APPENDIX A

SAMPLE CONTRACT

SAMPLE

SAMPLE CONTRACT

THIS CONTRACT pertains to the procurement of a statewide Next Generation Advanced Traffic Management System (Next Gen ATMS). This Next Gen ATMS Contract ("Contract") is entered into this _____ day of _____, 2011, by and between the Commonwealth of Pennsylvania, acting through the Department of Transportation ("PENNDOT"), and _____ ("CONTRACTOR").

WITNESSETH:

WHEREAS, PENNDOT issued a Request For Proposals for PennDOT's Next Gen ATMS, RFP 10R-01 ("RFP"); and

WHEREAS, CONTRACTOR submitted a proposal in response to the RFP; and

WHEREAS, PENNDOT determined that CONTRACTOR's proposal, was the most advantageous to the Commonwealth after taking into consideration all of the evaluation factors set forth in the RFP and selected CONTRACTOR for contract negotiations; and

WHEREAS, PENNDOT and CONTRACTOR have negotiated this Contract as their final and entire agreement in regard to services provided to design, develop, implement, test, maintain and support the statewide Next Gen ATMS .

NOW THEREFORE, intending to be legally bound hereby, PENNDOT and CONTRACTOR agree as follows:

1. CONTRACTOR shall, in accordance with the terms and conditions of this Contract, provide services to PENNDOT for a fully operational Next Gen ATMS, as more fully defined in the RFP, which is attached hereto as Exhibit "A" and made part of this Contract.

2. CONTRACTOR agrees that the services shall be performed during the contract period of sixty (60) months following PennDOT's issuance of Notice to Proceed under this Contract. PennDOT's Contracting Officer may renew this contract for a period of twenty-four (24) months, incrementally or in one step. Additionally, the Commonwealth reserves the right, upon notice to the Contractor, to extend the term of the Contract for up to three (3) months upon the same terms and conditions. This will be utilized to prevent a lapse in Contract coverage and only for the time necessary up to three (3) months, to enter into a new contract. This right to extend the Contract in no way minimizes PENNDOT's right to the timely receipt of the project deliverables as specified in the RFP.

3. PENNDOT shall pay the CONTRACTOR during the existence of this Contract for work completed in accordance with the terms and conditions of the Contract, the

SAMPLE

maximum amount of XXXXXXX DOLLARS AND XXXXX CENTS ($_____) for the time period set forth in #2 above of this Contract.

4. PENNDOT and CONTRACTOR agree to be bound by the Special Contract Terms and Conditions, which are attached hereto as Exhibit "B" and made part of this Contract.

5. PENNDOT and CONTRACTOR agree to be bound by the Standard Contract Terms and Conditions for Services – STD-274, Rev. 12/17/07, which are attached hereto as Exhibit "C" and made part of this Contract.

6. CONTRACTOR agrees to provide a strategy for Next Gen ATMS as described in its Technical Submittal, which is attached hereto as Exhibit "D" and made part of this Contract, at the prices listed in its Cost Submittal, which is attached hereto as Exhibit "E" and made part of this Contract.

7. CONTRACTOR agrees to meet and maintain the commitments to disadvantaged businesses made in its Disadvantaged Business Submittal, if applicable.

8. This Contract is comprised of the following documents, which are listed in order of precedence in the event of a conflict between these documents:

    a. The Special Contract Terms and Conditions.

    b. Standard Contract Terms and Conditions for Services – SAP, STD-274 Rev. 12/17/07.

    c. The CONTRACTOR's Cost Submittal and any addenda, if applicable.

    d. The RFP and any addenda, including all referenced Appendices.

    e. The CONTRACTOR's Technical Submittal and any addenda, if applicable.

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SAMPLE

IN WITNESS WHEREOF, the parties have executed this Contract on the date first above written.

CONTRACTOR:

BY _____
NAME DATE

BY _____
TITLE

If a Corporation, only the Chairman, President, Vice President, Senior Vice President, Executive Vice President, Assistant Vice President, Chief Executive Officer or Chief Operating Officer must sign; if one of these officers is not available, please attach a resolution. If a sole proprietorship, only the owner must sign; if a partnership, only one partner needs to sign; if a limited partnership, only a general partner may sign. If a Limited Liability Company ("LLC"), only one member needs to sign, unless it is a manager-based LLC, then a manager must sign. If a Municipality, Authority, or other entity, please attach a resolution.

DO NOT WRITE BELOW THIS LINE--FOR COMMONWEALTH USE ONLY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

BY _____
TITLE DATE

APPROVED AS TO LEGALITY
AND FORM

BY _____
For Chief Counsel DATE

BY _____
Deputy General Counsel DATE

RECORDED NO. _____
SAP NO. _____
SAP COST CENTER _____
GL ACCOUNT_____
AMOUNT _____

BY _____
Deputy Attorney General DATE

BY_____
For Comptroller Operations DATE

SAMPLE

APPENDIX B

SPECIAL CONTRACT TERMS AND CONDITIONS

SPECIAL CONTRACT TERMS AND CONDITIONS

1. FEDERALLY FUNDED CONTRACTS

In the event that Federal funding is used to support the work governed by this Contract, the following provisions apply:

A. Federal Representative

All references to the Federal Representative in this Contract apply. The Federal Highway Administration (FHWA) is referred to as the Federal Representative.

B. Federal Nondiscrimination Clauses

CONTRACTOR agrees to comply with the Federal Nondiscrimination and Equal Employment Opportunity Clauses, dated January 1976, which are attached to and made a part of this Agreement.

C. Certification of Contractor

CONTRACTOR hereby certifies that CONTRACTOR has not employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for CONTRACTOR) to solicit or secure this Contract.

CONTRACTOR further certifies that CONTRACTOR has not agreed, as an express or implied condition for obtaining this Contract, to employ or retain the services of any firm or person in connection with carrying out this Contract. CONTRACTOR has not paid, or agreed to pay, to any firm, organization, or person (other than a bona fide employee working solely for CONTRACTOR) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out this Contract.

No member or delegate to the Congress of the United States shall be admitted to any share or part of this Contract or to any benefit arising therefrom.

D. Federal Disadvantaged Business Enterprise Assurance

CONTRACTOR shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. CONTRACTOR shall carry out applicable requirements of 49 C.F.R. Part 26 in the award and administration of United States Department of Transportation-assisted contracts. Failure by CONTRACTOR to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as PENNDOT deems appropriate. If CONTRACTOR is providing services or supplies for PENNDOT pursuant to this contract, it must include this assurance in each subcontract that it signs with a subcontractor. If CONTRACTOR is a grantee or other recipient of funds from PENNDOT, it must include this assurance in each contract into which it enters to carry out the project or activities being funded by this contract.

E. Review Rights

PENNDOT and the Federal Representative, if appropriate, have the right to review and inspect all project activities at any time. PENNDOT retains the right to conduct security audits.

2. OWNERSHIP RIGHTS

(a) Ownership of Properties

(1) All "Developed Works" shall be owned according to the provisions set forth in this Section 2.

(2) All software owned by the Commonwealth or its licensors ("Commonwealth Software") as of the Effective Date, shall be and shall remain the exclusive property of the Commonwealth or its licensors, and Contractor shall acquire no rights or interests in the Commonwealth Software or Tools or that of its licensors by virtue of this Contract except as described in this Section or in another provision set forth in this Contract. The Contractor shall not use any Commonwealth Software, Commonwealth Tools or software or tools of its licensors for any purpose other than for completion of work to be performed under this Contract. In the use of Commonwealth Software, Commonwealth Tools or software or tools of its licensors, Contractor will be bound by the confidentiality provisions of this Contract.

(b) Definitions

(1) Software—For the purposes of this Contract, the term "software" means a collection of one or more programs, databases or microprograms fixed in any tangible medium of expression that comprises a sequence of instructions (source code) to carry out a process in, or convertible into, a form executable by an electronic computer (object code).

(2) Data—For the purposes of this Contract, the term "data" means any recorded information, regardless of form, the media on which it may be recorded, or the method of recording.

(3) Technical Data—For purposes of this Contract, the term "technical data" means any specific information necessary for the development, production or use of the Commonwealth Software.

(c) Commonwealth Property—Non-Exclusive, License Grant and Restrictions

During the term of this Contract, Commonwealth grants to Contractor for the limited purpose of providing the Services covered under this Contract, a limited, nonexclusive, nontransferable, royalty-free right (subject to the terms of any third party agreement to which the Commonwealth is a party) to do the following:

(1) Obtain access to and use of the Commonwealth Software in accordance with the terms of this Contract.

(2) Reproduce the Commonwealth Software for archival purposes or for other purposes expressly provided for under this Contract.

(3) Modify the Commonwealth Software consistent with the terms and conditions of this Contract provided that Contractor agrees to assign to the Commonwealth, its rights, if any, in any derivative works resulting from Contractor's modification of the Commonwealth Software. Contractor agrees to execute any documents required to evidence this assignment and to waive any moral rights and rights of attribution provided for in Section 106A of Title 17 of the United States Code, the Copyright Act of 1976.

(4) Allow the Contractor's subcontractors approved by the Commonwealth to obtain access to the Commonwealth Software for the purposes of complying with the terms and conditions of this Contract; provided, however, that neither Contractor nor any of its subcontractors may decompile or reverse engineer, or attempt to decompile or reverse engineer, any of the Commonwealth Software. Commonwealth hereby represents that it has the authority to provide the license grant and rights set forth in this Section.

(5) To the extent that Contractor uses Commonwealth Software, Commonwealth Tools or software or tools of its licensor, Contractor agrees to protect the confidentiality of these works and maintain these proprietary works with the strictest confidence.

(d) Impact of Third Party Agreements

Subject to the terms of any third party agreement to which the Commonwealth is a party, (i) the Commonwealth shall, at no cost to Contractor, provide Contractor with access to the Commonwealth Software in the form in use by Commonwealth as of the Effective Date of this Contract and, (ii) Contractor, as part of the Services to be rendered under this Contract, shall compile and, as changes are made, update a list of all of the Commonwealth Software then in use by Contractor or any of its subcontractors in connection with Contractor's performance of the Services required by this Contract.

(e) Reservation of Rights

All rights, not expressly granted here to Contractor on a nonexclusive basis, including the right to grant non-exclusive licenses and other rights are reserved by the Commonwealth.

(f) Termination of Commonwealth License Grant

Upon the expiration or termination for any reason of Contractor's obligation to provide the Services under this Contract, all rights granted to Contractor in this Section shall immediately cease. Contractor shall, at no cost to Commonwealth, deliver to Commonwealth all of the Commonwealth Software and Tools (including any related source code then in Contractor's possession or under its control) in the form in use as of the Effective Date of such expiration or termination. Within fifteen (15) calendar days after termination, Contractor shall provide the Commonwealth with a current copy of the list of Commonwealth Software in use as of the date of such expiration or termination. Concurrently therewith, Contractor shall destroy or erase all other copies of any of the Commonwealth Software then in Contractor's possession or under its control unless otherwise instructed by Commonwealth, in writing; provided, however, that Contractor may retain one archival copy of such Commonwealth Software and Tools, until final resolution of any actively asserted pending disputes between the Parties, such retention being for the sole purpose of resolving such disputes.

(g) Effect of License Grant Termination

Consistent with the provisions of this Section, Contractor shall refrain from manufacturing, copying, marketing, distributing, or use of any Commonwealth Software or any other work which incorporates the Commonwealth Software. The obligations of this Section shall survive any termination of this Contract.

(h) Use of Contractor-Owned Software

All software owned by Contractor (Contractor Software) and tools owned by Contractor (collectively "Contractor Tools," as defined in paragraph (i) below) prior to the Effective Date of this Contract shall be and shall remain the exclusive property of Contractor. The Commonwealth shall acquire no rights or interests in the Contractor Software or the Contractor Tools by virtue of this Contract except as set forth below (in the form of a license).

(i) Definition of Contractor Tools

Contractor Tools is defined as any tools, both in object code and source code form, which Contractor has previously developed, or which Contractor independently develops or licenses from a third party, excluding any tools that Contractor creates pursuant to this Contract. Contractor Tools includes but is not limited to, methodologies, information, concepts, toolbars for maneuvering between pages, search engines, JAVA applets, and ActiveX controls.

(j) Required Reports, Records and Inventory of Contractor Tools and Contractor Software

(1) Contractor must provide a list of all Contractor Tools and Contractor Software to be delivered in connection with the deliverables or Developed Materials prior to commencing any work under the Contract. Contractor

must also provide a list of all other Contractor Tools and Contractor Software intended to be used by Contractor to provide the services under this Contract but will not become part of or necessary for the use of the Developed Materials. All Contractor Tools and Contractor Software necessary to use deliverables or Developed Materials shall be delivered to the Commonwealth along with the license set forth in subsection (k). Contractor may amend these lists from time to time while the Contract is being carried out or upon its completion. In the event that the Contractor fails to list a Contractor Tool, but can demonstrate that such tool was independently developed by Contractor prior to the Contract on which it was used, Contractor shall nevertheless retain complete ownership of such Contractor Tool that is necessary to use the deliverables or Developed Materials, provided that notice is given to the Commonwealth prior to its use on the Contract. Any Contractor Tools or Contractor Software not included on the lists will be deemed to have been created under this Contract.

(2) As part of its response to a RFP, the Contractor will provide a list of all software and tools that are commercially available and which are required to support the deliverables or Developed Materials.

(3) During the term of this Contract, Contractor shall maintain at its principal office books of account and records showing its actions under this Contract. Upon reasonable notice by Commonwealth, Contractor shall allow Commonwealth to inspect these records and accounts for purposes of verifying the accuracy of such accounts and records.

(4) In the event that Contractor fails to list a Contractor Tool or Contractor Software, but is able to demonstrate that such tool or software was independently developed by Contractor prior to the Effective Date of this Contract, Contractor shall retain complete ownership of such Contractor Tool or Contractor Software that is necessary to use the deliverables or Developed Works, provided that notice is given to the Commonwealth prior to use on the Contract.

(k) Expiration or Termination Non Exclusive License Grant—Non-Commercial Contractor Tools and Software

Upon the expiration or termination for any reason of Contractor's obligation to provide the Services under this Contract, and/or at the request of the Commonwealth, Contractor shall (i) grant to Commonwealth a paid-up, nonexclusive, nontransferable license to use, modify, display, prepare derivative works and sublicense grant to third parties engaged by Commonwealth (by contract or otherwise) the right to use, modify, and prepare derivative works based upon all or any portion of the non-commercially available Contractor Software and the non-commercially available Contractor Tools owned by Contractor and used by Contractor in connection with the Services, the foregoing rights being granted to the extent reasonably necessary to facilitate Commonwealth's or such

third party's completion of and maintenance of the Services to be provided by Contractor under this Contract immediately prior to such expiration or termination and (ii) deliver to Commonwealth the object code version of such non-commercially available Contractor Software and such non-commercially available Contractor Tools in the form used by Contractor in connection with the Services immediately prior to such expiration or termination to allow the Commonwealth to complete and maintain such work. If Commonwealth enters into a contract that allows for the use of the Contractor Software or Contractor Tools for which a license is granted under this Section, the Commonwealth will include a provision in that contract that limits the use of the Contractor Software or Contractor Tools as delineated in this Section.

(l) Rules of Usage for Developed Works

(1) If Developed Works modify, improve, or enhance application software programs or other materials generally licensed by the Contractor, then such Developed Works shall be the property of the Contractor, and Contractor hereby grants Commonwealth and any third party acting on its behalf, an irrevocable, nonexclusive, worldwide, fully paid-up license (to include source code and relevant documentation) in perpetuity to use, modify, execute, reproduce, display, perform, prepare derivative works from and distribute, within the Commonwealth, of such Developed Works. For purposes of distribution under the license grant created by this section, the term "Commonwealth" includes any government agency, department, instrumentality, division, unit or other office that is part of the Commonwealth of Pennsylvania, together with the State System of Higher Education (including any of its universities), any county, borough, commonwealth, city, municipality, town, township special purpose district, or other similar type of governmental instrumentality located within the geographical boundaries of the Commonwealth of Pennsylvania. If federal funds are used in creation of the Developed Works, the Commonwealth also includes any other state government as well as the federal government.

(2) If Developed Works modify, improve, or enhance application software or other materials not licensed to the Commonwealth by the Contractor, then such modifications, improvements and enhancements shall be the property of the Commonwealth and its licensor. To the extent Commonwealth owns the software or other materials, it hereby grants to Contractor an irrevocable, nonexclusive, worldwide, fully paid-up license to use, modify, execute, reproduce, display, perform, prepare derivative works from, and distribute copies of such Developed Works. To the extent Commonwealth has a license to the software or other materials, and to the extent that it, in its sole discretion determines it is able to do so the Commonwealth will grant to Contractor an irrevocable, nonexclusive, worldwide, fully paid-up license to use, modify, execute, reproduce, display, perform and distribute copies of such Developed Works.

(3) If Developed Works have been funded by Commonwealth, to any extent, with either Commonwealth or federal funds, and the Developed Works do not include pre-existing materials generally licensed by the Contractor, then the Commonwealth shall have all right, title, and interest (including ownership of copyright and trademark) to such Developed Works and the Commonwealth hereby grants to Contractor an irrevocable, nonexclusive, worldwide, fully paid-up license to use, modify, execute, reproduce, display, perform, prepare derivative works from, and distribute copies of such Developed Works. The Commonwealth shall exclusively own all software products first developed under the terms of this contract by the Contractor, its subcontractors or other third party vendors that are specifically developed for, engineered and integrated into the Developed Works.

(4) When the Developed Work is a report provided by a research company that was provided under this Contract, but which was not developed specifically for the Commonwealth under this Contract, the ownership of the Developed Work will remain with the Contractor, provided, however, that the Commonwealth has the right to copy and distribute the Developed Work within the Commonwealth.

(m) Copyright Ownership—Developed Works Developed as Part of the Scope of Work for the Project, including Developed Works developed by Subcontractors, are the sole and exclusive property of the Commonwealth and shall be considered "works made for hire" under the United States Copyright Act of 1976, as amended, 17 United States Code. In the event that the Developed Works do not fall within the specifically enumerated works that constitute works made for hire under the United States copyright law, Contractor agrees to assign and, upon their authorship or creation, expressly and automatically assigns all copyright interests, proprietary rights, trade secrets, and other right, title, and interest in and to such Developed Works to Commonwealth. Contractor further agrees that it will have its Subcontractors assign, and upon their authorship or creation, expressly and automatically assign all copyright interest, proprietary rights, trade secrets, and other right, title, and interest in and to the Developed Works to the Commonwealth. Commonwealth shall have all rights accorded an owner of copyright under the United States copyright laws including, but not limited to, the exclusive right to reproduce the Developed Works in multiple copies, the right to distribute, copies by sales or other transfers, the right to register all copyrights in its own name as author in the United States and in foreign countries, the right to prepare derivative works based upon the Developed Works and the right to display the Developed Works. The Contractor further agrees that it will include this requirement in any subcontractor or other agreement with third parties who in any way participate in the creation or development of Developed Works. Upon completion or termination of this Contract, Developed Works shall immediately be delivered by Contractor to the Commonwealth. Contractor warrants that the Developed Works are original and do not infringe any copyright, patent, trademark, or other intellectual property right of any third party and are in conformance with the intellectual property laws of the United States.

(n) Patent Ownership

(1) Contractor and its subcontractors shall retain ownership to patentable items, patents, processes, inventions or discoveries (collectively, the Patentable Items) made by the Contractor during the performance of this Contract. Notwithstanding the foregoing, the Commonwealth shall be granted a nonexclusive, nontransferable, royalty free license to use or practice the Patentable Items. Commonwealth may disclose to third parties any such Patentable Items made by Contractor or any of its subcontractors under the scope of work for the Project that have been previously publicly disclosed. Commonwealth understands and agrees that any third party disclosure will not confer any license to such Patentable Items.

(2) Contractor shall not use any computer program, code, or any works developed by or for Contractor independently of this Contract ("Pre-Existing Materials") in the performance of the Services under this Contract, without the express written consent of the Commonwealth. Any Pre-Existing Materials used by Contractor for performance of Services under this Contract without Commonwealth consent shall be deemed to be Developed Works as that term is used in this Section. In the event that Commonwealth provides such consent, Contractor shall retain any and all rights in such Pre-Existing Materials.

(o) Federal Government Interests

It is understood that certain funding under this Contract may be provided by the federal government. Accordingly, the rights to Developed Works or Patentable Items of Contractors or subcontractors hereunder will be further subject to government rights as set forth in 37 C.F.R. Section 401, and other applicable statutes.

(p) Usage Rights for Know-How and Technical Information

Either Party, in the ordinary course of conducting business, may use any ideas, concepts, know-how, methodologies, processes, components, technologies, algorithms, designs, modules or techniques not otherwise covered by this Section relating to the Services which Contractor or Commonwealth (alone or jointly with the Commonwealth) develops or learns in connection with Contractor's provision of Services to Commonwealth under this Contract.

(q) Commonwealth Intellectual Property Protection

Contractor acknowledges Commonwealth's exclusive right, title and interest, including without limitation copyright and trademark rights, in and to Commonwealth Software, Commonwealth Tools and the Developed Works developed under the provisions of this Section, shall not in any way, at any time, directly or indirectly, do or cause to be done any act or thing contesting or in any way impairing or tending to impair any part of said

right, title, and interest, and shall not use or disclose the Commonwealth Software, Commonwealth Tools, or the Developed Works without Commonwealth's written consent, which consent may be withheld by the Commonwealth for any reason. Further, Contractor shall not in any manner represent that Contractor has any ownership interest in the Commonwealth Software, Commonwealth Tools, or the Developed Works. This provision is a material part of this Section.

(r) Contractor Intellectual Property Protection

Commonwealth acknowledges that it has no ownership rights in the Contractor Software or Contractor Tools other than those set forth in this Contract, or as may be otherwise granted in writing.

(s) Source Code and Escrow Items Obligations

Simultaneously with delivery of the Developed Works to Commonwealth, Contractor shall deliver a true, accurate and complete copy of all source codes relating to the Developed Works. To the extent that the Developed Works include application software or other materials generally licensed by the Contractor, then the source code shall be placed in escrow, subject to the terms and conditions of an Escrow Agreement to be executed by the Parties and an Escrow Agent that is acceptable to the Commonwealth.

(t) Contractor's Copyright Notice Obligations

Contractor will affix the following Copyright Notice to the Developed Works developed under this Section and all accompanying documentation: "Copyright © [year] by the Commonwealth of Pennsylvania. All Rights Reserved." This notice shall appear on all tangible versions of the Developed Works delivered under this Contract and any associated documentation. It shall also be programmed into any and all Developed Works delivered hereunder so that it appears at the beginning of all visual displays of such Developed Works.

(u) Commercial Software

If a product or deliverable under this Contract is commercially available software or requires commercially available software for use, the Contractor hereby agrees that it will enter into a software license agreement with the Commonwealth that provides the Commonwealth (and third parties acting on behalf of the Commonwealth) with, all rights set forth in the above section labeled "Rules of Usage for Developed Works.". If the Contractor is not the licensor of the software, Contractor hereby agrees that it will inform the licensor of the software that it will be required to enter into a license agreement with the Commonwealth (which shall also address third parties' rights, while acting on behalf of the Commonwealth, to utilize the licensed software).

(v) Perpetual License Requirement

The Contractor hereby agrees that all COTS software and solutions shall be provided to the Commonwealth by way of a perpetual, royalty-free license to the e Commonwealth including, but not limited to, non-expiring usage to current and future versions, as explained above in subsection (u), *Commercial Software*.

3. PUBLICATION RIGHTS AND/OR COPYRIGHTS

(a) Except as otherwise provided in this Section, the Contractor shall not publish any of the results of the work without the written permission of the Commonwealth. The publication shall include the following statement: "The opinions, findings, and conclusions expressed in this publication are those of the author and not necessarily those of the Commonwealth of Pennsylvania." The Contractor shall not include in the documentation any copyrighted matter, unless the Contractor provides the Commonwealth with written permission of the copyright owner.

(b) Except as otherwise provided in Paragraph 5, Confidentiality, the Commonwealth shall have unrestricted authority to reproduce, distribute, and use any submitted report or data designed or developed and delivered to the Commonwealth as part of the performance of the Contract.

(c) Rights and obligations of the parties under this Section survive the termination of this Contract.

4. LIQUIDATED DAMAGES

(a) Liquidated damages shall apply to this Contract for the deliverables identified below. For each calendar day that the work remains incomplete and/or unacceptable to PennDOT past the Delivery Dates identified in Appendix U, Project Deliverables Schedule, the sum per day specified in the following table will be assessed against the appropriate deliverable and deducted from that deliverable invoice.

Deliverable	**Delivery Dates**	**Liquidated Damages per Calendar Day**
E-2: Eastern Region Implementation	As established in Appendix U	$2,150
F-3: Central Region Implementation	As established in Appendix U	$2,150
G-3: Western Region Implementation	As established in Appendix U	$2,150

In the event that the Liquidated Damage amount exceeds the deliverable invoice, at PennDOT's discretion, the difference in amounts shall be deducted from another deliverable invoice or shall be remitted directly to PennDOT upon PennDOT's invoicing.

5. CONFIDENTIALITY

(a) The Contractor agrees to protect the confidentiality of the Commonwealth's confidential information and the Commonwealth will take all reasonably necessary measures to ensure the confidentiality of the Contractor's information that it designates as confidential in accordance with this paragraph. In order for information to be deemed confidential, the party claiming confidentiality must designate the information as "confidential" in such a way as to give notice to the other party (notice may be communicated by describing the information, and the specifications around its use or disclosure, in the SOW). Neither party may assert that information owned by the other party is such party's confidential information. The parties agree that such confidential information shall not be copied, in whole or in part, or used or disclosed except when essential for authorized activities under this Contract and, in the case of disclosure, where the recipient of the confidential information has agreed to be bound by confidentiality requirements no less restrictive than those set forth herein. Each copy of such confidential information shall be marked by the party making the copy with any notices appearing in the original. Upon termination or cancellation of this Contract or any license granted hereunder, the receiving party will return to the disclosing party all copies of the confidential information in the receiving party's possession, other than one copy, which may be maintained for archival purposes only, and which will remain subject to this Contract's security, privacy, data retention/destruction and confidentiality provisions (all of which shall survive the expiration of this Contract). Both parties agree that a material breach of these requirements may, after failure to cure within the time frame specified in this Contract, and at the discretion of the non-breaching party, result in termination for default pursuant to Section 22.c (DEFAULT), in addition to other remedies available to the non-breaching party.

(b) Insofar as information is not otherwise protected by law or regulation, the obligations stated in this Section do not apply to information:

(1) already known to the recipient at the time of disclosure other than through the contractual relationship;

(2) independently generated by the recipient and not derived from the information supplied by the disclosing party;

(3) known or available to the public, except where such knowledge or availability is the result of unauthorized disclosure by the recipient of the proprietary information;

(4) disclosed to the recipient without a similar restriction by a third party who has the right to make such disclosure; or

(5) required to be disclosed by the recipient by law, regulation, court order, or other legal process.

There shall be no restriction with respect to the use or disclosure of any ideas, concepts, know-how, or data processing techniques developed alone or jointly with the Commonwealth in connection with services provided to the Commonwealth under this Contract.

Notwithstanding the foregoing, confidential information may be the subject of a request under the Pennsylvania Right-to-Know Law, 65 P.S. § 67.101 et seq, and the Contractor shall comply with the Right-to-Know Law Provisions set forth in the Commonwealth's STD-274, *Standard Terms and Conditions*, which is attached to the Contract as Appendix C.

6. SERVICE LEVEL AGREEMENT (SLA)

PennDOT expects that the CONTRACTOR will demonstrate a high level of service and quality control standards. The CONTRACTOR is required to maintain high quality standards and provide quality assurance in order to meet or exceed the service levels outlined below. In addition, the CONTRACTOR shall take timely and appropriate action in response to resources that are not performing to PennDOT expectations.

PennDOT has developed a base Service Level Agreement (SLA) that is set forth herein for the purpose of measuring CONTRACTOR performance throughout the life of the Contract, and any renewals.

A monthly meeting will take place with the CONTRACTOR to review the quality of service provided to PennDOT. Monthly performance reports will be reviewed to enable PennDOT to evaluate the CONTRACTOR on a variety of performance criteria, including, but not limited to, the SLA established. If any service deficiencies are identified across the entire contract, the CONTRACTOR and PennDOT representatives will determine a corrective action plan to ensure that the level of service improves. Failure to correct service deficiencies may be considered an event of default under Paragraph 17, Appendix C, *Standard Terms and Conditions* (STD-274).

As a part of process improvement, throughout the life of the contract, improvement to existing SLA's and\or additional SLA's are to be presented at the monthly review meeting. PennDOT recommends that the CONTRACTOR utilize survey tools to periodically gather customer satisfaction feedback from a randomly selected group of PennDOT users who utilize the CONTRACTOR service desk.

Changes and\or additions to SLA's resulting from the process improvement efforts will be agreed upon by the CONTRACTOR and PennDOT and will be in accordance with Paragraph 30, Appendix C, Standard Terms and Conditions (STD-274).

(a) Reporting

The CONTRACTOR shall provide all performance reports, delivered to the Project Manager on or before the 5th calendar day of each month for the immediate preceding month to verify the fulfillment of the service level requirements The CONTRACTOR shall

furnish DEPARTMENT with a monthly report on all service request activity in an electronic format agreed upon by DEPARTMENT and will provide access to all the data used to generate these reports.

Credits: If any performance report is not delivered to PennDOT's Project Manager on or by the 5th calendar day of each month, the CONTRACTOR shall apply credit in the amount as described below to the full monthly invoice amount for Task I-3, Routine Maintenance and Support. The credit shall be applied to the monthly service invoice of the affected month.

Performance Reports	Credits (per report)
All reports received on or by the 5th calendar day of the month	**No credits applied**
Any report received after the 5th calendar day of the month	**$50 (per day)**

(b) **System Availability**

This metric is established to track system availability from an end users' perspective. The intent is to assure system availability at or above 99.9% for 24 hours, 7 days a week, 365 days a year continuous system operation. The goal is to have minimal or no unplanned outages that impact the end users.

System availability refers to the time the system is functional, accessible and capable of meeting the contracted performance requirements. The System will be deemed unavailable if at least one TMC is not able to access ATMS or not able to operate one or more core ATMS modules (e.g. DMS, HAR, CCTV). If the System is deemed unavailable for more than one TMC and the issue is not related, then the downtime will be counted for those TMCs as separate instances; downtime calculation shall include all downtime from start to finish at each affected TMS and shall be counted as consecutive downtime.If the System is deemed unavailable for more than one TMC and the issue is related, then the downtime will be counted as a single instance based on the total downtime for that particular issue. The system availability metric applies to the CONTRACTOR provided **software** for the ATMS solution.

The CONTRACTOR will be responsible for reporting on system availability monthly. Downtime shall be calculated from the time when the CONTRACTOR determines the unavailability began to the restoration of availability.
NOTE: PennDOT **approved** downtime due to **planned** ATMS system maintenance will not count towards total system downtime; **approved** downtime shall be counted as time the system is available

The calculation for downtime shall be as follows:

(System availability – downtime) / (System availability) * 100

- **System availability** = number of minutes a system is fully functional and accessible based on normal hours of operation (24/7/365) for the reporting month.

- **Downtime** = number of minutes a system is unavailable for the reporting month (applies only to unplanned outages).

Credits: If the reported monthly system availability is below 99.9%, the CONTRACTOR shall apply credit in the amount as described below to the full monthly invoice amount for Task I-3, Routine Maintenance and Support. The credit shall be applied to the monthly service invoice of the affected month.

Monthly System Availability Performance (example: downtime in 30 day month)	Credits
99.9 to 100% (0 – 43 mins)	**No credits applied**
98% to 99.8% (43 mins – 14 hrs, 24 mins)	**5%**
95% to 97.9% (14 hrs, 24 mins – 36 hrs)	**15%**
90% to 94.9% (36 – 72 hrs)	**25%**
75% to 89.9% (72 – 180 hrs)	**50%**
50% to 74.9% (180 – 360 hrs)	**75%**
Less than 50% (Greater than 360 hours)	**100%**

For example, if the availability was 96% in Month 9, then the CONTRACTOR would apply 15% credit to the Month 9's invoice for the regular Monthly charge for Task I-3, Routine Maintenance and Support.

(c) **Service Request Management**

The CONTRACTOR shall produce a troubleshooting guide with recommendations for resolving potential problems that may occur with the software (see Statement of Work, Task I). This matrix shall include step-by-step recommendations that allow basic users the ability to resolve problems as quickly as possible. The recommendations will also indicate what steps the PennDOT staff is expected to take before contacting the CONTRACTOR for support.

All service requests escalated to the CONTRACTOR for resolution shall be resolved according to the parameters established within this Section. The resolution time requirements include travel time.

The hours indicated in the response and resolution timeframes shall be interpreted as consecutive hours within a 24 hour period, except where specifically noted as *business* hours. Business Hours are: Monday - Friday, 8AM - 5PM

The following table explains Severity Levels of service requests. **The DEPARTMENT will determine the severity level assigned to requests.**

Severity Matrix			
The following are examples of DEPARTMENT determined severity levels:			
Severity 1	**Severity 2**	**Severity 3**	**Severity 4**
• Complete or substantial loss of service or severe	• Multiple users are affected by a service	• An individual line or port is out of service, or	• An informational request or a fault that has

Severity Matrix			
degradation of the system that makes the system unusable. • Inability to use a mission-critical application.	degradation or out-of-service condition. • Significant loss of service or high business impact. • Any service that affects certain key officials (executive personnel). • Failure of a redundant system component.	limited features for a small number of users (one to ten) are not functioning. • Minimal business impact, problem may be bypassed. • Some loss of service or other specific functionality is lost. • Non Service Affecting Alarms	no business impact.

Credits: If any of the Service Request/Response targets are not met, the CONTRACTOR shall apply credit in the amount as described below to the full monthly invoice amount for Task I-3, Routine Maintenance and Support. The credit shall be applied to the monthly service invoice in which the resolution occurred. Time interval for each service request shall begin from the time notification is received and shall end when the request is resolved and the system is returned to proper operating condition as confirmed by PennDOT.

The following table explains the activities, performance standards and credits for **all service requests.**

Routine Maintenance **Service Request Management – All Requests**			
Activities	**Measure**	**Performance**	**Credit**
a) <u>Respond to service request:</u> − Answer the call or call back to user, − Confirm Severity, − Establish Priority	Response Time	Within 10 minutes from initial notification	**$0**
		For every 10 minutes past initial notification	**$50 (per 10 minute interval)**

All Requests				
Activities	**Measure**	**Performance**	**Credit (Per Request)**	
b) <u>Resolve service request:</u> − Restore application service in the event of a service failure. − Resolve service requests with high business impact (such as urgent data fixes, special reports, etc.) − Resolve service requests with minimal business	Time to Resolution	**Severity 1** = within 2 consecutive hours from initial notification	Within 2 hours of notification	**0%**
			Every 30 minutes interval past 2 hours	**.5%**
		Severity 2 = within 4 consecutive hours from initial notification	Within 4 hours of notification	**0%**
			Every 30 minutes interval past 4 hours	**.5%**
		Severity 3 = within 8 consecutive	Within 8 business hours of notification	**0%**

Routine Maintenance Service Request Management – All Requests				
Activities	**Measure**	**Performance**		**Credit**
impact (such as non-urgent data fixes, non-urgent special reports and data extracts, user and technical documentation updates, etc.)		*business* hours from initial notification	Every 1 business hour past 8 business hours	**.5%**
		Severity 4 = within 24 consecutive *business* hours from initial notification	Within 24 business hours of notification	**0%**
			Every 1 business hour past 24 business hours	**.5%**
All Requests				
Activities	**Measure**	**Performance**	**Credit (Per Request)**	
c) <u>Communicate periodic status updates</u> during service request response.	Intervals through resolution	Hourly updates (For severity 1 & 2)	Updates Provided Hourly	**$0**
			For each hourly update missed	**$50**

The table below outlines additional activities applicable only to **service requests related to service failures:**

Routine Maintenance Service Request Management – Service Failures				
Activities	**Measure**	**Performance**	**Credit (Per Request)**	
d) <u>Complete/Document Root Cause Analysis (RCA)</u> (For severity levels 1 and 2)	Time to Completion	Within 2 business days of service failure	Within 2 business days	**$0**
			For each business day late	**$50**
e) <u>Document additional corrective action</u> necessary to prevent future reoccurrence of the problem (For severity levels 1 and 2)	Time to Completion	Within 5 business days of service failure	Within 5 business days	**$0**
			For each business day late	**$50**
f) <u>Submit After-Action Review report</u> after completion of corrective action. (For severity levels 1 and 2)	Time to Completion	Within 10 business days after corrective action is complete	Within 10 business days	**$0**
			For each business day late	**$50**

PennDOT reserves the right to require the completion of c through f activities for severity levels 3 and 4 as needed, provided that PennDOT notifies the CONTRACTOR of such intent.

Example Calculations for Response and Resolution Activities for a given month:

- Day 3: Department contacts vendor for a severity 1 incident. Vendor returns call in 45 minutes and restores incident within 2 hours 45 minutes from Departments first call to the vendor.

  Calculation:
  - Call returned in 45 minutes = $200 Credit
  - Severity 1 incident restored in 2 hours, 45 minutes = 1% Credit

- Day 11: Department contacts vendor for a severity 4 incident. Vendor answers call immediately. Vendor restores incident within 37 business hours from Departments first call to the vendor.

  Calculation:
  - Call answered immediately = $0 Credit
  - Severity 4 incident restored in 37 hours, = 6.5% Credit

- Monthly Report: Department contacts vendor for 20 service requests within a month of which 15 are severity l or 2. All calls were responded to within 10 minutes. However, the vendor fails to communicate periodic status updates on 2 of the severity 2 incidents. Each incident of these took 4 hours to resolve.

  Calculation:
  - Call answered within 10 minutes = $0 Credit
  - Severity 2 incidents restored within 4 hours = 0% Credit
  - Periodic status updates not done hourly
    - 2 incidents x 3 hourly updates = 6 hourly updates missed
    - 6 updates missed x $50 = $300 Credit

(d) **Miscellaneous**

In the event that the Credits exceed the regular monthly charge, at PennDOT's discretion, the difference in amounts shall be deducted from the next monthly invoice or shall be remitted directly to PennDOT after PennDOT's invoicing.

In the event there is no applicable regular monthly charge, the amount of the credit shall be remitted directly to PennDOT after PennDOT's invoicing.

7. ADDITIONAL WORK

As part of this design, build and implementation project the need for some additional work not yet anticipated or defined within specified Tasks, but within the Contract scope, may be identified by PennDOT or the CONTRACTOR. In the event that such additional work is identified, the CONTRACTOR shall propose the level of effort, any associated costs and a schedule for completion.

The agreement for inclusion of the additional work, associated costs and completion schedule, or any such change that results in an increase or decrease in the total value of the Contract, shall be formalized in writing by an exchange of letter signed only by both parties, PennDOT's Office of Chief Counsel and Comptroller Operations.

8. COMPLIANCE WITH INFORMATION TECHNOLOGY STANDARDS AND POLICY

CONTRACTOR shall follow the information technology standards and policies issued by the Governor's Office of Administration, Office for Information Technology (OA/OIT), for the Commonwealth enterprise. These standards and policies are contained in the Information Technology Bulletins (ITB) on the Office of Administration website at: http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=210791&mode=2.

APPENDIX BB

LIST OF ABBREVIATIONS

APPENDIX BB

List of Abbreviations

AMBER	America's Missing: Broadcasting Emergency Response
API	Application Programming Interface
ATMS	Advanced Traffic Management System
ATR	Automatic Traffic Recorder
AVL	Automatic Vehicle Location
BBSS	Bureau of Business Solutions and Services
BHSTE	Bureau of Highway Safety and Traffic Engineering
BIO	Bureau of Infrastructure and Operations
BPR	Bureau of Planning and Research
CCB	Change Control Board
CCTV	Closed Circuit Television
CMP	Configuration Management Plan
COTS	Commercial Off The Shelf
DMS	Dynamic Message Sign
EDRS	Emergency Detour Routing System
EMA	Emergency Management Agency
FHWA	Federal Highway Administration
GATIR	Geospatial Analysis of Threats and Incident Reports
GIS	Geographic Information System
GUI	Graphical User Interface
HAR	Highway Advisory Radio
HMI	Human Machine Interface
HOV	High Occupancy Vehicle
ICC	Incident Command Center
IT	Information Technology
ITB	Information Technology Bulletin
ITS	Intelligent Transportation System
KVM	Keyboard-Video-Monitor
LAN	Local Area Network
MDSS	Maintenance Decision Support System
OA/OIT	Office of Administration, Office for Information Technology
PennDOT	Pennsylvania Department of Transportation
PM	Project Manager
PSP	Pennsylvania State Police
PTC	Pennsylvania Turnpike Commission
RCRS	Road Condition Reporting System
RTMC	Regional Traffic Management Center
RWIS	Roadway Weather Information System
RFP	Request for Proposals
SLA	Service Level Agreement
SR	State Route
TMC	Traffic Management Center
UAT	User Acceptance Test

APPENDIX C

STANDARD CONTRACT TERMS AND CONDITIONS

http://www.dgsweb.state.pa.us/comod/CurrentForms/STD274_SAP.doc

APPENDIX CC

DEPARTMENT SPECIFIC STANDARDS AND TOOLS AND CURRENT COMPUTING ENVIRONMENT

Department Specific Standards and Tools

- Version Control
  - IBM Rational ClearCase
- Enhancement/defect Tracking
  - IBM Rational ClearQuest
- Requirements Management
  - IBM Rational RequisitePro
- Application Test Management
  - Rational Test Suite
    - Rational Test Manager
    - Rational Manual Tester
    - Rational Functional Tester
    - Rational Performance Tester
- Enterprise Security Management Software
  - CA Siteminder
- Application Help System
  - Adobe RoboHelp
- Message Oriented Middleware Software
  - IBM Websphere MQ
- Java Application Infrastructure
  - IBM Websphere
- Application Programming Languages (using industry standard frameworks)
  - Java
  - .NET
- Data Modeling
  - ERWIN
- Reporting
  - Crystal Reports
  - Business Objects XI
- Document Management
  - IBM FileNet
- Data Integration Software
  - Informatica
- Service Desk Request Tracking

- BMC Remedy

- Database Management Systems
  - IBM DB2, Oracle, M/S SQL Server

- Desktop Software Standards
  - Microsoft Windows XP Pro SP3 (targeting Windows 7 – 64 bit)
  - Microsoft Office 2007 SP2
  - Microsoft Internet Explorer 6.0 SP3 (targeting IE8)
  - Microsoft Visio Viewer 2007 SP2
  - Java Runtime 1.4.2_06 (targeting v1.6.0_02)
  - Pantagon Viewer (IDM Viewer) 4.0.2
  - Corel GIS Active-X Viewer 7.1
  - Adobe Acrobat Reader 8.1.3
  - McAfee 8.5i w/patch 8
  - Winzip 12 Licensed
  - Lotus Notes 8.5
  - DB2 Run-Time Client v9
  - MDAC 2.8
  - SAP Gui 7.10
  - Adobe Flash Player 10

- Release Management Methodology
  - Release management practices appropriate to ITILv3.
    - The Information Technology Infrastructure Library (ITIL) is a customizable framework of good practices designed to promote quality computing services in the information technology (IT) sector.

Current Computing Environment
As of 01/2010

1. **Host Systems**
    a. Department of Transportation/Data Power House
        i. IBM z10 EC Series Enterprise Server model 2097-604
            1. z/OS 1.10 and z/VM 5.4 Operating systems
            2. z/OS 2 LPARS: Side 0 – Production Applications, Side 1- Development and Test
            3. z/VM 2 LPARS: LNX02 Production z/Linux guests, LNX01 Pre-prod z/Linux guests
    b. Server Farm
        i. Windows-based Application and Database servers
            1. Windows 2003 Server
                a. Intel x86 Server platform for production environments
                b. VMWare 3.5, Update 4 platform for all other environments (typical)
            2. Microsoft SQL 2000, SQL 2005 and Oracle
    c. Windows 2003 Forest with users in the Commonwealth's domain (CWOPA), while all other resources are in the Department of Transportation's domain (PENNDOT)

2. **Network**
    a. LAN – Ethernet, TCP/IP, 100MB to desktop
    b. WAN
        i. Core - Frame Relay and ATM moving to MPLS
        ii. Remote Sites – T1
        iii. Business Partners – up to and including T1
        iv. Engineering District Offices – DS3 up to 45Mbs
        v. Riverfront Office Complex – 2 x 50Mb Metro Ethernet
        vi. Commonwealth Keystone Building – 3 x 100Mb Metro Ethernet
        vii. Willow Oak Mainframe Connection – 2 OC3's
        viii. Server Farm (acts as the WAN hub) – 4 OC12's

Special Note on PennDOT Network and the Traffic Management Centers(TMCs):

Each TMC has a local 100Mb Ethernet LAN. The TMCs are connected to the PENNDOT Server Farm through dedicated WAN links with varying bandwidth capacities. Smaller TMCs are connected with 15Mb paths, while larger TMCs are connected with 45Mb paths. In King of Prussia and potentially at other sites, the TMC LAN traffic traverses a firewall and VPN routers before routing across the WAN.

All TMCs have ITS field devices with varying connection media. Fiber Optic Network, Point-to-Point Fiber, T-1, Cellular Modem, and POTS are examples of communication technologies deployed in support of TMC operations. ITS field device can only be operated by the sponsoring TMC. No other TMC can communicate directly with another TMC s' ITS filed devices.

The LAN is supported by the PENNDOT Bureau of Infrastructure and Operations (BIO) in conjunction with TMC staff and local PENNDOT District IT resources. The WAN is supported and managed by Verizon Business in conjunction with PENNDOT BIO. ITS field device communications are supported by the installation vendor as prescribed in the respective TMC maintenance contract.

PennDOT is currently working on a project to provide better connectivity between the TMC's. The purpose of the TMC Connectivity Project is to develop and provide a robust, flexible, adaptable and scalable network architecture for Traffic Management Center (TMC) connectivity that will enable interoperability of TMCs across the state, provide TMC operators access to PennDOT intranet resources, address business partner connections and meet PennDOT's long-term business and information technology needs. It is anticipated that the TMC connectivity solution will be in place for the Next Generation ATMS deployment.

3. End-users

a. Desktop PC – IBM Compatible Dual Core 2.4Ghz 160GB HDD, 2GB mem
b. Laptops – Pentium M and above
c. OS - Microsoft Windows XP with SP3
d. Office - Office 2007 with SP2
e. Browser - Microsoft Internet Explorer 6 with SP3
f. Java 1.6.0_02
g. Adobe Reader 9.2.0
h. IDM Viewer 4.0.2
i. IBM Host on Demand (Terminal Emulation)

4. FileNet

a. Image Services 4.1.1 with HotFix 7
b. Content Services 5.4
c. HPII 3.3.8
d. Webservices 4.0.2 HotFix 6
e. Capture 5.0 HT 3
f. Desktop 4.0 HT 1
g. eProcess 5.1 patch 7
h. Report Manager 4.1
i. MSSQL 2005 with Sp 3
j. OS Windows Server 2003 SP2
k. eInput 2.0
l. InputAxcel server 5.3
m. FileNet Exporter 5.3.3
n. Dispatcher 5.3
o. IMC 5.2
p. Opex 5.2

5. Windows Sandbox Environment

Server Usage	Hardware	Operating System	No. of Processors	Memory
SiteMinder	VMWare	Windows 2003 Server Standard Edition	1	1GB
Identity Manager	VMWare	Windows 2003 Server Standard Edition	1	512MB
Business Partner Active Directory	VMWare	Windows 2003 Server Standard Edition	1	512MB
POC Rational ClearCase	VMWare	Windows 2003 Server Standard Edition	1	2GB
POC Rational License Server	VMWare	Windows 2003 Server	1	2GB

Server Usage	Hardware	Operating System	No. of Processors	Memory
POC DB Server	VMWare	Windows 2003 Server	1	1GB
POC Build Management	VMWare	Windows 2003 Server	1.	2GB
POC Test Server	VMWare	Windows 2003 Server	1	512MB
POC WAS Server	VMWare	Suse 9 Linux	1	1GB
POC DB Server (Oracle)	VMWare	Suse 9 Linux	1	1GB
Extranet Web Server	VMWare	Windows 2003 Server	1	2GB

6. Windows Development Environment

Server Usage	Hardware	Operating System	No. of Processors	Memory
Captiva InputAccel Server	VMWare	Windows 2003 Server	1	2GB
Image Enhancement and Barcode Recognition	VMWare	Windows 2003 Server	1	2GB
Dispatcher for IA Extraction	VMWare	Windows 2003 Server	1	2GB
Dispatcher for IA Classification	VMWare	Windows 2003 Server	1	2GB
Opex Scanner Multi-Directory Watch Module	VMWare	Windows 2003 Server	1	2GB
FileNet – Exporter	VMWare	Windows 2003 Server	1	2GB
Web Server with IIS for eInput/eRouter	VMWare	Windows 2003 Server	1	2GB
Web Server with IIS for Input Mangement Console	VMWare	Windows 2003 Server	1	2GB
FileNet Applications Server	IBM Pentium III 1.0 GHz	Windows 2003 Server	1	2GB
EDMS Database Server – SQL Server	IBM Pentium III 1.4 GHz	Windows 2003 Server	1	2GB
FileNet Report Manager Server	IBM 3.6 GHz Xeon HT	Windows 2003 Server	1	1GB
FileNet Image Services	IBM Pentium III 1.0 GHz	Windows 2003 Server	1	1GB
EDMS Web Server 0 Legacy Integration	IBM Pentium III 1.0 GHz	Windows 2003 Server	1	1 GB
Server Usage	**Hardware**	**Operating System**	**No. of Processors**	**Memory**
EDMS Web Server - .centric Integration	VMWare	Windows 2003 Server	1	1GB
SiteMinder Policy Server	VMWare	Windows 2003 Server	1	2 GB
Identity Manager Server	VMWare	Windows 2003 Server	1	1 GB
Informatica Power Center Advanced	VMWare	Windows 2003 Server	1	2 GB

Extranet Web Server and WAS Server	VMWare	Windows 2003 Server	1	2 GB
Windows UNI Server	VMWare	Windows 2003 Server	1	2 GB
Rational ClearCase Server	VMWare	Windows 2003 Server	1	2 GB
Rational DB/License Server	VMWare	Windows 2003 Server	1	2 GB

7. Windows System Test Environment

Server Usage	Hardware	Operating System	No. of Processors	Memory
Captiva InputAccel Server	VMWare	Windows 2003 Server	1	2 GB
Image Enhancement and Barcode Recognition	VMWare	Windows 2003 Server	1	2 GB
Dispatcher for IA Extraction	VMWare	Windows 2003 Server	1	2 GB
Dispatcher for IA Classification	VMWare	Windows 2003 Server	1	2 GB
Opex Scanner Multi-Directory Watch Module	VMWare	Windows 2003 Server	1	2 GB
FileNet – Exporter	VMWare	Windows 2003 Server	1	2 GB
Web Server with IIS for eInput/eRouter	VMWare	Windows 2003 Server	1	2 GB
Web Server with IIS for Input Mangement Console	VMWare	Windows 2003 Server	1	2 GB
FileNet IS Root/Index Server	IBM Pentium III 1.0 GHz	Windows 2003 Server	1	1GB
FileNet IS Library	IBM Pentium III 1.4 GHz	Windows 2003 Server	1	2GB
FileNet Report Manager Server	IBM Pentium III 1.0 GHz	Windows 2003 Server	1	1GB
EDMS Database Server – MS SQL Server	IBM Pentium III 1.4 GHz	Windows 2003 Server	1	2GB
EDMS Web Server Legacy Integration (Internal)	IBM Pentium III 1.0 GHz	Windows 2003 Server	1	1 GB
EDMS Web Server - .centric Integration	VMWare	Windows 2003 Server	1	2 GB
EDMS Web Server (DMZ)	IBM Xeon HT 3.6 GHz	Windows 2003 Server	1	1 GB
Server Usage	**Hardware**	**Operating System**	**No. of Processors**	**Memory**
FileNet HPII Import Server	IBM Pentium III Xeon 700 MHz	Windows 2003 Server	2	1GB
Informatica Power Center Advanced	IBM Xeon 3.5 GHz	Windows 2003 Server Enterprise	4	16 GB

Extranet Web Server and WAS Server	VMWare	Windows 2003 Server	1	2 GB

8. Windows Training / UAT Environment

Server Usage	Hardware	Operating System	No. of Processors	Memory
2 - Extranet Web Servers and WAS Servers (Cluster)	VMWare	Windows 2003 Server	1	2GB
SiteMinder Policy Server	VMWare	Windows 2003 Server	1	1 GB
Identity Manager Server	VMWare	Windows 2003 Server	1	1GB

9. Windows Production Environment

Server Usage	Hardware	Operating System	No. of Processors	Memory
4 – Captiva InputAccel Servers	IBM x3650 Dual Core Xeon 3.0 GHz	Windows 2003 Enterprise Server (Clustered)	4	4 GB
2 – Image enhancement and Barcode Recognition	IBM x3650 Dual Core Xeon 3.0 GHz	Windows 2003 Enterprise Server	2	4 GB
4 - FileNet – Exporter Servers	IBM X3650 Dual Core Xeon 3.0 GHz	Windows 2003 Enterprise Server	2	4GB
2 – Dispatcher for IA Extraction Servers	IBM X3650 Dual Core Xeon 3.0 GHz	Windows 2003 Enterprise Server	2	4GB
2 – Dispatcher for IA Classification Servers	IBM X3650 Dual Core Xeon 3.0 GHz	Windows 2003 Enterprise Server	2	4GB
2 – Opex Scanner Multi-Directory Watch Module Servers	IBM X3650 Dual Core Xeon 3.0 GHz	Windows 2003 Enterprise Server	2	4 GB
2 – Web Servers with IIS for eInput/eRouter	IBM X3650 Dual Core Xeon 3.0 GHz	Windows 2003 Enterprise Server	2	4GB
Web Server with IIS for Input Management Console	VMWare	Windows 2003 Server	1	1 GB
FileNet IS Root/Index Server	IBM Xeon 3.6 GHz	Windows 2003 Server	4	3GB
FileNet IS Library	IBM Xeon 3.6 GHz	Windows 2003 Server	4	3 GB
FileNet Report Manager Server	IBM Pentium 4 3.6 GHz	Windows 2003 Server	4	2 GB
EDMS Database Server – MS SQL Server	IBM Xeon 3.6 GHz	Windows 2003 Server	4	3 GB
EDMS Partner	IBM Xeon 3.6	Windows 2003	2	2 GB

Import Server	GHz	Server		
Server Usage	**Hardware**	**Operating System**	**No. of Processors**	**Memory**
2 - EDMS Web Servers – Legacy Integration (Internal)	IBM Xeon 3.6 GHz	Windows 2003 Server	2	2 GB
2 - EDMS Web Servers - .centric Integration	IBM Xeon 3.6 GHz	Windows 2003 Server	2	2 GB
EDMS Web Server (DMZ)	IBM Xeon 3.6 GHz	Windows 2003 Server	2	2 GB
FileNet HPII Import Server	IBM Xeon 3.6 GHz	Windows 2003 Server	2	2GB
SiteMinder Primary Policy Server	IBM x360 3.0 GHz	Windows 2003 Server	4	8GB
SiteMinder Secondary Policy Server	IBM x360 3.0 GHz	Windows 2003 Server	4	8 GB
Identity Manager Server	IBM x3650 Dual Core Xeon 3.0 GHz	Windows 2003 Server	4	8 GB
Mercury Administration Server	IBM x-Series	Windows 2003 Server	1	2 GB
Mercury Controller	IBM x- Series	Windows 2003 Server	1	1 GB
Mercury File Server	IBM x-Series	Windows 2003 Server	1	2 GB
Mercury Utility Server	IBM x-Series	Windows 2003 Server	1	2 GB
Mercury Data Processor	IBM x-Server	Windows 2003 Server	1	2 GB
Informatica Power Center Advanced	IBM x360 Xeon 3.6 GHz	Windows 2003 Server	4	16 GB
2 - Extranet Web Servers and WAS ESB Servers (Cluster)	IBM x346 3.6 GHz	Windows 2003 Server	2	4 GB
2 – Windows UNI Servers (Primary and backup)	IBM x345 Dual Core 2.6 GHz	Windows 2003 Server	2	2 GB
Rational ClearCase Server	IBM x346 3.6 GHz	Windows 2003 Server	2	3.5 GB
Rational DB/License Server	IBM x346 3.6 GHz	Windows 2003 Server	2	3.5 GB

APPENDIX D

DOMESTIC WORKFORCE UTILIZATION CERTIFICATION

APPENDIX D
DOMESTIC WORKFORCE UTILIZATION CERTIFICATION (07/24/09)

To the extent permitted by the laws and treaties of the United States, each proposal will be scored for its commitment to use the domestic workforce in the fulfillment of the contract. Maximum consideration will be given to those offerors who will perform the contracted direct labor exclusively within the geographical boundaries of the United States or within the geographical boundaries of a country that is a party to the World Trade Organization Government Procurement Agreement. Those who propose to perform a portion of the direct labor outside of the United States and not within the geographical boundaries of a party to the World Trade Organization Government Procurement Agreement will receive a correspondingly smaller score for this criterion. In order to be eligible for any consideration for this criterion, offerors must complete and sign the following certification. This certification will be included as a contractual obligation when the contract is executed. Failure to complete and sign this certification will result in no consideration being given to the offeror for this criterion.

I, _____**[title]** of _____**[name of Contractor]** a _____ **[place of incorporation]** corporation or other legal entity, ("Contractor") located at _____ **[address],** having a Social Security or Federal Identification Number of _____, do hereby certify and represent to the Commonwealth of Pennsylvania ("Commonwealth") (Check **one** of the boxes below):

☐ All of the direct labor performed within the scope of services under the contract will be performed exclusively within the geographical boundaries of the United States or one of the following countries that is a party to the World Trade Organization Government Procurement Agreement: Aruba, Austria, Belgium, Bulgaria, Canada, Chinese Taipei, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Liechtenstein, Lithuania, Luxemburg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom

OR

☐ _____ **percent** (_____**%**) **[Contractor must specify the percentage]** of the direct labor performed within the scope of services under the contract will be performed within the geographical boundaries of the United States or within the geographical boundaries of one of the countries listed above that is a party to the World Trade Organization Government Procurement Agreement. Please identify the direct labor performed under the contract that will be performed outside the United States and not within the geographical boundaries of a party to the World Trade Organization Government Procurement Agreement and identify the country where the direct labor will be performed: _____
_____
[Use additional sheets if necessary]

The Department of General Services **[or other purchasing agency]** shall treat any misstatement as fraudulent concealment of the true facts punishable under Section 4904 of the *Pennsylvania Crimes Code*, Title 18, of Pa. Consolidated Statutes.

Attest or Witness:

_____
Corporate or Legal Entity's Name

_____
Signature/Date

_____
Signature/Date

_____
Printed Name/Title

_____
Printed Name/Title

INSTRUCTIONS

Overall

1. Although formulas are imbedded in all sheets of this workbook, it is the Offeror's responsibility to verify that all amounts are accurate.

2. Please contact the Issuing Officer with any questions or concerns.

Itemized Costs-Positions

1. Fill in the "Offeror Name", "Date" and "Completed By" fields at the top of the page (cells B4, B5 & B6).

2. Fill in only those cells in the "$ per Hour" columns (columns B, E, H, K & N) that are not highlighted.

3. There are twenty blank position fields available for any position that you are proposing. All positions being proposed must be included in order to complete your proposed rate card. For each position proposed, fill in the data for all five years.

4. The "Profit" field for each postion is to be entered as a percentage not to exceed 10%.

Itemized Costs- Other

1. Fill in the ATMS COTS package purchase and licensing costs.

2. Fill in the Escrow Agreement costs.

3. Fill in the blended rate for Release Management task.

Rate Card

This sheet is populated by your input on the "Itemized Costs - Positions" sheet. No input is required.

Task Costs

1. The "Specified Position" and the "Hourly Rate" fields will populate from the "Itemized Costs-Positions" sheet and the "Cost" fields will calculate.

2. For each "Specified Position" fill in the "Company Name" field and the "Hours" field for each of the five years.

3. Some items will populate from the "Itemized Cost - Other" sheet. For each of those items fill in the "Company Name" (if aplicable); no additional input is required.

Planned ITS Integration

Fill in the unit costs for each identified integration item. "Estimated Quantity" is provided for each line item and the "Total Costs" fields will calculate.

Summary

This sheet is populated by your input on the "Itemized Costs - Positions", "Itemized Costs - Other", "Task Costs", and "Planned ITS Integration" sheets. No input is required. This sheet calculates the cost of a resulting contract by using your rate card multiplied by the hours you propose for the completion of the tasks. The "Total Cost" for all five years will be used to determine the Cost Point scores.

APPENDIX F

DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS

DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS

1. POLICY

A. The Pennsylvania Department of Transportation (PennDOT) does not discriminate on the basis of race, color, national origin or sex. It is the policy of PENNDOT and the United States Department of Transportation that Disadvantaged Business Enterprises (DBEs) be given the opportunity to participate in the performance of contracts financed, in whole or in part, with federal funds.

B. The requirements of 49 CFR 26 apply to this contract.

C. Only DBE firms certified by the Pennsylvania Unified Certification Program (PA UCP) count toward the DBE Goal.

2. DEFINITIONS

A. Disadvantaged Business Enterprise or DBE means a for-profit small business concern:

1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and

2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

B. Small business concern means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121) that also does not exceed the cap on average annual gross receipts specified in §26.65(b).

C. Socially and economically disadvantaged individual means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is:

1) Any individual who the Department finds to be a socially and economically disadvantaged individual on a case-by-case basis.

2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

i) "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;

ii) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

iii) "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

iv) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the

Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kirbati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

v) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

vi) Women;

vii) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

D. DBE Goal means the amount of DBE participation stated by PennDOT in the Request for Proposal. This DBE Goal is stated in terms of total project cost and is based on the project's potential for subcontracted work and the availability of DBEs to perform such subcontract work.

E. Certified DBE means those firms certified by the Pennsylvania Unified Certification Program (PA UCP). Certifying participants in the PA UCP are Allegheny County's Department of Minority, Women, and Disadvantaged Business Enterprises; the City of Philadelphia, Philadelphia International Airport DBE Program Office; the Port Authority of Allegheny County's Office of Equal Opportunity; the Southeastern Pennsylvania Authority's (SEPTA) DBE Program Office, and PennDOT's Bureau of Equal Opportunity. Refer to the PA UCP website at www.paucp.com for a list of certified DBEs. All firms listed on the website are certified and are eligible to participate as a DBE on PennDOT's federally funded projects. A copy of the PA UCP DBE Directory is available by contacting any of the certifying participants.

For more information regarding the PA UCP or DBE Certification, please contact PennDOT's Bureau of Equal Opportunity 717-787-5891 or 1-800-468-4201.

3. FAILURE TO COMPLY WITH DBE REQUIREMENTS

A. Failure of a prime contractor to meet the DBE Goal and failure to provide a verifiable "good faith effort" in a response to the RFP will result in rejection of the proposal. Furthermore, if PennDOT does not approve the "good faith effort", the proposal will be rejected.

B. Failure by a prime contractor and subcontractors to carry out the DBE requirements constitutes a breach of contract and may result in termination of the contract or action as appropriate.

C. Upon completion of the project, PennDOT will review the actual DBE expenditures to determine compliance with the DBE Goal. If the DBE Goal is not met, written explanation from the contractor will be reviewed by PennDOT. If the shortfall in meeting the DBE Goal is determined to be unjustified and unwarranted, PennDOT may impose sanction as appropriate.

D. Failure to comply with any DBE requirements may result in termination of the contract, being barred from proposing on PennDOT RFPs for up to three years, or any other remedy, as PennDOT deems appropriate.

4. PROCEDURES

A. In response to a Request for Proposal, a prime contractor must make a "good faith effort" to subcontract a portion of the project work to a certified DBEs. This portion should be equal to or greater than the DBE Goal stated in the Request for Proposal. Efforts to subcontract work include but are not limited to:

1) Efforts made to solicit through all reasonable and available means (e.g. use of the DBE Directory, attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must provide written notification, at least 15 calendar days prior to the proposal due date, to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

2) Efforts made to select portions of the work to be performed by DBEs in order to increase the likelihood that the DBE Goal will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

3) Efforts made to provide interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

4) Efforts made to negotiate in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE Goal, as long as such costs are reasonable. Also, the ability or desire of a bidder to perform the work of a contract with its own work force does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

5) Failure to accept DBE as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the DBE Goal.

6) Efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

7) Efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
8) Utilizing the PA UCP DBE Directory of certified firms.

B. The prime contractor is prohibited from requiring any DBE to agree not to provide subcontracted effort to other proposers.

C. At the proposal presentation stage, once a DBE has agreed to perform work as a subcontractor, the prime must provide the business name of the DBE with address, contact person, phone number, PA UCP DBE Certification Number, a detailed narrative description of the service to be provided by the DBE, and the percent of the proposal's cost to be contractually allocated to the DBE in Section II-9 of the technical proposal. (Do not provide any cost information in the technical proposal.) A letter of intent from the DBE stating that the DBE has agreed to enter into a subcontract if the prime contractor is successful should be include in Section II-9 of the technical proposal.

D. If a DBE cannot be located or if the percent of total proposal cost allocated to the DBE is less than the DBE Goal, the prime contractor must provide a "good faith effort" in Section II-6 of the technical proposal. The "good faith effort" must explain and document the effort made by the prime contractor to obtain DBE participation. Documentation must be verifiable and must include:
1) The names, addresses, phone and fax numbers of DBEs who were contacted, the dates of initial contact and the follow-up efforts made by the prime contractor;
2) A description of the information provided to the DBE to define the work to be performed;
3) Documentation of the reasons why any DBE contacted would not agree to participate.

E. If the proposal of the selected contractor contains a "good faith effort" because the proposal fails to meet the established DBE Goal, PennDOT will review the "good faith effort" provided by the contractor in the proposal. If the "good faith effort" is deemed to be satisfactory, the "good faith effort" will be approved. In such a case the contractor shall continue a "good faith effort" throughout the life of the contact to increase the DBE participation to meet the contract DBE Goal. If PennDOT cannot accept the "good faith effort" submitted by the contractor, the proposal will be considered non-responsive and PennDOT will notify the contractor that the proposal is rejected.

F. Any proposal that does not meet the DBE Goal and does not provide a "good faith effort" which identified DBEs who were contacted, will be rejected without review of the technical contents. Use of a DBE certified by others and not by the PA UCP, use of a DBE whose certification has expired or cannot be confirmed by PennDOT's Bureau of Equal Opportunity, or statements that the DBE Goal will be met after a contractor is awarded a contract are unacceptable and will result in rejection of proposal.

G. The prime contractor must provide PennDOT with draft and executed versions of the subcontract with the DBE within 90 days from the date of the notice to proceed given on the prime contract. Failure to provide the executed subcontract will result in a temporary stop of work on the 91st day of the contract until an acceptable DBE subcontract is provided to PennDOT. Any time period involved in such a temporary stop of work will

not extend the period of performance of the contract nor be accepted by PENNDOT as a justification for project time extension.

H. The prime contractor shall include the Disadvantaged Business Enterprise Requirements in all subcontracts. Subcontractors must conform to the intent of these requirements.

I. If it becomes necessary to replace a DBE subcontractor during the contract, make a "good faith effort" to re-contract the same or other work with another certified DBE firm. Such an effort must include:
   1) Alert PennDOT immediately and document the problem in writing;
   2) Contact available individual qualified DBEs in an effort to re-contract work to fulfill the DBE Goal stated in the Request for Proposal; and
   3) Provide PennDOT with copies of all new DBE subcontracts (and additional "good faith effort" information) if the original DBE Goal is not met) by the close of business of the 7th calendar day of PennDOT's receipt of written notice of the need to replace a DBE.

J. Inform PennDOT, in writing, of any situation in which payments are not made to the DBE Subcontractor as required by the subcontract.

K. Keep records necessary for compliance with DBE utilization obligations by indicating:
   1) The number of DBE and non-DBE subcontractors and the type of work, materials or services performed in the project;
   2) Efforts to secure DBE firms and individual whenever a subcontractor is contemplated during a contact;
   3) Documentation of all communication to obtain the services of DBEs on a project;
   4) The amounts paid to DBEs by invoice period.

L. Upon completion of a DBE's work, the prime contractor must submit a certification of the actual amount paid to the DBE. If the actual amount paid is less than the amount of the subcontract, an explanation is required and subject to the review and action of PennDOT.

5. COUNTING DBE PARTICIPATION

A. If the contractor submitting the proposal and serving as prime contractor is a certified DBE, count the dollar amount of the work to be performed by the DBE toward the DBE Goal.

B. If the materials or supplies are purchased from a DBE supplier performing as regular dealer, count 60 percent of the cost of the materials or supplies toward DBE Goal. A regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

C. If the materials or supplies are obtained from a DBE manufacturer, count 100 percent of the cost of the materials or supplies toward DBE Goal. A manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

D. Count toward the DBE Goal 100% of expenditures of DBE services including professional, technical consultant or managerial services. Count fees or commissions charged for providing any bonds or insurance specifically required for the performance of the contract.

E. Any services to be performed by a DBE are required to be project related. The use of DBEs is in addition to all other equal opportunity requirements of the contract.

APPENDIX G

LOBBYING CERTIFICATION FORM

Lobbying Certification Form

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress , an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

(2) **If any** funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance is placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed under Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than **$100,000** for such failure.

SIGNATURE: _____

TITLE: _____

DATE: _____

APPENDIX H

DISCLOSURE OF LOBBYING ACTIVITIES

Disclosure Of Lobbying Activities
Management Directive 305.16

The link to the updated Disclosure of Lobbying Activities is indicated below. Continue to include Enclosure 1 to Management Directive 305.16, Lobbying Certification Form.

http://www.whitehouse.gov/omb/grants/grants_forms.html

SF-LLL, Disclosure of Lobbying Activities – as revised in 1996

APPENDIX I

NON-DISCLOSURE AUTHORIZATION

NON-DISCLOSURE AUTHORIZATION

This non-disclosure authorization agreement ("Authorization") is between the Pennsylvania Department of Transportation (PennDOT) and _____ ("Company"), with a business address at _____.

I. RECITALS

A. Company wishes to receive PennDOT District Network Diagrams which are confidential and proprietary information (hereinafter collectively "Information") for the sole purpose of preparing a proposal to be submitted in response to the Request for Proposals Number 10R-01 *Next Gen ATMS*. This exchange includes all communication of Information between the parties in any form whatsoever, including oral, written and machine readable form, pertaining to the above.

B. Company wishes to receive the Information for the sole purpose of submitting a proposal in response to RFP 10R-01 Next Gen ATMS.

C. PennDOT is willing to disclose the Information and Company is willing to receive the Information (as "Receiving Party") subject to the terms and conditions set forth herein.

Therefore, PennDOT and Company agree, as follows:

1. That the disclosure of Information by PennDOT is in strictest confidence and thus Company shall:

    a. (1) Not disclose to any other person the Information and (2) use at least the same degree of care to maintain the Information secret as the Company uses in maintaining as secret its own secret information;

    b. Use the Information only for the above purposes;

    c. Restrict disclosure of the Information solely to those employees of Company having a need to know such Information in order to accomplish the purpose stated above;

    d. Advise each such employee, before he or she receives access to the Information, of the obligations of Company under this Authorization, and require each such employee to maintain those obligations;

    e. Return to PennDOT all documentation, copies, notes, diagrams, computer memory media and other materials containing any portion of the Information, or confirm to PennDOT, in writing, the destruction of such materials no later than the date and time

identified in the RFP 10R-01, Calendar of Events, as the date and time the sealed proposals must be received by; and

f. Immediately upon sale of Company or merger of Company with a third party, return to PennDOT all documentation, copies, notes, diagrams, computer memory media and other materials containing any portion of the Information, or confirm to PennDOT, in writing, the destruction of such materials.

g. Hold the Commonwealth and the PennDOT harmless and indemnify the Commonwealth and the PennDOT, its officers, employees or agents harmless against all claims, demands, actions based upon or arising out of any activities performed under this document, including but not limited to those alleging infringement of patents or copyrights or misappropriation of trade secrets, for damages, costs, or expenses arising, or alleged to have arisen, from injury, death, property damage or any other cause as a result of any act or omission of the Company under this authorization.

2. This Authorization imposes no obligation on Company with respect to any portion of the Information received from PennDOT which (a)(1) was known to the Company prior to disclosure by PennDOT and (2) as to which the Company has no obligation not to disclose or use it, (b) is lawfully obtained by the Company from a third party under no obligation of confidentiality, (c) is or becomes generally known or available other than by unauthorized disclosure, (d) is independently developed by the Company or (e) is generally disclosed by PennDOT to third parties without any obligation on the third parties.

3. This Agreement imposes no obligation on Company with respect to any portion of the Information disclosed by PennDOT, unless such portion is (a) disclosed in a written document or machine readable media marked "CONFIDENTIAL" at the time of disclosure or (b) disclosed in any other manner and summarized in a memorandum mailed to the Company within thirty (30) days of the disclosure. **Information disclosed by PennDOT in a written document or machine readable media and marked "CONFIDENTIAL" includes, but is not limited to the Network Diagrams for RFP 0R-01 “Next Gen ATMS.”**

4. The Information shall remain the sole property of PennDOT or the originating agency.

5. In the event of a breach or threatened breach or intended breach of this Authorization by Company, PennDOT, in addition to any other rights and remedies available to it at law or in equity, shall be entitled to preliminary and final injunctions, enjoining and restraining such breach or threatened breach or intended breach.

6. The validity, construction, and performance of this Authorization are governed by the laws of the Commonwealth of Pennsylvania.

7. The rights and obligations of the parties under this Authorization may not be sold, assigned or otherwise transferred.

8. _____ agrees to indemnify, hold harmless and (if requested) defend PENNDOT, the Commonwealth of Pennsylvania, and its officers, agents and employees from any and all claims, suits, actions, judgments and losses accruing or resulting to any and all contractors, subcontractors, and any other person, institution or organization furnishing or supplying work, services, materials, or supplies in connection with the performance of this Agreement, and from any and all claims, losses, costs, demands, expenses, and actions accruing or resulting to any person, institution or organization for injury, death, or property damage caused by the negligence of the _____or its employees in the performance of this Agreement and against any liability, cost and expense for violation of proprietary rights or rights of privacy arising out of the publication, translation, delivery, performance, use or disposition of the _____product covered under this Agreement.

This Authorization is binding upon PennDOT and Company, and upon the directors, officers, employees and agent of each. This Authorization is effective as of the date of execution and will continue indefinitely, unless terminated by either party upon written notice. However, Company's obligations of confidentiality, indemnification and restrictions on use of the Information disclosed by PennDOT shall survive termination of this Agreement.

Pennsylvania Department of Transportation

By:_____

Name:_____

Title:_____

Date:_____

(Company)

By:_____

Name:_____

Title:_____

Date:_____

APPENDIX J

ATMS DEVICE DRIVER MATRIX

Instructions:

The *PennDOT Devices / Vendor's Existing Device Driver Matrix* form contains a list of PennDOT's existing devices. Please complete the form by using "Yes" or "No" to indicate whether a new device driver will need to be developed. If the proposed software solution contains other already developed device drivers for devices that are not listed, please use the Additional Device Driver section to identify those drivers.

PENNDOT DEVICES VENDOR'S EXISTING DEVICE DRIVER MATRIX			
Device Manufacturer	**Model**	**Driver Needs to Be Developed?**	**Comments**
DMS			
ADAPTIVE Micro Systems	AX8120		
ADAPTIVE Micro Systems	AX8500		
ADAPTIVE Micro Systems	AX8700		
ADDCO	AF0-2S2A4-0805H		
ADDCO	AF0-2S3A4-0805H		
American Signal Co.	CMS-T330		
American Signal Co.	CMS-T333		
American Signal Co.	Custom Built Walk-In DMS		
Daktronics	VF-1000		
Daktronics	VF-1420		
Daktronics	VF-2000		
Daktronics	VF-2020		
Daktronics	VF-2040		
Daktronics	VF-2320		
Daktronics	VF-2400		
Daktronics	VF-2420		
Daktronics	VP-1300		
Daktronics	VP-4000		
Dambach	D318FM		

PENNDOT DEVICES VENDOR'S EXISTING DEVICE DRIVER MATRIX			
Device Manufacturer	**Model**	**Driver Needs to Be Developed?**	**Comments**
Dambach	Vario		
Display Solutions	Sunray Version 3		
Display Solutions	VMS 3x88		
Display Solutions	VMS 3x192		
LedStar	VMS-45-3x24		
Precision Solar Controls	SMC 1000		
Precision Solar Controls	SMC 2000		
SES America	M6000		
SES America	M6130		
SES America	M6240		
SES America	M6430		
SES America	Sylvia		
SES America	Sylvia 320		
Wanco	WTMMB		
HAR			
Highway Information Systems	Black Max		
Highway Information Systems	HiWay Max		
Highway Information Systems	Solar Max		
American Signal Co.	T-100		
CCTV			
ASTI	EZ CAM		
Bosch	18X EnviroDome		
Bosch	25X EnviroDome		

PENNDOT DEVICES VENDOR'S EXISTING DEVICE DRIVER MATRIX			
Device Manufacturer	**Model**	**Driver Needs to Be Developed?**	**Comments**
Bosch	ENVD2460P		
Bosch	Envirodome LTC 0928/25C		
Bosch	ENVT120P Dome		
Bosch	G3-AUTODOME		
Bosch	LTC 600		
Bosh	LTC 7960		
Bosch	VG4-323-ECSOP		
COHU	3920 Series		
Cylink	0807-004		
Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras		
Pelco	Spectra III		
Pelco	Spectra IV		
Vicon Inc.	S2-CW22		
Vicon Inc.	Surveyor 2000		
Vicon Inc.	SVFT		
Vicon Inc.	VC284-48		
Detectors			
EIS	RTMS G4		
EIS	RTMS X2		
EIS	RTMS X3		
Econolite	Autoscope – 706110		
Wavetronix	SSI 105		

Note:
If the proposed software solution contains other already developed device drivers for devices that are not listed, please use the Additional Device Driver section to identify those drivers

VENDOR'S EXISTING DEVICE DRIVERS – ADDITIONAL DRIVERS			
Device Manufacturer	**Model**	**Device Type (CCTV, DMS, HAR, etc.)**	**Comments**

APPENDIX K

PROPOSAL COVER SHEET

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

RFP 10R-01 Next Gen ATMS

Enclosed in three separately sealed submittals is the proposal of the Offeror identified below for the above-referenced RFP:

Offeror Information:	
Offeror Name	
Offeror Mailing Address	
Offeror Website	
Offeror Contact Person	
Contact Person's Phone Number	
Contact Person's Facsimile Number	
Contact Person's E-Mail Address	
Offeror Federal ID Number	

Submittals Enclosed and Separately Sealed:	
☐	Technical Submittal
☐	Disadvantaged Business Enterprise Submittal
☐	Cost Submittal

Signature
Signature of an official authorized to bind the Offeror to the provisions contained in the Offeror's proposal:
Printed Name
Title

FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM WITH THE OFFEROR'S PROPOSAL MAY RESULT IN THE REJECTION OF THE OFFEROR'S PROPOSAL

APPENDIX L

NETWORK DIAGRAMS

Appendix L, Network Diagrams are secure documents and will be made available upon Offerors' submission of Appendix I, Non-Disclosure Authorizations.

APPENDIX M

PROPOSED ATMS SOLUTION TECHNICAL SUMMARY

Instructions:
The *ATMS Solution Technical Summary Matrix* form contains a list of technical summary questions for the proposed solution. Please complete the form by providing a brief answer to each item as it relates to the proposed ATMS solution.

ATMS TECHNICAL SUMMARY MATRIX		
Technical Summary Question	**Summary of Proposed System**	**Comments**
1. What is your proposed Vendor Software (core ATMS package)?		
2. If a COTS product is proposed – what is your software customization approach? Do you propose to customize inside or outside of the COTS package?		
3. What is the ***estimated*** system size based on categories below:		
a) Number of estimated servers?*		
b) Number of estimated database tables?		
c) Number of programs?		
d) Number of estimated application services and interfaces?		
4. User Interface & Program Languages		
5. Operating System		
6. Database Type (e.g. MS SQL or Oracle)		
7. Middleware		
8. Other software (items not listed under questions 5, 6, and 7)		
9. Host Hardware Platform		
10. User Roles		
11. Support Tools		
12. Support Staff Roles		

*Please fill out the ATMS Proposed Server Matrix on the next page. Information on the first line is provided as an example.

ATMS Proposed Server Matrix						
Processor Speed	**Number of Processors**	**Memory**	**Estimated Storage Needed**	**Operating System**	**Purpose (DB, App, etc)**	**Server Quantity**
2.9 GHz	*4*	*16GB*	*500GB*	*Windows 2008R2*	*Database*	*2*

APPENDIX O

STATEWIDE ATMS SOFTWARE CONCEPT OF OPERATIONS

PennDOT Statewide ATMS Software Concept of Operations

Last Updated: 04/11/11
Version: 5.0

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LIST OF APPENDICES

APPENDIX A: MARKET PACKAGE

1.0 DOCUMENT HISTORY

This section intentionally left blank.

2.0 DOCUMENT PURPOSE

The purpose of this document is to describe the Concept of Operations (ConOps) for the Pennsylvania Department of Transportation (PennDOT) Statewide Advanced Traffic Management System (ATMS) Software. The ConOps describes how the system will be used from the operator's, maintainer's and manager's perspectives in both normal and emergency modes. The ConOps is intended for the stakeholders, to agree on system concepts and use.

This document will be expanded into a functional requirements document, which will describe the software in much more detail. It is anticipated that these documents will be greatly expanded into sample user interfaces, test plans and other design documents by the selected vendor.

The following are included in this document:

1. Document History
2. Scope of Project
3. Referenced Documents
4. Background
5. Concept for the Proposed System
6. User-Oriented Operational Description
7. Operational Needs
8. System Overview
9. Operational Environment
10. Support Environment
11. Operational Scenarios
12. Summary of Impacts

3.0 SCOPE OF PROJECT

The ATMS software will enable operators to more efficiently manage surface transportation while also providing a more effective response to incidents. The ATMS software will allow for efficient communication between Districts, states and other stakeholders and provide shared control of all existing and future intelligent transportation system (ITS) devices throughout the Commonwealth of Pennsylvania.

PennDOT operates six (6) district traffic management centers (TMCs), three (3) regional traffic management centers (RTMCs) and PennDOT's Central Office. Each district contains different equipment and runs separate control software. Currently, each of the facilities functions independently.

It is the intent that the ATMS software will be designed for full functionality. However, user and site access may vary. Therefore, TMCs will be able to turn off functionality that they do not need. Also, the ATMS software will allow for interagency coordination. It is anticipated that through the use of administration and maintenance, functionality can be tailored to the needs of different user groups.

The primary users of the Next Generation ATMS are PennDOT's TMCs and RTMCs. These primary stakeholders will have read-write access to the ATMS according to the ATMS User privileges defined by PennDOT. It is anticipated that the other identified potential stakeholders, will initially have one-way communication with the ATMS. For example, video feeds may be shared with the following stakeholders:

1. City of Philadelphia
2. City of Pittsburgh
3. Counties
4. Delaware Department of Transportation
5. Delaware River Joint Toll Bridge Commission (DRJTBC)
6. General Public
7. Information Service Providers
8. Maryland State Highway Administration (MDSHA)
9. Municipalities
10. New Jersey Department of Transportation (NJDOT)
11. New York State Department of Transportation
12. Ohio Department of Transportation
13. Pennsylvania Department of Transportation (PennDOT)
14. Pennsylvania Emergency Management Agency (PEMA)
15. Pennsylvania State Police (PSP)
16. Pennsylvania Turnpike Commission (PTC)
17. Regional Media
18. Special Events
19. Traffic.com
20. TrafficLand
21. Telvent/Inrix (PennDOT 511 System)
22. US Coast Guard
23. West Virginia Department of Transportation

Note: Other toll bridge authorities that interface with Pennsylvania highways (i.e. Delaware River Port Authority, Burlington County Bridge Commission) were not included in the Regional ITS Architectures; therefore, they were not included in this draft.

A complete ATMS system consists of a communication network, field devices, hardware and software. While each of these components is critical to the successful operation, the focus of this document will be the operational requirements of the ATMS software.

4.0 REFERENCED DOCUMENTS

- PennDOT Statewide ATMS ITS Architecture (Draft); March 27, 2009
- Systems Engineering Guidebook for ITS, Version 2.0
- IEEE STD 1512 Systems Engineering Process
- National ITS Architecture (http://www.iteris.com/itsarch/)

- PennDOT Bureau of Planning & Research (http://www.dot.state.pa.us/Internet/Bureaus/pdPlanRes.nsf/PlanningAndResearchHomePage?OpenFrameset)

- DVRPC Regional Integrated Multi-modal Information Sharing (http://www.dvrpc.org/transportation/longrange/its/rimis.htm)

- RCRS = Road Condition Reporting System (http://www.geodecisions.com/projectdetail.aspx?ProjectID=41102B)

- PennDOT AVL Study: As-Is To-Be Business Process and Requirements Document Version 3.01

5.0 BACKGROUND

PennDOT has been at the forefront of Intelligent Transportation Systems (ITS) deployments since 1990. During this time there have been several deployments of ATMS software packages and vendor provided software for the command and control of ITS field devices. In the past PennDOT has used a variety of methods to procure ITS software to control field devices. As a result, PennDOT currently has several independent and incompatible vendor provided software and ATMS systems across the Commonwealth.

6.0 CONCEPT FOR THE PROPOSED SYSTEM

A number of alternative concepts were considered before identifying the proposed approach. The following potential solutions were considered:

1. Enhance and expand existing PennDOT ATMS software;
2. Use manufacturer's software for ITS equipment control;
3. Develop a new custom ATMS software;
4. Procure an existing ATMS software package to be used as-is; and
5. Procure an existing ATMS software package with planned enhancements / modifications.

6.1 ENHANCE AND EXPAND EXISTING PENNDOT ATMS SOFTWARE

Some Districts currently use ATMS systems to provide centralized control. The existing ATMS software was examined and found to be lacking in several key areas. The primary weakness, which ultimately led to the current decision, was that the software lacked any up to date documentation. In addition, it was estimated that more than 30 percent of the software would need to be retooled. Making significant modification to a poorly documented software package has a low probability of success and is not recommended.

6.2 MANUFACTURER'S SOFTWARE

Some Districts operate using a number of independent software packages which were provided by the device manufacturers along with the installation of their ITS equipment. At District 8-0 for example, they use approximately six (6) to eight (8) separate software packages to control dynamic message signs (DMS), Highway Advisory Radio (HAR), Video, etc. While this represents the lowest investment to obtain basic functionality, the complexities of multiple systems create inefficiencies and limits sharing information between TMCs to verbal communication. Additionally, operators must be trained on several systems. And, finally, it is not possible to provide a consistent, automated response to incidents when using disparate systems.

6.3 NEW CUSTOM ATMS SOFTWARE

Designing and developing a custom ATMS software was strongly considered as an alternative. A significant positive aspect is that PennDOT could specify the exact software needs and retain total ownership of the software product. Potential negative aspects of this approach include extending the implementation schedule (at least six months to one year would be needed just for design) and significant (twice or more) cost increase. While we recommend that additional primary research is completed through direct interaction with potential vendors, our secondary research indicates that there are several fully developed ATMS software packages that could meet 70 percent or more of the project goals, immediately.

6.4 EXISTING ATMS SOFTWARE PACKAGES (AS-IS)

Several existing ATMS software packages were examined and compared to the Use Case Scenarios described in this Concept of Operations. While some packages seem to meet many of the basic needs, it was not clear if any existing ATMS software packages met all of PennDOT's goals. Further, our research and experience shows that existing ATMS software packages do not exist in the pure sense since each installation has unique needs. In our opinion, existing ATMS software package implies that each installation uses the same software and that the software can be installed by an end user. Our research indicates that the vast majorities of ATMS installations have customized software and require significant time by the vendor on-site to configure the installation.

6.5 EXISTING ATMS SOFTWARE PACKAGE (PLANNED ENHANCEMENTS)

In reviewing the alternatives, it is our opinion that this option represents both the best value for PennDOT and the highest probability of success. Our preliminary research indicates that several vendors have existing ATMS software that appears to meet 70 percent or more of the requested functionality. This approach has the dual key advantages of both utilizing a product which is based on a proven solution, and providing the foundation for enhancements to meet the PennDOT specific requirements. The only pitfall of this approach lies with potential legal issues surrounding intellectual property (i.e. licenses, ownership, etc). However, due to the number of states following this approach it is our belief that by involving PennDOT's legal department early in the procurement process, this potential issue can be managed.

7.0 USER-ORIENTED OPERATIONAL DESCRIPTION

PennDOT currently has various ATMS software deployed throughout the Commonwealth. In general, this software allows operators to perform the following basic tasks:

- Track and manage incident and event information;
- Advise the public of incidents (VMS, HAR, Internet); and
- View current traffic conditions (CCTV, Vehicle Detectors).

Currently, limited information is exchanged between Districts. Typical stakeholders include traffic operation and maintenance personnel. These personnel typically are computer literate, but have limited training on both software development and/or network design.

8.0 OPERATIONAL NEEDS

The operational need identified is to provide a traffic management and emergency response system on a statewide basis. The new system will provide the ability to control all existing and planned ITS devices. A key element of the new system is the ability to aggregate all the disparate field data into a central database. This database will be used for the following:

- Provide information to the traveling public via the internet;
- Traffic planning purposes;
- Support timely dissemination of Amber Alerts;
- Facilitate general road closure information gathering and dissemination;
- Increase ease and efficiency of traffic and incident management/
- Improve co-ordination between districts for the purpose of statewide corridor management;
- Enhance the gathering, quality verification, analysis and distribution of traffic data from both internal and external sources;
- Provide a source of real-time traveler information;
- Aid in pro-active planning with regard to future highway projects;
- Maximize utilization of ITS devices; and
- Increase response automation.

This system will address the following market packages as defined by the National ITS Architecture:

ARCHIVED DATA MANAGEMENT
AD1: ITS Data Mart
AD2: ITS Data Warehouse

TRAVELER INFORMATION
ATIS01: Broadcast Traveler Information

ATIS06: Transportation Operations Data Sharing

TRAFFIC MANAGEMENT
ATMS01: Network Surveillance
ATMS02: Traffic Probe Surveillance
ATMS03: Surface Street Control
ATMS04: Freeway Control
ATMS05: HOV Lane Management
ATMS06: Traffic Information Dissemination
ATMS07: Regional Traffic Management
ATMS08: Traffic Incident Management System
ATMS09: Traffic Decision Support and Demand Management
ATMS18: Reversible Lane Management
ATMS19: Speed Monitoring
ATMS21: Roadway Closure Management

VEHICLE SAFETY
AVSS10: Intersection Collision Avoidance

COMMERCIAL VEHICLE OPERATIONS
CVO06: Weigh-In-Motion

EMERGENCY MANAGEMENT
EM04: Roadway Service Patrols
EM05: Transportation Infrastructure Protection
EM06: Wide-Area Alert
EM09: Evacuation and Reentry Management
EM10: Disaster Traveler Information

MAINTENANCE AND CONSTRUCTION MANAGEMENT
MC01: Maintenance and Construction Vehicle and Equipment Tracking
MC02: Maintenance and Construction Vehicle Maintenance
MC03: Road Weather Data Collection
MC04: Weather Information Processing and Distribution
MC05: Roadway Automated Treatment
MC06: Winter Maintenance
MC07: Roadway Maintenance and Construction
MC08: Work Zone Management
MC10: Maintenance and Construction Activity Coordination

9.0 SYSTEM OVERVIEW

The final system will be used by one (1) to 12 people at each District, 365 days per year, 24/7. Users shall be capable of simultaneously accessing any element of the system that they have the privilege to access. Some critical elements of this design will include:

- Detailed system documentation, including a user interface design, database design;

- A modular design, based on well defined and open interfaces;
- Modules can be installed, removed, activated or deactivated without affecting other running modules;
- The interface between modules shall be well defined and open;
- Web Based Operator Interface;
- Scalable, expandable design;
- Utilize Windows or Linux based hardware;
- Adhere to the latest industry standards;
- Follow the SIE CMMI model;
- Follow the regulations set forth in the Right-to-Know Law Policy effective January 1, 2009; and
- Adhere to the rules established by the Information Technology Bulletin (ITB).

10.0 OPERATIONAL ENVIRONMENT

The operational environment of the new system will consist of a central database located at the Pennsylvania Department of Transportation (PennDOT) Central Office in Harrisburg. The system will improve statewide coordination by providing a statewide platform to enable the information flow to and from all Districts. Additionally, a centralized database will improve data consistency and provide statewide reporting capabilities.

11.0 SUPPORT ENVIRONMENT

It is anticipated that each District will have a technical resource personnel who will receive basic troubleshooting training on database and computer networks. This will be supplemented by staff at the Central Office and the selected ATMS integrator, who will assume the primary support role. Continued maintenance and support is to be provided by the software development company that designs the statewide ATMS software.

12.0 OPERATIONAL SCENARIOS

The following 52 operational scenarios were developed to provide some specific user-perspectives to the market packages and corresponding operational needs. The scenarios were developed using standard software engineering use-case templates.

- Scenario 1: Administration – Creating and Defining User Groups
- Scenario 2: Administration – Adding New Users
- Scenario 3: Administration – Editing Users
- Scenario 4: Administration – Disabling Users
- Scenario 5: Administration – Adding Field Devices
- Scenario 6: Administration – Updating Device Information
- Scenario 7: Administration – Creating Camera Presets
- Scenario 8: Administration – Response Plan Creation
- Scenario 9: Administration – Diversion Route Creation
- Scenario 10: Administration – TMC Handoff
- Scenario 11: Normal Operations
- Scenario 12: CCTV Control
- Scenario 13: Sharing CCTV within a TMC
- Scenario 14: CCTV Control Handoff to another TMC (Removed)
- Scenario 15: DMS Message Creation
- Scenario 16: DMS Activation
- Scenario 17: DMS Handoff to another TMC (Removed)
- Scenario 18: DMS sharing within a TMC
- Scenario 19: Travel Time – Preset Message Activation
- Scenario 20: HAR Message Creation
- Scenario 21: HAR Activation
- Scenario 22: HAR Handoff to another TMC (Removed)
- Scenario 23: HAR sharing within a TMC
- Scenario 24: Incident Detection
- Scenario 25: Incident Management
- Scenario 26: Response Plan Activation
- Scenario 27: Maintenance and Construction Vehicle and Equipment Tracking / Advanced Vehicle Location (AVL)
- Scenario 28: Congestion Management (Signal Timing)
- Scenario 29: Traffic Report Generation
- Scenario 30: Equipment Status Report
- Scenario 31: Equipment Failure Alerts
- Scenario 32: Performance Reports
- Scenario 33: CCTV Blocking
- Scenario 34: Locking CCTV Control
- Scenario 35: Travel Time – Custom Message Activation
- Scenario 36: HAR Beacon Activation
- Scenario 37: Service Patrol Vehicle Tracking / Advanced Vehicle Location (AVL)
- Scenario 38: Administrative - Ramp Metering Configuration

- Scenario 39: HOV Lane Management
- Scenario 40: Lane Control Signals
- Scenario 41: Variable Speed Limits (Removed)
- Scenario 42: Call Log
- Scenario 43: Administration – Contact List
- Scenario 44: Diversion Route Activation
- Scenario 45: Application-Level Operational Vendor Support
- Scenario 46: Generation of Preventive Maintenance Schedule for ITS Equipment
- Scenario 47: Remote Viewing of Current Equipment Status, Traveler Information Messages, and Incident Information
- Scenario 48: Ramp Metering
- Scenario 49: Variable Speed Limit Control (Removed)
- Scenario 50: Proactive Stakeholder Notification
- Scenario 51: Equipment Diagnostics
- Scenario 52: Roadway Weather Information System

Scenario ID: Scenario 1

Scenario Name: Administration – Creating and Defining User Groups

Description: The TMC Administrator has the ability to create user groups and assign privileges to each user group.

Preconditions:

- A TMC Administrator is logged into the ATMS.

Normal Course:

1.0: The TMC Administrator creates and defines a new user group in the ATMS software.

a. The TMC Administrator goes to the Administrative section of the ATMS software.
b. The TMC Administrator selects User Groups.
c. The "User Group" screen appears. This screen lists the current user groups and the privileges assigned to each group. For example, operators can create and edit incidents, but managers may only be able to view information.
d. The TMC Administrator clicks on the Add New button.
e. The TMC Administrator enters a new user group name.
f. For each of the major sections of the ATMS software, the TMC Administrator assigns create, read, edit or delete privileges to the new user group.
g. The TMC Administrator clicks on the save button.
h. The TMC Administrator must confirm the change.
i. The new user group should appear in the list.

Alternative Course:

Includes:

Market Package(s):

Project Phase: Initial Deployment

Scenario ID:	Scenario 2
Scenario Name:	Administration – Adding New Users
Description:	The TMC Administrator has the ability to add new users to the ATMS software.
Preconditions:	• A TMC Administrator is logged into the ATMS.
Normal Course:	2.0: The TMC Administrator adds a new user to the ATMS software. a. The TMC Administrator goes to the Administrative section of the ATMS software. b. The TMC Administrator selects the Users. c. The "User" screen appears. This screen should display a list of current users and their user level. d. The TMC Administrator clicks on the Add New button. e. The TMC Administrator enters the requested data. f. The TMC Administrator assigns the new user to a user group. g. The TMC Administrator clicks on the save button. h. The TMC Administrator must confirm the change.
Alternative Course:	
Includes:	
Market Package(s):	
Project Phase:	Initial Deployment

Scenario ID: Scenario 3

Scenario Name: Administration – Editing Users

Description: The TMC Administrator has the ability to edit information (e.g. user name changes, user privileges, etc.) in the ATMS software.

Preconditions:

- A TMC Administrator is logged into the ATMS.

Normal Course:

3.0: The TMC Administrator assigns a user to a user group

a. The TMC Administrator goes to the Administrative section of the ATMS software.
b. The TMC Administrator selects the User section.
c. The "User" screen appears. This screen should display a list of current users and their user level.
d. The TMC Administrator selects a user.
e. The TMC Administrator selects the update button.
f. The TMC Administrator edits the information about the selected user, such as name, contact information and user group.
g. The TMC Administrator clicks on the save button.
h. The TMC Administrator must confirm the change.

Alternative Course:

3.1: The TMC Administrator edits the user information for multiple users (branch at step f).

a. The TMC Administrator selects another user to update.
b. Return to step e.

3.2: The TMC Administrator edits the user privileges of multiple users simultaneously (branch at step c). Note: All selected users are being assigned to the same user group.

a. The TMC Administrator selects multiple users.
b. Return to step e.

Includes:

Market Packages:

Project Phase: Initial Deployment

Scenario ID:	Scenario 4
Scenario Name:	Administration – Disabling Users
Description:	The TMC Administrator has the ability to disable users from accessing the ATMS software.
Preconditions:	• A TMC Administrator is logged into the ATMS.
Normal Course:	4.0: The TMC Administrator disables a user's access to the ATMS software. a. The TMC Administrator goes to the Administrative section of the ATMS software. b. The TMC Administrator selects the User section. c. The "User" screen appears. This screen should display a list of current users and their user level. d. The TMC Administrator checks the disable box next to the Operators name. e. The TMC Administrator clicks on the save button. f. The TMC Administrator must confirm the change.
Alternative Course:	
Includes:	
Market Packages:	
Project Phase:	Initial Deployment

Scenario ID: Scenario 5

Scenario Name: Administration – Adding Field Devices

Description: A user with sufficient privileges adds new equipment to the ATMS software.

Preconditions:

- A TMC user with sufficient privileges is logged into the ATMS software.
- The new ATMS devices are installed in the field.

Normal Course:

5.0: A TMC user with sufficient privileges adds a new field device to the ATMS software and the ATMS Map.

a. A TMC user with sufficient privileges opens the equipment section of the ATMS software.
b. A TMC user with sufficient privileges selects a device category (CCTV, DMS, HAR, etc.).
c. A TMC user with sufficient privileges selects a device type and / or manufacturer.
d. A TMC user with sufficient privileges enters requested device information, such as model and serial numbers.
e. A TMC user with sufficient privileges enters the latitude and longitude of the device location.
f. A TMC user with sufficient privileges clicks on the save button.
g. A TMC user with sufficient privileges confirms that the new device should be saved.
h. A TMC user with sufficient privileges will be asked if the data should be sent to the map at this time.
i. A TMC user with sufficient privileges must confirm that the device should be added to the map. Otherwise, a TMC user with sufficient privileges can add the device to the map later.
j. The device should be displayed on the map. Active and inactive devices will appear in different colors.

Alternative Course:

5.1: A user with sufficient privileges adds a field device to the ATMS Map at a later time (alternative at step h).

a. A TMC user with sufficient privileges enters the latitude and longitude of the device location, if it was not previously entered.
b. A TMC user with sufficient privileges clicks on the Map button.
c. A TMC user with sufficient privileges must confirm that the device should be added to the map. Otherwise, a TMC user with sufficient privileges can add the device to the map later.
d. A TMC user with sufficient privileges clicks on the save

button.

e. A TMC user with sufficient privileges must confirm the change.

Includes:

Market Package(s): ATMS01: Network Surveillance
ATMS07: Regional Traffic Management

Project Phase: Initial Deployment

Scenario ID:	Scenario 6
Scenario Name:	Administration – Updating Device Information
Description:	Users with administrative security clearance changes identification and characteristic information regarding any device. This includes, but is not limited to, device location, serial number, brand, make, and type of device.
Preconditions:	• The TMC Administrator is logged into the ATMS software. • The ATMS devices are reporting status information back to the TMC.
Normal Course:	6.0: The TMC Administrator changes identification and characteristic information regarding a device. a. The TMC Administrator opens the equipment section of the ATMS software. b. The TMC Administrator selects a device. c. The TMC Administrator views the current settings. d. The TMC Administrator clicks on the edit button. e. The TMC Administrator changes the device information. f. The TMC Administrator clicks on the save button. g. The TMC Administrator confirms that the changes should be saved.
Alternative Course:	
Includes:	
Market Package(s):	ATMS01: Network Surveillance ATMS07: Regional Traffic Management
Project Phase:	Initial Deployment

Scenario ID: Scenario 7

Scenario Name: Administration – Creating Camera Presets

Description: From the Administrative screens, the TMC Manager can save camera presets for each PTZ camera, such that the camera image displays a location description whenever the camera is commanded to a preset view.

Preconditions:

- The TMC Manager is logged into the ATMS software.
- The CCTV are functioning properly.

Normal Course:

7.0: Creating Camera Presets.

a. The TMC Manager selects a CCTV camera
b. The TMC Manager opens the Administrative screen
c. The TMC Manager goes to the camera preset entry section.
d. The TMC Manager enters the camera preset parameters.
e. The TMC Manager types in a location description.
f. The TMC Manager saves the preset settings.
g. The TMC Manager confirms that the preset settings should be saved.

Alternative Course:

7.1: Creating Multiple Presets for one camera (at step g).

a. The TMC Manager wants to create more presets for the selected CCTV.
b. Return to step d.

7.2: Creating Presets for a different camera (at step g).

a. The TMC Manager wants to create presets for a different camera.
b. Return to step b.
c. Select another CCTV from the CCTV list menu.

Includes:

Market Package(s): ATMS01: Network Surveillance

Project Phase: Initial Deployment

Scenario ID: Scenario 8

Scenario Name: Administration – Response Plan Creation

Description: The TMC Administrator creates a response plan that can be implemented during the management of an incident, a special event, or traffic congestion conditions. Plans can be developed based on a location, severity, and upstream distance or they can be configured by the TMC Administrator.

Preconditions:

- The TMC Administrator is logged into the ATMS software.

Normal Course:

8.0: The TMC Administrator selects devices to be activated as part of the response plan that are based on a location, severity, and upstream distance.

a. The TMC Administrator opens the response plan section.
b. The TMC Administrator selects a link.
c. The TMC Administrator selects the response plan upstream distance (i.e. 1, 2, 5, or 10 miles from location).
d. The devices (DMS and HAR) within the selected range will be automatically selected.
e. The TMC Administrator can select additional devices or remove devices from the list of devices that are to be activated as part of a response plan when an incident, a special event, or congested conditions occurs at a particular location.
f. The TMC Administrator can select a contact list.
g. The TMC Administrator can configure diversion routes.
h. The TMC Administrator saves the response plan into the response plan library.

Alternative Course:

8.1: The TMC Administrator manually selects devices to be activated as part of a response plan (alternative at step a.)

a. The TMC Administrator selects a link from the ATMS Map.
b. The TMC Administrator selects Response Plan.
c. The Response Plan screen appears.
d. The TMC Administrator can select equipment to be added to the response plan.
e. Return to step f.

8.2: The TMC Administrator edits a response plan (alternate at step b).

a. The TMC Administrator selects a response plan from the response plan library.
b. The TMC Administrator adds or removes devices from the response plan.
c. The TMC Administrator updates informational messages.
d. The TMC Administrator saves the updated response plan

to the library.

Includes:

Market Package(s): ATMS09: Traffic Decision Support and Demand Management

Project Phase: Initial Deployment

Scenario ID: Scenario 9

Scenario Name: Administration – Diversion Route Creation

Description: The TMC Administrator creates diversion routes in RCRS that can be implemented during the management of an incident, a special event, or congestion conditions.

Preconditions:

- The TMC Administrator enters a diversion route in RCRS.

Normal Course:

9.0: The TMC Administrator creates diversion routes in RCRS

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a. The diversion route created in RCRS is displayed on the ATMS map.
b. The list of nearby links should display roadway information from APRAS. This information would include roadways limitations, such as capacity (weight and height restrictions).
c. Any changes to the diversion route made in RCRS will be displayed in ATMS.
d. The diversion route will be removed from ATMS immediately after the diversion route is removed from RCRS.

Alternative Course:

a.

Includes:

Market Package(s): ATMS09: Traffic Decision Support and Demand Management

Project Phase: Initial Deployment

Scenario ID: Scenario 10

Scenario Name: Administration – TMC Handoff

Description: In some cases it is necessary to transfer control of an entire District over to another District. For example, some TMCs do not run 24/7, so transfer of control occurs on a nightly basis. Also, during an evacuation, a TMC may be closed down; therefore, control of all of the equipment and incidents owned by that District may be temporarily transferred to another District. Additionally, control of individual devices (i.e. DMS and, CCTV) can be transferred to other Districts.

Preconditions:

- The TMC Operator in the primary control District is logged into the ATMS software.
- The TMC Operator in the requesting District is logged into the ATMS software.
- The field equipment is fully functional.

Normal Course:

10.0: TMC or Equipment Handoff.

a. The requesting TMC Operator views the ATMS map.
b. The requesting TMC Operator selects the TMC or equipment that he/she wants to take control of.
c. The requesting TMC Operator right-clicks on the TMC or equipment icon and selects “Request Control.”
d. An instant messaging box will appear on the requesting TMC Operator’s computer.
e. The requesting TMC Operator enters the reason for the request.
f. The ATMS software notifies the controlling TMC via an instant message.
g. The controlling TMC Operator views the notification.
h. The controlling TMC Operator determines if control should be given to the requesting district.
i. The controlling TMC Operator clicks on the “Release Control” button that is on the request notification pop-up.
j. Via an instant message, the requesting TMC Operator receives audio and visual notification that a response was received.
k. The controlling TMC Operator can take control over the requested TMC or equipment.

Alternative Course:

10.1: A TMC Administrator requests control of another TMC that is unavailable to respond to the request, but put the software in approval mode (branch at step g.).

a. Since no one is available at the controlling TMC, but the ATMS software was set to approval mode, the software will automatically notify the requesting TMC that control is

handed over.

10.2: A TMC Administrator requests control of another TMC that is unavailable to respond to the request, but did not put the software in approval mode (branch at step 10.1.g.).

a. Since no one is available at the controlling TMC, the requesting TMC does not receive a response from the controlling TMC.
b. After a brief period of time, the requesting TMC Administrator will be prompted to verify that control should be transferred.
c. The TMC Administrator selects take control without authorization.
d. The requesting TMC will gain control over the requested TMC or equipment.

Includes:

Market Package(s): ATMS01: Network Surveillance
ATMS06: Traffic Information Dissemination
ATMS07: Regional Traffic Management

Project Phase: Initial Deployment

Scenario ID: Scenario 11

Scenario Name: Normal Operations

Description: The TMC is in normal daily status. This is the status when no traffic events are active.

Preconditions:

- The TMC Operator is logged into the ATMS.
- No planned events and/or unexpected incidents are occurring in the TMC monitored region.
- No Amber Alerts are active.
- Field equipment is accurately returning data to the ATMS.

Normal Course:

11.0: The TMC Operator logs into the ATMS software.

a. The TMC Operator opens the ATMS map, which displays roadway and equipment status for the entire Commonwealth
b. The TMC Operator zooms into his District.
c. The TMC Operator turns on equipment layers to view the status of equipment. Active and inactive equipment will be displayed in different colors.
d. The TMC Operator can also view equipment status as a list that appears on the ATMS map.
e. The TMC Operator can right-click on equipment to open a trouble ticket, if necessary.
f. The TMC Operator checks the detectors along the monitored corridors for the speed, volume and occupancy data.
g. The TMC Operator uses the CCTV controls to survey the monitored corridors.
h. The TMC Operator checks the status of the DMS. Mousing over the DMS displays a tool-tip with the DMS message that is currently displayed on the DMS.

Alternative Course:

Includes: Scenario 46: Generation of Preventive Maintenance Schedule for ITS Equipment
Scenario 47: Remote Viewing of Current Equipment Status, Traveler Information Messages, and Incident Information

Market Package(s):

Project Phase: Initial Deployment

Scenario ID: Scenario 12

Scenario Name: CCTV Control

Description: From the ATMS software, the TMC Operator can access and view available CCTV cameras. The TMC Operator can also control the PTZ functionality from the workstation.

Preconditions:

- The TMC Operator is logged into the ATMS software.

Normal Course:

12.0: Using PTZ CCTV Control.

a. The TMC Operator views the ATMS Map.
b. The TMC Operator, mouses over the CCTV to check the camera status.
c. The TMC Operator right-clicks on an available CCTV to view the camera image.
d. A CCTV pop-up window with the live camera view is displayed.
e. Using the PTZ controls on the CCTV pop-up window, the TMC Operator can zoom and rotate the camera to view the monitored roadway.

Alternative Course:

12.1: Joystick Control (branch at step a).

a. The TMC Operator uses buttons on a joystick to enter the camera number of the CCTV to be viewed.
b. Once the CCTV number is entered, the live video is displayed on the video wall.
c. The TMC Operator uses the joystick to zoom, rotate and focus the CCTV.

12.2: Activating Preset Views (branch at step c).

a. The TMC Operator right-clicks on a CCTV to select a preset camera view.
b. The TMC Operator selects the name of the preset view to be activated.
c. The TMC Operator confirms that the preset view should be displayed.
d. A CCTV pop-up window with the live camera view is displayed.
e. When the live video is displayed, the CCTV should be positioned according to the selected preset parameters.
f. Using the PTZ controls on the CCTV pop-up window, the TMC Operator can zoom and rotate the camera to change the view of the monitored roadway.

Includes:

Market Package(s): ATMS01: Network Surveillance

Project Phase: Initial Deployment

Scenario ID: Scenario 13

Scenario Name: Sharing CCTV within a TMC

Description: The TMC Operator shares control with another TMC Operator within the same TMC.

Preconditions:

- The TMC Operators are logged into the ATMS.

Normal Course:

13.0: While one TMC Operator is controlling a CCTV, another TMC Operator working within the same TMC wants to gain control of the camera.

a. The TMC Operator views the ATMS Map.
b. The TMC Operator, mouses over the CCTV to check the status.
c. The TMC Operator right-clicks on the device.
d. A CCTV pop-up window with the live camera view is displayed.
e. When the TMC Operator tries to control the camera, he is alerted that another TMC Operator is using the camera. If the user has lower user privileges, then the TMC operator has the option to take control away from the current user. If both users have the same user privileges then the TMC Operator who began using the camera first will have priority.
f. Using the PTZ controls on the CCTV pop-up window, the TMC Operator can zoom and rotate the camera to view the monitored roadway.

Alternative Course:

Includes:

Market Package(s): ATMS01: Network Surveillance

Project Phase: Initial Deployment

Scenario ID: Scenario 14

Scenario Name:

Description:

Preconditions:

Normal Course:

Alternative Course:

Includes:

Market Package(s):

Project Phase:

Scenario 14 (CCTV Control Handoff to Another TMC) from Rev. 1 was removed.

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Scenario ID: Scenario 15

Scenario Name: DMS Message Creation

Description: A DMS Message is created and stored in the message library.

Preconditions:

- The TMC Operator is logged into the ATMS software.

Normal Course:

15.0: A DMS Message is created and stored in the Message Library.

a. The TMC Operator opens the DMS subsystem.
b. The TMC Operator opens the Message Library.
c. The TMC Operator selects a sign type (portable, intermediate, full-sized) and manufacturer.
d. The TMC Operator types in the DMS message text.
e. The TMC Operator runs a spell check that also checks for approved abbreviations.
f. The TMC Operator assigns a priority level to the message.
g. The TMC Operator clicks on the Save button.
h. The TMC Operator selects a folder within the message library.
i. The TMC Operator enters a message title.
j. The TMC Operator confirms that the message should be saved.

Alternative Course:

15.1: A DMS message is created for display on a DMS (alternative at step a).

a. See Scenario 16 – DMS Message Activation.

15.2: The created DMS Message doesn't meet one or more of the following constraints.

- Allowable set of characters.
- Number of lines of text.
- Number of characters per line.
- Contains a word that is in the forbidden word list

a. The ATMS software identifies the errors.
b. The TMC Operator corrects the identified errors.
c. Return to step g.

15.3: An existing DMS message is edited (branch at step b).

a. The TMC Operator selects a message category from the DMS Library.
b. The TMC Operator selects a message from the selected category in the DMS Library.
c. The TMC Operator clicks on the edit button.
d. The TMC Operator revises the DMS Message.
e. Return to step d.

15.4: An existing DMS message is edited and saved for a different sign type (alternative).

a. The TMC Operator selects a DMS.
b. The TMC Operator opens the message library.
c. The TMC Operator selects a message category from the DMS Library.
d. The TMC Operator selects a message from the selected category in the DMS Library.
e. The TMC Operator clicks on the edit button.
f. The TMC Operator receives notification that the message does not meet one or all of the following criteria:

- Allowable set of characters.
- Number of lines of text.
- Number of characters per line.
- Contains a word that is in the forbidden word list

g. The TMC Operator revises the DMS Message and/or changes fonts to make the message compatible with the selected sign.

Return to step e.

Includes:

Market Package(s): ATMS06: Traffic Information Dissemination

Project Phase: Initial Deployment

Scenario ID: Scenario 16

Scenario Name: DMS Activation

Description: A DMS message is activated on a DMS.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- The DMS are communicating with the ATMS software.
- The DMS are fully functional.

Normal Course:

16.0: A DMS Message is activated from the Message Library.

a. The TMC Operator opens the DMS subsystem.
b. The TMC Operator opens the Message Library.
c. The TMC Operator selects a message.
d. The TMC Operator selects a DMS.
e. The ATMS alerts the TMC Operator if the selected message will not be properly displayed on a selected DMS. The TMC Operator can then edit the selected message.
f. The TMC Operator clicks on the Activate button.
g. The TMC Operator confirms that the message should be sent to the DMS.
h. The ATMS shall send the message to the sign. If a communication failure occurs, the ATMS will attempt to send the message for the number of times that have been configured by an Administrative user.
i. The ATMS software will notify the operator of the transmission status (i.e. successfully activated or activation failure).

Alternative Course:

16.1: A DMS message is created for display on a DMS (alternative at step a).

a. The TMC Operator right-clicks on a DMS icon from the ATMS Map.
b. The TMC Operator selects create message.
c. The DMS message entry screen appears.
d. The TMC Operator types in a message.
e. The TMC Operator can save the message to the message library.
f. Return to step e.

16.2: Using the ATMS Map, a DMS message is activated (alternative at step a).

a. The TMC Operator right-clicks on a DMS icon from the ATMS Map.
b. The TMC Operator selects activate message.
c. The DMS message library appears.
d. The TMC Operator selects a message. (If the TMC Operator is activating a high priority message it will overwrite the low priority message. Once the high priority message expires, the

low priority message will be reactivated.)
e. Return to step e.

16.3: A message is sent to multiple signs simultaneously (branch at step d).
a. The TMC Operator selects multiple DMS.
b. Return to step e.

16.4: A message is sent a DMS using a message schedule (alternative at step b.).
a. The TMC Operator selects message scheduling.
b. The TMC Operator selects a DMS.
c. The TMC Operator selects a message from the Message Library.
d. The TMC Operator enters the time and day that the message should be sent to the DMS.
e. The TMC Operator verifies the messages priority.
f. The TMC Operator enters the message duration.
g. The TMC Operator clicks on the Activate button.
h. When the schedule is triggered the TMC Operator must confirm that the scheduled DMS message should be activated.
i. Return to step g.

Includes:

Market Package(s): ATMS06: Traffic Information Dissemination

Project Phase: Initial Deployment

Scenario ID: Scenario 17

Scenario Name:

Description:

Preconditions:

Normal Course:

Alternative Course:

Includes:

Market Package(s):

Project Phase:

Scenario 17 (DMS Handoff to another TMC) from Rev. 1 was removed.

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Scenario ID: Scenario 18

Scenario Name: DMS sharing within a TMC

Description: Control of a DMS within a TMC is based on user levels as well as message priority. For example, if an Administrator activates a high priority message, a TMC Operator cannot overwrite that message without the Administrator's approval.

Preconditions:

- The DMS are fully functional.
- The DMS are communicating with the ATMS software.
- Multiple TMC Operators within one District are logged into the ATMS software.

Normal Course:

18.0: Using the ATMS Map, a TMC Operator tries to activate a message on a DMS that is running a high priority message.

a. The TMC Operator right-clicks on a DMS icon from the ATMS Map.
b. The TMC Operator selects activate message.
c. The DMS message library appears.
d. The TMC Operator selects a message from the message library.
e. The TMC Operator will receive an alert notifying the TMC Operator that a high priority message is currently activated.
f. If the TMC Operator wants to cancel the action, he should click on the Cancel button.
g. If the TMC Operator wants to continue to send the message, he should click on the continue button.
h. The software will require administrative approval to proceed any further.
i. The TMC Administrator approves the message.
j. The message is sent to the DMS.

Alternative Course:

18.1: Using the DMS portion of the software, a TMC Operator tries to activate a message on a DMS that is running a high priority message (branch at step a).

a. The TMC Operator opens the DMS portion of the ATMS software.
b. The TMC Operator selects a DMS.
c. The TMC Operator selects an available message.
d. The TMC Operator selects activate.
e. Return to step e.

18.2: Using the ATMS Map, a TMC Operator tries to activate a higher priority message on a DMS that is running a lower priority message (branch at step e).

a. The TMC Operator confirms the activation.
b. Return to step j.

18.3: Using the DMS portion of the software, a TMC Operator tries to activate a higher priority message on a DMS that is running a lower priority message (branch at step a).
a. The TMC Operator opens the DMS portion of the ATMS software.
b. The TMC Operator selects a DMS.
c. The TMC Operator selects an available message.
d. The TMC Operator selects activate.
e. The TMC Operator confirms the activation.
f. Return to step j.

Includes:

Market Package(s):

Project Phase: Initial Deployment

Scenario ID: Scenario 19

Scenario Name: Travel Time – Preset Message Activation

Description: A TMC Operator activates a travel time message on a DMS.

Preconditions:

- The DMS are fully functional.
- The DMS are communicating with the ATMS software.
- Travel time information is being transmitted to the ATMS software.
- Travel time links have been configured in the ATMS software.

Normal Course:

19.0: A TMC Operator activates a travel time message.

a. The TMC Operator opens the Travel Time subsystem.
b. The ATMS Travel Time subsystem, which when opened should display all travel time DMS, links and generated times
c. The TMC Operator selects a DMS.
d. The TMC operator selects a preset travel time message library.
e. Since PennDOT collects travel time data from multiple sources, the data from each source should be compared and a level of confidence should be assigned to each source. The TMC Operator can select between several travel time calculation methods (weighted average, highest confidence level) to be used for travel time postings
f. The TMC Operator clicks on view message.
g. The ATMS software displays the message(s) that will be sent to the sign(s).
h. Whenever travel time messages are displayed, a % confidence will be displayed on the map as well. This value will indicate the percentage of supporting field equipment that is functioning correctly.
i. If necessary, the TMC Operator can edit the message.
j. The TMC Operator clicks on the Activate button.
k. The travel time message(s) is activated on the selected DMS.

Alternative Course:

Includes: Scenario 30: Equipment Status Report

Market Packages: ATMS06: Traffic Information Dissemination

Project Phase: Initial Deployment

Scenario ID: Scenario 20

Scenario Name: HAR Message Creation

Description: An HAR Message is created and stored in the message library.

Preconditions:

- The TMC Operator is logged into the ATMS software.

Normal Course:

20.0: An HAR Message is created and stored in the Message Library.

a. The TMC Operator opens the HAR subsystem.
b. The TMC Operator opens the HAR Message Library.
c. The TMC Operator types in the HAR message text.
d. The TMC Operator assigns a priority level to the message.
e. The TMC Operator records the HAR message.
f. The TMC Operator clicks on the listen to message button.
g. The TMC Operator clicks on the Save button.
h. The TMC Operator enters a message title.
i. The TMC Operator confirms that the message should be saved.

Alternative Course:

20.1: A HAR message is created for playing on an HAR (alternative at step a).

a. See Scenario 19 – Message Activation.

20.2: The created HAR Message doesn't meet one or more of the following constraints (at step e).

- Contains a word that is in the forbidden word list

a. Return to step c.

20.3: An existing HAR message is edited (branch at step b).

a. The TMC Operator selects a message from the HAR Library.
b. The TMC Operator clicks on the edit button.
c. The TMC Operator revises the HAR Message.
d. Return to step e.

Includes:

Market Package(s): ATMS06: Traffic Information Dissemination

Project Phase: Initial Deployment

Scenario ID: Scenario 21

Scenario Name: HAR Activation

Description: An HAR message is activated on an HAR.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- The HAR are communicating with the ATMS software.
- The HAR are fully functional.

Normal Course:

21.0: An HAR Message is activated from the Message Library.

a. The TMC Operator opens the HAR subsystem.
b. The TMC Operator opens the Message Library.
c. The TMC Operator selects a message.
d. The TMC Operator clicks on the listen to message button.
e. The TMC Operator selects an HAR.
f. The ATMS software provides the HAR status including transmitter status and wattage.
g. The TMC Operator clicks on the Activate button.
h. The TMC Operator confirms that the message should be sent to the HAR.
i. The ATMS software will notify the operator of the transmission status (i.e. successfully activated or activation failure).
j. The TMC Operator selects the HAR.
k. The TMC Operator selects listen to current play list.
l. The TMC Operator verifies that the selected message was sent to the HAR.

Alternative Course:

21.1: An HAR message is created for display on an HAR (alternative at step a).

a. The TMC Operator right-clicks on an HAR icon from the ATMS Map.
b. The TMC Operator selects create message.
c. The HAR message entry screen appears.
d. The TMC Operator types in a message.
e. Return to step e.

21.2: Using the ATMS Map, an HAR message is activated (alternative at step a).

a. The TMC Operator right-clicks on an HAR icon from the ATMS Map.
b. The TMC Operator selects activate message.
c. The HAR message library appears.
d. The TMC Operator selects a message.
e. Return to step e.

21.3: A message is sent to multiple HAR simultaneously (at step d).
   a. The TMC Operator selects multiple HAR.
   b. Return to step e.

Includes:

Market Package(s): ATMS06: Traffic Information Dissemination

Project Phase: Initial Deployment

Scenario ID: Scenario 22

Scenario Name:

Description:

Preconditions:

Normal Course:

Alternative Course:

Includes:

Market Package(s):

Project Phase:

Scenario 22 (HAR Handoff to another TMC) from Rev. 1 was removed.

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Scenario ID: Scenario 23

Scenario Name: HAR sharing within a TMC

Description: Control of an HAR within a TMC is based on user levels as well as message priority. For example, if an Administrator activates a high priority message, a TMC Operator cannot overwrite that message without the Administrator's approval.

Preconditions:

- The HAR are fully functional.
- The HAR are communicating with the ATMS software.
- Multiple TMC Operators within one district are logged into the ATMS software.

Normal Course:

23.0: Using the ATMS Map, a TMC Operator tries to activate a message on an HAR that is running a high priority message.

a. The TMC Operator right-clicks on an HAR icon from the ATMS Map.
b. The TMC Operator selects activate message.
c. The HAR message library appears.
d. The TMC Operator selects a message from the message library.
e. The TMC Operator will receive an alert notifying the TMC Operator that a high priority message is currently activated.
f. If the TMC Operator wants to cancel the action, he should click on the Cancel button.
g. If the TMC Operator wants to continue to send the message, he should click on the continue button.
h. The software will require administrative approval to proceed any further.
i. The TMC Operator must confirm that the message should be sent.
j. The message is sent to the HAR.

Alternative Course:

23.1: Using the HAR portion of the software, a TMC Operator tries to activate a message on an HAR that is running a high priority message (branch at step a).

a. The TMC Operator opens the HAR portion of the ATMS software.
b. The TMC Operator selects an HAR.
c. The TMC Operator selects an available message.
d. The TMC Operator selects activate.
e. Return to step e.

23.2: Using the ATMS Map, a TMC Operator tries to activate a higher priority message on an HAR that is running a

lower priority message (branch at step e).

a. The TMC Operator confirms the activation.
b. Return to step j.

23.3: Using the HAR portion of the software, a TMC Operator tries to activate a higher priority message on an HAR that is running a lower priority message (branch at step a).

a. The TMC Operator opens the HAR portion of the ATMS software.
b. The TMC Operator selects an HAR.
c. The TMC Operator selects an available message.
d. The TMC Operator selects activate.
e. The TMC Operator confirms the activation.
f. Return to step j.

Includes:

Market Package(s): ATMS06: Traffic Information Dissemination

Project Phase: Initial Deployment

Scenario ID: Scenario 24

Scenario Name: Incident Detection

Description: The ATMS software shall process data in real-time, providing roadway congestion information for the data algorithm to evaluate vehicle detector data and determine the presence of an incident; the ATMS should detect and alert the TMC Operator of a potential incident. The incident management will be linked to the INRIX System.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- The ATMS software is receiving detector data.

Normal Course:

24.0: The ATMS software alerts the TMC Operator of a potential incident.

a. The ATMS software detects a potential incident.
b. The ATMS software alerts the TMC Operator of a potential incident.
c. The TMC Operator checks the ATMS software map to see the color of the links around the location of the potential incident.
d. The TMC Operator checks the detector data (speed, volume and occupancy) for the location of the potential incident.
e. When a sensor is triggered by a potential incident, the CCTV best suited to view the triggered sensor will automatically pan to the triggered sensor and/ or the video feed will automatically be sent to the video wall, so that the operator can verify that an incident occurred.
f. The TMC Operator opens an incident report.
g. The TMC Operator shares the incident information with the police.

Alternative Course:

24.1: The TMC Operator detects an incident from the ATMS Software Map (alternative at step a).

a. The TMC Operator views the ATMS Software Map.
b. The TMC Operator looks for links that appear red, which indicate that traffic flow is slow.
c. Return to step d.

24.2: The TMC Operator detects an incident from the CCTV.

a. The TMC Operator scans through the current CCTV images.
b. The TMC Operator notices a disruption in traffic.
c. The TMC Operator checks the ATMS map to see the color of the links around the location.
d. The TMC Operator checks the detector data (speed,

volume and occupancy) for the location of the potential incident.

e. The TMC Operator opens and incident report.

Includes:

Market Package(s): ATMS04: Freeway Control

Project Phase: Initial Deployment

Scenario ID: Scenario 25

Scenario Name: Incident Management

Description: The TMC Operator tracks and manages an incident.

Preconditions:

- The TMC Administrator is logged into the ATMS software.
- An incident has been detected and confirmed.

Normal Course:

25.0: An incident is managed by the TMC Operator.

a. The TMC Operator uses the incident management component of the ATMS software.
b. The TMC Operator creates a new incident report.
c. The TMC Operator clicks on a button which will load the entered incident data from the RCRS system.
d. The TMC Operator coordinates a response with emergency management, maintenance and construction management and other incident response personnel.
e. If necessary, the TMC Operator either activates a response plan or activates individual DMS to alert the traveling public of traffic delays and/or diversionary routes.
f. If necessary, the TMC Operator activates a diversion route.
g. The TMC Operator periodically uses the CCTV cameras to check the status of the event.
h. The TMC Operator updates the incident data as necessary.
i. The TMC Operator closes the incident report when the incident is cleared.

Alternative Course:

Includes:

Market Package(s): ATMS08: Traffic Incident Management System

Project Phase: Initial Deployment

Scenario ID: Scenario 26

Scenario Name: Response Plan Activation

Description: An incident is detected and the TMC Operator activates a response plan.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- The TMC Administrator created and saved response plans into the response plan library.
- The equipment is functioning correctly.

Normal Course:

26.0: An incident is detected and the TMC Operator activates a response plan.

a. The TMC Operator receives a notification from the Road Condition Reporting System to modify a road status.
b. The TMC Operator opens an incident report
c. The TMC Operator opens the response plan section.
d. The TMC Operator selects a response plan to be activated.
e. The TMC Operator follows the response plan messages.
f. The TMC Operator activates suggested messages on the recommended DMS and HAR.
g. When prompted, the TMC Operator confirms that the messages should be activated.
h. The TMC Operator accesses data from the Emergency Detour Routing System (EDRS).
i. The TMC Operator updates devices as recommended by the response plan.
j. The TMC Operator continues to track the incident.
k. The TMC Operator cancels the response plan.
l. The TMC Operator closes the incident.

Alternative Course:

26.1: The TMC Operator removes devices from the response plan (branch at step e).

a. When the TMC Operator views the devices to be activated as part of the response plan, he chooses not to activate one or several devices that are part of the plan.
b. Return to step g.

26.2: The TMC Operator searches text from the response plan library (at step d).

a. The TMC Operator searches the response plan library for key text.
b. Return to step d.

26.3: The TMC Operator cancels the response plan (after step g).

a. From the Response Plan section, the TMC Operator selects cancel response plan.
b. All activated devices should return to the previous state.
c. The TMC Operator must accept any changes that are made to the devices.

26.4: The TMC Operator skips steps in the response plan (branch at step e).
a. While following the response plan messages, the TMC Operator clicks on the skip button to skip the current step.
b. The TMC Operator can skip multiple steps.
c. Return to step g.

Includes:

Market Package(s): ATMS09: Traffic Decision Support and Demand Management

Project Phase: Initial Deployment

Scenario ID: Scenario 27

Scenario Name: Maintenance and Construction Vehicle and Equipment Tracking / Advanced Vehicle Location (AVL)

Description: The ATMS software should track real-time data from Maintenance and Construction vehicles. This information includes, at a minimum, vehicle identifier, GPS coordinates, and the time of day that the data was collected. The collected data can be used to coordinate the dispatch construction and maintenance vehicles with the County Maintenance Offices for the event. Possible uses include maintenance vehicles and emergency vehicles. The AVL system should like to the rest of the ATMS.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- The Construction and Maintenance vehicles have active AVL sensors.
- RWIS are reporting data to the TMC.

Normal Course:

27.0: During a weather related event (i.e. snow) the TMC Operator can track and coordinate construction, maintenance, and emergency vehicles.

a. The RWIS data is reaching a defined threshold (i.e. pavement temperature approaching 32ºF) and alerts the TMC Operator.
b. The TMC Operator opens Construction and Maintenance section of the ATMS.
c. The TMC Operator searches the location of construction / maintenance vehicles.
d. The TMC Operator can use this information to coordinate the dispatch Construction and Maintenance vehicles with County Maintenance Offices.
e. The TMC Operator can periodically check the real-time location of a vehicle.

Alternative Course:

Includes:

Market Package(s): MC01: Maintenance and Construction Vehicle and Equipment Tracking
MC04: Weather Information Processing and Distribution
MC06: Winter Maintenance

Project Phase: Future Deployment

Scenario ID: Scenario 28

Scenario Name: Congestion Management (Signal Timing)

Description: The TMC Operator tracks and manages congested highway conditions.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- Field data is being reported to the ATMS software.

Normal Course:

28.0: The TMC Operator uses a response plan to alleviate congestion.

a. The ATMS software alerts the TMC Operator that traffic is flowing slowly.
b. The TMC Operator uses the CCTV to view the location where traffic is flowing slowly.
c. The TMC Operator sees that congestion is building up, but there is no incident.
d. The TMC Operator activates a response plan.
e. The TMC Operator monitors the congestion until it is alleviated.

Alternative Course:

28.1: The TMC Operator uses signal timing to alleviate congestion (branch at step d.).

a. The TMC Operator accesses the signal timing library.
b. The TMC Operator selects a signal timing plan.
c. The TMC Operator views the signal timing plan.
d. The TMC Operator activates the signal timing plan.
e. The ATMS software will notify the TMC Operator when the plan is successfully activated.
f. Return to step e.

Includes:

Market Package(s): ATMS03: Surface Street Control
ATMS04: Freeway Control
ATMS08: Traffic Incident Management System

Project Phase: Future Deployment

Scenario ID: Scenario 29

Scenario Name: Traffic Report Generation

Description: The TMC Operator generates a traffic report from the ATMS software.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- Field data is being reported to the ATMS software.

Normal Course:

29.0: The TMC Operator generates a traffic report. Anticipated traffic reports include: Congestion Frequency Profile, Historic Information by segment or corridor, Urban Congestion Report, Highway Performance Reports. (See PennDOT Statewide ATMS Software System Requirements Appendix B: Sample Graphic Representations Of The Recommended Performance Metrics).

a. The TMC Operator opens the report section of the ATMS.
b. The TMC Operator selects the type of traffic report to be generated.
c. The TMC Operator selects the criteria for the report generation (i.e. time of day, day of week, roadway segments, etc.).
d. The TMC Operator clicks on the generate report button.
e. The TMC Operator can view the report.

Alternative Course:

29.1: The TMC Operator saves a traffic report (after step d.).

a. The TMC Operator clicks on the save file button.
b. The TMC Operator enters a file name and selects a file type.
c. The TMC Operator confirms that the report should be saved.

Includes:

Market Package(s): AD1: ITS Data Mart
AD2: ITS Data Warehouse

Project Phase: Initial Deployment

Scenario ID: Scenario 30

Scenario Name: Equipment Status Report

Description: The TMC Operator views ITS equipment status through the ATMS software. Possible report types include:

- Percent Uptime
- Device Type
- Detailed History (1 Device)
- Metric on foundational traffic flow data

Preconditions:

- The TMC Operator is logged into the ATMS software.
- ITS device data is being reported to the ATMS software.

Normal Course:

30.0: The TMC Operator generates an equipment status report.

a. The TMC Operator opens the Reports section of the ATMS software.
b. The TMC Operator selects equipment reports.
c. The TMC Operator selects the type of equipment report.
d. The TMC Operator enters the search criteria for the report.
e. The TMC Operator clicks generate report.
f. The TMC Operator views the equipment report.

Alternative Course:

30.1: The TMC Operator views equipment status on the map GUI.

a. The TMC Operator opens the ATMS Software Map.
b. The TMC Operator turns on the equipment status layers.
c. The TMC Operator views the status of the ITS devices on the map.
d. An equipment failure report will be automatically generated when a piece of equipment fails.

30.2: The TMC Operator views equipment data in a table style list (alternative at step a.).

a. The TMC Operator opens the equipment section of the ATMS software.
b. The TMC Operator selects equipment status.
c. The TMC Operator selects a device type.
d. The equipment status is displayed in a table style list.
e. An equipment failure report will be automatically generated when a piece of equipment fails.

Includes:

Market Package(s): AD1: ITS Data Mart
AD2: ITS Data Warehouse

Project Phase: Initial Deployment

Scenario ID: Scenario 31

Scenario Name: Equipment Failure Alerts

Description: The ATMS alerts the TMC Operator of an equipment failure, such as a failed pixel in a DMS or a loss of communication with a detector.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- ITS device data is being reported to the ATMS software.
- An ITS device failure is detected.

Normal Course:

31.0: The ATMS software alerts the TMC operator of a device failure from the map.

a. The TMC Operator opens the ATMS Software Map.
b. The TMC Operator turns on the equipment status layers.
c. The TMC Operator views the status of the ITS devices on the map.
d. The failed device blinks in red.
e. An equipment failure report is automatically generated by the ATMS software.

Alternative Course:

31.1: The ATMS software alerts the TMC Operator of a device failure from another section of the software.

a. The TMC Operator is actively using the ATMS software.
b. A bar at the bottom of the screen blinks red and displays text saying, “Equipment Failure.”
c. The TMC Operator mouses over the bar to see more information about the device failure.
d. The TMC Operator clicks on the alert toolbar to launch the equipment management portion of the ATMS software.
e. An equipment failure report is automatically generated by the ATMS software.

31.2: The ATMS software alerts the TMC Operator of a device failure from the map when devices are not being displayed (branch at step b).

a. The TMC Operator opens the ATMS Software Map, but the device layer is not displayed.
b. A bar at the bottom of the screen blinks red and displays text saying, “Equipment Failure.”
c. The TMC Operator mouses over the bar to see more information about the device failure.
d. Return to step c. or 31.1.d.

Includes:

Market Package(s): ATMS07: Regional Traffic Management

Project Phase: Initial Deployment

Scenario ID:	Scenario 32
Scenario Name:	Performance Reports
Description:	The TMC Operator can generate Performance Measures reports from the ATMS software based on historical and real-time data. Some of the information in the performance measures reports will include travel time index, peak travel index, number of incidents by type, overall performance index, incident response timeline, etc. Additional reports will be available to provide information such as logging TMC actions, length of time for activating different stages (e.g. incident open, verified, response plan activated, incident closed) and call logs. (See PennDOT Statewide ATMS Software System Requirements Appendix B: Sample Graphic Representations Of The Recommended Performance Metrics).
Preconditions:	• The TMC Operator is logged into the ATMS software. • ITS field data is being reported to the ATMS software.
Normal Course:	32.0: The TMC Operator generates a performance measure report. a. The TMC Operator opens the report section of the ATMS software. b. The TMC Operator selects the type of performance reports. c. The TMC Operator selects the report criteria. d. The TMC Operator clicks on the generate report button. e. The TMC Operator can view the report.
Alternative Course:	32.1: The TMC Operator saves a performance report (after step d.). a. The TMC Operator clicks on the save file button. b. The TMC Operator enters a file name and selects a file type. c. The TMC Operator confirms that the report should be saved.
Includes:	
Market Package(s):	AD1: ITS Data Mart AD2: ITS Data Warehouse
Project Phase:	Initial Deployment

Scenario ID: Scenario 33

Scenario Name: CCTV Blocking

Description: A TMC Operator with sufficient privileges can block CCTV camera images so that they cannot be viewed by outside sources, such as other TMCs, the Internet, and media.

Preconditions:

- A TMC Operator with sufficient privileges is logged into the ATMS software.
- CCTV are functioning properly.

Normal Course:

33.0: Blocking one CCTV.

a. A TMC Operator with sufficient privileges opens a CCTV.
b. A TMC Operator with sufficient privileges selects Block CCTV.
c. A TMC Operator with sufficient privileges saves the changes.
d. A TMC Operator with sufficient privileges confirms that the selected CCTV should be blocked.

Alternative Course:

33.1: Blocking CCTV Images (alternative at step a.).

a. A TMC Operator with sufficient privileges opens the Administrative screen.
b. A TMC Operator with sufficient privileges selects CCTV Blocking.
c. A list of available CCTV appears.
d. A TMC Operator with sufficient privileges selects the CCTV to be blocked.
e. Return to step d.

33.2: Blocking one CCTV from the Map (alternative at step a.).

a. A TMC Operator with sufficient privileges selects a CCTV from the ATMS map.
b. A TMC Operator with sufficient privileges selects Block CCTV.
c. Return to step d.

Includes:

Market Package(s): ATMS01: Network Surveillance

Project Phase: Initial Deployment

Scenario ID: Scenario 34

Scenario Name: Locking CCTV Control

Description: The TMC Operator locks control of the CCTV so that no other user can move the camera.

Preconditions:

- The TMC Operator is logged into the ATMS software.

Normal Course:

34.0: If the TMC Operator is controlling a CCTV to view a critical event, the CCTV control can be locked so that another user cannot override his control of the camera.

a. The TMC Operator views the ATMS Map.
b. The TMC Operator, mouses over the CCTV to check the status.
c. The TMC Operator right-clicks on the device.
d. A CCTV pop-up window with the live camera view is displayed.
e. Using the PTZ controls on the CCTV pop-up window, the TMC Operator can zoom and rotate the camera to view the monitored roadway.
f. The TMC Operator clicks on the lock control button.
g. The TMC Operator confirms that the camera controls should be locked.
h. If another TMC Operator tries to take control of the locked CCTV, he will be notified that control is not available at this time.

Alternative Course:

Includes:

Market Package(s): ATMS01: Network Surveillance

Project Phase: Future Deployment

Scenario ID: Scenario 35

Scenario Name: Travel Time – Custom Message Activation

Description: A TMC Operator activates a custom travel time message on a DMS.

Preconditions:

- The DMS are fully functional.
- The DMS are communicating with the ATMS software.
- Travel time information is being transmitted to the ATMS software.
- Travel time links have been configured in the ATMS software.

Normal Course:

35.0: A TMC Operator activates a custom travel time message.

a. The TMC Operator opens the Travel Time subsystem.
b. The ATMS travel time subsystem, which when opened should display all travel time DMS, predefined travel time scenarios, and links and generated times
c. The TMC Operator right-clicks on a DMS.
d. The TMC Operator selects create message.
e. The TMC Operator types in a custom travel time message.
f. The TMC Operator either selects a predefined travel time scenario or selects the links that are to be included in the travel time.
g. The TMC Operator inserts the travel time into the message. Since PennDOT collects travel time data from multiple sources, the data from each source should be compared and a level of confidence should be assigned to each source. The TMC Operator can select between several travel time calculation methods (weighted average, highest confidence level) to be used for travel time postings
h. The TMC Operator clicks on view message.
i. The ATMS software displays the message(s) that will be sent to the sign(s).
j. Whenever travel time messages are displayed, a % confidence will be displayed on the map as well. This value will indicate the percentage of supporting field equipment that is functioning correctly.
k. If necessary, the TMC Operator can edit the message.
l. The TMC Operator clicks on the Activate button.
m. The travel time message(s) is activated on the selected DMS.

Alternative Course:

Includes:

Market Package(s): ATMS06: Traffic Information Dissemination

Project Phase: Initial Deployment

Scenario ID:	Scenario 36
Scenario Name:	HAR Beacon Activation
Description:	An HAR beacon is activated.
Preconditions:	• The TMC Operator is logged into the ATMS software. • The HAR are communicating with the ATMS software. • The HAR are fully functional. • The HAR has functional beacons.
Normal Course:	36.0: HAR Beacons are activated. a. The TMC Operator opens the HAR subsystem. b. The TMC Operator selects an HAR. c. The TMC Operator clicks on the Activate Beacons button. d. The TMC Operator confirms that the beacons should be activated. e. The ATMS software will notify the operator of the transmission status (i.e. successfully activated or activation failure).
Alternative Course:	36.1: Using the ATMS Map, HAR beacons are activated (alternative at step a.). a. The TMC Operator right-clicks on an HAR icon from the ATMS Map. b. The TMC Operator selects Activate Beacons. c. Return to step d.
Includes:	
Market Package(s):	ATMS06: Traffic Information Dissemination
Project Phase:	Initial Deployment

Scenario ID: Scenario 37

Scenario Name: Service Patrol Vehicle Tracking / Advanced Vehicle Location (AVL)

Description: The ATMS software should track GPS equipped Service Patrol vehicles. This information includes, at a minimum, vehicle identifier, GPS coordinates, and the time of day that the data was collected. The collected data can be used to coordinate the dispatch of service patrol vehicles.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- The Service Patrol vehicles have active AVL sensors.

Normal Course:

37.0: During an event (i.e. incident, weather event, construction) the TMC Operator can track and coordinate service patrol vehicles.

a. The TMC Operator opens the AVL subsystem.
b. The TMC Operator selects Service Patrol Vehicles.
c. A list of the service patrol vehicles, vehicle status and vehicle location is displayed.
d. The TMC Operator can use this information to coordinate the dispatch to the location.
e. The TMC Operator can periodically check the real-time location of a vehicle.

Alternative Course:

37.1: Using the ATMS Map, the TMC Operator can view the location of service patrol vehicles (alternative at step a.).

a. The TMC Operator opens the ATMS map.
b. The TMC Operator turns on the Service Patrol layer.
c. Vehicles will be displayed on the map in their last reported location. Each vehicle will be color-coded based on vehicle status.
d. The TMC Operator can mouse over the vehicle to get more information, such as vehicle name/id and contact information.
e. Return to step d.

Includes:

Market Package(s): EM04: Roadway Service Patrols

Project Phase: Future Deployment

Scenario ID: Scenario 38

Scenario Name:	Administrative – Ramp Metering Configuration
Description:	The TMC Administrator can configure ramp metering settings, such as thresholds for changing ramp metering.
Preconditions:	• The TMC Operator is logged into the ATMS software. • Ramp meters are installed in the field • The Ramp Metering Software is communicating with the ATMS. • Ramp meters and Ramp Meter Supervisory Software are fully functional • Ramp meters are reporting data back to the TMC
Normal Course:	38.0: The TMC Operator is able to turn on / off ramp metering for a corridor. a. The TMC Administrator opens the ATMS map. b. The TMC Administrator turns on the ramp metering layer. c. The TMC Administrator turns on / off ramp metering for a corridor. d. The TMC Administrator confirms that the changes.
Alternative Course:	
Includes:	Scenario 39: HOV Lane Management Scenario 48: Ramp Metering Control
Market Packages:	ATMS04: Freeway Control
Project Phase:	Future Deployment

Scenario ID: Scenario 39

Scenario Name: HOV Lane Management

Description: The TMC Operator can activate and edit established HOV Lane Management plans. While HOV lane activation plans will be pre-established, the TMC Operator can edit and activate HOV lane plans as necessary.

Preconditions:
- The TMC Operator is logged into the ATMS software.
- Ramp meters are fully functional.
- Lane Use Signals are fully functional.
- HOV Lane Use Signals are fully functional.

Normal Course:

39.0: The TMC Operator activates the HOV lane plan.

a. Prior to the time the HOV Lane should be activated, the TMC Operator will receive a pop-up reminder that the HOV lane will be activated.
b. The TMC Operator must close the HOV lane to traffic.
c. Once the TMC Operator receives notification that the lane is cleared, the TMC Operator can activate the HOV lane.
d. The TMC Operator confirms that the HOV Lane plan should be activated.

Alternative Course:

39.1 The TMC Operator edits the HOV lane plan.

a. Prior to the time the HOV Lane should be activated, the TMC Operator will receive a pop-up reminder that the HOV lane will be activated.
b. The TMC Operator must close the HOV lane to traffic.
c. Once the TMC Operator receives notification that the lane is cleared, the TMC Operator can activate the HOV lane.
d. The TMC Operator confirms that the HOV Lane plan should be activated.

Includes:

Market Packages: ATMS04: Freeway Control
ATMS05: HOV Lane Management
ATMS18: Reversible Lane Management

Project Phase: Initial Deployment

Scenario ID: Scenario 40

Scenario Name: Lane Control Signals

Description: The TMC Operator changes the lane control signals.

Preconditions:

- The TMC Operator is logged into the ATMS Software.
- The Lane Control Signals are functioning properly.

Normal Course:

40.0: The TMC Operator uses lane control signals to change the traffic pattern.

a. The TMC Operator selects a link on the ATMS Map.
b. The TMC Operator opens the current lane control signal status.
c. The TMC Operator selects new configuration
d. The TMC Operator clicks on the activate button.
e. The TMC Operator confirms that the changes should be made.

Alternative Course:

Includes:

Market Packages: ATMS04: Freeway Control

Project Phase: Future Deployment

Scenario ID: Scenario 41

Scenario Name:

Description:

Preconditions:

Normal Course:

Alternative Course:

Includes:

Market Package(s):

Project Phase:

Scenario 41 (Variable Speed Limits) from Rev. 2 was removed.

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Scenario ID: Scenario 42

Scenario Name: Call Log

Description: The TMC Operator saves information into the call log.

Preconditions:

- The TMC Operator is logged into the ATMS Software.

Normal Course:

42.0 The TMC Operator enters information into the call log.

a. The TMC Operator clicks on the new call button.
b. The TMC Operator enters basic call information (i.e. name, number, date and time)
c. The TMC Operator enters free form text.
d. The TMC Operator clicks on the save button.
e. The TMC Operator confirms that the information should be saved.

Alternative Course:

Includes:

Market Package(s):

Project Phase: Initial Deployment

Scenario ID: Scenario 43

Scenario Name: Administration – Contact List

Description: The TMC Administrator creates / edits a contact list that is based on the incident severity.

Preconditions:

- The TMC Administrator is logged into the ATMS Software.

Normal Course:

43.0: The TMC Administrator creates a list of contacts for each severity level.

a. The TMC Administrator opens the Administrative screens.
b. The TMC Administrator selects contact list.
c. The TMC Administrator adds or edits contacts / contact information to the list of people who must be notified.
d. The TMC Operator clicks on the save button.
e. The TMC Operator confirms that the information should be saved.

Alternative Course:

Includes:

Market Packages:

Project Phase: Initial Deployment

Scenario ID: Scenario 44

Scenario Name: Diversion Route Activation

Description: Pre-established diversion routes are saved in the diversion route library and can be activated as needed. Also, in the event that a custom diversion route is needed, the TMC Operator can update the diversion plan.

Preconditions:

- The TMC Operator is logged into the ATMS software.

Normal Course:

44.0: The TMC Operator can activate pre-established diversion routes from the library.

a. The TMC Operator opens the diversion route subsystem.
b. The TMC Operator selects a location from which traffic needs to be diverted.
c. The TMC Operator selects a diversion route.
d. The TMC Operator clicks on the activate button.
e. The TMC Operator confirms that the diversion route should be activated. .

Alternative Course:

44.1: The TMC Operator activates a custom diversion route. (branch at step c.).

a. Field personnel notify the TMC Operator that the predefined diversion route cannot be implemented; therefore, the field personnel inform the TMC Operator of the new diversion route.
b. Using the TMC Map, the TMC Operator modifies the diversion route based on the information received from the field personnel.
c. Return to step d.

Includes:

Market Package(s): ATMS01: Network Surveillance

Project Phase: Initial Deployment

Scenario ID: Scenario 45

Scenario Name: Application-Level Operational Vendor Support

Description: The ATMS software will provide access to an application level operational vendor support website, which will allow the users to report software errors to the vendor. This website will track reported errors and resolutions.

Preconditions:

- The TMC Operator is logged into the ATMS Software.
- The TMC Operator has access to the Internet.

Normal Course:

45.0: The TMC Operator detects and reports a software error.

a. The TMC Operator receives an error message from the ATMS software.
b. The TMC Operator captures the screenshot.
c. The TMC Operator accesses the vendor supported website.
d. The TMC Operator enters a software error report and attaches the screenshot.

Alternative Course:

Includes:

Market Package(s):

Project Phase: Initial Deployment

Scenario ID: Scenario 46

Scenario Name: Generation of Preventive Maintenance Schedule for ITS Equipment

Description: The TMC Operator can create preventive maintenance schedule for ITS equipment that is tracked by the ATMS software. For example, the TMC Operator can create a schedule VMS pixel tests on a weekly basis. If a schedule is created, TMC Operators will receive a reminder that a preventive maintenance activity is scheduled

Preconditions:

- The TMC Operator is logged into the ATMS software.
- ITS equipment information is entered into the ATMS software.
- ITS equipment is communicating with the ATMS software

Normal Course:

46.0: The TMC operator creates a preventive maintenance schedule for ITS equipment by accessing equipment from the ATMS map.

a. The TMC Operator opens the ATMS map.
b. The TMC Operator selects a device from the map.
c. The TMC Operator selects schedule preventive maintenance.
d. When the preventive maintenance screen appears, information about the selected device (i.e. device type, manufacture, location, etc.) will already populate the screen.
e. The TMC Operator should select the type of preventive maintenance activity that should be performed.
f. The TMC Operator should select the frequency for which the preventive maintenance activity will be performed (i.e. every day, every 7 days, or every 30 days, etc.)
g. The TMC Operator should schedule a date on which the first preventive maintenance activity should occur.
h. The TMC Operator should save the entry.
i. The TMC operator will confirm that the entry should be saved.

Alternative Course:

46.1 The TMC operator creates a preventive maintenance schedule for ITS equipment by accessing the equipment subsystem (Alternative at step a.)

a. The TMC Operator opens the equipment subsystem of the ATMS software.
b. The TMC Operator selects preventive maintenance.
c. When the preventive maintenance screen appears, the TMC operator selects the device information (i.e. device type, manufacturer, model number, location, etc.)

d. Return to step e.

46.2 The TMC operator edits a preventive maintenance schedule for ITS equipment by accessing the equipment subsystem (Alternative at 46.1 step b.)

a. The TMC operator selects a device for which preventive maintenance activities should be edited.
b. The TMC updates the equipment information or schedule on the preventive maintenance screen.
c. The TMC Operator can log and track maintenance activities as they occur.
d. Return to step h.

Includes: Scenario 11 (Normal Operations)

Market Package(s):

Project Phase: Initial Deployment

Scenario ID: Scenario 47

Scenario Name: Remote Viewing of Current Equipment Status, Traveler Information Messages, and Incident Information

Description: Other stakeholders can remotely review equipment status, current traveler information messages and current incident information from the ATMS map.

Preconditions:

- ITS equipment information is entered into the ATMS software.
- ITS equipment is communicating with the e software

Normal Course:

47.0: The stakeholder reviews equipment status, traveler information messages, and current incident information by opening the ATMS map remotely.

a. The stakeholder uses the Internet to open the ATMS map.
b. The ITS equipment will be displayed on the map. The equipment status (i.e. OK, disabled, communication error) will be identified by a color code.
c. The stakeholder can view information, such as current speeds, travel times, event details, or the current message that is displayed on a DMS or HAR.
d. Current speeds will be displayed as various colors (such as red, yellow, and green).
e. DMS messages will be displayed in the map view upon accessing the ATMS map.
f. HAR messages will be viewable when mousing over the HAR device that is active.
g. Current incidents and events will be displayed on the ATMS map.
h. The stakeholder can mouse over the incident/event icon to get more information.

Alternative Course:

Includes:

Market Package(s):

Project Phase: Initial Deployment

Scenario ID: Scenario 48

Scenario Name: Ramp Metering

Description: The TMC Operator can manage ramp meters.

Preconditions:

- The TMC Operator is logged into the ATMS software.
- Ramp meters are installed in the field
- Ramp meters and ramp meter supervisory software are fully functional
- Ramp meters are reporting data back to the TMC

Normal Course:

48.0: The Operator is able to turn on / off ramp meters.

a. Based on triggered traffic threshold levels, the ATMS system will alert the TMC Operator of a recommended ramp metering control plan. For example, when the traffic backs up on the ramp, the TMC Operator will be advised that ramp meters should be turned off.
b. The TMC Operator uses the activate button to implement the activation of the recommended ramp metering plan.
c. The TMC Operator can turn on/off ramp metering by corridor.
d. The TMC Operator must confirm that the plan should be activated.

Alternative Course:

Includes:

Market Packages: ATMS04: Freeway Control

Project Phase: Future Deployment

Scenario ID: Scenario 49

Scenario Name:

Description:

Preconditions:

Normal Course:

Alternative Course:

Includes:

Market Package(s):

Project Phase:

Scenario 49 (Variable Speed Limit Control) was removed.

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Scenario ID:	Scenario 50
Scenario Name:	Proactive Stakeholder Notification
Description:	The ATMS will send e-mail notifications to stakeholders who have subscribed to the notification service.
Preconditions:	• Stakeholders subscribe to receive e-mail notifications about selected locations.
Normal Course:	50.0: ATMS sends an e-mail notification to stakeholders who subscribed to the notification service. a. Using the Internet stakeholders sign up to received e-mail notifications about traffic events that occur in a specified location(s). b. The TMC Operator enters event information into the ATMS. c. The notification message should be sent to subscribers. d. The subscribers will receive a notification about the current event.
Alternative Course:	
Includes:	
Market Packages:	ATIS01: Broadcast Traveler Information
Project Phase:	Initial Deployment

Scenario ID: Scenario 51

Scenario Name: Equipment Diagnostics

Description: The TMC Operator can run equipment diagnostic tests to see the current status of specified equipment types or locations. The TMC Operator can also update the status if necessary.

Preconditions:

- The TMC Operator is logged into the ATMS.
- All field equipment is fully functional.
- All field equipment is reporting data back to the ATMS.

Normal Course: 51.0: The TMC Operator runs equipment diagnostics based on equipment location or equipment type.

a. The TMC Operator opens the equipment diagnostic segment of the ATMS.
b. The TMC operator chooses to run the equipment diagnostic based on a location (e.g. District) or equipment type (e.g. DMS, CCTV or HAR).
c. The TMC Operator runs the diagnostic tests.
d. Once the diagnostics are completed, a screen will display the current status of each piece of equipment.
e. The TMC Operator can edit the status (e.g. OK to Out-of-Service), if necessary.
f. The TMC Operator can print or save the diagnostic report.

Alternative Course:

Includes:

Market Packages:

Project Phase: Initial Deployment

Scenario ID:	Scenario 52
Scenario Name:	Roadway Weather Information System
Description:	The TMC Operator can view data collected by the Roadway Weather Information System (RWIS) readers and the TMC Operator can use the collected information to issue general traveler advisories or issue location specific warnings to drivers.
Preconditions:	• The TMC Operator is logged into the ATMS. • All RWIS readers are fully functional. • All RWIS readers are reporting data back to the ATMS.
Normal Course:	52.0: The TMC Operator views data collected by the RWIS. a. The TMC Operator opens the ATMS map and turns on the RWIS layer. b. The TMC Operator can mouse over a RWIS reader to get current information. c. The TMC Operator can use DMS and HAR to notify the travelers of hazards traveler conditions.
Alternative Course:	
Includes:	Scenario 16 (DMS Activation) Scenario 21 (HAR Activation)
Market Packages:	MC03: Road Weather Data Collection MC04: Weather Information Processing and Distribution
Project Phase:	Future Deployment

12.1 SUMMARY OF SCENARIOS BY PHASE

12.1.1 INITIAL DEPLOYMENT

- Scenario 1: Administration – Creating and Defining User Groups
- Scenario 2: Administration – Adding New Users
- Scenario 3: Administration – Editing Users
- Scenario 4: Administration – Disabling Users
- Scenario 5: Administration – Adding Field Devices
- Scenario 6: Administration – Updating Device Information
- Scenario 7: Administration – Creating Camera Presets
- Scenario 8: Administration – Response Plan Creation
- Scenario 9: Administration – Diversion Route Creation
- Scenario 10: Administration – TMC Handoff
- Scenario 11: Normal Operations
- Scenario 12: CCTV Control
- Scenario 13: Sharing CCTV within a TMC
- Scenario 15: DMS Message Creation
- Scenario 16: DMS Activation
- Scenario 18: DMS sharing within a TMC
- Scenario 19: Travel Time – Preset Message Activation
- Scenario 20: HAR Message Creation
- Scenario 21: HAR Activation
- Scenario 23: HAR sharing within a TMC
- Scenario 24: Incident Detection
- Scenario 25: Incident Management
- Scenario 26: Response Plan Activation
- Scenario 29: Traffic Report Generation
- Scenario 30: Equipment Status Report
- Scenario 31: Equipment Failure Alerts
- Scenario 32: Performance Reports
- Scenario 33: CCTV Blocking
- Scenario 35: Travel Time – Custom Message Activation
- Scenario 36: HAR Beacon Activation
- Scenario 39: HOV Lane Management
- Scenario 42: Call Log
- Scenario 43: Administration – Contact List
- Scenario 44: Diversion Route Activation
- Scenario 45: Application-Level Operational Vendor Support
- Scenario 46: Generation of Preventive Maintenance Schedule for ITS Equipment
- Scenario 47: Remote Viewing of Current Equipment Status, Traveler Information Messages, and Incident Information
- Scenario 50: Proactive Stakeholder Notification
- Scenario 51: Equipment Diagnostics

12.1.2 FUTURE DEPLOYMENT

- Scenario 27: Maintenance and Construction Vehicle and Equipment Tracking / Advanced Vehicle Location (AVL)
- Scenario 28: Congestion Management (Signal Timing)
- Scenario 34: Locking CCTV Control
- Scenario 37: Service Patrol Vehicle Tracking / Advanced Vehicle Location (AVL)
- Scenario 38: Administrative - Ramp Metering Configuration
- Scenario 40: Lane Control Signals
- Scenario 48: Ramp Metering
- Scenario 52: Roadway Weather Information System

13.0 SUMMARY OF IMPACTS

The transition from existing software to the new ATMS software will have to be managed very carefully. It is anticipated that a single District (preferably one with newer equipment and limited or no current ATMS software) will be selected as the pilot location. Concurrently with the development of the software, the system inventory will need to be verified and hardware elements evaluated. In some cases, it may be more cost effective to abandon or upgrade older elements, rather than develop new custom software to address these devices.

It is also recommended that system metrics are put in place now, so as to baseline the current performance prior to installing the ATMS software. In this way, trends can be developed showing the system performance both before and after the new ATMS software has been installed.

APPENDIX A: MARKET PACKAGES

The following descriptions for the market packages to be addressed in the Statewide ATMS Software are from the National ITS Architecture.

ARCHIVED DATA MANAGEMENT

AD1: ITS Data Mart - This market package provides a focused archive that houses data collected and owned by a single agency, district, private sector provider, research institution, or other organization. This focused archive typically includes data covering a single transportation mode and one jurisdiction that is collected from an operational data store and archived for future use. It provides the basic data quality, data privacy, and meta data management common to all ITS archives and provides general query and report access to archive data users.

AD2: ITS Data Warehouse - This market package includes all the data collection and management capabilities provided by the ITS Data Mart, and adds the functionality and interface definitions that allow collection of data from multiple agencies and data sources spanning across modal and jurisdictional boundaries. It performs the additional transformations and provides the additional meta data management features that are necessary so that all this data can be managed in a single repository with consistent formats. The potential for large volumes of varied data suggests additional on-line analysis and data mining features that are also included in this market package in addition to the basic query and reporting user access features offered by the ITS Data Mart.

TRAVELER INFORMATION

ATIS01: Broadcast Traveler Information - This market package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions. Different from the market package ATMS6 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS1 provides a wide area digital broadcast service. Successful deployment of this market package relies on availability of real-time traveler information from roadway instrumentation, probe vehicles or other sources.

ATIS06: Transportation Operations Data Sharing - This market package makes real-time transportation operations data available to transportation system operators. The Information Service Provider collects, processes, and stores current information on traffic and travel conditions and other information about the current state of the transportation network and makes this information available to transportation system operators, facilitating the exchange of qualified, real-time information between agencies. Using the provided information, transportation system operators can manage their individual systems based on an overall view of the regional transportation system. The regional transportation operations data resource represented by the Information Service Provider may be implemented as a web application that provides a web-

based access to system operators, an enterprise database that provides a network interface to remote center applications, or any implementation that supports regional sharing of real-time transportation operations data.

TRAFFIC MANAGEMENT

ATMS01: Network Surveillance - This market package includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this market package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.

ATMS02: Traffic Probe Surveillance - This market package provides an alternative approach for surveillance of the roadway network. Two general implementation paths are supported by this market package: 1) wide-area wireless communications between the vehicle and center is used to communicate vehicle operational information and status directly to the center, and 2) dedicated short range communications between passing vehicles and the roadside is used to provide equivalent information to the center. The first approach leverages wide area communications equipment that may already be in the vehicle to support personal safety and advanced traveler information services. The second approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture. The market package enables transportation operators and traveler information providers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, on-board equipment, data reduction software, and fixed-point to fixed-point links between centers to share the collected information. Both “Opt out” and “Opt in” strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.

ATMS03: Surface Street Control - This market package provides the central control and monitoring equipment, communication links, and the signal control equipment that support local surface street control and/or arterial traffic management. A range of traffic signal control systems are represented by this market package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This market package is generally an intra-jurisdictional package that does not rely on real-time communications between separate control systems to achieve area-wide traffic signal coordination. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would be represented by this package. This market package is consistent with typical urban traffic signal control systems.

ATMS04: Freeway Control - This market package provides central monitoring and control, communications, and field equipment that support freeway management. It supports a range of freeway management control strategies including ramp metering, interchange metering, mainline lane controls, mainline metering, and other strategies including variable speed controls. This package incorporates the instrumentation included in the Network Surveillance Market Package to support freeway monitoring and adaptive strategies as an option.

This market package also includes the capability to utilize surveillance information for detection of incidents. Typically, the processing would be performed at a traffic management center; however, developments might allow for point detection with roadway equipment. For example, a CCTV might include the capability to detect an incident based upon image changes. Additionally, this market package allows general advisory and traffic control information to be provided to the driver while en route.

ATMS05: HOV Lane Management - This market package manages HOV lanes by coordinating freeway ramp meters and connector signals with HOV lane usage signals. Preferential treatment is given to HOV lanes using special bypasses, reserved lanes, and exclusive rights-of-way that may vary by time of day. Vehicle occupancy detectors may be installed to verify HOV compliance and to notify enforcement agencies of violations.

ATMS06: Traffic Information Dissemination - This market package provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers. A link to the Maintenance and Construction Management subsystem allows real time information on road/bridge closures due to maintenance and construction activities to be disseminated.

ATMS07: Regional Traffic Management - This market package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include coordinated signal control in a metropolitan area and coordination between freeway operations and arterial signal control within a corridor. This market package advances the Surface Street Control and Freeway Control Market Packages by adding the communications links and integrated control strategies that enable integrated interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Surface Street Control and Freeway Control Market Packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.

ATMS08: Traffic Incident Management System - This market package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The market package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers as well as rail operations and event promoters. Information from these diverse sources is collected and correlated by this market package to detect and verify incidents and implement an appropriate response. This market package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between center subsystems. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination market package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information market packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.

ATMS09: Traffic Decision Support and Demand Management - This market package recommends courses of action to traffic operations personnel based on an assessment of current and forecast road network performance. Recommendations may include predefined incident response plans and regional surface street and freeway control strategies that correct network imbalances. Where applicable, this market package also recommends transit, parking, and toll strategies to influence traveler route and mode choices to support travel demand management (TDM) programs and policies managing both traffic and the environment. TDM recommendations are coordinated with transit, parking, and toll administration centers to support regional implementation of TDM strategies. Incident response and congestion management recommendations are implemented by the local traffic management center and coordinated with other regional centers by other market packages (see ATMS07-Regional Traffic Management and ATMS08-Traffic Incident Management). All recommendations are based on historical evaluation, real-time assessment, and forecast of the roadway network performance based on predicted travel demand patterns. Traffic data is collected from sensors and surveillance equipment, other traffic management centers. Forecasted traffic loads are derived from historical data and route plans supplied by the Information Service Provider Subsystem. This market package also collects air quality, parking availability, transit usage, and vehicle occupancy data to support TDM, where applicable.

ATMS18: Reversible Lane Management - This market package provides for the management of reversible lane facilities. In addition to standard surveillance capabilities, this market package includes sensory functions that detect wrong-way vehicles and other special surveillance capabilities that mitigate safety hazards associated with reversible lanes. The package includes the field equipment, physical lane access controls, and associated control electronics that manage and control these special lanes. This market package also includes the equipment used to electronically reconfigure intersections and manage right-of-way to address dynamic demand changes and special events.

ATMS19: Speed Monitoring - This market package monitors the speeds of vehicles traveling through a roadway system. If the speed is determine to be excessive, roadside equipment can suggest a safe driving speed. Environmental conditions may be monitored and factored into the safe speed advisories that are provided to the motorist. This service can also support notifications to an enforcement agency to enforce the speed limit on a roadway system.

ATMS21: Roadway Closure Management - This market package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The market package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this market package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This market package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS market packages.

VEHICLE SAFETY

AVSS10: Intersection Collision Avoidance - This market package will determine the probability of an intersection collision and provide timely warnings to approaching vehicles so that avoidance actions can be taken. This market package builds on the Intersection Safety Warning field and in-vehicle equipment and adds equipment in the vehicle that can take control of the vehicle to avoid intersection violations and potential collisions. The same sensors and communications equipment in the roadway infrastructure are used to assess vehicle locations and speeds near an intersection. This information is determined and communicated to the approaching vehicle using a short range communications system. The vehicle uses this information to develop control actions which alter the vehicle's speed and steering control and potentially activate its pre-crash safety system.

COMMERCIAL VEHICLE OPERATIONS

CVO06: Weigh-In-Motion - This market package provides for high speed weigh-in-motion with or without Automated Vehicle Identification (AVI) capabilities. This market package provides the roadside equipment that could be used as a stand-alone system or to augment the Electronic Clearance (CVO03) market package.

EMERGENCY MANAGEMENT

EM04: Roadway Service Patrols - This market package supports roadway service patrol vehicles that monitor roads that aid motorists, offering rapid response to minor incidents (flat tire, accidents, out of gas) to minimize disruption to the traffic stream. If problems are detected, the roadway service patrol vehicles will provide assistance to the motorist (e.g., push a vehicle to the shoulder or median). The market package monitors service patrol vehicle locations and

supports vehicle dispatch to identified incident locations. Incident information collected by the service patrol is shared with traffic, maintenance and construction, and traveler information systems.

EM05: Transportation Infrastructure Protection - This market package includes the monitoring of transportation infrastructure (e.g., bridges, tunnels and management centers) for potential threats using sensors and surveillance equipment and barrier and safeguard systems to control access, preclude an incident, and mitigate the impact of an incident if it occurs. Threats can result from acts of nature (e.g., hurricanes, earthquakes), terrorist attacks or other incidents causing damage to the infrastructure (e.g., stray barge hitting a bridge support). Infrastructure may be monitored with acoustic, environmental threat (such as nuclear, biological, chemical, and explosives), infrastructure condition and integrity, motion and object sensors and video and audio surveillance equipment. Data from such sensors and surveillance equipment may be processed in the field or sent to a center for processing. The data enables operators at the center to detect and verify threats. When a threat is detected, agencies are notified. Detected threats or advisories received from other agencies result in an increased level of system preparedness. In response to threats, barrier and safeguard systems may be activated by Traffic Management Subsystems to deter an incident, control access to an area or mitigate the impact of an incident. Barrier systems include gates, barriers and other automated and remotely controlled systems that manage entry to transportation infrastructure. Safeguard systems include blast shields, exhaust systems and other automated and remotely controlled systems that mitigate impact of an incident.

EM06: Wide-Area Alert - This market package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public's help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.

EM09: Evacuation and Reentry Management - This market package supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The market package addresses evacuations for all types of disasters, including disasters like hurricanes that are anticipated and occur slowly, allowing a well-planned orderly evacuation, as well as disasters like terrorist acts that occur rapidly, without warning, and allow little or no time for preparation or public warning.

This market package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to

control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.

Evacuations are also supported by EM10, the "Disaster Traveler Information" market package, which keeps the public informed during evacuations. See that market package for more information.

EM10: Disaster Traveler Information - This market package uses ITS to provide disaster-related traveler information to the general public, including evacuation and reentry information and other information concerning the operation of the transportation system during a disaster. This market package collects information from multiple sources including traffic, transit, public safety, emergency management, shelter provider, and travel service provider organizations. The collected information is processed and the public is provided with real-time disaster and evacuation information using ITS traveler information systems.

A disaster will stress the surface transportation system since it may damage transportation facilities at the same time that it places unique demands on these facilities to support public evacuation and provide access for emergency responders. Similarly, a disaster may interrupt or degrade the operation of many traveler information systems at the same time that safety-critical information must be provided to the traveling public. This market package keeps the public informed in these scenarios, using all available means to provide information about the disaster area including damage to the transportation system, detours and closures in effect, special traffic restrictions and allowances, special transit schedules, and real-time information on traffic conditions and transit system performance in and around the disaster.

This market package also provides emergency information to assist the public with evacuations when necessary. Information on mandatory and voluntary evacuation zones, evacuation times, and instructions are provided. Available evacuation routes and destinations and current and anticipated travel conditions along those routes are provided so evacuees are prepared and know their destination and preferred evacuation route. Information on available transit services and traveler services (shelters, medical services, hotels, restaurants, gas stations, etc.) is also provided. In addition to general evacuation information, this market package provides specific evacuation trip planning information that is tailored for the evacuee based on origin, selected destination, and evacuee-specified evacuation requirements and route parameters.

This market package augments the ATIS market packages that provide traveler information on a day-to-day basis for the surface transportation system. This market package provides focus on the special requirements for traveler information dissemination in disaster situations.

MAINTENANCE AND CONSTRUCTION MANAGEMENT

MC01: Maintenance and Construction Vehicle and Equipment Tracking - This market package will track the location of maintenance and construction vehicles and other equipment to

ascertain the progress of their activities. These activities can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations.

MC02: Maintenance and Construction Vehicle Maintenance - This market package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment. It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle maintenance.

MC03: Road Weather Data Collection - This market package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles. The collected environmental data is used by the Weather Information Processing and Distribution Market Package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The market package may also request and receive qualified data sets from meteorological systems.

MC04: Weather Information Processing and Distribution - This market package processes and distributes the environmental information collected from the Road Weather Data Collection market package. This market package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. so system operators and decision support systems can make decision on corrective actions to take. The continuing updates of road condition information and current temperatures can be used by system operators to more effectively deploy road maintenance resources, issue general traveler advisories, issue location specific warnings to drivers using the Traffic Information Dissemination market package, and aid operators in scheduling work activity.

MC05: Roadway Automated Treatment - This market package automatically treats a roadway section based on environmental or atmospheric conditions. Treatments include fog dispersion, anti-icing chemicals, etc. The market package includes the environmental sensors that detect adverse conditions, the automated treatment system itself, and driver information systems (e.g., dynamic message signs) that warn drivers when the treatment system is activated.

MC06: Winter Maintenance - This market package supports winter road maintenance including snow plow operations, roadway treatments (e.g., salt spraying and other anti-icing material applications), and other snow and ice control activities. This package monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.

MC07: Roadway Maintenance and Construction - This market package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g.,

signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.

MC08: Work Zone Management - This market package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This market package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.

MC10: Maintenance and Construction Activity Coordination - This market package supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations, or to the Information Service Providers who can provide the information to travelers.

APPENDIX P

STATEWIDE ATMS SOFTWARE SYSTEM REQUIREMENTS

PennDOT Statewide ATMS Software System Requirements

Last Updated: 04/08/11
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1.0 DOCUMENT HISTORY

This section has been intentionally left blank.

PURPOSE OF THE DOCUMENT

The purpose of this document is to describe the Functional Requirements for the Pennsylvania Department of Transportation (PennDOT) Statewide Advanced Traffic Management System (ATMS) Software.

The Stakeholders have identified specific requirements and tasks that an ATMS software must be able to perform for PennDOT. The purpose of this document is to describe the functionality necessary to perform the required tasks as a guide for future verification and testing. The document includes both functional and system requirements. The functional requirements detail the particular behaviors that the ATMS software shall perform; whereas the system requirements include performance, interface, HMI, data and enabling requirements that are crucial to developing an ATMS software that is compatible with PennDOT standards. Therefore, at a minimum, all of the requirements listed within this document need to be incorporated into a successful ATMS package.

The following are included in this document:

1. Document History
2. Scope of Project
3. Referenced Documents
4. Background
5. Concept for the Proposed System
6. User-Oriented Operational Description
7. System Overview
8. Operational Environment
9. Support Environment
10. Requirements
11. Verification Methods
12. Supporting Documentation
13. Traceability Matrix

2.0 SCOPE OF PROJECT

The ATMS software will enable operators to more efficiently manage surface transportation while also providing a more effective response to incidents. The ATMS software will allow for efficient communication between Districts, states and other stakeholders and provide shared control of all existing and future intelligent transportation system (ITS) devices throughout the Commonwealth of Pennsylvania.

PennDOT operates six (6) district traffic management centers (TMCs), three (3) regional traffic management centers (RTMCs) and PennDOT's Central Office. Each district contains different equipment and runs separate control software. Currently, each of the facilities functions independently.

It is the intent that the ATMS software will be designed for full functionality. However, user and site access may vary. Therefore, TMCs will be able to turn off functionality that they do not need. Also, the ATMS software will allow for interagency coordination. It is anticipated that through the use of administration and maintenance, functionality can be tailored to the needs of different user groups.

The primary users of the Next Generation ATMS are PennDOT's TMCs and RTMCs. These primary stakeholders will have read-write access to the ATMS according to the ATMS User privileges defined by PennDOT. It is anticipated that the other identified potential stakeholders, will initially have one-way communication with the ATMS. For example, video feeds may be shared with the following stakeholders:

1. City of Philadelphia
2. City of Pittsburgh
3. Counties
4. Delaware Department of Transportation
5. Delaware River Joint Toll Bridge Commission (DRJTBC)
6. General Public
7. Information Service Providers
8. Maryland State Highway Administration (MDSHA)
9. Municipalities
10. New Jersey Department of Transportation (NJDOT)
11. New York State Department of Transportation
12. Ohio Department of Transportation
13. Pennsylvania Department of Transportation (PennDOT)
14. Pennsylvania Emergency Management Agency (PEMA)
15. Pennsylvania State Police (PSP)
16. Pennsylvania Turnpike Commission (PTC)
17. Regional Media
18. Special Events
19. Traffic.com
20. TrafficLand
21. Telvent/Inrix (PennDOT 511 System)
22. US Coast Guard
23. West Virginia Department of Transportation

Note: Other toll bridge authorities that interface with Pennsylvania highways (i.e. Delaware River Port Authority, Burlington County Bridge Commission) were not included in the Regional ITS Architectures; therefore, they were not included in this draft.

A complete ATMS system consists of a communication network, field devices, hardware and software. While each of these components is critical to the successful operation, the focus of this document will be the operational requirements of the ATMS software.

3.0 REFERENCED DOCUMENTS

- PennDOT Statewide ATMS ITS Architecture, Rev. 1; April 9, 2010
- PennDOT Statewide ATMS Software Concept of Operations, Rev. 4; October 15, 2010
- Systems Engineering Guidebook for ITS, Version 2.0
- IEEE STD 1512 Systems Engineering Process
- National ITS Architecture (http://www.iteris.com/itsarch/)
- PennDOT Bureau of Planning & Research (http://www.dot.state.pa.us/Internet/Bureaus/pdPlanRes.nsf/PlanningAndResearchHomePage?OpenFrameset)
- DVRPC Regional Integrated Multi-modal Information Sharing (http://www.dvrpc.org/transportation/longrange/its/rimis.htm)
- RCRS = Road Condition Reporting System (http://www.geodecisions.com/projectdetail.aspx?ProjectID=41102B)
- PennDOT AVL Study: As-Is To-Be Business Process and Requirements Document Version 3.01
- US Department of Transportation, Federal Highway Administration Office of Highway Policy Information, Traffic Monitoring Guide; May 1, 2001

4.0 BACKGROUND

PennDOT has been at the forefront of Intelligent Transportation Systems (ITS) deployments since 1990. During this time there have been several deployments of ATMS software packages and vendor provided software for the command and control of ITS field devices. In the past PennDOT has used a variety of methods to procure ITS software to control field devices. As a result, PennDOT currently has several independent and incompatible vendor provided software and ATMS systems across the Commonwealth.

5.0 CONCEPT FOR THE PROPOSED SYSTEM

A number of alternative concepts were considered before identifying the proposed approach. The following potential solutions were considered:

1. Enhance and expand existing PennDOT ATMS software;
2. Use manufacturer's software for ITS equipment control;

3. Develop a new custom ATMS software;
4. Procure an existing ATMS software package to be used as-is; and
5. Procure an existing ATMS software package with planned enhancements / modifications.

5.1. ENHANCE AND EXPAND EXISTING PENNDOT ATMS SOFTWARE

Some Districts currently use ATMS systems to provide centralized control. The existing ATMS software was examined and found to be lacking in several key areas. The primary weakness, which ultimately led to the current decision, was that the software lacked any up to date documentation. In addition, it was estimated that more than 30 percent of the software would need to be retooled. Making significant modification to a poorly documented software package has a low probability of success and is not recommended.

6.2 MANUFACTURER'S SOFTWARE

Some Districts operate using a number of independent software packages which were provided by the device manufacturers along with the installation of their ITS equipment. At District 8-0 for example, they use approximately six (6) to eight (8) separate software packages to control dynamic message signs (DMS), Highway Advisory Radio (HAR), Video, etc. While this represents the lowest investment to obtain basic functionality, the complexities of multiple systems create inefficiencies and limits sharing information between TMCs to verbal communication. Additionally, operators must be trained on several systems. And, finally, it is not possible to provide a consistent, automated response to incidents when using disparate systems.

6.3 NEW CUSTOM ATMS SOFTWARE

Designing and developing a custom ATMS software was strongly considered as an alternative. A significant positive aspect is that PennDOT could specify the exact software needs and retain total ownership of the software product. Potential negative aspects of this approach include extending the implementation schedule (at least six months to one year would be needed just for design) and significant (twice or more) cost increase. While we recommend that additional primary research is completed through direct interaction with potential vendors, our secondary research indicates that there are several fully developed ATMS software packages that could meet 70 percent or more of the project goals, immediately.

6.4 EXISTING ATMS SOFTWARE PACKAGES (AS-IS)

Several existing ATMS software packages were examined and compared to the Use Case Scenarios described in this Concept of Operations. While some packages seem to meet many of the basic needs, it was not clear if any existing ATMS software packages met all of PennDOT's goals. Further, our research and experience shows that existing ATMS software packages do not exist in the pure sense since each installation has unique needs. In our opinion, existing ATMS software package implies that each installation uses the same software

and that the software can be installed by an end user. Our research indicates that the vast majorities of ATMS installations have customized software and require significant time by the vendor on-site to configure the installation.

6.5 EXISTING ATMS SOFTWARE PACKAGE (PLANNED ENHANCEMENTS)

In reviewing the alternatives, it is our opinion that this option represents both the best value for PennDOT and the highest probability of success. Our preliminary research indicates that several vendors have existing ATMS software that appears to meet 70 percent or more of the requested functionality. This approach has the dual key advantages of both utilizing a product which is based on a proven solution, and providing the foundation for enhancements to meet the PennDOT specific requirements. The only pitfall of this approach lies with potential legal issues surrounding intellectual property (i.e. licenses, ownership, etc). However, due to the number of states following this approach it is our belief that by involving PennDOT's legal department early in the procurement process, this potential issue can be managed.

6.0 USER-ORIENTED OPERATIONAL DESCRIPTION

PennDOT currently has various ATMS software deployed throughout the Commonwealth. In general, this software allows operators to perform the following basic tasks:

- Track and manage incident and event information;
- Advise the public of incidents (VMS, HAR, Internet); and
- View current traffic conditions (CCTV, Vehicle Detectors).

Currently, limited information is exchanged between Districts. Typical stakeholders include traffic operation and maintenance personnel. These personnel typically are computer literate, but have limited training on both software development and/or network design.

Additional information is available in the Concept of Operations document referenced above.

7.0 SYSTEM OVERVIEW

The final system will be used by one (1) to twelve (12) people at each District, 365 days per year, 24/7. Users shall be capable of simultaneously accessing any element of the system that they have the privilege to access. Some critical elements of this design will include:

- Detailed system documentation, including a user interface design, database design;
- A modular design, based on well defined and open interfaces;
- Modules can be installed, removed, activated or deactivated without affecting other running modules;
- The interface between modules shall be well defined and open;
- Web Based Operator Interface;
- Scalable, expandable design;
- Utilize Windows or Linux based hardware;
- Adhere to the latest industry standards;
- Follow the SIE CMMI model;
- Follow the regulations set forth in the Right-to-Know Law Policy effective January 1, 2009; and
- Adhere to the rules established by the Information Technology Bulletin (ITB).

8.0 OPERATIONAL ENVIRONMENT

The operational environment of the new system will consist of a central database located at the Pennsylvania Department of Transportation (PennDOT) Central Office in Harrisburg. The system will improve statewide coordination by providing a statewide platform to enable the information flow to and from all Districts. Additionally, a centralized database will improve data consistency and provide statewide reporting capabilities.

9.0 SUPPORT ENVIRONMENT

It is anticipated that each District will have technical resource personnel who will receive basic troubleshooting training on database and computer networks. This will be supplemented by staff at the Central Office. The selected Contractor will assume the primary support role for the custom application, where Central Office will assist with general hardware and software repairs. Continued maintenance and support is to be provided by the Contractor software development company that designs the statewide ATMS software.

10.0 REQUIREMENTS

11.1 HIGH LEVEL BUSINESS REQUIREMENTS

The business requirements were developed as part of the systems engineering process for the Statewide ATMS ITS Architecture. The business requirements describe in business terms what must be delivered or accomplished to provide value. The scenarios developed and agreed upon during the Concept of Operations (Rev. 4 dated October 15, 2010) were used to develop the business requirements, and the traceability from the scenario number to the business requirement is shown in the table below. Additionally, each business requirement is mapped to project Goals and Objectives in the Traceability Matrix (**Appendix X of the RFP**).

Since this document focuses on needs that were identified as fundamental to the implementation of ATMS software, the business requirements are focused on the initial deployment (I) or Phase 1-3 project activities and are deemed necessary. The future deployment (F) activities will be part of Phase 4 of the project.

ID	TITLE	BUSINESS REQUIREMENT DESCRIPTION	CONOPS SCENARIO	Phases	Criticality and Priority
BR01	Reliable	The ATMS software shall be designed to run 24 hours a day, 7 days a week, 365 days a year.	11	I	Crucial, High
BR02	Detect Traffic Issues	Utilizing real time vehicle detector and vehicle probe data, the ATMS software shall automatically alert operators of potential traffic problems quickly. CCTV will be used to verify potential traffic problems. Alerts may include but not be limited to audible, visual and text/email.	7, 8, 11, 12, 24, 48	I and F	Crucial, High
BR03	Response	PennDOT needs to provide consistent and planned responses to planned and unplanned events.	8, 9, 15, 16, 20, 21, 25, 26, 43	I and F	Crucial, High
BR04	Statewide Coordination	PennDOT needs a Statewide platform which will provide the means for information to flow to and from all Districts.	8, 13, 16, 21, 24, 25, 26, 33, 34, 43	I and F	Crucial, High
BR05	Interoperable	PennDOT must be able to transfer control of TMCs and equipment between Districts and other stakeholders identified as redundant locations, such as PennDOT Central Office.	5, 10, 14, 17, 22	I	Crucial, High

ID	TITLE	BUSINESS REQUIREMENT DESCRIPTION	CONOPS SCENARIO	Phases	Criticality and Priority
BR06	Secure	The ATMS software shall provide secure access for all approved users and stakeholders.	1, 2, 3, 4, 47	I	Crucial, High
BR07	Real-time Data	PennDOT must be able to collect, maintain and display real-time data from field devices and external sources.	11, 19, 27, 30, 37, 52	I and F	Crucial, High
BR08	Incidents	PennDOT must be able to manage incident activities from detection to resolution.	7, 8, 11, 12, 15, 16, 20, 21, 24, 36	I	Crucial, High
BR09	Administration	PennDOT must have the ability to administer and maintain the system. This includes adding new devices, troubleshooting the system, system backups, archiving data, purging data, and user and user group maintenance.	1, 2, 3, 4	I	Crucial, High
BR10	Traffic Planning	PennDOT shall be able to easily access and utilize all collected, stored and archived traffic data for traffic planning purposes (e.g. developing diversion routes and response plans).	8, 9, 11	I and F	Crucial, High
BR11	Information to the Public	PennDOT must be able to disseminate traffic information, including travel times, to the traveling public via 511, HAR and VMS.	8, 15, 16, 18, 19, 20, 21, 26, 36, 48, 52	I and F	Crucial, High
BR12	Information to Partners	PennDOT needs to provide partners with accurate real-time information to improve incident response and coordination. Information shall meet current ITS standards (NTCIP, TMDD and C2C) and any additional ITS standards that are established by PennDOT's Intelligent Transportation Program.	11, 16, 21, 36, 37	I and F	Crucial, High
BR13	User Interface	Traffic and equipment conditions will be viewable and controllable via a GIS map. Other alternatives, such as tables and tree views, shall be provided.	11, 16, 21, 24, 27, 36, 37, 46, 50	I and F	Crucial, High

ID	TITLE	BUSINESS REQUIREMENT DESCRIPTION	CONOPS SCENARIO	Phases	Criticality and Priority
BR14	Performance Measures	PennDOT must be able to utilize collected data to generate measurable performance metrics and reports. All data, excluding video, must be stored indefinitely.	11, 24	I	Crucial, High
BR15	Asset Management	PennDOT shall be able to view current and historical status of field devices (CCTV, HAR, VMS, detectors, etc.). In addition, a trouble ticket system, maintenance log, preventative maintenance system and a maintenance contractor tracking system shall be provided.	15, 16	I and F	Crucial, High
BR16	Maximize Existing Software	PennDOT must be able to use the ATMS to interface with PennDOT's existing software systems, including, but not limited to the Road Condition Reporting System (RCRS), HOV, Signal System, Emergency Pre-Emption, Transmit, High Winds, Anti-Icing, Truck Rollover, Ramp Meters, Pump Station Monitoring, Queue Detection, INRIX, GATIR (or current AVL solution), and the Platinum (HAR) Software.	11, 25, 26, 27, 37, 52	I and F	Crucial, High
BR17	ITB	The ATMS must be compliant with all of PennDOT's ITBs, SOPs and ITS policies and guidelines.	All	I and F	Crucial, High
BR18	Video Sharing	The ATMS software solution shall be capable of presenting video available through PennDOT's video sharing solution.	7, 10, 11, 12, 13, 24, 25, 28, 33, 34,	I and F	Crucial, High
BR19	Robust Solution	The ATMS software solution shall be secure, scalable, reliable, available (24x7), redundant, flexible, easy to maintain and provide interoperability.	All	I and F	Crucial, High
BR20	Configuration Management	The ATMS Contractor shall employ a thorough Configuration Management process and provide District-level specifics in terms of configuration and recovery procedures and	All	I	Crucial, High

ID	TITLE	BUSINESS REQUIREMENT DESCRIPTION	CONOPS SCENARIO	Phases	Criticality and Priority
		processes.			
BR21	Change Management	The ATMS Contractor shall employ a rigorous Change Management process. This process shall address project change control related, but not limited to, requirements, schedule, and resources, covering the entire change management life-cycle.	All	I	Crucial, High
BR22	Deployment Management	The ATMS Contractor shall provide deployment deliverable(s) which address Concept of Operations traceability, requirements traceability, scheduling, testing, rollback procedures, and user acceptance of the system.	All	I	Crucial, High

10.1.1. Detail Level Business Requirements

This section defines the business terms relevant to the solution. Business terms should include definitions of data elements important to the business whether they are provided on a form used by the business or entered into a system, names of other organizations that are important to the business area, names of systems and other equipment used by the staff, and other relevant terms.

Business Terms Glossary

REQ. ID (from High Level table)	BUSINESS TERM	ACRONYM OR ABBREVIATION	DEFINITION
ALL Business Requirements		Acronyms and Abbreviations	All Acronyms and abbreviations used within the High Level Business Requirements are Documented in **Appendix A: Glossary**.
BR02	Operator		Primary handler who monitors real-time traffic condition and status, and manages dispatch of and communication with Service Patrol vehicles, main point of contact for traffic updates to 3rd Parties
BR04, BR05	District		11 unique PennDOT Engineering Districts, each containing multiple counties.
BR07	Real time data		Data that is no more than 5 seconds old from the time that the ATMS solution receives the

			data.
BR11	511		Statewide phone and web-based traveler information system.
BR12	Intelligent Transportation		Use of electronics, communications or information processing to improve the efficiency or safety of highway surface transportation.
BR12	Intelligent Transportation Program		Department wide Program which provides communication and collaboration between Intelligent Transportation projects.
BR03, BR04, BR05, BR07, BR08, BR10, BR11, BR14, BR16	PennDOT		The operators and managers whose duties are involved with maintenance, incident response, traffic management, and the IT support staff supporting them.
BR12	(Business) Partners		All potential outside partners / business partners, including but not limited to Media Partners, MPOs/RPOs, etc.
BR16	Signal System		A signal system can be defined as either a 5 traffic signal system connected together or 1 system having 5 traffic signals connected

11.2 SYSTEM REQUIREMENTS

Within the subsequent tables each system requirement is mapped to the business requirements from the preceding section. Therefore each system requirement inherently is mapped to Concept of Operations scenarios as per the Traceability Matrix (**Appendix P of the RFP**).

11.2.1 PERFORMANCE REQUIREMENTS

The performance requirements include specific details about how well the ATMS software should perform. For example, usability, system availability, and reliability are considered performance requirements.

The following performance requirements are considered the minimum criteria that an ATMS software must meet in order to sufficiently satisfy the needs of PennDOT:

PR	BR	PERFORMANCE REQUIREMENT DESCRIPTION
PR01	BR07	Real-time is defined as data that is no more than 5 seconds old from the time that the ATMS solution receives the data. The ATMS software shall display data in real-time.
PR02	BR17, BR18	The ATMS software shall support display of streaming video at 21 to 150 kilobits/second.
PR03	BR07, BR15	The ATMS software shall process and display ITS field device status in real-time.
PR04	BR14, BR15	The ATMS software shall screen data transmitted from field sensor devices to verify its accuracy. Should data fall outside of the acceptable range, the ATMS software shall alert the user and log the alarm.
PR05	BR07, BR15	The ATMS software shall be capable of polling (i.e. issuing a remote request for information) the current status of any ITS field device. The time from when an ITS device issues the response to the ATMS displaying that information on the user's workstation shall be less than 5 seconds.
PR06	BR07, BR15	The ATMS software shall be able to receive an unsolicited communication from any device containing notification of a malfunction involving that device. (i.e. SNMP trap from DMS)
PR07	BR14, BR07, BR11,	The ATMS software shall process detection data in real-time, providing roadway congestion information for data distribution.
PR08	BR01, BR08	The ATMS software shall be designed and configured to support a continuous operation. Continuous is defined as to support a 24 hours a day, 7 days a week, 365 days a year. There shall be no scheduled downtime.
PR09	BR07, BR19	The ATMS software shall be capable of maintaining the performance level described with following number of devices: - 2,000 CCTV - 2,000 DMS - 2,000 Vehicle detector stations - 600 Ramp Meters - 6,500 Signal Systems (covering over 13,000 signals) (Numbers reflect no less than 100% growth over the next 5 years from the current installed base.)
PR10	BR02, BR07	The ATMS software map will display updates in less than 1 second to user commands (regardless of the zoom, pan, etc.).
PR11	BR07	The ATMS software shall not create additional lag time to sending or receiving data from the field devices (i.e. CCTV and DMS).

PR	BR	PERFORMANCE REQUIREMENT DESCRIPTION
PR12	BR07, BR11, BR15	The ATMS software shall be capable of receiving communication and issuing commands to all field devices in the system, regardless of device manufacturer.
PR13	BR01, BR19, BR22	The ATMS software solution must not be taken offline during scheduled maintenance and must be designed as a redundant system that can have upgrades, OS changes, etc. implemented first on one portion of the platform and then the other, without the application going offline.
PR14	BR01, BR19, BR22	The ATMS software solution must not undergo non-critical maintenance during a major winter event or traffic management incident. A documented process for obtaining PennDOT clearance to perform non-critical maintenance prior to start must be provided by the Contractor.
PR15	BR15	The ATMS shall be capable of communicating with devices regardless of the communication medium. For example, the same manufacturer's DMS may use dial-up in one district, serial communication in another, and TCP/IP at another.
PR16	BR01	The ATMS shall be designed and configured to work with the Systems Center Operations Manager (SCOM) to monitor system performance. Examples of monitoring include but are not limited to: CCTV camera feed connectivity, ATMS specific Windows service(s), DMS connectivity, log file(s) and any other piece of ATMS deemed essential to the continuous operation of ATMS.

11.2.2 INTERFACE REQUIREMENTS

The interface requirements detail how the ATMS software should interact with other PennDOT systems, such as RCRS and the AVL system.

The following interface requirements represent the minimum conditions that the ATMS software must meet in order to sufficiently satisfy the needs of PennDOT:

IR	BR	INTERFACE REQUIREMENT DESCRIPTION
IR01	BR10, BR11, BR15, BR16	The ATMS shall provide the ability to share data communicated from ITS field devices with other PennDOT software systems that require such data for purposes of congestion management, incident management, asset management, emergency management, or other valid applications. This data includes current / historic data and operational status of all devices.
IR02	BR02, BR04, BR07, BR17	The import/export feature shall accept/transmit data in a traffic management data dictionary (TMDD) compliant format, or some other open standard which must meet PennDOT approval.
IR03	BR02, BR04, BR07, BR16	Data received from external sources shall be available to the operator to be integrated with traffic volume and speed data collected from other PennDOT vehicle detection systems.
IR04	BR16	Individual steps in a response plan shall have the ability to access pre-planned route data from RCRS, and potentially other data systems, to provide information or instruction to the operator. Pre-planned routes will be imported for Phase 1.
IR05	BR16	RCRS will be the primary means to enter incident data. ATMS software will display incident locations on map and suggest response plans to operators based on incident location, duration and severity.
IR06	BR05	Any user with proper privileges on the PennDOT network will have access to complete functionality including the control of all equipment and the ability to print any report from data in the ATMS software.
IR07	BR15	The ATMS software shall be able to receive all available status and data from all capable field devices listed in the attached PennDOT ITS Equipment Inventory (**Appendix J of the RFP**).
IR08	BR02, BR04, BR07, BR17	The data retrieved from the field device in response to a current status request will comply with relevant NTCIP data definition and format standards, to the extent that the device is capable.
IR09	BR05, BR09 BR15	The ATMS software shall provide the administrator with the ability to make configuration changes to support equipment changes.
IR10	BR11, BR16	The ATMS software shall provide DMS information to the 511 system. DMS information shall include: • DMS ID

IR	BR	INTERFACE REQUIREMENT DESCRIPTION
		• Message • Message Activation Time • Message Deactivation Time • Message Priority Level
IR11	BR16	The ATMS software shall be capable of receiving detector and probe data from PennDOT's real-time traffic detector partners (such as INRIX and traffic.com).
IR12	BR16	The ATMS software shall receive status information (Active, Off, or Error), at a minimum, from the following systems: • Traffic Signal Systems (Districts 2-0 & 9-0) • Truck Roll Over System (District 12-0) • Truck Runaway System (District 9-0) • Low Visibility (District 9-0) • High Winds Detection System (District 9-0) • HOV / Gate Control (District 11-0) The ATMS software will allow for one-way communication with these systems. The ATMS software will receive basic alerts and monitoring information that will be displayed on the ATMS software map.
IR13	BR16	The ATMS software shall retain existing Highway Advisory Radio (HAR) and Beacon Control functionality currently available through the Platinum Software. Full control/viewing capabilities of all aspects of the existing HAR module must be replaced or integrated into the Statewide ATMS System.
IR14	BR16	The ATMS software shall receive pre-planned route data from RCRS. The ATMS software shall display the detour information as a layer on the Map.
IR15	BR16	The ATMS software shall allow for future integration of any or all of the following systems: • APRAS (Automated Permit Routing/ Analysis System) • ATR • Bluetooth Travel Time • CAD – 911 (Computer Aided Dispatch) • IDRum (Interactive Detour Route and Mapping) • RIMIS (Regional Integrated Multimodal Information Sharing) • STIP (Standalone Count Station) • WIM (Weight in Motion) • I-83 Queue Detection System • Emergency Pre-emption • CAVC (Continuous Automated Vehicle Classification) • Ramp Meters • MDSS (Maintenance Decision Support System) • RWIS (Roadway Weather Information System) • AVL (Automatic Vehicle Location) • Pump Station Monitoring System • Anti-Icing System • Crash Avoidance System

IR	BR	INTERFACE REQUIREMENT DESCRIPTION
IR16	BR16	The ATMS software shall be capable of sending messages via pagers, phones and e-mail.
IR17	BR16	The ATMS software shall retain existing HOV module functionality. Full control/viewing capabilities of all aspects of the existing HOV module must be replaced or integrated into the Statewide ATMS System. This includes, but is not limited to, opening/closing of the gates, changing the HOV sign status, changing Lane Control Sign status, and detecting wrong way vehicles. (Note: currently HOV module communicates with the administration and alarm subsystems in existing District 11 ATMS).
IR18	BR16	The ATMS software shall provide access to the HOV module from all workstations at the RTMC (the module should be accessible from the same workstations that access the new Statewide ATMS solution).
IR19	BR09	The system will interface with CA SiteMinder tool suite to leverage CWOPA credentials for user authentication, authorization and user administration.

11.2.3 HMI REQUIREMENTS

The HMI requirements describe how the Human Machine Interface (HMI) should respond and interact with the Operator.

The following HMI requirements represent the minimum conditions that the ATMS software must meet in order to sufficiently satisfy the needs of PennDOT:

HR	BR	HMI REQUIREMENT DESCRIPTION
HR01	BR13	At a minimum the following data elements shall be separate layers on the ATMS software user map interface: - State Routes, - Local Routes, - Road Classification, - Equipment Status, - Active RCRS Events selectable by event status as unique layers, - Planned Events, - Each equipment type shall have a separate layer, - PennDOT Snow Routes - 511 Routes - Road Condition reporting emergency routes Each layer can be turned on or off by the operator.
HR02	BR13	The ATMS software map shall have icons positioned to indicate the location of each field device. The device icons should look like the respective devices as per PennDOT preference, or another visual differentiation approved by PennDOT.
HR03	BR14, BR15	The ATMS software shall provide an interface for the user to list inventory of all available field devices. User can filter the list based on the device type, sub-type or corridor.
HR04	BR13	The ATMS software shall allow a user to activate control of a device by selecting it on the user interface. The complete device details shall also be displayed.
HR05	BR07, BR13	The ATMS software shall provide four equipment status types: standby (outlined in green), active (solid green), warning (solid yellow), and out of service (solid red). **Standby** = device is functioning by not currently being used **Active** = device is operating normally **Warning** = device is usable but has limited functionality and will require TMC staff field investigation and possibly maintenance contractor response. (a CCTV with video up but no zoom or pan/tilt functions; a DMS with a pixel error) **Out of Service** = device is currently off-line, not usable and has a plan/needs a plan in place for resolving the issue
HR06	BR13	The ATMS software shall allow the operators to configure the color of incident and device icons.

HR	BR	HMI REQUIREMENT DESCRIPTION
HR07	BR13	The ATMS software shall display the active incident information, CCTV snapshots and DMS and HAR messages by hovering over a device or displaying all active DMS, HAR and CCTV.
HR08	BR13	The ATMS software map shall provide an optional layer based on the standard PennDOT type 10 map which can be turned on or off by the operator.
HR09	BR13	The roadway network shown on the ATMS software map shall be based on PennDOTs roadway management system (RMS) used for all PennDOT Geographical Information System (GIS) applications (ie. RCRS roadway network).
HR10	BR13	The ATMS software map shall be based on Geographical Information System (GIS) Technology. The map shall include mile markers and exit numbers/names as a selectable layer.
HR11	BR16	The ATMS software shall facilitate displaying information from connected systems. For example, the APRAS system will allow the user to view roadway limitations like capacity (weight and height restrictions).
HR12	BR02, BR05, BR13	The ATMS software shall support dynamic scaling of all objects (menus, text etc.) on Web page based on the screen resolution. The target is 1024 x 768.
HR13	BR04, BR05, BR13	The ATMS software shall provide a method for taking control / handoffs of all TMCs equipment (DMS, CCTV & HAR) and open incidents / events. For example, the ATMS shall allow the handoff of one, multiple or all cameras in a District to another District. In addition, the ATMS software shall support the transfer of all TMC functions to another TMC.
HR14	BR13, BR16	The ATMS software shall display all active events (RCRS data) on the map. The ATMS software shall generate alerts of upcoming planned events that have been entered into the RCRS system.
HR15	BR06, BR13	The ATMS software screens shall display the login name of the user who is currently logged into the system.
HR16	BR13	The ATMS software shall display and provide access to Ortho-photography.
HR17	BR09	All routine administrative tasks shall be accomplished using the ATMS software user interface (i.e., no direct manipulation of the database, configuration files, etc). System administrative tasks include, but are not limited to, the addition of new ITS devices (where a device driver already exists) and user group configuration.
HR18	BR02, BR07	Using data from vehicle detector and vehicle probe data sources, the ATMS software shall display traffic speeds based on defined thresholds. The speeds shall be displayed in various colors based on the defined thresholds (i.e., green, yellow, red)

11.2.4 DATA REQUIREMENTS

The data requirements identify data elements and define the system.

The following data requirements represent the minimum conditions that the ATMS software must meet in order to sufficiently satisfy the needs of PennDOT:

DR	BR	DATA REQUIREMENT DESCRIPTION
DR01	BR07, BR14, BR17	The ATMS software shall have a database in which collected data and system activity is automatically tracked and recorded.
DR02	BR02, BR14, BR17	The ATMS software shall recognize and record in the activity log all proprietary warnings, alarms, and status transmissions from each device.
DR03	BR07, BR14, BR17	The ATMS shall support an industry standard relational database management system (RDMS), unless proven that a proposed proprietary database is robust enough and meets the actual functionality as documented within these requirements.
DR04	BR07, BR14, BR17	The ATMS software shall support importing and exporting of system data. For example, data can be exported to Excel.
DR05	BR07, BR14, BR17	The ATMS software shall store data collected in a relational database that can be accessed and queried to develop custom reports.
DR06	BR14, BR17	The ATMS software shall provide users the capability to export edited vehicle classification data from detectors that are equipped for vehicle detection. The edited vehicle classification data shall be in the format specified in the Traffic Monitoring Guide (May 2001) representing the 13 vehicle classifications recommended by the FHWA.
DR07	BR14, BR17	The ATMS software shall record user entry and exits, and denial or authorization of access to services. The ATMS shall log all user activities.
DR08	BR14, BR17	Passwords, if stored within the ATMS software, are not in clear text, but encrypted.
DR09	BR07, BR10, BR14, BR16, BR17	The ATMS software shall collect current and historical road information from the sources listed in the interface section. This information shall be used by the operator to more effectively manage incidents and congestion.
DR10	BR03, BR14	The ATMS software shall allow for the collection and storage of maintenance and construction information for use by operations personnel or data archives in the region.
DR11	BR09	Error and log messages generated and stored by the ATMS software solution are in clear plain text. For example, stored in a human readable format and shall not use any cryptic information, i.e. instead of “Error Code #N” state “Database Error”.

DR	BR	DATA REQUIREMENT DESCRIPTION
DR12	BR06, BR09	The ATMS software shall allow multiple people to work on the application without adversely affecting one another. It provides the ability to control who does what to a site by restricting capabilities based on individual's roles.
DR13	BR09	The ATMS software shall have the ability to backup, purge and restore the database and virtual system images in an automated manner.
DR14	BR10, BR14	The ATMS software shall have the ability to store historical ITS information for future analysis and reporting.
DR15	BR09	The ATMS software shall have multiple stages of archiving. A local archive shall retain information for a user defined period of time, no greater than 2 months. A permanent archive shall retain data in an external network for a user-defined period of time.
DR16	BR06, BR17	The ATMS software shall use PennDOT authentication and as a user store (CWOPA). The ATMS software shall utilize LDAP and/or Siteminder for authentication.
DR17	BR17	The ATMS software solution shall be capable of transmitting information, data and requests securely using 128 bit or 256 bit SSL to department or external resources as required.
DR18	BR06, BR17	The ATMS software shall require a single user sign-on (support LDAP) for the complete management of incidents and field devices.
DR19		The ATMS software shall be capable of assigning each user to a user group or access level. An Administrator shall be capable of selecting the access levels and functionality available to each user.

11.2.5 ENABLING REQUIREMENTS

The enabling requirements describe the means to operate the system.

The following data requirements represent the minimum conditions that the ATMS software must meet in order to sufficiently satisfy the needs of PennDOT:

ER	BR	ENABLING REQUIREMENT DESCRIPTION
ER01	BR05, BR09, BR12, BR17	The ATMS software shall expose data (input and output) through Web Services.
ER02	BR05, BR09, BR17	The ATMS software shall be modular and expose data (input and output) through well defined API.
ER03	BR09, BR19	The ATMS software shall allow for the development of extensions to the product using Java, C# or VB.NET.

ER	BR	ENABLING REQUIREMENT DESCRIPTION
ER04	BR07, BR17	The ATMS software shall be configured for 99.999% uptime.
ER05	BR17	All ATMS software components shall be cluster-able across multiple servers.
ER06	BR17	The ATMS software shall support load-balanced Web farms for maximum scalability and availability using any industry standard software or a hardware-based load balancing technology. The ATMS software needs to work with multiple web servers in a load balanced manner. The ATMS software should not require Sticky sessions.
ER07	BR09, BR17	The ATMS software shall allow for the selective turn-on / turn-off facilities (page, application, or data source level). The ATMS software shall provide the ability to take application components offline without affecting the server or requiring the shutdown of a node in the cluster. The ATMS software shall provide automated restart and recovery (application resiliency).
ER08	BR17	The ATMS software shall provide monitoring and logging capabilities that can be configured to alert Operations of the operational status of the application component.
ER09	BR17	The ATMS software shall work seamlessly with industry standard clustering solutions for database high availability.
ER10	BR17	The ATMS software shall log system and portlet activity including detailed bandwidth usage reports.
ER11	BR17	The ATMS software shall allow for all server software to run as a service or component (i.e., does not require someone to log in at the console and start up the application manually).
ER12	BR17	The ATMS software shall be able to start ATMS components in any order (if a component is started or restarted, related systems will wait rather than fail).
ER13	BR17, BR19	The ATMS software shall provide the ability to scale hardware through direct support for multiple CPUs within the same physical server.
ER14	BR17	The ATMS software shall provide the ability to deploy new functionality and content into the production environment but still only accessible to test users.
ER15	BR09, BR20, BR22	The ATMS software shall allow the Commonwealth to be able to roll back to previous states of the functionality (versions), once a version, upgrade, patch or fix is deployed to production.
ER16	BR17, BR22	The ATMS software shall provide tools that can be published to staging servers for testing prior to production.

ER	BR	ENABLING REQUIREMENT DESCRIPTION
ER17	BR17	The ATMS software shall provide tools that can be published to multiple servers for site mirroring and replication.
ER18	BR09, BR17	The ATMS software shall allow for an open API to support automation for deployment and configuration of product components.
ER19	BR17	The ATMS software shall be capable of being executed in a virtualized deployment environment (e.g. VMWare).
ER20	BR09	The ATMS software shall provide the ability to support multiple administrators across the Commonwealth (minimum of 20 concurrent administrators.) This includes multiple logins per District to account for shift changes and back up resources.
ER21	BR09, BR19	The ATMS Contractor shall work with the Department to establish and shall follow disaster recovery procedures to have the application restored again as soon as possible.
ER22	BR09	The ATMS software shall provide an automated process to reload/recover the ATMS application code and related databases.
ER23	BR17	The ATMS software shall be a client / server architecture implementing a thin-client, web-based user interface. No custom software shall be required to be installed on operator workstations.
ER24	BR17	The ATMS software will support anti-virus software and be configured to receive operating system security updates.
ER25	BR19	The ATMS software solution shall be compatible with existing PennDOT servers, or The Contractor shall provide a transition plan if the Contractor makes recommendations of server changes, or total replacement of current architecture.
ER26	BR19	The ATMS software shall provide the ability to support 100 simultaneous users. This includes multiple logins per District to account for shift changes and back up resources.

11.2.6 FUNCTIONAL REQUIREMENTS

The functional requirements describe the tasks that the ATMS software must perform to provide PennDOT with the functionality needed to perform daily routines. Functionality is identified by the major ATMS software components.

11.2.6.1 Vehicle Detectors

FDC	BR	FUNCTIONAL REQUIREMENTS – VEHICLE DETECTORS	SCENARIO
FDC01	BR02, BR13	The ATMS software shall have the ability to display the alarm nature and location on a GIS based map application.	24
FDC02	BR07, BR10, BR12, BR13, BR14	The ATMS software shall receive the current data transmission from each vehicle detector at regular time intervals. The ATMS software shall also receive vehicle probe data and other traffic data sources as they become available.	11
FDC03	BR02, BR13	The ATMS software shall maintain ranges of average traffic speed to indicate four (4) levels of traffic flow: Free Flowing, Slow, Congested and no information.	11
FDC04	BR13	The ATMS software shall represent each vehicle detector as a link on a GIS map which is color-coded to indicate the traffic flow.	11
FDC05	BR02	The ATMS software shall employ an algorithm to evaluate vehicle detector data and determine the presence of a potential incident.	11
FDC06	BR02, BR08	Upon positive detection, the ATMS software shall activate an alarm to alert the operator. Potential incidents shall remain in a separate list and will not be assigned as an incident until after positive confirmation by an operator.	24
FDC07	BR02	When a potential incident notification is triggered, several selectable user actions within the ATMS software shall be activated including aiming the nearest CCTV camera in the direction of the sensor that signaled the incident or moving video of the nearest camera onto the video wall. The ATMS software shall provide a mechanism to turn these features on or off.	24
FDC08	BR02	The ATMS software solution vehicle data shall include volume, speed, classification and occupancy, depending on the capabilities of the source element.	11

FDC	BR	FUNCTIONAL REQUIREMENTS – VEHICLE DETECTORS	SCENARIO
FDC09	BR07, BR16	The ATMS software shall integrate the data from all sources listed under interface requirements to compute and display current traffic conditions.	11
FDC10	BR07, BR10	The ATMS software shall compare the real-time traffic speed to the historic average traffic speed for that time of day, day of week, day of month, holidays and special events.	11

11.2.6.2 CCTV

FCC	BR	FUNCTIONAL REQUIREMENTS - CCTV	SCENARIO
FCC01	BR02, BR08	The ATMS software shall allow Administrators to save camera presets for each PTZ camera including a location description. A preset camera position shall consist of a pan angle, tilt angle, zoom setting, focus setting and a title that is superimposed on the image.	7
FCC02	BR02, BR08	The ATMS software shall allow at least 25 preset camera positions for any Pan-Tilt-Zoom (PTZ) camera.	7
FCC03	BR02, BR08	The ATMS software shall support screen titles for at least 16 zones for each PTZ camera, such that the camera image displays the zone name whenever the camera is aimed anywhere in the zone, unless the camera has been commanded to a preset view.	7
FCC04	BR02, BR08, BR18	The ATMS software shall be capable of accessing the video stream of a camera from a designated video distribution system where the ATMS software is installed.	12
FCC05	BR02, BR08, BR18	The ATMS software shall provide the user the ability to select any camera view to be displayed on any monitor controlled by the user's video switch.	12
FCC06	BR02, BR08	The ATMS software shall allow an authorized user to control the camera by adjusting the camera's pan, tilt, zoom, presets, iris and focus controls in the current view via joystick or keyboard, including but not limited to joystick keyboard and virtual joystick/mouse control	12
FCC07	BR02, BR08	The ATMS software shall provide an authorized user the ability to create and edit video tours, consisting of a sequence of feeds from various cameras, using preset pan-tilt-zoom settings for each camera in the sequence.	12
FCC08	BR04, BR05	The ATMS software shall allow Operators to share control of CCTV within a TMC. Share of control will be based on a specified time-out period as well as user level. A user with higher user privileges can assume control from a user with lower privileges.	13
FCC09	BR04, BR05, BR18	The ATMS software shall allow Operators to access the designated video distribution system and block video from view of selected outside sources.	33
FCC10	BR02	When a potential incident notification is triggered, the ATMS software solution shall aim the nearest CCTV	24

FCC	BR	FUNCTIONAL REQUIREMENTS - CCTV	SCENARIO
		camera in the direction of sensor that signaled the incident. The ATMS software shall provide a mechanism to turn this feature on or off.	

11.2.6.3 Incident Management

FIM	BR	FUNCTIONAL REQUIREMENTS – INCIDENT MANAGEMENT	SCENARIO
FIM01	BR03, BR10, BR16	The ATMS software shall allow Administrators to utilize diversion routes from RCRS that are location-based. Each route shall be color-coded based on the location and direction as defined by PennDOT. By selecting links and/or roadways that will be used as a diversion route.	9
FIM02	BR14	The ATMS software congestion metric computed shall include, but not necessarily be limited to: Roadways Congestion Index (RCI) (as defined by the Texas Transportation Institute), Travel time, Travel time index, Planning time index, Buffer index, Incident Duration, and Segment delay.	24
FIM03	BR14	The ATMS software congestion metric reporting shall be available at the following levels: Segments, Interstate/Freeway/State Road, Municipality, County, District, and Statewide.	24
FIM04	BR03	Where sufficient data is available, the ATMS software shall classify delay time according to current RCRS nomenclature.	25
FIM05	BR16	The ATMS software shall display RCRS incident and condition information in the ATMS software and on the ATMS Map.	11
FIM06	BR03	The ATMS software shall notify the operator when pre-planned detour routes are compromised by routine maintenance or other activities.	28
FIM07	BR03, BR04	The ATMS software shall allow Administrators to create and manage a contact list and schedule. Based on working and non-working shift, available personnel will be displayed.	43

11.2.6.4 Response Plans

FRP	BR	FUNCTIONAL REQUIREMENTS – RESPONSE PLANS	SCENARIO
FRP01	BR03, BR04, BR08,	The ATMS software shall allow for center-based capability to formulate an incident response that takes into account the incident duration, total road and lane closures.	8
FRP02	BR03, BR10	The ATMS software shall enable the user to define “response plans” that utilize any combination of devices and order of activation to automatically respond to an incident or any event.	8
FRP03	BR03, BR08	The ATMS software response plans shall consist of a pre-programmed sequence of suggested Operator actions devised as a standard response to a particular type of event.	8, 26
FRP04	BR03, BR08, BR11	Individual steps in the ATMS software response plans shall have the ability to activate specific roadside devices automatically (after operator approval), such as posting a pre-defined message to a DMS.	8, 16, 26
FRP05	BR03	Some individual steps in the ATMS software response plans shall be informational – for example, instructing the operator to contact State Police.	8, 26
FRP06	BR03	The ATMS software shall allow a user to create, edit, and save a library of response plans.	8, 26
FRP07	BR03	The ATMS software library shall be searchable by title text and any other information associated with the response plan.	26
FRP08	BR03	The ATMS software users shall have the ability to deactivate the response plan and restore the system to its previous state.	26
FRP09	BR03	The ATMS software users shall have the ability to skip any step in the response plan.	26
FRP10	BR03, BR08	The ATMS software user shall be able to activate a response plan in 2 ways: as an action in response to managing an active incident (icon in incident entry form) or by selecting a link and requesting a new response plan based on location.	8

FRP	BR	FUNCTIONAL REQUIREMENTS – RESPONSE PLANS	SCENARIO
FRP11	BR03, BR08, BR11, BR14	The ATMS software actions available for use in a response plan shall include: activation of roadside devices (i.e. - posting a predefined message to a DMS), Providing information or instruction to an operator's screen (i.e. - instructing the operator to contact the State Police), activation of a diversion route, sending an e-mail, fax, text message, or page, Issuing a command to the Road Closure Reporting System to modify a road status, Generation of a pre-defined report.	26
FRP12	BR03, BR10	The ATMS software shall allow Administrative users to create existing or configure new response plans, which shall be configured by: Location, Severity, Upstream Distance, and Individual devices.	8
FRP13	BR03	The ATMS software shall prompt the operator to confirm the automatic cancellation of associated equipment activation when incident is closed.	26
FRP14	BR03	All devices in the ATMS response plans shall be displayed, selectable and configurable by an authorized user.	26
FRP15	BR03, BR08	The ATMS software vendor must provide functional details of the proposed software, documenting if the solution is an intelligent engine generating statistically driven responses, and not solely a protocol based response.	26
FRP16	BR03, BR08	The ATMS software shall provide optional response plans for areas that may not have predefined responses.	26

11.2.6.5 DMS

FDM	BR	FUNCTIONAL REQUIREMENTS – DMS	SCENARIO
FDM01	BR11	The ATMS software shall provide the user the capability to create a message for display on a DMS.	15
FDM02	BR03, BR11	The ATMS software shall enforce the same constraints on the user's message that exist for the selected DMS regarding: allowable set of characters, number of lines of text, number of characters per line and fonts.	15, 16
FDM03	BR03, BR17	The ATMS software shall maintain a list of forbidden words. The ATMS software shall prevent a message containing any word on the forbidden list from being posted on any DMS device. The ATMS software shall provide a facility for an authorized user to modify the list of forbidden words.	15
FDM04	BR03	The ATMS software shall provide the user the capability to create, edit and save messages in a message library.	15, 16
FDM05	BR03, BR11	When prompted by the user, the ATMS software shall activate the message on the selected DMS device(s).	16
FDM06	BR03, BR11	The ATMS software shall allow the user to specify any number of DMS devices to receive a given message.	16
FDM07	BR03, BR11	The ATMS software shall provide the user the capability to remove a message from one or more DMS.	16
FDM08	BR03, BR11	The ATMS software shall confirm that the proposed message, specified by the user, has been properly posted to the DMS device(s) selected by the user.	16
FDM09	BR11, BR15	The ATMS software shall allow the user to perform remote maintenance, such as pixel tests, to check for outages of individual pixels.	19
FDM10	BR11, BR14	The ATMS software shall maintain a history of all DMS messages that have been activated along with the user name and time when it was activated.	19
FDM11	BR11	The ATMS software shall provide the user the capability to manually control the brightness of a DMS device display.	19
FDM12	BR03, BR11, BR13	Messages posted on a DMS shall appear on the ATMS software graphical user interface along with the icon representing the device. A mouse over function will provide message information and an accurate	16

FDM	BR	FUNCTIONAL REQUIREMENTS – DMS	SCENARIO
		representation of the current message.	
FDM13	BR11, BR13	The ATMS software shall provide the user the ability to access the DMS from a map, table or tree view type list.	16
FDM14	BR11	The ATMS software shall allow Operators to blank (command) a DMS.	16
FDM15	BR11, BR17	This ATMS software management functionality shall support the ability to prioritize and schedule messages.	15, 16
FDM16	BR07, BR11	The ATMS software shall be capable of automatically updating messages based on data such as Travel Time or Detector Speed.	19
FDM17	BR09	The ATMS software shall allow a user with Administrative privileges to configure the number of times that the ATMS software will attempt to resend a message to a DMS if there is a communication failure.	16
FDM18	BR09, BR11	If a communication failure occurs when sending a message to a DMS, the ATMS software will attempt to resend the message for the number of times that have been configured by an Administrative user.	16
FDM19	BR11	The ATMS software will notify the user if a message was not successfully posted to the selected DMS(s) within a specified number of attempts to post the message.	16
FDM20	BR11	Some PennDOT Districts use over 44 different DMS with different fonts and configurations; therefore, the ATMS software shall allow for an efficient method of creating, editing and activating messages to multiple sign types. For example, the ATMS software shall allow the operator to edit and reactivate a message that is displayed on any PennDOT DMS.	16

11.2.6.6 HAR

FHR	BR	FUNCTIONAL REQUIREMENTS - HAR	SCENARIO
FHR01	BR03, BR08	The ATMS software shall retain existing Highway Advisory Radio (HAR) and Beacon Control functionality currently available through the Platinum Software. Full control/viewing capabilities of all aspects of the existing HAR module must be replaced or integrated into the Statewide ATMS System.	20, 21
FHR02	BR03, BR11, BR17	The management functionality provided by the ATMS software shall support the ability to: Predefine and store messages, select and activate predefined messages, activate operator entered messages, prioritize and schedule messages, verify current status.	20, 21
FHR03	BR11	The ATMS software shall allow the user to specify any number of HAR devices to receive a given message.	21
FHR04	BR11	The ATMS software shall provide the user the capability to remove a message from one or more HAR.	21
FHR05	BR11	The ATMS software shall confirm that the proposed message, specified by the user, has been properly posted to the HAR device(s) selected by the user.	21
FHR06	BR11	The ATMS system shall allow the user to listen to the message being broadcast by a given HAR.	21
FHR07	BR05	The ATMS software shall allow Operators to share HAR control within a TMC.	23
FHR08	BR11	The ATMS software shall allow Operators to activate/deactivate HAR Beacons individually or as a group.	26

11.2.6.7 AVL

FAV	BR	FUNCTIONAL REQUIREMENTS - AVL	SCENARIO
FAV01	BR13, BR16	The vehicle location data displayed on the ATMS software map shall consist of, at a minimum, vehicle type, vehicle identifier, GPS coordinates, and the time of day that the data was collected. Data can be filtered by the ATMS operator based on vehicle type or identifier.	27, 37
FAV02	BR16	The ATMS software shall allow Operators to view winter road maintenance vehicles.	27
FAV03	BR07	The ATMS software shall allow Operators to view Service Patrol Vehicles.	37
FAV04	BR07, BR13, BR16	The ATMS software shall display vehicle location data real-time.	27, 37
FAV05	BR13	The ATMS software shall not store historical vehicle location data within the ATMS software database.	27, 37

11.2.6.8 TRAFFIC SIGNAL TIMING

FST	BR	FUNCTIONAL REQUIREMENTS – TRAFFIC SIGNAL TIMING	SCENARIO
FST01	BR16	The ATMS software shall allow operators to manage HOV lanes. This includes remotely controlling traffic signal controllers to implement traffic management strategies at signalized intersections based on traffic conditions, incidents, emergency vehicle preemptions, pedestrian crossings, etc.	28, 39, 40
FST02	BR16	The ATMS software shall allow Operators to view the status of Traffic Signal Timing systems.	28
FST03	BR16	The ATMS software shall allow the user to select from a library of pre-set timing plans from the signal software or return to normal operation.	28
FST04	BR16	The ATMS software shall confirm that any commands specified by the user have been properly accepted by the specified signal control system.	28
FST05	BR13	Signal plans that are active in the ATMS software shall be represented on the graphical user interface.	28

FST	BR	FUNCTIONAL REQUIREMENTS – TRAFFIC SIGNAL TIMING	SCENARIO
FST06	BR	The ATMS software shall support users' management of signals within at a minimum the following three (3) categories of functionality: 1. Full Functionality (viewing and changing traffic signal timings) 2. Traffic Signal Monitoring (monitoring and viewing the operation to ensure that the signal is operating correctly) 3. Adaptive Control (monitoring and viewing existing traffic signal adaptive control software and algorithms)	

11.2.6.9 EQUIPMENT ADMINISTRATION / STATUS

FEA	BR	FUNCTIONAL REQUIREMENTS - EQUIPMENT ADMINISTRATION / STATUS	SCENARIO
FEA01	BR15	The ATMS software shall provide users the capability to generate a list of equipment and their status (e.g. successful or not successful) and equipment health for a selected date or date range. This can be user activated or scheduled, and must be confirmed by the user.	30
FEA02	BR09, BR15	The ATMS software solution shall provide a complete Web GUI for administration with online help. Agency administrators can then manage all aspects of the solution from their Web browsers.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 43
FEA03	BR09, BR15	The ATMS software shall allow Administrators to add or edit field devices' information in the system and the ATMS software map via the user interface.	5, 6
FEA04	BR09, BR15	The ATMS software shall provide the ability to adjust system parameters, which include but are not limited to Traffic (including travel time) thresholds that triggers incident detection, geographic boundary of incidents, incident types.	5, 6
FEA05	BR15	The ATMS software shall allow for monitoring and remote diagnostics of field equipment - detect failures, issue problem reports, and track the repair or replacement of the failed equipment.	31, 47
FEA06	BR15	The ATMS software database shall at a minimum store the itemized currently installed device inventory including name, manufacturer, make, model, device age, location, installation date, etc.	30, 46

FEA	BR	FUNCTIONAL REQUIREMENTS - EQUIPMENT ADMINISTRATION / STATUS	SCENARIO
FEA07	BR15	The ATMS software shall allow users to run reports on average device life, devices under warranty, devices under contractor maintenance period, etc.	30, 46
FEA08	BR15	The ATMS software shall allow users to edit maintenance related data fields to reflect real time change in maintenance service.	6, 46
FEA09	BR15	The ATMS software shall include asset management and an equipment trouble ticketing systems. The Offeror shall consider integrating existing PennDOT systems, such as Remedy and SAP.	6, 30, 31, 51

11.2.6.10 TRAVEL TIME

FTT	BR	FUNCTIONAL REQUIREMENTS - TRAVEL TIME	SCENARIO
FTT01	BR10, BR11	The ATMS software shall have the ability to use PennDOT detectors, other outside sources, vehicle probe data, and other data sources as they become available to compute a current estimated travel time between any pair of interchanges or devices as selected by the user.	19, 35
FTT02	BR11	The ATMS software shall automatically update the current estimated travel time on any DMS that are displaying travel time messages.	19, 35
FTT03	BR12	The ATMS software shall automatically update the current estimated travel times that are sent to outside partners.	19, 35
FTT04	BR07, BR10, BR16	The ATMS software shall compute the current length (distance) of congested traffic on a given route from a user-specified point, based on vehicle speed and/or occupancy data.	19, 35
FTT05	BR02, BR10	The ATMS software shall alert operators if travel times exceed a specified threshold.	19, 35

11.3 PERFORMANCE MEASURES

PMR	BR	PERFORMANCE MEASURES
PMR01	BR14	The ATMS software shall support extensive reporting capabilities. Sample reports have been assembled in **Appendix B: Sample Graphic Representations Of The Recommended Performance Metrics.**
PMR02	BR14	Contractor shall provide an additional twelve (12) reports which will be jointly designed with PennDOT as per the RFP requirements. Contractor shall develop report mock ups showing data mapping, logic and levels, (user authorization and drill down levels if applicable), for each report.
PMR03	BR14	The ATMS software shall provide the capability to filter data and generate reports by selecting and prioritizing any combination of data elements. For example, incident reports can be generated by date, time of day, road, district, etc.
PMR04	BR14, BR15	In addition to traffic related reports, the ATMS system shall be capable of generating system health reports (i.e. communication status, device status, equipment uptime).
PMR05	BR14	The ATMS system shall track actions and record operator information for all key events. These user logs shall be available to system managers.
PMR06	BR14	The ATMS system will also track automatic functions and errors and store this information in event logs, which shall be accessible to user.
PMR07	BR14	The ATMS software must provide PennDOT with the ability to create custom reports using industry standard tools (i.e. Crystal Reports or SQL Server Reporting Services.)
PMR08	BR08	The ATMS software shall timestamp and store all equipment activations, communications, notifications and other actions taken at all times.
PMR09	BR09	The ATMS software logs must be stored in a human readable format and shall not use any cryptic information, i.e. instead of “Error Code #N” state “Database Error”.
PMR10	BR14	Contractor shall provide use of existing canned reports, including schedulable reports, if applicable.

11.0 **VERIFICATION METHODS**

For each requirement, one of the following methods of verification will be identified:

- All functional requirements (11.2.6) and HMI requirements (11.2.3) shall be validated using the demonstration methodology. The contractor shall supply all test plans and scripts, which shall be executed by PennDOT during User Acceptance and Regional Acceptance testing. The results shall be compared to the expected outcome and the test will be evaluated accordingly. PennDOT reserves the right to perform Ad-Hoc testing and to bring in a third party to conduct the testing for PennDOT.

- Enabling, Performance, Interface and Data Requirements may require indirect testing using the analyze methodology. Those elements shall be demonstrated to meet the requirements indirectly through a logical conclusion or mathematical analysis of a result. E.g. Algorithms for congestion: the designer may need to show that the requirement is met through the analysis of count and occupancy calculations in software or firmware.

12.0 SUPPORTING DOCUMENTATION

Supporting documentation (i.e. sample reports) is included in **Appendix B.**

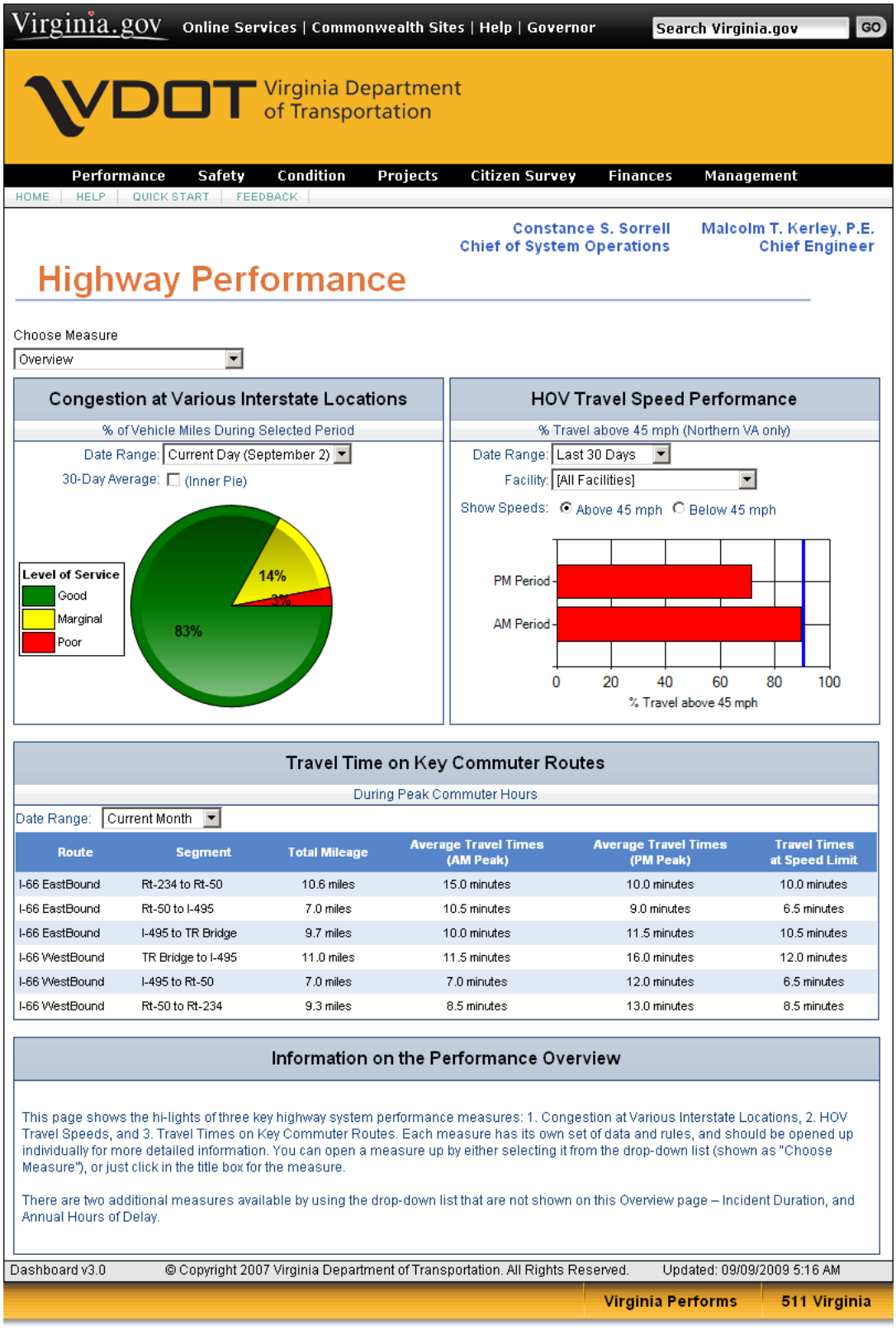
13.0 TRACEABILITY MATRIX

The traceability matrix is included in **Appendix X of the RFP**.

APPENDIX A: GLOSSARY

APRAS	Automated Permit Routing/ Analysis System
ATMS	Advanced Traffic Management System
ATR	Automatic Traffic Recorder
AVL	Automatic Vehicle Locator
BPR	PennDOT's Bureau of Planning & Research
C2C	Center-to-Center
CAD-911	Computer Aided Dispatch
CAVC	Continuous Automated Vehicle Classification
CCTV	Closed Circuit Television
CMMI	Capability Maturity Model Integration
ConOps	Concept of Operations
COTS	Commercial off the Shelf
CWOPA	Commonwealth of Pennsylvania Account
DMS	Dynamic Message Signs
DRJTBC	Delaware River Joint Toll Bridge Commission
DVRPC	Delaware Valley Regional Planning Commission
FHWA	Federal Highway Administration
GATIR	Geospatial Analysis of Threats and Incident Reports
GIS	Geographical Information System
GPS	Global Positioning System
GUI	Graphical User Interface
HAR	Highway Advisory Radio
HMI	Human Machine Interface
HOV	High Occupancy Vehicle
IDRum	Interactive Detour Route and Mapping
ITB	Information Technology Bulletin
ITS	Intelligent Transportation System
LDAP	Lightweight Directory Access Protocol
MDSHA	Maryland State Highway Authority
NJDOT	New Jersey Department of Transportation
NTCIP	National Transportation Communications for ITS Protocol
PEMA	Pennsylvania Emergency Management Agency
PennDOT	Pennsylvania Department of Transportation
PSP	Pennsylvania State Police
PTC	Pennsylvania Turnpike Commission
PTZ	Pan-Tilt-Zoom
RAID	Redundant Array of Inexpensive Drives
RCRS	Road Condition Reporting System
RCI	Roadways Congestion Index
RIMIS	Regional Integrated Multimodal Information Sharing
RWIS	Roadway Weather Information System
SEI	Software Engineering Institute
SNMP	Simple Network Management Protocol
SOP	Standard Operating Procedures
SSL	Secure Socket Layer

STIP	Standalone Count Station
TMC	Traffic Management Center
TMDD	Traffic Management Data Dictionary
VMS	Variable Message Signs
WIM	Weight in Motion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Constance S. Sorrell
Chief of System Operations
Malcolm T. Kerley, P.E.
Chief Engineer
Highway Performance
Choose Measure
Overview
Congestion at Various Interstate Locations
% of Vehicle Miles During Selected Period
Date Range: Current Day (September 2)
30-Day Average: (Inner Pie)
Level of Service
Good
Marginal
Poor
14%
3%
83%
HOV Travel Speed Performance
% Travel above 45 mph (Northern VA only)
Date Range: Last 30 Days
Facility: [All Facilities]
Show Speeds: Above 45 mph Below 45 mph
PM Period
AM Period
0
20
40
60
80
100
% Travel above 45 mph
Travel Time on Key Commuter Routes
During Peak Commuter Hours
Date Range: Current Month
Route
Segment
Total Mileage
Average Travel Times (AM Peak)
Average Travel Times (PM Peak)
Travel Times at Speed Limit
I-66 EastBound
Rt-234 to Rt-50
10.6 miles
15.0 minutes
10.0 minutes
10.0 minutes
I-66 EastBound
Rt-50 to I-495
7.0 miles
10.5 minutes
9.0 minutes
6.5 minutes
I-66 EastBound
I-495 to TR Bridge
9.7 miles
10.0 minutes
11.5 minutes
10.5 minutes
I-66 WestBound
TR Bridge to I-495
11.0 miles
11.5 minutes
16.0 minutes
12.0 minutes
I-66 WestBound
I-495 to Rt-50
7.0 miles
7.0 minutes
12.0 minutes
6.5 minutes
I-66 WestBound
Rt-50 to Rt-234
9.3 miles
8.5 minutes
13.0 minutes
8.5 minutes
Information on the Performance Overview
This page shows the hi-lights of three key highway system performance measures: 1. Congestion at Various Interstate Locations, 2. HOV Travel Speeds, and 3. Travel Times on Key Commuter Routes. Each measure has its own set of data and rules, and should be opened up individually for more detailed information. You can open a measure up by either selecting it from the drop-down list (shown as "Choose Measure"), or just click in the title box for the measure.
There are two additional measures available by using the drop-down list that are not shown on this Overview page – Incident Duration, and Annual Hours of Delay.
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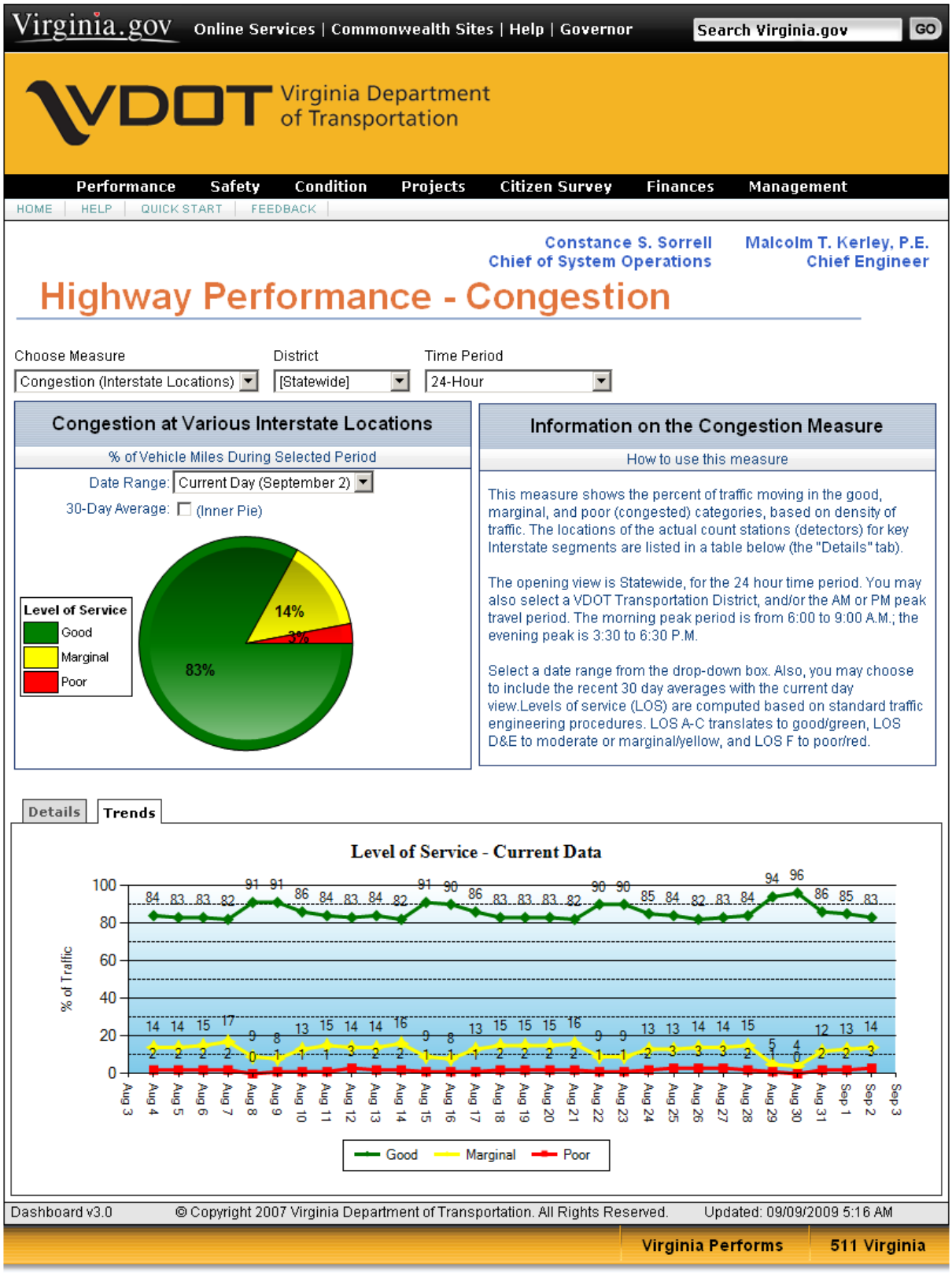
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Constance S. Sorrell
Chief of System Operations
Malcolm T. Kerley, P.E.
Chief Engineer
Highway Performance - Congestion
Choose Measure
Congestion (Interstate Locations)
District
[Statewide]
Time Period
24-Hour
Congestion at Various Interstate Locations
% of Vehicle Miles During Selected Period
Date Range:
Current Day (September 2)
30-Day Average:
(Inner Pie)
Level of Service
Good
Marginal
Poor
14%
3%
83%
Information on the Congestion Measure
How to use this measure
This measure shows the percent of traffic moving in the good, marginal, and poor (congested) categories, based on density of traffic. The locations of the actual count stations (detectors) for key Interstate segments are listed in a table below (the "Details" tab).
The opening view is Statewide, for the 24 hour time period. You may also select a VDOT Transportation District, and/or the AM or PM peak travel period. The morning peak period is from 6:00 to 9:00 A.M.; the evening peak is 3:30 to 6:30 P.M.
Select a date range from the drop-down box. Also, you may choose to include the recent 30 day averages with the current day view.Levels of service (LOS) are computed based on standard traffic engineering procedures. LOS A-C translates to good/green, LOS D&E to moderate or marginal/yellow, and LOS F to poor/red.
Details
Trends
Level of Service - Current Data
% of Traffic
Good
Marginal
Poor
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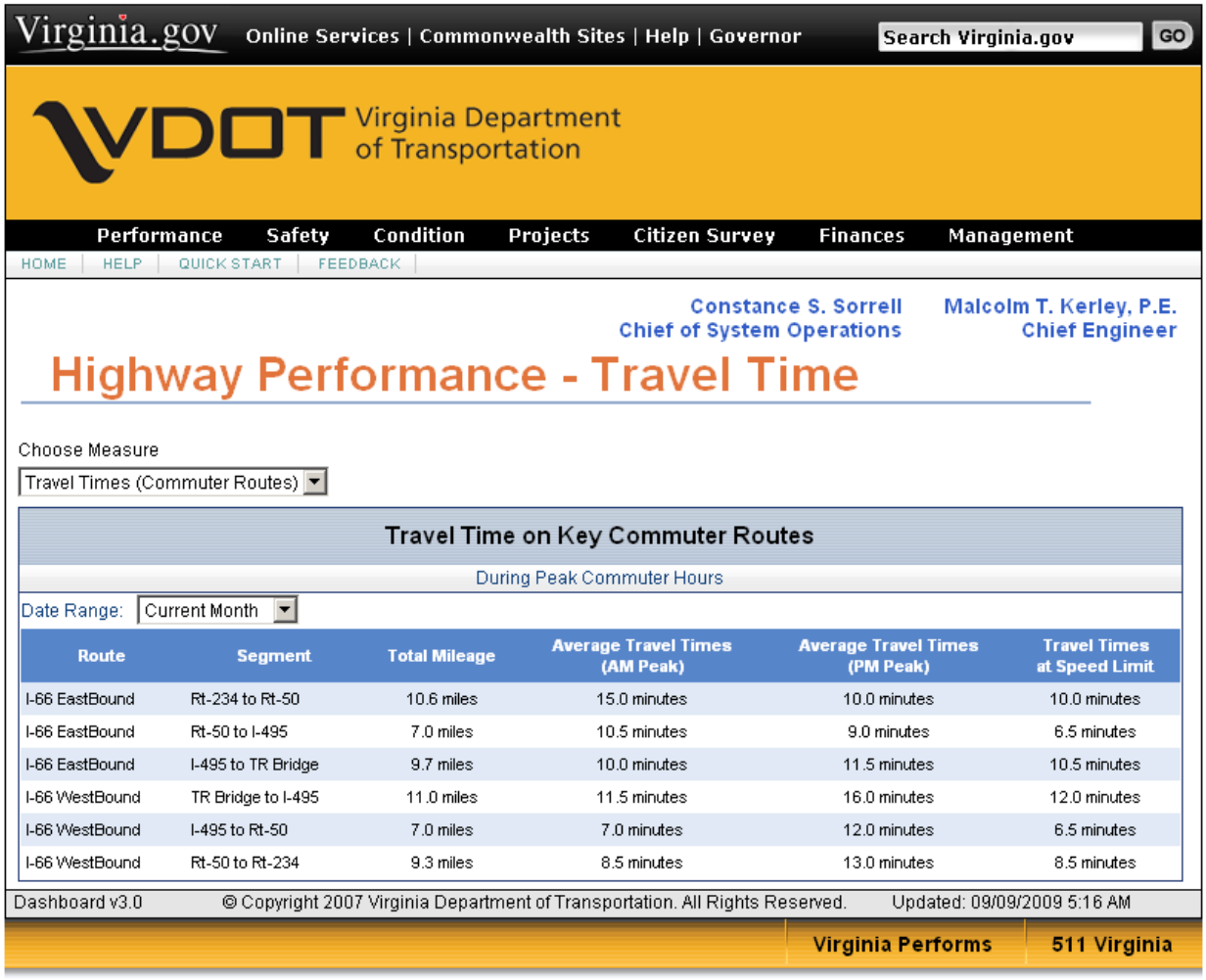

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Performance Safety Condition Projects Citizen Survey Finances Management

HOME | HELP | QUICK START | FEEDBACK

Constance S. Sorrell
Chief of System Operations

Malcolm T. Kerley, P.E.
Chief Engineer

Highway Performance - Travel Time

Choose Measure

Travel Times (Commuter Routes)

Travel Time on Key Commuter Routes

During Peak Commuter Hours

Date Range: Current Month

Route	Segment	Total Mileage	Average Travel Times (AM Peak)	Average Travel Times (PM Peak)	Travel Times at Speed Limit
I-66 EastBound	Rt-234 to Rt-50	10.6 miles	15.0 minutes	10.0 minutes	10.0 minutes
I-66 EastBound	Rt-50 to I-495	7.0 miles	10.5 minutes	9.0 minutes	6.5 minutes
I-66 EastBound	I-495 to TR Bridge	9.7 miles	10.0 minutes	11.5 minutes	10.5 minutes
I-66 WestBound	TR Bridge to I-495	11.0 miles	11.5 minutes	16.0 minutes	12.0 minutes
I-66 WestBound	I-495 to Rt-50	7.0 miles	7.0 minutes	12.0 minutes	6.5 minutes
I-66 WestBound	Rt-50 to Rt-234	9.3 miles	8.5 minutes	13.0 minutes	8.5 minutes

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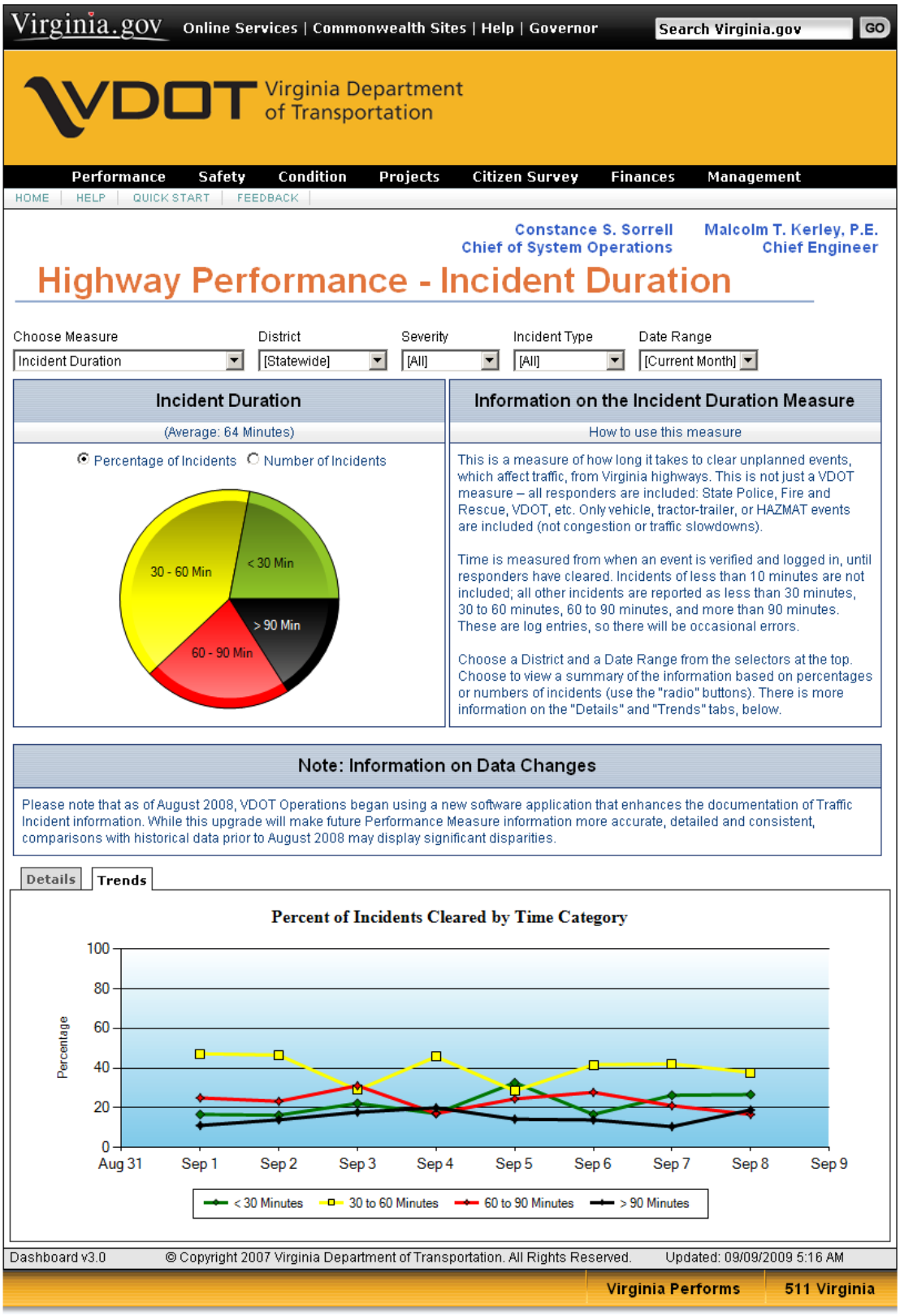
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VDOT Virginia Department of Transportation
Performance Safety Condition Projects Citizen Survey Finances Management
HOME HELP QUICK START FEEDBACK
Constance S. Sorrell
Chief of System Operations
Malcolm T. Kerley, P.E.
Chief Engineer
Highway Performance - Incident Duration
Choose Measure
Incident Duration
District
[Statewide]
Severity
[All]
Incident Type
[All]
Date Range
[Current Month]
Incident Duration
(Average: 64 Minutes)
Percentage of Incidents
Number of Incidents
30 - 60 Min
< 30 Min
> 90 Min
60 - 90 Min
Information on the Incident Duration Measure
How to use this measure
This is a measure of how long it takes to clear unplanned events, which affect traffic, from Virginia highways. This is not just a VDOT measure – all responders are included: State Police, Fire and Rescue, VDOT, etc. Only vehicle, tractor-trailer, or HAZMAT events are included (not congestion or traffic slowdowns).
Time is measured from when an event is verified and logged in, until responders have cleared. Incidents of less than 10 minutes are not included; all other incidents are reported as less than 30 minutes, 30 to 60 minutes, 60 to 90 minutes, and more than 90 minutes. These are log entries, so there will be occasional errors.
Choose a District and a Date Range from the selectors at the top. Choose to view a summary of the information based on percentages or numbers of incidents (use the "radio" buttons). There is more information on the "Details" and "Trends" tabs, below.
Note: Information on Data Changes
Please note that as of August 2008, VDOT Operations began using a new software application that enhances the documentation of Traffic Incident information. While this upgrade will make future Performance Measure information more accurate, detailed and consistent, comparisons with historical data prior to August 2008 may display significant disparities.
Details
Trends
Percent of Incidents Cleared by Time Category
Percentage
100
80
60
40
20
0
Aug 31
Sep 1
Sep 2
Sep 3
Sep 4
Sep 5
Sep 6
Sep 7
Sep 8
Sep 9
< 30 Minutes
30 to 60 Minutes
60 to 90 Minutes
> 90 Minutes
Dashboard v3.0
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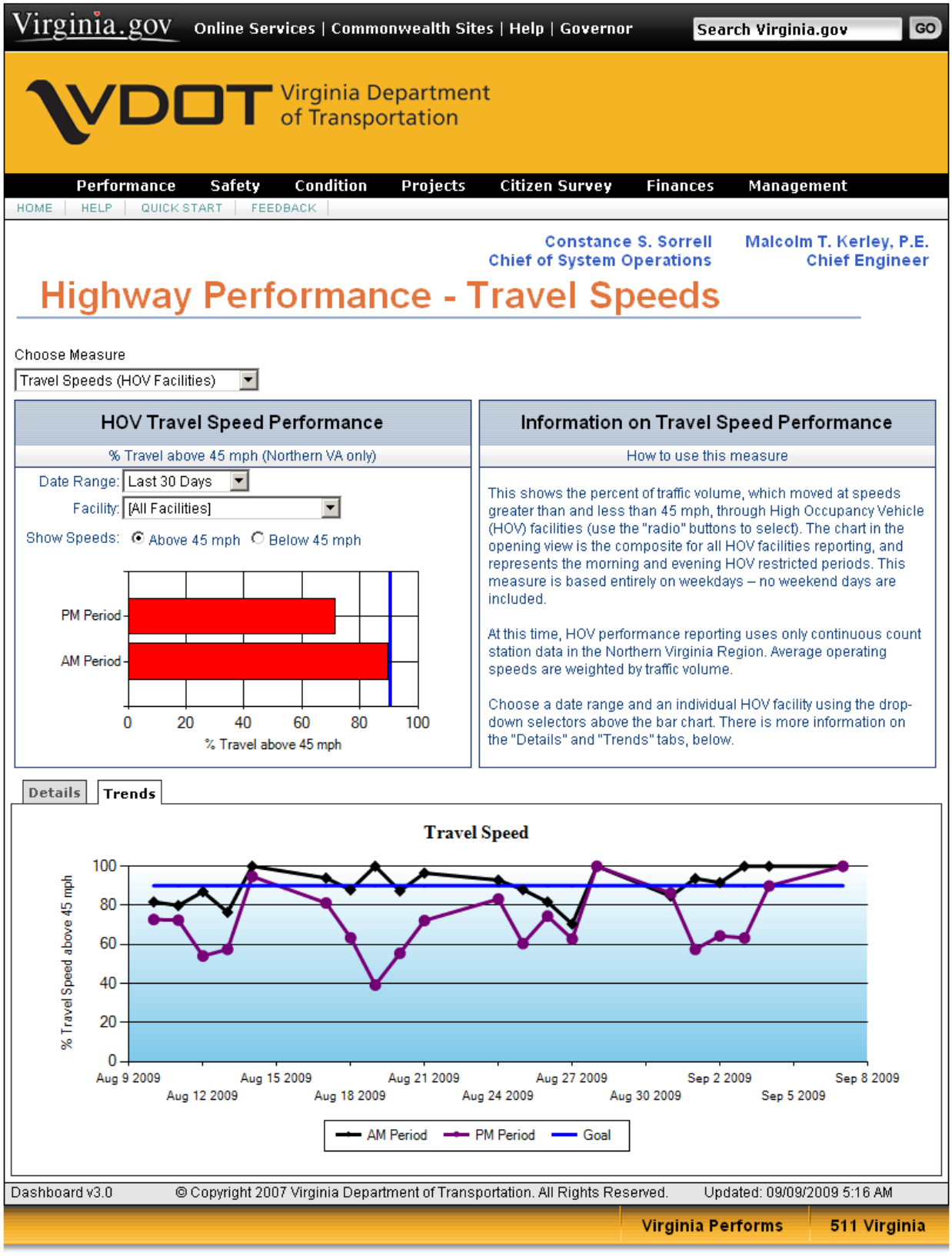
Updated: 09/09/2009 5:16 AM
Virginia Performs
511 Virginia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Constance S. Sorrell
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Malcolm T. Kerley, P.E.
Chief Engineer
Highway Performance - Travel Speeds
Choose Measure
Travel Speeds (HOV Facilities)
HOV Travel Speed Performance
% Travel above 45 mph (Northern VA only)
Date Range: Last 30 Days
Facility: [All Facilities]
Show Speeds: Above 45 mph Below 45 mph
PM Period
AM Period
0
20
40
60
80
100
% Travel above 45 mph
Information on Travel Speed Performance
How to use this measure
This shows the percent of traffic volume, which moved at speeds greater than and less than 45 mph, through High Occupancy Vehicle (HOV) facilities (use the "radio" buttons to select). The chart in the opening view is the composite for all HOV facilities reporting, and represents the morning and evening HOV restricted periods. This measure is based entirely on weekdays – no weekend days are included.
At this time, HOV performance reporting uses only continuous count station data in the Northern Virginia Region. Average operating speeds are weighted by traffic volume.
Choose a date range and an individual HOV facility using the drop-down selectors above the bar chart. There is more information on the "Details" and "Trends" tabs, below.
Details
Trends
Travel Speed
% Travel Speed above 45 mph
100
80
60
40
20
0
Aug 9 2009
Aug 12 2009
Aug 15 2009
Aug 18 2009
Aug 21 2009
Aug 24 2009
Aug 27 2009
Aug 30 2009
Sep 2 2009
Sep 5 2009
Sep 8 2009
AM Period
PM Period
Goal
Dashboard v3.0
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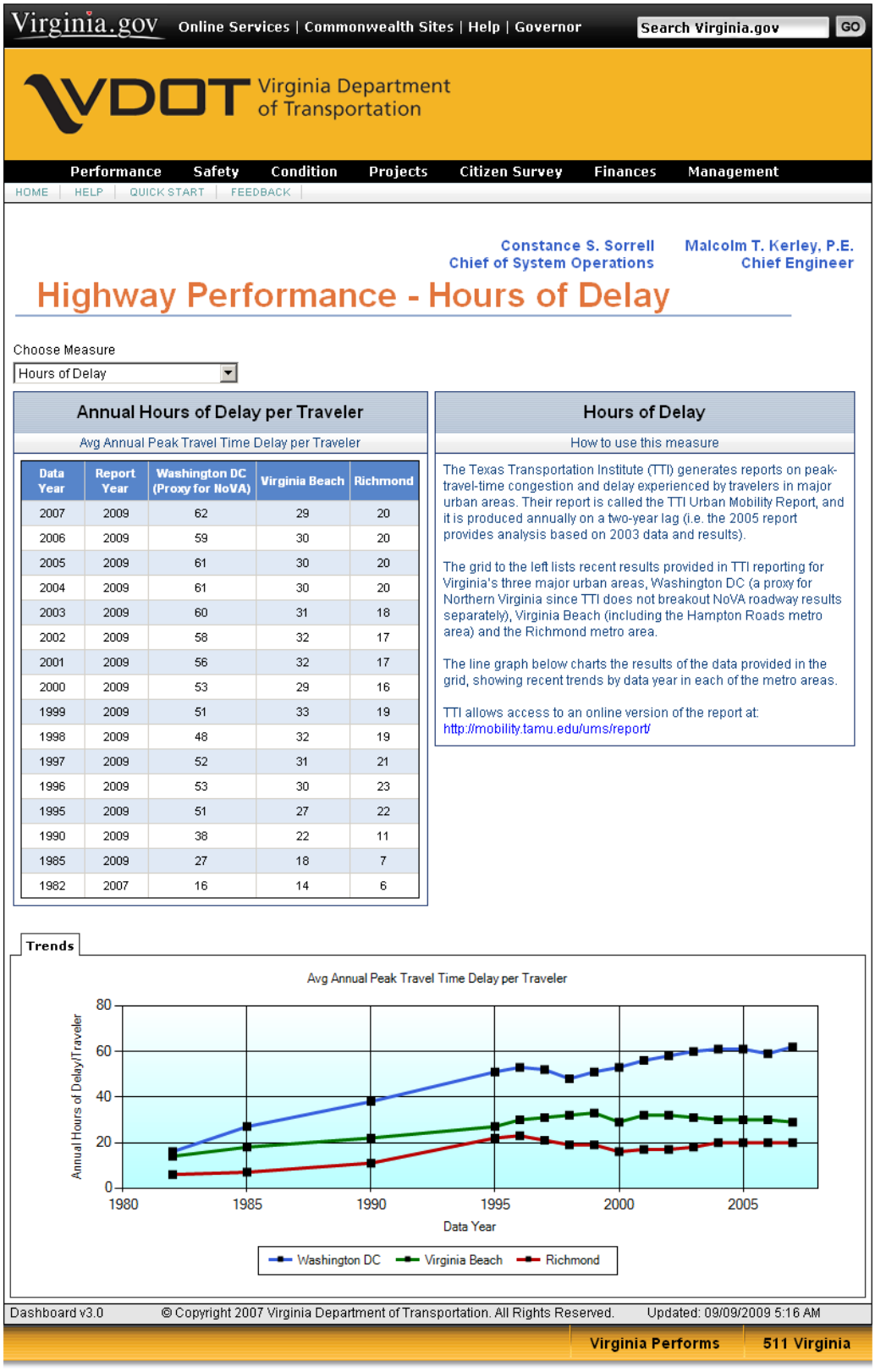
511 Virginia



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VDOT Virginia Department of Transportation

Performance Safety Condition Projects Citizen Survey Finances Management

HOME | HELP | QUICK START | FEEDBACK

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Highway Performance - Hours of Delay

Choose Measure

Hours of Delay

Annual Hours of Delay per Traveler

Avg Annual Peak Travel Time Delay per Traveler

Data Year	Report Year	Washington DC (Proxy for NoVA)	Virginia Beach	Richmond
2007	2009	62	29	20
2006	2009	59	30	20
2005	2009	61	30	20
2004	2009	61	30	20
2003	2009	60	31	18
2002	2009	58	32	17
2001	2009	56	32	17
2000	2009	53	29	16
1999	2009	51	33	19
1998	2009	48	32	19
1997	2009	52	31	21
1996	2009	53	30	23
1995	2009	51	27	22
1990	2009	38	22	11
1985	2009	27	18	7
1982	2007	16	14	6

Hours of Delay

How to use this measure

The Texas Transportation Institute (TTI) generates reports on peak-travel-time congestion and delay experienced by travelers in major urban areas. Their report is called the TTI Urban Mobility Report, and it is produced annually on a two-year lag (i.e. the 2005 report provides analysis based on 2003 data and results).

The grid to the left lists recent results provided in TTI reporting for Virginia's three major urban areas, Washington DC (a proxy for Northern Virginia since TTI does not breakout NoVA roadway results separately), Virginia Beach (including the Hampton Roads metro area) and the Richmond metro area.

The line graph below charts the results of the data provided in the grid, showing recent trends by data year in each of the metro areas.

TTI allows access to an online version of the report at: http://mobility.tamu.edu/ums/report/

Trends

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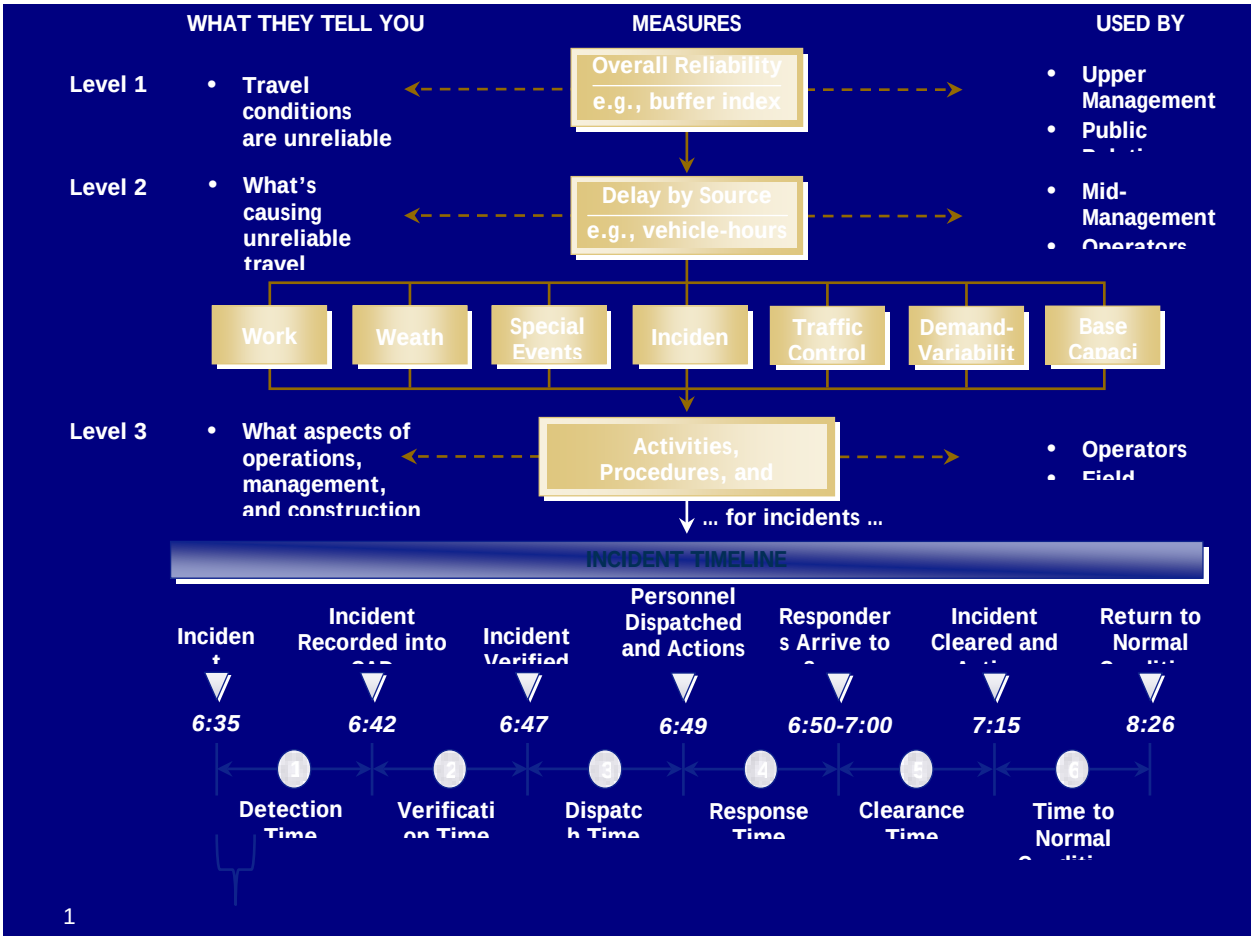
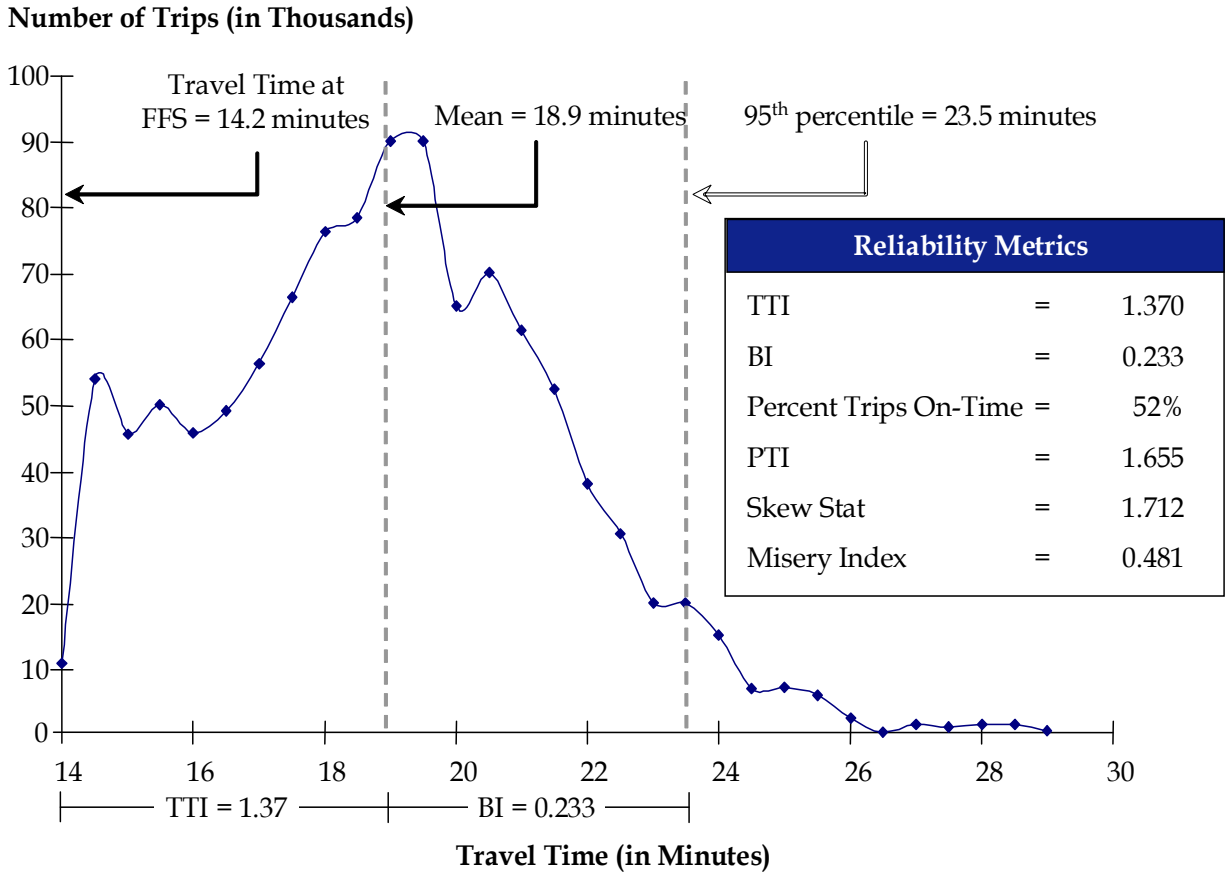
Virginia Performs 511 Virginia


WHAT THEY TELL YOU
MEASURES
USED BY
Level 1
Travel conditions are unreliable
Overall Reliability
e.g., buffer index
Upper Management
Public
Level 2
What's causing unreliable travel
Delay by Source
e.g., vehicle-hours
Mid-Management
Work
Weath
Special Events
Inciden
Traffic Control
Demand-Variabilit
Base Capaci
Level 3
What aspects of operations, management, and construction
Activities, Procedures, and
Operators
... for incidents ...
INCIDENT TIMELINE
Inciden
Incident Recorded into
Incident Verified
Personnel Dispatched and Actions
Responder s Arrive to
Incident Cleared and
Return to Normal
6:35
6:42
6:47
6:49
6:50-7:00
7:15
8:26
1
2
3
4
5
6
Detection Time
Verificati on Time
Dispatc h Time
Response Time
Clearance Time
Time to Normal
1



Reliability Metrics		
TTI	=	1.370
BI	=	0.233
Percent Trips On-Time	=	52%
PTI	=	1.655
Skew Stat	=	1.712
Misery Index	=	0.481

Event Characteristics		
Incident Rate	=	141.3
Crash Rate	=	99.7
Percent hours with precip.	=	4.7%
Percent hours with frozen	=	0.2%
Percent hours with fog	=	1.5%
Work Zone Types	=	(none)
Avg Incident Duration	=	27.6 min
Avrg Work Zone Duration	=	0.0 min

Capacity Loss		
Cong. Source	Lane-Hrs	Shoulder-Hrs
Incident	31.0	20.3
Work Zone	0.0	0.0

Section Characteristics		
AVMT	=	766.5M
Average No. Lanes	=	3.8
Average AADT/C	=	11.9
Critical AADT/C	=	14.1
Percent Trucks	=	9%
Pct Days with Demand > (mean + 10%)	=	6.3%

FINAL

URBAN CONGESTION REPORT
April - June 2008

Federal Highway Administration

NATIONAL EXECUTIVE SUMMARY

UCR NATIONAL COMPOSITE INDICATORS

YEAR	Congested Hours	Travel Time Index	Planning Time Index
	↓ 51 Minutes (17.1%)	↓ 3.47%	↓ 4.88%
2008	4:06	1.242	1.566
2007	4:57	1.287	1.646

	Congested Hours		Travel Time Index		Planning Time Index		% Usable Data:	Contributing Factors Compared to Previous Year (Peak Period)			
	19 Cities Down >15 Min	2 Cities Up >15 Min	6 Cities Down >5%	0 Cities Up >5%	8 Cities Down >5%	0 Cities Up >5%		Bad Weather	Work Zones	Incidents	VMT Served
City	This Quarter (Hrs:Min)	(Min) Change vs. Year Ago	This Quarter	(%) Change vs. Year Ago	This Quarter	(%) Change vs. Year Ago	97%				
Pittsburgh, PA	10:19	162	1.31	0.6%	1.69	0.3%	98%	3.3%	-27.1%	12.5%	-3.7%
Chicago, IL	13:27	46	1.46	-3.0%	1.95	-4.2%	96%	5.0%	-9.1%	-27.8%	-3.9%
Philadelphia, PA	6:06	-8	1.28	0.1%	1.69	-0.8%	98%	-0.2%	-23.9%	11.3%	-1.7%
Oklahoma City, OK	0:21	-10	1.07	-0.5%	1.21	-4.4%	99%	-0.7%	31.5%	-8.5%	3.0%
St. Louis, MO	0:30	-19	1.05	-2.5%	1.18	-5.1%	98%	6.5%	71.9%	69.2%	-0.1%
Los Angeles, CA	7:34	-21	1.38	-2.4%	1.72	-3.1%	99%	-0.6%	343.5%	-9.9%	5.6%
Minneapolis-St. Paul, MN	3:59	-23	1.31	-1.0%	1.70	-2.1%	96%	4.5%	30.5%	N/A	-1.6%
San Francisco, CA	3:10	-25	1.23	-1.9%	1.48	-1.9%	99%	-2.0%	82.3%	-8.5%	0.4%
Salt Lake City, UT	0:57	-27	1.14	-1.0%	1.36	0.3%	99%	1.8%	N/A	N/A	-0.3%
Tampa, FL	1:27	-30	1.16	0.2%	1.39	-0.2%	99%	0.4%	116.5%	19.5%	-4.8%
Houston, TX	5:07	-33	1.37	-2.8%	1.77	-6.1%	99%	-2.8%	-19.7%	-3.2%	-1.9%
Phoenix, AZ	2:39	-45	1.18	-1.6%	1.44	-1.2%	98%	0.0%	N/A	N/A	-1.7%
Sacramento, CA	3:55	-56	1.22	-7.3%	1.44	-13.3%	99%	-3.1%	N/A	N/A	-6.3%
Orange County, CA	3:40	-63	1.28	-2.2%	1.59	-0.7%	99%	-0.2%	N/A	N/A	3.0%
San Diego, CA	1:08	-65	1.18	-5.8%	1.43	-9.6%	99%	0.7%	146.2%	-34.7%	-1.4%
Portland, OR	4:54	-73	1.25	-4.9%	1.65	-6.7%	96%	-0.1%	-27.8%	N/A	1.1%
Atlanta, GA	5:18	-80	1.34	-4.2%	1.84	-3.8%	80%	1.2%	N/A	14.9%	-8.4%
Detroit, MI	1:22	-85	1.16	-4.3%	1.47	-4.3%	93%	2.1%	-17.5%	-32.7%	-5.8%
San Antonio, TX	1:24	-92	1.14	-5.3%	1.41	-5.0%	97%	-6.0%	71.8%	-6.3%	6.7%
Seattle, WA	7:41	-95	1.32	-5.8%	1.76	-4.6%	99%	2.2%	N/A	-30.0%	2.0%
Boston, MA	5:18	-100	1.28	-5.5%	1.67	-7.1%	99%	1.7%	6.8%	-20.0%	1.0%
Providence, RI	0:54	-104	1.11	-4.6%	1.31	-10.8%	99%	0.4%	10.6%	-2.3%	-1.8%
Riverside-San Bernardino, C	0:49	-206	1.19	-8.0%	1.41	-14.3%	99%	-0.2%	N/A	N/A	-3.8%

For the three months ending May 2008, all three national congestion indicators declined, concurrent with a 1.8% decline in nation-wide peak period travel demand and a national retail gasoline price increase of 25%, compared to the same period in 2007. Composite hours of congested travel per day declined 51 minutes to four hours and six minutes (a 17% drop). Only two cities (Chicago and Pittsburgh) out of 23 cities posted an increase in hours of congestion over 15 minutes. National composite travel time index and planning time index also declined 3.5% and 4.9% respectively. All three measures in Boston, Riverside, Sacramento, and San Diego declined more than 5% compared to the same period a year ago. No city posted a greater than 5% increase in either travel time index or planning time index. Data quality was reliable overall (97% usable).

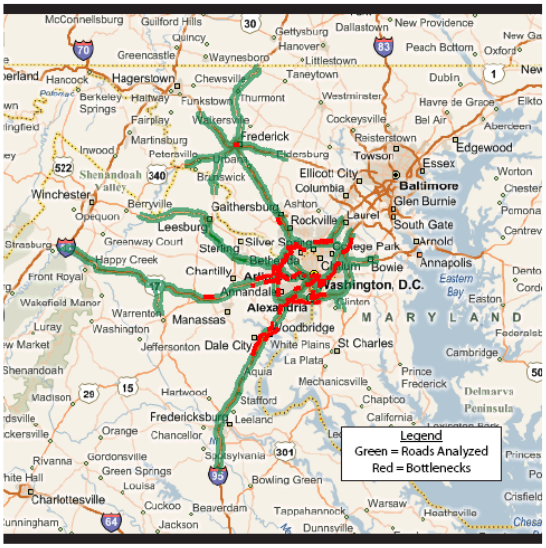
31 July 2008

For more information, contact (Rich.Taylor@dot.gov)

INRIX® National Traffic Scorecard

#4 Washington Metropolitan Area

National Congestion Rank: #4 **Population Rank: #8** (5,306,565)



CBSA: Washington-Arlington-Alexandria DC-VA-MD-WV

Overall Congestion

Congestion Compared to	
2006:	+4.5%
Worst Metro Area (L.A.):	37%
Travel Time Index(TTI)[1]	
TTI:	1.28
National TTI Rank:	8
Peak Travel Hour[2]	
Worst:	Friday, 5-6 PM (TTI = 1.56)
Best:	Friday, 6-7 AM (TTI = 1.10)

Worst Bottleneck

Road:	Shirley Mem Hwy Northbound
Segment:	George Washington Mem Pkwy
Where:	Arlington, VA
Length:	0.21 miles
Hours Congested[3] per Week:	43
Avg Speed when Congested[3]:	10.5 MPH
National Rank:	84

Worst Bottlenecks

Bottleneck Rank Regional	Bottleneck Rank National	Road/Direction	Segment/Interchange	County	ST	Length (miles)	Hours of Congestion[3]	Avg Speed when Congested[3] (mph)
1	84	Henry Shirley Memorial Hwy NB	GEORGE WA MEMORIAL PKWY	Arlington	VA	0.21	43	10.5
2	175	Capital Beltway EB	US 1/EXIT 1	Alexandria	VA	1.46	34	12.8
3	177	Henry Shirley Memorial Hwy NB	BOUNDARY CHANNEL DR/10TH ST/EXIT 10	Arlington	VA	0.27	32	10.5
4	185	Henry Shirley Memorial Hwy NB	HWY 110/EXIT 9	Arlington	VA	0.32	25	8.6
5	223	Capital Beltway SB	HWY 210/EXIT 3	Prince George's	MD	1.44	33	14.6
6	231	Custis Memorial Pkwy WB	FAIRFAX DR/EXIT 71	Arlington	VA	0.59	38	17.1
7	252	Capital Beltway EB	HWY 241/TELEGRAPH RD/EXIT 2	Fairfax	VA	1.71	24	11.7
8	255	Capital Beltway SB	EXIT 2A - B	Prince George's	MD	1.26	42	18.9
9	256	I 66 EB	HWY 267/EXIT 67	Fairfax	VA	0.23	23	10.6
10	289	Capital Beltway EB	I 270/EXIT 35	Montgomery	MD	0.73	26	12.4
11	306	I 95 SB	HWY 7100/EXIT 166	Fairfax	VA	1.70	28	15.1
12	339	Henry Shirley Memorial Hwy NB	EADS ST	Arlington	VA	0.30	24	12.1
13	389	I 66 WB	VADEN DR/EXIT 62	Fairfax	VA	0.62	32	18.9
14	409	Capital Beltway EB	HWY 355/WISCONSIN AVE/EXIT 34	Montgomery	MD	0.69	24	13.4
15	552	Capital Beltway NB	HWY 650/NH AVE/EXIT28	Montgomery	MD	1.16	19	12.7
16	607	Capital Beltway NB	HWY 267/EXIT 12	Fairfax	VA	0.84	23	16.9
17	678	Baltimore WA Pkwy NB	POWDER MILL RD	Prince George's	MD	2.08	26	21.0
18	688	Custis Memorial Pkwy EB	WESTMORELAND ST/EXIT 68	Arlington	VA	1.08	28	20.5
19	697	Baltimore WA Pkwy NB	GODDARD RD	Prince George's	MD	1.12	25	20.2
20	703	Kenilworth Ave NB	EASTERN AVE	District of Columbia	DC	0.40	26	15.4
21	732	Kenilworth Ave NB	EASTERN AVE	District of Columbia	DC	0.46	25	15.3
22	751	Capital Beltway WB	HWY 193/UNIVERSITY BLVD/EXIT 29	Montgomery	MD	1.37	20	16.4
23	787	Capital Beltway EB	HWY 187/OLD GEORGETOWN RD/EXIT36	Montgomery	MD	2.31	19	15.5
24	801	I 95 SB	HWY 123/EXIT 160	Fairfax	VA	0.84	27	23.4
25	813	Capital Beltway NB	GEORGE WA MEMORIAL PKWY/EXIT 14	Fairfax	VA	0.87	23	19.7

Notes: 1 – Travel Time Index (TTI) is the ratio of actual to uncongested travel time. A ratio of 1.10 means 10% additional trip time due to congestion.
2 – Peak hours are Monday to Friday, 6 to 10 AM and 3 to 7 PM.
3 – Bottleneck "congestion" is defined as times when average hourly speed is half or less than the uncongested speed for that road segment.
Additional information on the methodologies used in this report are available at http://scorecard.inrix.com.

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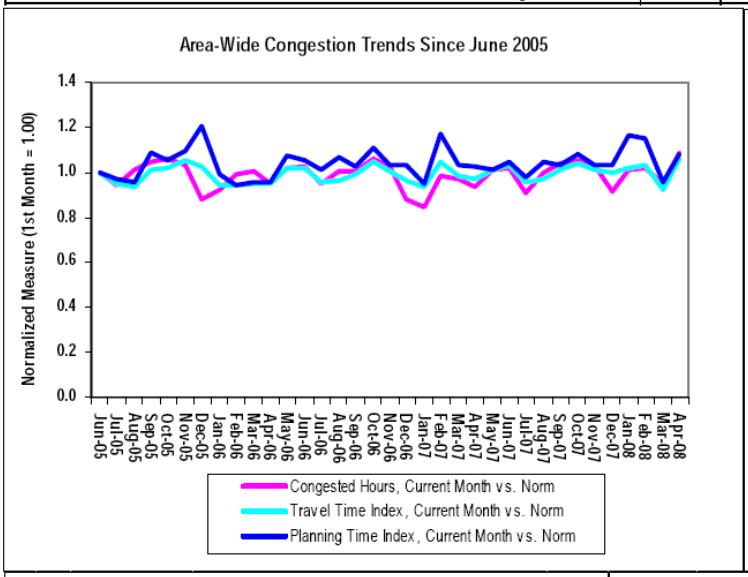
Performance Monitoring Report

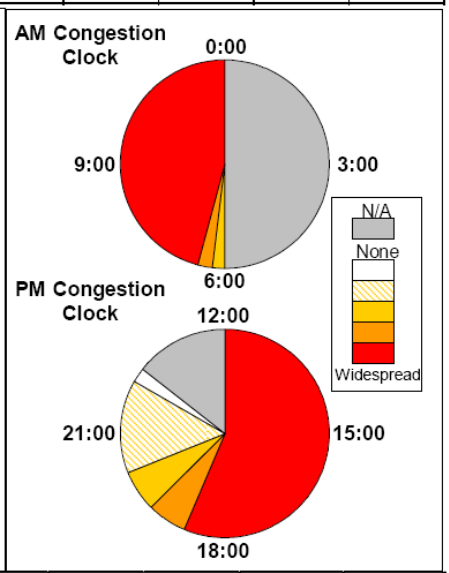
February 2008 – April 2008

Chicago, IL

Metropolitan Area Executive Summary

Congestion Indicators												Data Quality		Contributing Factors (Peak Period)			
YEAR	Congested Hours Weekday 5.0%			Weekend	Travel Time Index Weekday Peak 0.0%			Planning Time Index Weekday Peak 1.0%						Weather [1]	Work Zone [2]	Incidents [3]	Travel Demand [4]
	Total	AM	PM		Total	AM	PM	Total	AM	PM		% Available Data:	Useable Days				
2008	13.39	5.7	7.7	1.5	1.51	1.5	1.5	2.083	2.0	2.2		87%	89 of 90	25%	N/A	312	23,666
2007	12.69	5.6	7.1	1.1	1.50	1.5	1.5	2.113	2.1	2.2		88%	89 of 89	21%	N/A	360	23,253
Change vs. Last Year:												-1%	-1%	3%	N/A	-13%	2%



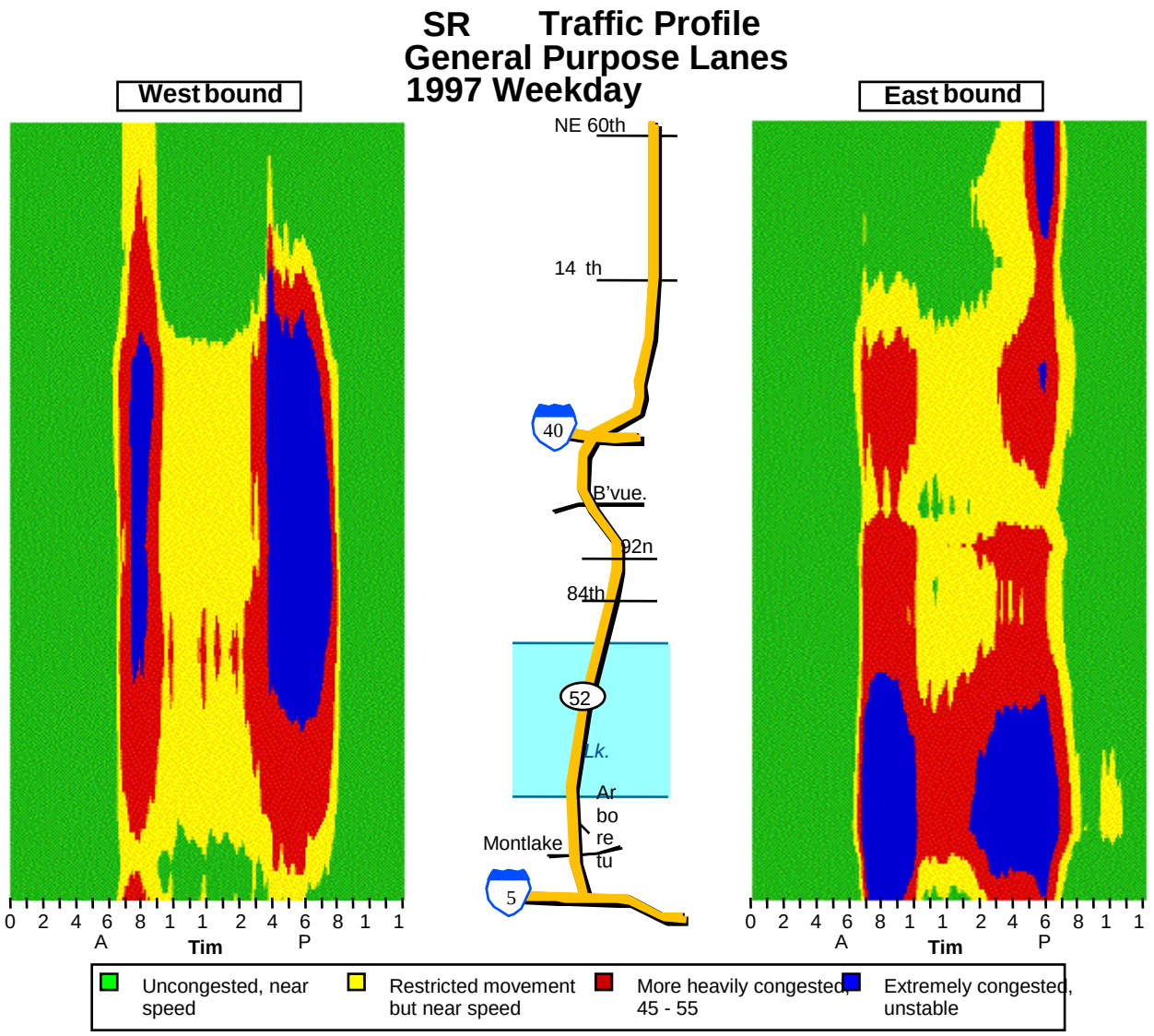


Top 10 Congested Corridors					Average Speed (mph)		Average Volume (veh/hr)		Workzone (mile-hrs)	Incidents
Apr-08	Apr-07	Road	Description	Miles	Weekday Peak	Weekday All Day	Weekday Peak	Weekday All Day		
1	N/A	I-294	I-294 SB: I-57 to US 6	2.1	10	9	16,096	10,099	NA	NA
2	N/A	I-294	I-294 NB: I-80 / 170th st to I-57	3.8	19	19	9,783	5,830	NA	NA
3	2	I-90	I-90 NB: I-55 to I-290	2.5	24	27	4,143	2,702	NA	NA
4	7	I-90	I-90 WB: I-290 to I-94	8.5	27	36	5,850	3,957	NA	NA
5	3	I-90	I-90 SB: I-290 to I-55	2.1	29	30	5,802	3,781	NA	NA
6	5	I-90	I-90 WB: I-94 to I-294	5.1	29	37	5,096	3,319	NA	NA
7	N/A	I-94 EB EXPR	I-94 EB EXPRESS: I-90/I-90|94 to US-20	4.1	31	33	6,142	3,931	NA	NA
8	4	I-290	I-290 EB: SB I-294 to I-90	15.0	31	42	5,022	3,200	NA	NA
9	N/A	I-94	I-94 SB: US-41 to I-90	14.0	31	36	4,189	2,684	NA	NA
10	9	90 Reversible Lan	I-90 Reversible Lanes Bl: I-94 to I-290	7.1	33	42	2,769	1,598	NA	NA

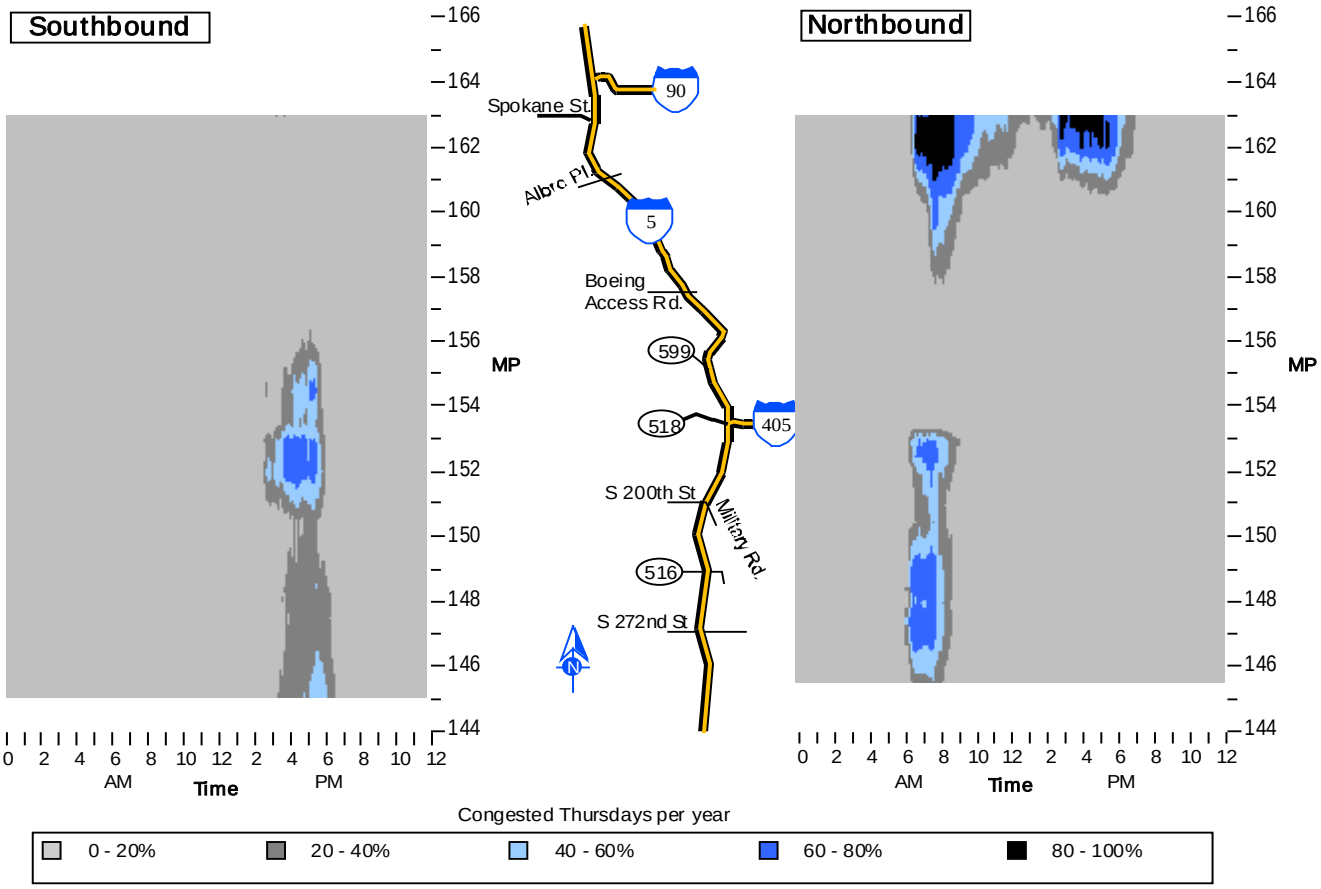
Congested Hours shows an increase compared to the previous year. Planning Time Index shows an improvement.

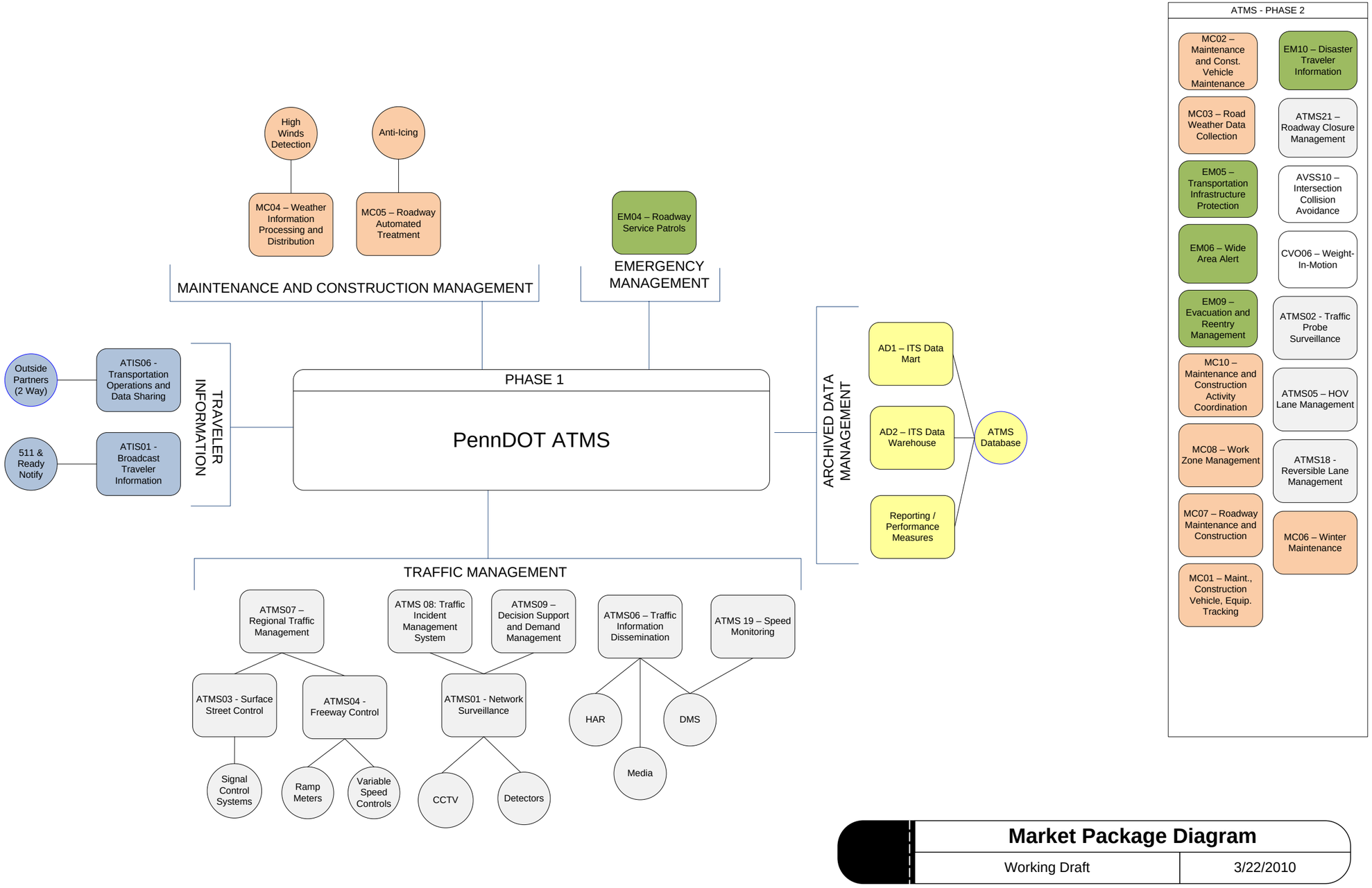
[1] Percentage of peak period hours with precipitation
[2] Average number of work zones during peak period hours per day
[3] Average number of incidents during peak period hours per day
[4] Average number of vehicles per mile during peak period hours per day
Data Source(s): Traffic.com, Inc. (in cooperation with the Illinois Tollway Authority) and Illinois Department of Transportation

For more information, contact: (scott.perley@navteq.com)


SR Traffic Profile
General Purpose Lanes
1997 Weekday
West bound
East bound
NE 60th
14 th
40
B'vue.
92n
84th
52
Lk.
Ar
bo
re
tu
Montlake
5
0 2 4 6 8 1 1 2 4 6 8 1 1
A
Tim
P
Uncongested, near speed
Restricted movement but near speed
More heavily congested, 45 - 55
Extremely congested, unstable

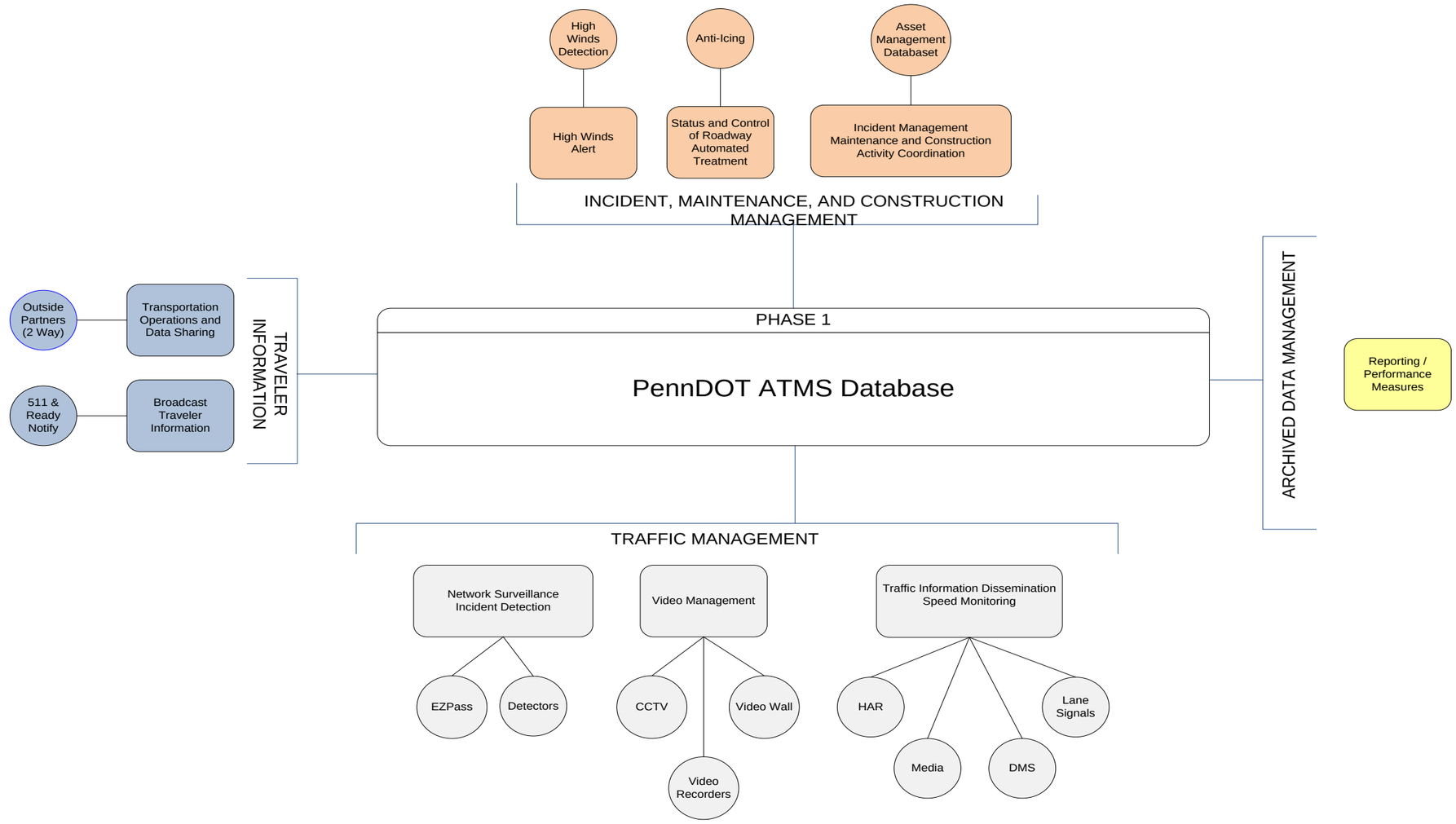
S. I-5 Congestion Frequency Profile: GP Lanes, 2004 Thursday





Market Package Diagram

Working Draft	3/22/2010


High Winds Detection
Anti-Icing
Asset Management Databaset
High Winds Alert
Status and Control of Roadway Automated Treatment
Incident Management Maintenance and Construction Activity Coordination
INCIDENT, MAINTENANCE, AND CONSTRUCTION MANAGEMENT
Outside Partners (2 Way)
Transportation Operations and Data Sharing
511 & Ready Notify
Broadcast Traveler Information
TRAVELER INFORMATION
PHASE 1
PennDOT ATMS Database
ARCHIVED DATA MANAGEMENT
Reporting / Performance Measures
TRAFFIC MANAGEMENT
Network Surveillance Incident Detection
Video Management
Traffic Information Dissemination Speed Monitoring
EZPass
Detectors
CCTV
Video Wall
Video Recorders
HAR
Lane Signals
Media
DMS
Functional Area Diagram
Working Draft
10/26/2010

APPENDIX Q
ITS EQUIPMENT

APPENDIX Q

ITS EQUIPMENT INVENTORY

APPENDIX Q
ITS EQUIMENT INVENTORY

Table 1: Quantities of ITS Field Equipment **As of 2011-01-21**

Quantities of ITS Field Equipment												
ITS Device	**District 1-0**	**District 2-0**	**District 3-0**	**District 4-0**	**District 5-0**	**District 6-0**	**District 8-0**	**District 9-0**	**District 10-0**	**District 11-0**	**District 12-0**	**Total**
Permanent CCTV	0	30	0	22	34	222	56	41	0	148	0	553
Portable CCTV	1	0	0	4	0	0	0	0	0	0	0	5
Permanent DMS	9	23	1	7	5	61	36	34	32	26	2	236
*Portable DMS **	1	3	5	45	29	22	15	0	0	0	12	132
Permanent HAR	4	21	0	10	9	0	15	2	13	10	4	88
Portable HAR	0	0	0	0	6	0	0	0	0	0	0	6
Microwave Detectors	0	0	0	0	0	90	0	0	0	140	0	230
Video Detectors	0	0	0	0	0	12	0	0	0	0	0	12

* Portable DMS include all semi-permanent DMS.

The chart above is a listing of the quantities of ITS equipment by PennDOT Engineering District.
A detailed listing of each device including information such as, exact location, manufacturer, model, software, etc. is available on the device tabs.

APPENDIX Q
ITS EQUIMENT INVENTORY

Table 2: Summary of ITS Software **As of 2011-01-21**

Summary of ITS Software	
Device Type	**Software**
CCTV	
	ATMS
	Broadware Video Server
	DIVAR
	Philips/Bosch GUI version 2.43
	VIDSYS VidShield 6.1
DMS	
	AMSIG EASYHOST
	AMSIG NET
	ATMS
	DAMBAUCH VMS SOFTWARE
	DYNAC
	INTELLIGENT CONTROL
	MERCURE
	MESSENGER
	NTCIP VMS CENTRAL
	PSC SMC 1000-2000 BASESTATION
	PSC SMC 2000 BASESTATION
	PSC STDFULL BASESTATION
	SOLAR MESSAGE CENTER
	VANGUARD
	Wanco
HAR	
	DR2000 Platinum

A detailed listing of each device including information such as, exact location, manufacturer, model, software, etc. is available on the device tabs.

PennDOT Existing DMS

Statewide_ID	District_ID	STATUS	TYPE	SUB-TYPE	STRUCTURE	DISTRICT	Descriptive Location	MILEMARKER	Next Exit	COUNTY	STATE ROUTE	SEGMENT	OFFSET
District 1-0													
DMS-01-001	152NB	EXISTING	SEMI-PERMANENT		CONCRETE PAD	01	Milepost 152 Northbound (Seg. 1520/Off. 990)	152.0	154	CRAWFORD	0079	1520	0990
DMS-01-002	1EB	EXISTING	PERMANENT		OVERHEAD	01	Milepost 1 Eastbound (Seg 0010/Off. 212)	001.0	3	ERIE	0090	0010	0212
DMS-01-003	46WB	EXISTING	PERMANENT		OVERHEAD	01	Milepost 45 Westbound (Seg. 455/Off. 122)	045.0	45	ERIE	0090	0461	0098
DMS-01-004	176NB	EXISTING	PERMANENT		CENTERMOUNT	01	I-79 NB at I-90	175.2	178	ERIE	0079	1750	0800
DMS-01-005	181SB	EXISTING	PERMANENT		CENTERMOUNT	01	I-79 SB at I-90	180.9	178	ERIE	0079	1805	2240
DMS-01-006	16EB	EXISTING	PERMANENT		CENTERMOUNT	01	I-90 EB at I-79	016.5	18	ERIE	0090	0160	2657
DMS-01-007	24WB	EXISTING	PERMANENT		CENTERMOUNT	01	I-90 WB at I-79	023.6	22	ERIE	0090	0235	0492
DMS-01-008	33WB	EXISTING	PERMANENT		CENTERMOUNT	01	I-90 WB at PA 290	033.7	32	ERIE	0090	0335	1122
DMS-01-013	200	EXISTING	PERMANENT		CENTERMOUNT	01	Milepost 16 Eastbound (Seg. 164/Off. 1307)	016.0	19	MERCER	0080	0164	1594
DMS-01-014	210	EXISTING	PERMANENT		CENTERMOUNT	01	Milepost 20 Westbound (Seg. 201/Off. 200)	020.0	19	MERCER	0080	0195	2063
DMS-01-015	42E	EXISTING	PERMANENT		CENTERMOUNT	01	Emlenton Exit	042.0	42	VENANGO	0080	0380	2335
DMS-01-016	45E	EXISTING	PERMANENT		CENTERMOUNT	01	St. Petersburg-Emlenton Exit	045.0	45	VENANGO	0080	0420	0750
District 2-0													
DMS-02-003	DMS 3	EXISTING	PERMANENT		CENTERMOUNT	02	Northbound 1.5 miles before Port Matilda Exit on I-99	059.5	61	CENTRE	0099	0594	1435
DMS-02-004	DMS 4	EXISTING	PERMANENT		OVERHEAD	02	SR 0322 Eastbound 1 mile after Reese Hollow Exit		61	CENTRE	0322	0230	2390
DMS-02-005	DMS 5	EXISTING	PERMANENT		CENTERMOUNT	02	Northbound 1.5 miles before Port Matilda Exit on I-99	072.5	74	CENTRE	0099	0725	1145
DMS-02-006	DMS 6	EXISTING	PERMANENT		CENTERMOUNT	02	SR 0322 Eastbound 1 mile after Reese Hollow Exit		70	CENTRE	3014	0021	3025
DMS-02-007	DMS 7	EXISTING	PERMANENT		CENTERMOUNT	02	I-99 Southbound Near Fox Hollow Road (State College)	072.5	71	CENTRE	0099	0724	0780
DMS-02-008	DMS 8	EXISTING	PERMANENT		CENTERMOUNT	02	SR 3014 Westbound at Valley Vista Intersection			CENTRE	0322	0538	2150
DMS-02-010	DMS 10	EXISTING	PERMANENT		CENTERMOUNT	02	SR 0322 Eastbound near Branch Road	079.5	80	CENTRE	0099	0804	0175
DMS-02-013	DMS 13	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Eastbound 4.5 miles before Exit 158	153.5	158	CENTRE	0080	1534	1605
DMS-02-014	DMS 14	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Eastbound 2 miles after Exit 158	160.0	158	CENTRE	0080	1580	0865
DMS-02-015	DMS 15	EXISTING	PERMANENT		CENTERMOUNT	02	I -80 Westbound 2 miles before Exit 158	156.0	158	CENTRE	0080	1591	0570
DMS-02-017	DMS 17	EXISTING	PERMANENT		CENTERMOUNT	02	SR 0322 Eastbound near Reedsville			MIFFLIN	0322	0200	0950
DMS-02-018	DMS 18	EXISTING	PERMANENT		CENTERMOUNT	02	SR 0022 Westbound near Port Royal Exit			JUNIATA	0022	0191	2240
DMS-02-019	DMS 19	EXISTING	PERMANENT		CENTERMOUNT	02	SR 0322 Westbound before Branch Road			CENTRE	0322	0537	1200
DMS-02-020	DMS 20	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Milepost 183 Eastbound	183.0	185	CLINTON	0080	1824	2640
DMS-02-021	DMS 21	EXISTING	PERMANENT		CENTERMOUNT	02	SR 0322 Westbound at bottom of Seven Mountains			CENTRE	0322	0801	0315
DMS-02-022	DMS 22	EXISTING	PERMANENT		CENTERMOUNT	02	SR 0219 Northbound before SR 0770 Intersection, SR 0219-D09 Job			MCKEAN	0219	0460	1600
DMS-02-023	DMS 23	EXISTING	PERMANENT		CENTERMOUNT	02	SR 0219 Southbound before SR 0346 Intersection, SR 0219-D09 Job			MCKEAN	0219	0594	0386
DMS-02-026	DMS 26	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Eastbound 2 miles before Exit 101, I-80-B28 Job	099.0	101	CLEARFIELD	0080	0984	2550
DMS-02-027	DMS 27	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Westbound 5 miles before Exit 101, I-80-B28 Job	106.0	101	CLEARFIELD	0080	1061	1510
DMS-02-028	DMS 28	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Eastbound 5 miles before Exit 111, I-80-B28 Job	105.5	111	CLEARFIELD	0080	1054	0930
DMS-02-029	DMS 29	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Westbound 4.5 miles before Exit 111, I-80-B28 Job	115.5	111	CLEARFIELD	0080	1161	0680
DMS-02-030	DMS 30	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Eastbound 2 miles before Exit 120, I-80-B28 Job	117.0	120	CLEARFIELD	0080	1174	1580
DMS-02-033	SP1	EXISTING	SEMI-PERMANENT		CONCRETE PAD	02	SR 0022 Westbound located in median			MIFFLIN	0022	0523	1150
DMS-02-034	SP2	EXISTING	SEMI-PERMANENT		CONCRETE PAD	02	SR 0022 Eastbound located off right shoulder behind Jersey Barrier			MIFFLIN	0022	0422	1370
DMS-02-035	SP3	EXISTING	SEMI-PERMANENT		CONCRETE PAD	02	SR 0322 Eastbound near Reedsville			MIFFLIN	0322	0210	1360
DMS-02-036	97W	EXISTING	PERMANENT		CENTERMOUNT	02	DuBois- Brockway Exit - Belongs to Dist. 10-0	099.0	97	CLEARFIELD	0080	0985	2490
DMS-02-040	DMS 37	EXISTING	PERMANENT		CENTERMOUNT	02	I-80 Eastbound 1 mile past Exit 111, I-80-B28 Job	111.5	120	CLEARFIELD	0080	1114	0050
District 3-0													
DMS-03-001	094-3520	EXISTING	SEMI-PERMANENT		CONCRETE PAD	03	Milepost 246 Westbound (Seg. 2471/Off. 0092)	246.0		COLUMBIA	0080	2471	0037
DMS-03-002	096-3520	EXISTING	SEMI-PERMANENT		CONCRETE PAD	03	Milepost 216 Eastbound (Seg. 2164/Off.1342)	216.0		MONTOUR	0080	2164	1342
DMS-03-003		EXISTING	PERMANENT		CENTERMOUNT	03	Westbound between Exits 215 and 212 (Seg. 2131/Off. 2)		212	NORTHUMBERLAND	0080	2131	0002
DMS-03-048	944-3520	EXISTING	SEMI-PERMANENT		CONCRETE PAD	03	I-80 EB, west of Mile Run exit (Segment 1954/Off. 0992)		199	UNION	0080	1954	0992
DMS-03-049	825-3520	EXISTING	SEMI-PERMANENT		CONCRETE PAD	03	Milepost 201 Westbound (Seg. 2001/Off. 1098)	201.0		UNION	0080	2001	1098
DMS-03-050	826-3520	EXISTING	SEMI-PERMANENT		CONCRETE PAD	03	Milepost 195 Westbound (Seg. 1955/Off. 0115)	195.0		UNION	0080	1955	0115
District 4-0													
DMS-04-002	3	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Rt. 6 Westbound just before 81N on ramp in gore			LACKAWANNA	6006	0251	1060
DMS-04-007	4	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side			LACKAWANNA	0011	0252	2112
DMS-04-008	5	EXISTING	PORTABLE		TRAILER	04	South bound right side behind guide rail	181.0	180	LACKAWANNA	0081	1811	0233
DMS-04-009	7	EXISTING	PORTABLE		TRAILER	04	Southbound right side	183.7	182	LACKAWANNA	0081	1835	0746
DMS-04-010	8	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side before bridge		4	LUZERNE	0309	0628	2893
DMS-04-011	9	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound right side		5	LUZERNE	0309	0651	2462
DMS-04-012	10	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound right side after off ramp		1	LUZERNE	0309	0627	3322
DMS-04-016	15	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side behind guide rail	178.4	180	LUZERNE	0081	1780	2090
DMS-04-019	18	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound right side behide guide rail	166.7	168	LUZERNE	0081	1665	1065
DMS-04-020	19	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side behind guide rail	139.8	141	LUZERNE	0081	1394	1795
DMS-04-021	20	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Rt. 309 Right side			LUZERNE	0309	0480	1520
DMS-04-022	22	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound center median on rocks	169.9	168	LUZERNE	0081	1695	2403
DMS-04-023	23	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Eastbound right side end of guide rail	250.8	256	LUZERNE	0080	2504	2027
DMS-04-024	24	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side	165.9	168	LUZERNE	0081	1654	2090
DMS-04-025	26	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound right side		2	LUZERNE	0029	0041	1083
DMS-04-026	27	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Eastbound right side behind guide rail	2.4	1	LACKAWANNA	0084	0020	2492
DMS-04-028	31	EXISTING	SEMI-PERMANENT		TRAILER	04	Westbound Left should	2.3	1	LACKAWANNA	0084	0021	1784
DMS-04-030	33	EXISTING	SEMI-PERMANENT		TRAILER	04	next to Overhead 101	195.7	194	LACKAWANNA	0081	1955	1014
DMS-04-031	36	EXISTING	PORTABLE		TRAILER	04	Southbound right side behind guide rail	161.3	159	LUZERNE	0081	1611	1482
DMS-04-032	37	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound Median behind guide rail	204.9	202	LACKAWANNA	0081	2045	1924
DMS-04-034	40	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side behind guide rail	189.3	190	LACKAWANNA	0081	1890	1689
DMS-04-035	43	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound right side	191.0	190	LACKAWANNA	0081	1911	0043
DMS-04-036	44	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound right side behind barrier	188.4	187	LACKAWANNA	0081	1881	2196
DMS-04-037	51	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side	192.4	194	LACKAWANNA	0081	1920	2112
DMS-04-038	53	EXISTING	PORTABLE		TRAILER	04	Northbound right side behind guide rail	162.8	164	LUZERNE	0081	1624	2344
DMS-04-039	54	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side behind guide rail	179.8	182	LACKAWANNA	0081	1794	1943
DMS-04-041	63	EXISTING	PORTABLE		TRAILER	04	Northbound in median	203.8	206	LACKAWANNA	0081	2034	1858
DMS-04-044	66	EXISTING	PORTABLE		TRAILER	04	Northbound right side behind guide rail	172.9	175	LUZERNE	0081	1724	2302
DMS-04-046	68	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound right side	200.8	201	LACKAWANNA	0081	2004	1541
DMS-04-047	69	EXISTING	PORTABLE		TRAILER	04	Southbound right side behind guide rail	173.5	170	LUZERNE	0081	1731	2371
DMS-04-048	70	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Eastbound right side		I-81SB	LACKAWANNA	3022	0010	1140
DMS-04-049	71	EXISTING	PORTABLE		TRAILER	04	Southbound, I-81 right side	214.3	211	SUSQUEHANNA	0081	2141	1460
DMS-04-050	72	EXISTING	PORTABLE		TRAILER	04	Eastbound right side	259.0	260	LUZERNE	0080	2590	0211
DMS-04-051	73	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Northbound behind concrete barrier	185.3	187	LACKAWANNA	0081	1850	1541
DMS-04-061	OH 103	EXISTING	PERMANENT		OVERHEAD	04	Northbound Amsig Overhead	149.4	151A-B	LUZERNE	0081	1490	2133
DMS-04-062	OH 104	EXISTING	PERMANENT		OVERHEAD	04	Westbound Amsig overhead	264.5	262	LUZERNE	0080	2645	0145
DMS-04-063	OH 105	EXISTING	PERMANENT		OVERHEAD	04	Westbound Amsig overhead	10.4	8	LACKAWANNA	0084	0101	2118
DMS-04-064	OH 106	EXISTING	PERMANENT		OVERHEAD	04	Northbound Amsig overhead	017.8	20	LACKAWANNA	0380	0174	1900
DMS-04-065	OH 107	EXISTING	PERMANENT		OVERHEAD	04	Westbound East of Marshwood Road Exit	003.3	2	LACKAWANNA	0006	0325	1533
DMS-04-066	OH 108	EXISTING	PERMANENT		OVERHEAD	04	Southbound Daumbach overhead	231.6	230	SUSQUEHANNA	0081	2315	0383
DMS-04-067	OH 109	EXISTING	PERMANENT		OVERHEAD	04	Westbound PA/NY State Line	054.1	46	PIKE	0084	0541	0323
DMS-04-068	W01	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	I-84 EB right side behind guiderail	013.8	17	WAYNE	0084	0134	1985
DMS-04-069	W02	EXISTING	SEMI-PERMANENT		TRAILER	04	I-84 EB right side after off ramp	30.4	34	PIKE	0084	0300	1985
DMS-04-070	W05	EXISTING	SEMI-PERMANENT		TRAILER	04	I-84 WB right side	30.5	34	PIKE	0084	0305	0436

DMS-04-071	W03	EXISTING	SEMI-PERMANENT		TRAILER	04	I-84 EB right side dehind guide rail	41.3	46	PIKE	0084	0410	1541
DMS-04-072	W04	EXISTING	SEMI-PERMANENT		TRAILER	04	84 WB right side behind guide rail	037.2	34	PIKE	0084	0371	0558
DMS-04-083	65	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound right side behind guide rail	157.5	155	LUZERNE	0081	1575	0081
DMS-04-088	W06	EXISTING	SEMI-PERMANENT		TRAILER	04	I-84 WB right side	023.7	20	PIKE	0084	0235	1420
DMS-04-090	29	EXISTING	SEMI-PERMANENT		CONCRETE PAD	04	Southbound right side on top of barrier	185.7	184	LACKAWANNA	0081	1855	1056
DMS-04-091	W07	EXISTING	SEMI-PERMANENT		TRAILER	04	SR 115 NB before truck pull over			LUZERNE	0115	0250	0195
DMS-04-092	W08	EXISTING	SEMI-PERMANENT		TRAILER	04	SR115 SB			LUZERNE	0115	0281	0825
District 5-0													
DMS-05-001	CMS No.1	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	Milepost 316.6 Eastbound (Seq. 90/Off. 947)	316.6	PA 309	LEHIGH	0022	0090	0947
DMS-05-002	CMS No.2	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	Milepost 54.2 Westbound (Seq. 541/Off. 1285)	054.2	53	LEHIGH	0078	0541	1285
DMS-05-003	CMS No.3	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	Milepost 63.6 Eastbound (Seg. 634/Off. 469)	063.6	67	NORTHAMPTON	0078	0634	0469
DMS-05-004	CMS No.4	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	Milepost 50.4 Eastbound (Seq. 500/Off. 1924)	050.4	51	LEHIGH	0078	0500	1924
DMS-05-005	CMS No.5	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	Milepost 319.3 Eastbound (Seq. 140/Off. 456)	319.3	15th Street	LEHIGH	0022	0140	0456
DMS-05-007	CMS No.7	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	Milepost 55.2 Westbound (Seg. 551/Off. 1031)	055.2	54	LEHIGH	0078	0551	1031
DMS-05-009	CMS No.9	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	Milepost 67.6 Westbound (Seg. 90/Off. 947)	067.6	67	NORTHAMPTON	0078	0675	0550
DMS-05-010	CMS No.10	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	PA Turnpike Exit onto US 22 (Approximation)		PA TNPK Toll Booth	LEHIGH	0022		
DMS-05-011	CMS No.11	EXISTING	PORTABLE		TRAILER	05	US 22 Milepost 323.2 Westbound	323.2	Fullerton Avenue	LEHIGH	0022		
DMS-05-012	CMS No.12	EXISTING	PORTABLE		TRAILER	05	US 22 Milepost 323.8 Eastbound	323.8	Airport Road	LEHIGH	0022		
DMS-05-014	CMS No.14	EXISTING	PORTABLE		TRAILER	05	I-78 Milepost 50.5 Westbound	50.5	Exit 49	LEHIGH	0078		
DMS-05-015	CMS No.15	EXISTING	PORTABLE		TRAILER	05	Milepost 42.9 I-78 Westbound	042.9	40	BERKS	0078		
DMS-05-016	CMS No.16	EXISTING	PORTABLE		TRAILER	05	I-81 NB MM 98.7	98.7	Exit 100	SCHUYLKILL	0081	0984	0921
DMS-05-017	CMS No.17	EXISTING	PORTABLE		TRAILER	05	Milepost 21.6 I-78 Westbound	21.6	Exit 19	BERKS	0078		
DMS-05-018	CMS No.18	EXISTING	PORTABLE		TRAILER	05	PA 33 NB Milepost 3.7	3.7	US 22	NORTHAMPTON	0033		
DMS-05-020	CMS No.20	EXISTING	PORTABLE		TRAILER	05	I-81 Milepost 139.50 Southbound (Seg 1391/Off 2640	139.5	138	SCHUYLKILL	0081	1391	2640
DMS-05-021	CMS No.21	EXISTING	PORTABLE		TRAILER	05	Milepost 27 I-78 Eastbound	027.0	29	BERKS	0078		
DMS-05-022	CMS No.22	EXISTING	PORTABLE		TRAILER	05	Milepost 42.3 I-78 Eastbound	042.3	45	BERKS	0078		
DMS-05-023	CMS No.23	EXISTING	PORTABLE		CONCRETE PAD	05	I-81 Milepost 122.1 Northbound (Seg 1220/Off 175)	122.1	124	SCHUYLKILL	0081	1220	0175
DMS-05-024	CMS No.24	EXISTING	PORTABLE		TRAILER	05	Milepost 27.1 I-78 Westbound	027.1	23	BERKS	0078		
DMS-05-025	CMS No.25	EXISTING	PORTABLE		TRAILER	05	PA 309 Northbound near I-78 Inter. (Seg. 80/Off. 676)		I-78 Exit 60	LEHIGH	0309	0080	0676
DMS-05-026	VMS No.1	EXISTING	PERMANENT		OVERHEAD	05	Milepost 47.9 I-78 Eastbound (Seq. 474/Off. 2000)	047.9	49	LEHIGH	0078	0474	2000
DMS-05-027	VMS No.2	EXISTING	PERMANENT		OVERHEAD	05	Milepost 333.6 US 22 Westbound (Seq. 171/Off. 2000)	333.6	PA 33	NORTHAMPTON	0022	0171	2000
DMS-05-028	VMS No.3	EXISTING	PERMANENT		OVERHEAD	05	Milepost 72.8 I-78 Westbound (Seg. 725/Off. 1339)	072.8	71	NORTHAMPTON	0078	0725	1339
DMS-05-029	VMS No.4	EXISTING	PERMANENT		OVERHEAD	05	Milepost 7.9 PA 33 Southbound (Seg. 91/Off. 283)	007.9	PA 248	NORTHAMPTON	0033	0091	0283
DMS-05-030	64	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	Westbound (Seq. 2761/ Off. 0410)	276.0	274	CARBON	0080	2761	0170
DMS-05-031	D-78W-9	EXISTING	PERMANENT		OVERHEAD	05	I-78 MM 9.5	009.5	10	BERKS	0078		
DMS-05-044	CMS No. 29	EXISTING	PORTABLE		TRAILER	05	Milepost 290.6 I-80 EB prior to I-380	290.6	293	MONROE	0080	2904	0000
DMS-05-045	CMS No. 27	EXISTING	PORTABLE		TRAILER	05	Milepost 310.5 I-80 WB just after Toll Booth	310.5	309	MONROE	0080	3105	0355
DMS-05-047	CMS No. 30	EXISTING	PORTABLE		TRAILER	05	Milepost 7.2 I-380 SB prior to Rt.940	007.2	3	MONROE	0380	0071	0500
DMS-05-114	CMS No. 28	EXISTING	PORTABLE		TRAILER	05	I-80 WB at MM 299.9	299.9	299	MONROE	0080	2995	2300
DMS-05-115	VMS No.5	EXISTING	PERMANENT		OVERHEAD	05	Milepost 9.7 I-78 Eastbound	009.7	10	BERKS	0078		
DMS-05-116	CMS No. 31	EXISTING	PORTABLE		TRAILER	05	Milepost 124 I-81 Southbound (Seq. 1245/Off. 110)	124.0	124	SCHUYLKILL	0081	1245	0110
DMS-05-117	CMS No. 32	EXISTING	PORTABLE		TRAILER	05	I-78 EB Milepost 67.5	067.5	Exit 71	NORTHAMPTON	0078		
DMS-05-118	SP-403	EXISTING	SEMI-PERMANENT		CONCRETE PAD	05	US 422 EB EAST OF RIVER BRIDGE ROAD			BERKS	0422		
DMS-05-121	CMS No. 26	EXISTING	PORTABLE		TRAILER	05	I-78 EB After PA 501 Bethel Exit 13 Before Grimes Exit 15 MM 14.4	014.4	15	BERKS	0078		
DMS-05-122	CMS No. 33	EXISTING	PORTABLE		TRAILER	05	Milepost 326.1 US 22 Westbound (Seq. 11/Off. 1022)	326.1	Schoenersville Road	NORTHAMPTON	0022	0011	1022
District 6-0													
DMS-06-002	P095S_02	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	I-95 SB after US Rt. 1			BUCKS	0095		
DMS-06-003	P01BN_03	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	Business Rt. 1 SB at I-95 NB			BUCKS	2037		
DMS-06-004	P01BS_04	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	Business Rt. 1 NB at I-95 SB			BUCKS	2037		
DMS-06-005	P413N_05	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	PA 413 NB before I-95			BUCKS	0413		
DMS-06-006	P413S_06	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	PA 413 SB before I-95			BUCKS	0413		
DMS-06-007	P476N_07	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	I-95 NB RAMP TO NB I-476			DELAWARE	8025		
DMS-06-008	AMSIG Portable	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	I-476 NB AT MILE MARKER 10.6	010.6		DELAWARE	0476	0104	0697
DMS-06-009	P013S_08	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	PA 13 SB at PA 63			BUCKS	0013		
DMS-06-010	P013N_09	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	PA 13 NB at PA 63			BUCKS	0013		
DMS-06-012	P095S_11	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	I-95 SB MEDIAN AT ISLAND AVENUE			PHILADELPHIA	0095		
DMS-06-013	P095S_12	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	I-95 SB AT PACKER AVENUE			PHILADELPHIA	0095		
DMS-06-014	P095N_13	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	I-95 NB NORTH OF COLUMBUS	020.1	22	PHILADELPHIA	0095	0200	0550
DMS-06-016	P206	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	US 202 SB AT BRANDYWINE ROAD			MONTGOMERY	0202		
DMS-06-017	P301	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	PA 309 NB AT CHELTENHAM MALL			MONTGOMERY	0309		
DMS-06-018	P302	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	PA TURNPIKE BEFORE FT. WASH. TOLLS			MONTGOMERY	0076		
DMS-06-019	P303	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	PA 309 SB After North Wales Rd.			MONTGOMERY	0309		
DMS-06-020	P422E_17	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	US 422 EB BEFORE PA 29			MONTGOMERY	0422		
DMS-06-021	D095N_01	EXISTING	PERMANENT		OVERHEAD	06	I-95 NB NORTH OF PA 420			DELAWARE	0095		
DMS-06-022	D095N_02	EXISTING	PERMANENT		OVERHEAD	06	I-95 NB NORTH OF AIRPORT EXIT 10			DELAWARE	0095		
DMS-06-023	D095S_03	EXISTING	PERMANENT		OVERHEAD	06	I-95 SB NORTH OF ALLEGHENY AVENUE			PHILADELPHIA	0095		
DMS-06-024	D095S_04	EXISTING	PERMANENT		OVERHEAD	06	I-95 SB SOUTH OF BETSY ROSS BRIDGE			PHILADELPHIA	0095		
DMS-06-025	D095N_07	EXISTING	PERMANENT		CENTERMOUNT	06	I-95 NB AFTER GIRARD OFF-RAMP			PHILADELPHIA	0095		
DMS-06-026	D095N_08	EXISTING	PERMANENT		CENTERMOUNT	06	I-95 NB BEFORE COTTMAN AVE. EXIT 30			PHILADELPHIA	0095		
DMS-06-027	D095S_09	EXISTING	PERMANENT		OVERHEAD	06	I-95 SB AT LEVICK ST.			PHILADELPHIA	0095		
DMS-06-028	D095N_10	EXISTING	PERMANENT		CENTERMOUNT	06	I-95 NB AT ASHBURNER ST.			PHILADELPHIA	0095	0304	1900
DMS-06-029	D095S_11	EXISTING	PERMANENT		OVERHEAD	06	I-95 SB SOUTH OF ASHBURNER ST.			PHILADELPHIA	0095		
DMS-06-030	D095N_12	EXISTING	PERMANENT		CENTERMOUNT	06	I-95 NB BEFORE GRANT AVENUE			PHILADELPHIA	0095		
DMS-06-031	D095S_13	EXISTING	PERMANENT		CENTERMOUNT	06	I-95 SB NEAR ACADEMY RD.			BUCKS	0095	0335	0113
DMS-06-032	D095S_14	EXISTING	PERMANENT		CENTERMOUNT	06	I-95 SB AFTER WOODHAVEN RD.			BUCKS	0095	0351	2490
DMS-06-033	D095N_15	EXISTING	PERMANENT		CENTERMOUNT	06	I-95 NB BEFORE STREET RD.			BUCKS	0095		
DMS-06-034	D202N_01	EXISTING	PERMANENT		OVERHEAD	06	US 202 (MEDIAN) SOUTH OF RT 252			CHESTER	0202		
DMS-06-035	D202N_02	EXISTING	PERMANENT		CENTERMOUNT	06	US 202 NB NORTH OF NORTH VALLEY RD			CHESTER	0202		
DMS-06-036	D202N_03	EXISTING	PERMANENT		CENTERMOUNT	06	US 202 NB NORTH OF RT 401			CHESTER	0202	0310	0091
DMS-06-037	D030E_05	EXISTING	PERMANENT		CENTERMOUNT	06	US RT 30 EB BEFORE PA 100			CHESTER	0030	0392	0675
DMS-06-038	D422E_01	EXISTING	PERMANENT		CENTERMOUNT	06	US 422 EB BEFORE PA 363			MONTGOMERY	0422		
DMS-06-039	D422E_02	EXISTING	PERMANENT		CENTERMOUNT	06	US 422 EB AFTER PA 29			MONTGOMERY	0422		
DMS-06-040	D063E_01	EXISTING	PERMANENT		CENTERMOUNT	06	PA 63 EB BEFORE KNIGHTS RD			PHILADELPHIA	0063	0032	2523
DMS-06-041	D076W_01	EXISTING	PERMANENT		OVERHEAD	06	I-76 WB BEFORE US 202			MONTGOMERY	0076		
DMS-06-042	D076W_03	EXISTING	PERMANENT		CENTERMOUNT	06	I-76 WB BEFORE CONSHOHOCKEN	334.8		MONTGOMERY	0076		
DMS-06-043	D076W_09	EXISTING	PERMANENT		OVERHEAD	06	I-76 WB NEAR UNIVERSITY AVE.			PHILADELPHIA	0076	3465	0939
DMS-06-044	D076E_05	EXISTING	PERMANENT		OVERHEAD	06	I-76 EB NEAR MONTGOMERY DR EXIT 341			PHILADELPHIA	0076		
DMS-06-045	D076E_02	EXISTING	PERMANENT		OVERHEAD	06	I-76 EB BEFORE GULPH MILLS			MONTGOMERY	0076		
DMS-06-046	D476N_01	EXISTING	PERMANENT		CENTERMOUNT	06	I-476 NB AT MILE MARKER 13.9	013.9		DELAWARE	0476		
DMS-06-047	D476S_02	EXISTING	PERMANENT		CENTERMOUNT	06	I-476SB AFTER RIDGE PIKE ONRAMP			MONTGOMERY	0476	0181	0523
DMS-06-048	D100N_01	EXISTING	PERMANENT		CENTERMOUNT	06	PA 100NB ON RAMP PAST BUSINESS RT. 100			CHESTER	0100		
DMS-06-049	D100N_03	EXISTING	PERMANENT		CENTERMOUNT	06	PA 100 NB SOUTH OF SHIP ROAD			CHESTER	0100		
DMS-06-050	D100N_04	EXISTING	PERMANENT		CENTERMOUNT	06	PA 100 NB AFTER KIRKLAND AVENUE			CHESTER	0100		
DMS-06-051	D100S_05	EXISTING	PERMANENT		CENTERMOUNT	06	PA 100 SB SOUTH OF PA 113			CHESTER	0100		
DMS-06-052	D202S_04	EXISTING	PERMANENT		CENTERMOUNT	06	US 202S south/North Valley Rd		N/A	CHESTER	0202		
DMS-06-053	D202S_05	EXISTING	PERMANENT		CENTERMOUNT	06	US 202N north/PA 401		N/A	CHESTER	0202		
DMS-06-054	D202S_06	EXISTING	PERMANENT		CENTERMOUNT	06	US 202S north/Church Rd		N/A	CHESTER	0202		
DMS-06-055	D202N_07	EXISTING	PERMANENT		CENTERMOUNT	06	US 202N south/King Rd		N/A	CHESTER	0202		
DMS-06-056	D202S_08	EXISTING	PERMANENT		CENTERMOUNT	06	US 202 south/PA 100		N/A	CHESTER	0202		
DMS-06-057	D202N_09	EXISTING	PERMANENT		CENTERMOUNT	06	US 202S north/PA 322		N/A	CHESTER	0202		
DMS-06-058	D202N_10	EXISTING	PERMANENT		CENTERMOUNT	06	US 202N north/Matlack St		N/A	CHESTER	0202		

DMS-06-059	D202S_11	EXISTING	PERMANENT		CENTERMOUNT	06	US 202S south/Plesant Grove Rd		N/A	CHESTER	0202		
DMS-06-060	D030W_03	EXISTING	PERMANENT		CENTERMOUNT	06	US 30W west/Ship Rd		N/A	CHESTER	0030		
DMS-06-061	D030W_04	EXISTING	PERMANENT		CENTERMOUNT	06	US 30W west/Whitford Rd		N/A	CHESTER	0030		
DMS-06-062	D030E_06	EXISTING	PERMANENT		CENTERMOUNT	06	US 30E east/PA 113		N/A	CHESTER	0030		
DMS-06-063	D076E_04	EXISTING	PERMANENT		CENTERMOUNT	06	I-76 EB MM 334.8	334.8	N/A	MONTGOMERY	0076	3344	2000
DMS-06-064	D076E_06	EXISTING	PERMANENT		CENTERMOUNT	06	I-76 EB MM 342.8	342.8	N/A	PHILADELPHIA	0076	3424	1300
DMS-06-065	D076W_07	EXISTING	PERMANENT		CENTERMOUNT	06	I-76 WB MM 343.9	343.9	N/A	PHILADELPHIA	0076	3435	2400
DMS-06-066	D0001S_50	EXISTING	PERMANENT		CENTERMOUNT	06	US 1 SB before Fox Street		N/A	PHILADELPHIA	0001	0131	0000
DMS-06-067	D0001S_51	EXISTING	PERMANENT		CENTERMOUNT	06	US 1 SB at 2nd Street		N/A	PHILADELPHIA	0001	0181	0000
DMS-06-072	D309N_08	EXISTING	PERMANENT		CANTILEVER	06	PA 309 NB before Stump Road		N/A	MONTGOMERY	0309	0290	2015
DMS-06-073	D309S_07	EXISTING	PERMANENT		CANTILEVER	06	PA 309 / Hartman Road SB		N/A	MONTGOMERY	0309	0291	1042
DMS-06-077	D309S_03	EXISTING	PERMANENT		OVERHEAD	06	PA 309 SB before Church Road		Church Rd/PA 73	MONTGOMERY	0309	0171	1950
DMS-06-078	D309N_02	EXISTING	PERMANENT		OVERHEAD	06	PA 309 NB after Church Road		PA Turnpike Collecto	MONTGOMERY	0309	0170	1950
DMS-06-079	D309N_01	EXISTING	PERMANENT		CANTILEVER	06	PA 309 Northbound at Willow Grove Ave		Willow Grove Ave.	MONTGOMERY	0309	0261	0729
DMS-06-080	D309S_09	EXISTING	PERMANENT		CENTERMOUNT	06	PA 309 SB After North Wales Rd.		N/A	MONTGOMERY	0309	0311	4076
DMS-06-081	D076E_08	EXISTING	PERMANENT		CENTERMOUNT	06	I-76 EB MM 346.3	346.3	N/A	PHILADELPHIA	0076	3460	1300
DMS-06-100	P001N_14	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	RT. 1 NB BEFORE PA 52			DELAWARE	0001		
DMS-06-101	P30BW_15	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	US 30 WB APPROACHING US 202			CHESTER	0030		
DMS-06-102	P30BE_16	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	BUSINESS RT. 30 EB BEFORE MOSCOW ROAD			CHESTER	3070		
DMS-06-104	P095N_18	EXISTING	SEMI-PERMANENT		CONCRETE PAD	06	I-95 NB SOUTH OF BLUE BALL AVENUE			DELAWARE	0095	0004	1975
DMS-06-213	D291E_01	EXISTING	PERMANENT		CENTERMOUNT	06	I-76 EB at base of Platt Bridge (near 26th Street)			PHILADELPHIA	0291		
DMS-06-214	D030E_01	EXISTING	PERMANENT		CENTERMOUNT	06	US 30 EB at Valley Creek Corporate Center			CHESTER	0030		
DMS-06-215	D030E_02	EXISTING	PERMANENT		CENTERMOUNT	06	US 30 EB East of Ship Road			CHESTER	0030		
DMS-06-216	D202N_12	EXISTING	PERMANENT		CENTERMOUNT	06	US 202N north of PA 491			CHESTER	0202		
DMS-06-217	D023E_01	EXISTING	PERMANENT		CANTILEVER	06	PA 23 EB before William Street			MONTGOMERY	0023		
DMS-06-218	D023E_03	EXISTING	PERMANENT		CANTILEVER	06	PA 23 EB before Hollow Road			MONTGOMERY	0023		
DMS-06-219	D023S_02	EXISTING	PERMANENT		CENTERMOUNT	06	Fayette St. SB before PA 23			MONTGOMERY	0023		
District 8-0													
DMS-08-001	D-81N-40	EXISTING	PERMANENT		CENTERMOUNT	08	MP 40	040.0	44	CUMBERLAND	0081	0400	0538
DMS-08-002	D-81N-58	EXISTING	PERMANENT		OVERHEAD	08	I-81 MM 58	058.0	59	CUMBERLAND	0081		
DMS-08-003	D-81S-63	EXISTING	PERMANENT		OVERHEAD	08	Milepost 62.5 Southbound	062.5	59	CUMBERLAND	0081		
DMS-08-004	D-22E-MID	EXISTING	PERMANENT		CENTERMOUNT	08	US 22/322 at Midway exit		Watts	PERRY	0022		
DMS-08-005	D-11S-TP	EXISTING	PERMANENT		CENTERMOUNT	08	US 11/15 at Trading Post		22/322	PERRY	0011		
DMS-08-006	D-22W-CF	EXISTING	PERMANENT		OVERHEAD	08	US 22/322 at Clark's Ferry Bridge		PA 147	DAUPHIN	0022		
DMS-08-007	D-283N-2	EXISTING	PERMANENT		CENTERMOUNT	08	I-283 at Exit 2	002.4	2	DAUPHIN	0283	0020	0612
DMS-08-008	D-83S-46	EXISTING	PERMANENT		CENTERMOUNT	08	I-83 at MM 46	046.0	46	DAUPHIN	0083	0451	2144
DMS-08-009	D-83S-42	EXISTING	PERMANENT		CENTERMOUNT	08	I-83 at Exit 42		42	CUMBERLAND	0083	0417	1349
DMS-08-010	D-83N-41	EXISTING	PERMANENT		CENTERMOUNT	08	I-83 at Exit 40B		40B	CUMBERLAND	0083	0404	0675
DMS-08-011	D-15N-114	EXISTING	PERMANENT		CENTERMOUNT	08	US 15 at PA 114 Inter. Northbound		PA Turnpike	CUMBERLAND	0015	0060	0390
DMS-08-012	D-581E-3	EXISTING	PERMANENT		CENTERMOUNT	08	PA 581, MILEPOST 3.6	003.6	5	CUMBERLAND	0581	0070	0939
DMS-08-013	D-322W-PH	EXISTING	PERMANENT		CENTERMOUNT	08	US 322 at PennHar Exit		I-83	DAUPHIN	0322		
DMS-08-014	D-283W-HM	EXISTING	PERMANENT		CENTERMOUNT	08	PA 283 at Htown/Mtown exits		Hummelstown	DAUPHIN	0300		
DMS-08-015	D-81N-1	EXISTING	PERMANENT		CENTERMOUNT	08	I-81 at Exit 1	001.0	1	FRANKLIN	0081	0002	0954
DMS-08-016	D-81N-12	EXISTING	PERMANENT		CENTERMOUNT	08	I-81 AT MP 12.3	012.3	14	FRANKLIN	0081	0110	1464
DMS-08-017	D-81S-23	EXISTING	PERMANENT		CENTERMOUNT	08	I-81 MM 23.5	023.5	20	FRANKLIN	0081	0235	0745
DMS-08-018	D-81S-40	EXISTING	PERMANENT		CENTERMOUNT	08	I-81 MM 40	040.0	37	CUMBERLAND	0081	0401	
DMS-08-019	D-81N-63	EXISTING	PERMANENT		OVERHEAD	08	Milepost 63.5 Northbound I-81	063.5	65	CUMBERLAND	0081	0630	2640
DMS-08-020	D-81N-67	EXISTING	PERMANENT		OVERHEAD	08	Milepost 67.1 Northbound I-81	067.1	69	DAUPHIN	0081	0664	2450
DMS-08-021	D-81S-68	EXISTING	PERMANENT		OVERHEAD	08	Milepost 68.4 Southbound I-81	068.4	67	DAUPHIN	0081	0681	2260
DMS-08-022	D-81S-71	EXISTING	PERMANENT		OVERHEAD	08	Milepost 71.7 Southbound I-81	071.7	70	DAUPHIN	0081	0715	1170
DMS-08-023	D-83N-48	EXISTING	PERMANENT		OVERHEAD	08	Milepost 48.6 Northbound I-83	048.6	50	DAUPHIN	0083	0484	0897
DMS-08-024	D-83S-48	EXISTING	PERMANENT		OVERHEAD	08	Milepost 48.6 Southbound I-83	048.6	48	DAUPHIN	0083	0485	0460
DMS-08-025	D-22E-FS	EXISTING	PERMANENT		CENTERMOUNT	08	US 22 E. Farm Show		Cam. St.	DAUPHIN	0022		
DMS-08-026	D-22W-FS	EXISTING	PERMANENT		CENTERMOUNT	08	US 22 W. Farm Show		I-81	DAUPHIN	0022		
DMS-08-027	D-83N-37	EXISTING	PERMANENT		CENTERMOUNT	08	Milepost 36.9 Northbound I-83	036.9	38	YORK	0083	0364	2238
DMS-08-028	D-83N-40	EXISTING	PERMANENT		CENTERMOUNT	08	Milepost 39.7 Northbound I-83	039.7	40B	CUMBERLAND	0083	0396	0250
DMS-08-029	D-81N-83	EXISTING	PERMANENT		CENTERMOUNT	08	Milepost 83.8 Northbound I-81	083.8	85	LEBANON	0081	0834	1436
DMS-08-030	D-81S-90	EXISTING	PERMANENT		OVERHEAD	08	Milepost 90.3 Southbound I-81	090.3	90	LEBANON	0081	0911	1247
DMS-08-031	V-81S-75	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Milepost 74.8 Southbound I-81	074.8	72	DAUPHIN	0081	0741	1899
DMS-08-032	V-283N-1	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Milepost 0.7 Northbound I-283	000.7	2	DAUPHIN	0283	0002	2840
DMS-08-033	V-83N-43	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Milepost 43.1 Northbound I-83	043.1	44A	DAUPHIN	0083	0430	0633
DMS-08-034	V-22E-FRT	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Front St. Exit Eastbound US 22/322		PA 39	DAUPHIN	0022		
DMS-08-035	V-81N-55	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Milepost 55.2 Northbound I-81	055.2	57	CUMBERLAND	0081	0550	1045
DMS-08-036	V-581W-4	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Milepost 4.1 Westbound PA 581	004.1	3	CUMBERLAND	0581	0081	0403
DMS-08-037	V-15N-Wes	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Wesley Dr. Inter. Northbound US 15		Slate Hill	CUMBERLAND	0015	0120	2355
DMS-08-038	V-83N-34	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Milepost 34.1 Northbound I-83	034.1	35	YORK	0083	0340	0105
DMS-08-039	V-15S-EN	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Enola Inter. Southbound US 11/15		I-81	CUMBERLAND	0011	0991	
DMS-08-041	V-83S-39	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	Milepost 39 Southbound I-83	039.0	39A	YORK	0083	0385	1912
DMS-08-042	V-22E-NPT	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	US 22/322 at Newport Exit		Newport	PERRY	0022		
DMS-08-043	V-83S-24	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	I-83 at Emigsville Exit		24	YORK	0083		
DMS-08-044	V-83N-16	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	I-83 at Queen St Exit	016.0	16	YORK	0083		
DMS-08-045	V-30W-24	EXISTING	SEMI-PERMANENT		CONCRETE PAD	08	US 30 at Shoe House Rd		Kruetz Crk.	YORK	0030		
DMS-08-046	D-581E-6	EXISTING	PERMANENT		OVERHEAD	08	Milepost 6.7 Eastbound PA 581	006.7	7	CUMBERLAND	0581		
DMS-08-047	D-15S-234	EXISTING	PERMANENT		CENTERMOUNT	08	US 15 South at Weirmans Mill Road overpass		Heidlersburg	ADAMS	0015		
DMS-08-048	D-15N-M.D.	EXISTING	PERMANENT		CENTERMOUNT	08	US 15 North at Boyle Road overpass		Bus. US 15	ADAMS	0015		
DMS-08-049	D-30W-15	EXISTING	PERMANENT		CENTERMOUNT	08	US 30 West prior to US 15 Interchange		US 15	ADAMS	0030		
DMS-08-054	V-83N-1	EXISTING	SEMI-PERMANENT			08	I-83 North at MD. Line	001.0	4	YORK	0083		
DMS-08-077	D-83N-31	EXISTING	PERMANENT		OVERHEAD	08	I-83 North Mile Marker 31.4. Prior to Exit 32 Newberrytown, PA 382	031.4	32	YORK	0083		
District 9-0													
DMS-09-001	DMS # 1	EXISTING	PERMANENT		CENTERMOUNT	09	Old US Route 220, northbound; near Inlows Restaurant south of S.R. 0022 and S.R. 3013 Intersection, rightside			BLAIR	3013	0250	0105
DMS-09-002	DMS # 2	EXISTING	PERMANENT		CENTERMOUNT	09	US 22 (Third Ave) State Farms Ins., located on the left side. Map site no. 2			BLAIR	0022	0210	0380
DMS-09-003	DMS # 3	EXISTING	PERMANENT		CENTERMOUNT	09	PA 764 : Veeder Root, on left side			BLAIR	0764	0030	0225
DMS-09-004	DMS # 4	EXISTING	PERMANENT		CENTERMOUNT	09	PA 764 Overpass: Crosskeys, rightside			BLAIR	0022	0161	2890
DMS-09-005	DMS # 5	EXISTING	PERMANENT		CENTERMOUNT	09	T-406 Overpass Ritchey's Tree Farm			BLAIR	0022	0150	0365
DMS-09-006	DMS # 6	EXISTING	PERMANENT		CENTERMOUNT	09	US 22 Third Ave. Overpass DMS#6			BLAIR	0099	0270	0675
DMS-09-007	DMS # 7	EXISTING	PERMANENT		CENTERMOUNT	09	On ramp to US 22 WB Campground			BLAIR	8004	0250	1650
DMS-09-008	DMS # 8	EXISTING	PERMANENT		CENTERMOUNT	09	I-99 at 12th St. North of 17th St.			BLAIR	0099	0335	0305
DMS-09-009	DMS # 9	EXISTING	PERMANENT		CENTERMOUNT	09	I-70 WB; approximately .4 Mile East of Breezewood US 30, Breezewood Westbound			BEDFORD	0070	1471	2191
DMS-09-010	DMS # 10	EXISTING	PERMANENT		CENTERMOUNT	09	I-99 SB North of PA 764 Pinecroft Interchange			BLAIR	0099	0391	1965
DMS-09-011	DMS # 11	EXISTING	PERMANENT		CENTERMOUNT	09	I-99 Northbound North of PA764 Pinecroft Interchange			BLAIR	0099	0390	2155
DMS-09-012	DMS # 12	EXISTING	PERMANENT		CENTERMOUNT	09	East of PA 453 Intersection - Waterstreet; Leftside			HUNTINGDON	0022	0090	1360
DMS-09-013	DMS # 13	EXISTING	PERMANENT		CENTERMOUNT	09	East of Gallitzin/Tunnel Hill Intersection, rightside.			BLAIR	0022	0011	1060
DMS-09-014	DMS # 14	EXISTING	PERMANENT		CENTERMOUNT	09	West of the Cresson/Summit Interchange			CAMBRIA	0022	0380	3320
DMS-09-015	DMS # 15	EXISTING	PERMANENT		CENTERMOUNT	09	US 30 Sidling Hill, Rightside			FULTON	0030	0100	1540
DMS-09-016	DMS # 16	EXISTING	PERMANENT		CENTERMOUNT	09	US22 WB East of the Mundy's Corner PA 271 Interchange			CAMBRIA	0022	0111	0990
DMS-09-018	DMS # 18	EXISTING	PERMANENT		CENTERMOUNT	09	Approximately 1/4 mile north of PA45 Intersection and 1 mile north of US22 (Waterstreet) Intersection.			HUNTINGDON	0453	0030	0225
DMS-09-019	DMS # 19	EXISTING	PERMANENT		CENTERMOUNT	09	Located near "Old Bedford Village" historical site.			BEDFORD	0220	0470	1205
DMS-09-020	DMS # 20	EXISTING	PERMANENT		CENTERMOUNT	09	On-Ramp "C" to I-99 from Business US 220 (SR 4009) & Pennsylvania Turnpike			BEDFORD	8007	0750	0520
DMS-09-021	DMS # 21	EXISTING	PERMANENT		CENTERMOUNT	09	I-99 SB @ Country Ridge Rd (T-494) Overpass			BEDFORD	0099	0011	2475
DMS-09-022	DMS # 22	EXISTING	PERMANENT		CENTERMOUNT	09	West of Business Rte US 220 (SR 4009) Walmart Distribution Center			BEDFORD	0056	0301	0700
DMS-09-023	DMS # 23	EXISTING	PERMANENT		CENTERMOUNT	09	Approximately 1 Mile North of the PA 56/I-99 Cessna Interchange at the Old US Rte 220 (SR 4009) Underpass.			BEDFORD	0099	0035	2715

DMS-09-024	DMS # 24	EXISTING	PERMANENT		CENTERMOUNT	09	SR 0219 SB North of the Galleria Interchange			CAMBRIA	0219	0121	1840
DMS-09-025	DMS # 25	EXISTING	PERMANENT		CENTERMOUNT	09	SR 0219 SB South of Galleria Interchange and North of the PA 56 West Expressway			CAMBRIA	0219	0091	1510
DMS-09-026	DMS # 26	EXISTING	PERMANENT		CENTERMOUNT	09	SR 0219 NB @ SR 3006 (Eisenhower Blvd) Overpass			CAMBRIA	0219	0020	2900
DMS-09-027	DMS # 27	EXISTING	PERMANENT		CANTILEVER	09	SR 3016 (Scalp Avenue) West of US 219 Interchange			CAMBRIA	3016	0140	0635
DMS-09-028	DMS # 28	EXISTING	PERMANENT		CANTILEVER	09	SR 0056 (Scalp Ave) East of University Park T-701			CAMBRIA	0056	0301	0850
DMS-09-029	DMS # 29	EXISTING	PERMANENT		CANTILEVER	09	SR 0056 EB West of the Walters Avenue Underpass			CAMBRIA	0056	0240	1730
DMS-09-030	DMS # 30	EXISTING	PERMANENT		CENTERMOUNT	09	US 30 Eastbound, approximately 250' West of the SR 1011 (E. Graceville Rd) Intersection			BEDFORD	0030	0650	0125
DMS-09-031	DMS # 31	EXISTING	PERMANENT		CENTERMOUNT	09	US 30 Westbound, approximately 440 feet East of the Bedford/Fulton County Line			FULTON	0030	0010	0365
DMS-09-032	DMS # 32	EXISTING	PERMANENT		CENTERMOUNT	09	I-70 WB; approximately .6 Mile East of Everett US 30 West Exit, Breezewood Westbound, **TURNPIKE OWNED**.			BEDFORD	0070	1491	0500
DMS-09-033	DMS # 33	EXISTING	PERMANENT		CENTERMOUNT	09	SR 0070 EB @ I - 76 Turnpike Overpass			BEDFORD	0070	1474	2660
DMS-09-034	DMS # 34	EXISTING	PERMANENT		CENTERMOUNT	09	SR 0022 (William Penn Hwy) West of US 219 Interchange			CAMBRIA	0022	0150	0650
DMS-09-035	DMS # 35	EXISTING	PERMANENT		CENTERMOUNT	09	SR 0022 (William Penn Hwy) East of Mini-Mall Rd			CAMBRIA	0022	0181	2250
District 10-0													
DMS-10-004	DMS-42W	EXISTING	PERMANENT		CENTERMOUNT	10	Emlenton Exit	044.5	42	CLARION	0080	0445	2003
DMS-10-005	DMS-45W	EXISTING	PERMANENT		CENTERMOUNT	10	St. Petersburg-Emlenton Exit	049.5	45	CLARION	0080	0494	0000
DMS-10-006	DMS-53E	EXISTING	PERMANENT		CENTERMOUNT	10	Knox Exit	049.5	53	CLARION	0080	0494	0000
DMS-10-007	DMS-53W	EXISTING	PERMANENT		CENTERMOUNT	10	Knox Exit	056.0	53	CLARION	0080	0560	0944
DMS-10-008	DMS-60E	EXISTING	PERMANENT		CENTERMOUNT	10	Shippenville Exit	056.0	60	CLARION	0080	0560	0944
DMS-10-009	DMS-60W	EXISTING	PERMANENT		CENTERMOUNT	10	Shippenville Exit	062.5	60	CLARION	0080	0621	0385
DMS-10-010	DMS-62E	EXISTING	PERMANENT		CENTERMOUNT	10	Clarion Exit	060.0	62	CLARION	0080	0600	1375
DMS-10-011	DMS-62W	EXISTING	PERMANENT		CENTERMOUNT	10	Clarion Exit	063.5	62	CLARION	0080	0635	0557
DMS-10-012	DMS-64E	EXISTING	PERMANENT		CENTERMOUNT	10	Clarion - New New Bethlehem Exit	062.0	64	CLARION	0080	0620	0280
DMS-10-013	DMS-64W	EXISTING	PERMANENT		CENTERMOUNT	10	Clarion - New Bethlehem Exit	067.5	64	CLARION	0080	0671	3114
DMS-10-014	DMS-70E	EXISTING	PERMANENT		CENTERMOUNT	10	Strattanville Exit	068.5	70	CLARION	0080	0684	0000
DMS-10-015	DMS-70W	EXISTING	PERMANENT		CENTERMOUNT	10	Strattanville Exit	071.0	70	CLARION	0080	0710	2535
DMS-10-016	DMS-73E	EXISTING	PERMANENT		CENTERMOUNT	10	Corsica Exit	071.0	73	CLARION	0080	0710	2535
DMS-10-017	DMS-73W	EXISTING	PERMANENT		CENTERMOUNT	10	Corsica Exit	076.5	73	JEFFERSON	0080	0761	0400
DMS-10-018	DMS-78E	EXISTING	PERMANENT		CENTERMOUNT	10	Brookville-Sigel Exit	075.5	78	JEFFERSON	0080	0754	2174
DMS-10-019	DMS-78W	EXISTING	PERMANENT		CENTERMOUNT	10	Brookville-Sigel Exit	079.5	78	JEFFERSON	0080	0791	0565
DMS-10-020	DMS-81E	EXISTING	PERMANENT		CENTERMOUNT	10	Hazen Exit	078.5	81	JEFFERSON	0080	0784	2389
DMS-10-021	DMS-81W	EXISTING	PERMANENT		CENTERMOUNT	10	Hazen Exit	083.5	81	JEFFERSON	0080	0831	1050
DMS-10-022	DMS-86E	EXISTING	PERMANENT		CENTERMOUNT	10	Reynoldsville Exit	081.0	86	JEFFERSON	0080	0810	2389
DMS-10-023	DMS-86W	EXISTING	PERMANENT		CENTERMOUNT	10	Reynoldsville Exit	089.5	86	JEFFERSON	0080	0895	2052
DMS-10-024	DMS-90E	EXISTING	PERMANENT		CENTERMOUNT	10	DuBois Jeffeson County Airport Exit	089.5	90	JEFFERSON	0080	0891	2040
DMS-10-025	DMS-90W	EXISTING	PERMANENT		CENTERMOUNT	10	DuBois Jeffeson County Airport Exit	091.5	90	JEFFERSON	0080	0915	1939
DMS-10-026	DMS-97E	EXISTING	PERMANENT		CENTERMOUNT	10	DuBois- Brockway Exit	094.0	97	JEFFERSON	0080	0940	2180
DMS-10-027	DMS # 17	EXISTING	PERMANENT		CENTERMOUNT	10	approximately 1/2 mile west of the Indiana/Cambria County Line.			INDIANA	0022	0402	0950
DMS-10-028	DMS-42E	EXISTING	PERMANENT		CENTERMOUNT	10	Emlenton Exit	38.0	42	VENANGO	0080	0380	2335
DMS-10-029	DMS-45E	EXISTING	PERMANENT		CENTERMOUNT	10	St. Petersburg-Emlenton Exit	42.0	45	VENANGO	0080	0420	0750
DMS-10-030	DMS-97W	EXISTING	PERMANENT		CENTERMOUNT	10	DuBois- Brockway Exit	98.0	97	CLEARFIELD	0080	0985	2490
DMS-10-031	DMS-130	EXISTING	PERMANENT		OVERHEAD	10	Exit 78 Southbound (Seg. 811/Off. 1690)	081.5	78	BUTLER	0079	0811	1690
DMS-10-032	DMS-140	EXISTING	PERMANENT		CENTERMOUNT	10	Exit 96 Northbound (Seg. 930/Off. 2470)	093.0	96	BUTLER	0079	0930	2470
DMS-10-033	DMS-150	EXISTING	PERMANENT		CENTERMOUNT	10	Exit 99 Southbound (Seg. 1025/Off. 0000)	102.5	99	BUTLER	0079	1025	0000
District 11-0													
DMS-11-001	10	EXISTING	PERMANENT		OVERHEAD	11	Carnegie Busway	064.9		ALLEGHENY	0279	0010	0903
DMS-11-002	20	EXISTING	PERMANENT		OVERHEAD	11	Carnegie -Greentree VMS	066.2		ALLEGHENY	0279	0024	0000
DMS-11-003	21	EXISTING	PERMANENT		OVERHEAD	11	Carnegie OB	066.2		ALLEGHENY	0279	0025	0000
DMS-11-004	30	EXISTING	PERMANENT		OVERHEAD	11	Greentree Hill - Middle	067.7		ALLEGHENY	0279	0034	2095
DMS-11-005	31	EXISTING	PERMANENT		OVERHEAD	11	Greentree OB	067.7		ALLEGHENY	0279	0035	2095
DMS-11-006	40	EXISTING	PERMANENT		OVERHEAD	11	10th Street	071.0		ALLEGHENY	0376	0010	0570
DMS-11-007	50	EXISTING	PERMANENT		OVERHEAD	11	Bates Street	072.5		ALLEGHENY	0376	0025	0000
DMS-11-008	60	EXISTING	PERMANENT		OVERHEAD	11	Saline St VMS	073.6		ALLEGHENY	0376	0035	1108
DMS-11-009	70	EXISTING	PERMANENT		OVERHEAD	11	Edgewood	077.1		ALLEGHENY	0376	0071	1583
DMS-11-010	80	EXISTING	PERMANENT		OVERHEAD	11	Greensburg Pike	078.3		ALLEGHENY	0376	0085	2370
DMS-11-011	90	EXISTING	PERMANENT		OVERHEAD	11	Penn Hills	080.7		ALLEGHENY	0376	0105	1165
DMS-11-012	110	EXISTING	PERMANENT		OVERHEAD	11	Bridgeville	051.2		ALLEGHENY	0079	0510	0905
DMS-11-013	111	EXISTING	PERMANENT		CENTERMOUNT	11	Bridgeville North	053.3		ALLEGHENY	0079	0530	1380
DMS-11-014	112	EXISTING	PERMANENT		CENTERMOUNT	11	Collier Ave	055.6		ALLEGHENY	0079	0554	0454
DMS-11-015	120	EXISTING	PERMANENT		OVERHEAD	11	Warrendale	074.6		ALLEGHENY	0079	0744	0200
DMS-11-016	220	EXISTING	PERMANENT		CENTERMOUNT	11	Union Ave	007.0		ALLEGHENY	0279	0131	1000
DMS-11-017	79	EXISTING	PERMANENT		OVERHEAD	11	Greensburg Pike Outbound	078.3		ALLEGHENY	0376		
DMS-11-018	89	EXISTING	PERMANENT		OVERHEAD	11	Rodi Rd	080.7		ALLEGHENY	0376		
DMS-11-020	115	EXISTING	PERMANENT		CENTERMOUNT	11	Red Mud Hollow	069.3		ALLEGHENY	0079		
DMS-11-021	116	EXISTING	PERMANENT		OVERHEAD	11	Wexford	072.7		ALLEGHENY	0079		
DMS-11-022	225	EXISTING	PERMANENT		CENTERMOUNT	11	Mt Nebo Rd	010.0		ALLEGHENY	0279		
DMS-11-024	8	EXISTING	PERMANENT		OVERHEAD	11	Settlers Cabin, 22/30 (Future 0376)	061.6		ALLEGHENY	0022		
DMS-11-025	113	EXISTING	PERMANENT		CENTERMOUNT	11	Forest Grove	062.2		ALLEGHENY	0079		
DMS-11-026	300	EXISTING	PERMANENT		CENTERMOUNT	11	Chestnut St			ALLEGHENY	0028		
DMS-11-027	6	EXISTING	PERMANENT		OVERHEAD	11	Montour Run (Future 0376)	058.8		ALLEGHENY	0060		
DMS-11-028	320	EXISTING	PERMANENT		CENTERMOUNT	11	Millvale			ALLEGHENY	0028		
District 12-0													
DMS-12-001	100	EXISTING	PERMANENT		OVERHEAD	12	I-70 EB, West of I-79 North Junction, South Strabane Twp	017.0		WASHINGTON	0070	0170	0380
DMS-12-002	105	EXISTING	PERMANENT		OVERHEAD	12	I-79 SB, South of Meadowlands, South Strabane Twp	040.0		WASHINGTON	0079	0401	0938
DMS-12-005	5	EXISTING	PORTABLE		TRAILER	12	I-70 WB at WV State Line, Donegal Twp	004.5	6	WASHINGTON	0070	0002	1795
DMS-12-006	6	EXISTING	PORTABLE		TRAILER	12	I-70 WB, West of I-79 North Junction, South Strabane Twp	017.5	17	WASHINGTON	0070	0165	1756
DMS-12-007	7	EXISTING	PORTABLE		TRAILER	12	I-70 EB, East of I-79 South Junction	020.0	25	WASHINGTON	0070	0210	1964
DMS-12-008	8	EXISTING	PORTABLE		TRAILER	12	I-79 SB at Allegheny County Line, Cecil Twp	049.0	48	WASHINGTON	0079	0491	2261
DMS-12-009	9	EXISTING	PORTABLE		TRAILER	12	I-70 WB, East of PA Toll 43, Fallowfield Twp	037.0	37	WASHINGTON	0070	0381	1498
DMS-12-010	10	EXISTING	PORTABLE		TRAILER	12	I-79 NB, North of I-70 North Junction, South Strabane Twp	038.0	40	WASHINGTON	0079	0378	2000
DMS-12-011	11	EXISTING	PORTABLE		TRAILER	12	I-79 SB, South of I-70 South Junction, Amwell Twp	030.5	30	WASHINGTON	0079	0305	1200
DMS-12-012	12	EXISTING	PORTABLE		TRAILER	12	I-79 NB, South of I-70 South Junction, Amwell Twp	031.0	33	WASHINGTON	0079	0310	1100
DMS-12-013	13	EXISTING	PORTABLE		TRAILER	12	I-70 EB at Belle Vernon Exit, Rostraver Twp	041.0	42	WESTMORELAND	0070	0404	0675
DMS-12-014	14	EXISTING	PORTABLE		TRAILER	12	I-70 EB, West of PA 31, South Huntingdon Twp	049.0	51	WESTMORELAND	0070	0494	1415
DMS-12-015	15	EXISTING	PORTABLE		TRAILER	12	I-70 WB at New Stanton Interchange, Borough of New Stanton	056.0	54	WESTMORELAND	0070	0565	2023
DMS-12-016	16	EXISTING	PORTABLE		TRAILER	12	I-79 NB at Mount Morris Interchange, Perry Twp	001.0	1	GREENE	0079	0004	0000

PennDOT Existing HAR

Statewide_ID	District_ID	STATE ROUTE	SEGMENT	OFFSET	LATITUDE_DD	LONGITUDE_DD	Manufacturer	Model	POWER	COMMUNICATIONS	Broadcast Radius (Miles)	Install Date	Software
District 1-0													
HAR-01-001	Saegertown	0079	1534	2400	41.71700	-80.19500	Highway Information Systems	Black Max	ELECTRIC	POTS	5	Nov-03	DR2000 Platinum
HAR-01-002	Ohio	0090	0020	2000	41.94290	-80.47600	Highway Information Systems	Black Max	ELECTRIC	POTS	5	Mar-06	DR2000 Platinum
HAR-01-003	I-79/I-90	0090	0220	1300	42.03603	-80.11329	Highway Information Systems	Black Max	ELECTRIC	POTS	5	Nov-03	DR2000 Platinum
HAR-01-004	New York	0090	0455	2100	42.24750	-79.76880	Highway Information Systems	Black Max	ELECTRIC	POTS	5	Jan-07	DR2000 Platinum
HAR-01-005	HAR-42	0038	0010	1025	41.17494	-79.73841	Highway Information Systems	Black Max	ELECTRIC	POTS	4	Aug-07	DR2000 Platinum
District 2-0													
HAR-02-001	HAR 2	0322			40.81150	-78.07540	Highway Information Systems	Solar Max	BATTERY/ELECTRIC	POTS	5	Feb-06	DR2000 Platinum
HAR-02-002	HAR 3	0099	0690	0146	40.81660	-77.93980	Highway Information Systems	Solar Max	BATTERY/ELECTRIC	POTS	5	Feb-06	DR2000 Platinum
HAR-02-003	HAR 4	0099	0744	0000	40.82870	-77.84030	Highway Information Systems	Solar Max	BATTERY/ELECTRIC	POTS	5	Dec-06	DR2000 Platinum
HAR-02-004	HAR 5	0099	0820	1940	40.89660	-77.73640	Highway Information Systems	Solar Max	BATTERY/ELECTRIC	POTS	5	Dec-06	DR2000 Platinum
HAR-02-006	HAR 7	0022	0502	2365	40.60410	-77.58400	Highway Information Systems	Solar Max	BATTERY/SOLAR	POTS	5	Dec-06	DR2000 Platinum
HAR-02-007	HAR 8	0022	0191	1550	40.57440	-77.36820	Highway Information Systems	Solar Max	BATTERY/SOLAR	POTS	5	Dec-06	DR2000 Platinum
HAR-02-008	HAR 9	0219	0580	0160	41.97720	-78.62620	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Jan-10	
HAR-02-010	HAR 97	0080	0964	0475	41.14500	-78.78850	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-011	HAR 101	0080	1021	0981	41.12450	-78.68840	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-012	HAR 111	0080	1105	2359	41.09870	-78.52580	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-013	HAR 120	0080	1191	1722	41.04020	-78.39860	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-014	HAR 123	0080	1224	0262	41.02230	-78.35110	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-015	HAR 133	0080	1345	1575	40.98080	-78.13420	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-016	HAR 147	0080	1460	2113	41.02040	-77.94900	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-017	HAR 158	0080	1584	0407	40.95460	-77.75150	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-018	HAR 173	0080	1725	0548	41.03070	-77.52660	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-019	HAR 178	0080	1781	1319	41.06040	-77.43160	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-020	HAR 185	0080	1860	0000	41.05290	-77.29750	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-021	HAR 192	0080	1900	1923	41.06300	-77.21550	Highway Information Systems	HiWay Max	ELECTRIC	POTS	5	Aug-00	DR2000 Platinum
HAR-02-023	HAR 106	0080	1054	2155	41.12166	-78.61760	Highway Information Systems	HiWay Max	BATTERY/ELECTRIC	POTS	5	Dec-10	DR2000 Platinum
District 3-0													
District 4-0													
HAR-04-001	SITE 1	0080	2590	1774	41.04390	-76.01960	Highway Information Systems	PC-900/PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-002	SITE 2	0081	1664	2407	41.22770	-75.87110	Highway Information Systems	PC-900/PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-003	SITE 3	0081	1424	1837	40.94280	-76.02420	Highway Information Systems	PC-900/PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-004	SITE 4	0081	1591	0600	41.14672	-75.96426	Highway Information Systems	PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-005	SITE 5	0315	0160	2513	41.31064	-75.75884	Highway Information Systems	PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-006	SITE 6	0006	0255	0694	41.42124	-75.60272	Highway Information Systems	PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-007	SITE 7	0380	0191	2693	41.31360	-75.54740	Highway Information Systems	PC-900/PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-008	SITE 8	0084	0081	2303	41.40726	-75.50445	Highway Information Systems	PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-009	SITE 9	I476			41.48250	-75.69380	Highway Information Systems	PC-900/PT-1000	ELECTRIC	OTHER	2	Jan-01	DR2000 Platinum
HAR-04-011	SITE10A	0084	0531	2255	41.35910	-74.70997	Highway Information Systems	PC-900/PT-1000	ELECTRIC	OTHER	2	Nov-08	DR2000 Platinum
District 5-0													
HAR-05-001	HAR "A"	Haml			40.36018	-75.28680	Highway Information Systems	DR1500AM	ELECTRIC	POTS		Jan-00	
HAR-05-002	HAR "B"						Highway Information Systems	Solar Max DR1500AM	BATTERY/SOLAR	CELLULAR	5	Jan-99	
HAR-05-003	HAR "C"	0078	0495	0900	40.57979	-75.62540	Highway Information Systems	DR1500AM	ELECTRIC	POTS	6	Jan-99	
HAR-05-004	HAR "D"	0022	0010	0300	40.65048	-75.40973	Highway Information Systems	DR1500AM	ELECTRIC	POTS	6	Jan-02	
HAR-05-005	HAR "E"	0078	0604	0645	40.55488	-75.42893	Highway Information Systems	DR1500AM	ELECTRIC	POTS	6	Jan-99	
HAR-05-006	HAR "F"	0022	0160	0400	40.68310	-75.28725	Highway Information Systems	DR1500AM	ELECTRIC	POTS	6	Jan-99	
HAR-05-007	HAR "G"						Highway Information Systems	Solar Max DR1500AM	BATTERY/SOLAR	CELLULAR	5	Jan-99	
HAR-05-008	HAR "H"	0022	0160	1575	40.61959	-75.49913	Highway Information Systems	DR1500AM	ELECTRIC	POTS	6	Jan-04	
HAR-05-009	HAR No. 1	0078	0401	2450	40.57809	-75.79869	Highway Information Systems	Solar Max DR1500AM	BATTERY/SOLAR	CELLULAR	5	Jan-07	
HAR-05-010	HAR No. 2	0078	0351	0100	40.56757	-75.96656	Highway Information Systems	Solar Max DR1500AM	BATTERY/SOLAR	CELLULAR	5	Jan-07	
HAR-05-011	HAR No. 3	0078	0225	2550	40.51599	-76.11947	Highway Information Systems	Solar Max DR1500AM	BATTERY/SOLAR	CELLULAR	5	Jan-07	
HAR-05-012	HAR No. 4	0078	0165	2000	40.47780	-76.29389	Highway Information Systems	Solar Max DR1500AM	BATTERY/SOLAR	CELLULAR	5	Jan-07	
HAR-05-013	HAR 78 EXIT 16	0078			40.4865	-76.2451	Highway Information Systems	Highway Max DR 1500AM	ELECTRIC	CELLULAR	6	Nov-10	
HAR-05-014	HAR 78 EXIT 29	0078			40.5574	-75.9981	Highway Information Systems	Highway Max DR 1500AM	ELECTRIC	CELLULAR	6	Nov-10	
HAR-05-015	HAR 78 EXIT 40	0078			40.5776	-75.7984	Highway Information Systems	Highway Max DR 1500AM	ELECTRIC	CELLULAR	6	Nov-10	
District 8-0													
HAR-08-001	H-83-48	3020	0071	0415	40.27890	-76.81830	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	7	Dec-99	DR2000 Platinum
HAR-08-002	H-581-3	0581	0061	0825	40.23670	-76.97470	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	7	Dec-99	DR2000 Platinum
HAR-08-003	H-81-63	0081	0634	0135	40.30940	-76.94360	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Dec-99	DR2000 Platinum
HAR-08-004	H-81-42	0081			40.16633	-77.27583	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-005	H-81-52	0081			40.23467	-77.12792	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-006	H-322-147	0022			40.39567	-77.00717	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-007	H-81-78	0081			40.37750	-76.67400	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-008	H-81-89	0081			40.42450	-76.52083	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-009	H-283-HM	0300			40.21382	-76.70832	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-010	H-83-37	0083			40.18968	-76.84532	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-011	H-15-114	0015			40.17705	-76.98675	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-012	H-81-7	0081			39.80683	-77.70367	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-013	H-81-16	0081			39.92870	-77.63560	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-014	H-81-24	0081			40.01562	-77.53343	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	Jun-08	DR2000 Platinum
HAR-08-026	H-83-22	0083			39.99295	-76.73462	Highway Information Systems	Black Max Model DRTXM3 AM	ELECTRIC	POTS	6	May-10	DR2000 Platinum
District 9-0													
HAR-09-001	HAR 01	0022	0161	2865	40.44130	-78.43550	Highway Information Systems	DR2000	ELECTRIC	POTS		Jan-01	DR2000 Platinum
HAR-09-002	HAR 03	0219	0070	0220	40.27997	-78.84808	Highway Information Systems	DR2000	ELECTRIC	CELLULAR		Jul-08	DR2000 Platinum
HAR-09-003	HAR 1	0350	0030	1668	40.71600	-78.17570	Highway Information Systems	DR2000	BATTERY/ELECTRIC	T-1		Feb-06	DR2000 Platinum
HAR-09-901	PTC-O&M	0070			39.99726	-78.23702				POTS			
HAR-09-902	PTC-O&M	0099			40.05713	-78.51904				POTS			
District 10-0													
HAR-10-001	HAR-1	0228	0011	1030	40.68524	-80.09741	Highway Information Systems	Black Max	ELECTRIC	POTS	3	Jan-00	DR2000 Platinum
HAR-10-002	HAR-42	0038	0010	1025	41.17494	-79.73841	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	4	Aug-07	DR2000 Platinum

HAR-10-003	HAR-45	0478	0050	0791	41.18268	-79.67542	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	4	Aug-07	DR2000 Platinum
HAR-10-004	HAR-53	3007	0080	1456	41.17943	-79.54022	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	6	Aug-07	DR2000 Platinum
HAR-10-005	HAR-60	0066	0330	0000	41.19677	-79.42542	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	6	Aug-07	DR2000 Platinum
HAR-10-006	HAR-64	0066	0310	0615	41.17581	-79.34718	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	4	Aug-07	DR2000 Platinum
HAR-10-007	HAR-70	0322	0520	0210	41.18285	-79.24458	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	4	Aug-07	DR2000 Platinum
HAR-10-008	HAR-73	0949	0022	2300	41.18620	-79.19794	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	4	Aug-07	DR2000 Platinum
HAR-10-009	HAR-78	0036	0720	0780	41.17142	-79.09602	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	3	Aug-07	DR2000 Platinum
HAR-10-010	HAR-81	0028	0240	0485	41.16764	-79.04582	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	3	Aug-07	DR2000 Platinum
HAR-10-011	HAR-86	0830	0020	2000	41.15919	-78.82451	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	4	Aug-07	DR2000 Platinum
HAR-10-012	HAR-90	0080	0895	2173	41.15254	-78.90942	Highway Information Systems	Black Max	BATTERY/ELECTRIC	POTS	4	Aug-07	DR2000 Platinum
District 11-0													
HAR-11-001	10	0060			40.47081	-80.22247	Highway Information Systems	Black Max	ELECTRIC	POTS		Oct-01	DR2000 Platinum
HAR-11-002	20	0279	0015	1100	40.41239	-80.07709	Highway Information Systems	Black Max	ELECTRIC	FIBER		Dec-98	DR2000 Platinum
HAR-11-003	30	0279	0054	3600	40.43709	-80.01325	Highway Information Systems	Black Max	ELECTRIC	FIBER		Dec-98	DR2000 Platinum
HAR-11-004	40	0376			40.44135	-79.82674	Highway Information Systems	Black Max	ELECTRIC	FIBER		Oct-01	DR2000 Platinum
HAR-11-005	60	0079	0521	2530	40.35531	-80.11880	Highway Information Systems	Black Max	ELECTRIC	POTS		Dec-97	DR2000 Platinum
HAR-11-006	70	0079	0660	2225	40.52227	-80.13115	Highway Information Systems	Black Max	ELECTRIC	POTS		Oct-00	DR2000 Platinum
HAR-11-007	80	0279	0120	1250	40.50729	-80.03544	Highway Information Systems	Black Max	ELECTRIC	FIBER		Oct-00	DR2000 Platinum
HAR-11-008	71	0079			40.61471	-80.09555	Highway Information Systems	Black Max	ELECTRIC	FIBER	3	Jan-08	DR2000 Platinum
HAR-11-009	32	0028			40.47856	-79.96749	Highway Information Systems	Black Max	ELECTRIC	POTS		Jul-08	DR2000 Platinum
HAR-11-010	11	0060			40.44738	-80.16532	Highway Information Systems	Black Max	ELECTRIC	FIBER		Oct-08	DR2000 Platinum
District 12-0													
HAR-12-001	50	0070	0184	0760	40.18405	-80.22773	Highway Information Systems	Black Max	ELECTRIC	POTS	2		DR2000 Platinum
HAR-12-002	90	0070	0420	2895	40.14015	-79.84501	Highway Information Systems	Black Max	ELECTRIC	POTS	2		DR2000 Platinum
HAR-12-003	42	0079	0054	0000	39.79206	-80.07700	Highway Information Systems	Black Max	ELECTRIC	POTS	2		DR2000 Platinum
HAR-12-004	43	0070	0044	1505	40.11621	-80.44483	Highway Information Systems	Black Max	ELECTRIC	POTS	2		DR2000 Platinum

PennDOT Existing CCV

Statewide_ID	District_ID	STATUS	TYPE	STRUCTURE	POLE HEIGHT (in feet)	DISTRICT	Descriptive Location	MILEMARKER	EXIT NUMBER	COUNTY	STATE ROUTE	SEGMENT	OFFSET	LATITUDE_DD	LONGITUDE_DD	Manufacturer	Model	POWER	COMMUNICATIONS	Install Date	Software
District 1-0																					
CAM-01-011		EXISTING	PORTABLE	OTHER		01	I-90 AT PA 97 EXIT 27 INTERCHANGE	027.0	27	ERIE	0090	0264	2449	42.04111	-80.02245	ASTI		BATTERY/SOLAR	WIRELESS	Dec-10	
District 2-0																					
CAM-02-001	CCTV 2	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0322 BuPass Westbound, Port Matilda			CENTRE	0322	0251	0640	40.81152	-78.07475	Bosch	LTC 7960/60-20XPM	BATTERY / ELECTRIC	T-1	Feb-06	ATMS
CAM-02-002	CCTV 3	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-99 Northbound, New Scotia Road, Grays Woods	074.0	74	CENTRE	I-99	0690	0146	40.81767	-77.93973	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Feb-06	ATMS
CAM-02-003	CCTV 4	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-99 Northbound, Near Park Avenue	074.0	74	CENTRE	I-99	0740	2640	40.82867	-77.84030	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Dec-06	ATMS
CAM-02-004	CCTV 6	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-99 Northbound at Weaver Hill	082.0	81	CENTRE	I-99	0820	1880	40.89655	-77.73637	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Dec-06	ATMS
CAM-02-005	CCTV 9	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-80 Eastbound at Milesburo	158.0	158	CENTRE	0080	1570	1720	40.95588	-77.77533	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Dec-06	ATMS
CAM-02-006	CCTV 10	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-80 Westbound at Milesburo	158.0	158	CENTRE	0080	1575	1120	40.95608	-77.76720	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Dec-06	ATMS
CAM-02-007	CCTV 13	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0322 Westbound near Branch Road, at Advance Warning DMS			CENTRE	0322	0537	2828	40.79620	-77.82116	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Jun-07	ATMS
CAM-02-008	CCTV 14	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0022 Bypass, at Electric Avenue			MIFFLIN	0322	0270	0700	40.61560	-77.57620	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Oct-06	ATMS
CAM-02-012	CCTV 11	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-99 at Port Matilda	061.0	61	CENTRE	I-99	0610	2470	40.80393	-78.06375	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Feb-08	ATMS
CAM-02-014	CCTV 15	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0022 Westbound at Westbound end of Narrows			MIFFLIN	0022	0613	0575	40.58018	-77.53855	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Dec-06	ATMS
CAM-02-015	CCTV 16	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0022 Westbound at Eastbound end of Narrows			JUNIATA	0022	0063	1240	40.61156	-77.44722	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Dec-07	ATMS
CAM-02-016	CCTV 17	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0219 & SR 4002, Bradford			MCKEAN	0219	0492	0340	41.92952	-78.64877	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Jan-10	ATMS
CAM-02-017	CCTV 18	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0219 & SR 4015, Bradford			MCKEAN	0219	0540	0080	41.95307	-78.64610	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Jan-10	ATMS
CAM-02-018	CCTV 19	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0219 & SR 346 West Bradford			MCKEAN	0219	0550	0400	41.95830	-78.64243	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Jan-10	ATMS
CAM-02-019	CCTV 20	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0219 & Mill St.			MCKEAN	0219	0560	0600	41.96427	-78.63857	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Jan-10	ATMS
CAM-02-020	CCTV 21	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0219 & SR 46			MCKEAN	0219	0570	0000	41.96843	-78.62970	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Jan-10	ATMS
CAM-02-021	CCTV 22	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0219 & SR 346 Foster Brook			MCKEAN	0219	0580	0100	41.97802	-78.62585	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Jan-10	ATMS
CAM-02-022	CCTV 23	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0219 & SR T-369			MCKEAN	0219	0594	1135	41.99627	-78.62043	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Jan-10	ATMS
CAM-02-023	CCTV 24	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0150 & SR 0026, State College			CLEARFIELD	0150	0012	0165	40.82946	-77.80514	Bosch	ENVD2460P	BATTERY / ELECTRIC	T-1	Jan-08	ATMS
CAM-02-024	CCTV 25	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0219, Liberty Boulevard, DuBois			CLEARFIELD	0219	0870	2930	41.12688	-78.75511	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Feb-09	ATMS
CAM-02-025	CCTV 26	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0255, Shaffer Ave., DuBois			CLEARFIELD	0255	0040	0150	41.12245	-78.72905	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Feb-09	ATMS
CAM-02-026	CCTV 27	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-80 Exit 97 (I-80 / US 219 Interchange), I-80-B2R Job	097.0	97	CLEARFIELD	0080	0994	0330	41.14678	-78.78988	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Oct-09	ATMS
CAM-02-027	CCTV 28	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-80 Exit 101 (I-80 / PA 255 Interchange), I-80-B2R Job	101.0	101	CLEARFIELD	0080	1010	0315	41.12956	-78.70846	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Oct-09	ATMS
CAM-02-029	CCTV 30	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-80 Exit 111 (I-80 WB), I-80-B2R Job	110.0	111	CLEARFIELD	0080	1111	2420	41.09858	-78.52572	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Oct-09	ATMS
CAM-02-030	CCTV 31	EXISTING	PERMANENT	POLE W/ CLD	50	02	I-80 Exit 120 (I-80 / PA 879 Interchange), I-80-B2R Job	120.0	120	CLEARFIELD	0080	1195	0720	41.03959	-78.39835	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Oct-09	ATMS
CAM-02-033	CCTV 34	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0322 / SR 0153, SR 0153-N23 Job			CLEARFIELD	0322	0430	0360	41.02645	-78.43828	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Feb-10	ATMS
CAM-02-034	CCTV 35	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0322 / SR 0879, SR 0153-N23 Job			CLEARFIELD	0879	0310	1060	41.02392	-78.41625	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Feb-10	ATMS
CAM-02-035	CCTV 36	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0322 / SR 0970, SR 0153-N23 Job			CLEARFIELD	0322	0560	2740	41.00010	-78.34763	Bosch	VG4-323-ECSOP	BATTERY / ELECTRIC	T-1	Feb-10	ATMS
CAM-02-049	CCTV 50	EXISTING	PERMANENT	POLE W/ CLD	50	02	SR 0150 & SR 2015, Mill Hall			CLINTON	0150	0152	0380	41.11410	-77.48130	Bosch		BATTERY / ELECTRIC	T-1	Oct-10	ATMS
District 3-0																					
District 4-0																					
CAM-04-001	Camera 1	EXISTING	PERMANENT	POLE	50	04	I-81 & Rt 93, Dunn, Pa Luzerne Co., 80 WB	256.0	256	LUZERNE	0080	2605	2388	41.07643	-76.07906	Bosch		ELECTRIC	T-1	Jan-08	DIVAR
CAM-04-002	Camera 2	EXISTING	PERMANENT	POLE	50	04	Junction of I-80 and I-81, 80 ER	256.6	168	LUZERNE	0080	2604	0528	41.04630	-76.01438	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-08	DIVAR
CAM-04-003	Camera 3	EXISTING	PERMANENT	POLE	50	04	Exit 164 (SR0029) on I-81 SB	164.3	164	LUZERNE	0081	1641	1362	41.20173	-75.90618	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-08	DIVAR
CAM-04-004	Camera 4	EXISTING	PERMANENT	POLE	50	04	Exit 168 on I-81 Highland Blvd. 81 NB	168.3	168	LUZERNE	0081	1680	1626	41.23465	-75.84689	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-00	DIVAR
CAM-04-005	Camera 5	EXISTING	PERMANENT	POLE	50	04	Exit 175 on I-81 Near Park and Ride 81 NB	174.9	175	LUZERNE	0081	1744	2048	41.30424	-75.76702	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-08	DIVAR
CAM-04-006	Camera 6	EXISTING	PERMANENT	POLE	50	04	Camera located in Stockton 14 on SR315 NB	175.0	175	LUZERNE	0315	0160	2323	41.31057	-75.75953	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-08	DIVAR
CAM-04-007	Camera 7	PERMANENT	POLE	50	04	I-81 Exit 182 Davis St./Montage MTn. 81 NB side	181.9	182	LACKAWANNA	0081	1814	2133	41.37101	-75.68315	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-00	DIVAR
CAM-04-008	Camera 8	EXISTING	PERMANENT	POLE	50	04	I-81/I-84/Rt 6 Junction left side of 81 SB ramp from Rt. 6	187.0	187	LACKAWANNA	0081	1870	1943	41.42241	-75.60638	Cylink	0807-004	ELECTRIC	OTHER	Jan-00	DIVAR
CAM-04-009	Camera 1Portable	EXISTING	PORTABLE	OTHER	30	04	SR 435 WB at I-380 pore area, segment 31/01309	001.8	2	LACKAWANNA	0084	0015	1606	41.46108	-75.58590	ASTI	EZ CAM	BATTERY/SOLAR	CELLULAR	Jan-07	DIVAR
CAM-04-010	Camera 2 Portable	EXISTING	PORTABLE	OTHER	30	04	I-81SB MM 195 at Turnpike ramp	193.7	194	LACKAWANNA	0081	1935	1045	41.48259	-75.68063	ASTI	EZ CAM	BATTERY/SOLAR	CELLULAR	Jan-07	DIVAR
CAM-04-011	Camera 3 Portable	EXISTING	PORTABLE	OTHER	30	04	I-81 NB MM 189.1 Right Shoulder	189.1	178	LACKAWANNA	0081	1890	0464	41.43993	-75.62872	ASTI	EZ CAM	BATTERY/SOLAR	CELLULAR	Jan-07	DIVAR
CAM-04-012	Camera 4 Portable	EXISTING	PORTABLE	OTHER	30	04	81 NB, North of SB 182 on concrete pad	183.2	184	LACKAWANNA	0081	1830	1457	41.48228	-75.66402	ASTI	EZ CAM	BATTERY/SOLAR	CELLULAR	Jan-07	DIVAR
CAM-04-013	Camera 9	EXISTING	PERMANENT	POLE	50	04	I-81 @ Exit 184, River Street	184.3	185	LACKAWANNA	0081	1840	1605	41.39323	-75.65078	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-08	DIVAR
CAM-04-014	Camera 20	EXISTING	PERMANENT	POLE	50	04	380/84, South I-84 EB on Left side	023.0	24	LACKAWANNA	0380	0040	0163	41.37334	-75.57137	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-015	Camera 10	EXISTING	PERMANENT	POLE	50	04	I-380 / SR 307 Interchange – Exit 20 380 NB side	019.5	20	LACKAWANNA	0380	0194	0126	41.31361	-75.54637	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-016	Camera 11	EXISTING	PERMANENT	POLE	50	04	I-84, Exit 8 Mt. Cobb	008.4	8	LACKAWANNA	0084	0081	2303	41.40722	-75.50430	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-017	Camera 12	EXISTING	PERMANENT	POLE	50	04	I-81 @ RT 0093, Exit 145	145.7	145	LUZERNE	0081	1455	0727	40.98095	-76.03627	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-018	Camera 13	EXISTING	PERMANENT	POLE	50	04	I-80 @ PA 0309 Exit 262 I-80 EB	262.6	262	LUZERNE	0080	2624	0612	41.05364	-75.95931	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-019	Camera 14	EXISTING	PERMANENT	POLE	50	04	I-81 Nuangola Rest Area (SB) - MM 158 (approx. 1 mile South of closest	158.0	155	LUZERNE	0081	1575	2462	41.13005	-75.96322	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-020	Camera 15	PERMANENT	POLE	50	04	I-81 Dorrance Rest Area (NB) – MM 156 (~ 1 mile North of closest exit)	156.0	159	LUZERNE	0081	1560	0052	41.10128	-75.96086	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-021	Camera 16	EXISTING	PERMANENT	POLE	50	04	I-84 at 6/209 Matamoras Interchange I-84 EB	053.2	53	PIKE	0084	0530	1140	41.35767	-74.71267	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-022	Camera 21	EXISTING	PERMANENT	POLE	50	04	I-81, US 11, Rt. 6 Business Interchange	191.2	191	LACKAWANNA	0081	1911	1437	41.45686	-75.65984	Bosch	G3-AUTODOME	ELECTRIC	T-1		DIVAR
CAM-04-023	Camera 22	EXISTING	PERMANENT	POLE	50	04	I-81 @ Exit 206, PA 374 in median	206.2	211	SUSQUEHANNA	0081	2060	1478	41.65151	-75.65799	Bosch	G3-AUTODOME	ELECTRIC	T-1		DIVAR
CAM-04-026	Camera 19	EXISTING	PERMANENT	POLE	50	04	I-81 at 848 Interchange Exit 219 I-81 NB	219.4	219	SUSQUEHANNA	0081	2190	2027	41.82390	-75.68027	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-027	Camera 18	EXISTING	PERMANENT	POLE	50	04	I-81 at Great Bend Welcome Center – Exit 230 I-81 SB	231.8	230	SUSQUEHANNA	0081	2315	1291	41.98397	-75.74769	Bosch	G3-AUTODOME	ELECTRIC	T-1	Jan-09	DIVAR
CAM-04-028	Camera 17	EXISTING	PERMANENT	POLE	50	04	I-84 / SR 739 Interchange – Exit 34 I-84 EB	034.3	34	PIKE	0084	0340	1858	41.35756	-75.05612	Bosch	G3-AUTODOME	ELECTRIC	T-1		DIVAR
District 5-0																					
CAM-05-001	CCTV No.1	EXISTING	PERMANENT	POLE W/ CLD	50	05	At US 22 MacArthur Road/7th Street Rt.145 NE Quad	321.5	PA 145/MacArth	LEHIGH	0022	0180	2810	40.62668	-75.48280	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-04	Philips/Bosch GUI version 2.43
CAM-05-002	CCTV No.2	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 49 Rt.100 NW Quad	049.7	49	LEHIGH	0078	0494	1300	40.58000	-75.62498	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-04	Philips/Bosch GUI version 2.43
CAM-05-003	CCTV No.3	EXISTING	PERMANENT	POLE W/ CLD	40	05	At US 22 Airport Road Rt.987 SE Quad	324.4	Airport Rd	LEHIGH	0022	0240	0050	40.64322	-75.43159	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-04	Philips/Bosch GUI version 2.43
CAM-05-004	CCTV No.4	EXISTING	PERMANENT	POLE W/ CLD	70	05	At Rt.512 NW Quad	327.3	PA 512	NORTHAMPTON	0022	0040	2170	40.66272	-75.38435	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-04	Philips/Bosch GUI version 2.43
CAM-05-005	CCTV No.5	EXISTING	PERMANENT	POLE W/ CLD	50	05	At Cedar Crest NE Quad	318.6	Cedar Crest	LEHIGH	0022	0130	0025	40.60976	-75.53161	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-05	Philips/Bosch GUI version 2.43
CAM-05-006	CCTV No.6	EXISTING	PERMANENT	POLE W/ CLD	50	05	At Fullerton Ave SE Quad	322.2	Fullerton Ave	LEHIGH	0022	0190	3300	40.63081	-75.47001	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-06	Philips/Bosch GUI version 2.43
CAM-05-008	CCTV No.8	EXISTING	PERMANENT	POLE W/ CLD	50	05	At Schoenersville Rd. SE Quad	325.7	Schoenersville	NORTHAMPTON	0022	0010	0075	40.64983	-75.41038	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-06	Philips/Bosch GUI version 2.43
CAM-05-009	CCTV No.9	EXISTING	PERMANENT	POLE W/ CLD	70	05	At Rt.191 SW Quad	329.8	PA 191	NORTHAMPTON	0022	0100	0450	40.67836	-75.34261	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-06	Philips/Bosch GUI version 2.43
CAM-05-010	CCTV No.10	EXISTING	PERMANENT	POLE W/ CLD	50	05	At Rt 309 SW Quad	317.0	PA 309	LEHIGH	0022	0090	3770	40.59966	-75.56030	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-05	Philips/Bosch GUI version 2.43
CAM-05-011	CCTV No.11	EXISTING	PERMANENT	POLE W/ CLD	50	05	PA 33 at US 22 Interchange	004.1	PA 33/US 22	NORTHAMPTON	0033	0017	2450	40.68314	-75.28912	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-04	Philips/Bosch GUI version 2.43
CAM-05-012	CCTV No.12	EXISTING	PERMANENT	POLE W/ CLD	50	05	At 15th St. SW Quad	320.4	15th St	LEHIGH	0022	0160	1820	40.61850	-75.50123	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-05	Philips/Bosch GUI version 2.43
CAM-05-013	CCTV No.13	EXISTING	PERMANENT	POLE W/ CLD	50	05	At RT.309/Tilghman St.NW Quad		Tilghman St	LEHIGH	0309	0240	0025	40.59007	-75.55428	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-08	Philips/Bosch GUI version 2.43
CAM-05-014	CCTV No.14	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 55 Cedar Crest NE Quad	055.8	55	LEHIGH	0078	0554	1500	40.56790	-75.51862	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-06	Philips/Bosch GUI version 2.43
CAM-05-015	CCTV No.15	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 60 Rt.309/Rt.145 SE Quad	060.5	60	LEHIGH	0078	0604	0090	40.55459	-75.43006	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-04	Philips/Bosch GUI version 2.43
CAM-05-016	CCTV No.16	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 51 US 22/I-78 Split	315.3	US 22/I-78 Split	LEHIGH	0022	0062	0380	40.58953	-75.58876	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-05	Philips/Bosch GUI version 2.43
CAM-05-017	CCTV No.17	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 54 Rt.222 SW Quad	054.6	54	LEHIGH	0078	0544	0700	40.57232	-75.54014	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-04	Philips/Bosch GUI version 2.43
CAM-05-018	CCTV No.18	EXISTING	PERMANENT	POLE W/ CLD	50	05	PA 33 SB at PA 248, NW Quad	006.4	PA 248	NORTHAMPTON	0033	0071	0270	40.71778	-75.28840	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-09	Philips/Bosch GUI version 2.43
CAM-05-019	CCTV No.19	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 75 Morgan Hill SW Quad	075.4	75	NORTHAMPTON	0078	0750	1089	40.67007	-75.21402	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-06	Philips/Bosch GUI version 2.43
CAM-05-020	CCTV No.20	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 71 Rt.33 NW Quad	071.4	71	NORTHAMPTON	0078	0710	1725	40.63836	-75.27311	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-04	Philips/Bosch GUI version 2.43
CAM-05-021	CCTV No.21	EXISTING	PERMANENT	POLE W/ CLD	50	05	At US 22 2nd and Bushkill Streets	337.7	2nd Street	NORTHAMPTON	0022	0250	2555	40.69443	-75.20752	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-08	Philips/Bosch GUI version 2.43
CAM-05-022	CCTV No.22	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 67 Rt.412 SW Quad	066.5	67	NORTHAMPTON	0078	0664	0150	40.59624	-75.34055	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-05	Philips/Bosch GUI version 2.43
CAM-05-023	CCTV No.23	EXISTING	PERMANENT	POLE W/ CLD	50	05	At I-78 Exit 57 Lehigh St. SW Quad	057.6	57	LEHIGH	0078	0574	0650	40.56437	-75.48507	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-08	Philips/Bosch GUI version 2.43
CAM-05-024	CCTV No.24	EXISTING	PERMANENT	POLE W/ CLD	50	05	At Rt.222 and Rt.100 SE Quad		PA 100	LEHIGH	0222	0132	1700	40.58883	-75.60850	Bosch	ENVT120P Dome	ELECTRIC	T-1	Jan-07	Philips/Bosch GUI version 2.43
CAM-05-034	CCTV No. 29	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-78 Exit 40 Rt.737 NW Quad		40	BERKS	0078			40.57760	-75.79840	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-035	CCTV No. 28	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-78 Exit 35 Rt.143 NW Quad		35	BERKS	0078			40.57740	-75.89030	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-036	CCTV No. 27	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-78 Exit 29 Rt.61 NE Quad		29	BERKS	0078			40.57740	-75.99810	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-037	CCTV No. 26	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-78 Exit 19 Rt.183 SW Quad		19	BERKS	0078			40.49940	-76.18560	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-038	CCTV No. 25	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-78 Exit 10 Rt.645 NW Quad		10	BERKS	0078			40.46650	-76.34030	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-039	CCTV No. 30	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-81 Exit 107 Rt.209 NW Quad		107	SCHUYLKILL	0081			40.62020	-76.43850	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-040	CCTV No. 31	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-81 Exit 119 HighRidge Dr. SE Quad		119	SCHUYLKILL	0081			40.73500	-76.30620	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-041	CCTV No. 32	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-81 Exit 124 Rt.61 South Median		124	SCHUYLKILL	0081			40.77310	-76.22470	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-042	CCTV No. 33	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-80 Exit 277 Rt.940/Turnpike NE Quad		277	CARBON	0080			41.06680	-75.70170	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-043	CCTV No. 34	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-80 Exit 309 Rt.209 NE Quad		309	MONROE	0080			40.99870	-75.15440	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
CAM-05-044	CCTV No. 35	EXISTING	PERMANENT	POLE W/ CLD	70	05	At I-380 Exit 3 Rt.940 NE Quad		3	MONROE	0380			41.10620	-75.39750	Bosch	ENVT120P Dome	ELECTRIC	T-1	Oct-10	Philips/Bosch GUI version 2.43
District 6-0																					
CAM-06-001	CM 1	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ ISLAND AVE/ PIA		12	PHILADELPHIA	0095			39.89313	-75.23458	Bosch	LTC 600 Digital Color Cameras	ELECTRIC	T-1	Jan-92	Broadware Video Server
CAM-06-002	CM 2	EXISTING	PERMANENT	OTHER		06	I-95 SB @ ENTERPRISE / BARTRAM		15	PHILADELPHIA	0095			39.88720	-75.21500	Bosch	LTC 600 Digital Color Cameras	ELECTRIC	T-1	Jan-92	Broadware Video Server
CAM-06-003	CM 3	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ BROAD ST		17	PHILADELPHIA	0095			39.89937	-75.17575	Bosch	LTC 600 Digital Color Cameras	ELECTRIC	T-1	Jan-92	Broadware Video Server
CAM-06-004	CM 4	EXISTING	PERMANENT	POLE	50	06	I-95 NB @ WIND BACKER AVE		18	PHILADELPHIA	0095			39.90733	-75.14932	Bosch	LTC 600 Digital Color Cameras	ELECTRIC	T-1	Jan-92	Broadware Video Server
CAM-06-005	CM 5	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ BACKER JERSEY		19	PHILADELPHIA	0095			39.91030	-75.14837	Bosch	LTC 600 Digital Color Cameras	ELECTRIC	T-1	Jan-92	Broadware Video Server
CAM-06-006	CM 6	EXISTING	PERMANENT	OTHER		06	I-95 NB @ TASKER JERSEY		20	PHILADELPHIA	0095			39.92793	-75.14676	Bosch	LTC 600 Digital Color Cameras	ELECTRIC	T-1	Jan-92	Broadware Video Server
CAM-06-007	CM 7	EXISTING	PERMANENT	OTHER		06	I-95 NB @ WASHINGTON / COLUMBUS		21	PHILADELPHIA	0095			39.93837	-75.14378	Bosch	LTC 600 Digital Color Cameras	ELECTRIC	T-1	Jan-92	Broadware Video Server
CAM-06-008	CM 8

CAM-06-065	CM 226	EXISTING	PERMANENT	POLE	50	06	US 202 NB AT BUSINESS RT 322			N/A	CHESTER	0202	0090		39.84066	-75.59545	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-066	CM 227	EXISTING	PERMANENT	POLE	50	06	US 202 NEAR SKELPS LN (MEDIAN)			N/A	CHESTER	0202			39.83838	-75.58555	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-067	CM 228	EXISTING	PERMANENT	POLE	50	06	US 202 SB AT PA 926			N/A	CHESTER	0202			39.81965	-75.57696	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-068	CM 229	EXISTING	PERMANENT	POLE	50	06	US 202 SOUTH OF GREEN TREE RD			N/A	CHESTER	0202			39.81118	-75.57103	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-069	CM 230	EXISTING	PERMANENT	POLE	50	06	US 202 SB AT WATKINS			N/A	DELAWARE	0202			39.89145	-75.55535	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-070	CM 231	EXISTING	PERMANENT	POLE	50	06	US 202 SB AT U.S. RT. 1			N/A	DELAWARE	0202			39.88117	-75.54712	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-071	CM 271	EXISTING	PERMANENT	POLE	50	06	PA 422 EB / US 202 NB RAMP TO 76E (RAMP L)			N/A	MONTGOMERY	3202			40.07852	-75.40563	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-072	CM 272	EXISTING	PERMANENT	POLE	50	06	PA 422 EB / US 202 NB RAMP TO 76E (RAMP L MERGE TO I-76 EB)			N/A	MONTGOMERY	3202			40.08030	-75.39832	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-073	CM 273	EXISTING	PERMANENT	POLE	50	06	PA 422 EB / US 202 NB RAMP TO 76E (RAMP L)			N/A	MONTGOMERY	3202			40.08142	-75.39148	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-074	CM 274	EXISTING	PERMANENT	POLE	50	06	US 202 SB @ HOME DEPOT			N/A	MONTGOMERY	0202			40.08313	-75.39735	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-075	CM 371	EXISTING	PERMANENT	POLE	50	06	US RT.30 EB AT SR 100			N/A	CHESTER	0030			40.02052	-75.62432	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-076	CM 372	EXISTING	PERMANENT	POLE	50	06	US RT.30 EB AFTER CLOVER MILL RD			N/A	CHESTER	0030			40.01298	-75.64793	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-077	CM 373	EXISTING	PERMANENT	POLE	50	06	US RT.30 WB AT BUSINESS RT 30			N/A	CHESTER	0030			40.01818	-75.66953	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-078	CM 374	EXISTING	PERMANENT	POLE	50	06	US RT.30 WB AFTER WHITFORD RD			N/A	CHESTER	0030			40.02072	-75.68593	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-079	CM 375	EXISTING	PERMANENT	POLE	50	06	US RT.30 WB AFTER PA 113			N/A	CHESTER	0030			40.01927	-75.69978	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-080	CM 376	EXISTING	PERMANENT	POLE	50	06	US RT.30 WB AT PA 322			N/A	CHESTER	0030			40.01347	-75.72438	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-081	CM 377	EXISTING	PERMANENT	POLE	50	06	US RT.30 EB AFTER PA 340			N/A	CHESTER	0030			40.00983	-75.73667	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-07	Broadware Video Server
CAM-06-082	CM 3901	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ BONTON RD			N/A	MONTGOMERY	0309			40.08793	-75.16595	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-083	CM 3907	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ PA TURNPIKE			N/A	MONTGOMERY	0309			40.13340	-75.20118	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-084	CM 3911	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ SUSQUEHANNA RD			N/A	MONTGOMERY	0309			40.16118	-75.20125	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-085	CM 3915	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ BETHLEHEM PIKE			N/A	MONTGOMERY	0309			40.19592	-75.22307	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-086	CM 401	EXISTING	PERMANENT	POLE	50	06	US 422 EB AT PA TURNPIKE			N/A	CHESTER	0422			40.09032	-75.41520	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-087	CM 402	EXISTING	PERMANENT	POLE	50	06	US 422 WB AT PA 23			N/A	MONTGOMERY	0422			40.10143	-75.41850	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-088	CM 403	EXISTING	PERMANENT	POLE	50	06	US 422 NB AT PA 363			N/A	MONTGOMERY	0422			40.11305	-75.42002	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-089	CM 404	EXISTING	PERMANENT	POLE	50	06	US 422 WB AFTER PA 363			N/A	MONTGOMERY	0422			40.11593	-75.43110	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-090	CM 405	EXISTING	PERMANENT	POLE	50	06	US 422 EB AT PAWLINGS RD			N/A	MONTGOMERY	0422			40.11417	-75.45488	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-091	CM 406	EXISTING	PERMANENT	POLE	50	06	US 422 EB AFTER PERKIOMEN CREEK			N/A	MONTGOMERY	0422			40.12436	-75.45198	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-092	CM 407	EXISTING	PERMANENT	POLE	50	06	US 422 WB AT EGYPT RD (OAKS)			N/A	MONTGOMERY	0422			40.13425	-75.48477	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-093	CM 408	EXISTING	PERMANENT	POLE	50	06	US 422 EB AT INDIAN HEAD RD			N/A	MONTGOMERY	0422			40.14778	-75.49035	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-094	CM 409	EXISTING	PERMANENT	POLE	50	06	US 422 WB AT CIDER MILL RD			N/A	MONTGOMERY	0422	0235	1200	40.15048	-75.45990	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-095	CM 410	EXISTING	PERMANENT	POLE	50	06	US 422 WB BEFORE PA 29			N/A	MONTGOMERY	0422			40.15680	-75.47000	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-096	CM 4701	EXISTING	PERMANENT	POLE	50	06	MacDade Blvd Ramp to NB I-476	001.0	1		DELAWARE	8025			39.87583	-75.34892	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-097	CM 4702	EXISTING	PERMANENT	POLE	50	06	I-476 SB at MacDade Blvd.	001.0	1		DELAWARE	0476			39.87678	-75.35165	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-06	Broadware Video Server
CAM-06-098	CM 4707	EXISTING	PERMANENT	POLE	50	06	I-476 SB at Baltimore Pike	003.0	3		DELAWARE	0476			39.91260	-75.36242	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jun-05	Broadware Video Server
CAM-06-099	CM 4709	EXISTING	PERMANENT	POLE	50	06	I-476 SB at US Rt. 1		5		DELAWARE	0476			39.93610	-75.36464	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-100	CM 630	EXISTING	PERMANENT	POLE	50	06	PA 63 WB (WOODHAVEN RD) @ MILLBROOK RD			N/A	PHILADELPHIA	0063			40.08092	-74.96567	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-99	Broadware Video Server
CAM-06-101	CM 671	EXISTING	PERMANENT	OTHER		06	I-676 WB @ 24TH ST			N/A	PHILADELPHIA	0676			39.95998	-75.17848	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-102	CM 672	EXISTING	PERMANENT	OTHER		06	I-676 EB @ BEN FRANKLIN PKWY			N/A	PHILADELPHIA	0676			39.95902	-75.17245	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-103	CM 673	EXISTING	PERMANENT	OTHER		06	I-676 WB @ 20TH ST			N/A	PHILADELPHIA	0676			39.95905	-75.17112	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-104	CM 674	EXISTING	PERMANENT	OTHER		06	I-676 WB @ 18TH ST			N/A	PHILADELPHIA	0676			39.95878	-75.16873	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-105	CM 675	EXISTING	PERMANENT	OTHER		06	I-676 EB @ 16TH ST			N/A	PHILADELPHIA	0676			39.95813	-75.16537	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-106	CM 676	EXISTING	PERMANENT	OTHER		06	I-676 EB @ BROAD ST			N/A	PHILADELPHIA	0676			39.95768	-75.16175	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-107	CM 677	EXISTING	PERMANENT	OTHER		06	I-676 WB @ 11TH ST			N/A	PHILADELPHIA	0676			39.95728	-75.15727	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-108	CM 678	EXISTING	PERMANENT	POLE	50	06	I-676 EB @ 8TH ST			N/A	PHILADELPHIA	0676			39.95690	-75.15257	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-109	CM 679	EXISTING	PERMANENT	POLE	50	06	I-676 EB @ 3RD ST			N/A	PHILADELPHIA	0676			39.95697	-75.14490	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-98	Broadware Video Server
CAM-06-110	CM 701	EXISTING	PERMANENT	POLE	50	06	I-76 EB WEST OF CROTON RD			N/A	MONTGOMERY	0076			40.07903	-75.37812	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-111	CM 702	EXISTING	PERMANENT	POLE	50	06	I-76 EB @ WEADLEY RD			N/A	MONTGOMERY	0076			40.07622	-75.36148	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-112	CM 703	EXISTING	PERMANENT	POLE	50	06	I-76 WB WEST OF GYPSY RD			N/A	MONTGOMERY	0076			40.07357	-75.34780	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-113	CM 704	EXISTING	PERMANENT	POLE	50	06	I-76 EB @ GULPH MILS			330	MONTGOMERY	0076			40.06947	-75.34303	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-114	CM 705	EXISTING	PERMANENT	POLE	50	06	I-76 WB @ MP 330.6	330.6	N/A	N/A	MONTGOMERY	0076			40.06760	-75.33738	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-115	CM 706	EXISTING	PERMANENT	POLE	50	06	I-76 EB WEST OF MATSON FORD RD			N/A	MONTGOMERY	0076			40.06417	-75.32948	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-116	CM 707	EXISTING	PERMANENT	POLE	50	06	I-76 WB @ MP 332	332.0	N/A	N/A	MONTGOMERY	0076			40.06663	-75.31248	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-117	CM 708	EXISTING	PERMANENT	POLE	50	06	I-76 EB @ MP 332.6	332.6	N/A	N/A	MONTGOMERY	0076			40.06803	-75.30072	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-118	CM 709	EXISTING	PERMANENT	POLE	50	06	I-76 WB @ CONSHOHOCKEN CURVE			N/A	MONTGOMERY	0076			40.07205	-75.28695	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-04	Broadware Video Server
CAM-06-119	CM 939	EXISTING	PERMANENT	POLE	50	06	I-95 NB @ INDIANA ST.			N/A	PHILADELPHIA	0095			39.98013	-75.10527	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-120	CM 940	EXISTING	PERMANENT	POLE	50	06	I-95 NB @ CASTOR AVE			N/A	PHILADELPHIA	0095			39.98853	-75.08810	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-121	CM 941	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ BETSY ROSS BRIDGE			N/A	PHILADELPHIA	0095			39.99730	-75.08227	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	Jan-04	Broadware Video Server
CAM-06-122	CM 942	EXISTING	PERMANENT	POLE	50	06	I-95 NB @ WAKELING ST			N/A	PHILADELPHIA	0095			40.00758	-75.07263	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-123	CM 943	EXISTING	PERMANENT	POLE	50	06	I-95 NB @ VAN KIRK ST			N/A	PHILADELPHIA	0095			40.01252	-75.05878	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-124	CM 944	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ DISSTON ST			N/A	PHILADELPHIA	0095			40.02217	-75.03885	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-125	CM 945	EXISTING	PERMANENT	POLE	50	06	I-95 NB NORTH OF COTTMAN AVE			N/A	PHILADELPHIA	0095			40.02942	-75.02193	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-126	CM 946	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ PENNY PACKER			N/A	PHILADELPHIA	0095			40.03527	-75.01843	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-127	CM 947	EXISTING	PERMANENT	POLE	50	06	I-95 NB SOUTH of the AMTRAK BRIDGE			N/A	PHILADELPHIA	0095			40.04103	-75.00452	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-128	CM 948	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ ACADEMY RD			32	PHILADELPHIA	0095			40.04823	-74.99980	Bosch	LTC 600 Digital Color Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-129	CM 949	EXISTING	PERMANENT	POLE	50	06	I-95 NB @CONVENT ST			N/A	PHILADELPHIA	0095			40.05112	-74.99915	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	May-99	Broadware Video Server
CAM-06-130	CM 950	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ MILL RD			N/A	BUCKS	0095			40.05857	-74.98172	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	Jan-99	Broadware Video Server
CAM-06-131	CM 951	EXISTING	PERMANENT	POLE	50	06	I-95 NB @ TENNIS AVE.			N/A	BUCKS	0095			40.06415	-74.96970	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	Jan-99	Broadware Video Server
CAM-06-132	CM 952	EXISTING	PERMANENT	POLE	50	06	I-95 NB RAMP TO WOODHAVEN RD (PA 63)			N/A	BUCKS	0095			40.06800	-74.96120	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	Jan-99	Broadware Video Server
CAM-06-133	CM 953	EXISTING	PERMANENT	POLE	50	06	I-95 SB @ WOODHAVEN RD			35	BUCKS	0095			40.07062	-74.96108	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	Jan-99	Broadware Video Server
CAM-06-134	CM 954	EXISTING	PERMANENT	POLE	50	06	I-95 NB @ STATION AVE			N/A	BUCKS	0095			40.07407	-74.94883	Detection Systems & Engineering	DS-5000 Dual Day/Night Cameras	ELECTRIC	T-1	Jan-99	Broadware Video Server
CAM-06-157	CM 3902	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ Waverly Rd Sta 2+975			N/A	MONTGOMERY	0309	0080	1821	40.09355	-75.17076	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-158	CM 3903	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ Sta 4+257			N/A	MONTGOMERY	0309	0100	1729	40.10025	-75.18587	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-159	CM 3904	EXISTING	PERMANENT	POLE	50	06	PA 309 SB @ Paper Mill Rd Sta 5+291			N/A	MONTGOMERY	0309	0111	0988	40.10200	-75.19441	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-160	CM 3905	EXISTING	PERMANENT	POLE	50	06	PA 309 SB PA 73 Church Rd Sta 6+700			N/A	MONTGOMERY	0309	0131	0299	40.11325	-75.20135	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-161	CM 3906	EXISTING	PERMANENT	POLE	50	06	PA 309 SB @ Camphill Rd Sta 7+865			N/A	MONTGOMERY	0309	0141	0844	40.12352	-75.20499	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-163	CM 3908	EXISTING	PERMANENT	POLE	50	06	PA 309 NB South of Highland Avenue			N/A	MONTGOMERY	0309	0160	1578	40.14008	-75.20155	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-171	CM 3916	EXISTING	PERMANENT	POLE	50	06	PA 309 SB @ Evansburg Village Drive Near Traffic Signal Sta 18+355			N/A	MONTGOMERY	0309	0271	1962	40.20895	-75.22500	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-172	CM 3917	EXISTING	PERMANENT	POLE	50	06	PA 309 SB Just North of Hartman Road Sta 19+503			N/A	MONTGOMERY	0309	0291	0557	40.21835	-75.22983	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-173	CM 3918	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ Stump Road Column Extension to Sign Str. Sta 20+345			N/A	MONTGOMERY	0309	0300	0164	40.22572	-75.23415	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-174	CM 3919	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ Deklab Pike/Upper State Road Sta 21+550			N/A	MONTGOMERY	0309	0310	2272	40.23552	-75.24003	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-175	CM 3920	EXISTING	PERMANENT	POLE	50	06	PA 309 NB Just South of North Wales Road Sta 22+155			N/A	MONTGOMERY	0309	0310	4348	40.23970	-75.24263	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-176	CM 3921	EXISTING	PERMANENT	POLE	50	06	PA 309 NB @ Five Points Intersection Jiffy Lube Sta 22+988			N/A	MONTGOMERY	0309	0340	0000	40.24767	-75.24384	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-177	CM 4703	EXISTING	PERMANENT	POLE		06	I-476 NB @ end of Bullens Lane			N/A	DELAWARE	0476	0004	2630	39.88325	-75.35224	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-178	CM 4704	EXISTING	PERMANENT	POLE		06	I-476 SB @ north of PA 320			N/A	DELAWARE	0476	0015	0759	39.89155	-75.35945	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-179	CM 4705	EXISTING	PERMANENT	POLE		06	I-476 SB @ South of Sesta Railroad			N/A	DELAWARE	0476	0025	0171	39.90293	-75.36416	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-180	CM 4706	EXISTING	PERMANENT	POLE		06	I-476 NB @ South of Plush Mill Road sign structure			N/A	DELAWARE	0476	0024	2161	39.90810	-75.36205	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Jan-09	Broadware Video Server
CAM-06-181	CM 710	EXISTING	PERMANENT	POLE	50	06	I-76 WB at I-476 Interchange			331	MONTGOMERY	0076	3315		40.06547	-75.31826	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-182	CM 711	EXISTING	PERMANENT	POLE	50	06	I-76 WB east of Conshy curve	333.9	N/A	N/A	MONTGOMERY	0076	3335		40.06964	-75.27993	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-183	CM 712	EXISTING	PERMANENT	POLE	50	06	I-76 EB west of Waverly Rd	334.3	N/A	N/A	MONTGOMERY	0076	3340		40.06439	-75.27685	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-184	CM 713	EXISTING	PERMANENT	POLE	50	06	I-76 EB east of Waverly Rd	335.1	N/A	N/A	MONTGOMERY	0076	3350		40.05303	-75.26580	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-185	CM 714	EXISTING	PERMANENT	POLE	50	06	I-76 EB west of Gladwyne	336.0	N/A	N/A	MONTGOMERY	0076	3354		40.04479	-75.25725	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-186	CM 715	EXISTING	PERMANENT	POLE	50	06	I-76 WB @ Gladwyne	336.6	336	N/A	MONTGOMERY	0076	3365		40.03750	-75.24749	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-187	CM 716	EXISTING	PERMANENT	POLE	50	06	I-76 WB east of Gladwyne	336.7	N/A	N/A	MONTGOMERY	0076	3365		40.03688	-75.24620	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-188	CM 717	EXISTING	PERMANENT	POLE	50	06	I-76 WB west of Belmont	337.3	N/A	N/A	MONTGOMERY	0076	3371		40.03172	-75.23906	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-189	CM 718	EXISTING	PERMANENT	POLE	50	06	I-76 EB @ Belmont Ave	338.0	338	N/A	MONTGOMERY	0076	3374		40.02529	-75.22906	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-190	CM 719	EXISTING	PERMANENT	POLE	50	06	I-76 WB east of Belmont Ave	338.7	N/A	N/A	MONTGOMERY	0076	3385		40.01999	-75.21901	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-191	CM 720	EXISTING	PERMANENT	POLE	50	06	I-76 WB @ City Ave	339.6	339	N/A	MONTGOMERY	0076	3391		40.01154	-75.20921	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-192	CM 721	EXISTING	PERMANENT	POLE	50	06	I-76 EB @ City Ave	339.9	339	N/A	PHILADELPHIA	0076	3394		40.00975	-75.20779	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-193	CM 722	EXISTING	PERMANENT	POLE	50	06	I-76 EB @ US 1	340.1	340	N/A	PHILADELPHIA	0076	3400		40.00597	-75.19753	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-194	CM 723	EXISTING	PERMANENT	POLE	50	06	I-76 WB 76 ramp to US 1	341.0	340	N/A	PHILADELPHIA	0076	3401		40.00509	-75.19533	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-195	CM 724	EXISTING	PERMANENT	POLE	50	06	I-76 WB west of Montgomery Dr	341.4	N/A	PHILADELPHIA	0076	3411			39.99917	-75.19378	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-196	CM 725	EXISTING	PERMANENT	POLE	50	06	I-76 EB @ Montgomery Dr	341.8	341	N/A	PHILADELPHIA	0076	3414		39.99763	-75.19768	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-197	CM 726	EXISTING	PERMANENT	POLE	50	06	I-76 EB east of Montgomery Dr.	342.1	N/A	N/A	PHILADELPHIA	0076	3420		39.98325	-75.20817	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-198	CM 727	EXISTING	PERMANENT	POLE	50	06	I-76 EB west of Girard Ave.	342.5	N/A	N/A	PHILADELPHIA	0076	3424		39.97823	-75.20235	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-199	CM 728	EXISTING	PERMANENT	POLE	50	06	I-76EB @ Girard Ave.	342.8	342	N/A	PHILADELPHIA	0076	3424		39.97664	-75.19708	Bosch	Envirodome LTC 0928/25C	ELECTRIC	FIBER	Oct-08	Broadware Video Server
CAM-06-200	CM 729	EXISTING	PERMANENT	POLE	50	06	I-76 WB east of Girard

CAM-08-009	C-81-72	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT EXIT 77		071.8	77	DAUPHIN	0081			40.37465	-76.79748	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-010	C-81-77	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 39		077.0	77	DAUPHIN	0081			40.35266	-76.77051	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-011	C-81-80	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 743		080.0	80	DAUPHIN	0081			40.37695	-76.66916	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-012	C-81-89	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT I-79		089.0	89	LEBANON	0081			40.40714	-76.52126	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-013	C-581-6	EXISTING	PERMANENT	POLE W/ CLD	55	08	PA 581 MM 6.4		006.4		CUMBERLAND	0581			40.23506	-76.91403	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-014	C-83-50	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT US 22 E / US 22 W		050.0	50	DAUPHIN	0083			40.29684	-76.82532	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-015	C-83-48	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT EXIT 48		048.0	48	DAUPHIN	0083			40.27892	-76.81942	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-016	C-83-46	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT I-283 / US 322 E		046.1	46	DAUPHIN	0083			40.25371	-76.81412	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-017	C-83-45	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT EXIT 45		045.0	45	DAUPHIN	0083			40.25810	-76.83570	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-018	C-83-43	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT EXIT 44A		043.4	44A	DAUPHIN	0083			40.25464	-76.86492	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-019	C-83-42	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT EXIT 42		042.0	42	CUMBERLAND	0083			40.24480	-76.88332	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-020	C-283-2	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-283 AT PA 441		002.0	2	DAUPHIN	0283			40.24211	-76.80543	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-021	C-283-1	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-283 AT PA 230 / PA 283		000.5	1	DAUPHIN	0283			40.21938	-76.78742	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-022	C-81-49	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 641		049.0	49	CUMBERLAND	0081			40.19849	-77.15854	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Jun-08	VIDSYS VidShield 6.1	
CAM-08-023	C-81-52	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT US 11 N / US 11 S		052.0	52	CUMBERLAND	0081			40.23478	-77.12800	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-024	C-81-57	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 114		057.0	57	CUMBERLAND	0081			40.26939	-77.04451	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-08	VIDSYS VidShield 6.1	
CAM-08-025	C-81-59	EXISTING	PERMANENT	POLE W/ CLD	70	08	I-81 AT PA 581		059.0	59	CUMBERLAND	0081			40.27568	-77.00159	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-026	C-83-47	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT US 322 E		046.9	47	DAUPHIN	0083			40.26149	-76.81461	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-027	C-83-44	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT EXIT 44B		044.0	44B	DAUPHIN	0083			40.25705	-76.85607	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-028	C-15-ZIMM	EXISTING	PERMANENT	POLE W/ CLD	55	08	US 15 at Zimmerman Dr. (New Interchange)				CUMBERLAND	0015			40.22105	-76.93664	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Jun-08	VIDSYS VidShield 6.1	
CAM-08-029	C-581-5	EXISTING	PERMANENT	POLE W/ CLD	70	08	PA 581 Exit 5		005.0	5	CUMBERLAND	0015			40.23213	-76.93203	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Jun-08	VIDSYS VidShield 6.1	
CAM-08-030	C-581-4	EXISTING	PERMANENT	POLE W/ CLD	55	08	PA 581 MM 4.4		004.4	4	CUMBERLAND	0581			40.23373	-76.95911	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-031	C-581-3	EXISTING	PERMANENT	POLE W/ CLD	55	08	PA 581 at Exit 3		003.0	3	CUMBERLAND	0581			40.24434	-76.98240	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-032	C-81-61	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 944		061.0	61	CUMBERLAND	0081			40.28898	-76.98163	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-033	C-81-1	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 163		001.0	1	FRANKLIN	0081			39.72330	-77.72937	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-034	C-81-3	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT US 11		003.0	3	FRANKLIN	0081			39.75785	-77.72658	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-035	C-81-5	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 16		005.0	5	FRANKLIN	0081			39.78381	-77.71456	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-036	C-81-10	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 914		010.0	10	FRANKLIN	0081			39.85482	-77.68653	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Jun-08	VIDSYS VidShield 6.1	
CAM-08-037	C-81-14	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 316		014.0	14	FRANKLIN	0081			39.90997	-77.64815	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Jun-08	VIDSYS VidShield 6.1	
CAM-08-038	C-81-16	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT US 30		016.0	16	FRANKLIN	0081			39.92864	-77.63576	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Jun-08	VIDSYS VidShield 6.1	
CAM-08-039	C-81-17	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT EXIT 17		017.0	17	FRANKLIN	0081			39.94334	-77.62026	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Jul-08	VIDSYS VidShield 6.1	
CAM-08-040	C-81-20	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 997		020.0	20	FRANKLIN	0081			39.96400	-77.57800	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Jun-08	VIDSYS VidShield 6.1	
CAM-08-041	C-81-24	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 696		024.0	24	FRANKLIN	0081			40.01580	-77.53328	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-042	C-81-29	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 174		029.0	29	CUMBERLAND	0081			40.06060	-77.47970	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	May-08	VIDSYS VidShield 6.1	
CAM-08-043	C-15-30	EXISTING	PERMANENT	POLE W/ CLD	70	08	US 15 at US 30				ADAMS	0030			39.84643	-77.19608	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-09	VIDSYS VidShield 6.1	
CAM-08-044	C-30-N.S.RD.	EXISTING	PERMANENT	POLE	25	08	US 30 at Natural Springs Road				ADAMS	0030			39.83971	-77.20943	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-09	VIDSYS VidShield 6.1	
CAM-08-045	C-30-WEST ST.	EXISTING	PERMANENT	POLE	25	08	US 30 at West Street				ADAMS	0030			39.83075	-77.23677	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-09	VIDSYS VidShield 6.1	
CAM-08-046	C-BR15-97	EXISTING	PERMANENT	POLE	25	08	Baltimore Street at Steinwehr Ave.				ADAMS	3001			39.82427	-77.23096	COHU	3920 Series, I-Dome, 23X Zoom	ELECTRIC	T-1	Apr-09	VIDSYS VidShield 6.1	
CAM-08-049	C-81-45	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT COLLEGE ST.		045.0	45	CUMBERLAND	0081			40.18686	-77.21161	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
CAM-08-050	C-81-47	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 AT PA 34		047.0	47A	CUMBERLAND	0081			40.18789	-77.19097	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
CAM-08-056	C-81-74	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 MM 74		074.5		DAUPHIN	0081			40.33293	-76.75782	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
CAM-08-057	C-81-79 NB REST	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-81 NORTH REST AREA		079.0		DAUPHIN	0081			40.37014	-76.68459	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	May-10	VIDSYS VidShield 6.1	
CAM-08-074	C-83-21	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT US 30 INTERCHANGE		021.0	21	YORK	0083			39.98377	-76.73029	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
CAM-08-076	C-83-24	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 AT PA 238 INTERCHANGE		024.0	24	YORK	0083			40.02068	-76.74263	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
CAM-08-078	C-83-31	EXISTING	PERMANENT	POLE W/ CLD	55	08	I-83 MM 30		030.0		YORK	0083			40.11143	-76.78453	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
CAM-08-096	C-322-39	EXISTING	PERMANENT	POLE W/ CLD	55	08	US 22/322 AT LINGLESTOWN RD. EXIT				DAUPHIN	0022			40.32202	-76.88495	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
CAM-08-106	C-30-283	EXISTING	PERMANENT	POLE W/ CLD	55	08	US 30 AT PA 283 EXIT				LANCASTER	0030			40.07095	-76.32724	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
CAM-08-107	C-30-501	EXISTING	PERMANENT	POLE W/ CLD	55	08	US 30 AT PA 501 EXIT				LANCASTER	0030			40.06850	-76.30561	COHU	3920 Series, I-Dome, 35X Zoom	ELECTRIC	T-1	Jan-10	VIDSYS VidShield 6.1	
District 9-0																							
CAM-09-001	CCTV #01	EXISTING	PERMANENT	POLE	50	09	I-99 & SR 0350 @ Bald Eagle			52	BLAIR	0099	0514	0570	40.71108	-78.18872	Bosch	ENVD2460P	BATTERY/ELECTRIC	FIBER	Feb-08	ATMS	
CAM-09-002	CCTV #02	EXISTING	PERMANENT	POLE	50	09	SR 1009 Frankstown Rd. at I-99			32	BLAIR	1009	0070	1710	40.47548	-78.39478	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-003	CCTV #03	EXISTING	PERMANENT	POLE	50	09	I-99 SB at SR 0036 Logan Blvd. Overpass				BLAIR	0099	0311	0720	40.47093	-78.39912	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-004	CCTV #04	EXISTING	PERMANENT	POLE	50	09	I-99 SB at SR 8015 Ramp "D" Plank Rd.			31	BLAIR	0099	0305	0165	40.46567	-78.40815	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-005	CCTV #05	EXISTING	PERMANENT	POLE	50	09	SR 8004 Ramp H I-99 SB Crossfarm			28	BLAIR	8004	0500	0140	40.44150	-78.42683	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-006	CCTV #06	EXISTING	PERMANENT	POLE	50	09	SR 0022 WB at SR 0764 Crosskeys Interchange				BLAIR	0022	0161	3020	40.44125	-78.43503	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-007	CCTV #07	EXISTING	PERMANENT	POLE	50	09	SR 4010 17th St. at SR 1001 Valley View				BLAIR	4010	0040	0150	40.49915	-78.39025	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-008	CCTV #08	EXISTING	PERMANENT	POLE	50	09	SR 4010 17th St. at SR 1001 Pleasant Valley				BLAIR	4010	0035	0150	40.50025	-78.39130	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-009	CCTV #09	EXISTING	PERMANENT	POLE	50	09	SR 4010 17th St. at SR 0764 Sixth Ave.				BLAIR	4010	0021	2825	40.50810	-78.39988	Bosch	18X EnviroDome	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-010	CCTV #10	EXISTING	PERMANENT	POLE	50	09	SR 4009, Rte 52 at SR 4013 Chestnut Ave				BLAIR	4009	0021	2475	40.51892	-78.39736	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-011	CCTV #11	EXISTING	PERMANENT	POLE	50	09	Logan Blvd at Convention Ctr. Blvd				BLAIR	0036	0325	0375	40.46792	-78.39698	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-012	CCTV #12	EXISTING	PERMANENT	POLE	50	09	Convention Ctr. Blvd at Conv. Ctr. Dr.				BLAIR	8004	0010		40.45418	-78.40343	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-013	CCTV #13	EXISTING	PERMANENT	POLE	50	09	SR 1001 at SR 1009 Frankstown Rd.				BLAIR	1001	0110	0100	40.48200	-78.40158	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Apr-03	ATMS	
CAM-09-014	CCTV #14	EXISTING	PERMANENT	POLE	50	09	SR 0036 at Southev Ave. Logan Blvd.				BLAIR	0036	0360	0075	40.47837	-78.40337	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Apr-03	ATMS	
CAM-09-015	CCTV #15	EXISTING	PERMANENT	POLE	50	09	Plank Rd. at SR 9900 Convention Ctr. Blvd.				BLAIR	1001	0050	0200	40.45227	-78.40930	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Apr-03	ATMS	
CAM-09-016	CCTV #16	EXISTING	PERMANENT	POLE	50	09	Plank Rd at SR 1002 Meadows Intersection				BLAIR	1001	0020	1825	40.43727	-78.41205	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Apr-03	ATMS	
CAM-09-017	CCTV #17	EXISTING	PERMANENT	POLE	50	09	Plank Rd. at SR 0022 Wye Switches				BLAIR	1001	0010	0000	40.42792	-78.41762	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Apr-03	ATMS	
CAM-09-018	CCTV #18	EXISTING	PERMANENT	POLE	50	09	17TH Street West of Maxsarel Ave. Intersection				BLAIR	4010	0020	0625	40.51167	-78.40547	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jan-02	ATMS	
CAM-09-019	CCTV #19	EXISTING	PERMANENT	POLE	50	09	SR4013 (Chestnut Ave) & SR4017 (Juniata Gap Rd)				BLAIR	4013	0030	3075	40.52939	-78.38919	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-020	CCTV #20	EXISTING	PERMANENT	POLE	50	09	SR4013 (Chestnut Ave) & SR4015 (Fourth St) Intersection				BLAIR	4013	0021	1150	40.52231	-78.39492	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Jun-04	ATMS	
CAM-09-021	CCTV #21	EXISTING	PERMANENT	POLE	50	09	SR4013 (Chestnut Ave.) & N. Second St.				BLAIR	4013	0041	1575	40.53331	-78.38608	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Jun-04	ATMS	
CAM-09-022	CCTV #22	EXISTING	PERMANENT	POLE	50	09	I-99 SB at SR 4010 17th St. Interchange			33	BLAIR	0099	0325	2250	40.49395	-78.38367	Bosch	LTC 7960/60-20xm	BATTERY/ELECTRIC	FIBER	Jul-01	ATMS	
CAM-09-023	CCTV #23	EXISTING	PERMANENT	POLE	50	09	PA 453 Intersection - Waterstreet				HUNTINGDON	0022	0078	0050	40.57134	-78.13870	Bosch	25X EnviroDome	BATTERY/ELECTRIC	POTS	Jan-03	ATMS	
CAM-09-024	CCTV #24	EXISTING	PERMANENT	POLE	50	09	S.R. 0764 (Seventh Ave) & Seventh St. Intersection				BLAIR	4013	0020	0050	40.51728	-78.39319	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Oct-05	ATMS	
CAM-09-025	CCTV #25	EXISTING	PERMANENT	POLE	50	09	S.R. 0764 (Sixth Ave) & Eighth Street Intersection				BLAIR	4013	0011	0050	40.51628	-78.39278	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Oct-05	ATMS	
CAM-09-026	CCTV #26	EXISTING	PERMANENT	POLE	50	09	US22 Overpass - Cresson/Summit Interchange				CAMBRIA	2014	0170	0000	40.45700	-78.56698	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Jan-06	ATMS	
CAM-09-027	CCTV #27	EXISTING	PERMANENT	POLE	50	09	S.R. is a Blair Co. route.				BLAIR	4001	0020	0000	40.46703	-78.54320	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Jan-06	ATMS	
CAM-09-028	CCTV #28	EXISTING	PERMANENT	POLE W/ CLD	50	09	US 22 & SR 2013 (Wilmore Rd & Center Ave) Candlelight Intersection				CAMBRIA	0022	0211	1130	40.47758	-78.72422	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Apr-05	ATMS	
CAM-09-029	CCTV #29	EXISTING	PERMANENT	POLE W/ CLD	50	09	SR 3041 Interchange , East of the Indiana/Cambria County Line				CAMBRIA	0022	0042	0000	40.43470	-78.91185	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Feb-07	ATMS	
CAM-09-030	CCTV #30	EXISTING	PERMANENT	POLE W/ CLD	50	09	PA 453 North of PA 45 Intersection and approximately one (1) mile north of				HUNTINGDON	0453	0030	0100	40.58517	-78.14583	Bosch	25X EnviroDome	BATTERY/ELECTRIC	FIBER	Jul-06	ATMS	
CAM-09-031	CCTV #31	EXISTING	PERMANENT	POLE W/ CLD	50	09	On-Ramp "C" to I-99 from Business Rte US 220 (SR 4009)			1	BEDFORD	8007	0750	0250	40.05648	-78.51140	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Sep-07	ATMS	
CAM-09-032	CCTV #32	EXISTING	PERMANENT	POLE W/ CLD	50	09	SR4003 (Logan Blvd) & SR0764 (Sixth Ave)				BLAIR	4003	0030	0050	40.49028	-78.41367	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Sep-07	ATMS	
CAM-09-033	CCTV #33	EXISTING	PERMANENT	POLE W/ CLD	50	09	SR 3031 (Galleria Drive) @ SR 0219 (SB Underpass)				CAMBRIA	3031	0010	1300	40.30144	-78.83333	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Mar-08	ATMS	
CAM-09-034	CCTV #34	EXISTING	PERMANENT	POLE W/ CLD	50	09	SR 0056 @ SR 0219 (SR 8005 Ramp) Interchange				CAMBRIA	0056	0270	0675	40.29461	-78.84147	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	May-08	ATMS	
CAM-09-035	CCTV #35	EXISTING	PERMANENT	POLE W/ CLD	50	09	SR 0219 NB @ SR 4006 (Glen Road) Intersection				CAMBRIA	0219	0070	0140	40.27997	-78.84806	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	May-08	ATMS	
CAM-09-036	CCTV #36	EXISTING	PERMANENT	POLE W/ CLD	50	09	SR 0219 @ SR 0066 (Scalp Avenue) Intersection				CAMBRIA	0219	0040	3735	40.27316	-78.85916	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	May-08	ATMS	
CAM-09-037	CCTV #37	EXISTING	PERMANENT	POLE W/ CLD	50	09	US 30 @ SR 2029 (East Main St) Intersection				BEDFORD	0030	0060	2000	39.99917	-78.24568	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Jan-09	ATMS	
CAM-09-038	CCTV #38	EXISTING	PERMANENT	POLE W/ CLD	50	09	US 30 @ I-70 (SR 9100 Ramp) Intersection				BEDFORD	0030	0062	0100	39.99927	-78.23644	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Jan-09	ATMS	
CAM-09-039	CCTV #39	EXISTING	PERMANENT	POLE W/ CLD	50	09	US 30 @ I-76 Turnpike Off - Ramp				BEDFORD	0030	0680	0065	39.99916	-78.23336	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Jan-09	ATMS	
CAM-09-040	CCTV #40	EXISTING	PERMANENT	POLE W/ CLD	50	09	US 22 (William Penn Hwy) @ SR 3032 (Mini Mall Rd)				CAMBRIA	0022	0180	0910	40.46762	-78.75817	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Sep-09	ATMS	
CAM-09-041	CCTV #41	EXISTING	PERMANENT	POLE W/ CLD	50	09	US 22 (William Penn Hwy) @ US 219 Interchange				CAMBRIA	0022	0170	1775	40.48277	-78.76392	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Sep-09	ATMS	
CAM-09-042	CCTV #42	EXISTING	PERMANENT	POLE	50	09	US 30 Sidling Hill				FULTON	0030	0100	0865	40.01616	-78.13425	Bosch	25X EnviroDome	BATTERY/ELECTRIC	T-1	Sep-04	ATMS	
District 10-0																							
District 11-0																							
CAM-11-001	55	EXISTING	PERMANENT	POLE	50	11	Robinson Town Center		055.5		ALLEGHENY	0376	0691	2218	40.45299	-80.17776	Vicon	Surveyor 2000	ELECTRIC	FIBER	Jan-02	ATMS	
CAM-11-002	60	EXISTING	PERMANENT	POLE	50	11	Sea		060.0		ALLEGHENY	0376	0695	2258	40.45017	-80.16782	Vicon	Surveyor 2000	ELECTRIC	FIBER	Jan-02	ATMS	
CAM-11-003	65	EXISTING	PERMANENT	POLE	50	11	I-279/Parkway North Interchange		065.1		ALLEGHENY	0376	0691	0038	40.44715	-80.16575	Vicon	Surveyor 2000	ELECTRIC	FIBER	Jan-02	ATMS	
CAM-11-004	70	EXISTING	PERMANENT	POLE	50	11	Settlers Cabin EB Off-Ramp		069.5		ALLEGHENY	0376	0600	2788	40.44332	-80.16106	Vicon	Surveyor 2000	ELECTRIC	FIBER	Jan-02	ATMS	
CAM-11-005	75	EXISTING	PERMANENT	POLE	50	11	Settlers Cabin		061.0		ALLEGHENY	0376	0604	2590	40.43863	-80.15259	Vicon	Surveyor 2000	ELECTRIC	FIBER	Jan-02	ATMS	
CAM-11-006	80	EXISTING	PERMANENT	POLE	50	11	Settlers Cabin EB On-Ramp		061.6		ALLEGHENY	0376	0614	0329	40.43386	-80.14325	Vicon	Surveyor 2000	ELECTRIC	FIBER	Jan-02	ATMS	
CAM-11-007	85	EXISTING	PERMANENT	POLE	50	11	Bishops Corners Interchange		062.0		ALLEGHENY	0376	0614	2485	40.43084	-80.13714	Vicon	S2-CW22	ELECTRIC	FIBER	Feb-02	ATMS	
CAM-11-008	90	EXISTING	PERMANENT	POLE	50	11	Campbells Run		062.6		ALLEGHENY	0376	0624	0400	40.42542	-80.12397	Vicon	S2-CW22	ELECTRIC	FIBER	Feb-02	ATMS	
CAM-11-009	95	EXISTING	PERMANENT	POLE	50	11	US-22/I-279 SB On Ramp		063.2		ALLEGHENY	0376	0631	0612	40.42514	-80.11552	Vicon	S2-CW22	ELECTRIC	FIBER	Feb-02	ATMS	
CAM-11-010	100	EXISTING	PERMANENT	POLE

CAM-11-075	822		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Inbound CP3	069.2		ALLEGHENY	0279	0054	0700	40.433352	-80.021441	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-076	823		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Outbound CP3	069.2		ALLEGHENY	0279	0055	0700	40.433503	-80.021652	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-077	824		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Inbound CP4	069.3		ALLEGHENY	0279	0054	1400	40.433951	-80.020405	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-078	825		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Outbound CP4	069.3		ALLEGHENY	0279	0055	1400	40.434197	-80.020309	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-079	826		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Inbound CP5	069.4		ALLEGHENY	0279	0054	2100	40.435139	-80.018168	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-080	827		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Outbound CP5	069.4		ALLEGHENY	0279	0055	2100	40.435401	-80.017991	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-081	828		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Inbound CP6	069.5		ALLEGHENY	0279	0054	2700	40.435943	-80.01664	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-082	829		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Outbound CP6	069.5		ALLEGHENY	0279	0055	2700	40.436809	-80.015343	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-083	830		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Inbound CP7	069.7		ALLEGHENY	0279	0054	3400	40.437287	-80.01412	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-084	831		EXISTING	PERMANENT	OTHER	15	11	Ft PitTunnel Upper Portal	069.7		ALLEGHENY	0279	0054	0000	40.43765	-80.01394	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-085	832		EXISTING	PERMANENT	OTHER	15	11	Ft Pitt Bridge Lower #13	069.9		ALLEGHENY	0279	0061	0405	40.43808	-80.01281	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-086	833		EXISTING	PERMANENT	OTHER	15	11	Ft Pitt Bridge Lower #14	069.8		ALLEGHENY	0279	0061	0655	40.43836	-80.01225	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-087	834		EXISTING	PERMANENT	OTHER	15	11	Ft Pitt Bridge Lower #15	069.9		ALLEGHENY	0279	0061	0805	40.43867	-80.01165	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-088	835		EXISTING	PERMANENT	OTHER	15	11	Ft Pitt Bridge Lower #16	069.9		ALLEGHENY	0279	0061	0955	40.43899	-80.01107	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-089	836		EXISTING	PERMANENT	OTHER	15	11	Ft Pitt Bridge Lower #17	069.9		ALLEGHENY	0279	0061	1105	40.43930	-80.01048	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-090	837		EXISTING	PERMANENT	OTHER	15	11	Ft Pitt Bridge Lower #18	070.0		ALLEGHENY	0279	0061	1255	40.43971	-80.00986	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-091	838		EXISTING	PERMANENT	OTHER	30	11	Point State Park #19	000.2		ALLEGHENY	0279	0060	2200	40.44216	-80.00872	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-092	839		EXISTING	PERMANENT	OTHER	45	11	Ft PitTunnel Lower Portal	069.7		ALLEGHENY	0279	0055	0005	40.43757	-80.01384	Vicon	Surveyor 2000	ELECTRIC	FIBER	Oct-03	ATMS
CAM-11-093	250		EXISTING	PERMANENT	POLE	50	11	Weiss Ln	009.4		ALLEGHENY	0279			40.53860	-80.07972	Pelco	Spectra IV	ELECTRIC	FIBER	Jan-09	ATMS
CAM-11-094	255		EXISTING	PERMANENT	POLE	50	11	Mt Nebo Rd	010.3		ALLEGHENY	0279			40.55054	-80.08672	Pelco	Spectra IV	ELECTRIC	FIBER	Jan-09	ATMS
CAM-11-095	260		EXISTING	PERMANENT	POLE	50	11	Montaomery Rd	011.5		ALLEGHENY	0279			40.56573	-80.08994	Pelco	Spectra IV	ELECTRIC	FIBER	Jan-09	ATMS
CAM-11-096	408		EXISTING	PERMANENT	POLE	50	11	Rodi Rd	080.5		Allegheny	0376			40.441898	-79.805491	Pelco	Spectra IV	ELECTRIC	FIBER	Apr-10	ATMS
CAM-11-097	415		EXISTING	PERMANENT	POLE	50	11	McCully Dr	081.9		Allegheny	0376			40.4183	-79.794795	Pelco	Spectra IV	ELECTRIC	FIBER	Apr-10	ATMS
CAM-11-098	420		EXISTING	PERMANENT	POLE	50	11	Thomson Run Rd	082.4		Allegheny	0376			40.443557	-79.781846	Pelco	Spectra IV	ELECTRIC	FIBER	Apr-10	ATMS
CAM-11-099	425		EXISTING	PERMANENT	POLE	50	11	Laurel Dr	083.1		Allegheny	0376			40.444726	-79.7686	Pelco	Spectra IV	ELECTRIC	FIBER	Apr-10	ATMS
CAM-11-100	430		EXISTING	PERMANENT	POLE	50	11	Old William Penn	083.7		Allegheny	0376			40.442211	-79.762282	Pelco	Spectra IV	ELECTRIC	FIBER	Apr-10	ATMS
CAM-11-101	435		EXISTING	PERMANENT	OTHER	30	11	Haymaker Dr	084.2		Allegheny	0376			40.438466	-79.757466	Pelco	Spectra IV	ELECTRIC	FIBER	Apr-10	ATMS
CAM-11-102	440		EXISTING	PERMANENT	POLE	50	11	I-376/SR 22	084.7		Allegheny	0376			40.430146	-79.998737	Pelco	Spectra IV	ELECTRIC	FIBER	Apr-10	ATMS
CAM-11-103	319		EXISTING	PERMANENT	OTHER	30	11	SR 3069, Liberty Tunnel-North Portal Liberty			Allegheny	3069			40.43015	-79.99874	Vicon	Surveyor 2000	ELECTRIC	FIBER	1-Feb-08	ATMS
CAM-11-104	660		EXISTING	PERMANENT	POLE	50	11	Kilbuck St	066.5		Allegheny	0079			40.52825	-80.12940	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-105	665		EXISTING	PERMANENT	POLE	50	11	Duff Rd	067.0		Allegheny	0079			40.53586	-80.12447	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-106	265		EXISTING	PERMANENT	POLE	50	11	McAleer Rd	012.3		Allegheny	0279			40.57541	-80.09309	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-107	270		EXISTING	PERMANENT	POLE	50	11	Pittsburgh Solit	013.0		Allegheny	0279			40.58645	-80.09936	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-108	612		EXISTING	PERMANENT	POLE	50	11	Clever Rd	061.1		Allegheny	0079			40.46513	-80.11193	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-109	620		EXISTING	PERMANENT	OTHER	30	11	S-Bend NB Entrance	062.0		Allegheny	0079			40.48783	-80.12414	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-110	625		EXISTING	PERMANENT	POLE	50	11	3rd Bend SB	062.7		Allegheny	0079			40.49311	-80.12675	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-111	630		EXISTING	PERMANENT	POLE	50	11	1st Bend NB	063.0		Allegheny	0079			40.49332	-80.12501	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-112	635		EXISTING	PERMANENT	POLE	50	11	2nd Bend NB	063.5		Allegheny	0079			40.50012	-80.12133	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-113	640		EXISTING	PERMANENT	POLE	50	11	3rd Bend NB	064.0		Allegheny	0079			40.50179	-80.12878	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-114	645		EXISTING	PERMANENT	OTHER	30	11	Coraopolis Int	064.5		Allegheny	0079			40.50496	-80.13782	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-115	650		EXISTING	PERMANENT	OTHER	30	11	Neville Island Br	065.5		Allegheny	0079			40.51390	-80.13436	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-116	655		EXISTING	PERMANENT	POLE	50	11	Deer Run Road	066.0		Allegheny	0079			40.52216	-80.13132	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-117	159		EXISTING	PERMANENT	OTHER	30	11	279/28			Allegheny	0279	0074		40.45254	-79.99670	Pelco	Spectra III	ELECTRIC	FIBER	4/1/2008	ATMS
CAM-11-118	161		EXISTING	PERMANENT	OTHER	30	11	East Ohio St			Allegheny	0028	0021		40.45423	-79.99505	Pelco	Spectra III	ELECTRIC	FIBER	4/1/2008	ATMS
CAM-11-119	670		EXISTING	PERMANENT	POLE	50	11	Glenfield Rd	067.5		Allegheny	0079			40.54678	-80.12194	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-120	675		EXISTING	PERMANENT	POLE	50	11	Mt Nebo Int	068.0		Allegheny	0079			40.55238	-80.11743	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-121	680		EXISTING	PERMANENT	POLE	50	11	Red Mud Hollow - South	070.0		Allegheny	0079			40.56303	-80.11407	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-122	685		EXISTING	PERMANENT	POLE	50	11	Red Mud Hollow - North	070.5		Allegheny	0079			40.56876	-80.11601	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-123	690		EXISTING	PERMANENT	POLE	50	11	Maoee Rd Ext	071.0		Allegheny	0079			40.57872	-80.11698	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-124	695		EXISTING	PERMANENT	POLE	50	11	Nicholson Rd	071.5		Allegheny	0079			40.58304	-80.10514	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-125	700		EXISTING	PERMANENT	POLE	50	11	Rochester Rd	072.0		Allegheny	0079			40.58895	-80.09902	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-126	705		EXISTING	PERMANENT	POLE	50	11	Westerwood Dr	072.5		Allegheny	0079			40.59696	-80.09359	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-127	710		EXISTING	PERMANENT	POLE	50	11	Wexford Int	073.0		Allegheny	0079			40.61091	-80.09506	Pelco	Spectra IV	ELECTRIC	FIBER	1/1/2009	ATMS
CAM-11-128	50		EXISTING	PERMANENT	POLE	50	11	Montour Run	058.6		Allegheny	0376			40.45759	-80.18804	Pelco	Spectra IV	ELECTRIC	FIBER	3/1/2009	ATMS
CAM-11-129	99		EXISTING	PERMANENT	POLE	50	11	Pittsburgh Int West	063.5		Allegheny	0376			40.42385	-80.10865	Pelco	Spectra IV	ELECTRIC	FIBER	3/1/2009	ATMS
CAM-11-130	101		EXISTING	PERMANENT	POLE	50	11	Pittsburgh Int East	064.0		Allegheny	0376			40.42244	-80.10026	Pelco	Spectra IV	ELECTRIC	FIBER	3/1/2009	ATMS
CAM-11-131	600		EXISTING	PERMANENT	POLE	50	11	Pittsburgh Int North	060.0		Allegheny	0079			40.42828	-80.10607	Pelco	Spectra IV	ELECTRIC	FIBER	6/15/2009	ATMS
CAM-11-132	605		EXISTING	PERMANENT	POLE	50	11	W. Harbison Rd	060.5		Allegheny	0079			40.43326	-80.10991	Pelco	Spectra IV	ELECTRIC	FIBER	6/15/2009	ATMS
CAM-11-133	615		EXISTING	PERMANENT	POLE	50	11	Forest Grove Rd	061.5		Allegheny	0079			40.48016	-80.12143	Pelco	Spectra IV	ELECTRIC	FIBER	3/1/2009	ATMS
CAM-11-134	610		EXISTING	PERMANENT	POLE	50	11	Crafton	061.1		Allegheny	0079			40.45071	-80.11080	Pelco	Spectra IV	ELECTRIC	FIBER	3/1/2009	ATMS
CAM-11-135	846		EXISTING	PERMANENT	POLE	50	11	Wabash St			Allegheny	0019			40.43118	-80.02692	Vicon	SVFT	ELECTRIC	FIBER	3/22/2010	ATMS
CAM-11-136	848		EXISTING	PERMANENT	POLE	50	11	Lowe St			Allegheny	0019			40.4434	-80.03025	Vicon	SVFT	ELECTRIC	FIBER	3/22/2010	ATMS
CAM-11-137	850		EXISTING	PERMANENT	OTHER	30	11	Alexander St			Allegheny	0019			40.43922	-80.03283	Vicon	SVFT	ELECTRIC	FIBER	3/22/2010	ATMS
CAM-11-138	852		EXISTING	PERMANENT	POLE	50	11	Stuben St			Allegheny	H278	0040		40.44358	-80.03058	Vicon	SVFT	ELECTRIC	FIBER	3/22/2010	ATMS
CAM-11-139	854		EXISTING	PERMANENT	POLE	50	11	South Main St			Allegheny	0019			40.44221	-80.03019	Vicon	SVFT	ELECTRIC	FIBER	3/22/2010	ATMS
CAM-11-140	950		EXISTING	PERMANENT	POLE	50	11	St Nicholas Church			Allegheny	0028			40.45858	-79.98596	Vicon	SVFT	ELECTRIC	OTHER	9/1/2010	ATMS
CAM-11-141	952		EXISTING	PERMANENT	POLE	50	11	Gardner St			Allegheny	0028			40.46471	-79.97981	Vicon	SVFT	ELECTRIC	OTHER	9/1/2010	ATMS
CAM-11-142	954		EXISTING	PERMANENT	POLE	50	11	31st St			Allegheny	0028			40.46992	-79.97573	Vicon	SVFT	ELECTRIC	OTHER	9/1/2010	ATMS
CAM-11-143	956		EXISTING	PERMANENT	POLE	50	11	Croft St			Allegheny	0028			40.47441	-79.97109	Vicon	SVFT	ELECTRIC	OTHER	9/1/2010	ATMS
CAM-11-144	958		EXISTING	PERMANENT	POLE	50	11	40th St			Allegheny	0028			40.47861	-79.96741	Vicon	SVFT	ELECTRIC	OTHER	9/1/2010	ATMS
CAM-11-145	840		EXISTING	PERMANENT	OTHER	20	11	Ft Duquesne Blvd	000.3		Allegheny	0279			40.44333	-80.00903	Vicon	SVFT	ELECTRIC	OTHER	4/2/2010	ATMS
CAM-11-146	842		EXISTING	PERMANENT	OTHER	25	11	I-279/SR 65 Interchange	000.4		Allegheny	0279			40.44552	-80.00971	Vicon	SVFT	ELECTRIC	OTHER	4/2/2010	ATMS
CAM-11-147	960		EXISTING	PERMANENT	POLE	50	11	Ohio St			Allegheny	0028			40.47846	-79.96775	Vicon	SVFT	ELECTRIC	OTHER	9/1/2010	ATMS
CAM-11-148	962		EXISTING	PERMANENT	POLE	50	11	Etna			Allegheny	0028			40.494698	-79.941533	Vicon	SVFT	ELECTRIC	OTHER	9/1/2010	ATMS
District 12-0																						

PennDOT Existing Detectors

Detector Type	Detector ID	SR	Location Name	Direction	Latitude - GIS	Longitude - GIS	Manufacturer	Model Number	Status
District 6-0									
Microwave Detector	DA 1 NB	I-95	I-95 NB before Allegheny Avenue	NB	N39 58.796	W75 06.337	EIS	RTMS	Existing
Microwave Detector	DA 1 SB	I-95	I-95 NB after Allegheny Avenue	SB	N39 58.796	W75 06.337	EIS	RTMS	Existing
Microwave Detector	DA 2 NB	I-95	I-95 NB before Castor Avenue	NB	N39 59.327	W75 05.271	EIS	RTMS	Existing
Microwave Detector	DA 2 SB	I-95	I-95 NB after Castor Avenue	SB	N39 59.327	W75 05.271	EIS	RTMS	Existing
Microwave Detector	DA 3 NB	I-95	I-95 at Bridge Street Ramps	NB	N39 59.882	W75 04.864	EIS	RTMS	Existing
Microwave Detector	DA 3 SB	I-95	I-95 at Bridge Street Ramps	SB	N39 59.882	W75 04.864	EIS	RTMS	Existing
Microwave Detector	DA 4 NB	I-95	I-95 NB at Bridge St.	NB	N40 00.439	W75 04.349	EIS	RTMS	Existing
Microwave Detector	DA 4 SB	I-95	I-95 SB at Bridge St.	SB	N40 00.439	W75 04.349	EIS	RTMS	Existing
Microwave Detector	DA 5 SB	I-95	I-95 SB north of Bridge St.	SB	N40 00.738	W75 03.547	EIS	RTMS	Existing
Microwave Detector	DA 5 NB	I-95	I-95 NB north of Bridge St.	NB	N40 00.738	W75 03.547	EIS	RTMS	Existing
Microwave Detector	DA 6 SB	I-95	I-95 SB at top of Cottman Ave. Onramp	SB	N40 01.340	W75 02.301	EIS	RTMS	Existing
Microwave Detector	DA 6 NB	I-95	I-95 NB before Cottman Ave. Offramp	NB	N40 01.319	W75 02.296	EIS	RTMS	Existing
Microwave Detector	DA 7 NB	I-95	I-95 NB North of Cottman Ave.	NB	N40 01.738	W75 01.382	EIS	RTMS	Existing
Microwave Detector	DA 7 SB	I-95	I-95 SB North of Cottman Ave.	SB	N40 01.738	W75 01.382	EIS	RTMS	Existing
Microwave Detector	DA 8 NB	I-95	I-95 NB 1 mile before Academy Road	NB	N40 02.125	W75 01.033	EIS	RTMS	Existing
Microwave Detector	DA 8 SB	I-95	I-95 SB near VMS 11	SB	N40 02.116	W75 01.107	EIS	RTMS	Existing
Microwave Detector	DA 9 SB	I-95	I-95 SB at bottom of Academy Rd. Onramp	SB	N40 02.624	W75 00.187	EIS	RTMS	Existing
Microwave Detector	DA 9 NB	I-95	I-95 NB before Academy Road Offramp	NB	N40 02.549	W75 00.191	EIS	RTMS	Existing
Microwave Detector	DA 10 NB	I-95	I-95 NB North of Academy Road	NB	N40 02.988	W74 59.664	EIS	RTMS	Existing
Microwave Detector	DA 10 SB	I-95	I-95 SB North of Academy Road	DA 10 SB	N40 02.988	W74 59.664	EIS	RTMS	Existing
Microwave Detector	DA 12	I-95	I-95 NB & SB before Grant Avenue	DA 12	N40 03.619	W74 58.727	EIS	RTMS	Existing
Microwave Detector	DA 13 NB & SB	I-95	I-95 NB just after Tennis Ave. Overpass	NB & SB	N40 03.827	W74 58.241	EIS	RTMS	Existing
Microwave Detector	DA 14 NB & SB	I-95	I-95 SB just before Woodhaven Rd. Overpass	NB & SB	N40 04.229	W74 57.654	EIS	RTMS	Existing
Microwave Detector	DA 15 NB	I-95	I-95 NB after Station Ave near CM-954	NB	N40 04.444	W74 56.930	EIS	RTMS	Existing
Microwave Detector	DA 15 SB	I-95	I-95 SB before Station Ave near CM-954	SB	N40 04.444	W74 56.930	EIS	RTMS	Existing
Microwave Detector	DA 16	I-95	I-95 near Street Road		N40 05.504	W74 55.280	EIS	RTMS	Existing
Microwave Detector	DA 101 NB & SB	100	PA 100 NB AT PHOENIXVILLE PIKE	NB & SB	N39 59.767	W75 35.638	EIS	RTMS	Existing
Microwave Detector	DA 102	100	PA 100 NB BEFORE KIRKLAND AVENUE	NB	N40 00.198	W75 35.983	EIS	RTMS	Existing
Microwave Detector	DA 104 SB	100	PA 100 SB BEFORE BOOT ROAD	SB	N40 00.646	W75 36.922	EIS	RTMS	Existing
Microwave Detector	DA 104 NB	100	PA 100 NB BEFORE POTTSTOWN PIKE OVERPASS	NB	N40 00.630	W75 36.898	EIS	RTMS	Existing
Microwave Detector	DA 105	100	PA 100 NB AT BOOT ROAD ONRAMP	NB	N40 00.439	W75 04.349	EIS	RTMS	Existing
Microwave Detector	DA 111	100	PA 100 NB BEFORE PA TURNPIKE	NB	N40 03.664	W75 40.028	EIS	RTMS	Existing
Microwave Detector	DA 112	100	PA 100 SB BEFORE PA TURNPIKE	SB	N40 03.947	W75 40.406	EIS	RTMS	Existing
Microwave Detector	DA 301	30	US 30 EB AFTER PA 340	EB	N40 00.588	W75 44.146	EIS	RTMS	Existing
Microwave Detector	DA-2 US30WB	30	US 30 WB BEFORE PA 100 OFFRAMP	WB	N40 01.704	W75 35.715	EIS	RTMS	Existing
Microwave Detector	DA 305 EB	30	US 30 EB BEFORE PA 113 OFFRAMP	EB	N40 01.142	W75 41.983	EIS	RTMS	Existing
Microwave Detector	DA 306	30	US 30 EB AFTER PA 113	EB	N40 01.17	W75 41.238	EIS	RTMS	Existing
Microwave Detector	DA 310	30	US 30 EB BEFORE PA 100 OFFRAMP	EB	N40 00.781	W75 39.043	EIS	RTMS	Existing
Microwave Detector	DA 311	30	US 30 WB WEST OF S. WHITFORD ROAD	WB	N40 00.840	W75 38.592	EIS	RTMS	Existing
Microwave Detector	DA 302 EB & WB	30	US 30 EB AT US 322 OFFRAMP AND ONRAMP	EB & WB	N40 00.714	W75 43.602	EIS	RTMS	Existing
Microwave Detector	DA 314	30	US 30 WB BEFORE PA 100 OFFRAMP	WB	N40 01.393	W75 36.818	EIS	RTMS	Existing
Microwave Detector	DA 312	30	US 30 WB AFTER PA 100 ONRAMP	WB	N40 01.069	W75 37.985	EIS	RTMS	Existing
Microwave Detector	DA 309	30	US 30 WB BEFORE US 30 (BUSINESS) OFFRAMP	WB	N40 00.953	W75 39.587	EIS	RTMS	Existing
Microwave Detector	DA 313	30	US 30 EB AT PA 100	EB	N40 01.220	W75 37.495	EIS	RTMS	Existing
Microwave Detector	DA 315	30	US RT 30 EB AFTER CLOVER MILL RD	EB	N40 00.779	W75 38.876	EIS	RTMS	Existing
Microwave Detector	DA 316	30	US 30 EB BEFORE US 202	EB	N40 01.660	W75 35.704	EIS	RTMS	Existing

PennDOT Existing Detectors

Detector Type	Detector ID	SR	Location Name	Direction	Latitude - GIS	Longitude - GIS	Manufacturer	Model Number	Status
Microwave Detector	DA 317	30	US 30 EB OFFRAMP TO US 202	EB	N40 01.830	W75 35.161	EIS	RTMS	Existing
Microwave Detector	DA 307	30	US 30 WB AFTER US 30 (BUSINESS) ONRAMP	WB	N40 01.204	W75 40.754	EIS	RTMS	Existing
Microwave Detector	DA 305 WB	30	US 30 WB AT PA 113 ONRAMP	WB	N40 01.157	W75 41.987	EIS	RTMS	Existing
Microwave Detector	DA 303	30	US 30 WB BEFORE US 322 OFFRAMP (1 MILE)	WB	N40 01.010	W75 42.617	EIS	RTMS	Existing
Microwave Detector	DA205SB	202	US 202 SB BEFORE MATLACK STREET	SB	N39 57.129	W75 34.902	EIS	RTMS	Existing
Microwave Detector	DA205NB	202	US 202 NB BEFORE WESTTOWN OFFRAMP	NB	N39 57.136	W75 34.883	EIS	RTMS	Existing
Microwave Detector	DA206SB	202	US 202 SB BEFORE WESTTOWN ROAD	SB	N39 57.559	W75 34.786	EIS	RTMS	Existing
Microwave Detector	DA206NB	202	US 202 NB NORTH OF WESTTOWN RD	NB	N39 57.565	W75 34.782	EIS	RTMS	Existing
Microwave Detector	DA207SB	202	US 202 SB AT PA 3 OFFRAMP	SB	N39 57.985	W75 34.894	EIS	RTMS	Existing
Microwave Detector	DA207NB	202	US 202 NB AT PA 3	NB	N39 58.002	W75 34.881	EIS	RTMS	Existing
Microwave Detector	DA208SB	202	US 202 SB AT PAOLI PIKE	SB	N39 58.349	W75 35.018	EIS	RTMS	Existing
Microwave Detector	DA208NB	202	US 202 NB AT PAOLI PIKE	NB	N39 58.368	W75 35.010	EIS	RTMS	Existing
Microwave Detector	DA210 NB&SB	202	202 SB AT PA 100	NB & SB	N39 59.473	W75 35.355	EIS	RTMS	Existing
Microwave Detector	DA211 NB&SB	202	US 202 NB BEFORE BOOT ROAD	NB & SB	N39 59.879	W75 35.154	EIS	RTMS	Existing
Microwave Detector	DA212 NB&SB	202	US 202 NB AT BOOT ROAD	NB & SB	N40 00.293	W75 34.959	EIS	RTMS	Existing
Microwave Detector	DA213 NB&SB	202	US 202 NB NORTH OF BOOT ROAD	NB & SB	N40 00.739	W75 34.901	EIS	RTMS	Existing
Microwave Detector	DA214	202	US 202 NB BEFORE US 30	NB	N40 01.120	W75 35.123	EIS	RTMS	Existing
Microwave Detector	DA215NB&SB	202	US 202 SB BEFORE BOOT ROAD	NB & SB	N40 01.536	W75 35.362	EIS	RTMS	Existing
Microwave Detector	DA216 NB&SB	202	US 202 SB AT US 30	NB & SB	N40 01.906	W75 35.186	EIS	RTMS	Existing
Microwave Detector	DA701 EB & WB	I-76	I-76 WB at PA 23 exit (same pole as CM-707) WB	EB & WB	40.06663	-75.31248	EIS	RTMS	Existing
Microwave Detector	DA702 EB & WB	I-76	I-76 EB @ MM 332.6 (same pole as CM-708) EB	EB & WB	40.06803	-75.30072	EIS	RTMS	Existing
Microwave Detector	DA703 EB & WB	I-76	I-76 WB west of Consh, Curve (same pole as CM-709) WB	EB & WB	40.07200	-75.28695	EIS	RTMS	Existing
Microwave Detector	DA704 EB & WB	I-76	I-76 WB east of Consh. Curve (on sign structure with CM-711)	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA705 EB & WB	I-76	I-76 EB east of Waverly Rd (same pole as CM-713) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA706 EB & WB	I-76	I-76 EB east of Waverly Rd. (freestanding pole) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA707 EB & WB	I-76	I-76 EB west of Gladwyne (freestanding pole) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA708 EB & WB	I-76	I-76 WB @ Gladwyne (same pole as CM-715) WB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA709 EB & WB	I-76	I-76 EB @ Belmont Ave. (same pole as CM-718) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA710 EB & WB	I-76	I-76 WB east of Belmont Ave. (same pole as CM-719) WB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA717 EB & WB	I-76	I-76 EB @ US 1 (same pole as CM-722) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA720 EB & WB	I-76	I-76 WB west of Montgomery Dr, (same pole as CM-724) WB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA721 EB & WB	I-76	I-76 EB @ Montgomery Dr. (same pole as CM-725) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA723 EB & WB	I-76	I-76 EB west of Girard Ave. (same pole as CM-727) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA724 EB & WB	I-76	I-76 WB east of Girard Ave. (same pole as CM-729) WB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA726 EB & WB	I-76	I-76 EB ramp to I-676 (same pole as CM-732) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA727 WB	I-76	I-76 WB @ 30th Street (from graphics but can't be seen) WB	WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA727 EB	I-76	I-76 EB @ South St. (on sign structure opposite CM-735) EB	EB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA731 EB & WB	I-76	I-76 EB @ Vare Ave. (on same pole as CM-739) EB	EB & WB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA50 NB & SB	1	US 1 NB south of Henry Ave. (same pole as CM-101) NB	NB & SB	pending	pending	EIS	RTMS	Existing

PennDOT Existing Detectors

Detector Type	Detector ID	SR	Location Name	Direction	Latitude - GIS	Longitude - GIS	Manufacturer	Model Number	Status
Microwave Detector	DA51 NB & SB	1	US 1 SB @ Fox St. (same pole as CM-102) SB	NB & SB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA52 NB &SB	1	US 1 SB @ Wissahicken Ave. (same pole as CM-103) SB	NB & SB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA53 NB & SB	1	US 1 SB @ Roberts/Berkley Ave. (freestanding pole across from CM-104, looks like 1 detector for NB & SB) SB	NB & SB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA54 NB & SB	1	US 1 NB @ 17th Street (same pole as CM-105) NB	NB & SB	pending	pending	EIS	RTMS	Existing
Microwave Detector	DA56 NB & SB	1	US 1 in the median south of 9th Street (same pole as CM-107)	NB & SB	pending	pending	EIS	RTMS	Existing
Video Detector	VIDS 1	202	US 202 SB AT OLD EAGLE SCHOOL ROAD	SB	N40 04.654	W75 24.644	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 2	202	US 202 NB AT OLD EAGLE SCHOOL RD	NB	N40 04.654	W75 24.644	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 3	202	US 202 SB AT END OF SWEDESFORD RD ONRAMP	SB	N40 04.525	W75 25.200	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 4	202	US 202 NB AT MILE MARKER 24.2	NB	N40 04.517	W75 25.099	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 5	202	US 202 SB AT MILE MARKER 23.8	SB	N40 04.380	W75 25.818	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 6	202	US 202 NB AT MILE MARKER 23.8	NB	N40 04.300	W75 26.339	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 7	202	US 202 NB AFTER VALLEY FORGE RD OFFRAMP	NB	N40 04.304	W75 26.375	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 8	202	US 202 SB BEFORE VALLEY FORGE RD ONRAMP	SB	N40 04.304	W75 26.375	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 9	202	US 202 NB SIGN STRUCTURE BETWEEN MM 22.7 & 22.8	NB	N40 04.188	W75 26.869	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 10	202	US 202 SB SIGN STRUCTURE BETWEEN MM 22.7 & 22.8	SB	N40 04.188	W75 26.869	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 11	202	US 202 SB ON PA 252 OVERPASS	SB	N40 03.982	W75 27.438	Econolite	Autoscope 706110	Existing
Video Detector	VIDS 12	202	US 202 NB ON PA 252 OVERPASS	NB	N40 03.969	W75 27.407	Econolite	Autoscope 706110	Existing
District 11-0									
Microwave Detector	866	65	McKees Rocks Br North	SB	40.478691	-80.043135			Existing
Microwave Detector	408	376	Rodi Rd	EB	40.440377	-79.831527	EIS	RTMS G4	Existing
Microwave Detector	415	376	McCully Dr	EB	40.441898	-79.805491	EIS	RTMS G4	Existing
Microwave Detector	420	376	Thompson Run Rd	EB	40.441830	-79.794795	EIS	RTMS G4	Existing
Microwave Detector	425	376	Laurel Dr	WB	40.443557	-79.781846	EIS	RTMS G4	Existing
Microwave Detector	430	376	Old William Penn	WB	40.444726	-79.768600	EIS	RTMS G4	Existing
Microwave Detector	435	376	Haymaker Dr	WB	40.442211	-79.762282	EIS	RTMS G4	Existing
Microwave Detector	440	376	I-376/SR 22	EB	40.438466	-79.757466	EIS	RTMS G4	Existing
Microwave Detector	710	79	Wexford Int	SB	40.610914	-80.095283	EIS	RTMS X3	Existing
Microwave Detector	610	79	Crafton Int	SB	40.450714	-80.110975	EIS		Existing
Microwave Detector	620	79	S-Bend NB Entrance	NB	40.487805	-80.124226	EIS		Existing
Microwave Detector	650	79	Neville Island Bridge	NB	40.513893	-80.134305	EIS		Existing
Microwave Detector	846	19	Wabash St	NB	40.431263	-80.026788	EIS	RTMS G4	Existing

PennDOT Existing Detectors

Detector Type	Detector ID	SR	Location Name	Direction	Latitude - GIS	Longitude - GIS	Manufacturer	Model Number	Status
Microwave Detector	848	19	Lowe St	NB	40.434402	-80.030193	EIS	RTMS G4	Existing
Microwave Detector	850	19	Alexander St	SB	40.439218	-80.032931	EIS	RTMS G4	Existing
Microwave Detector	852	19	South Main St	SB	40.442208	-80.030182	EIS	RTMS G4	Existing
Microwave Detector	854		Stuben St	NB	40.443533	-80.030552	EIS	RTMS G4	Existing
Microwave Detector	55	376	Robinson Town Center	EB	40.4522886	-80.1727643	EIS	RTMS X2	Existing
Microwave Detector	60	376	Ikea	WB	40.4501700	-80.1678237	EIS	RTMS X2	Existing
Microwave Detector	65	376	US22-30/SR60 Interchange	WB	40.4471450	-80.1657530	EIS	RTMS X2	Existing
Microwave Detector	70	376	Settlers Cabin EB Off-Ramp	EB	40.4433177	-80.1610565	EIS	RTMS X2	Existing
Microwave Detector	75	376	Settlers Cabin	EB	40.4386328	-80.1525914	EIS	RTMS X2	Existing
Microwave Detector	80	376	Settlers Cabin EB On-Ramp	EB	40.4338577	-80.1432466	EIS	RTMS X2	Existing
Microwave Detector	85	376	Bishops Corner Interchange	EB	40.4308422	-80.1371365	EIS	RTMS X2	Existing
Microwave Detector	90	376	Campbells Run	EB	40.4254173	-80.1239749	EIS	RTMS X2	Existing
Microwave Detector	95	376	US-22/I-279 SB On Ramp	WB	40.4251375	-80.1155179	EIS	RTMS X2	Existing
Microwave Detector	100	79	I-279 Pittsburgh Interchange	NB	40.4229405	-80.1058995	EIS	RTMS X2	Existing
Microwave Detector	105	376	Rosslyn Farms Interchange	SB	40.4204126	-80.0923030	EIS	RTMS X2	Existing
Microwave Detector	107	376	Carnegie Busway	NB	40.4162917	-80.0857427	EIS	RTMS X2	Existing
Microwave Detector	110	376	Carnegie Interchange	NB	40.4103101	-80.0720098	EIS	RTMS X2	Existing
Microwave Detector	111	376	VMS 20	NB	40.4136839	-80.0640141	EIS	RTMS X2	Existing
Microwave Detector	115	376	Greentree Interchange	SB	40.4207168	-80.0489589	EIS	RTMS X2	Existing
Microwave Detector	120	376	Greentree Hill Top	SB	40.4210864	-80.0421059	EIS	RTMS X2	Existing
Microwave Detector	125	376	Greentree Hill Middle	NB	40.4229323	-80.0302961	EIS	RTMS X2	Existing
Microwave Detector	130	376	Banksville Interchange NB	NB	40.4286208	-80.0297677	EIS	RTMS X2	Existing
Microwave Detector	132	376	Banksville Interchange SB	SB	40.4286208	-80.0297677	EIS	RTMS X2	Existing
Microwave Detector	146	6279	Sandusky St - NB	NB	40.4494045	-80.0032621	EIS	RTMS X2	Existing
Microwave Detector	147	6279	Sandusky St - SB	SB	40.4494045	-80.0032621	EIS	RTMS X2	Existing
Microwave Detector	150	6279	Anderson St	SB	40.4498373	-79.9996599	EIS	RTMS X2	Existing
Microwave Detector	160	6279	East St- NB	NB	40.4525927	-79.9968570	EIS	RTMS X2	Existing
Microwave Detector	161	6279	East St- SB	SB	40.4525927	-79.9968570	EIS	RTMS X2	Existing
Microwave Detector	168	6579	Veterans Bridge - NB	NB	40.4490474	-79.9925842	EIS	RTMS X2	Existing
Microwave Detector	169	6579	Veterans Bridge - SB	SB	40.4489473	-79.9927398	EIS	RTMS X2	Existing
Microwave Detector	180	6279	St Boniface - NB	NB	40.4608440	-79.9991932	EIS	RTMS X2	Existing
Microwave Detector	181	6279	St Boniface - SB	SB	40.4608440	-79.9991932	EIS	RTMS X2	Existing
Microwave Detector	185	6279	Hazlett St - NB	NB	40.4739382	-80.0055608	EIS	RTMS X2	Existing
Microwave Detector	186	6279	Hazlett St - SB	SB	40.4739382	-80.0055608	EIS	RTMS X2	Existing
Microwave Detector	190	6279	Venture St - NB	NB	40.4826786	-80.0072452	EIS	RTMS X2	Existing
Microwave Detector	191	6279	Venture St - SB	SB	40.4826786	-80.0072452	EIS	RTMS X2	Existing
Microwave Detector	200	6279	McKnight Road	NB	40.4952933	-80.0133338	EIS	RTMS X2	Existing
Microwave Detector	205	6279	Perrysville	SB	40.5002027	-80.0238052	EIS	RTMS X2	Existing
Microwave Detector	220	279	Jack's Run	NB	40.5070818	-80.0349310	EIS	RTMS X2	Existing
Microwave Detector	225	279	Bellevue Road	SB	40.5077405	-80.0446513	EIS	RTMS X2	Existing
Microwave Detector	230	279	Union Ave South	SB	40.5139643	-80.0520542	EIS	RTMS X2	Existing
Microwave Detector	235	279	Union Ave North	NB	40.5190986	-80.0544279	EIS	RTMS X2	Existing
Microwave Detector	240	279	Ben Avon Hts Rd	SB	40.5200039	-80.0630941	EIS	RTMS X2	Existing
Microwave Detector	245	279	Camp Horne Rd	SB	40.5244161	-80.0701886	EIS	RTMS X2	Existing
Microwave Detector	310	376	Fort Pitt Blvd	WB	40.4376946	-80.0016555	EIS	RTMS X2	Existing
Microwave Detector	315	376	Grant Street	EB	40.4351725	-79.9991637	EIS	RTMS X2	Existing
Microwave Detector	321	376	10th Street Bridge	EB	40.4339945	-79.9866083	EIS	RTMS X2	Existing
Microwave Detector	325	376	2nd Avenue	WB	40.4347274	-79.9872735	EIS	RTMS X2	Existing

PennDOT Existing Detectors

Detector Type	Detector ID	SR	Location Name	Direction	Latitude - GIS	Longitude - GIS	Manufacturer	Model Number	Status
Microwave Detector	330	376	Brady Street EB	EB	40.4360871	-79.9739053	EIS	RTMS X2	Existing
Microwave Detector	332	376	Brady Street WB	EB	40.4360871	-79.9739053	EIS	RTMS X2	Existing
Microwave Detector	335	376	Bates Street	WB	40.4319120	-79.9590915	EIS	RTMS X2	Existing
Microwave Detector	340	376	Swinburne Street	EB	40.4271671	-79.9526408	EIS	RTMS X2	Existing
Microwave Detector	345	376	Saline Street	WB	40.4293885	-79.9413514	EIS	RTMS X2	Existing
Microwave Detector	350	376	Beechwood Blvd	EB	40.4291170	-79.9312314	EIS	RTMS X2	Existing
Microwave Detector	370	376	Commercial Street	EB	40.4253050	-79.9088698	EIS	RTMS X2	Existing
Microwave Detector	375	376	Swissvale	EB	40.4261605	-79.8937180	EIS	RTMS X2	Existing
Microwave Detector	380	376	Edgewood	WB	40.4303257	-79.8821470	EIS	RTMS X2	Existing
Microwave Detector	385	376	Brinton Road	EB	40.4293293	-79.8764258	EIS	RTMS X2	Existing
Microwave Detector	390	376	Forest Hills	EB	40.4321509	-79.8711848	EIS	RTMS X2	Existing
Microwave Detector	395	376	Wilkinsburg	WB	40.4388798	-79.8623120	EIS	RTMS X2	Existing
Microwave Detector	400	376	Greensburg Pike	EB	40.4441832	-79.8540460	EIS	RTMS X2	Existing
Microwave Detector	405	376	Churchill Interchange	WB	40.4442240	-79.8410180	EIS	RTMS X2	Existing
Microwave Detector	407	376	Buss 22 - Monroeville	EB	40.4439832	-79.8411408	EIS	RTMS X2	Existing
Microwave Detector	410	376	Penn Hills Interchange	EB	40.4419663	-79.8232483	EIS	RTMS X2	Existing
Microwave Detector	804	51	Crane Avenue	SB	40.4161212	-80.0144067	EIS	RTMS X2	Existing
Microwave Detector	806	51	Liberty Interchange	SB	40.4141842	-80.0093373	EIS	RTMS X2	Existing
Microwave Detector	50	376	Montour Run	EB	40.457536	-80.188130	EIS	RTMS X3	Existing
Microwave Detector	99	376	Pittsburgh Int West	EB	40.423498	-80.108799	EIS	RTMS X3	Existing
Microwave Detector	101	376	Pittsburgh Int East	WB	40.422607	-80.100209	EIS	RTMS X3	Existing
Microwave Detector	250	279	Weiss Lane	SB	40.538722	-80.079473	EIS	RTMS X3	Existing
Microwave Detector	255	279	Mt Nebo Road	SB	40.550538	-80.086629	EIS	RTMS X3	Existing
Microwave Detector	260	279	Montgomery Rd	SB	40.565721	-80.090033	EIS	RTMS X3	Existing
Microwave Detector	265	279	McAleer Rd	NB	40.575370	-80.093175	EIS	RTMS X3	Existing
Microwave Detector	270	279	Pittsburgh Split	SB	40.586460	-80.099527	EIS	RTMS X3	Existing
Microwave Detector	550	79	Bridgeville North	NB	40.363998	-80.11875	EIS	RTMS X3	Existing
Microwave Detector	555	79	Chartiers Creek NB	NB	40.369319	-80.118793	EIS	RTMS X3	Existing
Microwave Detector	556	79	Chartiers Creek SB	SB	40.369319	-80.118793	EIS	RTMS X3	Existing
Microwave Detector	560	79	Prestley Rd	NB	40.372291	-80.110533	EIS	RTMS X3	Existing
Microwave Detector	565	79	Kirwin Hts Interchange	NB	40.373823	-80.103885	EIS	RTMS X3	Existing
Microwave Detector	570	79	Thoms Run Rd	NB	40.381718	-80.096462	EIS	RTMS X3	Existing
Microwave Detector	575	79	Collier Ave	NB	40.388484	-80.096462	EIS	RTMS X3	Existing
Microwave Detector	580	79	Carnegie South	NB	40.393255	-80.100679	EIS	RTMS X3	Existing
Microwave Detector	585	79	Carnegie NB	NB	40.399028	-80.105154	EIS	RTMS X3	Existing
Microwave Detector	586	79	Carnegie SB	SB	40.399028	-80.105154	EIS	RTMS X3	Existing
Microwave Detector	590	79	Ewing Road	NB	40.407167	-80.107378	EIS	RTMS X3	Existing
Microwave Detector	595	79	Pittsburgh Int South	NB	40.414122	-80.104731	EIS	RTMS X3	Existing
Microwave Detector	600	79	Pittsburgh Int North	NB	40.428304	-80.105887	EIS	RTMS X3	Existing
Microwave Detector	605	79	W Harbison Rd	SB	40.433204	-80.110141	EIS	RTMS X3	Existing
Microwave Detector	612	79	Clever Rd	NB	40.465134	-80.111776	EIS	RTMS X3	Existing
Microwave Detector	615	79	Forest Grove Rd	SB	40.480143	-80.121473	EIS	RTMS X3	Existing
Microwave Detector	625	79	3rd Bend SB	SB	40.493151	-80.126863	EIS	RTMS X3	Existing
Microwave Detector	630	79	1st Bend NB	NB	40.493377	-80.125141	EIS	RTMS X3	Existing
Microwave Detector	635	79	2nd Bend NB	NB	40.500264	-80.120923	EIS	RTMS X3	Existing
Microwave Detector	640	79	3rd Bend NB	NB	40.501791	-80.128781	EIS	RTMS X3	Existing
Microwave Detector	645	79	Coraopolis Int	NB	40.504972	-80.137959	EIS	RTMS X3	Existing
Microwave Detector	655	79	Deer Run Road NB	NB	40.522092	-80.131154	EIS	RTMS X3	Existing

PennDOT Existing Detectors

Detector Type	Detector ID	SR	Location Name	Direction	Latitude - GIS	Longitude - GIS	Manufacturer	Model Number	Status
Microwave Detector	656	79	Deer Run Road SB	NB	40.522092	-80.131154	EIS	RTMS X3	Existing
Microwave Detector	660	79	Kilbuck St	NB	40.528130	-80.129205	EIS	RTMS X3	Existing
Microwave Detector	665	79	Duff Rd	NB	40.535805	-80.124195	EIS	RTMS X3	Existing
Microwave Detector	670	79	Glenfield Rd	SB	40.546813	-80.122234	EIS	RTMS X3	Existing
Microwave Detector	675	79	Mt Nebo Int	NB	40.552305	-80.117158	EIS	RTMS X3	Existing
Microwave Detector	680	79	Red Mud Hollow - South	NB	40.563024	-80.113954	EIS	RTMS X3	Existing
Microwave Detector	685	79	Red Mud Hollow - North	SB	40.568734	-80.116088	EIS	RTMS X3	Existing
Microwave Detector	690	79	Magee Rd Ext	SB	40.578766	-80.117083	EIS	RTMS X3	Existing
Microwave Detector	700	79	Rochester Rd	SB	40.589013	-80.099141	EIS	RTMS X3	Existing
Microwave Detector	705	79	Wedgewood Dr	NB	40.596946	-80.093426	EIS	RTMS X3	Existing
Microwave Detector	820	279	Ramp B Fort Pitt Bridge	NB	40.4380755	-80.0141519	EIS	RTMS X3	Existing
Microwave Detector	821	279	Fort Pitt Bridge - Ramp A	SB	40.4381592	-80.0138193	EIS	RTMS X3	Existing
Microwave Detector	822	279	Fort Pitt Bridge - Outbound	NB	40.4375692	-80.0135940	EIS	RTMS X3	Existing
Microwave Detector	823	279	Fort Pitt Bridge - Outbound RT	SB	40.4377060	-80.0136289	EIS	RTMS X3	Existing
Microwave Detector	824	279	Fort Pitt Bridge - Outbound LT	SB	40.4376692	-80.0136101	EIS	RTMS X3	Existing
Microwave Detector	825	376	Ramp N Fort Pitt Bridge	EB	40.4395351	-80.0097316	EIS	RTMS X3	Existing
Microwave Detector	826	376	On-Ramp Fort Pitt Bridge	WB	40.4395269	-80.0089189	EIS	RTMS X3	Existing
Microwave Detector	827	376	On-Ramp Fort Pitt Bridge	WB	40.4394881	-80.0089377	EIS	RTMS X3	Existing
Microwave Detector	828	376	Stanwix On-Ramp to I-376WB	WB	40.4391819	-80.0080204	EIS	RTMS X3	Existing
Microwave Detector	829	279	Ramp D Ft Duquesne Br	SB	40.4411968	-80.0090074	EIS	RTMS X3	Existing
Microwave Detector	830	279	Ramp D Ft Duquesne Blvd	NB	40.4413335	-80.0092434	EIS	RTMS X3	Existing
Microwave Detector	831	279	Liberty Off-Ramp Fort Pitt Br	NB	40.4406619	-80.0073471	EIS	RTMS X3	Existing
Microwave Detector	832	279	Liberty On-Ramp - Fort Pitt Br	SB	40.4406701	-80.0078997	EIS	RTMS X3	Existing
Microwave Detector	833	279	Blvd Alllies - Off-Ramp	NB	40.4404088	-80.0078058	EIS	RTMS X3	Existing
Microwave Detector	834	376	Grant St Off Ramp I-376EB	EB	40.4360279	-80.0001776	EIS	RTMS X3	Existing
Microwave Detector	950	28	St Nicholas Church	NB	40.458561	-79.985944	Wavetronix	SSI 105	Existing
Microwave Detector	952		Gardner St				Wavetronix	SSI 105	Existing
Microwave Detector	954	28	31st St Bridge	NB	40.464594	-79.979531	Wavetronix	SSI 105	Existing
Microwave Detector	956	28	Croft St	SB	40.469962	-79.975801	Wavetronix	SSI 105	Existing
Microwave Detector	958	28	40th St Bridge	NB	40.474508	-79.971254	Wavetronix	SSI 105	Existing
Microwave Detector	960	28	Ohio St	NB	40.478655	-79.967459	Wavetronix	SSI 105	Existing

APPENDIX R

LIST OF UPCOMING INTEGRATION PROJECTS

Appendix R
List of Upcoming Integration Projects

As of 2011-01-10

							DEVICE TOTALS						
							408	24	244	143	283	201	82
STATUS	**District**	**County**	**SR**	**Sec**	**Let Date (*Estimated*)**	**Actual Let Date**	**CCTV**	**HAR**	**DMS**	RTMS	VIDS	tag readers	Bluetooth
IN PROGRESS													
Construction	1	Erie	79	PHA	9/23/2010	9/23/2010	4	3	9				
Construction	1	Erie	79	PHA	9/23/2010	9/23/2010	11	0	0				
Construction	2	Clearfield	80	B28	5/7/2008			1	6				
Construction	2	Clearfield	153	N23	11/13/2008	11/13/2008			1				
Construction	2	Clinton	150	314	9/3/2009	9/3/2009	1						
Construction	2	Elk	219	N24	10/15/2009	10/15/2009	0	0	1				
Construction	2	Centre	3014	N11	5/13/2010	5/13/2010	7	0	2				
Construction	5	Berks	78	WIT	5/21/2009	5/21/2009	5	3	3				
Construction	5	Schuylkill	81	WIT	5/21/2009	5/21/2009	6		4				
Construction	5	Berks	176	02S	4/15/2010	4/15/2010							
Construction	5	Berks	176	02S	4/15/2010	4/15/2010	1	1	3				
Programmed	6	Philadelphia	76	ITS	12/21/2006	12/21/2006	44	0	10		26		
Construction	6	Montgomery	309	104	2/9/2007		21	0	9		42	21	
Construction	6	Montgomery	476	RES	12/20/2007			0	0		5		
Construction	6	Philadelphia	95	CP1	1/8/2009	1/8/2009	12	0	3		24		
Construction	6	Bucks	95	ITB	5/21/2009	5/21/2009	17	0	10	39	54	30	
Construction	6	Delaware	95	ITC	6/4/2009	6/4/2009			1	14		25	
Construction	6	Delaware	95	ITC	6/4/2009	6/4/2009	18	0	11		26	39	
Construction	6	Philadelphia	95	GR0	7/2/2009		1	0	0				
Construction	6	Bucks	95	ITF	7/16/2009	7/16/2009	29		15	39	26	21	
Construction	6	Montgomery	476	RDC	7/30/2009	7/30/2009							
Construction	6	Montgomery	76	RMP	8/27/2009		1					3	
Construction	6	Montgomery	202	65N	12/17/2009	12/17/2009	4		2	2			
Construction	8	Cumberland	81	19	2/20/2009	2/20/2009	1						
Construction	8	Lancaster	30	0	11/3/2009		11						
Construction	8	York	83	0	11/3/2009		13						

Appendix R
List of Upcoming Integration Projects

As of 2011-01-10

							DEVICE TOTALS						
							408	24	244	143	283	201	82
STATUS	**District**	**County**	**SR**	**Sec**	**Let Date (*Estimated*)**	**Actual Let Date**	**CCTV**	**HAR**	**DMS**	RTMS	VIDS	tag readers	Bluetooth
Construction	10	Allegheny	19	0	2/25/2010	2/25/2010							
Construction	11	Allegheny	79	0	10/1/2009	10/1/2009			3				
Construction	11	Allegheny, Beaver, butler, Washington	19	0	2/25/2010	2/25/2010	32		6				
Construction	11	Allegheny	28	A10	6/10/2010	6/10/2010			1				
Construction	12	Washington / Westlmoreland			6/17/2010	6/17/2010	4	1	6				
Construction	12	Washington / Westlmoreland	70	0	6/17/2010	6/17/2010	17	0	2				
	Projects				**IN PROGRESS TOTALS**	**SUBTOTAL**	**260**	**9**	**108**	***94***	***203***	***139***	***0***
SFY 2010/2011													
Programmed	1	Erie	97627	PCT	12/16/2010	9/23/2010			3				
Programmed	2	Centre	350	N02	11/4/2010		0	1	1				
Programmed	3	Northumberlan	80	109	6/23/2011		1	1	4				
Planned	3	Columbia	80		6/23/2011		1	1	4				
Programmed	6	Philadelphia	95	GR1	1/21/2011		22	0	17		10	20	27
Programmed	6	Montgomery	202	7IT	2/17/2011		21	0	9		12	1	17
Programmed	6	Philadelphia	95	CP2	6/9/2011		3	0	7	7	2	2	18
Programmed	9	Bedford	99	09T	4/21/2011		2						
Programmed	11	Allegheny	579	A05	6/9/2011				1				
	Projects				**SFY 2010/2011 TOTALS**		**50**	**3**	**46**	***7***	***24***	***23***	***62***
SFY 2011/2012													
Programmed	4	Lackawanna	81	218	8/4/2011				2				
Programmed	4	Luzerne	81	ITS	11/10/2011		1		2				
Programmed	4	Luzerne	81	ITS	11/10/2011				1				
Programmed	4	Luzerne	81	0	2/9/2012		3		8				
Programmed	5	Carbon	80	0	10/15/2011			1	3				
Programmed	5	Monroe	80	0	10/15/2011		2	1	3				
Programmed	6	Chester	202	320	7/1/2011		1			40		22	
Planned	6	Montgomery	202	520	7/14/2011		3		2		2		
Programmed	6	Montgomery	9101	ITS	3/1/2012		11	0	4		6		

Appendix R
List of Upcoming Integration Projects

As of 2011-01-10

							DEVICE TOTALS						
							408	24	244	143	283	201	82
STATUS	**District**	**County**	**SR**	**Sec**	**Let Date (*Estimated*)**	**Actual Let Date**	**CCTV**	**HAR**	**DMS**	RTMS	VIDS	tag readers	Bluetooth
Programmed	6	Philadelphia	95	GR2	6/7/2012		20	0	11	2	22	2	20
Planned	8	Franklin	various	various	7/1/2011				5				
Programmed	8	York	83	063	2/9/2012		11	5	8				
Planned	10	Indiana, Westmoreland	22, 119		11/3/2011								
Planned	10	Butler	79		4/5/2012								
Planned	10	Butler, Clarion, Jefferson	79, 80		4/5/2012		3						
Programmed	11	Allegheny	376	A35	12/15/2011		8						
	Projects				**SFY 2011/2012 TOTALS**		**63**	**7**	**49**	***42***	***30***	***24***	***20***

SFY 2012/2013

Programmed	2	Centre	80	ITS	4/1/2013		1	1	2				
Programmed	2	Centre	80	ITS	4/1/2013		6	1	14				
Planned	2	Centre	220	J10 P2	4/1/2013		4	0	1				
Planned	2	Centre	322	J10 P3	4/1/2013		0	3	6				
Programmed	5	Berks	222	0	12/5/2012		5		4				
Programmed	6	Montgomery	422	ITS	7/12/2012		18	0	10			15	
Programmed	6	Philadelphia	76	PCC	12/6/2012		1		1		26		
Programmed	8	Cumberland	81	0	10/1/2012				3				
Planned	10	Clarion, Jefferson	80		10/4/2012								
Planned	10	Clarion, Jefferson	80		3/7/2013								
	Projects				**SFY 2012/2013 TOTALS**		**35**	**5**	**41**	***0***	***26***	***15***	***0***

TOTALS

STATUS	**District**	**County**	**SR**	**Sec**	**Let Date (*Estimated*)**	**Actual Let Date**	**CCTV**	**HAR**	**DMS**	**RTMS**	**VDS**	**tag readers**	**Bluetooth**
	PROJECTS				**TOTALS**	TOTAL	**408**	**24**	**244**	**143**	**283**	**201**	**82**

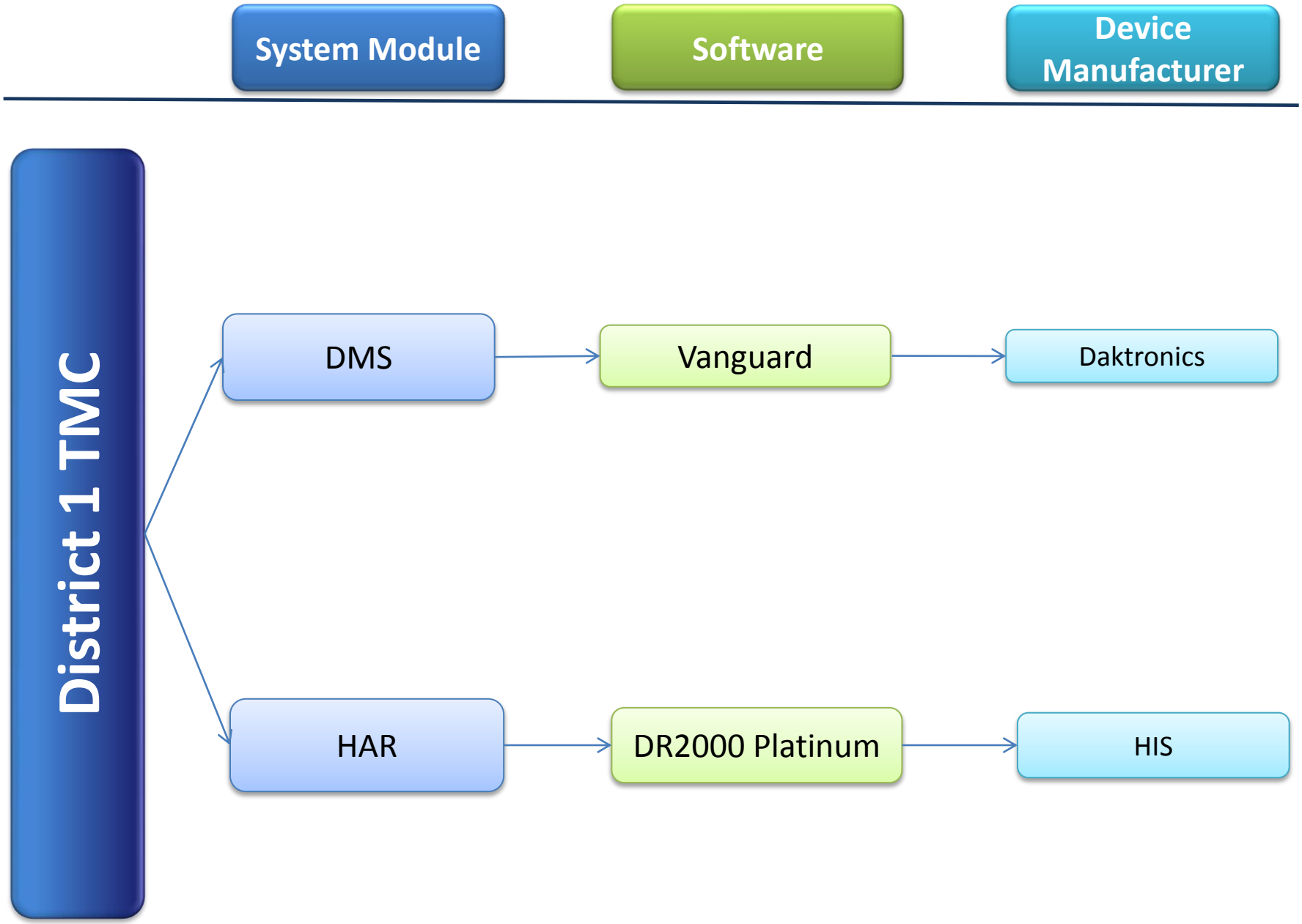
APPENDIX S
AS-IS DISTRICT SYSTEMS AND DEVICES

This appendix provides a high level overview of the existing ITS software and devices (by manufacturer) currently used in each of the PennDOT Engineering Districts. The Selected Offeror is expected to provide a software solution that will integrate **all PennDOT ITS devices*** into a **single** Next Generation ATMS **system**.

*The Ramp Meters in District 6 are not included into the initial system deployment phases of this project (please refer to Appendix N Phasing Plan).

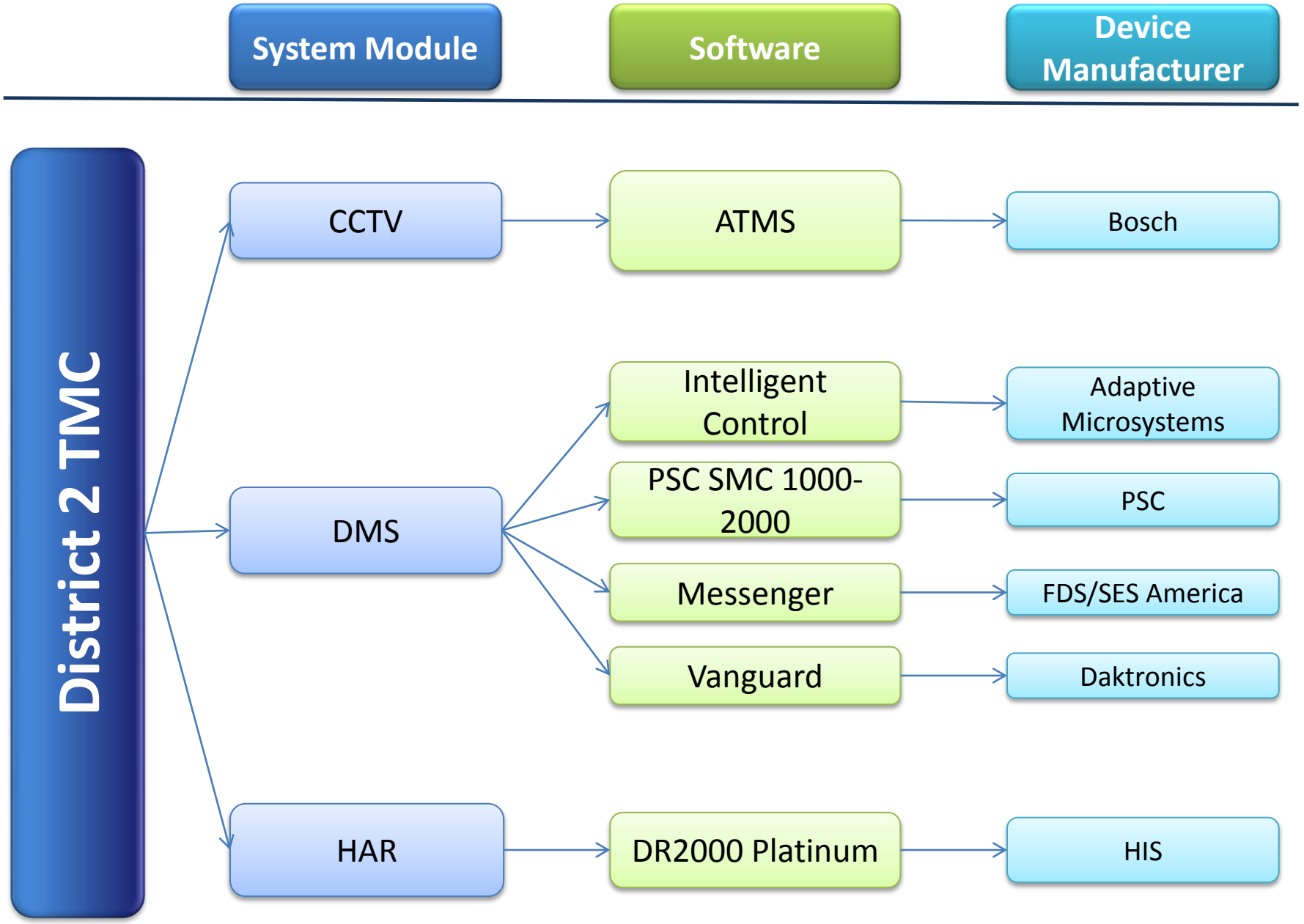
AS-IS District Systems and Devices

As of 2011-02-08



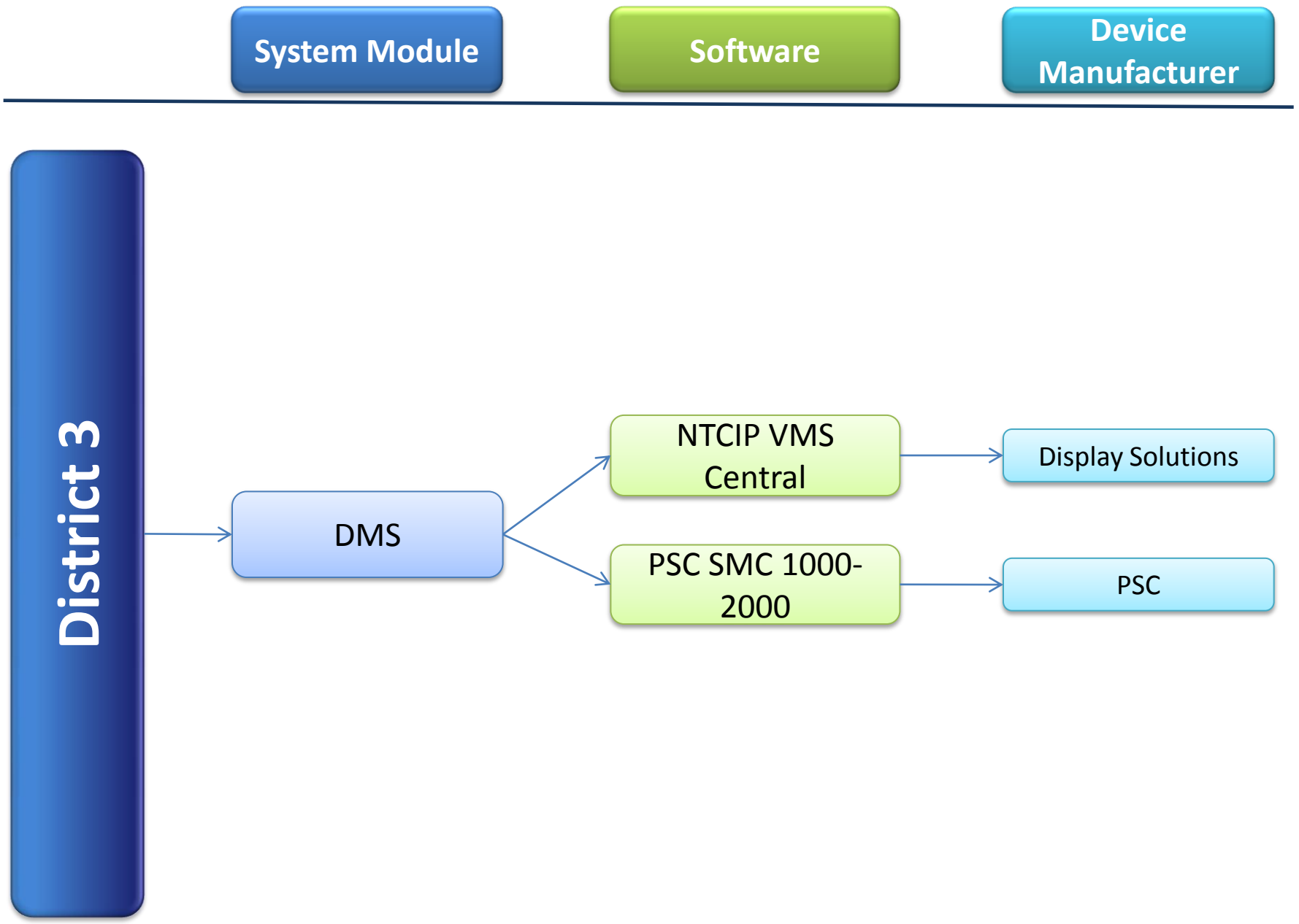
AS-IS District Systems and Devices

As of 2011-02-08



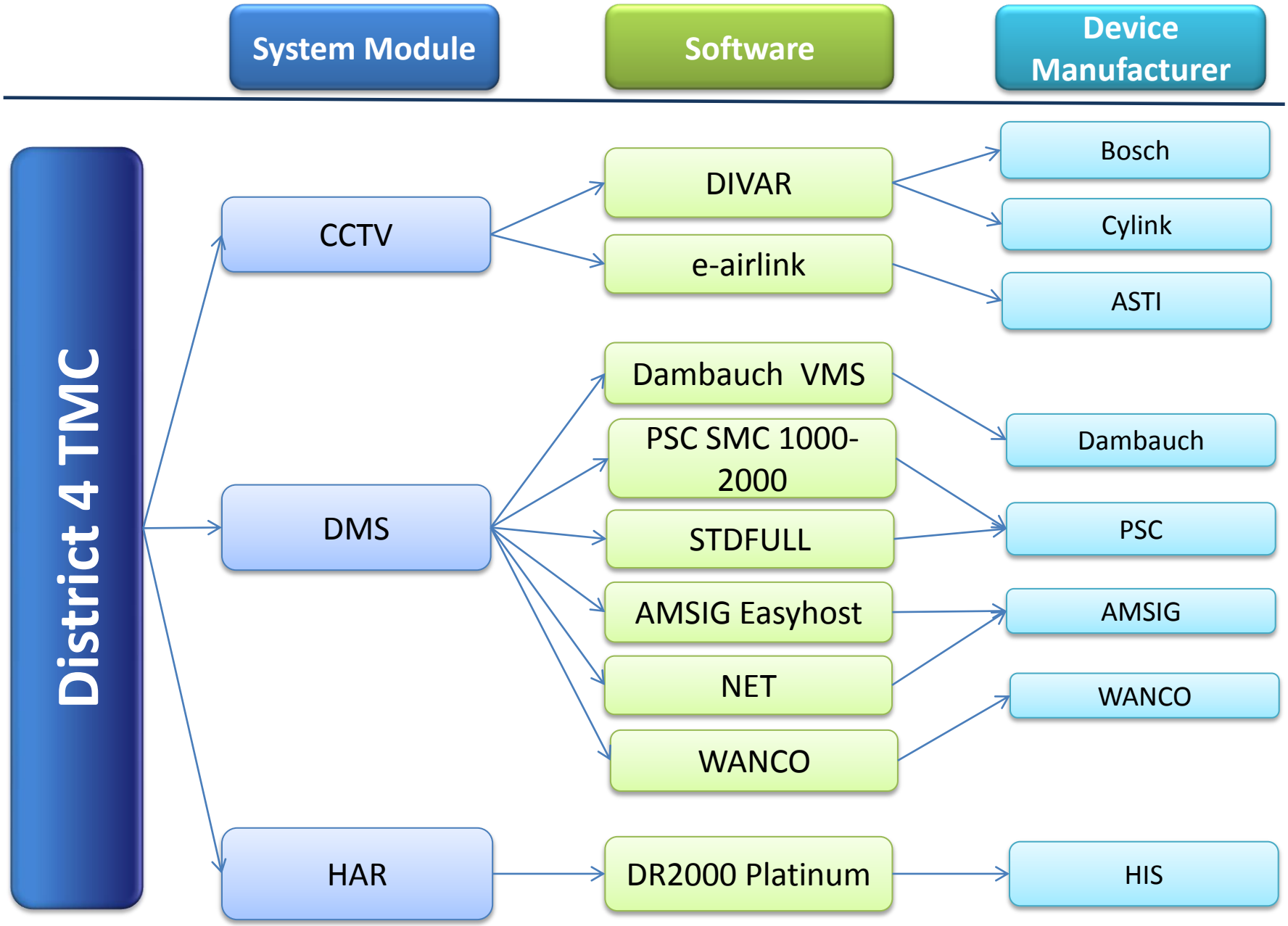
AS-IS District Systems and Devices

As of 2011-02-08



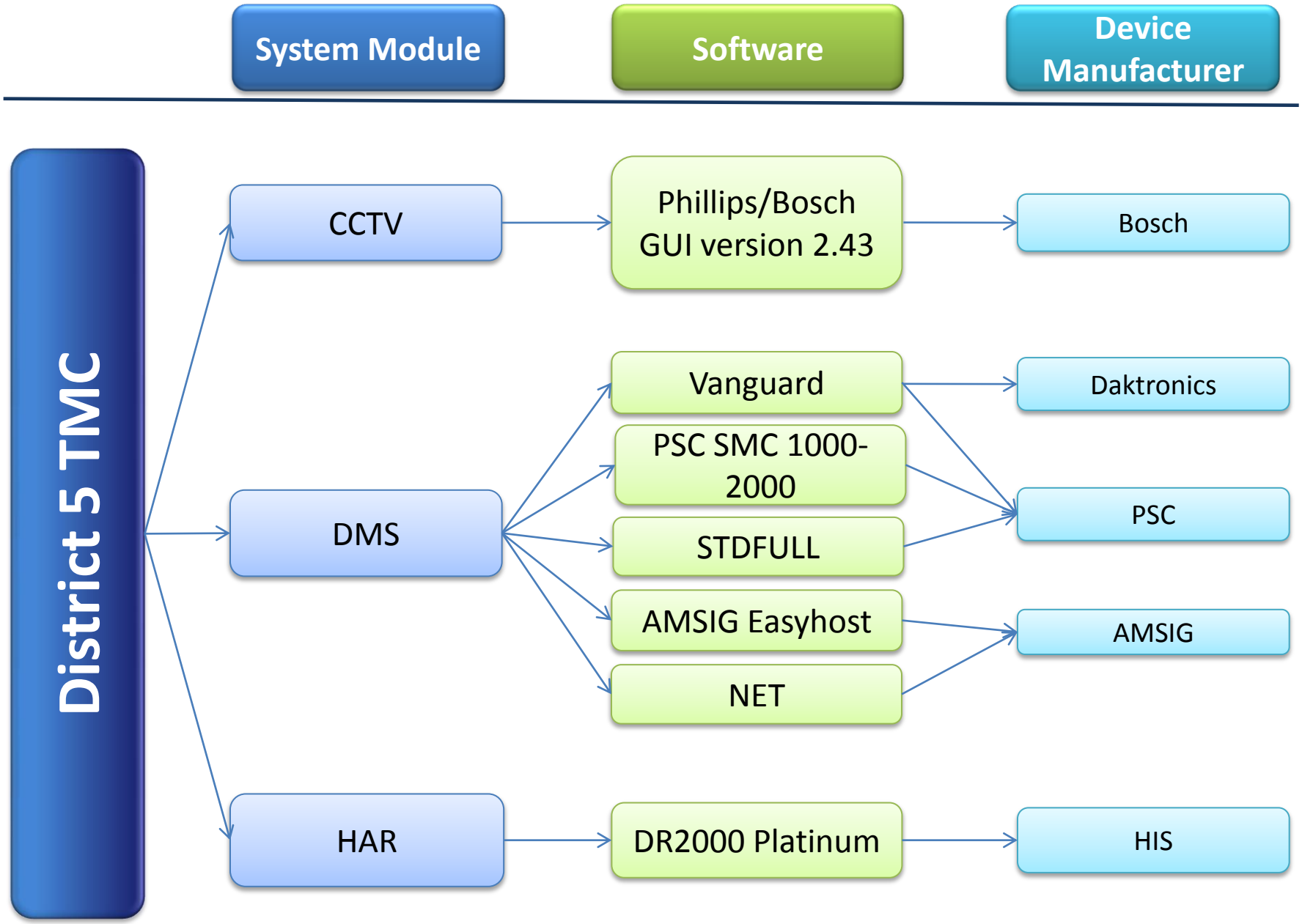
AS-IS District Systems and Devices

As of 2011-02-08



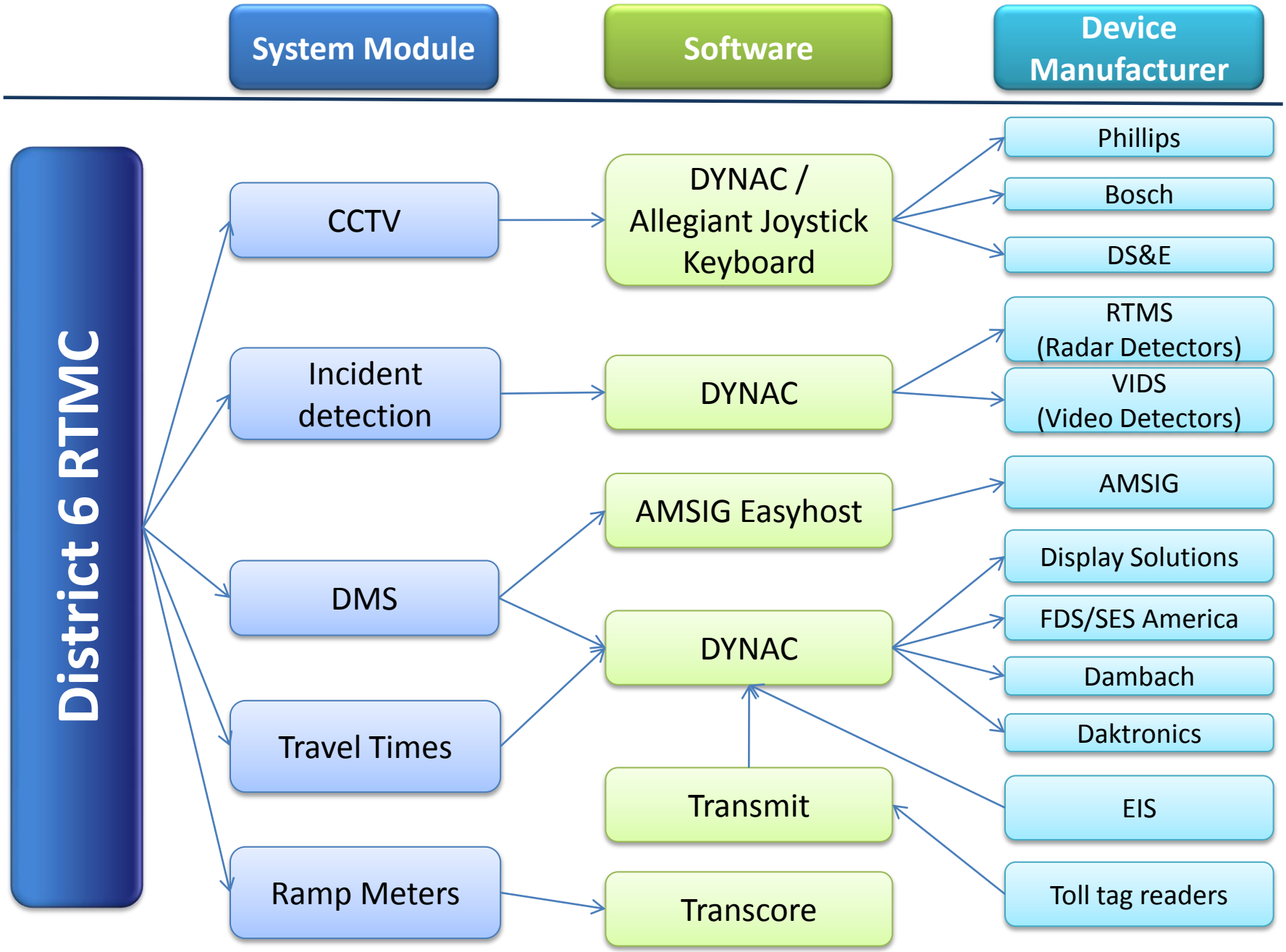
AS-IS District Systems and Devices

As of 2011-02-08



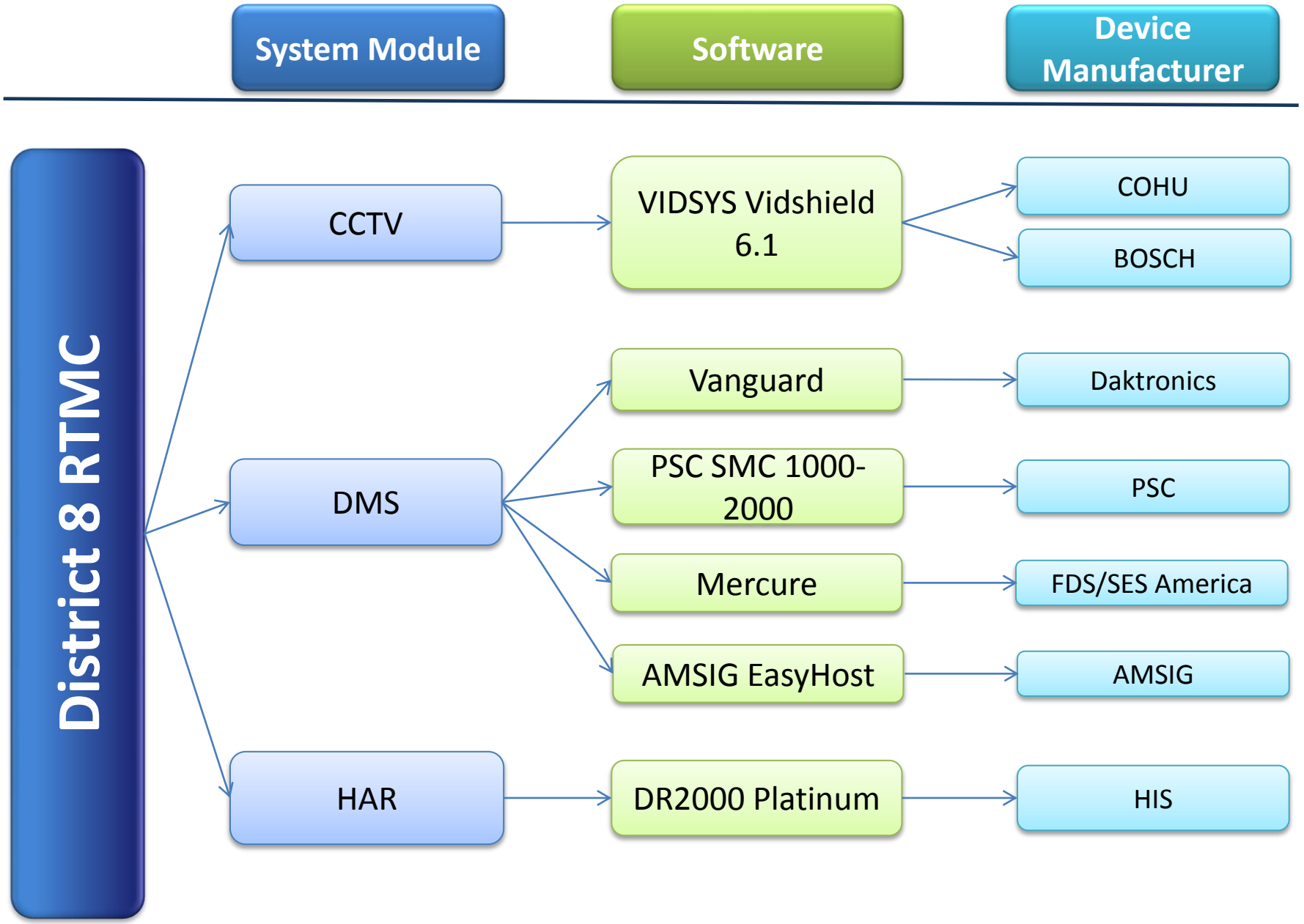
AS-IS District Systems and Devices

As of 2011-02-08



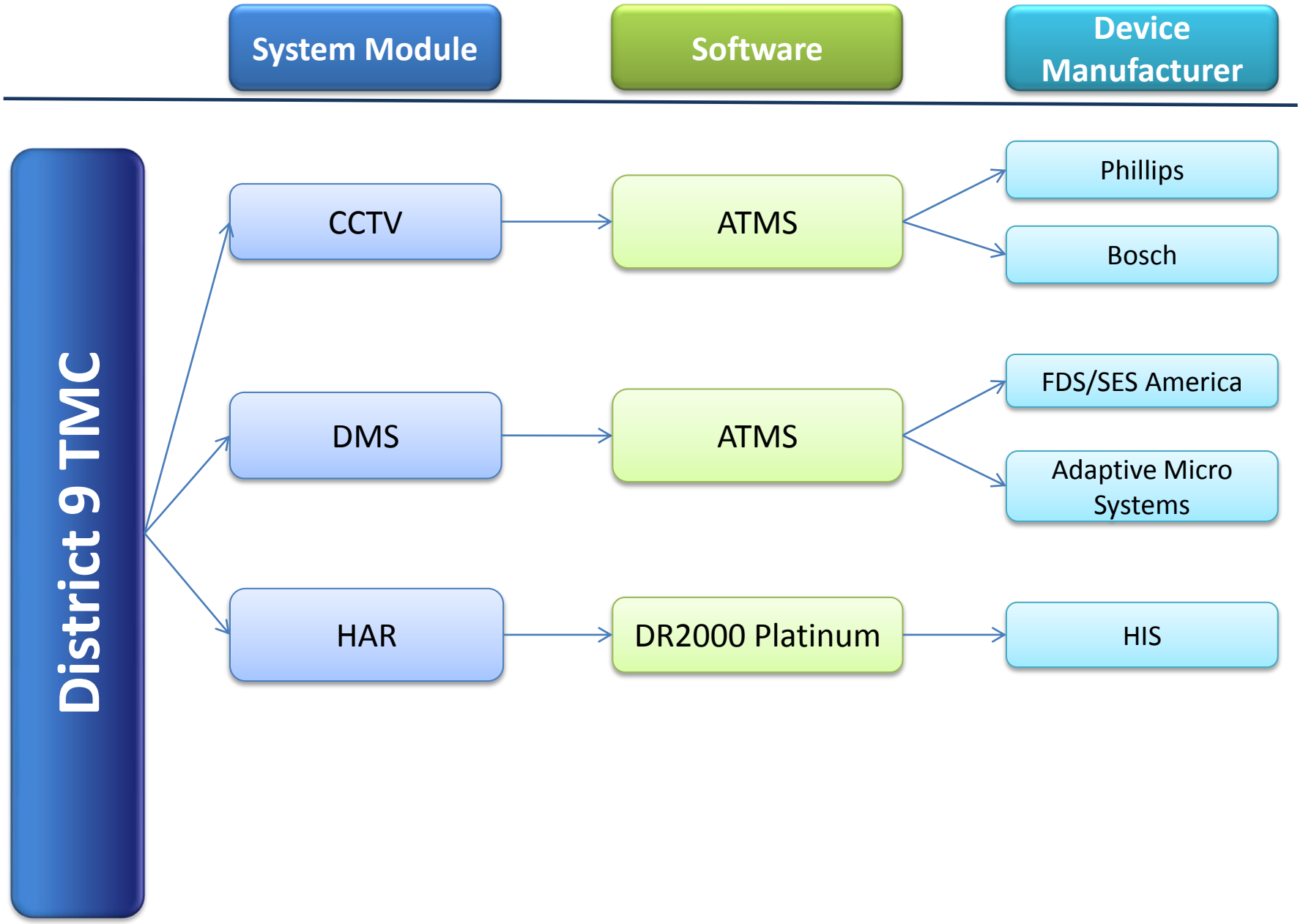
AS-IS District Systems and Devices

As of 2011-02-08



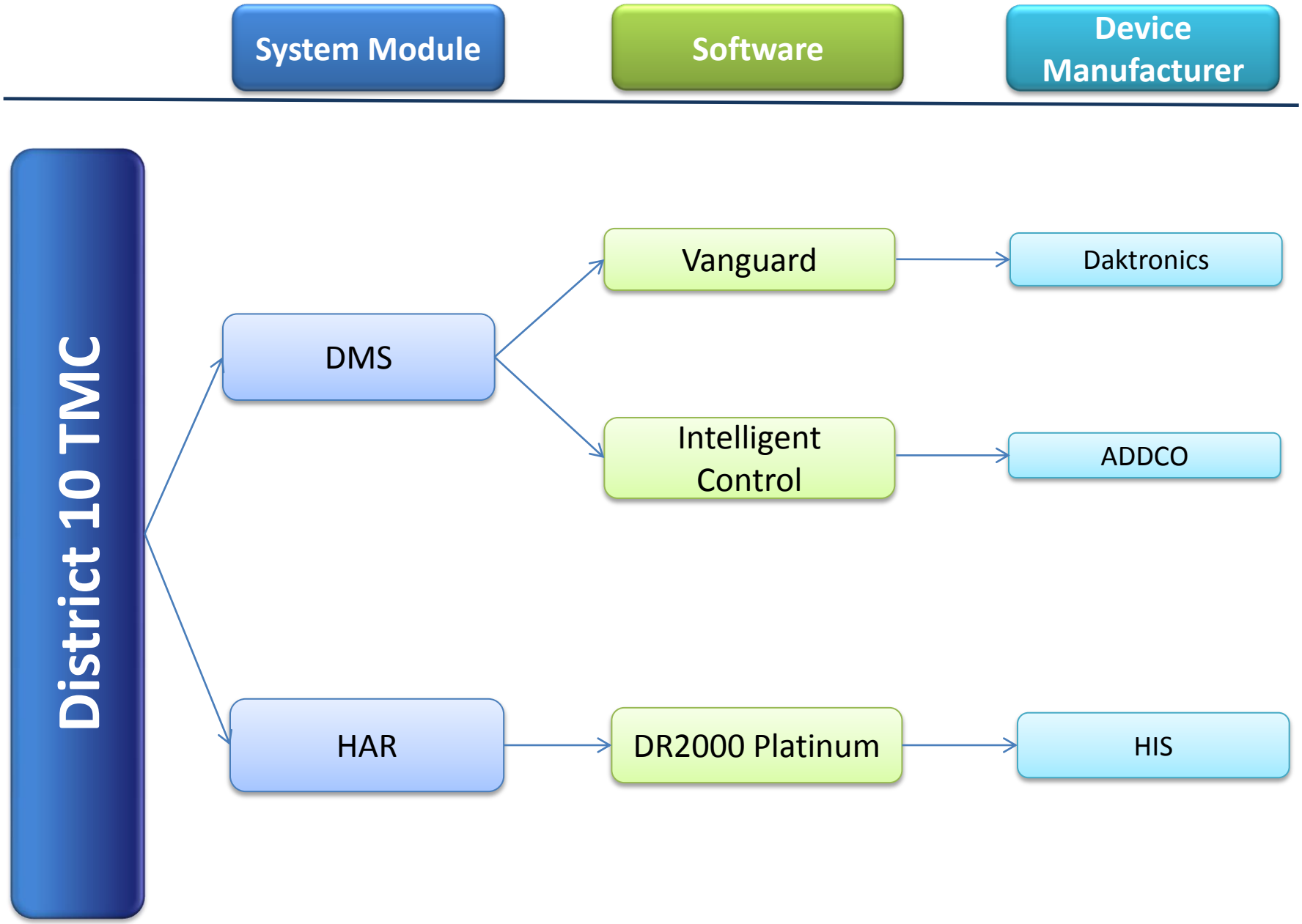
AS-IS District Systems and Devices

As of 2011-02-08



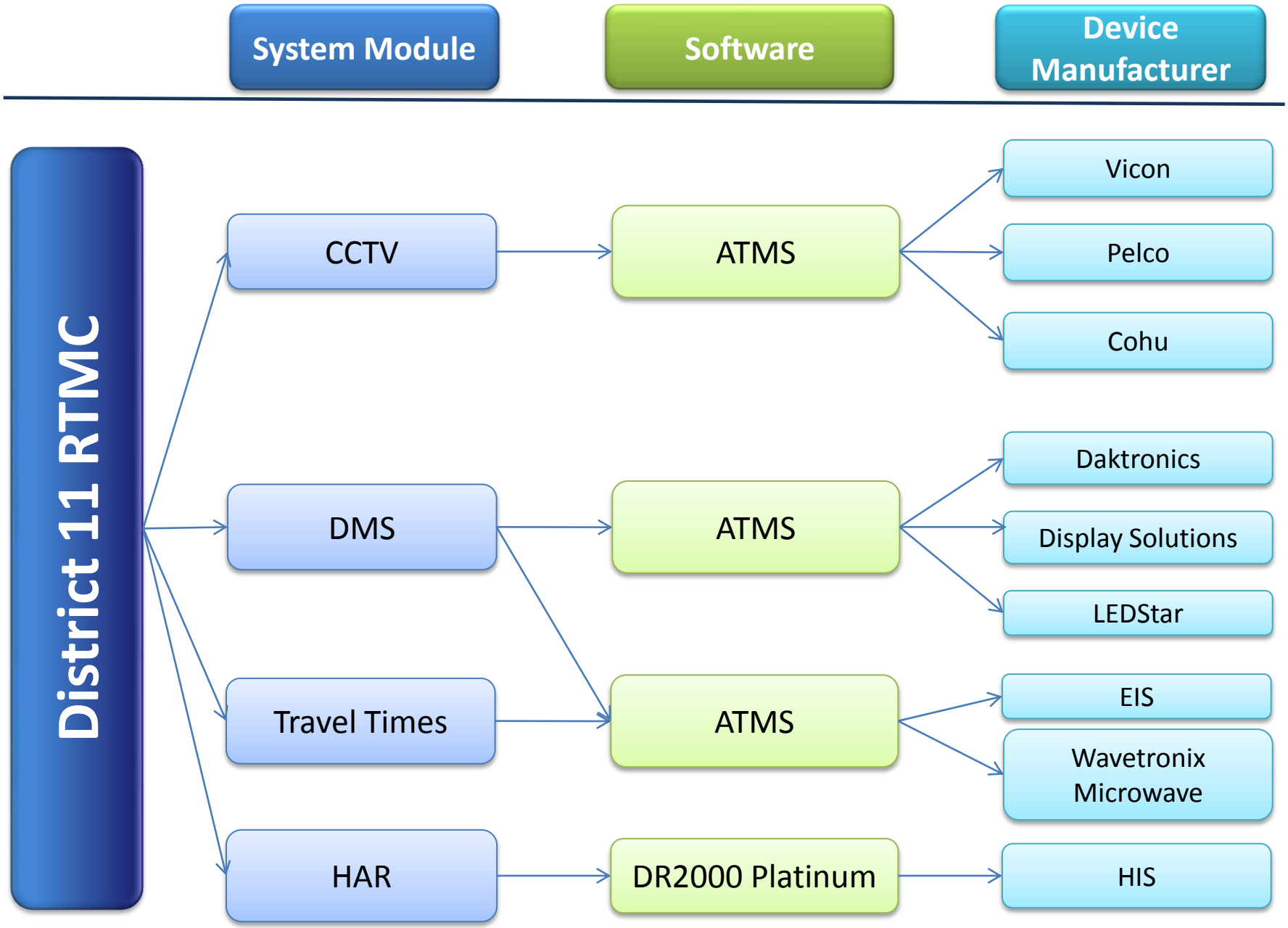
AS-IS District Systems and Devices

As of 2011-02-08



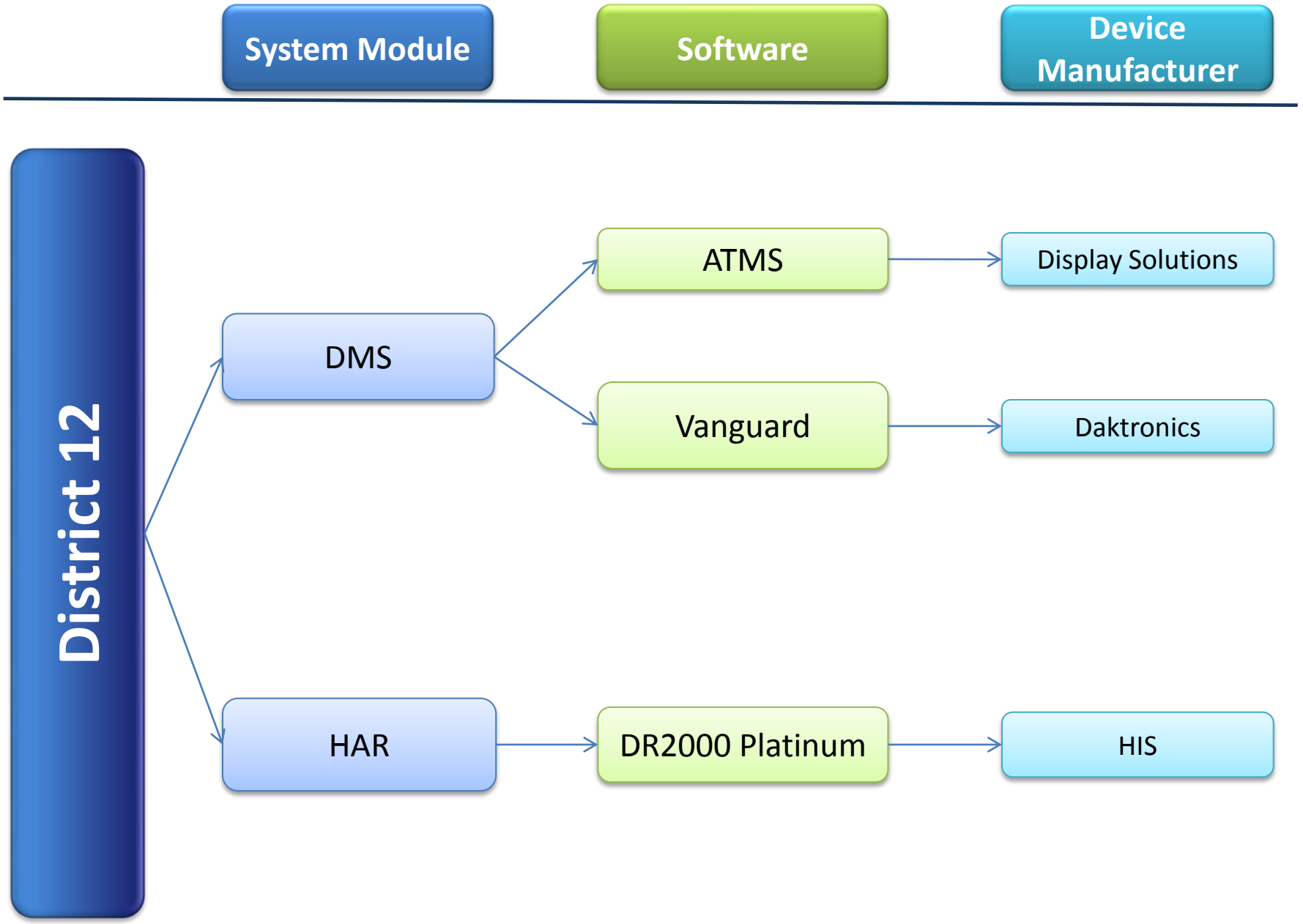
AS-IS District Systems and Devices

As of 2011-02-08



AS-IS District Systems and Devices

As of 2011-02-08



APPENDIX T

VENDOR SOFTWARE CAPABILITIES MATRIX

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Module	**Number of PennDOT Requirements**	**Number of Requirements met "Out of the Box"**	**Requirements Not Met "Out of the Box***
DMS	20		
CCTV	10		
HAR	9		
Travel Time module	5		
Incident response plan	16		
Incident detection/alarm module/vehicle detectors	13		
HMI - Regional operations requirements	17		
Administration	20		
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Data warehouse	18		
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Interfaces	11		
RCRS Interface (includes EDRS)	1		
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Traffic signal systems	6		
MDSS / RWIS Interface	0		
Queue detection (D5)	0		
Interface to RIMIS (D6)	0		
Ramp meter interface	0		

*Please use the requirements numbers in the System Requirements to identify the requirements that are not met "Out of the Box".

INSTRUCTIONS FOR PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX

Using the codes below, indicate the software's ability to meet each of the listed requirements. PennDOT has established response codes that shall be used:

- OB - requirement fully met "out of the box", requiring no change to base source code or configuration
- CO - requirement fully met through configuration, requiring no change to base source code
- DT - requirement fully met using proposed development tools to extend functional Capabilities, allowing upgrades and full product support
- CU - customization required to fully meet requirement, requiring changes to base source code
- TP - requires integration with a third party solution
- NA - not available - software does Not address requirement
- FR - not available at present, but will be in a future release

Offeror shall use only one (1) code per requirement. Any requirement that is responded to in any other way will be treated as an "NA" response. Any response that exceeds the software's capability or is contradicted by other information in the proposal will also be considered an "NA" response.

Offeror shall provide comments for any "CU", "TP", "NA" or "FR" response. Additional comments relative to a requirements group as a whole can be included in the space provided.

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX

Please refer to instructions sheet for guidance on filling out the matrix below.

ID	Requirements	Existing Software Capabilities*	Comments
DMS			
FDM01	Create a message for display on a DMS.		
FDM02	Enforce the same constraints on the user's message that exist for the selected DMS regarding: allowable set of characters, number of lines of text, number of characters per line and fonts.		
FDM03	Maintain a list of forbidden words. The ATMS software shall prevent a message containing any word on the forbidden list from being posted on any DMS device. The ATMS software shall provide a facility for an authorized user to modify the list of forbidden words.		
FDM04	Create, edit and save messages in a message library.		
FDM05	Activate the message on the selected DMS device(s).		
FDM06	Allow the user to specify any number of DMS devices to receive a given message.		
FDM07	Provide the user the capability to remove a message from one or more DMS.		
FDM08	Confirm that the proposed message, specified by the user, has been properly posted to the DMS device(s) selected by the user.		
FDM09	Allow the user to perform remote maintenance, such as pixel tests, to check for outages of individual pixels.		
FDM10	Maintain a history of all DMS messages that have been activated along with the user name and time when it was activated.		
FDM11	Manual control of the brightness of a DMS device display.		
FDM12	Messages posted on a DMS shall appear on the ATMS software graphical user interface along with the icon representing the device. A mouse over function will provide message information and an accurate representation of the current message.		
FDM13	The ATMS software shall provide the user the ability to access the DMS from a map, table or tree view type list.		
FDM14	Allow users to blank (command) a DMS.		
FDM15	Functionality to prioritize and schedule messages.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FDM16	Automatically update messages based on data such as Travel Time or Detector Speed.		
FDM17	Allow a user with Administrative privileges to configure the number of times that the ATMS software will attempt to resend a message to a DMS if there is a communication failure.		
FDM18	If a communication failure occurs when sending a message to a DMS, the ATMS software will attempt to resend the message for the number of times that have been configured by an Administrative user.		
FDM19	Notify the user if a message was not successfully posted to the selected DMS(s) within a specified number of attempts to post the message.		
FDM20	Provide an efficient method of creating, editing and activating messages to multiple sign types.		
CCTV			
FCC01	The ATMS software shall allow Administrators to save camera presets for each PTZ camera including a location description. A preset camera position shall consist of a pan angle, tilt angle, zoom setting, focus setting and a title that is superimposed on the image.		
FCC02	The ATMS software shall allow at least 25 preset camera positions for any Pan-Tilt-Zoom (PTZ) camera.		
FCC03	The ATMS software shall support screen titles for at least 16 zones for each PTZ camera, such that the camera image displays the zone name whenever the camera is aimed anywhere in the zone, unless the camera has been commanded to a preset view.		
FCC04	The ATMS software shall be capable of accessing the video stream of a camera from a designated video distribution system where the ATMS software is installed.		
FCC05	The ATMS software shall provide the user the ability to select any camera view to be displayed on any monitor controlled by the user's video switch.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FCC06	The ATMS software shall allow an authorized user to control the camera by adjusting the camera's pan, tilt, zoom, presets, iris and focus controls in the current view via joystick or keyboard, including but not limited to joystick keyboard and virtual joystick/mouse control		
FCC07	The ATMS software shall provide an authorized user the ability to create and edit video tours, consisting of a sequence of feeds from various cameras, using preset pan-tilt-zoom settings for each camera in the sequence.		
FCC08	The ATMS software shall allow Operators to share control of CCTV within a TMC. Share of control will be based on a specified time-out period as well as user level. A user with higher user privileges can assume control from a user with lower privileges.		
FCC09	The ATMS software shall allow Operators to access the designated video distribution system and block video from view of selected outside sources.		
FCC10	When a potential incident notification is triggered, the ATMS software solution shall aim the nearest CCTV camera in the direction of sensor that signaled the incident. The ATMS software shall provide a mechanism to turn this feature on or off.		
HAR			
FHR01	The ATMS software shall provide the ability to manage Highway Advisory Radios (HAR) and HAR beacons through the Platinum Software.		
FHR02	The management functionality provided by the ATMS software shall support the ability to: Predefine and store messages, select and activate predefined messages, activate operator entered messages, prioritize and schedule messages, verify current status.		
FHR03	The ATMS software shall allow the user to specify any number of HAR devices to receive a given message.		
FHR04	The ATMS software shall provide the user the capability to remove a message from one or more HAR.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FHR05	The ATMS software shall confirm that the proposed message, specified by the user, has been properly posted to the HAR device(s) selected by the user.		
FHR06	The ATMS system shall allow the user to listen to the message being broadcast by a given HAR.		
FHR07	The ATMS software shall allow Operators to share HAR control within a TMC.		
FHR08	The ATMS software shall allow Operators to activate/deactivate HAR Beacons individually or as a group.		
IR13	The ATMS software shall allow PennDOT to maintain functionality through the existing Platinum Software for the control of Highway Advisory Radio (HAR) and Beacon Control.		
Travel Time Module			
FTT01	The ATMS software shall have the ability to use PennDOT detectors, other outside sources (i.e. traffic.com), vehicle probe data (i.e. INRIX), and other data sources as they become available to compute a current estimated travel time between any pair of interchanges or devices as selected by the user.		
FTT02	The ATMS software shall automatically update the current estimated travel time on any DMS that are displaying travel time messages.		
FTT03	The ATMS software shall automatically update the current estimated travel times that are sent to outside partners.		
FTT04	The ATMS software shall compute the current length (distance) of congested traffic on a given route from a user-specified point, based on vehicle speed and/or occupancy data.		
FTT05	The ATMS software shall alert operators if travel times exceed a specified threshold.		
Incident Response Plans			
FRP01	The ATMS software shall allow for center-based capability to formulate an incident response that takes into account the incident duration, total road and lane closures.		
FRP02	The ATMS software shall enable the user to define “response plans” that utilize any combination of devices and order of activation to automatically respond to an incident or any event.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FRP03	The ATMS software response plans shall consist of a pre-programmed sequence of suggested Operator actions devised as a standard response to a particular type of event.		
FRP04	Individual steps in the ATMS software response plans shall have the ability to activate specific roadside devices automatically (after operator approval), such as posting a pre-defined message to a DMS.		
FRP05	Some individual steps in the ATMS software response plans shall be informational – for example, instructing the operator to contact State Police.		
FRP06	The ATMS software shall allow a user to create, edit, and save a library of response plans.		
FRP07	The ATMS software library shall be searchable by title text and any other information associated with the response plan.		
FRP08	The ATMS software users shall have the ability to deactivate the response plan and restore the system to its previous state.		
FRP09	The ATMS software users shall have the ability to skip any step in the response plan.		
FRP10	The ATMS software user shall be able to activate a response plan in 2 ways: as an action in response to managing an active incident (icon in incident entry form) or by selecting a link and requesting a new response plan based on location.		
FRP11	The ATMS software actions available for use in a response plan shall include: activation of roadside devices (i.e. - posting a predefined message to a DMS), Providing information or instruction to an operator's screen (i.e. - instructing the operator to contact the State Police), activation of a diversion route, sending an e-mail, fax, text message, or page, Issuing a command to the Road Closure Reporting System to modify a road status, Generation of a pre-defined report.		
FRP12	The ATMS software shall allow Administrative users to create existing or configure new response plans, which shall be configured by: Location, Severity, Upstream Distance, and Individual devices.		
FRP13	The ATMS software shall prompt the operator to confirm the automatic cancellation of associated equipment activation when incident is closed.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FRP14	All devices in the ATMS response plans shall be displayed, selectable and configurable by an authorized user.		
FRP15	The ATMS software vendor must provide functional details of the proposed software, documenting if the solution is an intelligent engine generating statistically driven responses, and not solely a protocol based response.		
FRP16	The ATMS software shall provide optional response plans for areas that may not have predefined responses.		
Incident Detection/Alarm Module/Vehicle Detectors			
BR08	PennDOT must be able to manage incident activities from detection to resolution.		
PR04	The ATMS software shall screen data transmitted from field sensor devices to verify its accuracy. Should data fall outside of the acceptable range, the ATMS software shall alert the user and log the alarm.		
IR03	Data received from external sources shall be available to the operator to be integrated with traffic volume and speed data collected from other PennDOT vehicle detection systems		
FDC01	The ATMS software shall have the ability to display the alarm nature and location on a GIS based map application.		
FDC02	The ATMS software shall receive the current data transmission from each vehicle detector at regular time intervals. The ATMS software shall also receive vehicle probe data (i.e. INRIX) and other traffic data sources as they become available.		
FDC03	The ATMS software shall maintain ranges of average traffic speed to indicate four (4) levels of traffic flow: Free Flowing, Slow, Congested and no information.		
FDC04	The ATMS software shall represent each vehicle detector as a link on a GIS map which is color-coded to indicate the traffic flow.		
FDC05	The ATMS software shall employ an algorithm to evaluate vehicle detector data and determine the presence of a potential incident.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FDC06	Upon positive detection, the ATMS software shall activate an alarm to alert the operator. Potential incidents shall remain in a separate list and will not be assigned as an incident until after positive confirmation by an operator.		
FDC07	When a potential incident notification is triggered, several selectable user actions within the ATMS software shall be activated including aiming the nearest CCTV camera in the direction of the sensor that signaled the incident or moving video of the nearest camera onto the video wall. The ATMS software shall provide a mechanism to turn these features on or off.		
FDC08	The ATMS software solution vehicle data shall include volume, speed, classification and occupancy, depending on the capabilities of the source element.		
FDC09	The ATMS software shall integrate the data from all sources listed under interface requirements to compute and display current traffic conditions.		
FDC10	The ATMS software shall compare the real-time traffic speed to the historic average traffic speed for that time of day, day of week, day of month, holidays and special events.		
HMI - Regional Operations Requirements			

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
HR01	At a minimum the following data elements shall be separate layers on the ATMS software user map interface: - State Routes, - Local Routes, - Road Classification, - Equipment Status, - Active RCRS Events selectable by event status as unique layers, - Planned Events, - Each equipment type shall have a separate layer, - PennDOT Snow Routes - 511 Routes - Road Condition reporting emergency routes Each layer can be turned on or off by the operator.		
HR02	The ATMS software map shall have icons positioned to indicate the location of each field device. The device icons should look like the respective devices as per PennDOT preference, or another visual differentiation approved by PennDOT.		
HR03	The ATMS software shall provide an interface for the user to list inventory of all available field devices. User can filter the list based on the device type, sub-type or corridor.		
HR04	The ATMS software shall allow a user to activate control of a device by selecting it on the user interface. The complete device details shall also be displayed.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
HR05	The ATMS software shall provide four equipment status types: standby (outlined in green), active (solid green), warning (solid yellow), and out of service (solid red). Standby = device is functioning by not currently being used Active = device is operating normally Warning = device is usable but has limited functionality and will require TMC staff field investigation and possibly maintenance contractor response. (a CCTV with video up but no zoom or pan/tilt functions; a DMS with a pixel error) Out of Service = device is currently off-line, not usable and has a plan/needs a plan in place for resolving the issue		
HR06	The ATMS software shall allow the operators to configure the color of incident and device icons.		
HR07	The ATMS software shall display the active incident information, CCTV snapshots and DMS and HAR messages by hovering over a device or displaying all active DMS, HAR and CCTV.		
HR08	The ATMS software map shall provide an optional layer based on the standard PennDOT type 10 map which can be turned on or off by the operator.		
HR09	The roadway network shown on the ATMS software map shall be based on PennDOTs roadway management system (RMS) used for all PennDOT Geographical Information System (GIS) applications (ie. RCRS roadway network).		
HR10	The ATMS software map shall be based on Geographical Information System (GIS) Technology. The map shall include mile markers and exit numbers/names as a selectable layer.		
HR11	The ATMS software shall facilitate displaying information from connected systems. For example, the APRAS system will allow the user to view roadway limitations like capacity (weight and height restrictions).		
HR12	The ATMS software shall support dynamic scaling of all objects (menus, text etc.) on Web page based on the screen resolution. The target is 1024 x 768.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
HR13	The ATMS software shall provide a method for taking control / handoffs all TMCs equipment (DMS, CCTV & HAR) and open incidents / events. For example, the ATMS shall allow the handoff of one, multiple or all cameras in a District to another District. In addition, the ATMS software shall support the transfer of all TMC functions to another TMC.		
HR14	The ATMS software shall display all active incidents (RCRS data) on the map. The ATMS software shall generate alerts of upcoming planned events that have been entered into the RCRS system.		
HR15	The ATMS software screens shall display the login name of the user who is currently logged into the system.		
HR16	The ATMS software shall display and provide access to Ortho-photography.		
HR18	Using data from vehicle detector and vehicle probe data sources, the ATMS software shall display traffic speeds based on defined thresholds. The speeds shall be displayed in various colors based on the defined thresholds (i.e., green, yellow, red).		
Administration			
BR09	PennDOT must have the ability to administer and maintain the system. This includes adding new devices, troubleshooting the system, system backups, archiving data, purging data, and user and user group maintenance.		
FEA02	The ATMS software solution shall provide a complete Web GUI for administration with online help. Agency administrators can then manage all aspects of the solution from their Web browsers.		
FEA03	The ATMS software shall allow Administrators to add or edit field devices' information in the system and the ATMS software map via the user interface.		
FEA04	The ATMS software shall provide the ability to adjust system parameters, which include but are not limited to Traffic (including travel time) thresholds that triggers incident detection, geographic boundary of incidents, incident types.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
PR01	Real-time is defined as data that is no more than 5 seconds old from the time that the ATMS solution receives the data. The ATMS software shall display data in real-time.		
PR02	The ATMS software shall support display of streaming video at 21 to 150 kilobits/second.		
PR03	The ATMS software shall process and display ITS field device status in real-time.		
PR05	The ATMS software shall be capable of polling (i.e. issuing a remote request for information) the current status of any ITS field device. The time from when an ITS device issues the response to the ATMS displaying that information on the user's workstation shall be less than 5 seconds.		
PR06	The ATMS software shall be able to receive an unsolicited communication from any device containing notification of a malfunction involving that device. (i.e. SNMP trap from DMS)		
PR07	The ATMS software shall process detection data in real-time, providing roadway congestion information for data distribution.		
PR08	The ATMS software shall be designed and configured to support a continuous operation. Continuous is defined as to support a 24 hours a day, 7 days a week, 365 days a year. There shall be no scheduled downtime.		
PR09	The ATMS software shall be capable of maintaining the performance level described with following number of devices: - 2,000 CCTV - 2,000 DMS - 2,000 Vehicle detector stations - 600 Ramp Meters - 6,500 Signal Systems (covering over 13,000 signals) (Numbers reflect no less than 100% growth over the next 5 years from the current installed base.)		
PR10	The ATMS software map will display updates in less than 1 second to user commands (regardless of the zoom, pan, etc.).		
PR11	The ATMS software should not create additional lag time to sending or receiving data from the field devices (i.e. CCTV and DMS).		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
PR12	The ATMS software shall be capable of receiving communication and issuing commands to all field devices in the system, regardless of device manufacturer.		
PR13	The ATMS software solution must not be taken offline during scheduled maintenance and must be designed as a redundant system that can have upgrades, OS changes, etc. implemented first on one portion of the platform and then the other, without the application going offline.		
PR14	The ATMS software solution must not undergo non-critical maintenance during a major winter event or traffic management incident. A documented process for obtaining PennDOT clearance to perform non-critical maintenance prior to start must be provided by the Contractor.		
PR16	The ATMS shall be designed and configured to work with the Systems Center Operations Manager (SCOM) to monitor system performance. Examples of monitoring include but are not limited to: CCTV camera feed connectivity, ATMS specific Windows service(s), DMS connectivity, log file(s) and any other piece of ATMS deemed essential to the continuous operation of ATMS.		
IR09	The ATMS software shall provide the administrator with the ability to make configuration changes to support equipment changes.		
HR17	All routine administrative tasks shall be accomplished using the ATMS software user interface (i.e., no direct manipulation of the database, configuration files, etc). System administrative tasks include, but are not limited to, the addition of new ITS devices (where a device driver already exists) and user group configuration.		
Asset Management			
FEA01	The ATMS software shall provide users the capability to generate a list of equipment and their status (e.g. successful or not successful) and equipment health for a selected date or date range. This can be user activated or scheduled, and must be confirmed by the user		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FEA05	The ATMS software shall allow for monitoring and remote diagnostics of field equipment - detect failures, issue problem reports, and track the repair or replacement of the failed equipment.		
FEA06	The ATMS software database shall at a minimum store the itemized currently installed device inventory including name, manufacturer, make, model, device age, location, installation date, etc.		
FEA07	The ATMS software shall allow users to run reports on average device life, devices under warranty, devices under contractor maintenance period, etc.		
FEA08	The ATMS software shall allow users to edit maintenance related data fields to reflect real time change in maintenance service.		
Data Warehouse			
DR01	The ATMS software shall have a database in which collected data and system activity is automatically tracked and recorded.		
DR02	The ATMS software shall recognize and record in the activity log all proprietary warnings, alarms, and status transmissions from each device.		
DR03	The ATMS shall support an industry standard relational database management system (RDMS), unless proven that a proposed proprietary database is robust enough and meets the actual functionality as documented within these requirements.		
DR04	The ATMS software shall support importing and exporting of system data. For example, data can be exported to Excel.		
DR05	The ATMS software shall store data collected in a relational database that can be accessed and queried to develop custom reports.		
DR06	The ATMS software shall provide users the capability to export edited vehicle classification data from detectors that are equipped for vehicle detection. The edited vehicle classification data shall be in the format specified in the Traffic Monitoring Guide (May 2001) representing the 13 vehicle classifications recommended by the FHWA.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
DR07	The ATMS software shall record user entry and exits, and denial or authorization of access to services. The ATMS shall log all user activities.		
DR08	Passwords, if stored within the ATMS software, are not in clear text, but encrypted.		
DR09	The ATMS software shall collect current and historical road information from the sources listed in the interface section. This information shall be used by the operator to more effectively manage incidents and congestion.		
DR10	The ATMS software shall allow for the collection and storage of maintenance and construction information for use by operations personnel or data archives in the region.		
DR11	Error and log messages generated and stored by the ATMS software solution are in clear plain text. For example, stored in a human readable format and shall not use any cryptic information, i.e. instead of “Error Code #N” state “Database Error”.		
DR12	The ATMS software shall allow multiple people to work on the application without adversely affecting one another. It provides the ability to control who does what to a site by restricting capabilities based on individual's roles.		
DR13	The ATMS software shall have the ability to backup, purge and restore the database and virtual system images in an automated manner.		
DR14	The ATMS software shall have the ability to store historical ITS information for future analysis and reporting.		
DR15	The ATMS software shall have multiple stages of archiving. A local archive shall retain information for a user defined period of time, no greater than 2 months. A permanent archive shall retain data in an external network for a user-defined period of time.		
DR16	The ATMS software shall use PennDOT authentication and as a user store (CWOPA). The ATMS software shall utilize LDAP and/or Siteminder for authentication.		
DR17	The ATMS software solution shall be capable of transmitting information, data and requests securely using 128 bit or 256 bit SSL to department or external resources as required.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
DR18	The ATMS software shall require a single user sign-on (support LDAP) for the complete management of incidents and field devices.		
Performance Measures			
IR06	Any user with proper privileges on the PennDOT network will have access to complete functionality including the control of all equipment and the ability to print any report from data in the ATMS software.		
ER10	The ATMS software shall log system and portlet activity including detailed bandwidth usage reports.		
FIM03	The ATMS software congestion metric reporting shall be available at the following levels: Segments, Interstate/Freeway/State Road, Municipality, County, District, and Statewide.		
PMR01	The ATMS software shall support extensive reporting capabilities. Sample reports have been assembled in **Appendix B: Sample Graphic Representations Of The Recommended Performance Metrics.**		
PMR02	Contractor shall provide an additional twelve (12) reports which will be jointly designed with PennDOT as per the RFP requirements. Contractor shall develop report mock ups showing data mapping, logic and levels, (user authorization and drill down levels if applicable), for each report.		
PMR03	The ATMS software shall provide the capability to filter data and generate reports by selecting and prioritizing any combination of data elements. For example, incident reports can be generated by date, time of day, road, district, etc.		
PMR04	In addition to traffic related reports, the ATMS system shall be capable of generating system health reports (i.e. communication status, device status, equipment uptime).		
PMR05	The ATMS system shall track actions and record operator information for all key events. These user logs shall be available to system managers.		
PMR06	The ATMS system will also track automatic functions and errors and store this information in event logs, which shall be accessible to user.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
PMR07	The ATMS software must provide PennDOT with the ability to create custom reports using industry standard tools (i.e. Crystal Reports or SQL Server Reporting Services.)		
PMR09	The ATMS software shall timestamp and store all equipment activations, communications, notifications and other actions taken at all times.		
PMR10	The ATMS software logs must be stored in a human readable format and shall not use any cryptic information, i.e. instead of “Error Code #N” state “Database Error”.		
PMR11	Contractor shall provide use of existing canned reports, including schedulable reports, if applicable.		
Interfaces			
IR01	The ATMS shall provide the ability to share data communicated from ITS field devices with other PennDOT software systems that require such data for purposes of congestion management, incident management, asset management, emergency management, or other valid applications. This data includes current / historic data and operational status of all devices.		
IR02	The import/export feature shall accept/transmit data in a traffic management data dictionary (TMDD) compliant format, or some other open standard which must meet PennDOT approval.		
IR03	Data received from external sources shall be available to the operator to be integrated with traffic volume and speed data collected from other PennDOT vehicle detection systems.		
IR04	Individual steps in a response plan shall have the ability to access pre-planned route data from RCRS, and potentially other data systems, to provide information or instruction to the operator. Pre-planned routes will be imported for Phase 1.		
IR05	RCRS will be the primary means to enter incident data. ATMS software will display incident locations on map and suggest response plans to operators based on incident location, duration and severity.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
IR07	The ATMS software shall be able to receive all available status and data from all capable field devices listed in the attached PennDOT ITS Equipment Inventory (**Appendix J of the RFP**).		
IR08	The data retrieved from the field device in response to a current status request will comply with relevant NTCIP data definition and format standards, to the extent that the device is capable.		
IR12	The ATMS software shall receive status information (Active, Off, or Error), at a minimum, from the following systems: • Traffic Signal Systems (Districts 2-0 & 9-0) • Truck Roll Over System (District 12-0) • Truck Runaway System (District 9-0) • Low Visibility (District 9-0) • High Winds Detection System (District 9-0) • HOV / Gate Control (District 11-0) The ATMS software will allow for one-way communication with these systems. The ATMS software will receive basic alerts and monitoring information that will be displayed on the ATMS software map.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
IR15	The ATMS software shall allow for future integration of any or all of the following systems: • APRAS (Automated Permit Routing/ Analysis System) • ATR • Bluetooth Travel Time • CAD – 911 (Computer Aided Dispatch) • IDRum (Interactive Detour Route and Mapping) • RIMIS (Regional Integrated Multimodal Information Sharing) • STIP (Standalone Count Station) • WIM (Weight in Motion) • I-83 Queue Detection System • Emergency Pre-emption • CAVC (Continuous Automated Vehicle Classification) • Ramp Meters • MDSS (Maintenance Decision Support System) • RWIS (Roadway Weather Information System) • AVL (Automatic Vehicle Location) • Pump Station Monitoring System • Anti-Icing System • Crash Avoidance System		
IR16	The ATMS software shall be capable of sending messages via pagers, phones and e-mail.		
IR19	The system will interface with CA SiteMinder tool suite to leverage CWOPA credentials for user authentication, authorization and user administration.		
RCRS Interface			
IR14	The ATMS software shall receive pre-planned route data from RCRS. The ATMS software shall display the detour information as a layer on the Map.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
INRIX/ Probe Data			
IR11	The ATMS software shall be capable of receiving detector and probe data from PennDOT's real-time traffic detector partners (such as INRIX and traffic.com). Where available, INRIX data will be the primary source of vehicle probe data.		
HOV Module			
IR17	The ATMS software shall retain existing HOV module functionality. Full control/viewing capabilities of all aspects of the existing HOV module must be replaced or integrated into the Statewide ATMS System. This includes, but is not limited to, opening/closing of the gates, changing the HOV sign status, changing Lane Control Sign status, and detecting wrong way vehicles. (Note: currently HOV module communicates with the administration and alarm subsystems in existing District 11 ATMS).		
IR18	The ATMS software shall provide access to the HOV module from all workstations at the RTMC (the module should be accessible from the same workstations that access the new Statewide ATMS solution).		
Interface to 511			
IR10	The ATMS software shall provide DMS information to the 511 system. DMS information shall include: • DMS ID • Message • Message Activation Time • Message Deactivation Time • Message Priority Level		
AVL Interface			

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FAV01	The vehicle location data displayed on the ATMS software map shall consist of, at a minimum, vehicle type, vehicle identifier, GPS coordinates, and the time of day that the data was collected. Data can be filtered by the ATMS operator based on vehicle type or identifier.		
FAV02	The ATMS software shall allow Operators to view winter road maintenance vehicles.		
FAV03	The ATMS software shall allow Operators to view Service Patrol Vehicles.		
FAV04	The ATMS software shall display vehicle location data real-time.		
FAV05	The ATMS software shall not store historical vehicle location data within the ATMS software database.		
Traffic Signal Systems			
FST01	The ATMS software shall allow operators to manage HOV lanes. This includes remotely controlling traffic signal controllers to implement traffic management strategies at signalized intersections based on traffic conditions, incidents, emergency vehicle preemptions, pedestrian crossings, etc.		
FST02	The ATMS software shall allow Operators to view the status of Traffic Signal Timing systems.		
FST03	The ATMS software shall allow the user to select from a library of pre-set timing plans from the signal software or return to normal operation.		
FST04	The ATMS software shall confirm that any commands specified by the user have been properly accepted by the specified signal control system.		
FST05	Signal plans that are active in the ATMS software shall be represented on the graphical user interface.		

PENNDOT REQUIREMENTS / VENDOR'S EXISTING SOFTWARE CAPABILITIES MATRIX			
Please refer to instructions sheet for guidance on filling out the matrix below.			
ID	**Requirements**	**Existing Software Capabilities***	**Comments**
FST06	The ATMS software shall support users' management of signals within at a minimum the following three (3) categories of functionality: 1. Full Functionality (viewing and changing traffic signal timings) 2. Traffic Signal Monitoring (monitoring and viewing the operation to ensure that the signal is operating correctly) 3. Adaptive Control (monitoring and viewing existing traffic signal adaptive control software and algorithms)		

APPENDIX U

Project Deliverables Schedule

Offerors must provide all delivery dates below in accordance with their proposed solution. Upon PennDOT acceptance and approval, the delivery dates in this schedule will become the official Project Deliverables Scheduled Due Dates, by whichPennDOT will expect full completion of each identified Task and any related subtasks. Liquidated damages will be enforced in accordance with Appendix B Paragraph 4.

Offerors will provide delivery dates based on the assumption that an executed Contract and Notice To Proceed are in place by December 1, 2011. Upon mutual consent, PennDOT and the Selected Offeror may change any of the delivery dates below in accordance with Appendix C Paragraph 30, Changes.

Deliverables	Delivery Date	Comments
A-1: ATMS Project Management Plan		Due no later than 15 days from NTP
B-1: Existing Conditions Reports		Reports due no later than 60 days from NTP
B-2: Business Requirements		
B-3: Detailed Business System Design		
C-1: User Interface Design		
C-2: Detailed Software Design Document		
C-3: Network Topology Report		
D-1: Procurement Plan		
D-2: Statewide Implementation Plan		
D-3: Statewide Test Plan		
D-4: Statewide Training Plan		
D-5: Knowledge Transfer Plan		
D-6: Software License for ATMS COTS Package		
E-1: Eastern Region Pre-Implementation Planning		
E-2: Eastern Region Implementation		Due no Later than 20 months from NTP
E-3: Eastern Region Knowledge Transfer		
F-1: Central Region Specific Element Design		
F-2: Central Region Pre-Implementation Planning		
F-3: Central Region Implementation		Due no Later than 30 months from NTP
F-4: Central Region Knowledge Transfer		
G-1: Western Region Specific Element Design		
G-2: Western Region Pre-Implementation Planning		
G-3: Western Region Implementation		Due no Later than 40 months from NTP
G4: Western Region Knowledge Transfer		
H-1: Standard Statewide ATMS Integration Specification Documents		
H-2: Planned DMS Integration	As Needed	H-2 through H-9 shall be completed as necessary throughout the contract term. As PennDOT and the Sected Offeror identify devices that require integration, a completion schedule for each integration shall be mutually agreed to and documented by letter signed by both parties.
H-3: Planned DMS Integration with Travel Time	As Needed	
H-4: Planned CCTV Camera Integration	As Needed	
H-5: Planned HAR Integration	As Needed	
H-6: Planned Radar / Microwave Vehicle Detector Integration	As Needed	
H-7: Planned Integration of Bluetooth Vehicle Detector Travel Time Links	As Needed	
H-8: Planned Integration of TRANSMIT Travel Time Links	As Needed	
H-9: Planned Video Detector Integration	As Needed	
I-1: User and Support Documentation		
I-2: Software Deficiency (Bug) Tracking		
I-3: Routine Maintenance and Support		
I-4: Release Management *(blended rate)*		
I-5: Escrow Agreement		
I-6.1: Turnover Plan		
I-6.2: Service Turnover		

APPENDIX V

DELIVERABLE REVIEW AND APPROVAL PROCESS

DELIVERABLE REVIEW AND APPROVAL PROCESS

The term "deliverable" refers to any and all tasks as indicated on **Appendix E**, Cost Submittal. Deliverables may include shop drawings, reports, samples, test reports, and other information that may be required for quality control and as required by the Contract Documents.

All deliverables must be submitted and accepted on or before the scheduled deliverable date. All deliverables must be error free with regard to spelling, grammar, source data and calculations. Approval of deliverables shall not relieve the Contractor of responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this Contract.

For all written deliverables, the Contractor shall provide a high level outline of the proposed contents of the deliverable to make sure the deliverable meets PennDOT expectations. The outline shall be submitted to PennDOT Project Manager electronically via e-mail. PennDOT reserves 5 working days to review each submitted outline. Upon review, the result shall be provided in email indicating one of the following:

a. "No Exceptions Taken"
   With this indication, the Contractor can proceed with work.

b. "Amend and Resubmit"
   With this indication, the procedure shall be:
   i. Make the changes noted on the marked return.
   ii. Send revised outline to PennDOT Project Manager for review.
   iii. Repeat revisions and submissions until marked "No Exception Taken."

   PennDOT will indicate whether the Contractor can proceed with work not indicated for revision in the outline.

c. "Rejected"
   With this indication, the procedure shall be:
   i. Review the outline in conjunction with the Contract Documents and transmit new outline.
   ii. Repeat resubmissions until marked "No Exceptions Taken".

   Do NOT proceed with any fabrication of the work indicated in the outline.

Some deliverables will require formal presentations to PennDOT staff. The Contractor shall plan to conduct the presentations in a timely manner and allow PennDOT the time to adequately review the deliverables before final approval, following such presentations. Please refer to timeframes identified in the deliverable review process below.

The Contractor shall provide electronic versions of all documentation. Where appropriate, a table of contents, an index, and keywords shall be available for information searching. PennDOT does

not require printed documentation except in a case where the Contractor requests and PennDOT agrees to accept a printed rather than an electronic document.

All deliverables shall contain a cover sheet with the following information:

- The Company's name;
- Contract number and description;
- Name and address of Contractor;
- Name of preparer of the document;
- Page number, sheet number of detail number and revision numbers;
- Description of deliverable; and
- Signature by Contractor certifying the deliverable was reviewed.

All deliverables shall be numbered sequentially with the Contractor maintaining responsibility for a deliverable log.
The deliverable submission and review process will consist of the following steps:

- The Contractor will submit all written deliverables through email whenever possible. For deliverables that are not written documents, an email indicating the deliverable is complete will be required. The email shall contain all information as outlined in the cover sheet above. PennDOT may request hardcopy of the deliverable upon receipt of the electronic version. The Contractor is responsible to ensure PennDOT has received the deliverable notifications.

- PennDOT reserves 15 working days to review each submitted deliverable. Upon review, the result shall be provided in email indicating one of the following:

    d. "No Exceptions Taken"
    With this indication, the Contractor can proceed with work.

    e. "Amend and Resubmit"
    With this indication, the procedure shall be:
        iv. Make the changes noted on the marked return.
        v. Send revised deliverable to PennDOT for review in accordance with initial submission procedures.
        vi. Repeat revisions and submissions until marked "No Exception Taken."

    PennDOT will indicate whether the Contractor can proceed with work not indicated for revision in the deliverable.

f. “Rejected”
With this indication, the procedure shall be:
iii. Review the deliverable in conjunction with the Contract Documents and transmit new deliverables.
iv. Repeat resubmissions until marked “No Exceptions Taken”.

Do NOT proceed with any fabrication of the work indicated in the deliverable.

The review of deliverables by PennDOT is for general conformance with the design concept and Contract Documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the Contract Documents, nor departures there from. The Contractor remains responsible for complying with the requirements of the Contract, for details and accuracy, and completing the work in a timely manner.

APPENDIX X

TRACEABILITY MATRIX

APPENDIX X - TRACEABILITY MATRIX

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10	Scenario 11	Scenario 12	Scenario 13	Scenario 15	Scenario 16	Scenario 18	Scenario 19	Scenario 20	Scenario 21	Scenario 23	Scenario 24	Scenario 25	Scenario 26	Scenario 27	Scenario 28	Scenario 29	Scenario 30	Scenario 31	Scenario 32	Scenario 33	Scenario 34	Scenario 35	Scenario 36	Scenario 37	Scenario 38	Scenario 39	Scenario 40	Scenario 42	Scenario 43	Scenario 44	Scenario 45	Scenario 46	Scenario 47	Scenario 48	Scenario 50	Scenario 51	Scenario 52
AD 1																										X	X		X																		
AD 2																										X	X		X																		
ATIS 1																																													X		
ATIS 2																																															
ATMS 1					X	X	X			X		X	X																X	X									X							
ATMS 2																																															
ATMS 3																									X																						
ATMS 4																					X				X									X	X	X								X			
ATMS 5																																			X												
ATMS 6										X				X	X		X	X	X	X											X	X														
ATMS 7					X	X				X																		X																		
ATMS 8																						X			X																						
ATMS 9								X	X														X																								
ATMS 18																																			X												
ATMS 19																																															
ATMS 21																																															
AVSS 10																																															
CVO 6																																															
EM 4																																	X														
EM 5																																															
EM 6																																															
EM 9																																															
EM 10																																															
MC 1																								X																						
MC 2																																															
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MC 5																																															
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MC 7																																															
MC 8																																															
MC 10																																															
BR01											X																																				
BR02							X	X			X	X									X																								X		
BR03								X	X					X	X			X	X			X	X															X								
BR04								X					X		X				X		X	X	X						X	X							X								
BR05					X					X										X	X	X							X	X																

APPENDIX X - TRACEABILITY MATRIX

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10	Scenario 11	Scenario 12	Scenario 13	Scenario 15	Scenario 16	Scenario 18	Scenario 19	Scenario 20	Scenario 21	Scenario 23	Scenario 24	Scenario 25	Scenario 26	Scenario 27	Scenario 28	Scenario 29	Scenario 30	Scenario 31	Scenario 32	Scenario 33	Scenario 34	Scenario 35	Scenario 36	Scenario 37	Scenario 38	Scenario 39	Scenario 40	Scenario 42	Scenario 43	Scenario 44	Scenario 45	Scenario 46	Scenario 47	Scenario 48	Scenario 50	Scenario 51	Scenario 52
BR06	X	X	X	X																																						X				
BR07											X						X							X			X						X												X
BR08							X	X			X	X		X	X			X	X		X											X													
BR09	X	X	X	X																																										
BR10								X	X		X																																			
BR11								X						X	X	X	X	X	X				X									X											X			X
BR12											X				X				X													X	X												
BR13											X				X				X		X			X								X	X								X			X	
BR14											X										X																								
BR15														X	X																														
BR16											X											X	X	X									X												X
BR17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BR18							X			X	X	X	X								X	X			X					X	X														
BR19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BR20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BR21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BR22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

APPENDIX - X TRACEABILITY MATRIX

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10	Scenario 11	Scenario 12	Scenario 13	Scenario 15	Scenario 16	Scenario 18	Scenario 19	Scenario 20	Scenario 21	Scenario 23	Scenario 24	Scenario 25	Scenario 26	Scenario 27	Scenario 28	Scenario 29	Scenario 30	Scenario 31	Scenario 32	Scenario 33	Scenario 34	Scenario 35	Scenario 36	Scenario 37	Scenario 38	Scenario 39	Scenario 40	Scenario 42	Scenario 43	Scenario 44	Scenario 45	Scenario 46	Scenario 47	Scenario 48	Scenario 50	Scenario 51	Scenario 52	
BR01											X																																				1
BR02							X	X			X	X									X																						X				6
BR03								X	X					X	X			X	X			X	X																X								9
BR04								X					X		X				X		X	X	X							X	X							X								10
BR05					X					X										X	X	X								X	X															7
BR06	X	X	X	X																																						X				5
BR07											X						X							X			X						X												X	6
BR08							X	X			X	X		X	X			X	X		X											X														10
BR09	X	X	X	X																																										4
BR10								X	X		X																																				3
BR11								X						X	X	X	X	X	X				X									X											X		X	11
BR12											X				X				X													X	X												5
BR13											X				X				X		X			X								X	X								X		X		9
BR14											X										X																									2
BR15														X	X																															2
BR16											X											X	X	X										X											X	6
BR17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	47
BR18							X			X	X	X	X								X	X			X					X	X														10
BR19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	47
BR20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	47
BR21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	47
BR22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	47
	7	7	7	7	6	5	8	11	7	7	15	8	7	9	12	6	7	8	11	6	12	10	9	8	6	5	6	5	5	8	8	5	9	9	5	5	5	5	7	5	5	6	6	7	6	5	8	

APPENDIX Y

INTERFACE DESCRIPTIONS

APPENDIX Y – Interface Descriptions

Road Closure Reporting System

The Road Condition Reporting System (RCRS) tracks the conditions of roads throughout the Commonwealth and soon will also contain PennDOT's pre-planned detour route information.

The incident and condition information within RCRS are to be interfaced/integrated as part of the Next Gen Advanced Traffic Management System (ATMS). In addition, operators must have the ability to access RCRS directly from their Next Gen ATMS application to update RCRS data.

Vehicle Probe Data

PennDOT is currently using INRIX for real-time traffic data, traffic flow information, and travel times for key routes on nearly 800 miles of Pennsylvania roadways in the Harrisburg, Scranton, Allentown, Pittsburgh, and Philadelphia metropolitan areas available at www.511pa.com.

The INRIX data, including traffic data, traffic flow information, and travel times will be interfaced/integrated with the Next Gen ATMS application.

Regional Integrated Multi-Modal Information Sharing

Regional Integrated Multi-Modal Information Sharing (RIMIS) Project is a web based information exchange network connecting highway operation centers, transit control centers, and 911 call centers in the Delaware Valley. RIMIS will enable agencies to receive messages about incidents, construction and maintenance activity, and special events that impact highways and transit. Further information is available from the Delaware Valley Regional Planning Commission and their website at: http://www.dvrpc.org/Operations/RIMIS.htm.

An interface with RIMIS will be developed through the Next Gen ATMS application to share traffic data and incident information with key PennDOT partners in Southeastern Pennsylvania.

District 11-0 High Occupancy Vehicle (HOV) Module

The District 11-0 HOV runs along the I-279 just north of the City of Pittsburgh. The opening and closing of the HOV is facilitated in conjunction with the Western Regional Traffic Management Center (WRTMC) and the 11-0 Tunnel Maintainers. Full control for opening and closing of the HOV is maintained with the existing District 11-0 ATMS software.

Full control/viewing capabilities of all aspects of the existing HOV module must be replaced or integrated into the Next Gen ATMS. The TMC Operations staff must maintain full control of all functionality that exists within the WRTMC. This includes, but is not limited to, opening/closing of the gates, changing the HOV sign status, changing Lane Control Sign status, and detecting wrong way vehicles.

I-83 Queue Detection System

The Queue Detection System is an Automated Real-time Messaging System (I-83 ARMS) built off of Transdyn's software. Using three side fire radar vehicle detectors (RVD), this system can detect when there is slow or stopped traffic along a two mile stretch of Interstate 83 NB prior to

the PA 581 split. The software can post configured messages based on the RVD speed readings on two message boards to warn motorists of current traffic conditions approaching the split. The system also stores speed and count data for three months and can be downloaded to an excel spreadsheet. One of the most important features is the alarms that the system will generate when there is a change in traffic conditions. Even though the system is automated, the alarms prompt the operator to look for accidents or other issues that may need to be addressed to clear the lanes and get traffic flowing again.

An interface with I-83 Queue Detection System will need to be developed through the Next Gen ATMS application to continue to utilize I-83 Queue Detection System functionality and to incorporate the data and alarms from this system into Next Gen ATMS.

APPENDIX Z

ATMS RCRS SYSTEM REQUIREMENTS DOCUMENT

pennsylvania
DEPARTMENT OF TRANSPORTATION

Information Systems Governance

Appendix Z
Next Gen ATMS RCRS Requirements
System Requirements Specification

Version V2.03

BAS Work Order 8, Task 3

Deliverable ID 3.1.4.3

ATMS RCRS System Requirements Document

Revision History

Below is a document history log which includes each change that was made to this document, which team member made the change, and the date of the change. The first final version of the document is version 1.0. Subsequent updates to the document will be numbered v1.1, v1.2, v1.3, etc. Any significant changes (i.e. the addition of a new section or the removal of an existing section) will be numbered v2.0, v3.0, etc.

Date	Version	Description	Author
08/09/2010	.01	Initial draft submitted to PEMT for review and comment	Bob Schroeder (Business Analyst)
08/23/2010	1.0	Approved Initial Version	Bob Schroeder (Business Analyst)
08/24/2010	2.01	PEMT Approved System Requirements	Bob Schroeder (Business Analyst)
08/31/2010	2.02	Included additional mapping of RCRS System Requirements to RCRS Business Requirements	Bob Schroeder (Business Analyst)
11/30/2010	2.03	Removed references to EDRS. Added detour route requirements. Aligned Appendix B with revised ATMS requirements.	Michael Pack (Business Lead)

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Business and System Requirements Specification

1. Introduction

The Road Condition Reporting System (RCRS) tracks the conditions of roads throughout the Commonwealth. The event, condition, and detour information within RCRS are to be interfaced/integrated as part of the Next Gen Advanced Traffic Management System (ATMS). In addition, Next Gen ATMS operators must have the ability to access RCRS directly from their Next Gen ATMS workstation and update RCRS data.

1.1 Purpose

The purpose of version 2.01 of this document is to document the System Requirements for the integration of the Pennsylvania Department of Transportation (PennDOT) Road Condition Reporting System (RCRS) with the Next Gen Statewide Advanced Traffic Management System (ATMS) Software.

The Stakeholders have identified that the Road Condition Reporting System (RCRS) must be integrated into the Next Gen Advanced Traffic Management System (ATMS) Software. The purpose of this document is to document the system requirements to accomplish the business needs driving this integration. System requirements contained in this document will also serve as a guide for future verification and testing.

1.2 Scope

The ATMS software will enable operators to more efficiently manage surface transportation while also providing a more effective response to incidents. The RCRS software will be a primary source of traffic events to be input into the ATMS software.

The scope of this document is to define the business and system requirements needed to support the interaction between the RCRS and ATMS software. The business and system requirements in this document will be used to further define business and system requirements for the Next Gen ATMS RFP.

1.3 Acronyms, and Abbreviations

A list of appropriate Acronyms and abbreviations can be found in Appendix A of this document.

1.4 References

Next Gen ATMS SYSTEM REQS REV5.0 PennDOT 062310 FINAL	http://www.portal.state.pa.us/portal/server.pt/gateway/PTARGS_32_0_232_0_-1_47/http;/collaboration.state.pa.us;11930/collab/do/document/overview?projID=284729&documentID=348284
Next gen ATMS RCRS Requirements Scope Brainstorming – Responses	http://www.portal.state.pa.us/portal/server.pt/gateway/PTARGS_32_0_232_0_-1_47/http;/collaboration.state.pa.us;11930/collab/do/document/overview?projID=284729&documentID=355077
2010-07-09 ATMS RCRS Next Gen Requirements Meeting Minutes	http://www.portal.state.pa.us/portal/server.pt/gateway/PTARGS_32_0_232_0_-1_47/http;/collaboration.state.pa.us;11930/collab/do/document/overview?projID=284729&documentID=362685
2010-07-15 ATMS RCRS Next Gen	http://www.portal.state.pa.us/portal/server.pt/gateway/

Requirements Meeting Minutes	PTARGS_32_0_232_0_-1_47/http;/collaboration.state.pa.us;11930/collab/do/document/overview?projID=284729&documentID=362686
RCRS Schema within the GIS Data Dictionary Version 002.002.000	http://164.156.155.62/Data_Dictionary/main.htm
Next gen ATMS RCRS SR Interview Document 2010-07-20 – Final	http://www.portal.state.pa.us/portal/server.pt/gateway/PTARGS_32_0_232_0_-1_47/http;/collaboration.state.pa.us;11930/collab/do/document/overview?projID=284729&documentID=365547
High Level Incident Timeline	Appendix D.

1.5 Overview

This document is organized into the following sections:

- Overall Description – high level description of how the requirements contained in this document are presented. This section also includes the constraints and assumptions the business analyst operated under while documenting the requirements.
- Requirements – High level business and system requirements describing how the RCRS software will interface with the ATMS software
- Supporting Information - system documents, interview notes and manuals that assist in the creation of this document.

2. Overall Description

The requirements contained in this document describe PennDOT's needs as related to integrating the Road Condition Reporting System (RCRS) functions with the Next Gen Advanced Traffic Management System software (ATMS) to maximize existing software functionality. This should include:

- Using the existing RCRS screens
- Using the existing RCRS maps or create an ATMS map layer displaying RCRS event data as a layer over the ATMS map
- Administration of the RCRS software can be invoked from within the ATMS software
- Access to the RCRS software is limited by the authorized security level of the ATMS operator
- The business and system requirements are presented in a table layout with the following columns:
    - ID – Unique identifier for the requirement
    - Title – Brief title of the requirement
    - Requirement Description – Sentence describing what must be fulfilled in order to achieve compliance
    - Criticality/Importance – Indication of the necessity of the requirement

2.1 Constraints

This document will contain high level business and system requirements which will be used in the creation of the Next Gen ATMS software.

2.2 Assumptions

This document has been created under the following assumptions:

- Requirements are at a high level
- PennDOT has provided all necessary resources to create complete requirements
- Documents provided for reference are the latest version

- Requirements statements were elicited and documented without funding, technical difficulty or time constraints

3. Requirements

This document focuses on needs that were identified as fundamental to the implementation and initial deployment of the Next Gen ATMS software. The business requirements contained in this document are focused on the initial deployment (Phase I [1]) activities and are deemed necessary and were developed to support specific requirements listed in the Next Gen ATMS Software Systems Requirements. A detailed list of the Next Gen ATMS related requirements can be found in Appendix B. RCRS is considered the only source of event data for the ATMS system, therefore, all the associated requirements have been considered crucial with a high priority.

3.1 HIGH LEVEL BUSINESS REQUIREMENTS

Since the RCRS software is considered the only source of event data for the ATMS system, all the associated requirements have been considered crucial with a high priority.

ID	TITLE	BUSINESS REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-BR01	Reliable	The ATMS software shall have access to the RCRS software 24 hours a day, 7 days a week, and 365 days a year.	Crucial, High
RCRS-BR02	Access	The ATMS software shall access RCRS directly.	Crucial, High
RCRS-BR03	Logon	The ATMS software shall provide an icon (or menu selection) for the operator to access the entire RCRS system based on their RCRS authorization level.	Crucial, High
RCRS-BR04	Display	The ATMS software shall display RCRS data through the use of predefined and approved icons.	Crucial, High
RCRS-BR05	Data Modification	The ATMS software shall allow the ATMS operator to update RCRS events directly if RCRS edit is selected from ATMS.	Crucial, High
RCRS-BR06	Data Display (Icon Maintenance)	The ATMS software shall provide for easy maintenance of the above icons to allow for additional causes and statuses.	Crucial, High

[1] *(Updated Phase/Rollout discussions and decisions for the ATMS Software are pending at this time.)*

3.1.1 Detail Level Business Requirements

This section defines the business terms relevant to the solution. Business terms should include definitions of data elements important to the business whether they are provided on a form used by the business or entered into a system, names of other organizations that are important to the business area, names of systems and other equipment used by the staff, and other relevant terms.

REQ. ID (from High Level table)	BUSINESS TERM	ACRONYM OR ABBREVIATION	DEFINITION
ALL Business Requirements		Acronyms and Abbreviations	All Acronyms and abbreviations used within the High Level Business Requirements are Documented in Appendix A.
RCRS-BR03	Operator		Primary handler who monitors real-time traffic condition and status, and manages dispatch of and communication with Service Patrol vehicles, main point of contact for traffic updates to 3rd Parties
	Incident		As defined by FHWAs traffic incident management handbook, an Incident is “any non-recurring event that causes a reduction of roadway capacity or an abnormal increase in demand.”
RCRS-BR05	Event		Any combination of cause and status options in RCRS
RCRS-BR06	Cause		The reason initiating an event. RCRS has predetermined causes for events.
RCRS-BR06	Status		The impact the event Cause has on the roadway network. RCRS has predetermined status for events.
RCRS-BR07	Detour		A route around a planned area of prohibited or reduced access, such as a construction site or road closure

3.2 SYSTEM REQUIREMENTS

3.2.1 Performance Requirements

The performance requirements include specific details about how well the ATMS software should perform. For example, usability, system availability, and reliability are considered performance requirements.

The following performance requirements are considered the minimum criteria that the ATMS software must meet in order to sufficiently satisfy the needs of PennDOT:

ID	BR	TITLE	PERFORMANCE REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-P01	RCRS-BR01	Availability	The ATMS software shall allow for the RCRS system to be available 24/7 except when RCRS is unavailable for routine daily refreshes and scheduled outages.	Crucial, High
RCRS-P02	RCRS-BR01, RCRS-BR05	Data Refresh (Regular Cycle)	The ATMS software shall refresh data from RCRS every one minute.	Crucial, High
RCRS-P03	RCRS-BR01	Data Refresh (After RCRS Update)	The ATMS software shall refresh data from RCRS within 5 seconds after an ATMS operator has updated an event in RCRS.	Crucial, High
RCRS-P04	RCRS-BR01, RCRS-BR02, RCRS-BR04	Data Refresh (Icon Updates)	The ATMS software shall update the appropriate icons in ATMS after RCRS is updated. This is to be done without regenerating of the entire map.	Crucial, High
RCRS-P05	RCRS-BR01, RCRS-BR04	Data Capacity	The ATMS software shall have the capability to store in excess of 500MB of DB storage for RCRS data with room for expansion.	Crucial, High
RCRS-P05.1	RCRS-BR01, RCRS-BR04	Data Capacity (Total Events)	The ATMS software shall have the capacity to accommodate at least 1800 RCRS events per day.	Crucial, High
RCRS-P05.2	RCRS-BR01, RCRS-BR04, RCRS-BR05	Data Capacity (Total Users)	The ATMS software shall have the capacity to accommodate at least 1800 RCRS administrative level users.	Crucial, High
RCRS-P05.3	RCRS-BR01, RCRS-BR04, RCRS-BR05	Data Capacity (Concurrent Users)	The ATMS software shall have the capacity to accommodate at least 100 concurrent RCRS users.	Crucial, High

+

3.2.2 Interface Requirements

The interface requirements detail how the Next Gen ATMS software should interact with the RCRS system. The following interface requirements represent the minimum conditions that the ATMS software must meet in order to sufficiently satisfy the needs of PennDOT:

ID	BR	TITLE	INTERFACE REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-I01	RCRS-BR04, RCRS-BR06	Data Display (Icons)	The ATMS software shall display RCRS event data using easily identifiable icons indicating RCRS cause and status.	Crucial, High
RCRS-I01.1	RCRS-BR04	Data Display (Icon – Causes)	The ATMS software shall use icons that reflect the cause of each RCRS event.	Crucial, High
RCRS-I01.11	RCRS-BR04, RCRS-BR06	Data Display (Icon – Cause list)	The ATMS software shall provide icon(s) that can easily identify the following causes by group with the ability to add causes as needed: ACCIDENT BRIDGE OUTAGE BRIDGE PRECAUTION DEBRIS ON ROADWAY DISABLED VEHICLE DOWNED TREE DOWNED UTILITY FLOODING ACCIDENT(Multi-vehicle)–More than one vehicle involved OTHER ROADWORK SLOW VEHICLE SPECIAL EVENT VEHICLE FIRE WINTER WEATHER	Crucial, High
RCRS-I01.2	RCRS-BR04	Data Display (Icon – Status)	The ATMS software shall use icons that reflect the status of each RCRS event.	Crucial, High
RCRS-I01.21	RCRS-BR04, RCRS-BR06	Data Display (Icon – Cause list)	The ATMS software shall provide icon(s) that can easily identify the following statuses with the ability to add statuses as needed: CLOSED: All lanes closed LANE RESTRICTION: One or more lanes restricted SHOULDER CLOSED: Shoulder closed / lanes open RAMP CLOSURE: Interstate/Traffic Route RAMP RESTRICTION: Interstate/Traffic Route SPEED RESTRICTION COMMERCIAL VEHICLE RESTRICTION TRAFFIC DISRUPTION NO ENTRY ACCESS	Crucial, High

ID	BR	TITLE	INTERFACE REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-I02	RCRS-BR04, RCRS-BR06	Data Display Event Screen (Icon - Hover)	The ATMS software shall display basic event information when the operator hovers the cursor over an event icon to include at minimum the following data: RCRS ID # Route Direction County Cause Status Event Beginning Date/Time Expected Date/Time to Open Event Contact Person Event Contact Number	Crucial, High
RCRS-I02.1	RCRS-BR04, RCRS-BR06	Data Display Event Screen (RCRS Event Detail Display Only)	The ATMS software shall display event detail information when the operator clicks on an event icon.	Crucial, High
RCRS-I02.2	RCRS-BR02, RCRS-BR04	Data Display Event Screen (RCRS Event Detail - display only)	The ATMS software shall generate a screen that will display the information shown on the RCRS screen in Appendix C.	Crucial, High
RCRS-I02.3	RCRS-BR04	Data Display Map Screen (RCRS Event Detour - display only)	The ATMS software shall have the capability of displaying all preplanned detour routes stored in RCRS.	Crucial, High
RCRS-I02.31	RCRS-BR04	Data Display Map Screen (RCRS Event Detour - display only)	The ATMS software shall have the capability of displaying all active Event Detours. The Detours may either be preplanned or user defined for that particular event.	Crucial, High
RCRS-I02.32	RCRS-BR04	Data Display Map Screen (RCRS Event Detour - display only)	The ATMS user shall be able to toggle detour layers on or off.	Crucial, High
RCRS-I02.33	RCRS-BR04	Data Display Map Screen (RCRS Event Detour - display only)	The ATMS software shall display detours using the same colors depicted in RCRS.	Crucial, High
RCRS-I03	RCRS-BR02, RCRS-BR05	Data Update Event Screen (RCRS Event Detail Update)	The ATMS software shall provide an edit button on the detail screen to allow the operator to update the RCRS event information in RCRS.	Crucial, High
RCRS-I03.1	RCRS-BR05	Data Update Event Screen (RCRS Event Detail Update)	The ATMS software shall only provide RCRS edit capability if the operator has update capability in RCRS.	Crucial, High
RCRS-I03.2	RCRS-BR05	Data Update Event Screen (Prohibit)	The ATMS software shall not provide RCRS edit capability if the operator does not have update capability in RCRS.	Crucial, High

ID	BR	TITLE	INTERFACE REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-I03.3	RCRS-BR05	Data Update Event Screen (RCRS Event Detail – ATMS Update)	The ATMS software will return the operator to the ATMS system after the RCRS event has been updated.	Crucial, High
RCRS-I03.4	RCRS-BR01, RCRC-BR02, RCRS-BR04, RCRS-BR05	Data Update Event Screen (RCRS Event Detail – ATMS Update)	The ATMS software shall pull updated event data from the RCRS system in real-time after the event data has been updated.	Crucial, High
RCRS-I03.5	RCRS-BR01, RCRC-BR02, RCRS-BR04, RCRS-BR07	Data Update Event Screen (RCRS Event Detail – ATMS Update)	The ATMS software shall pull and display to the operator an appropriate Incident Response Plan (IRP) if one exists.	Crucial, High

3.2.3 Data Requirements

Data requirements reflect how the data should be loaded, transferred, stored, secured and retrieved. When available, the data requirements also identify data elements and define the system.

The following data requirements represent the minimum conditions that the Next Gen ATMS software must meet in order to sufficiently support the Next Gen ATMS users' use of the RCRS system.

ID	BR	TITLE	DATA REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-DR01	RCRS-BR01, RCRS-BR02	Data Pull	The ATMS software shall pull data from RCRS to ATMS only; data transfer from ATMS to RCRS is not required.	Crucial, High
RCRS-DR01.1	RCRS-BR01, RCRS-BR02, RCRS-BR05	Data Read Only	The ATMS software shall pull data from the RCRS system in read mode only.	Crucial, High
RCRS-DR02	RCRS-BR01, RCRS-BR02, RCRS-BR07	Data Retrieval	The ATMS software shall have the ability to retrieve data stored in an Oracle data base.	Crucial, High
RCRS-DR03	RCRS-BR01, RCRS-BR05	Data Entry	The ATMS software shall automatically navigate directly to the appropriate RCRS event edit screen for data input if event edit is selected from ATMS.	Crucial, High
RCRS-DR04	RCRS-BR01, RCRS-BR05	Data Maintenance	The ATMS software shall provide the ability to update RCRS data by accessing the RCRS Event Edit screen.	Crucial, High
RCRS-DR05	RCRS-BR04, RCRS-BR07	Data Types	The ATMS software shall have the capability to use the results of the PennDOT Linear Line Referencing System.	Crucial, High

3.2.4 Reporting Requirements

ID	BR	TITLE	REPORTING REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-R01	RCRS-BR01, RCRS-BR02	Report Storage	The ATMS software shall have the ability to store reports that contain RCRS data that has been copied to the Next Gen ATMS data base for future retrieval.	Crucial, High

3.2.5 Security Requirements

ID	BR	TITLE	SECURITY REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-S01	RCRS-BR01, RCRS-BR03, RCRS-BR05	Credential Validation	The ATMS software shall allow logon credentials to be validated by LDAP (Active Directory).	Crucial, High
RCRS-S02	RCRS-BR01, RCRS-BR03, RCRS-BR05	System Logon	The ATMS software shall be accessible through existing CWOPA logons. A single CWOPA logon will validate access credentials to both ATMS and RCRS with the appropriate RCRS capabilities.	Crucial, High
RCRS-S03	RCRS-BR01, RCRS-BR03, RCRS-BR05	System Logon (Standards)	The ATMS software shall follow all the established CWOPA logon standards:	Crucial, High
RCRS-S03.1	RCRS-BR01, RCRS-BR03, RCRS-BR05	System Logon (Password Format)	Upper/lower case letters, numbers, symbols	Crucial, High
RCRS-S03.2	RCRS-BR01, RCRS-BR03, RCRS-BR05	System Logon (Password Attempts)	5 Consecutive attempts	Crucial, High
RCRS-S03.3	RCRS-BR01, RCRS-BR03, RCRS-BR05	System Logon (Password Expiration)	To coincide with Active Directory password parameters	Crucial, High
RCRS-S03.4	RCRS-BR01, RCRS-BR03, RCRS-BR05	Session Timeouts	Pre-determined system time out	Crucial, High
RCRS-S04	RCRS-BR02, RCRS-BR03, RCRS-BR05	Logon Capability	The ATMS software shall support the various levels of RCRS administrative roles.	Crucial, High

3.2.6 Hardware Requirements

ID	BR	TITLE	HARDWARE REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-HW01	RCRS-BR01, RCRS-BR02, RCRS-BR03, RCRS-BR04, RCRS-BR07	Oracle Database Server	The ATMS software shall have the ability to retrieve data from an Oracle database Server.	Crucial, High
RCRS-HW02	RCRS-BR01, RCRS-BR02, RCRS-BR03, RCRS-BR04, RCRS-BR05	Web Servers	The ATMS software shall have the ability to interact with the PennDOT web server.	Crucial, High
RCRS-HW03	RCRS-BR01, RCRS-BR02, RCRS-BR03, RCRS-BR04	Clustered Servers	The ATMS software shall have the ability to interact with the PennDOT clustered servers when needed.	Crucial, High

ID	BR	TITLE	HARDWARE REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-HW04	RCRS-BR01, RCRS-BR02, RCRS-BR03, RCRS-BR04, RCRS-BR05	Hardware Mirroring	The ATMS software shall have the ability to support Oracle RAC and Oracle Golden Gate.	Crucial, High

3.2.7 Software Requirements

ID	BR	TITLE	SOFTWARE REQUIREMENT DESCRIPTION	Criticality and Priority
RCRS-SW01	RCRS-BR01, RCRS-BR02, RCRS-BR03, RCRS-BR04, RCRS-BR05, RCRS-BR06, RCRS-BR07	Web Browser	The ATMS software shall be compatible with the latest version of Internet Explorer that can fully support all the RCRS software operation. At the time of this publication that version is IE6.	Crucial, High
RCRS-SW02	RCRS-BR01, RCRS-BR02, RCRS-BR04	SVG Viewer	The ATMS software shall support SVG Viewer where required for mapping purposes.	Crucial, High
RCRS-SW03	RCRS-BR01, RCRS-BR02, RCRS-BR04	FLASH	The ATMS software shall support the FLASH software where required for mapping purposes.	Crucial, High
RCRS-SW04	RCRS-BR01, RCRS-BR02, RCRS-BR03, RCRS-BR05, RCRS-BR07	API	The ATMS software shall provide interfaces and APIs where required to access the RCRS software.	Crucial, High

3.3 Licensing Requirements

These will be handled in the Next Gen ATMS RFP.

3.4 Legal, Copyright, and Other Notices

These will be handled in the Next Gen ATMS RFP.

3.5 Applicable Standards

These will be handled in the Next Gen ATMS RFP.

4. Supporting Information

The following Documents may be helpful in understanding the RCRS function and the creation of this document.

RCRS User's Manual (Version 006.000.XXX) rev04.02.10	P:\penndot shared\RCRS\RCRS User's Manuals\RCRS user's Manual(Version 006.000.XXX) rev04.02.10.pdf
Statewide ATMS Software Concepts of Operations, Rev.3	http://www.portal.state.pa.us/portal/server.pt/gateway/PTARGS_32_0_232_0_-1_47/http;/collaboration.state.pa.us;11930/collab/do/document/overview?projID=284729&documentID=316247

5. Detailed Change Tracking Log

The chart below lists the specific changes that were made to the document beginning with Version 2.02. The chart includes the change number, section and page in which the change was made, the date the change was made, description of the change, and the version number of the document in which the change was made.

#	SECTION	PG	CHANGE DATE	CHANGE DESCRIPTION	VERSION
			08/24/2010	PEMT Approved System Requirement Document	2.01
1	Performance Requirements	8	08/31/2010	Added RCRS-BR05 to requirements: RCRS-P02, RCRS-P05.2, RCRS-P05.3,	2.02
2	Data Requirements	11	08/31/2010	Added RCRS-BR07 to requirements: RCRS-DR02, RCRS-DR05	2.02
3	Hardware Requirements	12	08/31/2010	Added RCRS-BR07 to requirement RCRS-HW01 Added RCRS-BR05 to requirement RCRS-HW02	2.02

APPENDIX A: ACRONYMS

24x7	Twenty Four Hours of Operation, Seven Days a Week
AHS	Automated Highway System
ANSI	American National Standards Institute
ARMS	Automatic Real-Time Messaging
ATIS	Advanced Traveler Information System
ATMS	Advanced Traffic Management System
ATR	Automatic Traffic Recorders
AVL	Automatic Vehicle Location
BHSTE	Bureau of Highway Safety and Traffic Engineering
BOMO	Bureau of Maintenance and Operations
BPR	Bureau of Planning and Research
CBSP	Capital Beltway Service Patrol
CCTV	Closed Circuit Television
CDC	Consolidated Dispatch Centers
DARC	Data Radio Channel
DMS	Dynamic Message Signs
DOT	Department of Transportation
DSRC	Designated Short Range Communication
EMA	Emergency Management Agency
FHWA	Federal Highway Administration
GIS	Geographic Information System
GPS	Global Positioning System
HAR	Highway Advisory Radio
HAT	Highway Advisory Telephone System
HAZMAT	Hazardous Materials
HOV	High Occupancy Vehicle
IM	Incident Management
IIMS	Incident Information Management System
IMMS	Incident Management Message Sets
IRP	Incident Response Plan
ITS	Intelligent Transportation System
m.p.	Milepost
PEIRS	Pennsylvania Emergency Incident Reporting System
PEMA	Pennsylvania Emergency Management Agency
PennDOT	Pennsylvania Department of Transportation
PSP	Pennsylvania State Police
RTMC	Regional Traffic Management Center
RWIS	Road Weather Information System

TMC	Traffic Management Center

APPENDIX B: Related ATMS Requirements

Business Requirements

BR03	PennDOT needs to provide consistent and planned responses to planned and unplanned events
BR04	PennDOT needs a statewide platform which will provide the means for information to flow to and from all Districts
BR07	Real-time Data
BR16	Maximize Existing Software

Performance Requirements

PR01	Real-time is defined as data that is no more than 5 seconds old from the time that an RCRS entry is created. The ATMS software shall display data in real-time. (pull + display = 5 seconds)

Interface Requirements

IR04	Individual steps in a response plan shall have the ability to access pre-planned route data from RCRS, and potentially other data systems, to provide information or instruction to the operator. Pre-planned routes will be imported for Phase 1
IR05	RCRS will be the primary means to enter incident data. ATMS software will display incident locations on map and suggest response plans to operators based on incident location, duration and severity
IR14	The ATMS software shall receive pre-planned route data from RCRS. The ATMS software shall display the detour information as a layer on the Map

HMI Requirements

HR14	The ATMS software shall display all active incidents (RCRS data) on the map. The ATMS software shall generate alerts of upcoming planned events that have been entered into the RCRS system

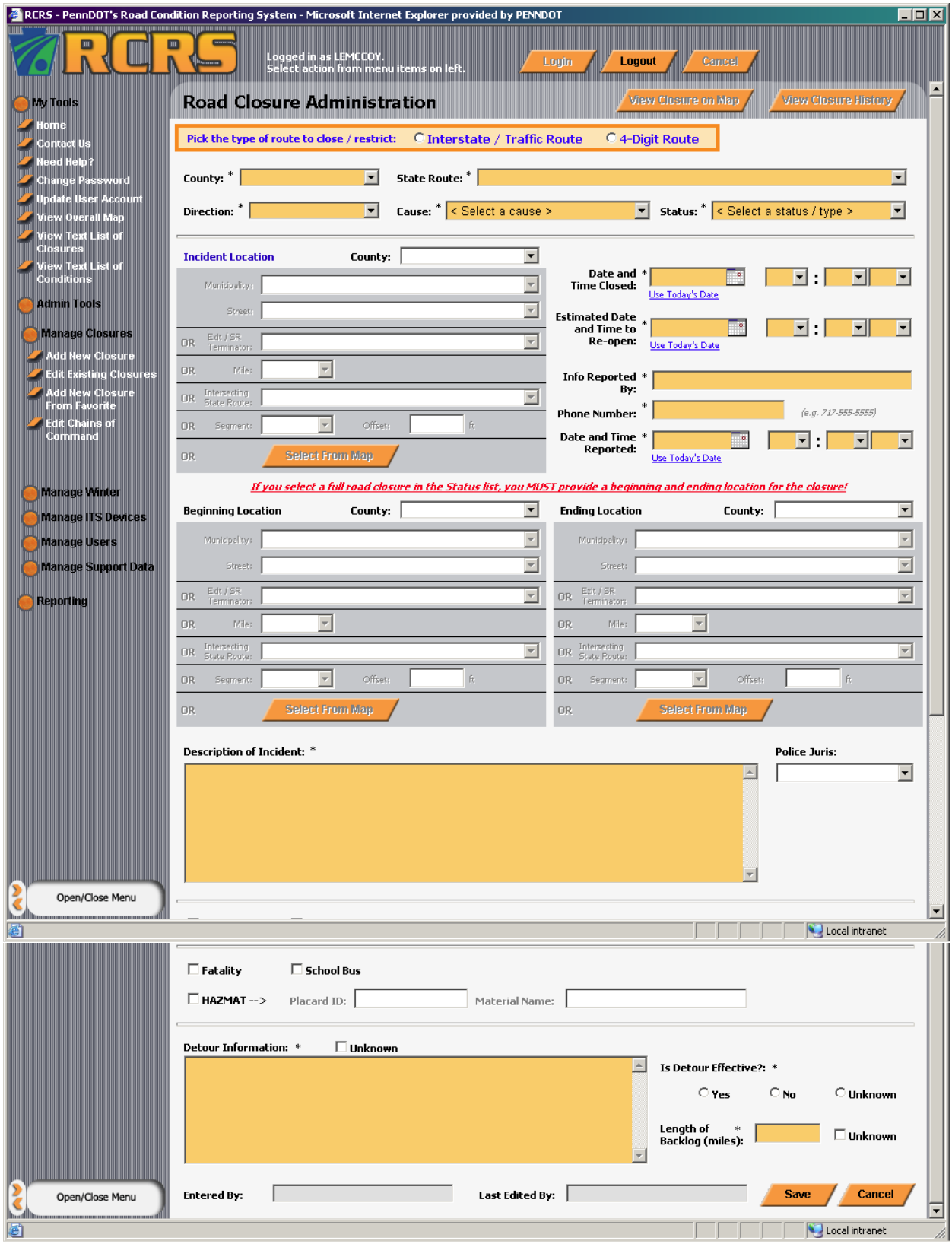
Incident Management

FIM01	The ATMS software shall allow Administrators to utilize diversion routes from RCRS that are location-based. Each route shall be color-coded based on the location and direction as defined by PennDOT. By selecting links and/or roadways that will be used as a diversion route.
FIM04	Where sufficient data is available, the ATMS software shall classify delay time according to current RCRS nomenclature
FIM05	The ATMS software shall display RCRS incident and condition information in the ATMS software and on the ATMS Map

Response Plans

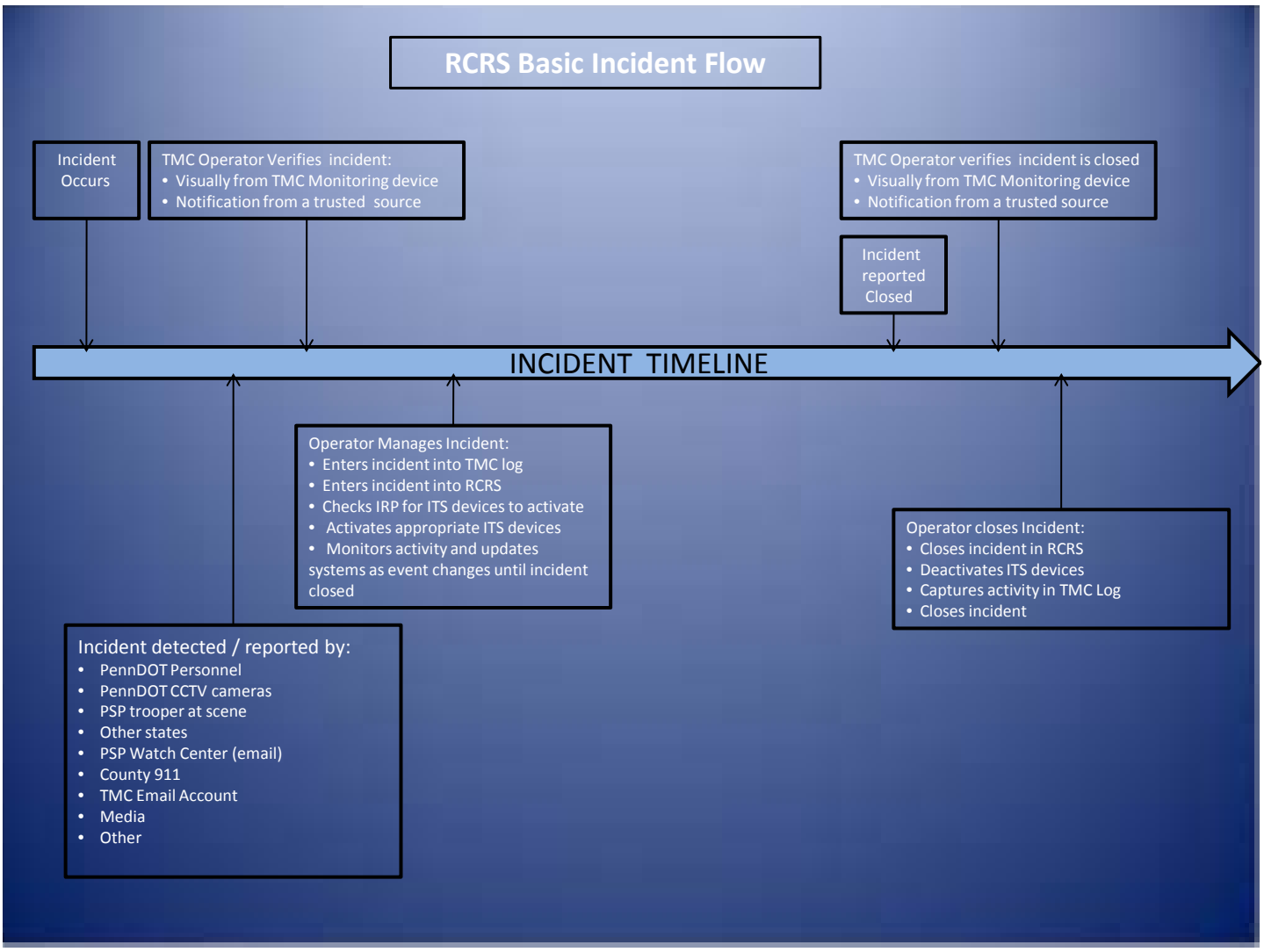
FRP11	The ATMS software actions available for use in a response plan shall include: activation of roadside devices (i.e. - posting a predefined message to a DMS), Providing information or instruction to an operator's screen (i.e. - instructing the operator to contact the State Police), activation of a diversion route, sending an e-mail, fax, text message, or page, Issuing a command to the Road Closure Reporting System to modify a road status, Generation of a pre-defined report

APPENDIX C: Sample RCRS Inquiry Screen



APPENDIX D: Basic Incident Timeline

The diagram below give a high level description of the flow of an incident through the current RCRS system. It is intended to help understand the initiation, processing and termination of traffic events as they are currently handled in the Commonwealth. Please keep in mind, this is a high level diagram and there is considerable underlying detail that support these processes.



APPENDIX AA

FORM OS-501

CONFIRMATION OF SERVICES

OS-501 (3-10)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

CONFIRMATION OF SERVICE

Date Service Rendered: _____
Contractor Name: _____
Phone: _____
PURCHASE ORDER # _____

SAP Vendor Number: _____
Address (1): _____
Address (2): _____
State:_____ Zip Code: _____

(Reference line items on purchase order that match the services that were performed.)

Item #	Description / Product ID	Quantity	U.O.M.	Unit Price	Item Total
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
				Total:	$0.00

Contractor Signature: _____ **Date:** _____

PENNDOT USE ONLY

I certify the services represented by the confirmation of service form above were received satisfactorily. Therefore, I approve payment be made.

_____ _____
Project Manager Signature Date (mm/dd/yyyy)

I certify that I have entered a Goods Receipt in SAP for this service. (Goods Receipts should be entered within 48 hours per Management Directive 310.31)

_____ _____
SRM/R3 Receiver Signature Date (mm/dd/yyyy)

APPENDIX N

PHASING PLAN

NEXT GEN ATMS PROPOSED PHASING					
Proposed phasing:	Phase 1: D4, D5, D6, CO	Phase 2: D2, D3, D8, D9	Phase 3: D1, D10, D11, D12	Phase 4: Planned Enhancements	Phase 5: PA Turnpike Commission
Module/Item					
DMS	x	x	x		
Travel Time module	x	x	x		
CCTV	x	x	x		
HAR	x	x	x		
RCRS Interface	**Statewide data integrated in Phase 1**				
Vehicle Probe data	**Statewide data integrated in Phase 1**				
Incident response plan	x	x	x		
Incident detection/alarm module/vehicle detectors	x	x	x		
Queue detection	x	x			
HMI - Regional operations requirements	**Statewide map and access to available data in Phase 1**				
Administration	x	x	x		
Asset Management	x	x	x		
Data warehouse	x	x	x		
Performance measures	x	x	x		
HOV module			x		
Interface to RIMIS (D6)		x			
Ramp meter interface				x	
Interface to 511				x	
AVL Interface				x	
Traffic signal systems				x	
MDSS / RWIS Interface				x	
Planned enhancements		x	x	x	
PA Turnpike Commission Deployment					x

Notes:

1. Modules/items are listed in no particular order.
2. The Next Generation ATMS system will be deployed statewide in Phases 1 through 3.
3. The Department reserves the right to request enhancements, currently identified as Phase 4, to be completed in earlier phases of this contract.
4. Specific tasks for Phase 5 will be established in accordance with Appendix B, Special Terms and Conditions, Paragraph 7, Additional Work