

Attachment 7
Requirements Traceability Matrix (RTM)
ATMS RFP

New York State
Department of Transportation
Advanced Traffic Management System

1. INTRODUCTION

This Requirements Traceability Matrix (RTM) is to be used to identify where the ATMS RFP Response and Consultant Requirements are addressed in the Consultant's proposal.

For each requirement, the Consultant is directed to identify where each RFP requirement is addressed by referring to the RFP's Section number, Attachment number, Page Number, and Paragraph Number. It is recommended that should an RFP requirement be met in more than one response section, that all applicable response sections be listed.

2. CONSULTANT RESPONSIBILITY TRACEABILITY MATRIX

The ATMS RFP identifies the RFP Consultant Responsibilities. RFP Table 2, repeated here, presents the Consultant Responsibilities and contains the following columns:

- Column 1, ID. Indicates the unique requirement identifier. The ID # should not be modified in a proposal.
- Column 2, Consultant Requirement. The Consultant Responsibility Requirement should not be modified in a proposal.
- Column 3, Deliverable. The Deliverable should not be modified in a proposal.
- Column 4, Section/Appendix #. This column should be updated for each requirement to indicate the Section or Appendix where the response can be located.
- Column 5, Proposal Page Number. This column should be updated as part of the proposal to reflect the page number in the proposal where this requirement is discussed.
- Column 6, Paragraph #. This column should be updated as part of a proposal to indicate where on the page that the response can be located.

Consultants are expected to provide an updated version of this Attachment containing the Section/Attachment Number, the Page Number, and the Paragraph Number for each of the requirements in the table below as part of their proposal.

ATMS Consultant Requirement Traceability Matrix

ID	Requirement	Priority	Deliverable	Proposal Section/ Appendix #	Proposal Page #	Proposal Paragraph #
C-1.	The consultant shall refine and deliver its proposed project plans consistent with agreements made during contract negotiation. The plan shall address: <ul style="list-style-type: none"> •Work Breakdown Structure (WBS) •Project Schedule •Quality Management •Risk Management •Change Management •Acceptance Management •Issue Management and Escalation •Communication 	Necessary	Project Plan			

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	<ul style="list-style-type: none"> •Implementation/Transition (including migration plans) •Training <p>The consultant shall thereafter maintain and manage the project plan.</p>					
C-2.	<p>The consultant shall refine and deliver a project staffing plan that identifies individual resources assigned to each of the project activities.</p> <p>The consultant shall thereafter maintain and manage the project staffing plan, including efforts to meet the contract's DBE goal.</p>	Necessary	Staffing Plan			
C-3.	<p>The consultant shall develop and deliver a system architecture design document that describes the overall system architecture in terms of network, security, system, hardware, software, tools, peripherals, software licenses, and the logical distribution of system components and processes across the architecture.</p>	Necessary	System Architecture Design			
C-4.	<p>During System Configuration, the consultant shall deliver system security design documentation describing the logical security architecture design, the physical security architecture design, and the design of all controls to be used to mitigate threats to the confidentiality, integrity and availability of the system and system data.</p>	Necessary	System Security Design			
C-5.	<p>The consultant shall identify and document the database schemas, file formats, data views, an entity relationship diagram, and data dictionary for the system.</p>	Necessary	Database Document-ation			

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C-6.	The consultant shall deliver comprehensive data model documentation that clearly describes the conceptual, logical, and physical data characteristics of the system. Database modeling information from ER/Studio is preferred.	Necessary	Data Model Document- ation			
C-7.	The consultant shall provide a programmer's manual for any language-independent application programming interface (API).	Necessary	Programmer's Manual for API			
C-8.	The technical documentation shall include: •anticipated data volume estimates •data needs for the system environment •updated data mapping •other NYSDOT interface descriptions	Necessary	Technical Document- ation			
C-9.	The technical documentation shall include: •detailed specifications for hardware and software components •system performance expectations •data conversion approach for cleansing and loading historical data as well as population of new data	Necessary	Technical Document- ation			

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C-10.	<p>The consultant shall document test plans defining:</p> <ul style="list-style-type: none"> •the overall strategy for validating the functionality of the system •the approach to ensure test coverage of each requirement •the individual test cases that will be performed to execute the testing strategy •the environments in which the tests will be conducted 	Necessary	Test Plans			
C-11.	<p>The test plans shall include:</p> <ul style="list-style-type: none"> •testing objectives •scope of testing (both what is in and what is out of scope) •responsibilities (who will be performing the test) •testing approach •testing sequence •defect reporting and criteria 	Necessary	Test Plans			
C-12.	<p>The test case descriptions shall be traced to requirements and include:</p> <ul style="list-style-type: none"> •test data needed to execute the tests •preconditions required prior to the start of test •criteria for suspending and resuming testing •expected test results 	Necessary	Test Case Descriptions			

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C-13.	During System Construction, the consultant shall deliver test results including detailed outcomes for the following: <ul style="list-style-type: none"> •data migration tests •system tests (including performance tests) •security tests 	Necessary	Test Results			
C-14.	During System Construction, the consultant shall deliver test results that identify the version of each software component tested.	Necessary	Test Results			
C-15.	During System Construction, the consultant shall deliver test progress reports that include: <ul style="list-style-type: none"> •number of defects identified in testing •types of defects found •status of corrective actions 	Necessary	Test Progress Reports			
C-16.	During System Construction, the consultant shall deliver a validated system in the Pre-Production environment, to include the installation and integration of all ATMS components.	Necessary	Validated Pre-Production System			
C-17.	During System Construction, the consultant shall update and deliver technical documentation to include corrective actions implemented as a result of testing activities.	Necessary	Updated Technical Document-ation			

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C-18.	During System Construction, the consultant shall develop and deliver the following user documentation: <ul style="list-style-type: none"> •User Manual •Database Administrator Manual, including installation and upgrade guides •System Administrator Manual •FAQs and scripts for technical support staff •Documentation on how to incorporate customizations during system upgrades 	Necessary	User Document-ation			
C-19.	During System Construction, the user manuals shall include a collection of printable on-line documentation designed to instruct users in the operation of the system.	Necessary	User Document-ation			
C-20.	The consultant shall provide data entry of all data necessary to populate the ATMS on the Pre-Production and Production Environments.	Necessary	Approved entry of system data			
C-21.	During System Acceptance, the consultant shall deliver final test results for the following: <ul style="list-style-type: none"> •data validation results •data migration •acceptance test results (including performance tests) •security and vulnerability test results 	Necessary	Test Results			
C-22.	During System Acceptance, the consultant shall deliver an accepted operational NYSDOT ATMS system.	Necessary	Accepted System			

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C-23.	During System Acceptance, the consultant shall deliver accepted migrated data in the system.	Necessary	Migrated Data			
C-24.	During Implementation, the consultant shall deliver an operational, accurate and formally accepted ATMS system to NYSDOT.	Necessary	Operational System			
C-25.	During Implementation, the consultant shall deliver approved installation and data migration scripts to NYSDOT to promote the system to the Pre-Production and Production Environments.	Necessary	Installation & Migration Scripts			
C-26.	During Implementation, the consultant shall install and deploy the system in the production environment in accordance with the approved Project Implementation and Transition Plan..	Necessary	Operational System			
C-27.	During Implementation, the consultant shall conduct knowledge transfer in accordance with the approved project knowledge transfer approach.	Necessary	Knowledge Transfer			
C-28.	The consultant shall provide assistance to NYSDOT to implement an ATMS training environment in the Pre-Production Environment).	Necessary	Training Environment			
C-29.	The consultant shall provide the capability to refresh the ATMS training environment for each training session.	Necessary	Training Environment			
C-30.	The training shall be conducted on site at the Region 3 and 8 TMCs via selected consultant personnel and resources.	Necessary	Training Program			

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C-31.	The consultant shall deliver sufficient multiple sessions to accommodate the number of users indicated in Table 7 and to allow for the fact that TMC coverage needs to be maintained during the trainings.	Necessary	Training Program			
C-32.	The consultant shall refine and deliver a training plan identifying the: <ul style="list-style-type: none"> •Schedule for all role-based training sessions •Consultant-provided resources to deliver training •Training evaluation collection, analysis, and improvement process •Success metrics identification, collection, and evaluation process •Expected training results •Post Training Support 	Necessary	Training Plan			
C-33.	The consultant shall develop customized ATMS role-based training and materials for each role. Role based training materials may include: <ul style="list-style-type: none"> • Participant Guidebooks (Printed and Electronic) including exercises • Instructor Guidebooks (Printed and Electronic) including exercises and answers • CD's containing the Participant Guidebooks in MS Word and PDF format • CD's containing the Instructor Guidebooks in MS Word and PDF 	Necessary	Training Materials			

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	format <ul style="list-style-type: none"> • PowerPoint Presentations • User Manuals • On-Line Help 					
C-34.	The consultant shall plan and perform computer-based training in the NYSDOT Locations indicated in the User Training Estimates table. The consultant should plan to provide any specialized computer equipment.	Necessary	Training Program			
C-35.	The consultant shall plan and provide training to NYSDOT User Acceptance Test (UAT) participants prior to UAT.	Necessary	Training for UAT Participants			
C-36.	The consultant shall update impacted training material whenever software changes, including customizations, affect the operation of the software.	Necessary	Training Material Updates			
C-37.	The consultant shall follow the maintenance agreement portion of Attachment 1's draft Agreement that will cover the ATMS from the final acceptance of the ATMS in the production environment. The maintenance agreement covers the following: <ul style="list-style-type: none"> • Remote diagnostics • Technical support from the consultant • On-site issue resolution if necessary • Fixes to the software • Updates to user, technical, and training documentation to support software changes resulting from fixes • Integration of new equipment 	Necessary	Maintenance Agreement			

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C-38.	The consultant shall provide technical and application support for end-users 24 x 7 x 365.	Necessary	Technical Support			
C-39.	The consultant shall comply with the Service Level Objectives indicated in Table 10 below.	Necessary	Technical Support			
C-40.	The consultant shall: <ul style="list-style-type: none"> •propose a backup and recovery process which meets NYSDOT's requirements •recommend disaster recovery processes •provide instructions for business continuity 	Necessary	Backup & BC/DR Processes			
C-41.	The consultant shall provide NYSDOT personnel with access to an enhancement-tracking system.	Necessary	Enhancement Tracking System Access			
C-42.	The consultant shall provide NYSDOT personnel with access to an ATMS bug-reporting and defect-resolution system.	Necessary	Defect Tracking System Access			
C-43.	The consultant shall attend on-going support status meetings with NYSDOT personnel, as needed.	Necessary	Technical Support			
C-44.	The consultant shall annually provide NYSDOT with the software release schedule for any off the shelf software components contained within ATMS.	Necessary	Software Release Schedule			
C-45.	The consultant shall work with NYSDOT and its subconsultants with developing a statewide system architecture to connect the regional TMCs and regional and statewide business partners such as the Thruway Authority and TRANSCOM.	Necessary	Future Architecture Report			

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C-46.	The consultant shall request for and obtain approval from NYSDOT prior to appointing or replacing key personnel.	Necessary				
C-47.	Should it become necessary to replace key personnel, the consultant shall provide replacement staff members for key personnel with equal or superior skills and qualifications, with full authority to act in that position for full performance under the Contract, and with rates not to exceed those of the originally supplied staff member.	Necessary				
C-48.	The consultant project manager shall serve as focal point of contact for NYSDOT regarding project status, meetings & reporting requirements.	Necessary				
C-49.	The consultant project manager is responsible for managing scope changes, and financial, administrative, and technical issues or concerns raised by NYSDOT.	Necessary				
C-50.	Consultant staff shall comply with the New York State Office of Cyber Security Information Security Policy P03-002 V3.4. The policy is available at http://www.dhSES.ny.gov/ocs/resources/	Necessary				
C-51.	Consultant staff shall comply with the NYSDOT Information Security Policy. The NYSDOT Information Security Policy will be provided to the selected vendor.	Necessary				

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C-52.	The consultant shall work in cooperation with NYSDOT and its designated consultants to ensure proper coordination of the ATMS project with other NYSDOT initiatives.	Necessary				
C-53.	The consultant shall have a minimum of three years of experience providing Advanced Traffic Management Systems and installation services using the solution it has proposed.	Mandatory				
C-54.	The consultant's ATMS experience shall be verifiable and within the last five years.	Necessary				
C-55.	The consultant shall appoint key personnel to be responsible for coordinating with NYSDOT and managing project activities. Key personnel include: <ul style="list-style-type: none"> • Project Manager • Technical Architect • Software Engineer 	Necessary				
C-56.	The Project Manager shall have a minimum of 3 years of verifiable experience overseeing ATMS projects.	Necessary				
C-57.	The Technical Architect shall have a minimum of 3 years of experience designing and implementing ATMS solutions.	Necessary				
C-58.	The Lead System/Software Engineer shall have a minimum of 3 years of verifiable experience leading system/software activities for the implementation of ATMS systems.	Necessary				

