	2,135,643,693
Highway	Interchanges	A-115.70P001	Scranton Beltway	2,700,000	2,575,000	1,060,900	87,418,160	56,275,441	16,229,837	0	0	0	0	166,259,338
Highway	Interchanges	EN-00061	VC Rehabilitations - Systemwide	5,000	10,300	10,609	10,927	11,255	11,593	11,941	12,299	12,668	13,048	109,639
Highway	Interchanges	EN-00115	Cashless Tolling Conversion	18,228,000	54,847,500	75,132,938	43,162,717	74,171,031	46,486,890	56,836,889	40,093,888	18,494,843	3,131,456	430,586,152
Highway	Interchanges	EN-00143	Mid-County to Bensalem Feasibility Study	440,000	0	0	0	0	0	0	0	0	0	440,000
Highway	Interchanges	EN-00232	DB Fiber Network Project	11,950,000	56,135,000	48,801,400	0	0	0	0	0	0	0	116,886,400
Highway	Interchanges	T-331.60P002	Lafayette Street Interchange at MP331.60	1,030,000	906,400	1,379,170	710,273	2,588,670	34,778,222	29,851,307	6,149,369	0	0	77,393,412
Highway	Interchanges	T-355.00P001	I-95 VC - Stage 1	13,575,000	3,563,800	1,220,035	1,147,363	1,181,784	1,217,238	1,253,755	1,291,368	1,330,109	65,239	25,845,690
Highway	Interchanges	T-355.00P002	I-95 VC - Stage 2	7,645,000	9,589,300	39,571,570	27,427,448	52,673,812	48,573,584	7,641,935	5,165,470	5,320,434	0	203,608,553
Highway	Interchanges	Result		55,573,000	127,627,300	167,176,622	159,876,887	186,901,993	147,297,364	95,595,827	52,712,394	25,158,054	3,209,742	1,021,129,183
Highway	Highway Miscellaneous	A-020.00M001	TEOITS MP A20-A131 DMS Pre-entry	1,656,831	1,033,264	0	0	0	0	0	0	0	0	2,690,095
Highway	Highway Miscellaneous	A-056.00M001	TEOITS DMS Pre-Entry A56-A95 & PennDOT D5	648,514	1,751,000	636,540	0	0	0	0	0	0	0	3,036,054
Highway	Highway Miscellaneous	A-070.26M001	TEOTEC Lehigh Tunnel Traffic Management	0	257,500	212,180	0	0	0	0	0	0	0	469,680
Highway	Highway Miscellaneous	EN-00031	TEOENG Systemwide Traffic Studies	1,800,000	1,328,700	1,304,907	1,147,363	1,181,784	1,217,238	1,253,755	1,291,368	1,330,109	1,370,012	13,225,235
Highway	Highway Miscellaneous	EN-00037	PLN PennDOT/Agency Coordination	530,000	463,500	477,405	491,727	506,479	521,673	537,324	553,443	570,047	587,148	5,2

FY 2020 Ten Year Capital Plan (YOE)														
Program	Program Category	Project	Project Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Overall Result
Highway	Highway Miscellaneous	EN-00220	TEOITS Truck Parking - Federal Funds	1,800,000	597,400	0	0	0	0	0	0	0	0	2,397,400
Highway	Highway Miscellaneous	EN-00221	STEMS4 FY18 Stormwater Projects	240,000	20,600	0	0	0	0	0	0	0	0	260,600
Highway	Highway Miscellaneous	EN-00227	TEOENG PTC Probe Data	301,600	311,060	77,075	0	0	0	0	0	0	0	689,735
Highway	Highway Miscellaneous	EN-00228	TEOITS System Software Support	15,000	0	0	0	0	0	0	0	0	0	15,000
Highway	Highway Miscellaneous	EN-00230	CON Systemwide Engineering Automation	1,741,500	3,728,600	2,302,153	4,010,308	4,783,412	3,477,822	2,388,105	2,459,748	0	0	24,891,644
Highway	Highway Miscellaneous	EN-00235	STE Systemwide Planning	0	566,500	583,495	3,769,908	3,883,005	3,999,496	4,119,480	4,243,065	4,370,357	4,501,467	30,036,774
Highway	Highway Miscellaneous	EN-00236	STEDSW Drainage/Stormwater Projects FY19	720,000	0	0	0	0	0	0	0	0	0	720,000
Highway	Highway Miscellaneous	EN-00237	GEO Geotechnical Projects - FY20-FY21	393,400	219,802	316,573	0	0	0	0	0	0	0	929,775
Highway	Highway Miscellaneous	EN-00238	STETRE Tree Clearing FY19	746,000	0	0	0	0	0	0	0	0	0	746,000
Highway	Highway Miscellaneous	EN-00239	PLN FY19 GCE Engineer Services	700,000	0	0	0	0	0	0	0	0	0	700,000
Highway	Highway Miscellaneous	EN-00240	PLN FY19-24 Systemwide Transp Planning	750,000	1,081,500	5,834,950	546,364	0	0	0	0	0	0	8,212,814
Highway	Highway Miscellaneous	EN-00246	TEOTEC Auto WZ Speed Enforcement Pilot	2,370,326	515,000	0	0	0	0	0	0	0	0	2,885,326
Highway	Highway Miscellaneous	EN-00248	TEOENG FY19-23 Traffic Eng Studies	960,000	0	0	0	0	0	0	0	0	0	960,000
Highway	Highway Miscellaneous	EN-00249	PLN FY20 GCE Engineer Services	4,000,000	566,500	0	0	0	0	0	0	0	0	4,566,500
Highway	Highway Miscellaneous	EN-00X7	STEDSW Drainage/Stormwater FY20-21	620,000	103,000	0	0	0	0	0	0	0	0	723,000
Highway	Highway Miscellaneous	EN-00XX8	STETRE Tree Clearing FY20	270,000	66,950	0	0	0	0	0	0	0	0	336,950
Highway	Highway Miscellaneous	EN-00XX9	STEAPM FY2020 Acquired Property Maint	51,000	0	0	0	0	0	0	0	0	0	51,000
Highway	Highway Miscellaneous	EN-00X10	TEOENG Sign Structure Replacement	100,000	103,000	0	0	0	0	0	0	0	0	203,000
Highway	Highway Miscellaneous	EN-00X11	TEOENG Mainline Sign Structure Replacement	0	0	2,143,018	2,207,309	0	0	0	0	0	0	4,350,327
Highway	Highway Miscellaneous	EN-00X12	TEOENG Wrong Way Study Implementation	100,000	103,000	0	0	0	0	0	0	0	0	203,000
Highway	Highway Miscellaneous	EN-00X13	TEOENG Carlisle I/C Signage and Pavement	270,000	780,225	0	0	0	0	0	0	0	0	1,050,225
Highway	Highway Miscellaneous	EN-00X14	TEOITS Western ITS Gaps	200,000	412,000	2,333,980	2,403,999	0	0	0	0	0	0	5,349,979
Highway	Highway Miscellaneous	EN-00X15	TEOITS 100-300 ITS Gaps	200,000	206,000	1,867,184	1,202,000	0	0	0	0	0	0	3,475,184
Highway	Highway Miscellaneous	EN-00X16	TEOITS Eastern ITS Gaps (D4-D5)	200,000	412,000	2,333,980	2,403,999	0	0	0	0	0	0	5,349,979
Highway	Highway Miscellaneous	EN-00X17	DSN Eng Autom/PAMS Systemwide FY20-21	1,361,000	1,606,800	0	0	0	0	0	0	0	0	2,967,800
Highway	Highway Miscellaneous	EN-00X18	STEMS4 MS4 FY20-21	1,000,000	1,030,000	212,180	0	0	0	0	0	0	0	2,242,180
Highway	Highway Miscellaneous	EN-00X19	TEOTEC WZ Lane Reservation System	100,000	412,000	0	0	0	0	0	0	0	0	512,000
Highway	Highway Miscellaneous	EN-00X20	TEOTEC SOG overhaul	90,000	0	0	0	0	0	0	0	0	0	90,000
Highway	Highway Miscellaneous	EN-00X21	CON Construction Engineering Automation	0	0	212,180	218,545	1,012,958	1,043,347	2,865,726	2,951,697	5,573,788	5,741,002	19,619,243
Highway	Highway Miscellaneous	T-010.00M001	TEOITS MP 10-201 DMS Pre-entry	2,227,708	0	0	0	0	0	0	0	0	0	2,227,708
Highway	Highway Miscellaneous	T-122.18M001	TEOTEC Allegheny/Blue Kit Tunnel TM	0	309,000	318,270	0	0	0	0	0	0	0	627,270
Highway	Highway Miscellaneous	T-186.20M001	TEOTEC Tuscarora Tunnel TM	460,000	0	0	0	0	0	0	0	0	0	460,000
Highway	Highway Miscellaneous	Result		38,403,879	29,492,290	34,318,047	38,000,019	37,969,490	37,659,482	39,350,471	40,530,985	28,825,860	29,690,636	354,241,158
Highway	Result			480,939,219	513,268,190	484,592,652	500,262,943	515,095,185	517,598,949	547,980,928	561,837,621	559,184,490	533,254,798	5,214,014,974
FEMO	Re-capitalization	EN-00209	Communications Tower Inspection & Repair	1,365,000	185,400	190,962	196,691	202,592	208,669	214,929	221,377	228,019	234,859	3,248,498
FEMO	Re-capitalization	T-343.00F001	Construct Willow Grove Comm Tower	100,000	0	0	0	0	0	0	0	0	0	100,000
FEMO	Re-capitalization	Result		1,465,000	185,400	190,962	196,691	202,592	208,669	214,929	221,377	228,019	234,859	3,348,498
FEMO	Sustainment	A-070.26F003	Lehigh Tunnel Lighting Upgrades	200,000	0	0	0	0	0	0	0	0	0	200,000
FEMO	Sustainment	EN-00009	Replace Generators at Various Locations	1,280,000	113,300	763,848	786,763	810,366	834,677	859,718	885,509	912,074	939,437	8,185,693
FEMO	Sustainment	EN-00021	Facility Repairs	0	0	0	0	0	0	0	0	0	0	0
FEMO	Sustainment	EN-00135	Gate Access Control System - Systemwide	200,000	0	0	0	0	0	0	0	0	0	200,000
FEMO	Sustainment	EN-00210	Facility Security - Systemwide	1,240,000	2,678,000	254,616	262,254	270,122	278,226	286,573	295,170	304,025	313,146	6,182,131
FEMO	Sustainment	EN-00211	FY 17-21 Maintenance & Improvements	3,480,000	2,111,500	0	0	0	0	0	0	0	0	5,591,500
FEMO	Sustainment	EN-00212	Future Year Maintenance & Improvements	0	0	0	0	0	0	0	8,117,168	8,360,683	8,611,503	25,089,353
FEMO	Sustainment	EN-00213	FY17-21 Furniture, Fixtures & Equipment	300,000	309,000	0	0	0	0	0	0	0	0	609,000
FEMO	Sustainment	EN-00214	Future Year Furniture, Fixtures & Eqpmnt	0	0	0	0	0	0	0	368,962	380,031	391,432	1,140,425
FEMO	Sustainment	EN-00241	FY 19-23 Facility Repairs	2,550,000	360,500	2,599,205	2,677,181	0	0	0	0	0	0	8,186,886





Program	Program Category	Project	Project Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Overall Result
FEMO	Sustainment	EN-00242	FY 22-26 Maintenance & Improvements	0	0	6,365,400	6,556,362	7,428,358	7,651,209	7,880,745	0	0	0	35,882,074
FEMO	Sustainment	EN-00243	FY 22-26 Furniture, Fixtures & Equipment	0	0	318,270	327,818	337,653	347,782	358,216	0	0	0	1,689,739
FEMO	Sustainment	EN-00244	FY 24-28 Facility Repairs	0	0	0	0	2,757,497	2,840,221	2,925,428	3,013,191	3,103,587	6,589,105	21,229,028
FEMO	Sustainment	Result		9,250,000	5,572,300	10,301,339	10,610,379	11,603,996	11,952,116	12,310,679	12,680,000	13,060,400	16,844,622	114,185,830
FEMO	Compliance	EN-00087	General Fund--Current FY	1,025,001	0	0	0	0	0	0	0	0	0	1,025,001
FEMO	Compliance	EN-00247	Facility Environmental Compliance	2,694,999	1,133,000	4,068,552	4,059,481	3,866,123	3,999,496	4,400,083	4,550,533	4,687,049	4,827,661	38,286,976
FEMO	Compliance	Result		3,720,000	1,133,000	4,068,552	4,059,481	3,866,123	3,999,496	4,400,083	4,550,533	4,687,049	4,827,661	39,311,977
FEMO	New Energy Initiative	EN-00065	PSU Energy and Facility Assessment Prog	537,936	554,074	570,696	587,817	605,452	623,615	642,324	661,593	681,441	701,884	6,166,833
FEMO	New Energy Initiative	EN-00101	Energy Conservation Initiatives	375,000	103,000	397,838	409,773	422,066	434,728	447,770	461,203	475,039	489,290	4,015,705
FEMO	New Energy Initiative	EN-00102	Green Power Initiatives	1,200	1,236	1,273	1,311	1,351	1,391	1,433	1,476	1,520	1,566	13,757
FEMO	New Energy Initiative	EN-00122	Electric Vehicle Charging Stations	24,000	0	0	0	0	0	0	0	0	0	24,000
FEMO	New Energy Initiative	EN-00169	Building Automation System Controls	600,000	103,000	636,540	655,636	337,653	231,855	238,810	245,975	253,354	260,955	3,563,778
FEMO	New Energy Initiative	EN-00215	Roadway Lighting Replacements Systemwide	480,000	103,000	509,232	524,509	540,244	556,452	573,145	590,339	608,050	626,291	5,111,262
FEMO	New Energy Initiative	T-122.18F004	Allegheny Tunnel Lighting Replacement	4,350,000	9,064,000	0	0	0	0	0	0	0	0	13,414,000
FEMO	New Energy Initiative	Result		6,368,136	9,928,310	2,115,579	2,179,046	1,906,765	1,848,041	1,903,482	1,960,586	2,019,404	2,079,986	32,309,334
FEMO	Facilities Design	A-070.60F001	Eastern Region Training Facility	850,000	772,500	0	0	0	0	0	0	0	0	1,622,500
FEMO	Facilities Design	EN-00121	Repair High Mast Lighting -Various Sites	120,000	103,000	254,616	262,254	270,122	278,226	286,573	295,170	304,025	313,146	2,487,131
FEMO	Facilities Design	EN-00191	East Park Drive - EZPass CSC/VPS	0	0	0	0	0	0	0	0	0	0	0
FEMO	Facilities Design	EN-00216	Future Year Maintenance Shed Replacement	0	10,300	10,609	15,407,451	8,441,316	10,549,394	16,716,732	8,732,104	17,101,396	12,525,823	89,495,125
FEMO	Facilities Design	EN-00217	FY 18-22 Design/Construction Projects	8,130,000	1,828,250	2,522,797	0	0	0	0	0	0	0	12,481,047
FEMO	Facilities Design	EN-00218	Future Year Design/Const Projects	0	0	0	4,589,453	3,609,456	6,376,007	12,537,549	10,453,928	11,400,931	9,785,799	58,753,123
FEMO	Facilities Design	T-316.30F001	Devault Maintenance Renovations	0	0	0	0	0	0	0	0	0	0	0
FEMO	Facilities Design	T-316.89F001	New Devault Maintenance Facility	2,000,000	2,678,000	14,852,600	3,278,181	0	0	0	0	0	0	22,808,781
FEMO	Facilities Design	T-333.59F001	Relocate Plymouth Meeting Maintenance Se	15,000	0	0	0	0	0	0	0	0	0	15,000
FEMO	Facilities Design	T-288.33XXXX	New Bowmansville Maintenance Facility	300,000	927,000	636,540	1,311,272	2,926,323	3,593,750	0	0	0	0	9,694,885
FEMO	Facilities Design	T-063.22XXXX	New Harrison City Maintenance Facility	50,000	206,000	0	0	0	0	0	0	0	0	256,000
FEMO	Facilities Design	Result		11,465,000	6,525,050	18,277,162	24,848,612	15,247,217	20,797,377	29,540,854	19,481,202	28,806,352	22,624,767	197,613,592
FEMO	Result			32,268,136	23,344,060	34,953,593	41,894,209	32,826,692	38,805,698	48,370,027	38,893,698	48,801,223	46,611,895	386,769,232
Fleet Equipment	Fleet Equipment	FE-2020	Fleet Equipment FY2020	14,000,000	0	0	0	0	0	0	0	0	0	14,000,000
Fleet Equipment	Fleet Equipment	FE-2021	Fleet Equipment FY2021	0	14,420,000	0	0	0	0	0	0	0	0	14,420,000
Fleet Equipment	Fleet Equipment	FE-2022	Fleet Equipment FY2022	0	0	14,852,600	0	0	0	0	0	0	0	14,852,600
Fleet Equipment	Fleet Equipment	FE-2023	Fleet Equipment FY2023	0	0	0	15,298,178	0	0	0	0	0	0	15,298,178
Fleet Equipment	Fleet Equipment	FE-2024	Fleet Equipment FY2024	0	0	0	0	15,757,123	0	0	0	0	0	15,757,123
Fleet Equipment	Fleet Equipment	FE-2025	Fleet Equipment FY2025	0	0	0	0	0	17,389,111	0	0	0	0	17,389,111
Fleet Equipment	Fleet Equipment	FE-2026	Fleet Equipment FY 2026	0	0	0	0	0	0	17,910,784	0	0	0	17,910,784
Fleet Equipment	Fleet Equipment	FE-2027	Fleet Equipment FY 2027	0	0	0	0	0	0	0	18,448,108	0	0	18,448,108
Fleet Equipment	Fleet Equipment	FE-2028	Fleet Equipment FY 2028	0	0	0	0	0	0	0	0	19,001,551	0	19,001,551
Fleet Equipment	Fleet Equipment	FE-2029	Fleet Equipment FY 2028	0	0	0	0	0	0	0	0	0	19,571,598	19,571,598
Fleet Equipment	Fleet Equipment	Result		14,000,000	14,420,000	14,852,600	15,298,178	15,757,123	17,389,111	17,910,784	18,448,108	19,001,551	19,571,598	166,649,054
Fleet Equipment	Result			14,000,000	14,420,000	14,852,600	15,298,178	15,757,123	17,389,111	17,910,784	18,448,108	19,001,551	19,571,598	166,649,054
Technology	Functional Business Software	IT-00113	Geo-Analytics Planning - FY19-26	0	0	3,500,970	3,605,999	1,463,161	1,507,056	1,552,268	1,598,836	1,646,801	1,696,205	16,571,297
Technology	Functional Business Software	IT-00114	Ent/Bus Solutions Planning - FY19-26	0	0	1,909,620	1,966,909	900,407	927,419	955,242	983,899	1,013,416	2,348,592	11,005,504
Technology	Functional Business Software	IT-00115	Tech and Innov Mgmt Planning - FY19-26	0	0	1,697,440	1,748,363	675,305	695,564	716,431	737,924	760,062	2,087,637	9,118,782
Technology	Functional Business Software	IT-00119	GeoAnalytics Portfolio FY2018	34,812	0	0	0	0	0	0	0	0	0	34,812
Technology	Functional Business Software	IT-00120	Enterprise/Business Solutions FY2018	4,052,474	1,081,500	0	0	0	0	0	0	0	0	5,133,974
Technology	Functional Business Software	IT-00125	GeoAnalytics Portfolio FY2019	1,557,918	0	0	0	0	0	0	0	0	0	1,557,918
Technology	Functional Business Software	IT-00127	Tech and Innovation Mgmt Portfolio FY19	609,845	0	0	0	0	0	0	0	0	0	609,845





# FY 2020 Ten Year Capital Plan (YOE)

Program	Program Category	Project	Project Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Overall Result
Technology	Functional Business Software	IT-00128	Enterprise/Business Solutions FY19	1,189,079	0	0	0	0	0	0	0	0	0	1,189,079
Technology	Functional Business Software	IT-00133	Enterprise/Business Solutions FY20-21	2,034,970	1,725,250	0	0	0	0	0	0	0	0	3,760,220
Technology	Functional Business Software	IT-00134	Tech and Innovation Mgmt Portfolio FY20-21	2,241,613	1,133,000	2,227,890	2,677,181	2,757,497	3,072,076	3,401,855	3,248,097	1,508,723	1,409,286	23,677,217
Technology	Functional Business Software	IT-00135	GeoAnalytics FY20-21	3,677,284	1,030,000	0	0	0	0	0	0	0	0	4,707,284
Technology	Functional Business Software	Result		15,397,994	4,969,750	9,335,920	9,998,452	5,796,370	6,202,116	6,625,796	6,568,756	4,929,002	7,541,719	77,365,877
Technology	Infrastructure HW / SW	IT-00116	Enterprise Infrastr Planning - FY19-26	0	0	2,121,800	2,185,454	3,376,526	3,477,822	3,582,157	3,689,622	3,800,310	3,653,365	25,887,056
Technology	Infrastructure HW / SW	IT-00117	Intelligent Com Sys Planning - FY19-26	0	0	3,421,403	3,524,045	3,629,766	3,738,659	3,850,819	3,966,343	3,494,901	5,741,002	31,366,937
Technology	Infrastructure HW / SW	IT-00118	Security & Risk Mgmt Planning - FY19-26	0	0	530,450	546,364	562,754	579,637	597,026	614,937	633,385	652,387	4,716,940
Technology	Infrastructure HW / SW	IT-00126	Security & Risk Mgmt Portfolio FY19	540,850	0	0	0	0	0	0	0	0	0	540,850
Technology	Infrastructure HW / SW	IT-00129	Enterprise Infrastr Portfolio FY19	1,095,000	0	0	0	0	0	0	0	0	0	1,095,000
Technology	Infrastructure HW / SW	IT-00130	Intelligent Comm Sys Portfolio FY19	121,600	0	0	0	0	0	0	0	0	0	121,600
Technology	Infrastructure HW / SW	IT-00136	Tech Infrastructure FY20-21	4,995,156	7,416,000	0	0	0	0	0	0	0	0	12,411,156
Technology	Infrastructure HW / SW	IT-00137	Security & Risk Mgmt FY20-21	249,400	515,000	0	0	0	0	0	0	0	0	764,400
Technology	Infrastructure HW / SW	Result		7,002,006	7,931,000	6,073,653	6,255,862	7,569,047	7,796,118	8,030,002	8,270,902	7,928,596	10,046,754	76,903,939
Technology	Toll Collection / Operations	IT-00111	FCS Develop/Software/Hardware Support	0	0	0	0	0	0	0	0	0	0	0
Technology	Toll Collection / Operations	IT-00132	ETC Innovations, Adds, Changes Portfolio	2,600,000	2,935,500	3,023,565	2,731,818	2,813,772	2,666,330	2,746,320	2,828,710	380,031	0	22,726,046
Technology	Toll Collection / Operations	Result		2,600,000	2,935,500	3,023,565	2,731,818	2,813,772	2,666,330	2,746,320	2,828,710	380,031	0	22,726,046
Technology	Result			25,000,000	15,836,250	18,433,138	18,986,132	16,179,189	16,664,565	17,402,118	17,668,368	13,237,630	17,588,473	176,995,862
Overall Result				552,207,355	566,868,500	552,831,982	576,441,462	579,858,190	590,458,323	631,663,857	636,847,795	640,224,894	617,026,764	5,944,429,121

# APPENDIX O

---

## Demarcation Sites and Requirements



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

APPENDIX O - DEMARCATION SITES AND REQUIREMENTS

Demarcation Site #	Mile Marker (see Note 5)		Site Description	Fiber termination Building Name	Fiber termination Building Latitude:	Fiber termination Building Longitude:	Number of Racks (24" x 24") Required	Plans &/or Photos Provided?	Future Cashless Tolling Point	AET in Place Site	Existing Tolling Point	Tunnel	Maint. Facility	Admin. Building	End Point of Turnpike Section	N/W Backbone HUB location	Backbone Fiber Terminations (__ of 144) (See Notes 2, 3, 4)				Distribution Fiber Terminations (__ of 144) (See Notes 2, 3, 4)			
								50.5	20	20	21	0.5	7	2	3	12	N	S	E	W	N	S	E	W
MAINLINE: TIP TO DRB																								
53	T	247.3	Turnpike Industrial Building (TIP)	TIP	40.21633	-76.78505	2 - space has been identified	YES						X		X			24				72	
54	T	265.5	Mt. Gretna Maint.	Miller Building	40.22802	-76.45274	2 - space has been identified	YES					X			X			24	24			72	72
55	T	266.4	Lebanon-Lancaster Interchange	Interchange	40.23268	-76.43599	2 - space has been identified	YES		X	X						n/a						12	12
56	T	286.1	Reading Interchange	Interchange	40.21443	-76.08325	2 - space has been identified	YES		X	X						n/a						12	12
57	T	290.7	Toll Segment T286-T298		40°11'38.47"N	76° 0'18.10"W	2 -New PTC Building	New Bldg.	X								n/a						12	12
58	T	288.3	Bowmansville Maint.	Miller Building	40.21081	-76.04183	2 - space has been identified	YES					X			X			24	24			72	72
58.5	T	298.3	Morgantown Interchange	Interchange	40.161567	-75.882958	2 - space has been identified	YES		X	X												12	12
59	T	309.8	Toll Segment T298-T312		40° 4'46.60"N	75°42'13.75"W	2 - New PTC Building	New Bldg.	X								n/a						12	12
59.5	T	311.9	Downingtown Interchange	Interchange	40.066139	-75.669421	2 - space has been identified	YES		X	X												12	12
60	T	312.7	Toll Segment T312-T320		40° 3'55.04"N	75°39'17.75"W	2 - New PTC Building	New Bldg.	X								n/a						12	12
61	T	317.0	Valley Forge Tower (substitute for Devault Maintenance)	Existing Miller Building at Tower Site (currently used for IT communications)	40.07033	-75.570972	2 - space has been identified	YES								X			24	24			72	72
62	T	319.5	Route 29 Slip Ramp (Toll Segment T320-T326)	Morehall Road Entry Building	40.072464	-75.534133	Existing racks with 75% free space will be utilized	YES	X	X	X						n/a						12	12
62.5	T	326.6	Valley Forge Interchange	Interchange Tower Miller Building	40.087451	-75.403593	2 - space has been identified	YES		X	X												12	12
63	T	330.2	Eastern Regional Office (&476 connection location)	ERO	40.09576	-75.34262	2 - space has been identified	YES						X			n/a						12	12
64	T	330.5	Toll Segment T326-T331		40°5'55.92"N	75°20'13.82"W	2 -New PTC Building	New Bldg.	X								n/a						12	12
64.1	T	332.5	District 4 Trades	District 4 Trades Warehouse	40.10703	-75.30342	2 - space has been identified	YES									n/a						12	12
64.2	T	332.8	Toll Segment T331-333		40°06'32.1"N	75°17'49.1"W	2 - New PTC Building	New Bldg.	X								n/a						12	12
81	T	333.3	Plymouth Meeting Maint./ Norristown Interchange (Mainline & 476 Connection Location; See Note 1)	Maintenance Building	40.11071	-75.2858	2 - space has been identified	YES		X	X		X		X (476)	X	24		24	24	72		108	72
82	T	336.2	Toll Segment T333-T339		40°07'23.6"N	75°14'09.4"W	2 - New PTC Building	New Bldg.	X								n/a						12	12
82.2	T	338.3	Fort Washington Interchange	Interchange	40.133952	-75.196950	2 - space has been identified	YES		X	X												12	12
82.1	T	339.9	Virginia Drive Slip Ramp	Entry Ramp Building	-75.171972	40.138483	2 - space has been identified	YES		X	X						n/a						12	12
83	T	341.3	Toll Segment T339-T343		40°09'00.4"N	75°08'51.9"W	2 - New PTC Building	New Bldg.	X								n/a						12	12
83.5	T	342.8	Willow Grove Interchange	Interchange	40.163437	-75.121326	2 - space has been identified	YES		X	X												12	12
84	T	348.7	Toll Segment T343-T351		40°08'54.3"N	75°01'00.9"W	2 - New PTC Building	New Bldg.	X								n/a						12	12
84.2	T	351.5	Bensalem Interchange	Interchange	40.132698	-74.969164	2 - space has been identified	YES		X	X												12	12
84.1	T	351.8	Street Road Slip Ramp	Exit Ramp Building	40.128392	-74.963083	2 - space has been identified	YES		X	X						n/a						12	12
85	T	353.1	Trevose Maint.	Miller Building	40.12667	-74.94032	2 - space has been identified	YES					X			X			0	24			36	108

APPENDIX O - DEMARCATION SITES AND REQUIREMENTS

Demarcation Site #	Mile Marker (see Note 5)		Site Description	Fiber termination Building Name	Fiber termination Building Latitude:	Fiber termination Building Longitude:	Number of Racks (24" x 24") Required	Plans &/or Photos Provided?	Future Cashless Tolling Point	AET in Place Site	Existing Tolling Point	Tunnel	Maint. Facility	Admin. Building	End Point of Turnpike Section	N/W Backbone HUB location	Backbone Fiber Terminations (__ of 144) (See Notes 2, 3, 4)				Distribution Fiber Terminations (__ of 144) (See Notes 2, 3, 4)			
								50.5	20	20	21	0.5	7	2	3	12	N	S	E	W	N	S	E	W
86	T	352.7	Toll Segment T351-T358	Neshaminy Falls Existing Toll Building	40°07'40.5"N	74°56'52.9"W	Need to Identify space for 2 racks	YES	X	X	X						n/a						12	12
87	T	358.2	Delaware River Bridge Open Road Gantry	Roadway Endpoint	40.121396	-74.845265	2 - space has been identified	YES		X	X				X (T)		n/a							12

APPENDIX O - DEMARCATION SITES AND REQUIREMENTS

Demarcation Site #	Mile Marker (see Note 5)		Site Description	Fiber termination Building Name	Fiber termination Building Latitude:	Fiber termination Building Longitude:	Number of Racks (24" x 24") Required	Plans &/or Photos Provided?	Future Cashless Tolling Point	AET in Place Site	Existing Tolling Point	Tunnel	Maint. Facility	Admin. Building	End Point of Turnpike Section	N/W Backbone HUB location	Backbone Fiber Terminations (__ of 144) (See Notes 2, 3, 4)				Distribution Fiber Terminations (__ of 144) (See Notes 2, 3, 4)			
								50.5	20	20	21	0.5	7	2	3	12	N	S	E	W	N	S	E	W
NORTHEAST EXTENSION																								
81	T	333.3	Plymouth Meeting Maint. / Norristown Interchange (Mainline & 476 Connection Location; See Note 1)	Maintenance Building	40.11071	-75.2858	2 - space has been identified	YES		X	X		X		X (476)	X	24		24	24	72		72	72
66	A	27.4	Toll Segment A20-A31		40°12'45.1"N	75°19'31.2"W	2 -New PTC Building	New Bldg.	X								n/a				12	12		
66.5	A	30.1	Lansdale Interchange	Interchange	40.249168	-75.344201	2 - space has been identified	YES		X	X										12	12		
67	A	30.8	Toll Segment A31-A44		40°15'31.0"N	75°21'03.8"W	2 - New PTC Building	New Bldg.	X								n/a				12	12		
68	A	43.7	Quakertown Maint.	Interchange	40.43609	-75.42388	2 - space has been identified	YES					X			X	24	24			72	72		
69	A	44.8	Toll Segment A44-A56		40°26'55.6"N	75°26'05.4"W	2 - New PTC Building	New Bldg.	X								n/a				12	12		
69.5	A	57.3	Lehigh Valley Interchange	Interchange	40.593704	-75.569720	2 - space has been identified	YES		X	X										12	12		
70	A	70.1	Slatington Maint.	Miller Building	40.76632	-75.64313	2 - space has been identified	YES					X			X	24	24			108	72		
70.6	A	70.6	Eastern Reg. Training Ctr.		40.7733	-75.6481	2 - space has been identified	YES									n/a				12	12		
70.7	A	70.7	Lehigh Tunnel South Portal		40.7738	-75.64971	Need to Identify space for 2 racks	YES				X					n/a				12	12		
71	A	70.1	Toll Segment A56-A74		40°45'53.4"N	75°38'34.6"W	2 - New PTC Building	New Bldg.	X								n/a				12	12		
71.5	A	75.7	Mahoning Valley Interchange	Miller Building	40.837118	-75.671508	2 - space has been identified	YES		X	X										12	12		
72	A	76.9	Toll Segment A74-A87		40°50'53.4"N	75°39'27.8"W	2 - New PTC Building	New Bldg.	X								n/a				12	12		
73	A	87.1	Rt. 903 Slip Ramp Toll Segment A87-A95	Existing Slip Ramp Building Southbound Entry Lane Building B (GPS location for Bldg D)	40.985189	-75.629683	2 - space has been identified	YES	X								n/a				12	12		
74	A	94.5	Pocono Maint.	Miller Building	41.07291	-75.70535	2 - space has been identified	YES					X			X	24	24			72	###		
75	A	99.1	Toll Segment A95-A105		41° 6'58.4"N	75°45'47.2"W	2 - New PTC Building	New Bldg.	X								n/a				12	12		
75.5	A	105.3	Wilkes-Barre Interchange	Miller Building	41.200299	-75.791844	2 - space has been identified	YES		X	X										12	12		
76	A	112.4	Wyoming Valley Toll Segment A105-A115	Existing Mainline Barrier Gantry Building	41°16'53.48"N	75°46'4.47"W	Need to Identify space for 2 racks	YES	X	X	X						n/a				12	12		
77	A	114.5	Wyoming Valley Maint.	Miller Building	41.30933	-75.75665	2 - space has been identified	YES					X			X	24	24			36	72		
78	A	121.2	Keyser Avenue Toll Segment A115-A122	Existing Mainline Barrier Gantry Building	41°23'3.08"N	75°43'42.55"W	2 - space has been identified	YES	X	X	X						n/a				12	12		
79	A	123.4	Toll Segment A122-A131		41°24'38.5"N	75°43'13.9"W	2 - New PTC Building	New Bldg.	X							X	0	24			12	12		
80	A	130.2	Clarks Summit (end 476)	Existing Mainline Barrier Gantry Building	41.48458	-75.68163	Needs FEMO input/ approval (See Word document in folder)	YES			X				X (476)		n/a					12		
									10	7	8	1	5											

NOTES:

1. Plymouth Meeting Maintenance is intentionally listed twice because it is a logical part of the Mainline segment and the starting point for Northeast Extension segment. Fiber terminations are NOT duplicative.
2. N denotes fibers generally heading North, S, generally headed South, W headed West, E headed East. 24 in the W column would denote 24 fibers heading west are terminated at the noted location. 0 Denotes No Backbone fibers are terminated at this location headed in the direction noted BUT the Backbone network DOES present itself at this location. N/A denotes the Backbone fiber does NOT present itself at this location. Exact fibers to be terminated will be determined / provided during design phase.
3. In all locations where terminations are required, a rack and termination panels, agreed upon by the Commission, shall be provided by the D/B Contractor at its expense to accommodate the fiber cable and terminations.
4. In all locations where terminations are required all fiber that enters the building / location shall be dressed and protected in a manner agreed upon by the Commission by the D/B Contractor at its expense.
5. Prefixes of Mile Markers: B=Beaver Valley Expressway; G=Amos K. Hutchinson Bypass; T=Mainline Turnpike; A=Northeast Extension; S=Southern Beltway; M=Mon-Fayette Expressway.
6. New PTC Building - PTC will be building a new toll segment building facility at this location to house fiber termination.

# APPENDIX P

---

## Independent Verification and Validation



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

## **1 Purpose**

The Parties (the Commission and the Proposer) shall engage an Independent Verification and Validation (IV&V) Vendor (“Independent Verifier”) on a quarterly basis and on an ad-hoc basis by the Commission’s request.

Generally, the purpose of the Independent Verifier shall be to perform objective evaluations to ensure services have been performed in accordance with contract requirements/applicable standards and to evaluate whether the contract achieves Commission objectives.

Verification shall be defined as determining whether the services and systems provided by the Proposer meet contract requirements, standards, and specifications.

Validation shall be defined as determining whether the services and systems provided by the Proposer achieves its intended purpose(s) and meets the needs/objectives of the Commission.

## **2 IV&V Requirements**

### **2.1 Costs**

The Proposer shall be responsible for all costs associated with the selection and engagement of the Independent Verifier.

### **2.2 Selection of the Independent Verifier**

The Proposer shall provide an Independent Verifier in accordance with this Appendix. The Proposer shall identify a proposed Independent Verifier within the Technical Proposal that meets or exceeds the requirements herein.

The Independent Verifier shall be subject to Commission review and approval prior to performing the responsibilities as described in this Appendix.

### **2.3 Experience of the Independent Verifier**

The Independent Verifier shall have demonstrated experience with:

- (a) the design, construction, and O&M of fiber optic broadband networks;
- (b) the O&M of fiber management systems (OSP Insight, etc.);
- (c) the planning and implementation of civil works projects along public rights-of-way; and
- (d) the analysis of critical path method schedules.

## **2.4 Neutral and Impartial**

Each employee of the Independent Verifier tasked with carrying out the services described herein shall be neutral, act impartially, and shall not:

- (a) have any ownership interest in any party involved in the Agreement, or a financial interest in the Agreement, except for payment for services provided pursuant to this task; provided that for purposes of determining conflicts of interests and disqualification, the term “employee” shall include the employee’s current primary or full-time employer, and “involved” shall mean having a contractual relationship with the Commission or the Proposer at any tier;
- (b) except for fee-based consulting services on other projects, have been previously employed by, or have had financial ties to, any party involved in the Agreement within a period of either (8) years prior to award of the Agreement;
- (c) have provided to either Party fee-based consulting services within two (2) years prior to award of the Project Agreement, where the consulting fees paid by that Party have exceeded 20% of that employee’s total consulting revenue in either year;
- (d) have had a close professional or personal relationship with any key member of any party involved in the Agreement which, in the judgement of either Party, could suggest partiality, or give an opportunity of impropriety;
- (e) have had prior involvement in the Project, of a nature which could compromise his or her ability to provide services as required;
- (f) be employed, including fee-based consulting services, by any party involved in the Agreement except with express approval of both Parties; and
- (g) while providing required services, engage in any discussion or make any agreement with any Party regarding employment after the Project is completed.

## **3 IV&V Responsibilities**

The Commission and the O&M and Commercialization Entity shall furnish the Independent Verifier with all pertinent documents and information which are or may become necessary for the Independent Verifier to perform its function.

The Independent Verifier shall be responsible to conduct IV&V utilizing industry best-practices in a four (4) phased approach. The four (4) phases of IV&V shall be:

1. Planning;
2. Review;
3. Assessment; and
4. Reporting.



### 3.1 Phase 1: Planning

The Independent Verifier shall develop and implement an IV&V Plan. The IV&V Plan must include/define the following items at a minimum:

- Objectives;
- Data requirements;
- Approach;
  - Staffing/resources;
  - Coordination requirements;
  - Review, testing, and assessment procedures;
- IV&V Schedule;
- High-level outline of the IV&V report.

The Independent Verifier shall submit an IV&V Plan to the Commission for review and approval a minimum of 60 calendar days prior to the beginning of each quarterly engagement. IV&V Plans for ad-hoc IV&V at the Commission's request shall be submitted for review and approval within 30 calendar days of the Commission's request.

### 3.2 Phase 2: Review

The Independent Verifier shall review the following items to verify adherence to requirements and validate desired outcomes during the quarterly IV&V period:

- Fiber Management System;
- O&M documentation;
  - Incidents/problems;
  - Changes;
  - Requests; and
  - Fiber testing results.
- LOA submissions and LOA status reports;
- Invoices;
- SLA adherence and overall performance – SLA breaches;
- Contract plans and documentation – submissions, updates, and availability; and
- Project schedules.

During the IV&V review, the Independent Verifier shall conduct a minimum of two (2) on-site work observations per quarterly IV&V period. The Independent Verifier shall be responsible for coordinating with the Commission to determine what type(s) of work is desired to be observed. The Independent Verifier shall be responsible for all coordination with the Commission and the Proposer as necessary to conduct on-site work observations.

Additionally, the Independent Verifier shall conduct one-on-one stakeholder reviews with key Commission and Proposer personnel. The intent of these reviews will be to garner feedback from both parties (independently) regarding perceived successes and/or pain-points experienced during the quarterly IV&V period.

The Commission reserves the right to request additional items to be reviewed by the Independent Verifier as necessary.

### **3.3 Phase 3: Assessment**

The Independent Verifier shall perform an objective assessment of the data, observations, and reviews conducted during Phase 2 Review. Generally, the purpose of the assessment phase shall be to compile data, formulate results, and derive conclusions from review data/observations. More specifically, the Independent Verifier shall identify:

- Risks;
  - Costs;
  - General O&M;
- Faults and gaps in services/systems;
- Necessary changes to requirements, processes, service delivery, etc.;
- Contract management and/or communication issues;
- Recurring performance issues and/or issues needing remediation (includes both systems and personnel);
- Successes and/or services performed exceptionally well; and
- Targeted areas of improvement.

### **3.4 Phase 4: Reporting**

Following the Phase 3 Assessment, the Independent Verifier shall develop and provide a comprehensive IV&V Report to the Commission and the Proposer. The IV&V Report shall include supporting documentation/evidence as necessary to reinforce the Independent Verifier's conclusions. The Independent Verifier shall submit the IV&V Report per the approved IV&V schedule included in the approved IV&V Plan.

The IV&V Report shall include but not be limited to the following:

- Executive summary highlighting key points/takeaways;
- Review process and methodology;
- Results and conclusions from the Phase 3 Assessment;
- Highlight of contract successes and/or failures;
- Identification of risks and risk mitigation strategies; and
- Recommendations & lessons learned.

### **3.5 Dispute Resolution**

The Independent Verifier shall make itself available as needed to participate in any dispute resolution procedures arising from IV&V.

# APPENDIX Q

---

## ServiceNow Requirements



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

Number	Requirement
SNR-1	The Proposer shall use the Commission's existing instance of ServiceNow.
SNR-1.1	The Proposer shall be granted ServiceNow base user roles.
SNR-1.1.1	The Proposer shall be granted the "itil" role.
SNR-1.1.2	The Proposer shall be granted the "asset" role.
SNR-1.1.3	The Proposer shall be granted the "catalog" role.
SNR-1.1.4	The Proposer shall be granted the "knowledge" role.
SNR-1.1.5	The Proposer shall be granted the "report_group" role.
SNR-1.1.6	The Proposer shall be granted the "report_scheduler" role.
SNR-1.1.7	The Proposer shall be granted the "template_editor_group" role.
SNR-1.2	The Proposer shall submit change requests for approval of additional ServiceNow roles as needed to carry out required ServiceNow tasks.
SNR-1.3	The Proposer shall not perform software development (enhancements) or make changes to the Commission's ServiceNow software.
SNR-1.3.1	The Proposer coordinate all development role tasks / configuration changes within ServiceNow for in-scope tasks and assets required by this RFP.
SNR-1.3.1.1	The Proposer shall notify and coordinate with the Commission and its ServiceNow support provider or other third party for all development role tasks regardless of ServiceNow task category.
SNR-1.3.1.1.1	All development role tasks regardless of ServiceNow task category shall be approved through the Commission's change process.
SNR-1.3.1.2	ServiceNow development role tasks and changes shall adhere to the Commission's development standards and procedures.
SNR-1.3.1.3	ServiceNow development role tasks and changes shall include QA test script creation and QA testing.
SNR-1.4	The Proposer shall be responsible for configuration of the ServiceNow System for use in the contract using built-in ServiceNow features.
SNR-2	The Proposer shall use the ServiceNow knowledge base.
SNR-2.1	The Proposer shall submit and store all project documents in the ServiceNow knowledge base per RFP submission requirements and SLA deadlines.
SNR-2.1.1	Project documents shall include project documentation, SOP, contract plans, reports and project controls, and other contract information.
SNR-2.1.2	Project documents (knowledge base articles) shall be written in the knowledge base text editor or provided as an attachment to the entry in a Microsoft office file format.
SNR-2.1.3	The Proposer shall enter the title and subject of the knowledge base article in the "short description" field.
SNR-2.1.4	The Proposer shall fill out all fields for knowledge base articles accurately.
SNR-2.2	The Proposer shall use a knowledge base created exclusively for the use in the contract.
SNR-2.2.1	The knowledge base shall be named Fiber Infrastructure O&M.
SNR-2.2.2	The Proposer shall categorize and organize knowledge base articles in a manner acceptable to the Commission.
SNR-2.2.2.1	Knowledge base categories shall include documentation, SOP, plans, reports and project controls, and miscellaneous/other.

Number	Requirement
SNR-2.3	The Proposer shall keep all knowledge base articles up to date.
SNR-2.3.1	The Proposer shall revise project documents and submit them to the knowledge base per RFP revision/submission requirements and SLA deadlines.
SNR-2.3.2	Knowledge base document revisions shall be submitted as new knowledge base articles, and shall include a version number.
SNR-2.3.3	The Proposer shall notify the Commission when a knowledge base document is submitted and/or revised.
SNR-2.3.4	The Proposer shall utilize information available in the knowledge base for all service request tickets.
SNR-2.4	The Proposer shall coordinate and work with the Commission and ServiceNow support entity to obtain existing knowledge base article templates, or create new templates as applicable, for use in the Contract.
SNR-3	The Proposer shall use ServiceNow for service request ticketing.
SNR-3.1	Service request tickets shall include tickets for incidents, problems, tasks, changes, and requests.
SNR-3.2	The Proposer shall acknowledge all service request tickets assigned to them.
SNR-3.3	The Proposer shall resolve all service request tickets assigned to them.
SNR-3.4	Service request tickets shall utilize "out of the box" ServiceNow states.
SNR-3.4.1	Service request ticket states shall be "new," "in progress," "on hold," "resolved," "closed," and "canceled"
SNR-3.4.2	The state of a service request ticket shall be "new" when initially created/opened and is awaiting Proposer acknowledgment.
SNR-3.4.3	The state of a service request ticket shall be changed to "in progress" when the Proposer acknowledges the ticket.
SNR-3.4.4	The state "on hold" shall be used when work is dependent and waiting on response from an outside vendor, such as a vendor maintenance contractor or warranty provider.
SNR-3.4.5	The state "on hold" shall be used when Proposer personnel is gathering additional information or instruction.
SNR-3.4.6	The state "on hold" shall be used when incidents are part of a larger problem (root cause).
SNR-3.4.7	When a problem is identified, a problem ticket shall be created, and all incidents related to the problem shall be linked to the problem ticket.
SNR-3.4.7.1	When the Problem is resolved and closed, ServiceNow will automatically resolve the incidents linked to the problem without manual intervention. Any incentives shall only apply to resolving the problem.
SNR-3.4.8	The state "canceled" shall be used when a service request ticket must be canceled for any reason.
SNR-3.4.9	The state of a service request ticket shall be changed to "resolved" when the Proposer has performed all work necessary and in accordance with all RFP requirements.
SNR-3.4.10	The Commission shall close "resolved" service request tickets after resolution is verified.

Number	Requirement
SNR-3.4.11	The state of a service request ticket shall be changed from "resolved" back to "in progress" if the Commission determines that the incident at hand has not been adequately resolved.
SNR-3.4.12	An "Open State" shall be defined as any ticket state that is not "resolved," "closed," or "canceled."
SNR-3.5	Incident and problem tickets shall be assigned maintenance priorities.
SNR-3.5.1	Incident and problem ticket maintenance priorities shall be Critical, High, Moderate, and Low.
SNR-3.5.2	Incident and problem ticket maintenance priorities shall be determined by impact and urgency.
SNR-3.6	NOT USED
SNR-3.7	The Proposer shall provide maintenance updates in the notes field on all service request tickets with a frequency appropriate to the impact and urgency of the ticket.
SNR-3.8	The Proposer shall notify the Commission of related incidents, change requests, and problems when observed/discovered while working on a service request ticket.
SNR-3.8.1	Service request tickets opened for related incidents, change requests, and problems shall reference the original service request ticket in the related records tab.
SNR-3.9	The Proposer shall coordinate with the Commission and ServiceNow support entity to configure automation of preventative maintenance tickets, if applicable, for recurring issues requiring a Recurring Issues Maintenance Response Plan.
SNR-3.9.1	Automated preventative maintenance tickets shall be created according to Recurring Issues Maintenance Response Plan.
SNR-3.9.2	Automated preventative maintenance tickets shall be assigned low priority.
SNR-3.10	All appropriate Proposer and Commission personnel shall receive ticket notifications.
SNR-3.11	The Proposer shall fulfill generic requests filled out by the Commission.
SNR-3.11.1	The Proposer shall work with the Commission to create request cases from generic requests.
SNR-3.11.2	The Proposer shall coordinate with the Commission and ServiceNow support entity to build service catalog items and workflows from generic requests.
SNR-4	ServiceNow service level management and reporting modules shall be used for SLA management.
SNR-4.1	The Proposer shall coordinate with the Commission and ServiceNow support entity to configure ServiceNow to track, calculate, and provide SLA reports/dashboards.
SNR-4.2	SLAs shall be tracked in ServiceNow for each service request ticket.
SNR-4.2.1	Ticket acknowledgement SLA shall start when a ticket is opened.
SNR-4.2.2	Ticket acknowledgement SLA shall end when a ticket state is changed from "new" to "in progress".
SNR-4.2.3	Ticket resolution SLA shall start when ticket is opened.

Number	Requirement
SNR-4.2.4	Ticket resolution SLA shall be paused when a ticket state is changed from and Open State to "resolved".
SNR-4.2.5	Ticket resolution SLA shall end when a "resolved" ticket is closed.
SNR-4.2.6	Ticket resolution SLA shall resume when a ticket state is changed from "resolved" back to an Open State.
SNR-4.2.7	For any ticket that must be reopened or changed from "resolved" back to an Open State all applicable SLA shall be calculated retroactively to include the time in which it was in a resolved state.
SNR-4.3	SLAs shall be consistent with Appendix K.
SNR-4.3.1	SLAs shall include an SLA based upon ticket acknowledgement time.
SNR-4.3.2	SLAs shall include an SLA based upon ticket resolution time.
SNR-4.4	The Proposer shall track and calculate Availability in ServiceNow.
SNR-4.4.1	The Commission shall be able to view Availability to date in a dashboard at all times.
SNR-4.5	The Proposer shall provide the Commission with SLA Reports.
SNR-4.5.1	SLA Reports shall include monthly ticket acknowledgment and resolution metrics to assess monthly ticket acknowledgment and resolution incentives/disincentives.
SNR-4.5.2	SLA Reports shall include monthly Cumulative Downtime to date.
SNR-4.5.3	SLA Reports shall include a yearly Cumulative Downtime report used to assess incentives.
SNR-5	The Proposer shall use ServiceNow for asset, inventory, and configuration management.
SNR-5.1	The Proposer shall coordinate and work with the Commission to populate and maintain the CMDB with CI.
SNR-5.1.1	The Proposer shall create a CI for each span as defined in the RFP.
SNR-5.1.1.1	CI shall be mapped/synced to assets.
SNR-5.1.2	CI and asset entries shall contain all information fields required by the RFP or as later determined by the Commission.
SNR-5.1.2.1	The Proposer shall coordinate with the Commission and ServiceNow support entity to configure additional input fields to include all information necessary.
SNR-5.1.2.2	The Proposer shall coordinate with the Commission and ServiceNow support entity to determine the level of detail of CI information to input.
SNR-5.1.3	The Proposer shall provide data exports via the FMS to be used to create CI.
SNR-5.1.3.1	Data exports shall be in a format able to be imported into ServiceNow.
SNR-5.2	The Proposer shall maintain a CMDB group exclusively for the assets included in the contract.
SNR-5.2.1	The CMDB group shall contain all CI included in the contract.
SNR-5.2.2	The Proposer shall coordinate with the Commission and ServiceNow support entity to create and configure a CMDB group for the contract.
SNR-5.3	The Proposer shall import/upload and organize all CI in a way acceptable to the Commission.

Number	Requirement
SNR-5.3.1	The Proposer shall coordinate with the Commission and ServiceNow support entity to create asset classes as necessary.
SNR-6	The Proposer shall abide by all Commission IT change management standards.
SNR-6.1	All changes shall be performed through change requests.
SNR-6.2	The Proposer shall follow and participate in the Commission's change process.
SNR-6.3	All changes to CI shall go through the change process.
SNR-6.4	Any software development (enhancements), changes, or customization requested by the Proposer shall begin with a service catalog request.
SNR-6.4.1	When the development team receives the service catalog request, the development team shall open a change record.
SNR-7	NOT USED
SNR-8	NOT USED
SNR-9	NOT USED
SNR-10	The Proposer shall coordinate with the Commission, ServiceNow support, and other entities for ServiceNow integrations.
SNR-11	ServiceNow shall be used for contract and warranty management.
SNR-11.1	The Proposer shall enter vendor maintenance contract and equipment warranties into the ServiceNow system.
SNR-11.2	The Proposer shall map vendor maintenance contract and equipment warranties to CI as applicable.
SNR-11.3	The Proposer shall coordinate automation of end of life notifications for equipment expected to reach end of life during the term of the Contract.
SNR-12	The Proposer shall coordinate and work with the Commission to include checklists on SSRS incident tickets (ServiceNow Electronic Maintenance Checklists).
SNR-12.1	Checklists shall include but not be limited to a list of activities to be performed, consistent with OEM recommended practices, SOP, and the Proposer's O&M Manual.
SNR-12.1.1	The Proposer shall create and save maintenance checklist templates for all assets and known maintenance issues.
SNR-12.2	ServiceNow electronic maintenance checklists shall be completed for all maintenance incident tickets.
SNR-12.3	The Proposer shall keep all checklists updated and shall modify and/or create new checklist templates to enhance efficiency and performance of maintenance tasks as well as address new maintenance issues and/or assets.
SNR-13	The Proposer shall create and maintain dashboards for the Commission as needed using built in ServiceNow features.
SNR-13.1	The Proposer shall make changes and additions to dashboards based on Commission needs.



# APPENDIX R

---

## IT Change Management Standards



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

**PLEASE NOTE THE FOLLOWING:**

- 1.) THESE CHANGE MANAGEMENT STANDARDS AND PROCEDURES ARE SUBJECT TO CHANGE DUE TO ONGOING PROCESS IMPROVEMENTS.**
- 2.) A FORMAL CHANGE INCIDENT MANAGEMENT PROGRAM IS CURRENTLY UNDER DEVELOPMENT BY THE COMMISSON. THE PROPOSER SHALL BE REQUIRED TO PARTICIPATE AND ADHERE TO THE CHANGE INCIDENT MANAGEMENT PROGRAM AFTER IT IS IMPLEMENTED.**

# IT Change Management Standard

KB0010113

☆☆☆☆ 27 views

## General

The intent of this IT Standard is to define basic criteria to which PTC Departments adhere when requesting and implementing changes affecting PTC production technology services and assets (e.g. SAP, MS-Dynamics applications, ServiceNow). The goal of Change Management is to minimize the risk of business impact from disruption to PTC production systems caused by change. This is accomplished by reviewing and prioritizing requested changes, coordinating change activities, and providing feedback on the success or failure to further reduce future risk.

PTC Policy Letter 8.11: "Information and Operational Technology (IT/OT) Standards" delegates responsibility for developing and promulgating PTC technical standards and procedures to the IT Department. All PTC departments are required to ensure these IT Standards are enforced.

## Standards

- No unauthorized changes will be implemented in the production IT environment. In the case of a severe business impact (e.g. all email services down, an entire enterprise business system down or unavailable), restoration of service will typically proceed even if authorization for a change is not immediately available.
- Changes will be implemented in the following authorized change windows unless an exception has been granted. Each exception will be evaluated based on business value, urgency, and risk:
  - Normal weekly maintenance window from 6:00 PM Thursday to 6:00 AM Friday.
  - Enterprise Business Systems – Between Tuesday 5:00 PM to Wednesday 6:00 AM.
  - Friday through Sunday windows may be requested for cases where more than overnight time may be required for either implementation or back-out contingencies (e.g. SAP enhancement packs, major upgrades)
- All changes to IT production systems will be recorded in ServiceNow.
- To the extent possible, changes will be recorded against a Configuration Item (CI) in the commission's authorized Configuration Management Database (CMDB).
- Changes will not be authorized unless the Change plan (summary of the change to production), Back-out plan (remediation plan if there is a problem implementing the change), and Test Plan (validating success after the change) have been documented in the ServiceNow Change Record.
- Requested changes to the list of preauthorized changes will be submitted to the IT Change Manager and reviewed by the Change Review Board (CRB). The IT Change Manager will publish the definitive list of preauthorized changes in ServiceNow.
- Emergencies/Exceptions requested with the potential to impact multiple teams will require input from all affected teams.
- The IT Change Manager or designee shall authorize emergency changes and exceptions and shall have the discretion to seek approval from appropriate stakeholders.

- After Action Reviews may be required for changes that are closed with a status other than Successful and have significant business impact (e.g. large number of users affected, business process disrupted with negative effects) or if requested by management.
- During the weekly maintenance window, changes that could affect safety or roadway operations and safety must be cleared with the Traffic and Operations Center before commencing the work.
- During anticipated high-volume traffic periods (e.g. Engineering defined holiday periods, the Papal visit), requested changes will receive additional scrutiny to determine the risk to roadway operations.
- The Change Manager reserves the right to defer change requests not submitted by the weekly deadline of EOB Monday unless they meet the criteria of an “Emergency Change” (see definition below).
- For Enterprise Business Systems (e.g. SAP, Dynamics, ServiceNow, GIS), evidence of QA agreement on testing approach and/or results **must** be noted in the ServiceNow Change Record by authorized QA staff.

## CRB Member Representation

Leaders of the following IT areas are considered the primary members of the CRB:

1. Change Manager
2. Technology and Innovation Management Director
3. IT Quality Manager
4. Business Relationship Manager
5. Senior IT Project Manager
6. IT Policy & Planning Manager
7. Enterprise Business Solutions (EBS) Director
8. Manager of EBS – Technical Services
9. Manager of EBS – Business Process Services
10. Systems Integration & Admin. Supervisor
11. GeoAnalytics Information Officer
12. Senior IT Project Manager - GeoAnalytics
13. GeoAnalytics Operations Manager
14. Technology Infrastructure Director
15. Server and Storage Manager
16. Manager of Transportation Tech & Comm
17. Transportation Technologies Manager
18. End User Support Manager
19. Information Security Officer

## CRB Member Responsibilities

CRB members are responsible for:

- Participating in CRB meetings or sending a delegate if not available.
- Discussion and input as needed (emergency or exception requests, requests to modify the Pre-authorized change list).
- Promoting awareness and compliance in their IT area regarding Change Management standards and procedures as outlined in this standard, and the Normal and Pre-authorized change desk guides.

# Supporting Documents

- Current list of Pre-authorized Changes
- Desk Guide for Normal Changes
- Desk Guide for Pre-authorized Changes

## Definitions

### IT Service

ITILv3 defines a Service as something provided to one or more Customers, by an IT Service Provider. An IT Service is based on the use of Information Technology and supports the Customer's Business Process. An IT Service is made up from a combination of people, Processes and technology and should be defined in a Service Level Agreement.

### Change

A change is defined as the addition, modification, or removal of anything that can affect an IT service.

### Preauthorized Change

A preauthorized change is a change that is generally low risk, well understood, and has been reviewed and authorized in advance by the Change Review Board. In some cases, approval for changes occurs outside of the CRB. For example, SAP security role changes are requested and approved in ServiceNow by the role owner prior to requesting the release to production.

### Normal Change

A Normal Change is a change that is not an Emergency or Preauthorized change and follows the defined steps of the change management process.

### Emergency Change

An emergency change is an urgent change needed to mitigate business impact resulting from an error or omission. Emergency changes are generally associated with incidents or problems in IT.

### Change Review Board

The Change Review Board (CRB) is an advisory board composed of representation by IT teams and chaired by the IT Change Manager. This board exists to review, evaluate, and authorize requests for change. The CRB can include business representation as required.

### Change Manager

The Change Manager is responsible for coordinating and conducting CRB meetings, authorizing low-risk changes and coordinating release activities.

## Exceptions

Any exception to this standard must be approved by the Chief Technology Officer (CTO). Exceptions to deadlines and authorized windows will be reviewed on an individual basis by the IT Change Manager and/or the Change Review Board.

# Document Change History

Version	Reason for Change	Author	Date
1.0	ARB Approved 1.0	Peter Kennedy	03/02/2016
2.0	Annual Review	Tim Choban	06/28/2018
2.1	Edits from ITAB Comments	Tim Choban	07/16/2018
2.2	Membership/title updates following IT Reorganization efforts	Tim Choban	04/25/2019



Authored by Timothy Choban  
Last modified 2 months ago

Helpful?

100% found this useful

Show comments

## Pre-authorized Change List

KB0010109

☆☆☆☆☆ 32 views

### Instructions:

When entering a Pre-authorized change, use the corresponding entry from the "Short Description" column below to populate the "Short Description" field in the Change Record. The "Description" Field in the Change Record should contain enough other relevant details to uniquely identify the change.

Example (Short description / Description):

Security Patches / Microsoft Security Patches - Monthname - Server Group 3 (AM)

IT Area	Category	Short Description	Notes
Communications	Capacity Augment	Network - Add capacity to existing links	
Communications	Install / Decommission / Config	Add, Change, Delete devices in ORION	
Communications	Install / Decommission / Config	Adjust ORION configuration backup configuration	
Communications	Install / Decommission / Config	Interchange routers/switches - Replacement/Maintenance	Impacts only a few end-users. Outages of 20 minutes or less are coordinated directly with the end users and Network Control
Communications	Install / Decommission / Config	Network/Radio/Intercom - Hardware Maintenance (non-disruptive)	
Communications	Install / Decommission / Config	Network/Radio/Intercom - install new equipment at new facility or at existing facility where there is no user impact	
Communications	Install / Decommission / Config	Network/Radio/Intercom - remove unnecessary equipment	
Communications	Mobile Radio Changes	Network/Radio/Intercom - replace equipment	
Communications	Mobile Radio Changes	Radio - VHF/800 MHz Radio Mobile or handset	
Communications	Phone Changes	Individual phone modifications	

Communications	Switch Port Changes	Network - Switch configuration change	
Communications	Upgrades	Call manager upgrade (non-disruptive to users)	
Communications, Server/Storage	Install / Decommission / Config	DNS Changes	
Communications,Server/Storage, GeoSpatial	Server Restart	Restart Servers (Maintenance Window)	
Communications,Server/Storage, GeoSpatial	Server Restart	Restart Servers (non-disruptive)	
EBS/Systems Integration	SAP Printer change(s)	Create/adjust SAP printer settings in Production with the exception of pre-printed forms-based printers	
EBS/Systems Integration	SAP background job - change time	Alter time of job due to holiday or bank closing	Example: Prepare for things such as bank holidays so a job doesn't error
EBS/Systems Integration	SAP memory adjustments for high value programs	Adjust memory limit for special use runs	For use when known processes such as year-end require more memory
EBS - FRICE	Patching	Routine patching for Dynamics (non-disruptive to users)	
EBS - FRICE	Patching	Routine patching for Service Now (non-disruptive to users)	
EBS - FRICE	Table Changes	Changes to SAP Z Tables	
EBS - Interfaces	SAP Archive Folder Cleanup	Cleanup of archived interface file folders	This requires no changes in ECC or PI but in the folders (in the past this has been done in incidents, but it is not a real incident unless the server is running out of space at the time of cleanup.)
End User Support	Single User Change	Change to single user printer	
End User Support,GeoSpatial	Single User Change	Change to single Mobile Device	



End User Support,GeoSpatial	Single User Change	Change to single PC (application/OS)	
End User Support,GeoSpatial	Single User Change	Change to single PC (hardware)	
GeoAnalytics	Install / Decommission / Config	Add, Change, Delete devices in Service Monitor 3	
GeoAnalytics	Install / Decommission / Config	ArcGIS PTC GeoPortal home web page	adjust/create text in text communication box
GeoAnalytics	Install / Decommission / Config	ArcGIS widget adjustments	adjust settings of a published widget of a published web map.
GeoAnalytics	Install / Decommission / Config	ArcGIS hover over (pop-ups) adjustments	refresh text that shows in a map Icon hover-over/pop up.
GeoAnalytics	Install / Decommission / Config	ArcGIS Map Layer (filter) change(s)	adjust settings of a layer (data filter) of a published web map. Sort order of the layers, adjust layer label name or icon.
GeoAnalytics	Install / Decommission / Config	ArcGIS Map Layer (filter) creation/removal	create /removing a layer (data filter) on a published map as requested by the business.
GeoAnalytics	Account Maintenance	Account Maintenance - single user	modify user account to allow or dis-allow view to a map . Users are granted access to the PTC GeoPortal via AD groups, however, restricting

			access to specific maps cannot be achieved by using AD groups.
Security	Account Maintenance	AD Group Creations – Not Frequent	
Security	Account Maintenance	Create User Accounts – Not Frequent	
Security	Account Maintenance	Create User Mailboxes – Not Frequent	
Security	Account Maintenance	Disable User Accounts – Not Frequent	
Security	Account Maintenance	Modify AD Groups – Frequent	
Security	Account Maintenance	Modify User Accounts – Somewhat Frequent	
Security	Account Maintenance	Moving Single User Data	
Security	Account Maintenance	SAP Security - Account/Role Maintenance and User Audits	Frequent, Does not require transports
Security	Account Maintenance	SAP Security - Create Roles	Frequent
Security	Account Maintenance	SAP Security - Create User Accounts	Frequent
Security	Account Maintenance	SAP Security - Disable User Accounts	Frequent
Security	Account Maintenance	SAP Security - Modify Roles	Somewhat Frequent
Security	Account Maintenance	SAP Security - Modify User Access in Non-Production Environments	Frequent
Security	Account Maintenance	SAP Security - Portal Access	Frequent
Security	Account Maintenance	SAP Security - Remove Roles	Less Frequent
Security	Account Maintenance	SAP Service MarketPlace - Assigning Developer & Object Keys	Less Frequent
Security	Account Maintenance	SAP Service MarketPlace - Creating Users	Less Frequent
Security	Account Maintenance	SAP Service MarketPlace - Open Connections	Somewhat Frequent
Security	Account Maintenance	SAP: ECC, SRM 5.5 ,SRM 7.0, BI, XI, PI, GRC, SMP (40+ Systems)	
Security	Account Maintenance	Shared Folder Creation	Not Frequent

Security	Door Group Maintenance	Create new Door Groups: Frequent	
Security	Door Group Maintenance	Create new Door Panels: Frequent	
Security	Door Group Maintenance	Delete Door Groups: Not Frequent	
Security	Door Group Maintenance	Modify Door Groups: Frequent	
Security	Door Group Maintenance	Modify Door Panels: Not Frequent	
Security	Security HW Maintenance	Reboot Cameras: Frequent	
Security	Security HW Maintenance	Reboot DVRs: Not Frequent	
Security	Security HW Maintenance	Reboot Hirsch Panels: Somewhat Frequent	
Security	Security HW Maintenance	Reboot HVAC Panels: Not Frequent	
Security	Security Maintenance	Business Partner Access - Existing	
Security	Security Maintenance	Business Partner Access - New	
Security	Security Maintenance	External DNS records - Existing	
Security	Security Maintenance	External DNS records - New	
Security	Security Maintenance	Firewall Access Rules - Existing Service	
Security	Security Maintenance	Firewall Access Rules - New Service	
Security	Security Maintenance	Intrusion Prevention Systems	
Security	Security Maintenance	Load-balancer (reverse-proxy) - Existing Service	
Security	Security Maintenance	Load-balancer (reverse-proxy) - New Service	
Security	Security Maintenance	RADIUS/TACACS - Existing Service	
Security	Security Maintenance	RADIUS/TACACS - New Service	
Security	Security Maintenance	Site-to-Site VPN connectivity - Existing	
Security	Security Maintenance	Site-to-Site VPN connectivity - New	
Security	VLAN Changes	Change of Port VLANs on Cisco Switches: Frequent	

Server/Storage	Account Maintenance	Active Directory configuration changes	
Server/Storage	Account Maintenance	Group Policy changes (no user impact)	
Server/Storage	Account Maintenance	Mailbox / Distribution Group Changes	
Server/Storage	Account Maintenance	Single User Data Restores	
Server/Storage	Install / Decommission / Config	Backup System Configuration	
Server/Storage	Install / Decommission / Config	Exchange Configuration Changes (non-user impact)	
Server/Storage	Install / Decommission / Config	Server / Storage Configuration Changes	
Server/Storage	Install / Decommission / Config	Server Creation / Decommission	
Server/Storage	Install / Decommission / Config	Storage System Configuration Changes	
Server/Storage	Patching	Security Patches	
Server/Storage	Patching	Software Updates (Minor)	
Server/Storage	Routine Maintenance	Server / Storage Hardware Maintenance (non-disruptive)	
Server/Storage	Upgrades	Server / Hardware Firmware Updates	
Server/Storage, Communications	Install / Decommission / Config	IP Address / DHCP Scope Changes	
Server/Storage, GeoSpatial	Routine Maintenance	Database changes (e.g. Re-indexing, map caching, cache cleanup)	



Authored by Timothy Choban  
Last modified 2 months ago

Helpful?

100% found this useful

Show comments



# Desk Guide for Pre-authorized Changes

KB0010111

☆☆☆☆ 12 views

## Overview

Use the this procedure for entering a "Pre-authorized" change. A Pre-authorized change is a change that is generally low risk, well understood, and has been reviewed and authorized in advance by the Change Review Board.

The current list of Pre-authorized changes can be found in Knowledge Article **Pre-authorized Change List ([https://paturnpike.service-now.com/ess?id=kb\\_article&sys\\_id=d1d43dd36f412640e56b28254b3ee454](https://paturnpike.service-now.com/ess?id=kb_article&sys_id=d1d43dd36f412640e56b28254b3ee454))**.

### IMPORTANT NOTE:

- In order to retain the ability to edit a Change record be sure that you do not assign the record to another person or to a group to which you do not belong. If this happens, you will need to ask the assigned person or a member of the assigned group to re-assign the Change record back to you.

## Requesting changes to the Pre-authorized list

To propose any changes to the list, please submit a Normal Change record. It will be reviewed at the next CRB meeting after your submission, and either accepted or rejected. Please plan on attending that meeting to defend your request. Submissions should follow the following format:

- **Type** - Normal.
- **Assignment group** - Your work group.
- **Assigned to** - Yourself.
- **Requested by date** - The date you wish the new item to be available for use as a Pre-authorized change (if approved).
- **Short description** - "Add, Remove, or Change an item in the Pre-authorized Change list".

- **Description** - A description of the proposed revision, justification for the revision, and any other relevant details that support your request.
- **Planned start date** - Use the same date you chose in "Requested by date".
- **Planned end date** - Use the same date you chose in "Requested by date".
- **Change Plan** - "n/a"
- **Backout Plan** - "n/a"

After approval, reassign the record to the Change Manager who will then implement the change and close the record.

## 1 - Create the Change

Using the “Change” section in your navigation, click “**Create New**”

The screenshot shows the Pennsylvania Turnpike Commission - QA system interface. The left sidebar contains a navigation menu with various sections like Self-Service, Service Desk, Incident, Problem, Change, Schedules, SDLC, Project, Timeline Visualization, Resource Management, Time Cards, Configuration, Service Catalog, Organization, Product Catalog, Asset, Inventory, Contract, IT Cost, and Reports. The 'Change' section is selected, and a green arrow points to the 'Create New' link. The main area displays a table of change requests with columns for Number, Short description, Approval, Type, State, Created, Planned start date, Planned end date, and Assignee. A yellow box with the number '1' is in the bottom right corner.

	Number	Short description	Approval	Type	State	Created	Planned start date	Planned end date	Assignee
	CHG0030091	Short Description	Approved	Pre-authorized	Open	2016-05-04 11:50:38	(empty)	(empty)	
	CHG0030087	sd	Approved	Normal	Open	2016-04-29 11:11:15	2016-04-29 11:11:30	2016-04-29 11:11:35	James Strie
	CHG0030086	sdsd	Approved	Normal	Open	2016-04-29 10:57:30	2016-04-29 10:58:20	2016-04-29 10:58:25	
	CHG0030085	Testing Normal Change Type - post deployment	Approved	Normal	Open	2016-04-29 10:49:14	2016-05-03 10:49:53	2016-05-03 10:50:00	
	CHG0030084	Test Normal 2	Not Yet Requested	Normal	Open	2016-04-25 12:05:10	(empty)	(empty)	Timothy Ch
	CHG0030083	Test Normal	Not Yet Requested	Normal	Open	2016-04-25 12:03:51	(empty)	(empty)	
	CHG0030082	short	Approved	Pre-authorized	Open	2016-04-18 15:47:32	(empty)	(empty)	
	CHG0030079	sdfsdf	Not Yet Requested	Normal	Open	2016-04-15 13:30:27	(empty)	(empty)	James Strie
	CHG0030075	Test from Prob	Requested	Pre-approved	Open	2016-04-14 11:23:49	(empty)	(empty)	Kathryn Ha
	CHG0030074	ds	Requested	Pre-approved	Open	2016-04-13 14:32:38	(empty)	(empty)	
	CHG0030073	sd	Requested	Pre-approved	Open	2016-04-13 14:31:26	(empty)	(empty)	
	CHG0030072	d	Requested	Pre-approved	Scheduled for Approval	2016-04-13 12:49:31	2016-04-21 12:54:26	2016-04-21 12:54:31	

## 2 - Required Fields

Fill in at least the following required fields:

- **Type = "Pre-authorized"**
- **Assignment group** - Select the appropriate assignment group that is responsible for this change.
- **Short Description** – A brief but meaningful description of the change based on the "Short Description" column from the definitive Pre-authorized list.
- **Description** – Other relevant details about the change.

**Example (Short description / Description):**

**Office 2010 & SAP GUI 730 App Testing - All Workstations / Reboot may be required for a few machines**

Click **Save**

The screenshot shows the 'Change Request' form in the Pennsylvania Turnpike Commission - QA system. The form is titled 'Change Request' and has a 'Welcome: Timothy Choban' message. The form fields are organized into sections. The 'Requested by' field is filled with 'Timothy Choban'. The 'Reason' field is set to 'None'. The 'Category' field is set to 'Other'. The 'Configuration item' field is empty. The 'Impact' field is set to '4 - Minor/Localized'. The 'Urgency' field is set to '3 - Medium'. The 'Priority' field is set to '4 - Low'. The 'Risk' field is set to 'Low'. The 'Requested for' field is empty. The 'Approval' field is set to 'Not Yet Requested'. The 'Type' field is set to 'Pre-authorized'. The 'State' field is set to 'Open'. The 'Assignment group' field is set to 'SM\_EA\_Policy'. The 'Assigned to' field is empty. The 'Testing Result' field is set to 'None'. The 'Customer Safety is Impacted' checkbox is unchecked. Below these fields are the 'Short description' and 'Description' fields. The 'Short description' field is empty. The 'Description' field is empty. At the bottom of the form, there are tabs for 'Notes', 'Schedule', 'Planning', and 'Closure Information'. The 'Closure Information' tab is selected, showing a 'Close Code' field set to 'None', a 'Closed by' field, and a 'Closed' field. There are 'Submit' and 'Save' buttons at the bottom right. A yellow box with the number '2' is in the bottom right corner.

### 3 - Optional Step



If you are performing work that might require substantial implementation time or are adding notes due to troubleshooting you may want to **change the status to “Work in Progress”**. If so, you will notice that the **“Assigned to”** field is now required for a state of either **“Work in Progress”** or **“Closed”**.

Click **Save**

The screenshot displays the 'Change Request - CHG0030092' form in the ServiceNow interface. The form is titled 'Pennsylvania Turnpike Commission - QA' and includes a 'Welcome: Timothy Choban' message. The left sidebar contains navigation links for various modules like Self-Service, Service Desk, Incident, Problem, Change, and Project. The main form area contains fields for 'Number' (CHG0030092), 'Requested by' (Timothy Choban), 'Reason' (None), 'Category' (Other), 'Configuration item', 'Impact' (3 - Moderate/Limited), 'Urgency' (3 - Medium), 'Priority' (4 - Low), and 'Risk' (Moderate). There are also dropdowns for 'Approval' (Approved), 'Type' (Pre-authorized), 'State' (Closed), 'Assignment group' (SM\_EA\_Policy), and 'Testing Result' (None). A 'Customer Safety is Impacted' checkbox is present. The bottom section includes 'Notes', 'Schedule', 'Planning', and 'Closure Information' tabs, with a 'Watch list' and 'Work notes list' section. A green arrow points to the 'Save' button in the top right corner. A blue arrow points to the 'State' dropdown, which is currently set to 'Closed'. Another blue arrow points to the 'Assigned to' field, which is currently empty. A yellow box with the number '3' is in the bottom right corner.

## 4 - Close the Change

Perform your proposed work, then return to the ServiceNow record to record the status and close the change.

First, **select “Closed” from the State drop-down**. You will be required to fill the **“Assigned to”** field if it is still empty.

**Pennsylvania Turnpike Commission - QA**

Welcome: Timothy Choban

**Change Request - CHG0030092**

Number: CHG0030092

Requested by: Timothy Choban

Requested by date: [Date Picker]

Reason: -- None --

Category: Other

Configuration item: [Search]

Impact: 3 - Moderate/Limited

Urgency: 3 - Medium

Priority: 4 - Low

Risk: Moderate

Requested for: [Search]

Approval: Approved

Type: Pre-authorized

State: Closed

Assignment group: SM\_EA\_Policy

Assigned to: Timothy Choban

Testing Result: -- None --

Customer Safety is Impacted: ☐

\* Short description: Short description

\* Description: Other relevant details

Notes: Schedule \* Planning Closure Information \*

Watch list: [Add/Remove]

Work notes list: [Add/Remove]

Additional comments (Customer visible): [Text Area]

Work notes: [Text Area]

Activity: 2016-05-04 12:05:50 Timothy Choban Changed: Assigned to, State

Assigned to: Timothy Choban

**4**

## 5 - Schedule Tab

Next, click the “**Schedule**” tab. You must at least fill in the “**Work start**” and “**Work end**” fields to indicate when the work actually occurred.

**NOTE:** Be sure to enter times for “**Work start**” and “**Work end**” that reflect when the work will actually be performed. The default value is the current time and should be changed to reflect your actual plan.

**Pennsylvania Turnpike Commission - QA**

Welcome: Timothy Choban

**Change Request - CHG0030092**

Number: CHG0030092

Requested by: Timothy Choban

Requested by date: [Date Picker]

Reason: -- None --

Category: Other

Configuration item: [Search]

Impact: 3 - Moderate/Limited

Urgency: 3 - Medium

Priority: 4 - Low

Risk: Moderate

Assignment group: SM\_EA\_Policy

Assigned to: Timothy Choban

Testing Result: -- None --

Customer Safety is Impacted: ☐

Short description: Short description

Description: Other relevant details

**Notes Schedule Planning Closure Information \***

Planned start date: [Date Picker]

Planned end date: [Date Picker]

Backout start date: [Date Picker]

Work start: 2016-05-06 12:07:40

Work end: 2016-05-06 12:07:43

Backout end date: [Date Picker]

Update Close Change Save

**Related Links**

[Calculate Risk](#)

[Check Conflicts](#)

Affected Cls Approvers Group Approvals Impacted Services/Clis Change Tasks Problems Incidents Pending Change Incidents Caused By Change Resource Plan Projects

## 6 - Closure Information

Next, click the “**Closure Information**” tab. You must at least fill in the “**Closure Code**” and “**Close Notes**” fields. For a successful change with no issues, a simple “no issues” will suffice. Closure codes are:

- **Successful** – The change was completed without issues.
- **Successful with Issues** – The change was completed, but issues were encountered and resolved.
- **Backout Successful** – The change could not be completed, and the backout plan was successfully used.
- **Cancelled** – The change request was withdrawn

Click the **Save** button to finish closing the Change.

The screenshot shows the 'Change Request - CHG0030092' form in the Pennsylvania Turnpike Commission - QA system. The form is titled 'Change Request - CHG0030092' and includes a 'Welcome: Timothy Choban' message. The form is divided into several sections: 'Impact', 'Urgency', 'Priority', 'Risk', 'Testing Result', 'Customer Safety is Impacted', 'Short description', 'Description', 'Notes', 'Schedule', 'Planning', 'Closure Information', 'Related Links', and 'Catalog Tasks'. The 'Impact' section shows 'Impact: 3 - Moderate/Limited', 'Urgency: 3 - Medium', 'Priority: 4 - Low', and 'Risk: Moderate'. The 'Testing Result' is 'None'. The 'Customer Safety is Impacted' checkbox is unchecked. The 'Short description' is 'Short description' and the 'Description' is 'Other relevant details'. The 'Notes' section has a 'Close Code' of 'Successful' and 'Close notes' of 'no issues'. The 'Schedule' section has a 'Closed by' field and a 'Closed' field. The 'Related Links' section includes 'Calculate Risk' and 'Check Conflicts'. The 'Catalog Tasks' section includes 'Affected CIs', 'Approvers', 'Group Approvals', 'Impacted Services/CIs', 'Change Tasks', 'Problems', 'Incidents Pending Change', 'Incidents Caused By Change', 'Resource Plan', and 'Projects'. The form is annotated with a green arrow pointing to the 'Save' button, a blue arrow pointing to the 'Description' field, a pink arrow pointing to the 'Close notes' field, and a yellow box with the number '6' in the bottom right corner.



Authored by Timothy Choban  
Last modified 3 months ago

Helpful?

100% found this useful

Show comments

# Desk Guide for Normal Changes

KB0010106

☆☆☆☆ 10 views

## Overview

Use this procedure for entering a "Normal" change. A normal change is defined as any change that does not explicitly appear on the list of Pre-authorized changes. These changes are reviewed by the Change Review Board (CRB).

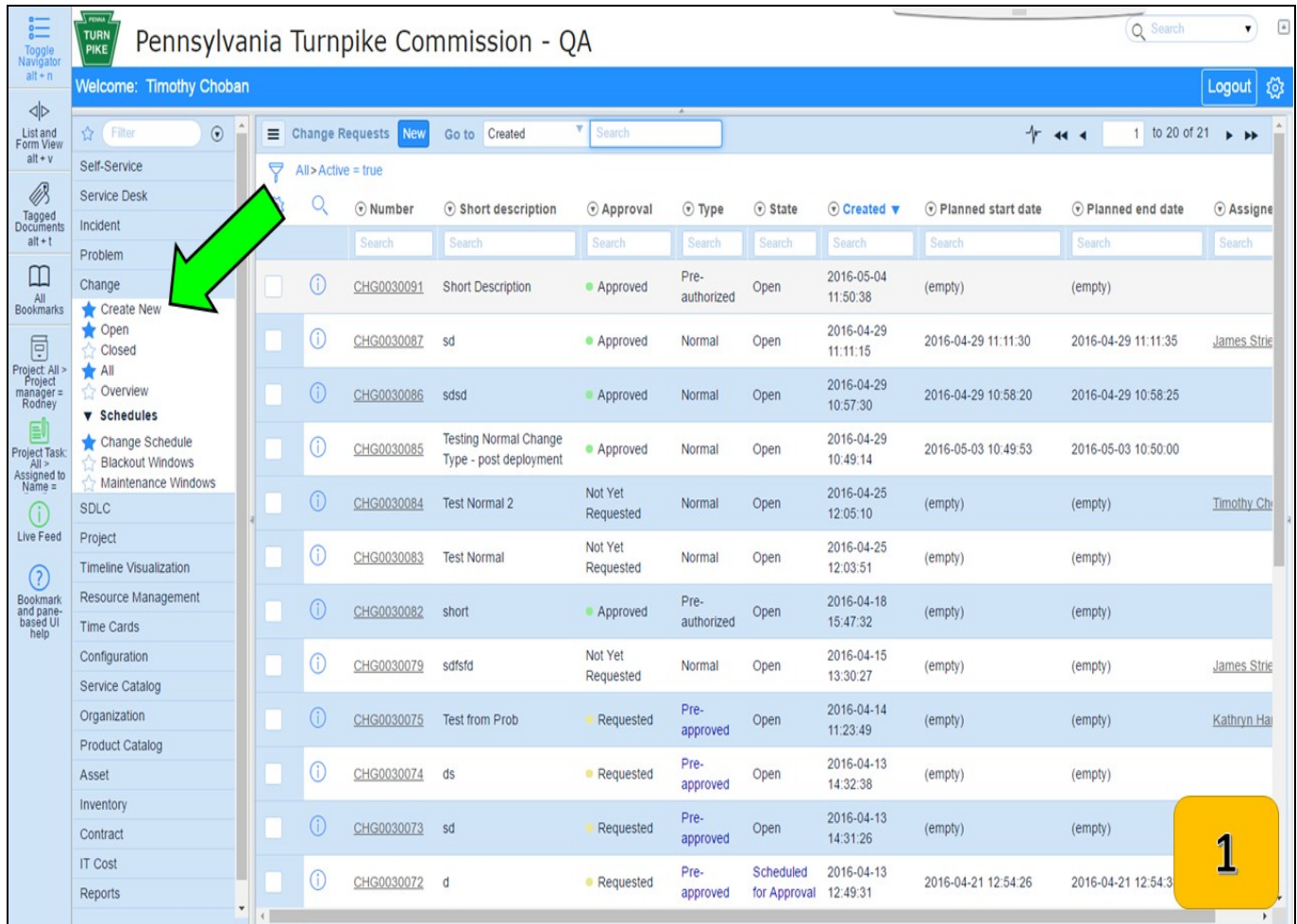
### IMPORTANT NOTES:

- Because both Normal and Pre-authorized changes are created from the same initial screen, you will not see the "Request Approval" button until you have saved the change with a type of "Normal".
- Since no one will be able to edit the Change record until after CRB approval, It is **very important** that you do not click the "Request approval" button until you have completed all required information and you are confident in the dates and times you have entered for "Planned start date" and "Planned end date".
- In order to retain the ability to edit a Change record (other than while awaiting CRB approval) be sure that you do not assign the record another person or to a group to which you do not belong. If this happens, you will need to ask the assigned person or a member of the assigned group to re-assign the Change record back to you.

## 1 - Create the Change

Using the "Change" section in your navigation, click "**Create New**"





The screenshot shows the Pennsylvania Turnpike Commission - QA system interface. The left sidebar contains a navigation menu with items like 'Self-Service', 'Service Desk', 'Incident', 'Problem', 'Change', 'Create New', 'Open', 'Closed', 'All', 'Overview', 'Schedules', 'Change Schedule', 'Blackout Windows', 'Maintenance Windows', 'SDLC', 'Project', 'Timeline Visualization', 'Resource Management', 'Time Cards', 'Configuration', 'Service Catalog', 'Organization', 'Product Catalog', 'Asset', 'Inventory', 'Contract', 'IT Cost', and 'Reports'. A green arrow points to the 'Change' menu item. The main area displays a table of change requests with columns for Number, Short description, Approval, Type, State, Created, Planned start date, Planned end date, and Assignee. The table lists several change requests, including CHG0030091, CHG0030087, CHG0030086, CHG0030085, CHG0030084, CHG0030083, CHG0030082, CHG0030079, CHG0030075, CHG0030074, CHG0030073, and CHG0030072. A yellow box with the number '1' is located in the bottom right corner of the screenshot.

## 2 - Required Fields

Fill in at least the following required fields:

- **Type = “Normal”**
- **Assignment group** - Select the appropriate assignment group that is responsible for this change.
- **Requested by date** – The date by which the change needs to be completed.
- **Short Description** – A brief but meaningful description of the change.
- **Description** – Other relevant details about the change.

Click **Save** to begin the workflow for a Normal Change.

The screenshot shows the 'Change Request' form in the Pennsylvania Turnpike Commission - QA system. The form is divided into several sections. On the left, there is a sidebar with navigation links. The main form area includes fields for 'Number', 'Requested by', 'Requested by date', 'Reason', 'Category', 'Configuration item', 'Impact', 'Urgency', 'Priority', 'Risk', 'Short description', and 'Description'. There are also sections for 'Approval', 'Type', 'State', 'Assignment group', 'Assigned to', and 'Testing Result'. A yellow box with the number '2' is located in the bottom right corner of the form.

## 3 - Schedule Information

Click the “**Schedule**” tab and fill in:

- **Planned start date** - The date/time planned for the production change activities to begin. You are encouraged to enter a change well in advance for scheduling coordination and visibility.
- **Planned end date** - The date/time planned for the production changes to occur (**EXCLUDING verification**). For changes involving SAP transports, this date should align with a planned release day (Tue/Fri) unless it is an emergency change. For those changes that occur during the Thursday night down-time window, Thursday’s date would be used

**NOTE:** Be sure to enter times for “**Planned start date**” and “**Planned end date**” that reflect when the work will actually be performed. The default value is the current time and should be changed to reflect your actual plan. This information is important during the CRB approval where we are looking to avoid conflicting work.

The screenshot displays the 'Change Request - CHG0030102' form in the Pennsylvania Turnpike Commission - QA system. The 'Schedule' tab is selected, and the 'Planned start date' and 'Planned end date' fields are highlighted with a red arrow. The form includes various fields for request details, such as 'Number', 'Requested by', 'Requested by date', 'Reason', 'Category', 'Configuration item', 'Impact', 'Urgency', 'Priority', 'Risk', 'Short description', and 'Description'. It also features a 'Request Approval' section with 'Approval', 'Type', 'State', 'Assignment group', 'Assigned to', 'Testing Result', and 'Customer Safety is Impacted' fields. The bottom of the form shows 'Related Links' and a list of 'Affected CIs'.

## 4 - Planning Information

Click the “**Planning**” tab and fill in:

- **Change Plan** – Detailed description of how the change will be accomplished. **For any changes involving packages to move to production (e.g. SAP Transports), this is where you will list the transports along with any relevant details (e.g. order of transports, special instructions).**
- **Backout Plan** – Detailed description of the remediation that would be used to restore



service in the event that the change is not successful.

- **Test Plan** – Detailed description of how you intend to verify that the change had the desired effect.

When planning is complete, and you are ready to ask the **Change Review Board (CRB)** for approval to proceed, click the “**Request Approval**” button to begin the approval workflow.

**REMINDER:** Be sure that all of your information is complete and accurate before requesting approval. Once requested, all fields in the Change record is locked until the approval process is complete.

The screenshot shows the 'Change Request - CH0000162' form in the Pennsylvania Turnpike Commission - QA system. The form is divided into several sections:

- Requested for:** A dropdown menu with 'Requested' selected.
- Approval:** A dropdown menu with 'Normal' selected.
- Type:** A dropdown menu with 'Open' selected.
- State:** A dropdown menu with 'SM\_EA\_Policy' selected.
- Assignment group:** A dropdown menu with 'None' selected.
- Assigned to:** A dropdown menu with 'None' selected.
- Testing Result:** A dropdown menu with 'None' selected.
- Customer Safety is Impacted:** A checkbox that is currently unchecked.

A green arrow points to the 'Request Approval' button. Below the main form, there are three sections:

- Change plan:** Description of how the change will be accomplished.
- Backout plan:** Description of the remediation that would be used to restore service in the event that the change is not successful.
- Test plan:** Description of how the change will be verified.

A yellow box with the number '4' is in the bottom right corner.

## 5 - Wait for Approval

If you re-open your change after requesting approval you will see that the “**Approval**” field is in a “Requested” state. At this point, you will need to wait for CRB approval before proceeding.

The screenshot displays the 'Change Request - CHG0030102' form in the Pennsylvania Turnpike Commission - QA system. The form is divided into several sections. The top section contains fields for 'Number' (CHG0030102), 'Requested by' (Timothy Choban), 'Requested by date' (2016-05-13 14:58:32), 'Reason' (None), 'Category' (Other), 'Configuration item', 'Impact' (3 - Moderate/Limited), 'Urgency' (3 - Medium), 'Priority' (4 - Low), and 'Risk' (Moderate). The 'Approval' field is highlighted with a blue arrow and is set to 'Requested'. Other fields include 'Type' (Normal), 'State' (Open), 'Assignment group' (SM\_EA\_Policy), 'Assigned to', 'Testing Result' (None), and 'Customer Safety is Impacted' (checkbox). The bottom section has tabs for 'Notes', 'Schedule', 'Planning', and 'Closure Information'. The 'Change plan' field is visible under the 'Planning' tab. A yellow box with the number 5 is located in the bottom right corner.

## 6 - After the weekly CRB meeting

If your change is approved, the “**Approval**” field will show “Approved” and more fields are available for your use.

AFTER CRB approval as you **implement** the change, **change the "State" field to “Work in Progress”** if you expect the work to take any substantial elapsed time. You will notice that the “**Assigned to**” field is required for a state of either “**Work in Progress**” or “**Closed**”.

You should document your progress using the **work notes**.

Pennsylvania Turnpike Commission - QA  
 Welcome: Timothy Choban  
 Change Request - CHG0030102  
 Number: CHG0030102  
 Requested by: Timothy Choban  
 Requested by date: 2016-05-13 14:58:32  
 Reason: -- None --  
 Category: Other  
 Configuration item:  
 Impact: 3 - Moderate/Limited  
 Urgency: 3 - Medium  
 Priority: 4 - Low  
 Risk: Moderate  
 Short description:  
 Description: Other relevant details  
 Requested for:  
 Approval: Approved  
 Type: Normal  
 State: Work in Progress  
 Assignment group: SM\_EA\_Policy  
 Assigned to: Timothy Choban  
 Testing Result: -- None --  
 Safety is Impacted: ☐  
 Notes: Schedule Planning Closure Information  
 Watch list:  
 Work notes list:  
 Additional comments (Customer visible):  
 Work notes:  
 Activity: 2016-05-11 14:57:27 Timothy Choban Changed: Impact, Opened by, Priority, State  
 Impact: 3 - Moderate/Limited  
 Opened by: Timothy Choban  
 Priority: 4 - Low  
 State: Open

## 7 - Record results of the Change

When the change is complete, return to ServiceNow to record the status and close the change.

First, select **"Closed"** from the **"State"** drop down. You will be required to fill the **"Assigned to"** field if it is still empty.

PTC Knowledge Base - Desk Guide for Normal Changes

7/17/19, 10:48 AM

Search

Welcome: Timothy Choban Logout

Change Request - CHG0030102

Number: CHG0030102

Requested by: Timothy Choban

Requested by date: 2016-05-13 14:58:32

Reason: -- None --

Category: Other

Configuration item:

Impact: 3 - Moderate/Limited

Urgency: 3 - Medium

Priority: 4 - Low

Risk: Moderate

Short description: Short description

Description: Other relevant details

Requested for: Approved

Type: Normal

State: Closed

Assignment group: SM\_EA\_Policy

Assigned to: Timothy Choban

Testing Result: -- None --

Safety is Impacted: ☐

Notes Schedule \* Planning Closure Information \*

Watch list

Work notes list

Additional comments (Customer visible)

Work notes

Activity

2016-05-11 14:57:27 Timothy Choban Changed: Impact, Opened by, Priority, State

Impact: 3 - Moderate/Limited

Opened by: Timothy Choban

Priority: 4 - Low

State: Open

7

Next, click the **“Schedule”** tab. You must at least fill in the **“Work start”** and **“Work end”** fields to indicate when the work actually occurred.

PTC Knowledge Base - Desk Guide for Normal Changes

7/17/19, 10:48 AM

Pennsylvania Turnpike Commission - QA

Welcome: Timothy Choban

Change Request - CHG0030102

Number: CHG0030102

Requested by: Timothy Choban

Requested by date: 2016-05-13 14:58:32

Reason: -- None --

Category: Other

Configuration item:

Impact: 3 - Moderate/Limited

Urgency: 3 - Medium

Priority: 4 - Low

Risk: Moderate

Short description:

Description:

Requested for:

Approval: Approved

Type: Normal

State: Closed

Assignment group: SM\_EA\_Policy

Assigned to: Timothy Choban

Testing Result: -- None --

Customer Safety is Impacted:

Notes

Schedule

Planning

Closure Information

Planned start date: 2016-05-13 14:58:39

Planned end date: 2016-05-13 14:58:46

Backout start date:

Work start:

Work end:

Backout end date:

Update

Save

Related Links

Calculate Risk

Check Conflicts

Show Workflow

Affected CIs

Approvers (2)

Group Approvals

Impacted Services/CIs

Change Tasks

Problems

Incidents Pending Change

Incidents Caused By Change

Resource Plan

Projects

Catalog

8

Next, click the **“Closure Information”** tab. You must at least fill in the **“Close Code”** and **“Close Notes”** fields. For a successful change with no issues, a simple “no issues” will suffice. Closure codes are:

- Successful – The change was completed without issues.
- Successful with Issues – The change was completed, but issues were encountered and resolved.
- Backout Successful – The change could not be completed, and the backout plan was successfully used.
- Cancelled – The change request was withdrawn

Click the **Save** button to close the Change.



TURN PIKE Pennsylvania Turnpike Commission - QA

Welcome: Timothy Choban

Change Request - CHG0030102

Number: CHG0030102

Requested by: Timothy Choban

Requested by date: 2016-05-13 14:58:32

Reason: -- None --

Category: Other

Configuration item:

Impact: 3 - Moderate/Limited

Urgency: 3 - Medium

Priority:

Risk:

Short description:

Description:

Requested for:

Approval: Approved

Type: Normal

State: Closed

Assignment group: SM\_EA\_Policy

Assigned to: Timothy Choban

Testing Result: -- None --

Customer Safety is Impacted:

Close Code: Successful

Close notes: No Issues

Update Save

Related Links

Calculate Risk

Check Conflicts

Show Workflow

Affected CIs: Approvers (2) Group Approvals Impacted Services/CIs Change Tasks Problems Incidents Pending Change Incidents Caused By Change Resource Plan Projects Catalog

9



Authored by Timothy Choban  
Last modified 3 months ago

Helpful?

100% found this useful

Show comments



# APPENDIX S

---

## Maintenance and Protection of Traffic Requirements



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES



### **Maintenance and Protection of Traffic (MPT) Standards Reference**

For field sites along Commission owned roadways within Commission ROW, the following Commission standards shall apply:

- Pennsylvania Turnpike Commission Index of Standards for Maintenance and Protection of Traffic Construction ([https://www.paturnpike.com/business/engineering\\_standards.aspx](https://www.paturnpike.com/business/engineering_standards.aspx))

For field sites along PennDOT roadways within PennDOT ROW, the following PennDOT standards shall apply:

- PennDOT Publication 212, Official Traffic Control Devices;
- PennDOT Publication 213, Temporary Traffic Control Guidelines;
- PennDOT Publication 408, Highway Construction Specifications;
- PennDOT Publication 236, Handbook of Approved Signs;
- PennDOT Publication 35, Approved Construction Materials (Bulletin 15);
- The Manual of Uniform Traffic Control Devices for Streets and Highways.

For field locations outside the ROW of both the Commission and PennDOT, the Proposer shall identify the entity with jurisdiction and abide by the MPT policies and standards required by that entity.

\*\*\*The Proposer shall be responsible for monitoring new releases of all standards/policies and must follow the most recent version available.\*\*\*

## F11.00 MAINTENANCE AND PROTECTION OF TRAFFIC (ITEM: 2901-0001)

This work is the maintenance of traffic and the protection of the traveling public approaching the construction area and within the limits of construction.

A. Maintenance and Protection of Traffic (MPT) includes furnishing, installing, resetting, relocating, storing, and removal of all traffic control devices necessary during hours of construction and at all other times during the course of this project according to the following:

- Section 901;
- Pennsylvania Turnpike Commission (PTC) Standard Details for Maintenance and Protection of Traffic;
- PA Code, Title 67, Chapter 212, Official Traffic-Control Devices;
- Manual on Uniform Traffic Control (MUTCD);
- Publication No. 35, Approved Construction Materials (Bulletin 35), and to be NCHRP-350 or MASH compliant;
- Special Provisions herein;
- For work within the Commission Right-of-Way, the Commission specifications govern. For work outside the Commission Right-of-Way, the PennDOT specifications govern.

Prepare all Traffic Control Plans (TCP) using English units. The TCPs are to be completed by a Professional Engineer (P.E.) registered in the Commonwealth of Pennsylvania.

TCPs shall be prepared for areas not covered by standards. At a minimum, the Contractor shall prepare a plan and/or narrative for each operation which references the appropriate PTS-900 Series Standard or includes a specific design details according to the Standards and submit to the QC Manager and QA Manager prior to implementing the traffic pattern. Modifications to the existing TCPs for a stage or phase must be submitted to the QC Manager and QA Manager prior to or within twenty-four (24) hours of changing the existing TCPs.

B. Mainline Turnpike traffic must be maintained throughout the project at all times by providing and implementing the requirements from the preceding list of publications, manuals, standards, etc., along with, but not limited to the following:

1. Mainline turnpike traffic traveling in the same direction must be maintained on two or three adjacent lanes and cannot be split.
2. During long-term traffic control operations, maintain existing 12-foot wide travel lanes in each direction.
3. Provide traffic control for lane and shoulder closures according to PTS-(910,915,940).
4. Lane restrictions will not be permitted during non-working hours, required by Attachment A or Attachment B, for any operation requiring a mobile lane restriction, stationary lane restriction, mobile shoulder restriction, or stationary shoulder restriction.

5. Lane and shoulder restrictions not behind temporary concrete barrier excluding junction box delineation are not permitted when work is not being performed at any location within the work zone for a period of more than 60 minutes.
6. Shoulder restrictions for junction box delineation not behind temporary concrete barrier are not permitted when work is not being performed at any location within the work zone for a period of more than 5 calendar days.
7. Lane rental fees will be assessed for each lane closure or traffic obstruction resulting in a lane closure beyond allowable working hours as per Special Provision F08.00. 8. Access must be provided to PTC maintenance sheds, gates and access ramps at all times.
9. Other Commission Contractor(s) and/or Commission Maintenance Forces may be working adjacent to the work zone(s) during portions of this contract period. The QA Manager will specify the working sequence of the contracts in order to facilitate coordinated traffic control operations.
10. Do not allow any portion of mainline transitions to be within an interchange area.
11. All equipment is to approach, enter, and depart from working zones in the direction of and with the normal adjacent traffic flow.
12. During non-working hours, steel plate all junction boxes in the shoulder, which are not completed or protected by barrier. Steel plate is to be a minimum of 1 inch thick. Steel plates are not to be used for more than 5 consecutive days or during holiday periods. Steel plates shall not be used on the shoulder from November 1st through April 1st. The use of steel plates in temporary or permanent travel lanes is prohibited. Provide a wedge of milled material at 1 inch per foot along all edges of the steel plate or provide alternate anchoring method. Submit alternate to QC Manager for approval.
13. The maximum allowable drop-off adjacent to travel lane and within shoulder or work zone during non-working hours is 2". If this is exceeded, provide steel plates.
14. If the shoulder work zone, excluding junction box installation, is not protected by temporary concrete barrier or glare screen, all excavated areas on the shoulder must be backfilled so that the drop-off does not exceed 2 inches from the existing adjacent pavement. Also complete any required slope repairs, guide rail replacement, shoulder pavement patching, and remove any obstructions prior to opening the adjacent lane for traffic.
15. Shifting traffic to the median or mainline shoulders is not permitted.
16. Use PennDOT approved vertical panels with self-ballasting bases for channelizing devices. The entire face of the vertical panel visible to traffic is to be reflectorized with PennDOT Type XI approved reflectorized material. Completely remove vertical panels from the roadway so they are not visible to motorists during non-working hours except for junction box delineation on shoulder. Channelizing devices may be temporarily relocated to the minimum offset to allow for work to be performed, as directed by the QC Manager. The channelizing

devices must remain between traffic and the work zone. Relocate channelizing devices to original position as work progresses.

17. Use signs with Type XI reflectorized material on or within the Turnpike right-of-way.
18. Post mount signs in a manner as not to obstruct shoulders and be clear of work areas. PennDOT approved Type III barricades may be used as conditions warrant and as directed by the QC Manager.
19. During allowable working hours, use PTS (910-2, 910-3, 915-2, 915-3), Mobile Operation for 2 or 3 Lanes, to cover and uncover signs and install and remove traffic control devices. Workers are not permitted to cross live traffic lanes except in a vehicle or in the interchanges and service plazas. During nighttime hours, provide 1 Multi-Directional Lighting Device on Shadow Vehicle(s) with Truck Mounted Attenuator and each of the Work Vehicle(s).
20. Do not perform any work directly over open lanes of Turnpike/Interstates/ State Routes, Township and local roads, streams, and railroads without adequate shielding or work platforms.
21. All tarping, containment apparatus, work platforms, etc. must be removed over the traffic lane(s) prior to opening the lane(s) to traffic.
22. Provide taper lengths for ramps in work zones according to PTS-940.
23. The QA Manager is to coordinate the work in any Interchange/Service Plaza area with Fare Collection/Service Plaza personnel. Notify the QA Manager a minimum of fourteen (14) days in advance of the scheduled work in the Interchange/ Service Plaza area.
24. Maintain access for emergency and authorized vehicles to all Interchange and Service Plaza buildings at all times.

C. State Routes, Township and County Roads

1. Obtain a Highway Occupancy Permit from PennDOT for work on all State routes and provide the final original signed copy to the QC Manager.
2. When required by PennDOT, provide MPT plans and narrative to PennDOT, coordinate work, obtain PennDOT approvals, and provide approval documentation to the QC Manager.
3. Submit TCPs for Township and County Roads to the Township or County and the appropriate PennDOT District, as required, and a minimum of thirty (30) days prior to the start of construction for approval.
4. Approval must be received prior to any construction activities or traffic control patterns on state, county or township roads.
5. Copy the QC Manager and the QA Manager on all correspondence sent or received.
6. Perform maintenance and protection of traffic according to Publication 212, the special provisions, the Standard Details and Drawings, and the TCPs.

7. Furnish, install, maintain and remove all required lights, guides, sandbags and appurtenances as deemed necessary by the QC Manager for the proper maintenance and protection of traffic and to warn of any obstruction or hazard to traffic.
8. Post mount signs in a manner as not to obstruct shoulders and be clear of work areas unless using portable sign supports. Relocate approach signing as needed.

**2019 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 19 to 11:00 P.M., local time, Monday, April 22, 2019.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 23 to 11:00 P.M., local time, Monday, May 27, 2019.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 28 to 11:00 P.M., local time, Sunday, July 7, 2019.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, August 29 to 11:00 P.M., local time, Monday, September 2, 2019.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 26 to 11:00 P.M., local time, Sunday, December 1, 2019.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 20, 2019, to 11:00 P.M., local time, Wednesday, January 1, 2020.

**2019 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 25</b> to 6:00 P.M., local time, Sunday, <b>April 28</b> , 2019.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 1</b> to 11:00 P.M., local time, Sunday, <b>June 2</b> , 2019.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 29</b> to 11:00 P.M., local time, Sunday, <b>June 30</b> , 2019.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 3</b> to 11:00 P.M., local time, Sunday, <b>August 4</b> , 2019.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 23</b> to 6:00 P.M., local time, Sunday, <b>August 25</b> , 2019.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 27</b> to 6:00 P.M., local time, Sunday, <b>September 29</b> , 2019.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 4</b> to 11:00 P.M., local time, Sunday, <b>October 6</b> , 2019.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, <b>October 11</b> to 11:00 P.M., local time, Sunday, <b>October 13</b> , 2019.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, <b>October 11</b> to 8:00 P.M., local time, Sunday, <b>October 13</b> , 2019.

**Month ##** = Date Needs to be Verified When Event Is Announced

**2020 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 10 to 11:00 P.M., local time, Monday, April 13, 2020.
MEMORIAL DAY.....	From 3:00 A.M., local time, Thursday, May 21 to 11:00 P.M., local time, Monday, May 25, 2020.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 26 to 11:00 P.M., local time, Sunday, July 5, 2020.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, September 3 to 11:00 P.M., local time, Monday, September 7, 2020.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 24 to 11:00 P.M., local time, Sunday, November 29, 2020.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 18, 2020, to 11:00 P.M., local time, Friday, January 1, 2021.

**2020 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 23</b> to 6:00 P.M., local time, Sunday, <b>April 26</b> , 2020.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 6</b> to 11:00 P.M., local time, Sunday, <b>June 7</b> , 2020.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Friday, <b>June 26</b> to 11:00 P.M., local time, <b>Sunday, June 28</b> , 2020.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 8</b> to 11:00 P.M., local time, Sunday, <b>August 9</b> , 2020.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 28</b> to 6:00 P.M., local time, Sunday, <b>August 30</b> , 2020.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 25</b> to 6:00 P.M., local time, Sunday, <b>September 27</b> , 2020.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 2</b> to 11:00 P.M., local time, Sunday, <b>October 4</b> , 2020.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, <b>October 9</b> to 11:00 P.M., local time, Sunday, <b>October 11</b> , 2020.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, <b>October 9</b> to 8:00 P.M., local time, Sunday, <b>October 11</b> , 2020.

**Month ##** = Date Needs to be Verified When Event Is Announced

**2021 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 2 to 11:00 P.M., local time, Monday, April 5, 2021.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 27 to 11:00 P.M., local time, Monday, May 31, 2021.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, July 2 to 11:00 P.M., local time, Sunday, July 11, 2021.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, September 2 to 11:00 P.M., local time, Monday, September 6, 2021.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 23 to 11:00 P.M., local time, Sunday, November 28, 2021.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 17, 2021, to 11:00 P.M., local time, Saturday, January 1, 2022.

**2021 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 22</b> to 6:00 P.M., local time, Sunday, <b>April 25</b> , 2021.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 5</b> to 11:00 P.M., local time, Sunday, <b>June 6</b> , 2021.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 24</b> to 11:00 P.M., local time, <b>Sunday, June 27</b> , 2021.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 7</b> to 11:00 P.M., local time, Sunday, <b>August 8</b> , 2021.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 27</b> to 6:00 P.M., local time, Sunday, <b>August 29</b> , 2021.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 24</b> to 6:00 P.M., local time, Sunday, <b>September 26</b> , 2021.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 1</b> to 11:00 P.M., local time, Sunday, <b>October 3</b> , 2021.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 8 to 11:00 P.M., local time, Sunday, October 10, 2021.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 8 to 8:00 P.M., local time, Sunday, October 10, 2021.

**Month ##** = Date Needs to be Verified When Event Is Announced



**2022 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 15 to 11:00 P.M., local time, Monday, April 18, 2022.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 26 to 11:00 P.M., local time, Monday, May 30, 2022.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, July 1 to 11:00 P.M., local time, Sunday, July 10, 2022.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, September 1 to 11:00 P.M., local time, Monday, September 5, 2022.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 22 to 11:00 P.M., local time, Sunday, November 27, 2022.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 23, 2022, to 11:00 P.M., local time, Sunday, January 1, 2023.

**2022 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 21</b> to 6:00 P.M., local time, Sunday, <b>April 24</b> , 2022.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 4</b> to 11:00 P.M., local time, Sunday, <b>June 5</b> , 2022.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 25</b> to 11:00 P.M., local time, <b>Sunday, June 26</b> , 2022.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 6</b> to 11:00 P.M., local time, Sunday, <b>August 7</b> , 2022.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 26</b> to 6:00 P.M., local time, Sunday, <b>August 28</b> , 2022.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 30</b> to 6:00 P.M., local time, Sunday, <b>October 9</b> , 2022.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 7</b> to 11:00 P.M., local time, Sunday, <b>October 9</b> , 2022.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 7 to 11:00 P.M., local time, Sunday, October 9, 2022.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 14 to 8:00 P.M., local time, Sunday, October 16, 2022.

**Month ##** = Date Needs to be Verified When Event Is Announced

**2023 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 7 to 11:00 P.M., local time, Monday, April 10, 2023.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 25 to 11:00 P.M., local time, Monday, May 29, 2023.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 30 to 11:00 P.M., local time, Sunday, July 9, 2023.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, August 31 to 11:00 P.M., local time, Monday, September 4, 2022.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 21 to 11:00 P.M., local time, Sunday, November 26, 2023.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 22, 2023, to 11:00 P.M., local time, Monday, January 1, 2024.

**2023 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 27</b> to 6:00 P.M., local time, Sunday, <b>April 30</b> , 2023.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 3</b> to 11:00 P.M., local time, Sunday, <b>June 4</b> , 2023.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 24</b> to 11:00 P.M., local time, <b>Sunday, June 25</b> , 2023.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 5</b> to 11:00 P.M., local time, Sunday, <b>August 6</b> , 2023.
CORVETTES AT CARLISLE AUTO SHOW....	From 5:00 A.M., local time, Friday, <b>August 25</b> to 6:00 P.M., local time, Sunday, <b>August 27</b> , 2023.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 29</b> to 6:00 P.M., local time, Sunday, <b>October 1</b> , 2023.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 6</b> to 11:00 P.M., local time, Sunday, <b>October 8</b> , 2023.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 16 to 11:00 P.M., local time, Sunday, October 8, 2023.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 13 to 8:00 P.M., local time, Sunday, October 15, 2023.

**Month ##** = Date Needs to be Verified When Event Is Announced

**2024 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, March 29 to 11:00 P.M., local time, Monday, April 1, 2024.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 23 to 11:00 P.M., local time, Monday, May 27, 2024.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 28 to 11:00 P.M., local time, Sunday, July 7, 2024.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, August 29 to 11:00 P.M., local time, Monday, September 2, 2024.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 26 to 11:00 P.M., local time, Sunday, December 1, 2024.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 20, 2024, to 11:00 P.M., local time, Wednesday, January 1, 2025.

**2024 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 25</b> to 6:00 P.M., local time, Sunday, <b>April 28</b> , 2024.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 1</b> to 11:00 P.M., local time, Sunday, <b>June 2</b> , 2024.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 29</b> to 11:00 P.M., local time, <b>Sunday, June 30</b> , 2024.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 3</b> to 11:00 P.M., local time, Sunday, <b>August 4</b> , 2024.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 23</b> to 6:00 P.M., local time, Sunday, <b>August 25</b> , 2024.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 27</b> to 6:00 P.M., local time, Sunday, <b>September 29</b> , 2024.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 4</b> to 11:00 P.M., local time, Sunday, <b>October 6</b> , 2024.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 11 to 11:00 P.M., local time, Sunday, October 13, 2024.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 11 to 8:00 P.M., local time, Sunday, October 13, 2024.

**Month ##** = Date Needs to be Verified When Event Is Announced

**2025 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 18 to 11:00 P.M., local time, Monday, April 21, 2025.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 22 to 11:00 P.M., local time, Monday, May 26, 2025.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 27 to 11:00 P.M., local time, Sunday, July 6, 2025.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, August 28 to 11:00 P.M., local time, Monday, September 1, 2025.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 25 to 11:00 P.M., local time, Sunday, November 30, 2025.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 19, 2025, to 11:00 P.M., local time, Thursday, January 1, 2026.

**2025 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 24</b> to 6:00 P.M., local time, Sunday, <b>April 27</b> , 2025.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 7</b> to 11:00 P.M., local time, Sunday, <b>June 8</b> , 2025.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 28</b> to 11:00 P.M., local time, <b>Sunday, June 29</b> , 2025.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 2</b> to 11:00 P.M., local time, Sunday, <b>August 3</b> , 2025.
CORVETTES AT CARLISLE AUTO SHOW....	From 5:00 A.M., local time, Friday, <b>August 22</b> to 6:00 P.M., local time, Sunday, <b>August 24</b> , 2025.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 26</b> to 6:00 P.M., local time, Sunday, <b>September 28</b> , 2025.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 3</b> to 11:00 P.M., local time, Sunday, <b>October 5</b> , 2025.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 10 to 11:00 P.M., local time, Sunday, October 12, 2025.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 10 to 8:00 P.M., local time, Sunday, October 12, 2025.
U.S. MEN'S OPEN.....	From 5:00 A.M., local time, Friday, June 6 to 11:00 P.M., local time, Monday, June 16, 2016.

**Month ##** = Date Needs to be Verified When Event Is Announced

**2026 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 3 to 11:00 P.M., local time, Monday, April 6, 2026.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 21 to 11:00 P.M., local time, Monday, May 25, 2026.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 26 to 11:00 P.M., local time, Sunday, July 5, 2026.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, September 3 to 11:00 P.M., local time, Monday, September 7, 2026.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 24 to 11:00 P.M., local time, Sunday, November 29, 2026.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 18, 2026, to 11:00 P.M., local time, Friday, January 1, 2027.

**2026 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 23</b> to 6:00 P.M., local time, Sunday, <b>April 26</b> , 2026.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 6</b> to 11:00 P.M., local time, Sunday, <b>June 7</b> , 2026.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 27</b> to 11:00 P.M., local time, <b>Sunday, June 28</b> , 2026.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 8</b> to 11:00 P.M., local time, Sunday, <b>August 9</b> , 2026.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 28</b> to 6:00 P.M., local time, Sunday, <b>August 30</b> , 2026.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 25</b> to 6:00 P.M., local time, Sunday, <b>September 27</b> , 2026.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 2</b> to 11:00 P.M., local time, Sunday, <b>October 4</b> , 2026.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 9 to 11:00 P.M., local time, Sunday, October 11, 2026.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 9 to 8:00 P.M., local time, Sunday, October 11, 2026.

**Month ##** = Date Needs to be Verified When Event Is Announced

**2027 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, March 26 to 11:00 P.M., local time, Monday, March 29, 2027.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 27 to 11:00 P.M., local time, Monday, May 31, 2027.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, July 2 to 11:00 P.M., local time, Sunday, July 11, 2027.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, September 2 to 11:00 P.M., local time, Monday, September 6, 2027.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 23 to 11:00 P.M., local time, Sunday, November 28, 2027.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 17, 2027, to 11:00 P.M., local time, Sunday, January 2, 2028.

**2027 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 22</b> to 6:00 P.M., local time, Sunday, <b>April 25</b> , 2027.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 5</b> to 11:00 P.M., local time, Sunday, <b>June 6</b> , 2027.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 24</b> to 11:00 P.M., local time, <b>Sunday, June 27</b> , 2027.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 7</b> to 11:00 P.M., local time, Sunday, <b>August 8</b> , 2027.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 27</b> to 6:00 P.M., local time, Sunday, <b>August 29</b> , 2027.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 24</b> to 6:00 P.M., local time, Sunday, <b>September 26</b> , 2027.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 1</b> to 11:00 P.M., local time, Sunday, <b>October 3</b> , 2027.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 8 to 11:00 P.M., local time, Sunday, October 10, 2027.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 8 to 8:00 P.M., local time, Sunday, October 10, 2027.

**Month ##** = Date Needs to be Verified When Event Is Announced

**2028 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 14 to 11:00 P.M., local time, Monday, April 17, 2028.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 25 to 11:00 P.M., local time, Monday, May 29, 2028.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 30 to 11:00 P.M., local time, Sunday, July 9, 2028.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, October 31 to 11:00 P.M., local time, Monday, September 4, 2028.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 21 to 11:00 P.M., local time, Sunday, November 26, 2028.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 22, 2028, to 11:00 P.M., local time, Monday, January 1, 2029.

**2028 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 20</b> to 6:00 P.M., local time, Sunday, <b>April 23</b> , 2028.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 3</b> to 11:00 P.M., local time, Sunday, <b>June 5</b> , 2028.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 24</b> to 11:00 P.M., local time, <b>Sunday, June 25</b> , 2028.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 5</b> to 11:00 P.M., local time, Sunday, <b>August 6</b> , 2028.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 25</b> to 6:00 P.M., local time, Sunday, <b>August 27</b> , 2028.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 22</b> to 6:00 P.M., local time, Sunday, <b>September 24</b> , 2028.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 6</b> to 11:00 P.M., local time, Sunday, <b>October 8</b> , 2028.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 6 to 11:00 P.M., local time, Sunday, October 8, 2028.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 13 to 8:00 P.M., local time, Sunday, October 15, 2028.

**Month ##** = Date Needs to be Verified When Event Is Announced



**2029 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, March 30 to 11:00 P.M., local time, Monday, April 2, 2029.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 24 to 11:00 P.M., local time, Monday, May 28, 2029.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 29 to 11:00 P.M., local time, Sunday, July 8, 2029.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, August 30 to 11:00 P.M., local time, Monday, September 3, 2029.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 20 to 11:00 P.M., local time, Sunday, November 25, 2029.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 21, 2029, to 11:00 P.M., local time, Tuesday, January 1, 2030.

**2029 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 26</b> to 6:00 P.M., local time, Sunday, <b>April 29</b> , 2029.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 2</b> to 11:00 P.M., local time, Sunday, <b>June 3</b> , 2029.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 23</b> to 11:00 P.M., local time, <b>Sunday, June 24</b> , 2029.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 4</b> to 11:00 P.M., local time, Sunday, <b>August 5</b> , 2029.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 24</b> to 6:00 P.M., local time, Sunday, <b>August 26</b> , 2029.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 28</b> to 6:00 P.M., local time, Sunday, <b>September 30</b> , 2029.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 5</b> to 11:00 P.M., local time, Sunday, <b>October 7</b> , 2029.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 12 to 11:00 P.M., local time, Sunday, October 14, 2029.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 12 to 8:00 P.M., local time, Sunday, October 14, 2029.

**Month ##** = Date Needs to be Verified When Event Is Announced



**2030 HOLIDAYS**

EASTER.....	From 5:00 A.M., local time, Friday, April 19 to 11:00 P.M., local time, Monday, April 22, 2030.
MEMORIAL DAY.....	From 3:00 P.M., local time, Thursday, May 23 to 11:00 P.M., local time, Tuesday, May 28, 2030.
INDEPENDENCE DAY.....	From 5:00 A.M., local time, Friday, June 28 to 11:00 P.M., local time, Sunday, July 7, 2030.
LABOR DAY.....	From 3:00 P.M., local time, Thursday, August 29 to 11:00 P.M., local time, Monday, September 2, 2030.
THANKSGIVING DAY.....	From 5:00 A.M., local time, Tuesday, November 26 to 11:00 P.M., local time, Sunday, December 1, 2030.
CHRISTMAS AND NEW YEARS.....	From 5:00 A.M., local time, Friday, December 20, 2030, to 11:00 P.M., local time, Wednesday, January 1, 2031.

**2030 EVENTS (only for projects in event areas)**

SPRING CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Thursday, <b>April 25</b> to 6:00 P.M., local time, Sunday, <b>April 28</b> , 2030.
POCONO 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>June 1</b> to 11:00 P.M., local time, Sunday, <b>June 2</b> , 2030.
CELTIC FLING & HIGHLAND GAMES.....	From 5:00 A.M., local time, Saturday, <b>June 29</b> to 11:00 P.M., local time, <b>Sunday, June 30</b> , 2030.
OVERTON'S 400 RACE.....	From 5:00 A.M., local time, Saturday, <b>August 3</b> to 11:00 P.M., local time, Sunday, <b>August 4</b> , 2030.
CORVETTES AT CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>August 23</b> to 6:00 P.M., local time, Sunday, <b>August 25</b> , 2030.
FALL CARLISLE AUTO SHOW.....	From 5:00 A.M., local time, Friday, <b>September 27</b> to 6:00 P.M., local time, Sunday, <b>September 29</b> , 2030.
MAPLE GROVE RACEWAY NATIONALS.....	From 5:00 A.M., local time, Friday, <b>October 4</b> to 11:00 P.M., local time, Sunday, <b>October 6</b> , 2030.
HERSHEY REGION FALL MEET.....	From 5:00 A.M., local time, Friday, October 11 to 11:00 P.M., local time, Sunday, October 13, 2030.
FORT LIGONIER DAYS.....	From 5:00 A.M., local time, Friday, October 11 to 8:00 P.M., local time, Sunday, October 13, 2030.

**Month ##** = Date Needs to be Verified When Event Is Announced

**LANE CLOSURE LIQUIDATED DAMAGES**

Pursuant to FR-1.13 of the RFP, the Proposer may request a Lane Closure in order to carry out O&M Work. With respect to any Non-Permitted Lane Closure, the Development Entity shall pay to the Commission Operating Period Lane Closure Liquidated Damages, calculated on a per hour basis as described in the table below. The per-hour liquidated damage amounts shown below are as of the Closing Date.

Location	1 Lane (Per Hour)	2 Lanes (Per Hour)	3 Lanes (Per Hour)	4 Lanes (Per Hour)
MP 0.00 to MP 31.00	\$9,000	\$18,000	\$27,000	\$36,000
MP 31.00 to MP 75.39	\$23,000	\$32,000	\$41,000	\$50,000
MP 75.39 to MP 226.54	\$9,000	\$18,000	\$27,000	\$36,000
MP 226.54 to MP 247.38	\$15,000	\$24,000	\$33,000	\$42,000
MP 247.38 to MP 298.33	\$9,000	\$18,000	\$27,000	\$36,000
MP 298.33 to MP 359.01	\$55,000	\$64,000	\$73,000	\$82,000
MP A20.00 to MP A57.31	\$38,000	\$47,000	\$56,000	\$65,000
MP A57.31 to MP A130.40	\$9,000	\$18,000	\$27,000	\$36,000
MP M0.00 to MP M54.0	\$2,800	\$5,600	\$8,400	\$11,200
MP B14.50 to MP B31.50	\$2,800	\$5,600	\$8,400	\$11,200
MP G0.00 to MP G17.90	\$3,400	\$6,800	\$10,200	\$13,600
MP S0.00 to MP S05.63	\$1,600	\$3,200	\$4,800	\$6,400

# APPENDIX T

---

## Fiber Management System Requirements



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

Number	Requirement
FMS-1	The Commission's Fiber Management System (FMS) shall be a third-party commercial off-the-shelf solution.
FMS-1.1	The Proposer shall procure/license and implement the 3rd party FMS solution on the Commission's behalf.
FMS-1.2	The Commission shall own the FMS instance and all associated data, customizations, and integrations.
FMS-1.2.1	The Proposer shall use the Commission's instance of the FMS.
FMS-1.2.1.1	The Proposer shall train and require internal teams to utilize the system.
FMS-1.2.1.2	The Proposer shall be thoroughly trained on the FMS via formal Software Vendor training or by an accredited training program.
FMS- 1.2.1.3	The Proposer shall ensure that all personnel that have edit rights to the FMS must be thoroughly trained on the FMS and database management best practices.
FMS-1.2.2	The Proposer shall relinquish all FMS privileges including access to information, databases, customizations, integrations, user profiles, etc. associated with the FMS to termination or end of the contract.
FMS- 1.3	The Proposer shall adhere to industry best practices regarding the O&M of the FMS.
FMS-2	Designated Proposer staff and designated Commission staff shall be granted FMS user roles.
FMS-2.1	Designated Proposer staff and designated Commission shall be granted FMS "view user" roles.
FMS-2.1.1	View users shall not have the ability to make changes to FMS data.
FMS-2.2	Designated Proposer staff and designated Commission staff shall be granted FMS "edit user" roles.
FMS-2.2.1	Edit users shall have the ability to make changes to FMS data.
FMS-2.3	Designated Proposer staff and designated Commission staff shall be granted FMS "security user" roles.
FMS-2.3.1	Security users shall have the ability to administer user accounts and access rights.
FMS-2.3.2	The Security user role shall be separate from other user roles.
FMS-2.3	The Proposer shall allocate ten (10) user accounts for Commission use.
FMS-2.4	The Proposer shall allocate five (5) view user accounts for ICT Contractor use.
FMS-2.5	The Commission shall reserve the right to administer the system, administer user accounts, and make edits to the FMS when/if necessary
FMS-2.6	The FMS shall allow for Single Sign-On (SSO) or Active Directory (AD) integration for user authentication and access control.
FMS-3	The Proposer shall establish a single internal Administrator of the FMS database (FMS Admin).
FMS-3.1	The FMS Admin shall be responsible and accountable for the FMS and the completeness and accuracy of its associated data.
FMS-3.1.1	The FMS Admin shall ensure all FMS data is up-to-date.
FMS-3.1.2	The FMS Admin shall serve as the single point of contact for FMS related queries, needs, and/or coordination with the Commission and its contracted partners.
FMS-3.1.3	FMS Admin shall have the authority to make updates and/or delegate update responsibilities to designated qualified personnel.

Number	Requirement
FMS-4	The Proposer shall develop a Fiber Management System Implementation Plan.
FMS-4.1	The Fiber Management System Implementation Plan shall include all required content stated in Appendix I.
FMS-5	The FMS shall allow for inventory management and inventory reporting capabilities.
FMS-5.1	FMS inventory management and reporting capabilities shall include the ability to track and report the status of Commission Fibers (used, unused, allocated, under repair, etc.)
FMS-5.2	FMS inventory management capabilities shall include Geographic Information System (GIS) mapping of all fiber optic cable installations.
FMS-5.3	FMS inventory management capabilities shall include a description for each fiber and statement of how it shall be used.
FMS-5.4	FMS inventory management capabilities shall include a method of adding, modifying, and deleting fiber related assets from the system.
FMS-5.5	FMS inventory management capabilities shall include mobile device access and the ability to add data while in the field using a non-survey grade data collection tool.
FMS-5.6	FMS inventory management capabilities shall include the ability to create custom information fields (inventory elements).
FMS-5.7	FMS inventory management capabilities shall include photo repository of all installed fiber distribution enclosures and splicing enclosures.
FMS-6	The FMS shall include fields to store Fiber Infrastructure information (inventory elements).
FMS-6.1	FMS inventory elements shall include buildings/facilities/shelters (building name, address, point of contact, phone, etc.).
FMS-6.2	FMS inventory elements shall include access points (Junction boxes, handholes/manholes).
FMS-6.3	FMS inventory elements shall include cable spatial information.
FMS-6.4	FMS inventory elements shall include cable sequential markings (silk screen markings, spool #'s).
FMS-6.5	FMS inventory elements shall include cable span information. This encompasses capacity/utilization, dark and lit fibers, types of installation (aerial, underground, etc.), ports used, data paths, priority and light wave lengths used on fiber.
FMS-6.6	FMS inventory elements shall include customer information (i.e. devices, and/or locations serviced).
FMS-6.7	FMS inventory elements shall include slack loop location and measurements.
FMS-6.8	FMS inventory elements shall include duct bank spatial information. This also includes duct and super duct (group of ducts).
FMS-6.9	FMS inventory elements shall include termination ports/points (i.e. termination panels).
FMS-6.10	FMS inventory elements shall include splice points and distribution panels.
FMS-6.11	FMS inventory elements shall include splicing information, trays, and schematics.
FMS-6.12	FMS inventory elements shall include testing data and information.
FMS-6.13	FMS inventory elements shall include warranty information including current status and end date.

Number	Requirement
FMS-7	The Proposer shall utilize the FMS to develop and maintain a comprehensive inventory and map of the Commission's Fiber Infrastructure assets.
FMS-7.1	The Proposer shall adhere to accuracy and mapping standards including the PennDOT Publication 122M Surveying and Mapping Manual.
FMS-7.1.1	The Proposer shall adhere to accuracy and mapping standards including the Commission's Design Consistency Guidelines, Chapter 2 (Appendix 11).
FMS-7.1.2	The Proposer shall adhere to accuracy and mapping standards including FGDC-STD-007.2-1998 Geospatial Positioning Accuracy Standards, Part 2: Standards for Geodetic Networks.
FMS-7.1.3	The Proposer shall adhere to accuracy and mapping standards including to user Guidelines for Single Base Real Time GNSS Positioning.
FMS-7.2	The Proposer shall utilize the FMS to develop a splicing and termination plans in close coordination with D-B contractors and Commission network engineers.
FMS-8	The FMS shall provide importing/exporting functionality.
FMS-8.1	The FMS shall be capable of importing/exporting inventory information fields (inventory elements) and maps.
FMS-8.2	The Proposer shall utilize exporting and importing functionality of the FMS.
FMS-8.2.1	The Proposer shall utilize imports/exports to coordinate and information sharing with the Commission and other agencies/entities such as PennDOT, utility companies, construction contractors, etc.
FMS-8.2.2	The Proposer shall utilize import/export functions to provide FMS information to the Commission and its ServiceNow providers for the purposes of creating CI in ServiceNow as indicated in FR-1.7.1.2.
FMS-8.2.3	The Proposer shall utilize imports/exports to create map overlays.
FMS-8.2.4	The Proposer shall utilize imports/exports to aid in review of construction designs, network designs, and other designs as necessary.
FMS-8.2.5	The Proposer shall utilize imports/exports to provide FMS information for Commission GIS system updates
FMS-8.2.6	The Proposer shall utilize imports/exports to aid in performance of fiber locating and mark outs.
FMS-8.3	The Proposer shall ensure the FMS shall have the ability to export maps to be used in CADD and GIS software.
FMS-8.3.1	The Proposer shall ensure all GIS submittals are available via REST-based API.
FMS-8.3.2	The Proposer shall ensure all GIS submittals follow the ESRI File Geodatabase Format (for disconnected data submissions).
FMS-8.3.3	The Proposer shall ensure all GIS submittals with a horizontal datum will be referenced to NAD 83 (2011) PA SPC South and any with a vertical datum will be referenced to the North American Vertical Datum of 1988 (NAVD 88).
FMS-8.3.4	The Proposer shall ensure all GIS submittals contain reported positional data that have resulted from the techniques and requirements of FOM-3.1.
FMS-8.3.5	The Proposer shall ensure all GIS submittals contain the location of each feature and shall have an accuracy that meets, at a minimum, the accuracy standards identified in FOM-3.1.

Number	Requirement
FMS-8.3.6	The Proposer shall maintain maps of all PTC Fiber Infrastructure in a digital format that can be exported and used in CADD and GIS software.
FMS-8.3.7	The Proposer shall ensure all CADD submittals adhere to the Commissions CADD Standards as defined in FR-1.18.
FMS-9	The Proposer must follow the Commission's IT Change Management Standard.
FMS-9.1	The Proposer shall follow the Commission's IT Change Management Standards which are stated in Appendix R.
FMS-10	The Proposer must follow the Commission's Security Requirements.
FMS-10.1	The Proposer shall follow the Security Requirements the Commission has stated in Appendix D.
FMS-11	The Proposer shall be responsible for routine updates to the FMS.
FMS-11.1	Routine FMS updates shall be tracked in a detailed change log.
FMS-11.1.1	The Change Log shall account for all changes made to the FMS.
FMS-12	The FMS shall provide the ability to run reports/queries.
FMS-12.1	Reports/queries shall include Route Details.
FMS-12.1.1	Route Details shall indicate how to run a route to find each object along the route and verify route accuracy.
FMS-12.2	Reports/queries shall include Taper Reports.
FMS-12.2.1	Taper Reports shall be queries that demonstrate how to plot out future routes by seeing which ports and fibers are available.
FMS-12.3	Reports/queries shall include Capacity Reports.
FMS-12.3.1	Capacity Reports shall be queries that provide a real-time view of how much open capacity exists across the cables within a fiber network down to the individual strand.
FMS-12.4	Reports/queries shall include Leased Fibers.
FMS-12.4.1	Leased Fibers shall be queries that determine who is leasing each fiber (if necessary, in the future).
FMS-12.5	Reports/queries shall include Hardware and Materials Reports for this project.
FMS-12.5.1	Hardware and Material Reports shall list all the hardware and material types in the network and give length totals for fiber and cable sheath.
FMS-12.6	Reports/queries shall include Work Order Summaries.
FMS-12.6.1	Work Order Summaries shall show the status report of the work orders and information related to a work order.
FMS-12.7	Reports/queries shall include Impact Reports.
FMS-12.7.1	Impact Reports shall identify which routes will be impacted if a splice point were moved.
FMS-12.8	Reports/queries shall include Cable Span Analyses.
FMS-12.8.1	Cable Span Analyses shall report overall fiber capacity for the entire network.
FMS-12.9	Reports/queries shall include Network Statistics.
FMS-12.9.1	Network Statistics shall track the quantity of all database objects over time. The Network Statistics are often used for auditing purposes.
FMS-12.10	The Proposer shall be required to run reports/queries in the FMS.
FMS-12.11	The Proposer shall insure the Commission may run and/or view FMS reports/queries at any time.

Number	Requirement
FMS-13	The Proposer shall be responsible for initial set up and configuration of the FMS.
FMS-13.1	Initial setup and configuration shall include comprehensive data collection and data entry required to satisfy the required inventory information.
FMS-14	The Proposer shall make all necessary updates in the FMS within the timeframes stated in Appendix K.
FMS-14.1	The Proposer shall complete data collection, data entry, and mapping to support the FMS within the timeframes stipulated in Appendix K.
FMS-14.2	The Proposer shall ensure data collection, data entry, and mapping shall be completed initially (and updated) within the timeframes stipulated in Appendix K.
FMS- 15	The Proposer shall validate and verify all data inputs and changes in the FMS.
FMS-15.1	The Proposer shall use sample testing to confirm all FMS data is complete and accurate.
FMS-15.2	The Proposer shall monitor the performance and integrity of FMS data on a consistent and ongoing basis.
FMS-15.3	The Proposer shall populate and maintain the FMS with up-to-date and accurate inventories of all Fiber Infrastructure assets in the Contract as changes occur.
FMS-15.3.1	The Proposer shall update the FMS with changes including any expansion of the Commission's Fiber Infrastructure.
FMS-15.3.2	The Proposer shall update the FMS with changes including changes resulting from temporary connections.
FMS-15.3.3	The Proposer shall update the FMS with changes including fiber relocations, etc.
FMS-16	The Proposer shall provide ESRI GIS integration for FMS.
FMS-16.1	The GIS and FMS integration shall include the ability to push GIS business layers to the FMS to create map overlays, view PTC locations, construction information, and other information as necessary and practicable.
FMS-16.2	The data shared between the Commission's GIS system and the FMS shall be dynamic.
FMS-16.3	The GIS integration must be compatible with the following versions of ESRI software: ArcGIS Enterprise 10.5.1 and greater, ArcGIS Desktop 10.5.1 and greater & ArcGIS Pro 2.3 or greater.
FMS-16.4	The Proposer shall coordinate and work with the Commission's program support group for GIS integrations and all GIS related configurations.



# APPENDIX U

---

## Construction Qualifications and Pre-qualifications



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

The vendor must be certified to perform the following PennDOT P Codes per Pub 637

- Traffic Accommodations & Control:
  - P4: Integrated Communications Systems
  - P5: Level 1 System Integrators (Hardware)
  - P6: Level 2 System Integrators (Software)
  - P7: Level 3 System Integrators (Hardware/Software)
  - Q: Maintenance and Protection of Traffic
- Miscellaneous:
  - X: Project preparation and Miscellaneous
  - Z: Maintenance type Services
  - ZZ: Specialty Item Prequal Exempt

# APPENDIX V

---

## Conceptual Design Drawings



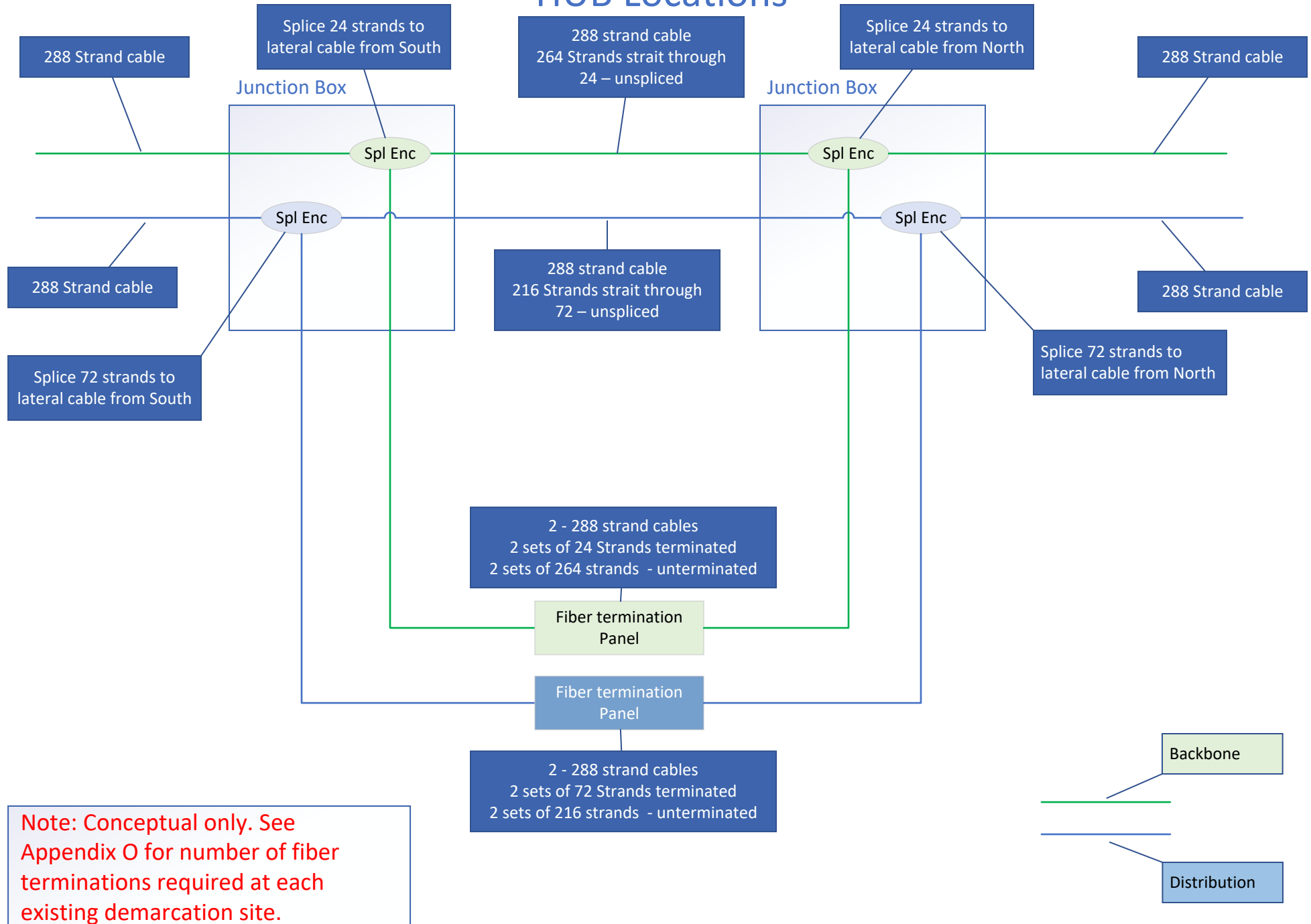
PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS, MAINTENANCE, AND  
COMMERCIALIZATION SERVICES

# Fiber Schematic at Demarcations

SOUTH

NORTH

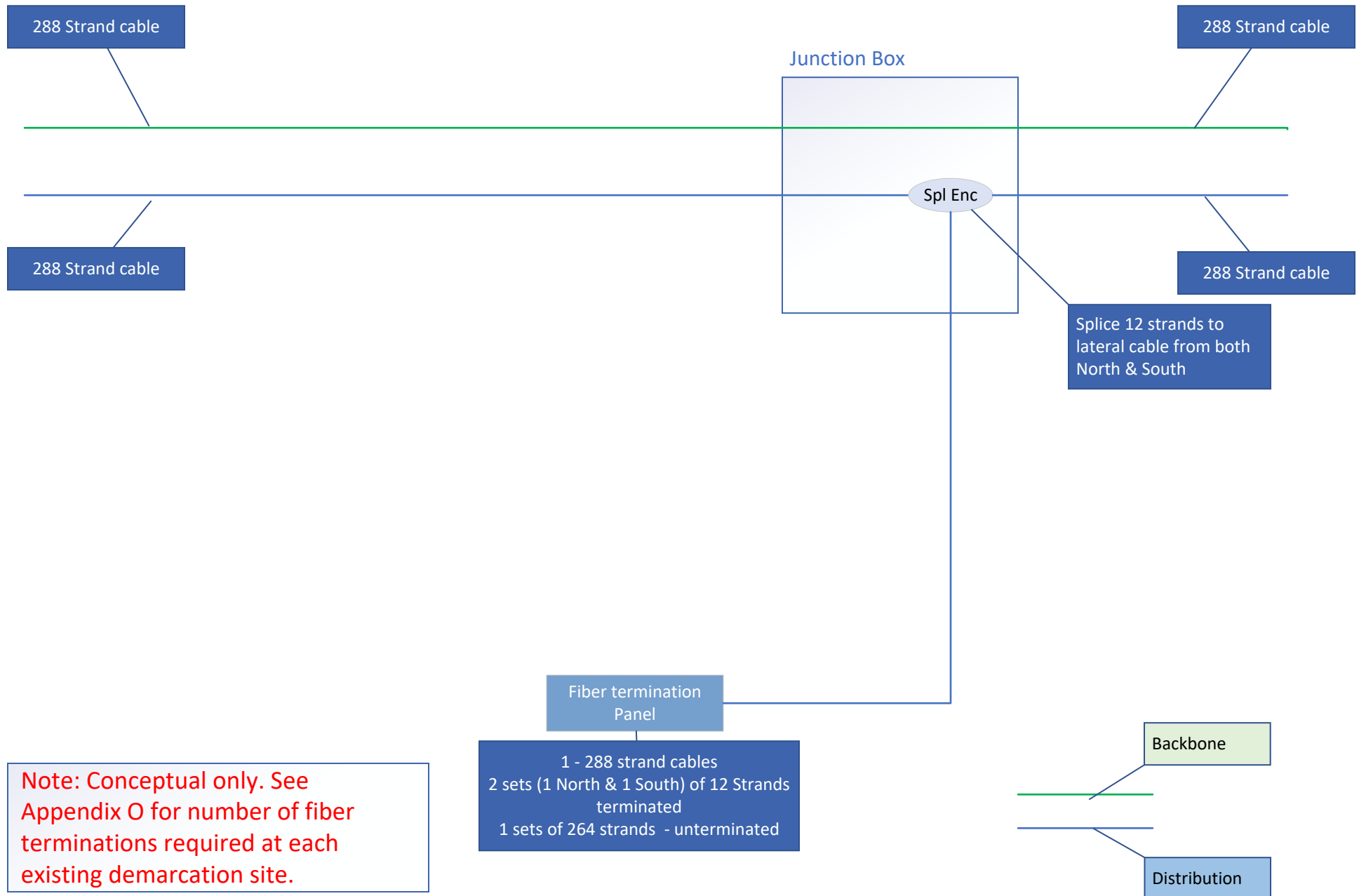
## HUB Locations



# Fiber Schematic at Demarcations NON - HUB Locations

SOUTH

NORTH



## **Addendum No. 1**

RFP # 19-10350-8799

Fiber Infrastructure Operations, Maintenance, and Commercialization Services

**Prospective Respondents: You are hereby notified of the following information in regard to the referenced RFP:**

### **REVISION**

1. Replace the *Electronic* Version of Appendix G – Price Proposal in its entirety with the revised Appendix G – Price Proposal Addendum #1 – 12-20-2019 provided as attached to this addendum. The original electronic version was created as a “.xlsm” file and has been changed to a “.xlsx” file so proposers can access it to complete their price proposal submission.

All other terms, conditions and requirements of the original RFP dated December 18, 2019 remain unchanged unless modified by this Addendum.

## Addendum No. 2

RFP # 19-10350-8799

Fiber Infrastructure Operations, Maintenance, and Commercialization Services

**Prospective Respondents:** You are hereby notified of the following information in regard to the referenced RFP:

### QUESTIONS AND ANSWERS

Following are the answers to questions submitted in response to the above referenced RFP as of January 16, 2020. All of the questions have been listed verbatim, as received by the Pennsylvania Turnpike Commission.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
1.	2 of 96		RFP - Calendar of Events	To provide sufficient time for the Proposers to review, understand and take action on the answers to the questions provided by the Commission on January 30, 2020, will the Commission consider extending the due date?	The Commission has no plans to extend the RFP response due date.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
2.	4 of 96	I-9 I-24	Incurring Costs Contract Term	<p>Does the Commission intend to reimburse the selected Proposer following execution of the Contract for costs incurred prior to Contract award? If so, where should Proposers document such costs in Appendix G?</p> <p>Such costs may include third party costs associated with the Commercialization Services revenue forecast and associated financial, legal, and technical due diligence costs, which would support the establishment of the Minimum Guaranteed Revenue Commitment for the Eastern Network.</p>	<p>There is no specific category for reimbursement of the selected Proposer's costs incurred prior to Contract award.</p> <p>Proposers are required to provide costs for only those bid items listed in the Appendix G – Price Proposal Form. Other than providing requested costs information, Proposers should not modify the Appendix G – Price Proposal Form.</p>
3.	4 of 96	I-11	Questions and Answers	Will the Commission consider extending the deadline for Proposers to Submit Questions?	The Commission is not planning to make any changes or alternations to the procurement schedule included in the RFP document.
4.	6 of 96	I-15	Economy of Preparation	Please confirm if Proposers are allowed to utilize 11"x17" size pages for organization charts and tables.	<p>Proposers should note that Proposals should be typed and submitted on 8.5 by 11-inch paper.</p> <p>For the purposes of preparing responses to this RFP, the Commission will allow the Proposers to use 11 by 17-inch size pages for organization charts and tables only.</p>



Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
5.	9 of 96; 14 of 96	I-24 ;Vol I – Part II Section 2, Paragraph A	Contract Term; Commercialization Services Submittal	Why do the contract term effective date and exclusivity period differ as stated in I-24 Contract Terms and Vol I – Part II Section 2, Paragraph A? For example, 12 years on small cells and 25 years on new cell towers?	<p>The term of the Contract Agreement for this RFP is twenty-five (25) years and commences on the Effective Date.</p> <p>Vol I – Part II Section 2, deals with exclusivity in providing commercial wireless services by installing and servicing small cell pole sites within Commission’s ROW. This provision does not alter the term of the Contract Agreement.</p>
6.	13 of 96	Volume I: Part II – Section 1	Proposal Cover Sheet	Please confirm the firm(s) that are required to provide a Federal I.D. number if the Proposer is intended to be a special-purpose entity with multiple sponsors, which will not be legally established at the time of RFP submission.	If the Proposer is intended to be a special-purpose entity with multiple sponsors, which will not be legally established at the time of Proposal submission, the Proposer should provide the Federal I.D. for each sponsor of such special-purpose entity.
7.	14 of 96	Vol I – Part II Section 2, Paragraph A	Commercialization Services Submittal	Assuming the funding for the construction of new wireless infrastructure is to be provided by the O&M and Commercialization Entity (“OMCE” or “Proposer”), who actually owns it during the Contract Term and afterwards?	<p>The OMCE will have the right to install new wireless infrastructure within Commission’s ROW. The Commission will own all such assets.</p> <p>The OMCE shall transfer to the Commission all of the OMCE’s right, title and interest in and to the Commercialization Assets located within the Commission’s ROW upon expiration / termination of the Contract Term.</p>

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
8.	27 of 96	Part III-4 – Criteria # 3	Criteria For Selection	Can the Commission please indicate the discount rate that will be used for the purposes of calculating the NPV of cash flows?	<p>For the purposes of evaluating Proposals received for this RFP, the Commission intends to apply the following discount rates for calculating the NPV cash flows:</p> <ul style="list-style-type: none"> <li>• Discount rate of 3% for committed cash flows</li> <li>• Discount rate of 12% for un-committed cash flows</li> </ul> <p>Proposers should note that the Commission will apply such discount rates uniformly to all Proposals received.</p>
9.	30 of 96	Part IVA-2	Grants of Rights and Covenants	Please confirm that all commercialization fibers and duct are available exclusively to the OMCE for commercialization activities without an IRU or at no cost during the 25-year term as long as revenue is shared? For example, if the winning OMCE acts as the anchor tenant and lights the fiber for their own services delivery, will the selected OMCE have right to utilize all the fibers without an IRU or with a no-cost IRU?	<p>Proposers should note that other than the ducts and fiber reserved for the Commission's use, the OMCE will have exclusive right to use the fibers and ducts designated for Commercialization Services subject to revenue sharing without an IRU, subject to rights outlined in Section IV A.</p> <p>For assets available for commercialization use, refer to Section IV A – 7. Assets Available for Commercialization Services.</p>

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
10.	31 of 96	Part IVA-2	Grants of Rights and Covenants, last paragraph	Is Commission-utilized space on OMCE-constructed wireless or fiber infrastructure paid for by the Commission?	Beyond the payment mechanism outlined in the Contract Agreement, there will not be any additional compensation paid to the OMCE for providing space on the small cell pole and conduit for future Commission installations of devices on the pole. Additionally, the Proposers should note that this requirement is also applicable for fiber to distribution line (i.e., fiber backhaul connection to poles).
11.	31-32 of 96	Part IVA-2	Grants of Rights and Covenants	In accordance with the RFP, the OMCE is responsible to develop wireless infrastructure and to provide up to 25% of its space on the small cell pole and conduit for future Commission installations of devices. Since the OMCE is taking on the risk of development, pay for it and offer the Commission 25% of the space, does it get the exclusive right to build and own the infrastructure?	Exclusive rights to market, develop, operate and maintain the Commercialization Assets is stated in Section IVA-2. Grants of Rights and Covenants.  Additionally, Proposers should refer to paragraph 11. b. in Appendix A OMC Contract Agreement for ownership rights.
12.	32 of 96	Part IVA-2	Grants of Rights and Covenants	We assume the OMCE has the exclusive right to perform all services (design, build, operate, maintain and commercialization) for wireless infrastructure it develops, including poles, towers and other wireless infrastructure. If the Commission requires 25% of the space and chooses to install new equipment, will the Commission pay the selected OMCE to install the new equipment?	Any future installation of the Commission equipment will be considered as part of the annual O&M Services of the Contract and the OMCE will be compensated to install the new equipment based on the Separate LOA process described in the RFP.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
13.	32 of 96	Part IVA-3	Permitted Commercialization Services for the Eastern Network	If an entity other than a carrier (for example, a university) wants to purchase dark fiber on the Eastern Network, is that excluded from the definition of Commercialization Services and thus not exclusive? The use of the term “wholesale” typically means carriers in the telecommunications industry.	No. Proposers will have flexibility to provide Commercialization Services to any entity that wants to obtain Commercialization Services on the Eastern Network.
14.	33 of 96	Part IVA-3	Permitted Commercialization Services for the Eastern Network	Why is the period allowed for commercialization of small cell poles limited to 12 years while the term of the overall agreement is 25 years?	The period of exclusivity for commercialization of small cell poles is based on (i) the evolving nature of small cell technology, (ii) the typical length of contracts, and (iii) the Commission’s intent to evaluate the performance of the OMCE during the first 12 years of the Contract Agreement to consider an extension of such rights for the remainder of the Contract Term.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
15.	33 of 96	Part IVA-4	Commercialization Plan for the Eastern Network	Does the Commission intend to provide additional clarity on its rights to approve or reject material change in investments, capital expenditures or O&M costs?	<p>The Commission will treat the Proposer's planned investment included in the RFP response as the Base Case scenario.</p> <p>Once the Contract Agreement is effective, any material change in investments, capital expenditures or O&amp;M costs compared to those in the Commercialization Plan proposed by the OMCE shall be submitted to the Commission (along with the rationale and supporting business case for such changes(s)) for the Commission's review and approval. The Commission reserves the right to approve or reject any such change(s) or portions thereof. If the Commission approves the requested change(s) (or any portion thereof), the O&amp;M and Commercialization Entity shall update the Commercialization Plan to reflect the change(s) approved by the Commission in a timely manner.</p>
16.	35 of 96	Part IVA-8	Acceptance of Fiber Infrastructure	Does the Commission anticipate the establishment of a contractual agreement between the Proposer, the FON D-B Contractor(s), and the Commission to govern the testing and acceptance of the Eastern Network, and if so, will the Commission be facilitating such agreement?	The Commission does not anticipate any contractual agreement between the Proposer and the FON D-B Contractor(s). The protocol and the interface for testing and acceptance will be addressed by the Commission in its separate contracts with the FON D-B Contracts and the O&M and Commercialization Entity.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
17.	36 of 96	Part IVA-8	Acceptance of Fiber Infrastructure	Will the three (3) vacant ducts being made available to the OMCE be proof tested by the FON D-B Contractors to ensure the ducts are continuous and ready for installation of fiber optic cables? Will the OMCE be allowed to be present on site to confirm proof testing of the duct took place?	Yes - During the testing, the OMCE will be allowed to witness and confirm that the testing took place and that the Fiber Infrastructure is working properly. In the event of defect or deficiencies in meeting such requirements, the FON D-B Contractor(s) will be responsible for addressing such defects or deficiencies.
18.	36 of 96	Part IVA-11	Future Phase(s) for Commercialization Services	If joint funding option is pursued for the Western Network expansion, would the ownership of the cable built be shared with the Commission based on the investment made by the OMCE?	<p>The Commission will be the owner during the Contract Term and afterwards for the Fiber Infrastructure developed as part of the Western Network.</p> <p>If joint funding options are pursued for the Western Network, Proposers should note that the Commission will make an annual payment for the capital investment made by the Proposer. For more information, refer to Appendix G – Price Proposal.</p>
19.	38 of 96	Part IVA-15	Handback of Fiber Infrastructure	Will the Commission execute a separate agreement with the OMCE to govern new assets constructed in support of the Commercialization Services during the Contract Term?	The Commission intends to use the Contract Agreement (Appendix A) to govern new assets constructed in support of the Commercialization Services during the Contract Term.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
20.	43 of 96	FR-1.1	Transition	Is there flexibility with the details stated within the Transition Plan?	<p>There will be flexibility regarding the OMCE's specific approach to transition.</p> <p>Entry and exit transition plans must meet the requirements stipulated in the RFP and are subject to Commission review and approval.</p>
21.	44 of 96	FR-1.1	Transition	How is the Commission currently maintaining the existing fiber infrastructure?	The Commission currently maintains its existing fiber infrastructure via a Time and Materials maintenance contract.
22.	48 of 96	FR-1.5.6	Spare Parts	How much excess fiber cable (as a percentage of the route mileage) does the Commission plan to order for the FON D-B projects?	Fifty feet (50') of fiber optic cable shall be provided at each junction box and at each demarcation site. No additional excess fiber optic cable is required as part of the FON D-B projects.
23.	49 of 96	FR-1.5.6	Spare Parts	Is there a standard list of spare parts the Commission wants to keep on hand? If so, please provide the list so all bidders are including the same items in their bid. Does the Commission have a current inventory of fiber optic related materials that the OMCE will be responsible to manage? Will there be spare materials from the on-going fiber construction DB projects that the OMCE will be expected to manage?	<p>The OMCE is responsible for maintaining adequate spare parts necessary to meet SLAs.</p> <p>The Commission does not have an existing inventory of spare parts that the OMCE will be responsible for managing. No spare parts are required to be provided by the FON D-B contractors. No spare parts will be turned over to the OMCE as part of the entry transition.</p>

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
24.	50 of 96	FR-1.7.1	ServiceNow Service Request System	Can you provide historical ticket volume detail month by month, year over year?	<p>2015 – 6 tickets total 2016 – 3 tickets total 2017 – 2 tickets total 2018 – 2 tickets total</p> <p>The incidents above were related to guiderail and signpost installations, excavation, JB repairs, and rodent damage.</p> <p>Proposers should note that the ticket volumes provided above only reflect tickets for a limited amount of existing fiber.</p> <p>Fiber installed by the FON D-B contracts will expand the amount and geographic coverage of fiber significantly; therefore, a higher volume of tickets may occur in this project.</p>
25.	50 of 96	FR-1.7.1	ServiceNow Service Request System	Will the OMCE have access to the State's current ticketing system?	The OMCE will be provided access to the PTC's instance of ServiceNow for ticketing.



Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
26.	51 of 96	FR-1.7.1	ServiceNow Service Request System	Will all one-call/locate requests come through ServiceNow? Is the Commission's Existing Fiber Infrastructure currently in the Pennsylvania one-call system? Will the new fiber optic assets being installed as part of the DB projects be expected to be placed in the one-call system?	<p>All service ticketing including locate requests will be done through ServiceNow.</p> <p>The Commission's existing fiber infrastructure is not currently in the PA one-call system. The OMCE is responsible for fulfilling locate requests for the Commission's fiber infrastructure.</p> <p>The Commission is currently not part of the one-call system. It is unknown at this time whether the new fiber assets installed by the FON D-B projects will be placed into the one-call system.</p>
27.	57 of 96	FR-1.12	Fiber Optic Testing	This section seems to conflict with earlier language that stated that the FON D-B contractors would perform all the fiber testing. Please confirm that the OMCE will not be required to initially perform this testing on the Fiber Infrastructure per FOM 4.1.	<p>The OMCE will be responsible for testing all fiber optic cable that is installed by the OMCE in accordance with FR-1.12.</p> <p>The FON D-B contractor will be responsible for testing all fiber optic cable that is installed by the FON D-B contractor. Testing of fiber installed by other contractors as part of any other project will be the responsibility of the installing contractor. In these cases, the OMCE will be responsible for witnessing and accepting.</p>

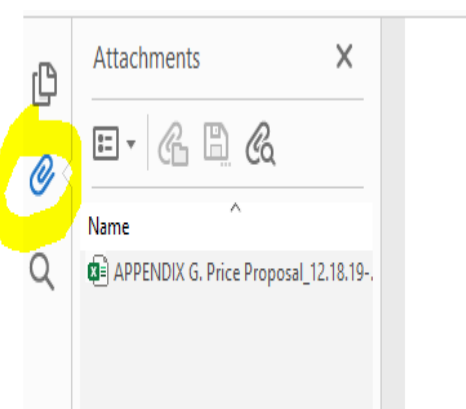
Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
28.	73 of 96	FOM-1.2	Resources	This section states, "If the as-built information is not available, the OMCE shall work with the Commission to identify the approximate location of the installed fiber optic cable." How will the O&M and Commercialization Entity be compensated for these services?	<p>The OMCE will be compensated for all locating requests per unit costs for FOM-1 as indicated in Appendix G – unit costs for low/moderate requests shall be used for locating requests for gaps in as-built information. Standard LOA will establish a budgetary ceiling for all tasks under FOM-1. Costs beyond the budgetary ceiling will be handled via Separate LOA.</p> <p>As part of FOM-3.1, the OMCE shall create and inventory of the Commission's Fiber Infrastructure assets. Costs for data entry/inventory will be compensated under FOM-3.1 as indicated in Appendix G – Price Proposal.</p>
29.	79 of 86	FOM-3	Fiber Management System	The RFP states that the "O&M and Commercialization Entity shall procure, implement, and use a robust third-party Commercial off-the-shelf (COTS) Fiber Management System." Can the Commission provide the format of the design and as-built drawings for the D-B projects currently under construction?	<p>The as-built drawings shall be submitted electronically in CADD format and PDF electronic format size ANSI D 22" X 34". All CADD data shall be supplied in either the DWG/DGN format. The Commission's primary CADD software is Autodesk Civil 3D 2018. No translations will be accepted.</p> <p>Refer to FR-1.18 for Commission CADD standards.</p>

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
30.	79 of 96	FOM-3	Fiber Management System	Do the drawings packages currently under development include outside plant (OSP) as well as splice diagrams, rack elevations, and handhole / manhole drawings / butterflies? Will the Commission provide these detailed drawing packages to the Proposers?	<p>Detailed plans for the D-B contracts are not available currently but will be made available to the OMCE. Additionally, the Commission will provide all available rack elevations, splice diagrams, etc. for existing fiber to the OMCE. Any gaps in information will be the OMCE's responsibility as part of the initial setup and ongoing maintenance of the FMS.</p> <p>As indicated in FOM-6.4, the OMCE will be responsible developing fiber distribution/termination plans and coordinating with the D-B contractors.</p>
31.	81 of 86	FOM-3.1	FMS Inventory Management	Will the Commission provide all as-built sets once approved and accepted by the Commission?	Yes.
32.	81 of 96	FOM 3.1	FMS Inventory Management	What platform is currently used for GIS/Mapping?	<p>ESRI ArcGIS. (ESRI File Geodatabase Format).</p> <p>Refer to FOM-3.2, FOM-3.4, and Appendix T for additional information regarding the FMS and ESRI compatibility.</p>
33.	82 of 96	FOM-3	Fiber Management System	Will the FMS need to adhere to strict Symbol requirements or is symbol selection flexible?	Symbol selection is flexible; however the Commission requires that an industry-accepted and recognized standard should be followed.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
34.	82 of 96	FOM-3	Fiber Management System	Can the FMS utilize third party applications such as WO reports and mobile device apps?	<p>Mobile device applications and third-party applications can be utilized.</p> <p>All Work Order initiation and closeout must be performed in ServiceNow, but pertinent information may be shared/input into the FMS as well.</p>
35.	83 of 96	FOM-3	Fiber Management System	How often will importing and exporting be required?	<p>At a minimum, importing and exporting will be performed once per month.</p> <p>Additional importing and exporting will be required as needed to maintain the accuracy of PTC GIS and CADD documents as fiber changes occur.</p>
36.	86 of 96	FOM-4.1	New Fiber Installation	This section states, "The O&M and Commercialization Entry will be required to attend the construction meetings, specifically the design portion on the construction meeting." When will these meetings begin and how often will they held?	These meetings will generally be held monthly and will commence this July 2020.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
37.	86 of 96	FOM-4.2	Management of Existing Fiber	<p>When is the planned acceptance period for the existing lit fiber optic cable? Is the Commission currently performing locates on this cable? If the fiber is not to acceptable standards, does the OMCE need to develop the statement of work for Commission approval, and will the OMCE be responsible to perform this work at Commission cost prior to accepting the existing fiber optic cable?</p> <p>The RFP also states the OMCE takes responsibility of O&amp;M for the existing lit fiber. At what point is the OMCE responsible and accountable for the existing dark fiber? There is a concern that the spare duct and dark fiber are located in the same sheath or duct as the lit fiber and may already be or become damaged prior to us accepting.</p>	<p>Lit fiber currently being used is assumed to be operational; the OMCE accepts existing lit fiber in use upon NTP.</p> <p>If a break is observed in existing lit fiber, costs and schedules for replacement, testing, and acceptance will be defined by Standard LOA if possible and Separate LOA as needed under FOM-2.</p> <p>Regarding management of existing dark fiber, please refer to the second paragraph under FOM-4.2.</p> <p>The OMCE is not responsible for testing, accepting, and managing existing dark fiber unless it is chosen to be used – in this case, the OMCE will be responsible for testing and proving the dark fiber is operational before it is accepted and subsequently used. Once accepted, the OMCE will be responsible for maintaining it in accordance with the RFP.</p>

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
38.	86 of 96	FOM-5	Trunk Connections	<p>The RFP states “The Commission reserves the right to use other contractors for Communications Assets installations and implementations at its sole discretion. The O&amp;M and Commercialization Entity shall be responsible for operation and maintenance of these Communications Assets after installation and testing.”</p> <p>We request the Commission re-consider allowing contractors other than the OMCE to install and implement trunk connections and other system assets. It is our experience that limited access to the system provides added system protection for all users, including the Commission, and minimizes the potential for disruptions and other failures.</p>	The Commission’s preference is for the OMCE to install and implement all associated system assets. However, the Commission reserves the right to utilize other contractors.
39.	87 of 96	FOM-5.2	Temporary and Relocated Fiber Optic Cable	Who is responsible for costs (like purchase of new fiber optic cable) for relocation projects?	A Separate LOA will be used for each project based on the unit prices proposed for FOM-5.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
40.			Appendix G – Price Proposal	<p>I'm writing for clarification to Addendum No. 1 for RFP 19-10350-8799 Fiber Infrastructure Operations, Maintenance and Commercialization Services. It advised to replace the Electronic Version of Appendix G – Price Proposal with the revised Appendix G – Price Proposal Addendum # 1 – 12-20-2019 provided as attached to the addendum. However, it was not attached to the addendum as posted on the PTC website. All documents are PDFs, not native files.</p> <p><a href="https://www.paturndpike.com/procurement/UserRFPDe tails.aspx?rfplD=101095">https://www.paturndpike.com/procurement/UserRFPDe tails.aspx?rfplD=101095</a></p> <p>Is that document available somewhere else online or how can we obtain the working .xlsx file?</p>	<p>Appendix G – Price Proposal Addendum #1 -12-20-2019 is attached to Addendum 1. You can access it from the paperclip. See below.</p> 
41.			Appendix G – Price Proposal	<p>Appendix G appears to be an excel workbook (based on Addendum 1); however, the PDF download from (<a href="https://www.paturndpike.com/Procurement/UserRFPDe tails.aspx?rfplD=101084">https://www.paturndpike.com/Procurement/UserRFPDe tails.aspx?rfplD=101084</a>.) is not a fillable form, and there does not appear to be an excel attachment on the procurement page. Will the Excel version of Appendix G be provided and if so, by when?</p>	Refer to response to question # 40.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
42.		Appendix U	Construction Qualifications and Pre-qualifications	Appendix U states "The vendor must be certified to perform the following PennDOT P Codes per Pub 637..." Does this requirement apply solely to the Operations & Maintenance and Commercialization Entity (OMCE) or Proposer, or does this apply to the team collectively? If not, will the Commission consider modifying this requirement to apply to the collective proposing team?	<p>As stated in the RFP, Appendix U refers to New Lateral Installations and any other work requiring the installation of civil infrastructure.</p> <p>The P-Codes will be required when the OMCE is installing civil infrastructure. If the OMCE uses a third-party contractor or subcontractor to perform the installation, the third-party contractor/subcontractor will need the required P-Codes to perform the work.</p>
43.			General	What, if any, penalties are there if service offering targets are not met by the OMCE; services sold to residential, ISPs, Wholesale?	<p>The OMCE shall bear all risk associated with the Commercial Contracts / Commercial Agreements entered with Commercial End-Users and the Commission shall have no liability whatsoever to the OMCE or the Commercial End-Users for the non-performance of services and / or provisions included in such Commercial Contracts / Commercial Agreements. The OMCE must pay to the Commission the Minimum Revenue Commitment set forth in the Price Proposal.</p> <p>The performance of the O&amp;M Services, Proposers should refer to the requirements stated in the RFP.</p>



Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
44.			General	If any portion of the network needs to be overbuilt, who funds that expense?	Proposers should refer to the process outlined in Section IVA-13. Future Proofing of Commercialization Assets.
45.			General	What is the process with establishing a POP/location regen?	The Commission will review POP / regen locations proposed by the OMCE on a site-by-site basis.
46.			General	Due to the complexities of the requirement and the financial and performance commitments required of the Proposer, will the Commission consider conducting one on ones with the Proposer and its team members prior to the response due date?	Proposers should refer to the process outlined in Section IVA-13 of the RFP. Future Proofing of Commercialization Assets.

All other terms, conditions and requirements of the original RFP dated December 18, 2019 and Addendum 1 remain unchanged unless modified by this Addendum.

## **Addendum No. 3**

RFP # 19-10350-8799

Fiber Infrastructure Operations, Maintenance, and Commercialization Services

**Prospective Respondents:** You are hereby notified of the following information in regard to the referenced RFP:

### **REVISION**

1. Replace the Calendar of Events on page 2 of 96 of the RFP (3 of 313 in original RFP PDF file) in its entirety with the following:

### **Calendar of Events**

**RFP#19-10350-8799**

<b>Activity</b>	<b>Date</b>	<b>Time</b>
Request for Proposals Issued	December 18, 2019	N/A
Deadline for Proposers to Submit Questions via email to <a href="mailto:RFP-Q@paturnpike.com">RFP-Q@paturnpike.com</a>	February 18, 2020	2:00 PM
Answers to Proposers questions posted to the Commission website at <a href="https://www.paturnpike.com/Procurement/Bidlist.aspx?RTYPE=O">https://www.paturnpike.com/Procurement/Bidlist.aspx?RTYPE=O</a>	February 27, 2020	N/A
Due Date for Proposals	March 10, 2020	2:00 PM
Oral Clarifications/Presentations	Week of April 13, 2020	TBD
Anticipated Notice to Proceed	October 13, 2020	N/A

All other terms, conditions and requirements of the original RFP dated December 18, 2019, Addendum #1, and Addendum # 2 remain unchanged unless modified by this Addendum.

## **Addendum No. 4**

RFP # 19-10350-8799

Fiber Infrastructure Operations, Maintenance, and Commercialization Services

**Prospective Respondents: You are hereby notified of the following information in regard to the referenced RFP:**

### **REVISION**

1. Replace the *Electronic* Version of Appendix G. Price Proposal in its entirety with the revised “Appendix G. Price Proposal\_02.27.2020.xlsx” provided as an attachment to this Addendum. The revised Appendix G – Price Proposal incorporates revision(s) made to the “Reoccurring Costs Worksheet” and “Unit Costs Worksheet”.

### **ADDITION**

1. Add Appendix W – Single Unit Item Special Provisions provided as an attachment to this Addendum. The new appendix has been added to provide specifications that correspond with the “Unit Costs Worksheet”.

### **QUESTIONS AND ANSWERS**

Following are the answers to questions submitted in response to the above referenced RFP as of February 18, 2020. All of the questions have been listed verbatim, as received by the Pennsylvania Turnpike Commission.

Proposer Questions			<b>Pennsylvania Turnpike Commission (PTC)</b> RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
1.	N/A	N/A	N/A	Can the Commission provide maps of where electrical service is currently available along the proposed project corridor, and where electrical service will be expanded as part of their own projects in the near future? Is there a percentage of the route currently served?	The requested information is not available with the Commission.
2.	N/A	N/A	N/A	Can the Commission provide average ROW distance from interstate centerline(s) along proposed project corridor?	Typically, the Commission's Right-of-Way (ROW) have 200' width on average. Approximately 100' on either side of the centerline.
3.	N/A	N/A	N/A	Is there any wireless infrastructure currently in place along the Commission's ROW?	Yes. Presently, there are macro cell towers in the Commission's ROW. Additionally, the Commission's ROW includes wireless communications infrastructure for field devices including Intelligent Transportation System (ITS), gates, closed-circuit television (CCTV) and land mobile radio systems.
4.	N/A	Appendix G	One-Time Costs Worksheet	Can the Commission clarify if the first table (FOM-5.3) under One-Time Costs is the total anticipated units per site or across all (20) existing Cashless Toll sites? Should we assume the installation of all (20) happen at the same time?	Yes. FOM 5.3 applies to all 20 existing Cashless Tolling sites. Proposers should assume that all 20 sites will be available for installation by late 2021.
5.	N/A	Appendix G	One-Time Costs Worksheet	Should FOM-5.3 units include all labor, materials, and mobilization? If all sites will not be built in same dispatch, will the Commission consider adding a mobilization unit to cover mobilization and set up and reduce per unit fees?	A line item under FOM 5.3 has been added to address mobilization per Cashless Tolling site. Proposers should assume that all 20 sites will be available for installation by late 2021.

Proposer Questions			<b>Pennsylvania Turnpike Commission (PTC)</b> RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
6.	N/A	Appendix G	One-Time Costs Worksheet	For the FMS implementation, should the O&M vendor carry license and other 3rd party software costs in the lump sum price? Or will the Commission be paying those fees directly or on a pass through basis?	Yes, the O&M vendor should plan to carry these costs. Proposers should include all re-occurring costs associated with the FMS implementation, associated licenses and other 3 <sup>rd</sup> party software costs in line item FOM-3 Fiber Management System S-3A Reoccurring FMS, ArcGIS, ESRI, etc. licenses provided in “Reoccurring Costs Worksheet”.
7.	N/A	Appendix G	One-Time Costs Worksheet	Regarding FOM-4: Can the Commission clarify what is expected for level of effort and anticipated quantities for Witnessing and Acceptance as a lump sum? Rather, would the Commission be willing to pay for these activities under T&M rates?	Proposers should estimate their efforts associated with Witnessing and Acceptance testing. No change is made to the payment method for this item.
8.	N/A	Appendix G	One-Time Costs Worksheet	Regarding FOM-4: Would the Commission please provide D-B Contracts EN-00232-03-02 & EN-00232-03-03 as stated for reference?	Proposers can obtain the DB Contracts for EN-00232-03-02 and EN-00232-03-03 on the Commission’s Electronic Bidding System (EBS) site ( <a href="https://ebs.paturnpike.com/generalinformation/">https://ebs.paturnpike.com/generalinformation/</a> ). These documents can be found under the Bids tab. Please note that user registration as a business partner on the Commission’s EBS site is required to access these documents.
9.	N/A	Appendix G	One-Time Costs Worksheet	Regarding Independent Verification: Can the Commission quantify the level of effort expected in independent verification to better provide a lump sum price? Would the commission consider hourly rates for these activities?	Proposers should estimate their efforts associated with the Independent Verification and Validation. All costs should be included in OTHER S-6 FR-1.6 Independent Verification and Validation provided in “Reoccurring Costs Worksheet”.

Proposer Questions			<b>Pennsylvania Turnpike Commission (PTC)</b> RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
10.	N/A	Appendix G	Unit Costs Worksheet	How does the Commission propose to compensate for minimal work mobilizations?	Proposers should note that a new line labeled “U-21 Mobilization” has been added in “Unit Costs Worksheet” of the Appendix G – Price Proposal.
11.	N/A	Appendix G	Unit Costs Worksheet	Should proposers carry fees for 24/7 services in unit rates? Or will the Commission add a yearly retainer?	Proposers should provide their unit costs / rates to meet the operational performance standards required by the RFP.
12.	N/A	Appendix G	Unit Costs Worksheet	Will the Commission add a unit for mobilization to cover minimum dispatch?	Proposers should note that a new line item labeled “U-21 Mobilization” has been added in “Unit Costs Worksheet” of the Appendix G – Price Proposal.
13.	N/A	Appendix G	Unit Costs Worksheet	Would the Commission please provide specification documents with complete description of the units U-1 through U-20 for accurate pricing?	Appendix W has been added with specifications for the units U-1 through U-23.
14.	N/A	Appendix K	SLA	Is the Commission willing to negotiate the terms and conditions of the disincentives outlined in the RFP and more specifically, FR-2 and Appendix K?	Proposers should submit their responses in accordance with the terms and conditions of the disincentives included in the RFP and Appendix K.
15.	N/A	Appendix G	Unit Costs Worksheet	Regarding Note 5: Please clarify how changes to quantities shall be handled as OT-4 represents a Lump Sum cost associated for this work based on a fix quantity.	Note # 5 on the “Unit Costs Worksheet” has been revised and moved to “One Time Costs Worksheet”. Quantities for OT-4 are not expected to change.
16.		Section FR-1.16	Environmental Requirements	Would the Commission be open to providing the services outlined in this section as pass-through basis? It is not reasonable to assume provisions for items such as approvals, permitting, and environmental mitigation measures without known conditions or quantities.	The Commission expects that major environmental requirements will be addressed as part of “Separate LOA” and the method of compensation can be determined at the time of executing such “Separate LOA”.

Proposer Questions			Pennsylvania Turnpike Commission (PTC)		
			RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
17.		Section FOM 4-1	New Fiber Installation	Regarding construction meeting attendance, please provide parameters for meeting frequency and duration.	Proposers should note that these meetings will generally be held monthly and will commence on July 2020 and onwards. On average, such meetings are expected to last approximately 2 hours each.
18.	79 of 96	FOM-3	Fiber Management System	The licensing costs for a cloud-based FMS are typically recurring on a monthly or annual basis. Where in the pricing sheets should the recurring costs for the FMS be input?	Yes, the O&M vendor should plan to carry these costs. Proposers should include all re-occurring costs associated with the FMS implementation, associated licenses and other 3 <sup>rd</sup> party software costs in line item FOM-3 Fiber Management System S-3A Reoccurring FMS, ArcGIS, ESRI, etc. licenses provided in "Reoccurring Costs Worksheet".
19.	81 of 96	FOM-3.1	FMS Inventory Management	This question relates to data collection and data entry for the purpose of building the FMS and mapping. Are any of the existing fiber assets or those currently under construction documented in electronic format such as CADD or GIS? If yes, are those available for the bidder to review?	For existing fiber assets, the Commission does not have any records in CADD or GIS format.  For the new fiber assets to be constructed under Design-Build Contracts, the Commission will provide requested in electronic format such as CADD or GIS when ready.
20.	84 of 96	FOM-3.4	ESRI/GIS Integration	Will the FMS be able to use Commission provided ArcGIS licenses for the ESRI/ARC support and integration?	No. The Commission will not provide any ArcGIS user licenses for the ESRI/ARC support and integration in support of this contract.  Proposers should include all re-occurring costs associated with the FMS implementation, associated licenses and other 3 <sup>rd</sup> party software costs in line item FOM-3 Fiber Management System S-3A Reoccurring FMS, ArcGIS, ESRI, etc. licenses provided in "Reoccurring Costs Worksheet".

Proposer Questions			<b>Pennsylvania Turnpike Commission (PTC)</b> RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
21.	1 of 2	U-2	Unit Costs Worksheet	Please specify the dimensions of the micro-trench required including depth and width.	Typical dimensions of the micro-trench is 1.5" – 2" width by 16" depth.
22.	1 of 2	U-3 & U-4	Unit Costs Worksheet	Please define Type I and Type II Trenching and Backfilling units U-3 and U-4.	Type I and Type II Trench and Backfill shall meet the requirements identified in PennDOT Publication 408, Sections 910.3(c), 910.4(n), and 954 and as detailed in PennDOT Publication 148, TC-8804, Sheet 2 of 2 modified to 36" (min) depth of conduit.
23.	1 of 2	U-13	Unit Costs Worksheet	Please verify that U-13 Fiber Terminations is to be a per fiber price.	Confirmed.
24.	1 of 2	U-17	Unit Costs Worksheet	Please verify that U-17 Fiber Splice is to be a per fiber price.	Confirmed.
25.	1 of 2	U-20	Unit Costs Worksheet	U-20 Maintenance and Protection of Traffic can vary greatly per mile depending on time of day, date, location, number of lanes, etc. Could a typical be provided? If not, how should this be priced?	Proposers should refer to Maintenance and Protection of Traffic standards and plans available on the Commission's website for an example MPT scenario. For more information refer to link provided in Section FR-1.17 of the RFP.
26.	1 of 2	General	Unit Costs Worksheet	Due to the locations of some assets, some work will include night work in order to avoid lane closure issues. Can the Unit price worksheets be modified to include options for Straight time and Premium time work?	For the purposes of preparing responses, Proposers should use straight time to estimate the costs.



Proposer Questions			<b>Pennsylvania Turnpike Commission (PTC)</b> RFP 19-10350-8799		
#	Page	Section	Section Description	Proposer Question	Commission Response
27.	N/A	General		Due to complexities of the requirement and the financial and performance commitments required of the Proposer, will the Commission consider conducting one on ones with the Proposer and its team members prior to the response due date?	The Commission is not planning to conduct any one-on-one meetings with Proposers prior to the OMC RFP due date.

All other terms, conditions and requirements of the original RFP dated December 18, 2019, Addendum # 1, Addendum # 2, and Addendum # 3 remain unchanged unless modified by this Addendum.

\*\*\*\*\*

# APPENDIX W

---

## Single Unit Item Special Provisions



PENNSYLVANIA TURNPIKE COMMISSION  
FIBER INFRASTRUCTURE  
OPERATIONS & MAINTENANCE RFP

## **SPECIAL PROVISIONS INDEX**

<b>A.</b>	<b>PROJECT SPECIFIC PROVISIONS</b>	<b>PAGE NO.</b>
U-1	MICRO-DUCT BUNDLE .....	1
U-2	MICRO-TRENCHING AND RESTORATION .....	2
U-3	TRENCHING AND BACKFILL, TYPE I .....	3
U-4	TRENCHING AND BACKFILL, TYPE II .....	4
U-5	DIRECTIONAL BORING .....	4
U-6	JUNCTION BOX WITH ROUND COVER .....	5
U-7	FLEXIBLE DELINEATOR POSTS .....	6
U-8	FIBER OPTIC CABLE. SM, 288 STRAND .....	7
U-9	FIBER OPTIC TERMINATION PANEL AT DEMARCATION SITES .....	12
U-10	FIBER OPTIC CABLE SPLICE ENCLOSURE .....	13
U-11	CABLE INSTALLATION INSIDE BUILDING .....	14
U-12	CABLE RACKS INSIDE BUILDING .....	14
U-13	FIBER TERMINATIONS .....	14
U-14	WALL PENETRATION .....	15
U-15	TEMPORARY AERIAL FIBER OPTIC CABLE, 288 STRAND .....	16
U-16	35' WOOD POLES .....	20
U-17	FUSION SPLICE .....	21
U-18	FIBER TESTING .....	21
U-19	ROOT CAUSE ANALYSIS .....	23
U-20	MAINTENANCE AND PROTECTION OF TRAFFIC .....	23
U-21	MOBILIZATION .....	27
U-22	HDPE COMMUNICATIONS CONDUIT .....	27
U-23	JUNCTION BOXES, JB-1 .....	29

**U-1 MICRO-DUCT BUNDLE**

U-1.01 Description – This work is furnishing and installation of eight (8) bundled micro-ducts within micro-trench.

U-1.02 Material – Submit to the PTC for approval a micro-duct meeting the following characteristics:

- A. Micro-duct bundle shall have outer sheathing composed of HDPE.
- B. Micro-duct bundle quantity, sizing and orientation shall be determined by the Contractor and shall be utilized consistently throughout the length of the project.
- C. Micro-duct bundle(s) shall contain integrated tracer wire(s). Tracer wire(s) shall not be installed within the inner micro-duct(s).
- D. Micro-ducts shall be of adequate inside diameter to accommodate the overall size of the micro-fiber optic cable as defined by the manufacturer and detailed in the contract documents. Size the micro-ducts appropriately to accommodate the micro-fiber optic cable. All (8) micro-ducts used throughout the project shall be the same size.
- E. Micro-duct shall be recommended for direct bury installation by the manufacturer.
- F. Micro-duct couplings to maintain continuity of the conduit path.

U-1.03 Construction – Install micro-duct in accordance with all manufacturer recommendations and best practices.

Typical micro-duct installation in micro-trench shall consist of a total of eight (8) bundled micro-ducts. Micro-duct bundle(s) shall be composed of micro-ducts wrapped in an outer sheathing as described in U-1.02. Of the eight (8) total micro-ducts to be installed, one (1) micro-duct shall be dedicated for backbone fiber, and one (1) micro-duct shall be dedicated for distribution fiber. When installing micro-duct bundle(s) in micro-trench, orient the bundle(s) so the backbone and distribution micro-ducts are at the bottom of the trench. Cap all micro-ducts immediately upon installation to preserve the integrity of each individual micro-duct for the duration of the project. Remove applicable caps only to test the integrity of the ducts, and to install new fiber optic cable. Unused ducts not containing fiber optic cable are to remain capped. All caps shall be installed as per the manufacturer's recommendations to provide a watertight installation.

Each of the eight (8) individual micro-ducts shall have a unique color scheme. If the Contractor determines to install multiple micro-duct bundles, each individual bundle shall have a different color scheme, and each outer sheathing wrapping each bundle shall be of a different color. Colors shall not repeat. Maintain the same color scheme throughout the length of the project.

Contractor shall determine and submit to the Commission the size, quantity and orientation of the micro-duct bundle(s). The Contractor shall maintain a consistent installation of micro-duct bundle(s) within new micro-trench throughout the project. Contractor shall make every effort to match the color, size, quantity and orientation scheme set forth by the D/B Contractor.

Testing – After micro-duct installation is complete, each individual micro-duct shall be

proofed with a BB. Do not install pull lines in micro-duct. Select a BB of appropriate diameter to proof each micro-duct. The BB diameter must be 80% of the inner diameter of the individual micro-duct.

Attach a high-pressure air supply using a quick-connect fitting of the appropriate size for the micro-duct being tested at one end. At the opposite end of the micro-duct, cover the end of the duct with a sturdy mesh bag or sock to collect the BB once it has traveled through the entire length of the micro-duct. Secure the bag or sock with tape or a cable tie to verify the BB exits the far end of the micro-duct. Perform this testing under the supervision of the QC Manager to witness the successful collection of the BB. Use a minimum air pressure of 75 psi. Use extreme caution and use best safety practices when performing this work as the BB will exit the microduct with considerable pressure.

Should a BB become lodged in the micro-duct, apply high-pressure air at the far end of the duct to try to dislodge the BB. If applying air from the far end does not remove the BB, blow a BB of the next size smaller diameter to help dislodge the stuck BB.

Failure to pass the BB through the micro-duct constitutes failure of the test. If the test fails, recheck all air connections and perform the test again. All micro-duct that does not pass the second clearance test shall be considered non-conforming and subject to corrective procedures. All connections of the micro-duct along the route shall be checked for proper connection. The BB test shall be repeated until the location(s) of non-conforming micro-duct can be isolated and repaired. All corrective testing and repair of non-conforming duct shall be performed at no additional cost to the Commission.

U-1.04 Measurement and Payment – Linear Foot.

## U-2 MICRO-TRENCHING AND RESTORATION

U-2.01 Description – This work is excavating micro-trench and restoring the trench.

U-2.02 Material – Furnish a durable reinstatement material meeting or exceeding the following specifications:

	Result	ASTM
Solids Content	100%, SCAQMD compliant	D2369
Tensile Strength	≥5,000 psi	D412
Concrete Adhesion	900 psi; 100% substrate failure	D7234
Compressive Strength at 5% strain, 3d RT cure	1,500 ±300 psi	C579 Method B C109

The Manufacturer shall certify the reinstatement material is suitable for the following applications:

- Roadway installations within micro-trenches and joints in concrete or asphalt
- Freeze-thaw resistant for durability in cold climates
- Slope and grade applications and can be installed on incline/decline
- Black in color
- Topping sand available in Black or Natural color

Bulletin 15 approved materials are not required for this application. One acceptable product is FastPatch 8400; however, any reinstatement material in compliance with these provisions is acceptable. It is the Contractor's responsibility to demonstrate the reinstatement material meets or exceeds the requirements of this specification.

- U-2.03      Construction – Excavate micro-trench of sufficient depth to provide 13 inches of cover to the top of the highest duct. Micro-trench shall be of sufficient width to comfortably accommodate the bundled micro-duct(s) as specified herein.

Install micro-trench in the shoulder as shown in the contract documents outside of the Sonic Nap Alert Pattern (SNAP) without causing any damage to the SNAP. Any damage to the SNAP caused by the Contractor shall be repaired at no additional cost to the Commission.

Do not install micro-trench across ramps.

Do not install marking tape within the micro-trench.

Backfill and restore micro-trench with a durable reinstatement material meeting or exceeding the requirements outlined in U-2.02. Top with a topping sand that closely approximates the color and texture of the roadway. Do not remove shoulder restrictions until the Commission verifies micro-trench has been restored with backfill that is rigid and flush with surrounding pavement.

Micro-trench must be installed flush with the surrounding roadway without settlement. Any trenches found to be insufficiently backfilled, improperly cured or improperly bonded must be repaired by the Contractor at no additional cost to the Commission.

- U-2.04      Measurement and Payment – Linear Foot.

### **U-3            TRENCHING AND BACKFILL, TYPE I**

- U-3.01      Description – This work is the excavation of Type I (unpaved surfaces) trench and backfilling in accordance with PennDOT Publication 408, Sections 910 and 954 and TC-8804.

- U-3.02      Construction – In accordance with Sections 910 and 954 and as follows:

Spider plow trenching is an acceptable method of construction.

Where conduit is to cross a drainage pipe or other lateral obstruction, identify the location in the field with paint or another method acceptable to the Commission prior to beginning trenching operations and provide suitable crossing method.

Install metallic warning tape, orange in color, for fiber trenches.

Install conduit in trench at a minimum of 36" depth. Maintain a minimum clearance of 6 inches between power and communications conduits when placed in the same trench.

- U-3.03      Measurement and Payment – Linear Foot. The price includes excavation, backfilling,

temporary and permanent plastic trench markers, and surplus material disposal. No allowance will be made for rock excavation or for any other subsurface condition encountered. Unless otherwise authorized, no allowance will be made for additional trench lengths as a result of deviation from the indicated trench locations.

#### **U-4 TRENCHING AND BACKFILL, TYPE II**

U-4.01 Description – This work is the excavation of Type II (sidewalk/paved shoulders) trench and backfilling in accordance with PennDOT Publication 408, Sections 910 and 954 and TC-8804.

U-4.02 Construction – In accordance with Sections 910 and 954 and as follows:

Where conduit is to cross a drainage pipe or other lateral obstruction, identify the location in the field with paint or another method acceptable to the Commission prior to beginning trenching operations and provide suitable crossing method.

Install metallic warning tape, orange in color, for fiber trenches.

Install conduit in trench at a minimum of 36" depth. Maintain a minimum clearance of 6 inches between power and communications conduits when placed in the same trench.

U-4.03 Measurement and Payment – Linear Foot. The price includes excavation, backfilling, temporary and permanent plastic trench markers, and surplus material disposal. No allowance will be made for rock excavation or for any other subsurface condition encountered. Unless otherwise authorized, no allowance will be made for additional trench lengths as a result of deviation from the indicated trench locations.

#### **U-5 DIRECTIONAL BORING**

U-5.01 Description – This work includes directional boring to install conduit in accordance with PennDOT Publication 408, Section 954. Provide all labor, materials and equipment required to meet the requirements for the directional boring. Use of directional boring will be allowed at the discretion of the Commission.

U-5.02 Material – Includes 6" HDPE Casing Pipe:

- 6" diameter HDPE DR11 Casing Pipe
- Minimum wall thickness of 0.487 inches
- Rating of 128 psi

U-5.03 Construction – In accordance with 954.3(b) and as follows:

A. Preparation

All excavation, sheeting, shoring, bracing, and dewatering must comply with the applicable requirements of Publication 408 and the requirements of the applicable authorities.

B. Installation

1. Directional boring Installation

- a. The directional boring method must consist of pushing the pipe into the fill with a boring auger rotating inside the pipe to remove the spoil.

- b. Provide the front of the casing pipe with suitable mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe.
- c. The equipment and mechanical arrangements or devices used to drill and remove the earth and/or rock must be removable from within the casing pipe in the event an obstruction is encountered.
- d. The face of the cutting edge must be arranged to provide reasonable obstruction to the free flow of soft or poor soil.
- e. Do not use water or other liquids to facilitate casing emplacement or spoil removal.

U-5.04     Measurement and Payment – Linear Foot.

**U-6            JUNCTION BOX WITH ROUND COVER**

U-6.01     Description – This work consists of the furnishing and installing a junction box with round cover.

U-6.02     Material – Provide junction boxes that meet the following requirements:

- A. Junction box dimensions shall be, at a minimum, the dimensions shown in Attachment D of the D/B Contract EN-00232-03-03.
- B. Junction box lid shall be a circular, gray, solid cast iron, non-skid cover with a minimum dimension of 32” in diameter and minimum 1.5” thick. Lid shall be permanently marked with the text “PTC COMM” with 2” raised letters.
- C. Junction box shall be designed to be capable of accommodating a minimum of four (4) cable rack supports within junction box. Cable rack supports to be installed in boxes where required as per the contract documents. Cable rack supports are not required to be fabricated with the junction box.
- D. Provide knockouts in junction box walls as shown in Attachment D of the D/B Contract EN-00232-03-03.
- E. Provide an 8” x 8” square hole in the bottom center of the junction box for drainage.
- F. Provide (4)-1” diameter ground rod holes at the corners of the drainage hole.
- G. Junction box shall be designed using PHL-93 Live Load with Load and Resistance Factor Design (LRFD) in accordance with AASHTO LRFD Bridge Specifications, 7th Edition 2014 and PennDOT, DM-4.
- H. Reinforcement and details for the junction box and top slab to conform to RC-46M.
- I. Ensure the ring and cover are made of gray, solid cast iron and comply with AASHTO M105, Class 35B and AASHTO M306.
- J. Provide certification by a Professional Engineer registered in the Commonwealth of Pennsylvania for design calculations showing the junction box meets all loading requirements.
- K. Junction box cover and frame to be in accordance with the requirements of RC-39M.
- L. Flowable Backfill as per Section 220.
- M. Superpave Mixture Design Binder and Wearing Course as per Section 409.
- N. Rubberized Joint Sealing Material – ASTM D6690 – Type 1.
- O. Cement Concrete as per Section 704.

U-6.03     Construction –



- A. Install the junction box within the paved shoulder as required.
- B. Notify and obtain approval from the Commission of any planned deviations from the typical installation location as shown in the D/B Contract EN-00232-03-03 contract documents.
- C. Contractor shall sawcut clean lines in the field for the removal of asphalt prior to junction box installation. Clean lines shall be maintained when asphalt is removed. Broken edges of asphalt shall not be acceptable.
- D. Excavate a maximum of 1' on each side beyond the footprint of the junction box.
- E. Set the top of the ring and cover flush with the finished surface of the roadway. The maximum allowable depression is ½". The ring and cover shall in no way protrude above the surface. At the Contractor's option, the junction box may be installed so the junction box is not level in areas of significant cross slope or superelevation. Otherwise, acceptable adjustment rings must be utilized.
- F. Install (1)-4" conduit from the junction box to a minimum of 24" beyond the paved shoulder for future connections. Ensure conduits enter the junction box perpendicular to the walls or as approved by the Commission. Maintain a 2" separation between adjacent walls, conduits and cable racks. Cap and seal both ends of the conduit stub-out.
- G. After installation of conduit, completely seal all open recesses with brick and grout.
- H. Provide and install ground rods as per NEC requirements.
- I. Provide Flowable Backfill, Type B, around all sides of the junction box after construction. Install Flowable Backfill as per Section 220.
- J. Restore pavement to final grade as per Section 409. Replace materials in-kind. If cement concrete is necessary, install as per Section 704.
- K. Seal around the new pavement with Rubberized Joint Sealing Material – ASTM D6690-Type 1.

U-6.04 Measurement and Payment – Each

## **U-7 FLEXIBLE DELINEATOR POST**

U-7.01 Description – This work consists of the furnishing and installing flexible delineator post of the type and color indicated.

U-7.02 Material – Sections 937.2 and 1101.09 and as follows:

- A. As listed in Bulletin 15 – Color: Orange.
- B. Decals – Non-reflective, weather resistant with warning message of Buried Fiber Optic Cable.

U-7.03 Construction –

- A. Install decals, sheeting, letters, and numbers on the posts as indicated on the D/B Contract EN-00232-03-03 contract drawings and Standard Drawings.
- B. For soil installations use a chisel pointed, drivable, reusable metal anchor into which the post is inserted and held in place with a locking mechanism.
- C. After placing the conduit,
  - a. Install orange flexible delineator posts where the conduit passes under the edge of paved shoulder;
  - b. Install orange flexible delineator posts at each junction box and at horizontal bend

points, as indicated and as directed by the Commission, to identify the conduit as underground fiber optic cable. Where junction boxes are installed within the pavement, install the delineator posts outside of the shoulder as close to the junction box as practicable.

U-7.04 Measurement and Payment – Each. Includes decal.

**U-8 FIBER OPTIC CABLE, SM, 288 STRAND**

U-8.01 Description – This work consists of the furnishing, installing, terminating and testing of single-mode micro-fiber optic cable, including all mounting hardware. Refer to the special provisions for D/B Contract EN-00232-03-03 for additional information.

U-8.02 Material – In accordance with Section 1204.2(a) and as follows:

- A. Recommended for underground conduit installation by the manufacturer.
  - B. General. Certify the manufacturer meets the following requirements and submit proof to the Commission.
    - a. ISO 9001 and ISO 14001 certified manufacturer
    - b. TL 9000 registered quality management system
  - C. Outside Plant Cable (OSP). The cable shall meet the requirements of ANSI/ICEA Draft Standard for Fiber Optic Outside Plant Communications Cable, ANSI/ICEA 744, and IEC 60794-5-10. Fiber optic cable meeting the following general requirements:
    - a. Permanently identify each reel of fiber optic cable with a label listing, but not limited to, the following:
      - i. Cable type and number
      - ii. Gross weight
      - iii. Cable length
      - iv. Job order number
      - v. Date of manufacturing
      - vi. Date of factory test
    - b. Provide a data sheet with each reel containing the factory test results for each fiber in the cable. The following information, at a minimum is to be included:
      - i. Cable number
      - ii. Factory Order Number
      - iii. Customer Purchase Order Number
      - iv. Measured Attenuation of Each Fiber
      - v. Ordered Length
      - vi. Actual Shipped Length
- Submit all data sheets to the QC Manager for review and approval prior to installation. Complete this review within 15 business days of receipt of material.
- D. Single Mode Optical Fiber.
  - E. Cable Construction.
    - a. Optical fibers shall be placed inside a loose buffer tube. The nominal outer diameter of the buffer tube shall be between 1.4 - 1.95mm. The buffer tube shall have a dual-layer construction with polycarbonate PC inner layer and polybutylene terephthalate (PBT) outer layer.

- b. Each buffer tube shall contain up to 36 fibers.
- c. The fibers shall not adhere to the inside of the buffer tube.
- d. Each fiber shall be distinguishable by means of color coding in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding."
- e. The fibers shall be colored with ultraviolet (UV) curable inks.
- f. Buffer tubes containing fibers shall be color coded with distinct and recognizable colors in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding."
- g. In buffer tubes containing multiple fibers, the colors shall be stable across the specified storage and operating temperature range and shall not be subject to fading or smearing onto each other. Colors shall not cause fibers to stick together.
- h. In buffer tubes containing more than 12 fibers, fiber identification will utilize a black tracer method. The first 12 fibers will be the standard color; fibers 13 through 24 will repeat the same color identification with black tracer, with the exception of fiber 20: "the second black fiber". This fiber will be opaque (transparent coating) with black tracer. Fibers 25 through 36 will repeat the same color identification with two black tracers. This helps uniquely identify the fibers.
- i. The buffer tubes shall be resistant to external forces and shall meet the buffer tube cold bend and shrinkback requirements of 7 CFR 1755.900.
- j. Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed. Fillers shall be placed so that they do not interrupt the consecutive positioning of the buffer tubes. Fillers shall be nominally between 1.4 – 1.95 mm in outer diameter.
- k. The central member shall consist of a dielectric, glass reinforced plastic (GRP) rod. The purpose of the central member is to provide tensile strength and prevent buckling. The central member shall be over-coated with a PE up-jacket when required to achieve dimensional sizing to accommodate buffer tubes/fillers.
- l. Each buffer tube shall be filled with a non-hydroscopic, homogenous gel that is nonnutritive to fungus and electrically non-conductive. The gel shall be free from dirt and foreign matter. The gel shall be readily removable with conventional non-toxic solvents. Gel is only permissible within buffer tubes.
- m. Buffer tubes shall be stranded around the dielectric central member using the reverse oscillation, or "S-Z", stranding process.
- n. Cables shall contain tear features 180° apart for easy sheath removal without the need for ripcords. The tear feature shall open only when the sheath halves are pulled apart at end of the sheath or a mid-span ring-cut opening. The tear feature shall not open during handling, installation, or operation.
- o. Cables shall be sheathed with polyethylene (PE). The nominal jacket thickness shall be 0.5 mm. Jacketing material shall be applied directly over a cable core thin-film binder.
- p. The HDPE jacket material shall be as defined by ASTM D1248, Type III, Class D, Category 3 and Grade J4.
- q. The jacket or sheath shall be free of holes, splits, and blisters.
- r. The cable jacket shall contain no metal elements and shall be of a consistent thickness.
- s. Cable jackets shall be marked with the manufacturer's name, month and year of

manufacture, sequential meter or foot markings, a telecommunication handset symbol as required by Section 350G of the National Electrical Safety Code (NESC), fiber count, and fiber type. The actual length of the cable shall be within -0/+1% of the length markings. The print color shall be white.

- t. The shipping, storage, and operating temperature range of the cable shall be -40°C to +70°C. The installation temperature range of the cable shall be -5°C to +60°C.

F. Cable Performance Specifications

- a. When tested in accordance with IEC 60794-1-22, “Optical fiber cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental test methods” for Temperature Cycling, the change in attenuation at extreme operational temperatures (-40°C and +70°C) for a minimum cable length of 1,000 meters after two cycles, shall not exceed 0.15 dB/km at 1550 nm for single-mode fiber.
- b. When tested in accordance with IEC 60794-1-22, “Optical fiber cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental test methods” - Water Penetration test: a three-meter length of unaged cable shall withstand a one-meter static head or equivalent continuous pressure of water for 24 hours without leakage through the open cable end.
- c. When tested in accordance with IEC 60794-1-21, “Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods” – Compound Drip: the cable shall exhibit < 0.05 grams flow (drip or leak) of filling and/or flooding material at 70°C for 24 hours.
- d. When tested in accordance with IEC 60794-1-21, “Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods” – Crush Under Load (Compressive Loading), the cable shall withstand a minimum compressive load of 50 N/cm applied uniformly over the length of the sample for one minute, with attenuation change to be equal to or less than 0.05 dB after removing the load.
- e. When tested in accordance with IEC 60794-1-21, “Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods” – the cable shall withstand 25 mechanical flexing cycles around a sheave diameter not greater than 20 times the cable diameter (30 mm OD Minimum). The change in attenuation shall not exceed 0.10 dB at 1550 nm for single-mode fiber and there shall be no cable damage.
- f. When tested in accordance with IEC 60794-1-21, “Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods” – Impact Test: At room temperature: one impact with a 300 mm radius hammer (1Nm) in three locations 150 mm apart, optical measurements after each impact not to increase more than 0.15dB, also no cable damage or broken fibers. At room temperature: Two impacts with a 12.5 mm NA hammer (2Nm) in three locations 150 mm apart, optical measurements after each the two impacts not to increase more than 0.15dB, also no cable damage or broken fibers. Cold Impact: At -10°C, two impacts with a 12.5 mm NA hammer (2Nm) in three locations 150 mm apart – no splitting or jacket damage.
- g. When tested in accordance IEC 60794-1-21, “Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods” – Tensile Test: the cable shall withstand a rated tensile load of 350 N (75 lb) for 6 positions and 1000N (225 lb) for 8 and 12 positions during tensile load

application. The axial fiber strain shall be  $\leq 60\%$  of the fiber proof level after completion of 60 minute conditioning and while the cable is under the rated installation load and attenuation increase not to increase more than 0.1 dB. The axial fiber strain shall be  $\leq 20\%$  of the fiber proof level after completion of 10 minute conditioning and while the cable is under the residual load. The change in attenuation after load removal shall not exceed 0.05 dB at 1550 nm for single mode fiber.

- h. When tested in accordance with IEC 60794-1-21, "Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods" – Torsion (Twist) Test: a length of cable no greater than 2 meters shall withstand 10 cycles of mechanical twisting  $\pm 180$  degrees. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber.
- i. When tested in accordance with IEC 60794-1-21, "Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods" – Hot/Cold Bend: the cable shall withstand four full turns around a mandrel of 20 times the cable diameter after conditioning for four hours at test temperatures of  $-30^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$  – repeat 3 times. Neither the inner or outer surfaces of the jacket shall exhibit visible cracks, splits, tears, or other openings. The change in attenuation shall not exceed 0.10 dB at 1550 nm for single mode fiber.
- j. When tested in accordance with IEC 60794-1-22, "Optical fiber cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental test methods" – Thermal Aging: The cable shall be exposed to  $+85^{\circ}\text{C}$  for 168 hours. Optical measurements are not required during this phase. After the ageing steps, perform a temperature cycling test according to Method F1. Perform two full cycles. At the end of the last cycle, the temperature shall be lowered to  $+23^{\circ}\text{C}$ , which shall be maintained for 24 hrs., and the attenuation shall be measured. At the final  $+23^{\circ}\text{C}$  temperature, attenuation measurements shall be performed. The maximum allowable attenuation increase shall be: at 1550 nm, 0.25 dB/km, maximum, and an average of 0.10 dB/km.
- k. When tested in accordance with IEC 60794-1-21, "Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods" – Cable Kink test performed as follows: A loop shall be made and the diameter of the loop shall be reduced to the onset of kinking by pulling slowly on the two ends. When the kinking begins, stop pulling. The Kink OD is not more than 40 X the cable OD. Measure the length of the cable in the loop, C, beginning and ending at the crossover point. Calculate the equivalent loop "diameter" by applying the formula:  $d = C/\pi$ .
- l. Maximum Jacket Eccentricity measured with ASTM D4565: not to exceed 40%.
- m. When tested in accordance with IEC 60794-1-21, "Optical fiber cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical test methods" – Buffer Tube Kink test performed as follows: A loop shall be made and the diameter of the loop shall be reduced to the onset of kinking by pulling slowly on the two ends. When the kinking begins, stop pulling. The Kink OD is not to be more than 60 mm. Measure the length of the tube in the loop, C, beginning and ending at the crossover point. Calculate the equivalent loop "diameter" by applying the formula:  $d = C/\pi$ .
- n. When tested in accordance with Telcordia GR-20: FOTP 244 and RUS PE 90 buffer tubes shall pass Temperature Cycling ( $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ ) as follows: GR-20, 14 feet

of buffer tube expressed in three loops with the following diameters: 75mm, 120mm, and 210mm, max attenuation change allowed is no greater than 0.15dB after two cycles. RUS PE 90: 20 feet of buffer tube expressed in three loops with the following diameters: 75mm, 120mm, and 210mm, max attenuation change allowed is no greater than 0.10dB and average allowed is no greater than 0.05dB after five cycles.

- o. When tested in accordance with EN 60068-2-17 and EN 60068-2-18 for closure testing, no leaks will occur where bubbles are present or water ingresses into the closure after the following test parameters are applied: 40kPa for 15 minutes and 100kPa for seven days.
- p. When tested in accordance with TIA/EIA – 598c, buffer tubes shall meet the colors as specified in the Munsell Chart after visual inspection.

U-8.03     Construction – In accordance with Section 1204.3(a) and as follows:

The Contractor is responsible for furnishing, installing and testing the micro-fiber optic cable of the size and type required. The Contractor is responsible for appropriately sizing the micro-fiber optic cable so it can be safely installed within the microducts, as well as any other raceways, new and existing.

The ends of the fiber optic cable on each reel shall be protected with caps and shall be accessible for testing before installation. If damage to cables is suspected at any time, the Commission may request a retest of all suspected cable, at the Contractor's expense, within 48 hours of notification.

Contractor shall be responsible for verifying that the overall diameter of the fiber optic cable is of appropriate size to be safely installed within the selected micro-ducts.

Store all cable in accordance with the manufacturer's recommendations. Install and terminate the cable as per the manufacturer's recommendations.

All fiber optic cable installed within micro-duct shall be blown through with a BB. Pulling a mandrel shall not be allowed.

Backbone fiber shall be installed in a manner that it is only spliced to provide a continuous path between network hub demarcation sites.

Distribution fiber shall be installed in a manner that it provides a continuous path to local splices to connect Commission assets and demarcation sites.

Intermediate complete cable splices shall only be permitted to connect cable from two different cable spools.

Fusion splices are the only permitted splicing method for fibers.

At no time shall any cable, buffer tube or fiber be subjected to a bend radius less than 15 times its outer jacket diameter.

All cable slack loops shall comply with the minimum bend radius for that cable, buffer tube or fiber. All cable slack loops shall use loop rings, brackets or similar methods to ensure loop

radius integrity. Where multiple cable slack loops are required at the same location, loop and secure separately each cable.

Cable must be attached to the wall of a junction box or manhole in a manner which does not adversely affect the integrity of the box. Cable must not lie at the bottom of the junction box or manhole.

Provide cable tags of weather resistant, non-ferrous metal, nylon, or other non-conductive material. Cable tags shall be printed sealed labels for readability and longevity and shall be provided for each fiber optic cable at the demarcation points, junction boxes, splice points, and other areas where the fiber optic cable is terminated or is exposed.

Submit all installation procedures for review and approval by the Commission prior to installation. Complete this review within 20 business days of receipt of material.

Maintain fiber optic cable assignment records of all assignments and splicing charts for all strands of the broadband cables installed as part of the project. Coordinate with the Commission's fiber O&M Contractor as necessary to maintain these records.

Testing – Test the fiber in accordance with U-18.

U-8.04 Warranty – The Contractor shall coordinate with the fiber optic cable manufacturer to provide a fully transferable twenty (20) year material warranty to the Commission.

U-8.05 Measurement and Payment – Linear Foot. Price for testing of fiber to be captured in U-18.

## **U-9 FIBER OPTIC TERMINATION PANEL AT DEMARCATION SITES**

U-9.01 Description – Provide rack-mountable Fiber Termination Panels (FTP) for the splicing and termination of fiber optic cable.

U-9.02 Material – Fiber terminations must be performed at a termination panel.

FTP shall be Corning Closet Connector Housing (CCH) Four-Rack (4U) units - Part Number – CCH-04U.

Contractor to provide compatible Corning CCH cassettes for storing fiber splices and slack for both used and unused fibers within the panel. Provide splice trays as specified and required.

Utilize factory terminated LC type pigtail connectors of the size required for the fiber optic cable to perform terminations.

U-9.03 Construction – Install the FTP in a consistent, vertical orientation at each Demarcation Site. Orient each termination panel so front access is provided to the terminated fibers.

Fiber shall be terminated in Corning CCH cassettes compatible with the provided termination panel.

Individually identify (label, tag) all fibers in the FTP.

Terminate LC connectors in single mode fiber pigtails fusion spliced to the fiber optic cable as required.

U-9.04 Measurement and Payment – Each.

**U-10 FIBER OPTIC CABLE SPLICE ENCLOSURE**

U-10.01 Description – Perform and install underground fiber splices within the splice enclosures inside of junction boxes as required in the Contract Documents and as described within these specifications below. Contractor shall furnish the appropriately-sized splice enclosure at the appropriate locations. Each fiber shall be fusion spliced for each location required.

U-10.02 Material – House all fiber optic splices in fiber optic splice enclosures, which shall include organizer trays, brackets, clips, cable ties, seals and sealant, and other miscellaneous items as required for a full and complete installation. Provide splice enclosures that meet the following requirements:

- A. Splice enclosures shall be compatible with the proposed Fiber Optic Network.
- B. Splice enclosures shall be rigid non-filled case.
- C. Splice enclosure case shall be molded out of flame-retardant polyester/polycarbonate steel.
- D. All splice enclosure hardware shall be corrosion resistant aluminum or stainless steel.
- E. Unless otherwise approved, all splice enclosures shall be of the same manufacturer and model.
- F. Splice enclosures shall have the capability of accommodating all fiber fusion splices required.
- G. Splice enclosures shall provide storage for fiber splices, non-spliced fiber and buffer tubes.
- H. Splice enclosures shall be rodent-proof, re-enterable, waterproof and airtight.
- I. Splice enclosures shall employ re-usable materials that allow for multiple re-entrances without replacing any components. Re-entrances shall not require specialized tools or equipment.
- J. Splice enclosures that are designed for use under the most severe conditions such as moisture, vibration and impact, and are designed for a temperature range of -40°C to +70°C (-40°F to +158 °F).
- K. Provide separate splice enclosures for backbone and distribution fiber optic cables. A splice enclosure shall not contain both backbone and distribution cables.

U-10.03 Construction – The splice enclosure is to be installed according to the manufacturer's recommended guidelines.

The Contractor must affix the splice enclosure to the side of the manhole or junction box using cable support brackets. All cables must be properly dressed and affixed to rails or racks within the manhole or junction box. No cables or enclosures will be permitted to lie on the floor.

U-10.04 Measurement and Payment – Each.



**U-11 CABLE INSTALLATION INSIDE BUILDING**

U-11.01 Description – This work is furnishing and installing of fiber optic cable within 2” Exposed Rigid Galvanized Steel conduit in Commission buildings.

U-11.02 Material – Sections 910.2, 954.2, 1104.5 and as follows:

Conduit - Section 1101.09(c)1  
Cable – U-8

U-11.03 Construction – Sections 910.3 and 954.3, and as follows:

Install conduit in buildings using approved methods. Submit drawing for approval by the Commission prior to construction detailing cable routing plan and attachment hardware for each building. Use existing hangars where available. When penetrating walls, repair walls around conduits to original characteristics. When installing conduit in non-linear sections for fiber optic cable, install conduit sweeps, obeying minimum cable bending radius.

U-11.04 Measurement and Payment – Linear Foot. Price of cable to be captured in U-8.

**U-12 CABLE RACKS INSIDE BUILDING**

U-12.01 Description – This work is the furnishing and installation of equipment racks at demarcation sites.

U-12.02 Material – Provide the following:

Equipment Racks shall be Chatsworth Two-Post Universal Rack, Two Top Angles, 19” EIA Channel Width, Gray, 41 U height (6’-6”) - Model Number 46353-102.

U-12.03 Construction – The Commission will designate space at each identified site for the Contractor to furnish and install one (1) rack at the site.

Spacing of rack mounting shall allow for vertical cabling sections between proposed rack and future Commission provided racks.

The Contractor is responsible for coordinating the necessary locations with the Commission and furnishing, installing and integrating the equipment as necessary at each location. The Contractor is responsible for coordinating space for future additional Commission owned equipment.

U-12.04 Measurement and Payment – Each.

**U-13 FIBER TERMINATIONS**

U-13.01 Description – This work is the termination of fibers at the termination panels.

U-13.02 Material – Provide the following:

- Type LC, as indicated, for fiber connections to new equipment. The Contractor shall field verify the type to be used for fiber connections to existing equipment.
- Telcordia GR-326 Issue 3 compliant and as specified under these requirements, whichever requirement is more stringent shall apply.
- Uses ceramic ferrules.
- Fiber secured within the ferrule with epoxy, in accordance with the requirements of the connector or epoxy manufacturer.
- A strain relief mechanism shall be provided for coupling the connector to the fiber's aramid strength member.
- Operating temperature: -40-degree F to +158 degree F
- Insertion loss: <0.25 dB typical individual loss, 0.4 dB maximum when measured in accordance with FOTP-171.
- Return loss: <-55 dB when measured in accordance with FOTP-10

U-13.03 Construction – Where optical fibers are to be connected to terminal equipment, provide connectors with factory-installed fiber pigtails of sufficient length, plus five feet of slack, and splice them to the corresponding optical fibers. Do not field install connectors. Provide fiber optic pigtails buffered and strengthened with aramid to reduce the possibility of accidental damage to the fiber or connection. Properly protect unused optical fibers with sealed end caps.

Replacement: If the above-specified cable, splice, and termination criteria are not met, replace the entire section of cable.

U-13.04 Measurement and Payment – Each.

#### U-14 **WALL PENETRATION**

U-14.01 Description – This work is the installation of a wall penetration at PTC facilities and demarcation sites.

U-14.02 Material – Provide the following:

Two (2) 12"x12"x6" NEMA 3R metallic lockable enclosures  
2" Rigid Galvanized Steel (RGS) conduit along exterior building wall and within penetration

Submit all product cut sheets to the Commission for review and approval before installation.

U-14.03 Construction – Coordinate with the Commission on the location of the wall penetration, all communications paths and termination points within the building.

Drill a 2-1/2" diameter hole a minimum of 36" from the existing grade in the building at the agreed upon location. Install a 2" GRS conduit within the hole with bushings on the conduit ends. Seal penetration with sealant consisted with NEC requirements.

Install the NEMA 3R metallic lockable enclosures on the outside and inside of the building at the location of the penetration.

Provide 2" exposed RGS conduit from the exterior enclosure to along the building

underground where it shall transition to HDPE conduit within 6" below grade. Secure RGS conduit to wall using anchors and hot-dipped galvanized steel straps.

U-14.04 Measurement and Payment – Each.

**U-15        TEMPORARY AERIAL FIBER OPTIC CABLE, 288 STRAND**

U-15.01 Description – This work consists of the furnishing, installing, terminating and testing of single- mode fiber optic cable for temporary aerial installations.

U-15.02 Material – In accordance with Section 1204.2(b) and as follows:

- A. Gel-free, loose-tube optical fiber cables.
  - B. Recommended for aerial installation by the manufacturer
  - C. General. Provide in accordance with U-8.02B.
  - D. Outside Plant Cable (OSP). The cable shall meet the requirements of ANSI/ICEA Standard for Fiber Optic Outside Plant Communications Cable, ANSI/ICEA S-87-640-2016, GR-20- CORE Issue 4, and the United States Department of Agriculture Rural Utilities Service (RUS) 7 CFR 1755.900 (PE-90). Fiber optic cable meeting the following general requirements:
    - a. Permanently identify each reel of fiber optic cable with a label listing, but not limited to, the following:
      - i. Cable type and number
      - ii. Gross weight
      - iii. Cable length
      - iv. Job order number
      - v. Date of manufacturing
      - vi. Date of factory test
    - b. Provide a data sheet with each reel containing the factory test results for each fiber in the cable. The following information, at a minimum is to be included:
      - i. Cable Number
      - ii. Factory Order Number
      - iii. Customer Purchase Order Number
      - iv. Measured Attenuation of Each Fiber
      - v. Ordered Length
      - vi. Actual Shipped Length
- Submit all data sheets to the Commission for review and approval prior to installation. Complete this review within 15 business days of receipt of material.
- E. Single Mode Optical Fiber.
  - F. Cable Construction.
    - a. Optical fibers shall be placed inside a loose buffer tube. The nominal outer diameter of the buffer tube shall be 2.5mm. The buffer tube shall be polypropylene.
    - b. The fibers shall not adhere to the inside of the buffer tube.
    - c. Each fiber shall be distinguishable by means of color coding in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding."
    - d. The fibers shall be colored with ultraviolet (UV) curable inks.
    - e. Buffer tubes containing fibers shall be color coded with distinct and recognizable

- colors in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding."
- f. In buffer tubes containing multiple fibers, the colors shall be stable across the specified storage and operating temperature range and shall not be subject to fading or smearing onto each other. Colors shall not cause fibers to stick together.
  - g. The buffer tubes shall be resistant to external forces and shall meet the buffer tube cold bend and shrinkback requirements of 7 CFR 1755.900.
  - h. Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed. Fillers shall be placed so that they do not interrupt the consecutive positioning of the buffer tubes.
  - i. The central member shall consist of a dielectric, glass reinforced plastic (GRP) rod (optional steel central member). The purpose of the central member is to provide tensile strength and prevent buckling. The central member shall be overcoated with a thermoplastic when required to achieve dimensional sizing to accommodate buffer tubes/fillers.
  - j. Each buffer tube shall contain water blocking material embedded in the inside wall of the buffer tube for water-blocking protection. The water blocking material shall be non-nutritive to fungus, electrically non-conductive, and homogeneous. It shall also be free from dirt or foreign matter. This material will preclude the need for other water-blocking materials such as gels, yarns, foams, or tapes; the buffer-tube shall be gel-free.
  - k. The optical fibers shall not require cleaning before placement into a splice tray or fan-out kit.
  - l. Buffer tubes shall be stranded around the dielectric central member using the reverse oscillation, or "S-Z", stranding process.
  - m. Cables shall contain tear features 180° apart for easy sheath removal. The tear feature shall open only when the sheath halves are pulled apart at end of the sheath or a mid-span ring-cut opening.
  - n. The tear feature shall not open during handling, installation, or operation.
  - o. Cables shall be sheathed with medium density polyethylene (MDPE). The minimum nominal jacket thickness shall be 1.3mm. Jacketing material shall be applied directly over cable core and water swellable tape. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus.
  - p. The MDPE jacket material shall be as defined by ASTM D1248, Type II, Class C, Category 4 and Grades J4, E7 and E8.
  - q. The jacket or sheath shall be free of holes, splits, and blisters.
  - r. The cable jacket shall contain no metal elements and shall be of a consistent thickness.
  - s. Cable jackets shall be marked with the manufacturer's name, month and year of manufacture, sequential meter or foot markings, a telecommunication handset symbol as required by Section 350G of the National Electrical Safety Code (NESC), fiber count, and fiber type. The actual length of the cable shall be within -0/+1% of the length markings. The print color shall be white, with the exception that cable jackets containing one or more coextruded white stripes, which shall be printed in light blue. The height of the marking shall be approximately 2.5mm.
  - t. If the initial marking fails to meet the specified requirements (i.e., improper text statement, color, legibility, or print interval), the cable may be remarked using a contrasting alternate color. The numbering sequence will differ from the previous numbering sequence, and a tag will be attached to both the outside end of the cable and to the reel to indicate the sequence of remarking. The preferred remarking color

will be yellow, with the secondary choice being blue.

- u. The shipping, storage, and operating temperature range of the cable shall be -40°C to +70°C. The installation temperature range of the cable shall be -30°C to +70°C.

G. Cable Performance Specifications

- a. When tested in accordance with FOTP-3, "Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components," the change in attenuation at extreme operational temperatures (-40°C and +70°C) shall not exceed 0.15 dB/km at 1550 nm for single-mode fiber and 0.3 dB/km at 1300 nm for multimode fiber.
- b. When tested in accordance with FOTP-82, "Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable," a one meter length of unaged cable shall withstand a one meter static head or equivalent continuous pressure of water for one hour without leakage through the open cable end.
- c. When tested in accordance with FOTP-81, "Compound Flow (Drip) Test for Filled Fiber Optic Cable," the cable shall exhibit no flow (drip or leak) of filling and/or flooding material at 70°C.
- d. When tested in accordance with FOTP-41, "Compressive Loading Resistance of Fiber Optic Cables," the cable shall withstand a minimum compressive load of 220 N/cm (125 lbf/in) applied uniformly over the length of the sample. The 220 N/cm (125 lbf/in) load shall be applied at a rate of 2.5 mm (0.1 in) per minute. The load shall be maintained for a period of 1 minute. The load shall then be decreased to 110 N/cm (63 lbf/in). Alternatively, it is acceptable to remove the 220 N/cm (125 lbf/in) load entirely and apply the 110 N/cm (63 lbf/in) load within five minutes at a rate of 2.5 mm (0.1 in) per minute. The 110 N/cm (63 lbf/in) load shall be maintained for a period of 10 minutes. Attenuation measurements shall be performed before release of the 110 N/cm (63 lbf/in) load. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fibers and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-104, "Fiber Optic Cable Cyclic Flexing Test," the cable shall withstand 25 mechanical flexing cycles around a sheave diameter not greater than 20 times the cable diameter. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.

- e. When tested in accordance with FOTP-25, "Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies," except that the number of cycles shall be two at three locations along a one meter cable length and the impact energy shall be at least 4.4 Nm (in accordance with ICEA S-87-640)", the change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.
- f. When tested in accordance with FOTP-33, "Fiber Optic Cable Tensile Loading and Bending Test," using a maximum mandrel and sheave diameter of 560 mm, the cable shall withstand a rated tensile load of 2670N (601 lbf) and residual load of 30% of the rated installation load. The axial fiber strain shall be  $\leq 60\%$  of the fiber proof level after completion of 60 minute conditioning and while the cable is under the rated installation load. The axial fiber strain shall be  $\leq 20\%$  of the fiber proof level after completion of 10 minute conditioning and while the cable is under the residual load. The change in attenuation at residual load and after load removal shall not exceed 0.15 dB at 1550 nm for single mode fiber and 0.30 dB at 1300 nm for

- multimode fiber.
- g. When tested in accordance with FOTP-85, "Fiber Optic Cable Twist Test," a length of cable no greater than 2 meters shall withstand 10 cycles of mechanical twisting. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.
  - h. When tested in accordance with FOTP-181, "Lightning Damage Susceptibility Test for Optic Cables with Metallic Components," the cable shall withstand a simulated lightning strike with a peak value of the current pulse equal to 55 kA without loss of fiber continuity. A damped oscillatory test current shall be used with a maximum time-to-peak value of 15 $\mu$ s (which corresponds to a minimum frequency of 16.7 kHz) and a maximum frequency of 30 kHz. The time to half-value of the waveform envelope shall be from 40 to 70 $\mu$ s.
  - i. When tested in accordance with FOTP-37, "Low or High Temperature Bend Test for Fiber Optic Cable," the cable shall withstand four full turns around a mandrel of  $\leq 20$  times the cable diameter after conditioning for four hours at test temperatures of -30°C and +60°C. Neither the inner or outer surfaces of the jacket shall exhibit visible cracks, splits, tears, or other openings. The change in attenuation shall not exceed 0.30 dB at 1550 nm for single mode fiber and 0.50 dB at 1300 nm for multimode fiber.

U-15.03 Construction – In accordance with Section 1204.3 and as follows:

The Contractor is responsible for furnishing, installing and testing the temporary aerial fiber optic cable.

The ends of the fiber optic cable on each reel shall be protected with caps and shall be accessible for testing before installation. If damage to cables is suspected at any time, the Commission may request a retest of all suspected cable, at the Contractor's expense, within 48 hours of notification.

Store all cable in accordance with the manufacturer's recommendations. Install and terminate the cable as per the manufacturer's recommendations.

Backbone fiber shall be installed in a manner that it is only spliced to provide a continuous path between network hub demarcation sites.

Distribution fiber shall be installed in a manner that it provides a continuous path to local splices to connect Commission assets or demarcation sites.

Intermediate complete cable splices shall only be permitted to connect cable from two different cable spools.

Fusion splices are the only permitted splicing method for fibers.

At no time shall any cable, buffer tube or fiber be subjected to a bend radius less than 15 times its outer jacket diameter.

All cable slack loops shall comply with the minimum bend radius for that cable, buffer tube or fiber. All cable slack loops shall use loop rings, brackets or similar methods to ensure loop radius integrity. Where multiple cable slack loops are required at the same location, loop and secure separately each cable.

The maximum pulling tension shall be 2700 N (600 lbf) during installation (short term) and 890 N (200 lbf) long term installed.

Provide cable tags of weather resistant, non-ferrous metal, nylon, or other non-conductive material. Cable tags shall be printed sealed labels for readability and longevity and shall be provided for each fiber optic cable at the demarcation points, junction boxes, splice points, and other areas where the fiber optic cable is terminated or is exposed. Provide labels for broadband patch cables at the demarcation points and other locations where patch cables are utilized.

Submit all pulling procedures for review and approval by the Commission prior to installation. Complete this review within (20) business days of receipt of material.

Maintain fiber optic cable assignment records of all assignments and splicing charts for all strands of the broadband cables installed as part of the project.

Testing – Test the fiber in accordance with U-18.

U-15.04 Warranty – The Contractor shall coordinate with the fiber optic cable manufacturer to provide a fully transferable twenty (20) year material warranty to the Commission.

U-15.05 Measurement and Payment – Linear Foot. Price for testing of fiber to be captured in U-18.

## **U-16 35' WOOD POLES**

U-16.01 Description - This work is furnishing and installation of a wooden utility pole to install aerial communications service lines.

U-16.02 Materials - Furnish southern yellow pine, Class 7 wooden poles that conform to ANSI Specification 05.1. Provide 35' wooden poles with a minimum circumference of 1.75 feet on the top, 2.63 feet at the height of 6 feet from the base. Provide chemical preserved treated pole.

Furnish, as part of the pole assemblies, the following material if required:

- Required length of galvanized steel messenger cable of 0.43-inch diameter made of seven strands and conforming to ASTM-A75, Class A Specification.
- Single strand lashing wire 0.006-inch diameter and made of Type 430 stainless steel.
- Suspension and attachment hardware made of galvanized steel, hardware galvanized in accordance with ASTM-A153 Specification.

U-16.03 Construction - Pole treatment process to conform to AWWA-C4 and to provide retention of CCA dry salts of 0.6 lb per cubic feet. Install the poles within the Commission's right of way. Install tension messenger cable at 60 degrees for the poles as directed by the Representative. Dead end messenger cable at the poles as directed by the Representative. Install poles, in accordance with the current specifications and standards of NELA, EE1 and NESC. Dig holes with vertical sides and with a diameter large enough to permit use of a mechanical tamper around the pole. The installation of the poles is subject to the inspection and approval by the Representative prior to backfilling.

Provide down guys as needed.

Provide plate on the pole indication owner (PTC), contact phone number (800-332-3880) and pole number. Use the first four numbers of the location latitude and longitude for the pole numbering convention.

U-16.04 Measurement and Payment - Each.

## **U-17 FUSION SPLICE**

U-17.01 Description – This work is providing fusion splices on fiber optic cable as required.

U-17.02 Materials – Provide all required equipment and consumable supplies.

U-17.03 Construction – Splice all optical fibers, including spares, to provide continuous runs. Do not provide a full splice of the fiber optic cable, i.e., all fibers within the cable being spliced, more frequently than once every 5,000 feet. Store 60 feet of slack cable at each splice location, 30 feet on either side of the splice.

For connection of the fiber optic cable to fiber optic distribution panel or splicing to other cables, cut only those fibers needed for the connection or splice. Use splice trays to hold the spliced and un-spliced fibers, with each fiber neatly secured to the tray. Contain all buffer tubes entirely within the splice tray, with no tubes being exposed.

Package each spliced fiber in a protective sleeve or housing. Completely re-coat bare fibers with a protective, room-temperature vulcanizing (RTV) coating, gel or similar substance as recommended by the cable manufacturer, prior to application of the sleeve or housing, so as to protect the fiber from scoring, dirt, or microbending.

Fusion splices are the only permitted splicing method for fibers.

U-17.04 Measurement and Payment - Each.

## **U-18 FIBER TESTING**

U-18.01 Description - This work is testing of fiber optic cable after installation.

U-18.02 Construction – Test the fiber in accordance with Section 1201 and as follows:

Pre-Installation Testing – All fiber optic cable is to be 100% attenuation tested. The attenuation of each fiber is to be provided with each cable reel as indicated in the Materials section above.

The Contractor shall perform pre-installation testing using an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter on all fiber optic cable prior to any cable removal from the shipping reel as indicated below. Perform tests on cable reels delivered to the job site. Submit all data to the QC Manager for review and approval prior to installation. Complete this testing within 15 business days of receipt of material.



Operational Acceptance Testing - Contractor shall be responsible for acceptance testing of the Commission infrastructure. Systems acceptance testing shall be clearly noted in the QC Plan and at least twenty (20) business days' notice given prior to commencement of testing. In addition to planned systems acceptance testing, future tests may be requested and scheduled at the request of the Commission. The Contractor shall be responsible for the costs of all systems acceptance testing and shall allow for the Commission to witness the tests at the Commission's discretion.

Stand-alone test all fiber infrastructure after field installation is complete, including all splices and terminations. Test optical fibers in the cable from termination panel to termination panel. The Commission infrastructure shall be tested to verify functionality of the fiber using the following procedure:

1. Prior to installation and integration of the Commission-specified fiber optic terminations, splices and cable will be installed between endpoints in segments.
2. The test will begin when all fiber terminations, splices, and cable have been installed in a segment.
3. Tests will be performed to ensure all fiber and terminations are functioning within specification.
4. A summary of the resulting data as well as the data in its raw format shall be submitted for processing and review by the Commission.

The Contractor shall be responsible, and the Commission shall assist and observe for operational acceptance testing of the Commission infrastructure. Operational acceptance testing shall be clearly noted in the Plan and commence after completion of each segment. Operational acceptance testing shall be a period of sixty (60) days following the completion of each segment. Network connectivity for all demarcation points within that segment shall be tested and verified functional to good industry practice.

If any fiber maintenance issues shall arise during the operational acceptance testing period, they shall be reported to the Commission in writing and resolved at no cost to the Commission. For each maintenance issue, the Commission shall have the sole authority to extend the operational acceptance testing period for an additional thirty (30) days.

Performance Criteria - For both pre-installation testing and operational acceptance testing, include both bi-directional OTDR tests and Optical Attenuation tests for all stand-alone testing for each fiber in each cable.

Have a Certified Technician utilizing an OTDR and Optical Source/Power Meter conduct the installation test. The Technician is directed to conduct the test using the Standard Operating Procedure as defined by the Manufacturer of the test equipment. Ensure that the method of connectivity between the OTDR and the cable is a factory patch cord of a length equal to the "dead zone" of the OTDR. Optionally, the Certified Technician shall use a factory fiber box of 100 meters minimum with no splices within the box. Conduct the tests at 1310nm and 1550nm for all fiber optic cables.

Any splice with a loss exceeding 0.20dB shall be remade until its loss falls below 0.20dB at no additional cost to the Commission.

Total loss for each fiber shall not exceed 0.35dB/km at 1310nm and 0.25dB/km at 1550nm +0.10dB/splice + 0.50dB/connector. No event shall exceed 0.30dB. If any event is detected

above these parameters, replace or repair that event point at no additional cost to the Commission.

At the completion of the test, provide bound Test Documentation of the test results to the Commission that includes the following:

- A. Cable & Fiber Identification
- B. Cable ID
- C. Cable Location - Beginning and End points
- D. Fiber ID, including tube and fiber color
- E. Operator Name
- F. Date & Time
- G. Setup Parameters
- H. Wavelength
- I. Pulse width (OTDR)
- J. Refractory index (OTDR)
- K. Range (OTDR)
- L. Scale (OTDR)
- M. OTDR Test Results
- N. Total Fiber Trace
- O. Measured Length (Cable Marking)
- P. Total Length (OTDR)
- Q. Splice Loss/Gain
- R. Events > 0.10dB
- S. Traces are to also be provided on a diskette in PDF format
- T. Optical Source/Power Meter Test Results
- U. Total Attenuation
- V. Attenuation (dB/km)

Provide these results in tabular form for each location.

U-18.03 Measurement and Payment - Hour.

## **U-19 ROOT CAUSE ANALYSIS**

U-19.01 Description – This work is to provide personnel to perform root cause analysis.

U-19.02 Personnel – Provide appropriate personnel to be able to perform a root cause analysis in accordance with FOM-2.9. Personnel shall be experienced in performing root cause analyses and preparing appropriate reports. These services will be performed Ad-Hoc.

U-19.03 Measurement and Payment - Hour.

## **U-20 MAINTENANCE AND PROTECTION OF TRAFFIC**

U-20.01 Description – This work is the maintenance of traffic and the protection of the traveling public approaching the construction area and within the limits of construction. Refer to D/B Contracts EN-00232-03-02 and EN-00232-03-03 for additional referenced information.

A. Maintenance and Protection of Traffic (MPT) includes furnishing, installing, resetting, relocating, storing, and removal of all traffic control devices necessary during hours of construction and at all other times during the course of this project according to the following:

- Section 901;
- Pennsylvania Turnpike Commission (PTC) Standard Details for Maintenance and Protection of Traffic;
- Pennsylvania Turnpike Commission (PTC) Standard Drawings for Maintenance and Protection of Traffic;
- PA Code, Title 67, Chapter 212, Official Traffic-Control Devices;
- Manual on Uniform Traffic Control (MUTCD);
- Publication No. 35, Approved Construction Materials (Bulletin 35), and to be NCHRP-350 or MASH compliant;
- Special Provisions herein;
- For work within the Commission Right-of-Way, the Commission specifications govern. For work outside the Commission Right-of-Way, the PennDOT specifications govern.

Prepare all Traffic Control Plans (TCP) using English units. The TCPs are to be completed by a Professional Engineer (P.E.) registered in the Commonwealth of Pennsylvania.

TCPs shall be prepared for areas not covered by standards. At a minimum, the Contractor shall prepare a plan and/or narrative for each operation which references the appropriate PTS-900 Series Standard or includes a specific design details according to the Standards and submit to the Commission prior to implementing the traffic pattern. Modifications to the existing TCPs for a stage or phase must be submitted to the Commission prior to or within twenty-four (24) hours of changing the existing TCPs.

B. Mainline Turnpike traffic must be maintained throughout the project at all times by providing and implementing the requirements from the preceding list of publications, manuals, standards, etc., along with, but not limited to the following:

1. Mainline turnpike traffic traveling in the same direction must be maintained on two or three adjacent lanes and cannot be split.
2. During long-term traffic control operations, maintain existing 12-foot wide travel lanes in each direction.
3. Provide traffic control for lane and shoulder closures according to PTS-(910,915,940). Maintain a minimum of 1 mile of unrestricted roadway between patterns on the same side of the road.
4. Lane restrictions will not be permitted during non-working hours, required by Attachment A or Attachment B in D/B Contracts, for any operation requiring a mobile lane restriction, stationary lane restriction, mobile shoulder restriction, or stationary shoulder restriction.
5. Lane and shoulder restrictions not behind temporary concrete barrier excluding junction box delineation are not permitted when work is not being performed at any

location within the work zone for a period of more than 60 minutes. Partial shoulder closures are permitted for a maximum of 24 hours following completion of micro-trench backfill to the level of the adjacent pavement to allow backfill material to achieve a traversable state. Channelizing devices are required to be relocated immediately adjacent to the traffic side of the trench as the backfill operations are completed. All speed reduction signs and shadow vehicles are to be removed in the partial shoulder closure areas at the conclusion of each work shift.

6. Shoulder restrictions for junction box delineation not behind temporary concrete barrier are not permitted when work is not being performed at any location within the work zone for a period of more than 5 calendar days.
7. Lane rental fees will be assessed for each lane closure or traffic obstruction resulting in a lane closure beyond allowable working hours as per D/B Contracts.
8. Access must be provided to PTC maintenance sheds, gates and access ramps at all times.
9. Other Commission Contractor(s) and/or Commission Maintenance Forces may be working adjacent to the work zone(s) during portions of this contract period. The Commission will specify the working sequence of the contracts in order to facilitate coordinated traffic control operations.
10. Do not allow any portion of mainline transitions to be within an interchange area.
11. All equipment is to approach, enter, and depart from working zones in the direction of and with the normal adjacent traffic flow.
12. During non-working hours, steel plate all junction boxes in the shoulder, which are not completed or protected by barrier. Steel plate is to be a minimum of 1 inch thick. Steel plates are not to be used for more than 5 consecutive days or during holiday periods. Steel plates shall not be used on the shoulder from November 1<sup>st</sup> through April 1<sup>st</sup>. The use of steel plates in temporary or permanent travel lanes is prohibited. Provide a wedge of milled material at 1 inch per foot along all edges of the steel plate or provide alternate anchoring method. Submit alternate to Commission for approval.
13. If the shoulder work zone, excluding junction box installation, is not protected by temporary concrete barrier or glare screen, all excavated areas on the shoulder must be backfilled so that the drop-off does not exceed 2 inches from the existing adjacent pavement. Also complete any required slope repairs, guide rail replacement, shoulder pavement patching, and remove any obstructions prior to opening the adjacent lane for traffic.
14. Shifting traffic to the median or mainline shoulders is not permitted.
15. Use PennDOT approved vertical panels with self-ballasting bases for channelizing devices. The entire face of the vertical panel visible to traffic is to be reflectorized with PennDOT Type XI approved reflectorized material. Completely remove vertical panels from the roadway so they are not visible to motorists during non-working hours except for junction box delineation on shoulder. Channelizing devices

may be temporarily relocated to the minimum offset to allow for work to be performed, as directed by the Commission. The channelizing devices must remain between traffic and the work zone. Relocate channelizing devices to original position as work progresses.

16. Use signs with Type XI reflectorized material on or within the Turnpike right-of-way.
17. Post mount signs in a manner as not to obstruct shoulders and be clear of work areas. PennDOT approved Type III barricades may be used as conditions warrant and as directed by the Commission.
18. During allowable working hours, use PTS (910-2, 910-3, 915-2, 915-3), Mobile Operation for 2 or 3 Lanes, to cover and uncover signs and install and remove traffic control devices. Workers are not permitted to cross live traffic lanes except in a vehicle or in the interchanges and service plazas. During nighttime hours, provide 1 Multi-Directional Lighting Device on Shadow Vehicle(s) with Truck Mounted Attenuator and each of the Work Vehicle(s).
19. Do not perform any work directly over open lanes of Turnpike/Interstates/ State Routes, Township and local roads, streams, and railroads without adequate shielding or work platforms.
20. All tarping, containment apparatus, work platforms, etc. must be removed over the traffic lane(s) prior to opening the lane(s) to traffic.
21. Provide taper lengths for ramps in work zones according to PTS-940.
22. The Commission is to coordinate the work in any Interchange/Service Plaza area with Fare Collection/Service Plaza personnel. Notify the Commission a minimum of fourteen (14) days in advance of the scheduled work in the Interchange/ Service Plaza area.
23. Maintain access for emergency and authorized vehicles to all Interchange and Service Plaza buildings at all times.
24. Maintain access for emergency and authorized vehicles to the Access Ramps and the entrances and exits to the Tunnel Portal Buildings at all times.
25. When utilizing a lane closure for the shoulder work between Milepost A-70.48 and Milepost A- 71.56, establish a single-lane traffic control pattern by closing the northbound right lane as shown on PTS 915 on the south side of the Lehigh Tunnel. The lane closure must be a minimum of 1,320 feet prior to the south portal of the tunnel. Maintain single lane traffic through the tunnel without a tunnel crossover pattern. Set PennDOT approved vertical panels 6 feet into the closed lane at 50 foot intervals through the tunnel. Coordinate with the Commission for the placement of the vertical panels through the Lehigh Tunnel.
26. Be aware and familiar with the location and weather conditions around and on the approaches to the Lehigh Tunnel. Traffic or inclement weather, including the

forecasting of inclement weather, may require the opening of all travel lanes or the cancellation of work at the time. If work is in progress at the time of notification from the Commission or the Turnpike detail of the Pennsylvania State Police, be able to remove all traffic control, equipment, and materials from the tunnel within one (1) hour.

C. State Routes, Township and County Roads

1. Obtain a Highway Occupancy Permit from PennDOT for work on all State routes and provide the final original signed copy to the Commission.
2. When required by PennDOT, provide MPT plans and narrative to PennDOT, coordinate work, obtain PennDOT approvals, and provide approval documentation to the Commission.
3. Submit TCPs for Township and County Roads to the Township or County and the appropriate PennDOT District, as required, and a minimum of thirty (30) days prior to the start of construction for approval.
4. Approval must be received prior to any construction activities or traffic control patterns on state, county or township roads.
5. Copy the Commission on all correspondence sent or received.
6. Perform maintenance and protection of traffic according to Publication 212, the special provisions, the Standard Details and Drawings, and the TCPs.
7. Furnish, install, maintain and remove all required lights, guides, sandbags and appurtenances as deemed necessary by the Commission for the proper maintenance and protection of traffic and to warn of any obstruction or hazard to traffic.
8. Post mount signs in a manner as not to obstruct shoulders and be clear of work areas unless using portable sign supports. Relocate approach signing as needed.

U-20.02 Measurement and Payment – Mile.

**U-21 MOBILIZATION**

U-21.01 Description – Mobilization shall be in accordance with PennDOT Publication 408, Section 608, 2016 Edition, Change No. 7.

U-21.02 Measurement and Payment – Lump Sum.

**U-22 HDPE COMMUNICATIONS CONDUIT**

U-22.01 Description – This work is the furnishing and installation of 2” high-density polyethylene (HDPE) conduits.

U-22.02 Materials –

- a. 2" HDPE Conduit - SDR11 with smooth interior wall and smooth exterior wall. Manufactured in accordance with ASTM F2060 and ASTM D3035 from thermoplastic polymer conforming to the minimum standards defined in ASTM 3350 (See Table 1).

**Table 1 - Resin Properties**

The resin Properties shall meet or exceed the values listed below for HDPE

ASTM Test	Description	Values HDPE
D-1505	Density g/CM <sup>3</sup>	0.941 - 0.955
D-1238	Melt Index, g/10 min. Condition E	0.05 - 0.50
D-790	Flexural Modulus, MPa (PSI)	80,000 min.
D-1693	Environmental Stress Crack Resistance Condition B,F10	96 hrs. min.
D-638	Tensile strength at yield ((PSI)	3000 min.
D-746	Brittleness Temperature	-75°C

- b. Plastic Marking Tape, Red - Section 1101.12(e)
- c. Pulling Lines - (Woven polyester or Aramid fiber with an average tensile strength in excess of that which is required to pull all proposed service cables) - Muletape as manufactured by Neptco Inc. - Teltek Sales 215-477-5888, Bull-Line; as manufactured by Arnco Corp. 1-800-321-7914; or approved equal.
- d. Tracer Wire - Provide solid copper, or copper clad steel wire.

U-22.03 Construction – HDPE Conduit - Section 910.3(g), as indicated, and as follows:

Place conduits such that it is a continuous run with no splicing between junction boxes.

Prevent conduits from twisting during installation and minimize variation in the horizontal and vertical alignment. Orientation of the conduits must be consistent throughout the project in and out of each junction box. Install conduit with the tracer wire in the upper left position, at approximately 10 o'clock on the conduit circumference. A tracer wire shall be included in one conduit in each trench.

At obstructions, taper conduit runs to provide vertical or horizontal offset at a rate of 20:1 or flatter.

Identify the conduits within the trench with 6" wide red plastic marker tape placed a minimum of 12" directly above each conduit.

After placing the conduit between junction boxes, provide red flexible delineator post electrical cable markers as required. Flexible markers are to be placed at the junction box and are to identify the conduit as underground electrical cable.

Install pulling lines in each individual conduit to ensure that the conduit has not been damaged during installation. If conduit is damaged, replace the conduit at no additional expense to the Commission. The pulling lines shall remain in unused conduits for future use by others.

Seal all conduits at both ends with manufacturer's plugs to make conduits watertight.

U-22.04 Measurement and Payment – Linear Foot.

**U-23 JUNCTION BOXES, JB-1**

U-23.01 Description – This work is for furnishing and installing junction boxes. This item includes the ground wire, ground rod, exothermic bonding of ground rod, and necessary excavation and backfill.

U-23.02 Material – Sections 910.2, 1101 and RC-81M Standards

U-23.03 Construction – Sections 910.3 and as follows:

Revise Section 910.3(p) by adding:

1. Bond metal framed junction box and cover to ground. The bond shall provide a solid electrical and mechanical connection.
2. Cast the following labels into the covers:  
  
J.B. 1 – "PENNSYLVANIA TURNPIKE COMMISSION COMMUNICATION CABLE"
3. Ground all junction boxes in accordance with NEC Article 250.
4. Provide a minimum of four- cable support brackets permanently affixed to the wall of the Junction Boxes. Use cable support brackets to support all spare cables and any splice enclosures contained within each junction box.
5. Core out all openings at time of fabrication, or at time of placement. Where multi-cell or standard nonmetallic conduit is terminated, the coring must be no larger than 5- or 3- inches diameter for 4 inch or 2 inch conduit, respectively.
6. Install Junction Boxes as per manufacturer's recommendations. Construct Junction Boxes on top of 12 inches of #57 coarse aggregate; 18 inches in locations subject to flooding and poor drainage.
7. Place in such a manner that after settling the cover will be flush with the grass line. Junction Boxes must be placed six feet (typical) minimum from the edge of the shoulder and twenty feet (typical) minimum from the end of an overpass.

U-23.04 Measurement and Payment – Each.