

THE PORT AUTHORITY OF NY & NJ

PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER
150 GREENWICH STREET, 21ST FL.
NEW YORK, NY 10007

4/8/2016

ADDENDUM # 3

To prospective Proposer(s) on RFP #45199 for **ACQUISITION AND DEPLOYMENT OF AGENCY-WIDE TRANSPORTATION MANAGEMENT SOFTWARE - REQUEST FOR PROPOSAL**

Due back on 4/25/2016, no later than 2:00 PM

Originally due on 4/19/2016, no later than 2:00 PM

Please address all inquiries to Jeanette Anderson @ jeanette.anderson@panynj.gov.

I. CLARIFICATIONS

1. For instructions regarding modifications to the General Contract Provisions, please Refer to Section 8, "Proposal Submission Requirements", Subsection G, "Acceptance of General Contract Provisions", page 26.

II. CHANGES/MODIFICATIONS

The following changes/modifications are hereby made to the solicitation documents:

1. **Section 8, Proposal Submission Requirements, Subsection D, Certifications with Respect to the Contractor's Integrity Provisions** is deleted in its entirety and replaced with the following:

Certification With Respect to the Contractor's Integrity Provisions

The Proposer, by signing the Letter of Transmittal, makes the certifications in the "Contractor's Integrity Provisions," included as Section 40 of Attachment C entitled "General Contract Provisions" of this RFP. If the Proposer cannot make any such certifications, it shall enclose an explanation of that inability. ("Certification Statement").

2. **Section 8, Proposal Submission Requirements, Subsection E, Proposal, Item 3 entitled: "Management Approach and Firm Strength and Management Team Experience"** is deleted in its entirety and replaced with the attached revised Item 3, entitled: "Management Approach and Firm Strength and Management Team Experience" dated 4/6/16 attached hereto.
3. **Appendix 3 – Concept of Operations and Inventories** is deleted in its entirety and replaced with the attached revised Appendix 3 – Concept of Operations and Inventories dated 4/6/16 attached hereto.

4. Proposal Due Date is rescheduled for Monday, April 25, 2016 at 2:00 PM.

III. PROPOSER'S QUESTIONS AND ANSWERS

The following information is available in response to questions submitted by prospective Proposers. The responses should not be deemed to answer all questions, which have been submitted by Proposers to the Port Authority. It addresses only those questions, which the Port Authority has deemed to require additional information and/or clarification. The fact that information has not been supplied with respect to any questions asked by a Proposers does not mean or imply, nor should it be deemed to mean or imply, any meaning, construction, or implication with respect to the terms.

The Port Authority makes no representations, warranties or guarantees that the information contained herein is accurate, complete or timely or that such information accurately represents the conditions that would be encountered during the performance of the Contract. The furnishing of such information by the Port Authority shall not create or be deemed to create any obligation or liability upon it for any reason whatsoever and each Proposer, by submitting its Proposal, expressly agrees that it has not relied upon the foregoing information, and that it shall not hold the Port Authority liable or responsible therefor in any manner whatsoever. Accordingly, nothing contained herein and no representation, statement or promise, of the Port Authority, its Commissioners, officers, agents, representatives, or employees, oral or in writing, shall impair or limit the effect of the warranties of the Proposers required by this Proposal or Contract and the Proposer agrees that it shall not hold the Port Authority liable or responsible therefor in any manner whatsoever.

The Questions and Answers numbering sequence will be continued sequentially in any forthcoming Addenda that may be issued.

	RFP Section	RFP Page	Topic	Question
Question 1	4	6	Submission of Proposals	Can proposals be submitted in 3-ring binders that allow for a cover to be inserted?
Response 1	4	6	Submission of Proposals	Yes, the proposals can be submitted in 3-ring binders. However, in furtherance of its environmentally preferable procurement practices, the Port Authority requests all documents submitted to be in a form that can be easily recycled (i.e., no plastic covers or binding) and to provide only supporting literature which directly relates to the proposal being submitted.
Question 2	11	11	Evaluation Criteria and Ranking	Can the PANYNJ provide the weight to be applied to each

				selection criteria?
Response 2	11	11	Evaluation Criteria and Ranking	No. The weights for the evaluation criteria will not disclosed.
Question 3	Proposal Submission Requirements	18	Format and order of forms	The RFP states the proposer's response to this RFP shall follow the format and order of items set forth in 8. Proposal Submission requirement. Can the PANYNJ clarify where the following attachments to be included in our proposal? a. Attachment B – Pre-requisites, Requirements b. Attachment G – Certificate of No Change c. Attachment K – Certified Environmentally Preferable Products / Practices Form
Response 3	Proposal Submission Requirements	18	Format and order of forms	Attachments B and G should be included with the response to Proposer's Prerequisites, page 8. Attachment K should be included in the proposal submission for the Management Approach and Firm Strength and Management Team Experience
Question 4	Items xv and xvi	20	Clarification	In the view of the PANYNJ: a. What is different about these two items? b. Can the PANYNJ clarify what it is seeking in both of them? c. Will work done in these areas be considered Extra Work and Net Cost Work?
Response 4	Items xv and xvi	20	Clarification	a. Item xv relates to responding to changes in the operational environment by assessing the impact, determining the necessary changes, and implementing them. Item xiv relates to being proactive about productivity improvements by initiating and implementing them. b. Proposers are to confirm that they have formal processes in place for responding to changes in the operational environment by

				<p>assessing the impact, determining the necessary changes, and implementing them; and for proactively initiating productivity improvements and implementing them, which they successfully used in prior engagements.</p> <p>c. Work in these areas will be done at no additional cost to the Authority.</p>
Question 5	Documented Methodology	21	Clarification	<p>a) Can the PANYNJ clarify its intent with additional integrators? b) Will the selected vendor under RFP No. 45199 be expected to coordinate with additional integrators during the course of the project? c) If so, what are we to cost and how are we to cost it?</p>
Response 5	Documented Methodology	21	Clarification	<p>a) Proposers are asked to provide their transition plans and methodology for providing seamless support in circumstances where engagement with other integrators are necessary. b) Yes, the selected Proposer may need to coordinate with additional integrators during the course of the engagement. c) Proposers are expected to make their own determinations based on the information provided in the RFP.</p>
Question 6	Troubleshooting and Problem Resolution	21	Deletion of requirement	<p>This looks to be a duplication of Item 1(a) v. Detecting and resolving defects on page 20. Can the PANYNJ eliminate the requirement to discuss it again as noted on page 21?</p>
Response 6	Troubleshooting and Problem Resolution	21	Deletion of requirement	<p>There is no duplication. Item E. 1) a) v. asks for confirmation that the Proposer has formal processes in place for detecting and resolving defects, which it has successfully used in the past.</p>

				Item E. 1) e) on Page 21 asks that the Proposer submit a plan for problem resolution and escalation procedures.
Question 7	Item 3) B) Proposed Team / Staffing	22	Deletion of section	Can this section be removed? It is requested on Page 23 in Item viii.
Response 7	Item 3) B) Proposed Team / Staffing	22	Deletion of section	Item 3 has been deleted in its entirety. See attached revised Item 3, entitled: "Management Approach and Firm Strength and Management Team Experience" dated 4/6/16 attached hereto.
Question 8	Item 3) D)	22	On-Site vs. Off-Site requirements	The Proposal shall describe in detail which services will be provided off site and which will be conducted on site for each of the following. For this section of the RFP response should the response include just whether the service (i. through xx.) will be provided on site vs. off-site?
Response 8	Item 3) D)	22	On-Site vs. Off-Site requirements	Item 3 has been deleted in its entirety. See attached revised Item 3, entitled: "Management Approach and Firm Strength and Management Team Experience" dated 4/6/16 attached hereto.
Question 9	Item vi. vi. The Proposer shall provide detailed descriptions of its pre-employment screening procedures; safety and emergency procedures including, but not limited to, disaster recovery plans.	23	Disaster recovery	Something is amiss as the text ends with a reference to disaster recovery plans. Can the PANYNJ clarify?
Response 9	Item vi.	23	Disaster recovery	Nothing is amiss. Proposers are asked to provide their corporate safety and emergency

	vi. The Proposer shall provide detailed descriptions of its pre-employment screening procedures; safety and emergency procedures including, but not limited to, disaster recovery plans.			procedures that include their disaster recovery plans.
Question 10	L. Multiple Contract Awards	28	Multiple Awards	Can the PANYNJ clarify their intent?
Response 10	L. Multiple Contract Awards	28	Multiple Awards	L. Multiple Contract Awards The Port Authority reserves the right to award multiple Contracts for the products, work and/or services that are the subject matter of this RFP and Proposers are hereby given notice that they may not be the Port Authority's only contractor for such products, work and/or services.
Question 11	Section G.3	88	Escrow	<ol style="list-style-type: none"> 1. Section G.3 indicates that source code will need to be deposited in an escrow account. <ol style="list-style-type: none"> a. Will this be a one-time deposit or will multiple deposits be required throughout the project period? b. The RFP does not identify a particular escrow agent. Does the Authority have a preferred escrow agent?
Response 11	Section G.3	88	Escrow	<p>Response for a: Source code deposit is required for the initial install and after every upgrade.</p> <p>Response for b: The Authority does not have a preferred escrow agent; however, the proposed escrow agent must be approved by the Authority.</p>
Question 12	L	90	Location where service	Will the Authority consider a

			will be provided	proposal where key resources work full or part-time at an offsite location?
Response 12	L	90	Location where service will be provided	Yes, the Authority will consider such proposals.
Question 13	B.1.a.ii.2	97	Documentation	Section B.1.a.ii.2 indicates that six (6) hardcopy sets of all documents should be provided. Is the requirement for six (6) hardcopy sets for just the final version of a document or does this requirement refer to draft versions as well?
Response 13	B.1.a.ii.2	97	Documentation	The “general” submittal requirements are for “all” submittals, including draft versions.
Question 14	B.3.a	101	Field Acceptance test	Section B.3.a. describes the requirement for a field acceptance test. Please elaborate on the vision for the scheduling for this test as it relates to the Implementation schedule depicted in Figure 1 on page 93.
Response 14	B.3.a	101	Field Acceptance test	The scope of work at each facility includes testing, as described in Section B. Implementation Phase (Years 1 and 2) on Page 93.
Question 15	b.	102	30-day operational test	Section B.3.b. describes the requirement of a 30-day operational test for each site. Does the duration depicted in Figure 1 on page 93 include this 30-day test? For example, the duration for the JFK Implementation is 150 days. Would the 30-day test start at the end of this period (for a total of 180 days for JFK when including the Operation Test) or does the 150 days include the 30-day Operation test such that it would start on or before day 120?
Response 15	b.	102	30-day operational test	The indicated durations are inclusive of the 30-day Operational test.
Question 16	C	106	Maintenance Phase	Is maintenance to be provided on-site at locations designated by the PANYNJ?
Response 16	C	106	Maintenance Phase	Proposers are referred to Section C.a.6.b.iii on p.111.
Question 17	Fundamental	133	ID F-5	Will the Port Authority make

	requirements			available an Interface Control Document (ICD) for all legacy assets that we will need to interface with?
Response 17	Fundamental requirements	133	ID F-5	No, the Authority will not provide any Interface Control Documents for legacy assets. Proposers will have to obtain any necessary documents on their own directly from the asset manufacturers. Costs for obtaining such documents shall be included and incorporated in Proposer's Cost Proposal. There will be no separate compensation to the Contractor for obtaining these documents.
Question 18	Fundamental requirements	133	ID F-8	The fundamental requirement description says the PA-AOC will provide real-time situational awareness to all Authority facilities. Can the PANYNJ clarify this as it related to the stated requirement?
Response 18	Fundamental requirements	133	ID F-8	Real-time situational awareness is to be provided through the stated requirement of a standards-based implementation of center-to-center communications. See Section B. Implementation Phase (Years 1 and 2) on Page 93.
Question 19	Interagency coordination	134	ID F-13	What situational awareness is to be provided? Can the PANYNJ expand upon its intent and this requirement?
Response 19	Interagency coordination	134	ID F-13	See the response to Question 19 above. Real-time situational awareness is to be provided through the stated requirement of a standards-based implementation of center-to-center communications.
Question 20	Regional coordination	134	ID F-14	<ul style="list-style-type: none"> a. Will the Port Authority make available an Interface Control Document (ICD) for TRANSCOM's Open Reach so that proposers can evaluate the interface to determine the appropriate work effort? b. Can we assume

				TRANSCOM will concurrently maintain the same versions of Open Reach that are installed at the PANYMJ's facilities over the life of the contract?
Response 20	Regional coordination	134	ID F-14	<p>a. No, the Authority will not provide any Interface Control Documents for TRANSCOM's Open Reach. Proposers will have to obtain any necessary documents on their own directly from the asset manufacturers. Costs for obtaining such documents shall be included and incorporated in the Proposer's Cost Proposal. There will be no separate compensation to the Contractor for obtaining these documents.</p> <p>b. No, Proposers cannot assume TRANSCOM will concurrently maintain the same versions of Open Reach installed at the Port Authority facilities over the life of the Contract.</p>
Question 21	Interface Requirements	142	ID I-6	Can we assume TRANSCOM will concurrently maintain the same versions of TRANSMIT that are installed at the PANYNJ's facilities over the life of the contract?
Response 21	Interface Requirements	142	ID I-6	No, Proposers cannot assume that TRANSCOM will maintain the same versions of TRANSMIT software installed at the Port Authority facilities over the life of the Contract. See revised Appendix 3- Concept of Operations and Inventories dated 4/6/16 attached hereto.
Question 22	Interface Requirements	142	ID I-7	Will the PANYNJ make available an Interface Control Document (ICD) for the Nextiva Video Management System so that proposers can evaluate the interface to determine the appropriate work effort?
Response 22	Interface	142	ID I-7	No, the Authority will not provide

	Requirements			any Interface Control Documents for the Nextiva Video Management System. Proposers will have to obtain any necessary documents on their own directly with the asset manufacturers. Costs for obtaining such documents shall be included and incorporated in Proposer's Cost Proposal. There will be no separate compensation to the Contractor for obtaining these documents. As stated, the Contractor shall coordinate with Verint to develop an SI based on the manufacturer's software development kit (SDK), the Verint VMS Client SDK, and acquire up to ten (10) Media Gateway licenses.
Question 23	Interface Requirements	143	Tactics Interface (I-12)	Will the Port Authority make available an Interface Control Document (ICD) form Siemens for the Tactics System so that proposers can evaluate the interface to determine the appropriate work effort.
Response 23	Interface Requirements	143	Tactics Interface (I-12)	No, the Authority will not provide any Interface Control Documents for the Siemens TACTICS system. Proposers will have to obtain any necessary documents on their own directly from asset manufacturers. Costs for obtaining such documents shall be included and incorporated in Proposer's Cost Proposal. There will be no separate compensation to the Contractor for obtaining these documents.
Question 24		145	ID I-19	Will the PANYNJ make available an Interface Control Document (ICD) for the WebEOC so that proposers can evaluate the interface to determine the appropriate work effort?
Response 24		145	ID I-19	No, the Authority will not provide any Interface Control Documents for WebEOC. Proposers will have to obtain any necessary documents on their own directly from the asset manufacturers. Costs for obtaining such documents shall be included

				and incorporated in Proposer's Cost Proposal. There will be no separate compensation to the Contractor for obtaining these documents.
Question 25		159	ID FAMM-3	Will the PANYNJ make available an Interface Control Document (ICD) for the PANYNJ's Roadway Devices Management System (RDMS) Maximo system?
Response 25		159	ID FAMM-3	No, the Authority will not provide any Interface Control Documents for the RDMS Maximo. Proposers will have to obtain any necessary documents on their own directly from asset manufacturers. Costs for obtaining such documents shall be included and incorporated in Proposer's Cost Proposal. There will be no separate compensation to the Contractor for obtaining these documents.
Question 26		175	Holland Tunnel	The RFP notes that some alerts and critical alarms may need to be communicated between SCADA and TMS, as will be determined during the scenario/response plan development phase. Will possible software development required to support this be extra work?
Response 26		175	Holland Tunnel	The paragraph has been deleted in its entirety. See the revised Appendix 3 – Concept of Operations and Inventories, Section entitled: "Holland Tunnel (HT)", paragraph 12 dated 4/6/16 attached herein.
Question 27		198	PATH	Is there a requirement to interface with PATHVision and the IRS master log?
Response 27		198	PATH	No, there is no requirement to interface with PATHVision and IRS master log.
Question 28		General	General	Can the PANYNJ provide a copy of the price proposal template in MS Excel format?
Response 28		General	General	No, the Authority will not provide

				the cost proposal template in MS Excel format.
Question 29		General	General	Will the PANYNJ grant an extension to the due date? We require adequate time to finalize proposal after receiving responses to questions.
Response 29				Please refer to page 1 of Addendum #3 and Part II, Changes/Modifications for new proposal submission due date.
Question 30	Front Page	Page 1	Proposal Due date	Given the complexity of this project, can Port Authority provide more time to the proposers to complete a comprehensive proposal, especially given the timeline required between responses from Port Authority and the due date? Can Port Authority consider an extension between 6 to 8 weeks from the receipt of the responses to questions to provide adequate time for a responsive proposal?
Response 30				Please refer to page 1 of Addendum #3 and Part II, Changes/Modifications for new proposal submission due date.
Question 31 TB&T	Attachment D - Duration	Page 76	Implementation Phase	Given the complexity of the project and the number of Port Authority facilities, a two-year time frame for implementation is very aggressive. The minimum duration for implementation is about 2 months per facility or a total of 36 months. Can Port Authority consider a 3-year duration for the base contract implementation?
Response 31	Attachment D - Duration	Page 76	Implementation Phase	The Proposers are referred to Section VI.A on p.91. The Authority will consider alternative schedules for the implementation phase.
Question 32 TB&T	Section VI – Required Services – B. Implementation Phase	Page 96	Interface Development	The RFP requires the contractor to build interfaces with existing legacy systems, such as the TACTIC system, either using C2C protocol or through an API. a. Has Port Authority reached an agreement with the current legacy vendors that they will provide

				<p>information in a C2C format and/or API which can be made available to the selected contractor?</p> <p>b. If not, can we have the names for all legacy vendors and systems to contact and reach an agreement for these interfaces?</p> <p>c. If we are unable to reach an agreement with the existing legacy vendors, can Port Authority obtain agreements from the legacy vendors for furnishing the C2C or API protocols to the selected contractor?</p>
Response 32	Section VI – Required Services – B. Implementation Phase	Page 96	Interface Development	<p>a. No, the Authority has no such agreements in place.</p> <p>b. No, the Authority will not provide contact information for legacy vendors.</p> <p>c. No, the Authority will not obtain agreements from legacy vendors. Proposers will have to obtain any necessary documents on their own directly from the asset manufacturers. Costs for obtaining such documents shall be included and incorporated in Proposer’s Cost Proposal. There will be no separate compensation to the Contractor for obtaining these documents.</p>
Question 33	Project Management Requirements	Page 136	PMP Requirement	Are there other certifications acceptable in lieu of PMP, such as P.E.?
Response 33	Project Management Requirements	Page 136	PMP Requirement	No, there are no other acceptable certifications.
Question 34	VI.B.3.a	101	Field Acceptance Testing	Please indicate whether the Authority or the Contractor will provide field technicians to verify proper operation of ITS devices in the field. As an example, when testing sign message accuracy there will likely be cases where the sign cannot be viewed from a CCTV camera and will have to be field verified. Does the Authority or the Contractor provide the field

				resources?
Response 34	VI.B.3.a	101	Field Acceptance Testing	The Contractor shall provide the required field resources.
Question 35	VI.B.3.a	101	Field Acceptance Testing	If it is determined during detailed design that field equipment is to be added or modified, 1) is the Contractor or the Authority responsible for the modification and 2) if MOT is required is this provided by the Contractor or the Authority?
Response 35	VI.B.3.a	101	Field Acceptance Testing	The Authority is responsible for the required modifications and additions outside the scope of work and MOT, unless the Authority authorizes the Contractor to perform this work under the Extra Work provisions.
Question 36	VI.B.3.a	101	Field Acceptance Testing	If it is determined that field equipment requires tuning, calibration or adjustment to function with the software, is it the responsibility of the Contractor or the Authority to make the adjustment?
Response 36	VI.B.3.a	101	Field Acceptance Testing	It is the Authority's responsibility to make the necessary adjustments to the field equipment. However, if it is determined that the problem is with the Contractor's provided software, then it is the Contractor's responsibility.
Question 37	Cover Page	1	Proposal Due Date	We respectfully request a two (2) week extension to the existing proposal due date of March 22, 2016 to allow us to produce the most comprehensive and cost effective proposal for the Authority.
Response 37				Please refer to page 1 of Addendum #3 and Part II, Changes/Modifications for new proposal submission due date.
Question 38	6	13	MBE/WBE SUBCONTRACTING PROVISIONS	The RFP states "The Contractor shall use good faith efforts to achieve participation equivalent to twelve percent (12%) of the total Contract price for MBEs and five percent (5%) of the total Contract

				price for WBEs.” Do the MBE/WBE participation percentages apply to the price for years 5 & 6 of maintenance as these are not guaranteed but included as a component of the total contract price in the pricing sheet?
Response 38				The MBE/WBE participation requirement pertains to the three year base contract. As indicated, years 5 and 6 are not guaranteed. However, if the extensions are awarded, the Port Authority will require the firm to provide an MBE/WBE plan at that time.
Question 39	8.D	19	Certifications with Respect to the Contractor’s Integrity Provisions	Please confirm that the reference to Section 34 should actually be to Section 40 of Attachment C, entitled “General Contract Provisions”.
Response 39				Yes, the reference Section 34 should actually be Section 40. See correction in Part I, CHANGES/MODIFICATIONS provided hereto above.
Question 40	3	8-9	Proposer Prerequisites	How can MBE/WBE firms obtain access to identify who were prequalified under Collective #37893 Prequalification of ATMS Software Package – Stage 1, dated May 16, 2014?
Response 40				The list of firms prequalified under RFPQ #37893 will not be disclosed. Proposers are directed to the link below and to Section 6, MBE/WBE Subcontracting Provisions: <hr/> All MBE/WBE subcontractors listed on the MBE/WBE Participation Plan must be certified by the Port Authority in order for the Contractor to receive credit

				toward the MBE/WBE goals set forth in this Contract. Please go to http://www.panynj.gov/business-opportunities/supplier-diversity.html to search for MBE/WBEs by a particular commodity or service.
Question 41	1	5	2. Deadline for Receipt of Proposals	Would PANYNJ be willing to postpone the Deadline for Receipt of Proposals by at least 30 days? If so, would you please notify us of the new deadline.
Response 41				Please refer to page 1 of Addendum #3 and Part II, Changes/Modifications for new proposal submission due date.
Question 42	3. Proposer Pre-Qualification	8 and 9	Pre-Qualification Status	The RFP refers to the list of pre-qualified firms. A) Can you provide the list of Pre-Qualified firms? B) Can you specify what Documentation is required to confirm a firm is pre-qualified?
Response 42				Response to A. No, the list of firms will not be disclosed. Response to B: Refer to Section 3, 3. PROPOSER PRE-REQUISITES, Item 1.

This communication should be initialed by you and annexed to your Proposal upon submission.

In case any Proposer fails to conform to these instructions, its Proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

THE PORT AUTHORITY OF NY & NJ

Carmen Rein
General Manager of Operation
Procurement Department

PROPOSER'S FIRM NAME: _____

INITIALED: _____

DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO
JEANETTE ANDERSON, WHO CAN BE REACHED AT 212-435-4624

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3) Management Approach and Firm Strength and Management Team Experience

- a) References: The Proposer shall submit a listing of key / representative ATMS application management, maintenance and support services (including hardware, operating system, database, security and system administration and maintenance) contracts that were performed by or are currently being performed by the Proposer within the last three (3) years (use "Attachment H – Proposer Reference Form").
- b) Proposed Team / Proposed Staffing: The Proposer shall provide a staffing plan indicating the qualifications and experience of technical, managerial and supervisory personnel employed by the firm who are to be assigned to the Contract, including the following: For each individual, indicate his/her role on the engagement, whether onsite or remote and whether full or part time. (If part time, indicate number of hours/week).
 - i. His/her length of service with the firm
 - ii. The anticipated function of each person on the Contract
 - iii. A summary of the relevant experience of each person listed. The resumes of the individuals who are being recommended for these positions shall be included in the proposal.
- c) The Proposer shall submit to the Port Authority, a detailed itemized description explaining technical expertise and past experience the proposed team has in the following areas:
 - i. ATMS software development and implementation;
 - ii. System Interface development, including system and types of data ;
 - iii. Application maintenance and support.
- d) The Proposal shall include the following:
 - i. Describe the Contractor's Company's plan to manage the TMS Contract for all facilities, including the quality and effectiveness of the Contractor's M/W/SBE plan.
 - ii. Include detailed project schedules as set forth in Attachment E, Scope of Work. The Proposer shall provide key milestone dates on the "milestone schedule" and describe all task interdependencies. (While not required, Proposers are encouraged to use GANNT charts and highlight critical path activities). The project schedule shall indicate when Authority-required tasks, including but not limited to providing test hardware, providing connectivity, etc., need to be performed. All schedules must be in Microsoft Project 2007 or later format.
 - iii. The Proposal shall demonstrate the proposed System's ability to integrate with the applications listed in SOW (Attachment E). In addition, the Proposal shall identify the Proposer's authorized resellers that can integrate the proposed System with the listed applications.

- iv. The Proposer shall describe in detail its experience, including relevant contracts performed during the last three (3) years, its financial capability, management structure and proposed staffing, detailing technical training, certifications, applicable licenses, skills and experiences and capability of proposed staff and other supporting documentation demonstrating its ability to perform the work.
- v. The Proposer shall provide a Detailed Implementation Plan that addresses all the requirements of Attachment E, Scope of Work. The Proposer should describe the methodology it has used successfully in the past and describe how existing system integrity will not be lost. The Contractor must propose how it will guarantee the Authority's access to all data in the event of the termination or expiration of the new contract.
- vi. The Proposer shall provide detailed descriptions of its pre-employment screening procedures; safety and emergency procedures including, but not limited to, disaster recovery plans.
- vii. The Proposer shall include a detailed organizational chart identifying all key staff.
- viii. The Proposer shall submit training requirements for all technical employees and describe how availability and response time requirements will be achieved.
- ix. Reassignment of Key Staff shall require approval from the Port Authority. If approval is granted, the Proposer shall furnish a replacement with equal or higher qualifications for the same or lesser costs. The Authority will have the right to reject candidates proposed by the Contractor for cause.
- x. Proposers shall submit a list of the job titles, responsibilities, qualifications, and work associated with each key position for personnel to be assigned to Net Cost Work.
- xi. Describe the roles and responsibilities of the software support team members that will be assigned to this Contract.
- xii. Provide qualifications of support team members.
- xiii. Describe technical customer services experience and capabilities.
- xiv. Identify the Account Manager and Project Manager.
- xv. The Proposer shall submit an MBE/WBE Plan in accordance with the section of this RFP entitled "MBE/WBE Subcontracting Provisions." The Proposer shall be required to report on actual achievement against plan goals on a quarterly basis.
- xvi. Training Plan - The Proposal shall describe the plan to provide training according to the requirements specified in the SOW.
- xvii. Licensing Model: The Proposal shall describe the Proposer's licensing model for the requirements set forth in the SOW.

- xviii. License, Maintenance, Escrow Agreements: The Proposal shall include copies of all license, maintenance, escrow agreements for the proposed System.
- xix. The Proposer's Certified Environmentally Preferable Products/Practices Form must be completed ensuring compliance with all applicable federal, state and local standards in their business practices, in accordance with the Certified Environmentally Preferable Products/Practices Provision.
- xx. The Proposers proven transition planning approach that covers transitions at contract commencement; during the course of the agreement and upon contract termination must be furnished.
 - 1. Transition Planning for seamless support – The Proposer shall provide detailed plan including approach methodology, number and skill set of resources (both from the Proposer side as well as from the Authority) and toolsets used for transition in the following circumstances:
 - a. At the commencement of the Contract (note – As stated herein, the transition period shall under no circumstances exceed three months);
 - b. During the course of the Contract with additional integrators; and,
 - c. At the completion of the Contract – i.e., the Proposer's ability to work effectively and in harmony with a potential new provider.

Appendix 3 - Concept of Operations and Inventories

Operational Scenarios for each facility are unique to that facility and the response plans are dependent upon the field assets available to that facility at the time of implementation. Upon award of this Contract, it will be the Contractor's responsibility to work with Facility Operations and Traffic Engineering staff to determine the necessary scenarios to employ and their respective response plans. The ITS Master Plans help define which DMS, VLS, Cameras, LUCS, Traffic Signal timings, etc. are impacted by either Operational or Incident-driven scenarios. ITS Master Plans will be made available to the Contractor. Operational scenarios are incurred when deemed necessary by the Facility Manager for planned or anticipated events. These would be for example, planned lane closures, bridge closures, high wind, ice or snow. Incident scenarios are unanticipated events and their respective response plans are determined in accordance with the location of one or more incidents on or near the facility. A sample ITS layout, scenario and response plan is provided below for the Bayonne Bridge under the Staten Island Bridges discussion.

Overview

The purpose of this project is to optimize transportation system network operations, reduce incident response times, and share information with neighboring agencies, and ultimately provide real-time regional situational awareness among all Port Authority (PA) Facilities. The existing PA facilities were observed based on how they operate, assets available, and existing operation center floor plan arrangements. The findings are discussed and presented below. Most of the facilities observed have limited ITS assets and/or assets that will be updated and/or replaced in the near future. System interfaces will have to be developed by the Contractor for some facilities that will require maintaining operations of legacy devices until such time those new assets are installed.

There will be four centers, including the proposed Primary Port Authority Agency Operations Center (PA-AOC); backup PA-AOC, disaster recovery site; and Traffic Engineering Center. Each of the centers will have a separate instance of the Agency-wide Transportation Management Software (TMS) and each will have the ability to monitor and/or control one or more facilities.

In addition to the four (4) centers, there will be 17 instances of the TMS, one (1) each at ten (10) PA facilities to monitor and/or control nearby ITS assets, and "lightweight" applications at seven (7) locations (see Figure 1). The NOC will serve as the data repository and the information hub for the PA. Facility TMS instances will continuously transmit data regarding traffic volumes, incidents, etc. to the NOC instance for purposes of data archiving and calculation of facility-specific performance metrics. The PA-AOC will have the capability to monitor and control assets at any PA facility when required and will also provide Agency-wide regional situational awareness. All inter-facility communications will utilize the Port Authority Wide-Area Network (PAWANET). Legacy assets that do not have National Transportation Communications for ITS Protocol (NTCIP) compatibility will require the Contractor to develop custom system interfaces to monitor and control these field assets.

Supervisory Control and Data Acquisition (SCADA) systems are not included in this project. Although many facility management and other SCADA systems do exist at most of the PA facilities, these are not to be included in this project and will be left separated to operate independently by a SCADA central control system.



Figure 1 - System Context Diagram

George Washington Bridge (GWB)



The GWB is a suspension bridge that spans the Hudson River connecting Washington Heights neighborhood in the borough of Manhattan, NYC to Fort Lee, New Jersey. Interstate 95 crosses the bridge. The GWB has an upper level that carries four lanes of traffic in each direction while the lower level carries three lanes of traffic in each direction for a total of 14 lanes. There are paths located on each side of the upper level of the bridge for pedestrian and bicycle traffic.

The GWB is operated under the Transdyn DYNAC system for both ITS and SCADA; however, the TMS selected under this project will replace the ITS function. SCADA will remain on the DYNAC system.

The bridge CommDesk consists of the police operators workstation where most of the radio communications and equipment are located, a small monitor workstation is used for bridge ITS and SCADA, and a video wall on the right side of the room which is no longer functional. The video wall used to serve in providing a status overview of the facility and the vehicle detection sensors. The bridge tour manager's office is located in another room on the same floor. Communications between the police workstation and the tour manager's office is through intercom only.

DYNAC ES presently controls both ITS and SCADA functions. After the TMS implementation, DYNAC ES will remain in place for the SCADA function only.

The Authority intends to implement Sensys Networks' wireless detection sensors embedded in the roadway on the approaches to the facility, details of which will be provided after contract award.

Under the TMS, incidents are to be detected in real-time from changing traffic conditions, stopped or slowed traffic as seen by the vehicle detection system. In turn, this would trigger an alarm in the TMS and offer suggestions to a relevant scenario and response plan for the operator to authorize initiation. The interface requirement for this software action is listed in Appendix 1 - Requirements.

SCADA systems for bridge aesthetic lighting, network health, ventilation and pump control systems will remain under the operation and monitoring of the DYNAC ES software. Ideally, there should be multiple (larger) monitors setup for this ITS workstation where several of the most common functional screens are visible at all times without having to toggle through menus for access. Refer to the GWB floor plan for proposed location of new ITS Workstation, which is adjacent to the existing DYNAC workstation. In addition to the proposed workstation in the OCC, access to the TMS should also be possible from the facility tour manager's office using the existing PC in that location.

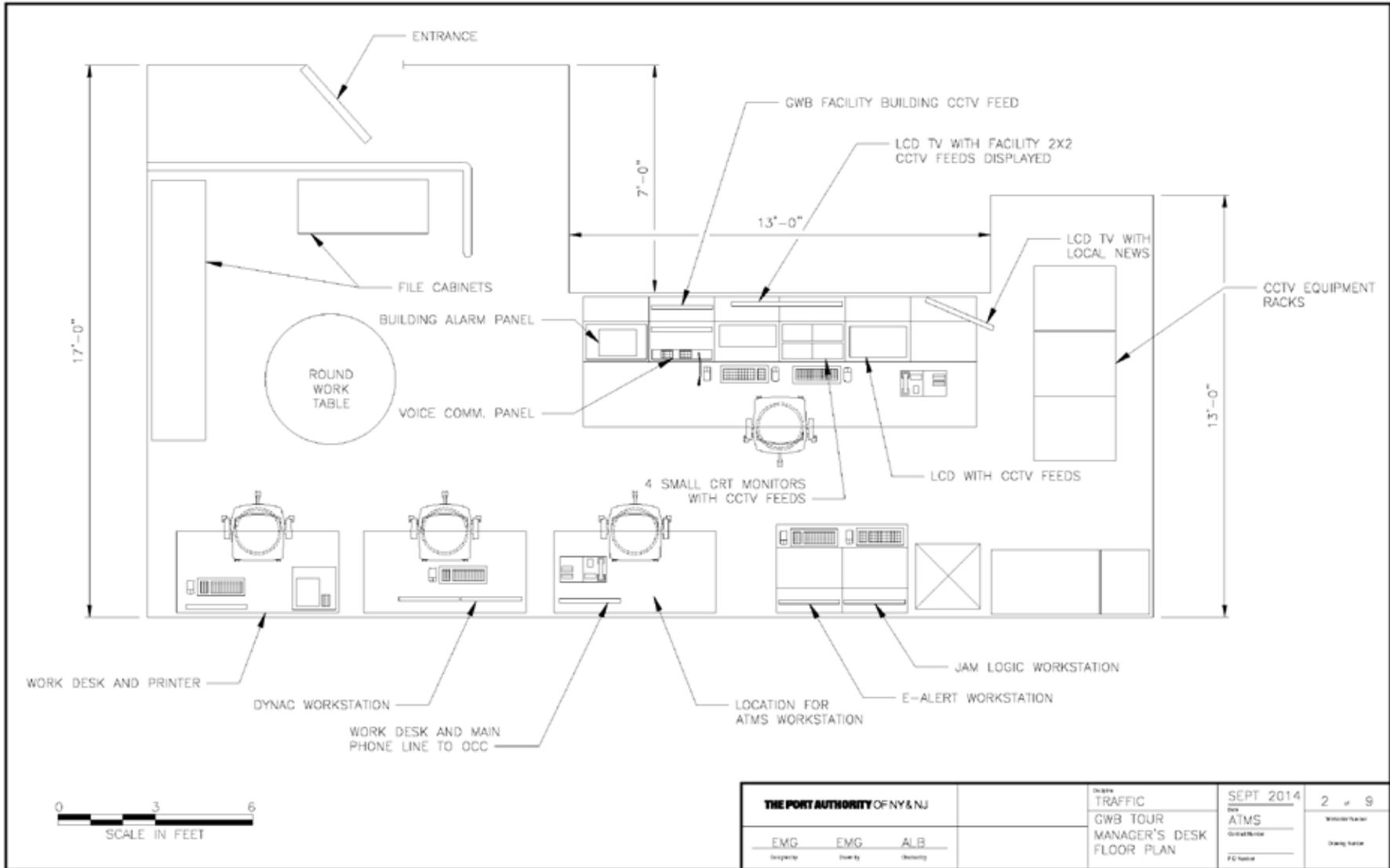
There are four (4) main screens that need to be visible at all times, including DMS control/messages, alert log screen, graphical layout of vehicle detection on the bridge, and a 4th screen solely dedicated for CCTV. The large video monitors to the right side of the room should be a solid large video wall with an overall graphic of the bridge in plan-view showing the status of all vehicle detection stations and RWIS. Alarms triggered on that wall can be acted upon at the police or ITS workstations. While it is not in the scope of this project for the Contractor to furnish and install a new video wall, the provisions for communicating with this future video wall need to be accounted for in the TMS.

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Visibility of the bridge roadway and levels from the OCC is very limited and there is almost complete dependency on the CCTV system to see all areas of the bridge. The existing CCTV system includes analog cameras routed through an American Dynamics video switch. However, TD is presently implementing an Enterprise CCTV solution using the Verint Nextiva system, but the exact schedule of full transference onto the enterprise solution is unknown.

The GWB uses an "E-Alert" system by which they log incidents and events electronically. All future events will be logged into the TMS, which in-turn will be required to populate the E-Alert system as well as OpenReach. Incidents that may be automatically detected by the TMS should bring up the nearest field camera to that incident.

The GWB currently has ten new Daktronics full color matrix DMS and six legacy Vultron DMS. Twenty-seven new LED DMS are scheduled to be installed within the next year on the approaches or at the GWB itself. All of these new signs are anticipated to be by Daktronics and of the latest version of NTCIP for full matrix, full color, 20mm pitch DMS. The following is a complete inventory list of the required devices (both legacy and new), for which the Contractor will need to provide System Interfaces (SIs) at GWB.



THE PORT AUTHORITY OF NY & NJ			Office TRAFFIC	SEPT 2014	2 of 9
EMG	EMG	ALB	GWB TOUR MANAGER'S DESK FLOOR PLAN	Drawn/Revised	Worksheet/Drawn
<small>Inspector</small>	<small>Drawn By</small>	<small>Security</small>			<small>Drawing Number</small>
					<small>Drawing Name</small>

INVENTORY AT GWB**Dynamic Message Signs (DMS)**

Communication interfaces are a mix of serial hardwired and fiber optic cable. DMS protocol is predominantly NTCIP.

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Vultron	Model B090-2L (14x104) Firm v1.272	2	-	Legacy	NTCIP	RS-232/IP
Vultron	Model B090-2L (14x88) Firm v1.272	1	-	Legacy	NTCIP	RS-232/IP
Vultron	Model B090-2L (14x144) Firm v1.272	1	-	Legacy	NTCIP	RS-232/IP
Vultron	Model B090-2L (14x264) Firm 1.272	1	-	Legacy	NTCIP	RS-232/IP
Vultron	Full Matrix (42x184)	1	-	Legacy	NTCIP	RS-232/IP
Daktronics	VF-2320-64x224-20-RGB	1	VFC-3000	New	NTCIP	IP
Daktronics	VF-2320-64x288-20-RGB	7	VFC-3000	New	NTCIP	IP
Daktronics	VF-2320-96x384-20-RGB	2	VFC-3000	New	NTCIP	IP
Daktronics	VF-2329-96x336-20-RGB	1	VFC-3000	New	NTCIP	IP
Daktronics	VF-2329-64x288-20-RGB	4	VFC-3000	New	NTCIP	IP

Closed Circuit TV System (CCTV)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Verint	Nextiva Video Management Server	1	Nextiva	Version 6	IP	Verint SDK
American Dynamics	Analog Video Switch	1	-	Legacy	-	RS-232
COHU	Camera 1322-1000	39	-	Analog-Encoder	-	IP

Lane-Use Control Signals (LUCS)

Existing LUCS are legacy X-arrow signals by National Sign and Signal Company. There are 12 sets of signals serving the facility and are controlled by Transdyn's DYNAC Software as a SCADA system. These will be replaced with NTCIP-compliant units and integrated with the TMS in the future.

TRANSMIT (Travel Time System)

TRANSMIT is a TRANSCOM system that utilizes Kapsch Janus Multi-protocol readers. The TMS is to communicate with TRANSMIT through the use of TRANSCOM's API, which can be obtained at no cost from TRANSCOM. The Authority currently uses the existing API and data feed services by TRANSCOM to post travel times on permanent and portable VMS.

ID	Site	# of Reader Cabinets	# of Antennas	XMIT Server	Interface
GW01	GWB @ Amsterdam Ave	1	8	GWB	Cell Modem
GW02	GWB @ Henry Hudson Pky	1	4	GWB	Cell Modem
GW03	GWB @ Palisades	1	4	GWB	Cell Modem
GW04	GWB @ Central Road	1	2	GWB	Cell Modem
GW05	I-95 @ Fletcher Avenue	1	4	GWB	Cell Modem
GW06	I-95 @ Jones Road	1	4	GWB	Cell Modem
GW07	PIP North of Exit 1	1	2	GWB	Cell Modem
GW08	Route 4 West of I-95	1	3	GWB	Cell Modem
GW09	Route 46 @ Oakdene Avenue	1	3	GWB	Cell Modem
GW10	I-80 @ Garden State Parkway	1	2	GWB	Cell Modem
PA01	Rt 46 Approach	1	2	GWB	Cell Modem
PA02	1.5 mi North of PIP	1	2	GWB	Cell Modem
PA03	I95 South of I-80	1	3	GWB	Cell Modem

Lincoln Tunnel (LT)



The LT is a 1.5-mile-long vehicular tunnel under the Hudson River, connecting Weehawken, New Jersey and Manhattan, New York City, New York (midtown). The LT has three tubes that carry a total of six travel lanes. During the weekday morning peak period, one travel lane in the center tube is used solely for buses as part of the Exclusive Bus Lane (XBL) operation. Each of the travel lanes in the tunnel's center tube is reversible. In the mornings, both lanes are Manhattan-bound while in the evenings during rush hour both lanes are New Jersey-bound. In other time periods, one lane is provided in each direction. This XBL function is presently handled by a SCADA system with a Human-Machine Interface (HMI) by HSQ. Operations for XBL Lane Use Signal control and related variable message signs will remain on HSQ. In the future, when the Lane Use Signal System is upgraded to an NTCIP-compliant system, the XBL function will be added to the TMS.

The Lincoln Tunnel has a fairly large OCC occupied by the tour manager, police and other operators. Direct communication within the room is possible without the need for an intercom. (See LT OCC Floor Plan below).

There is a large video wall with two rows of ten monitors each configured for four feeds per monitor. This video wall is used strictly for CCTV surveillance. Each row provides full video coverage of one of the three tunnels, and a fourth row provides video coverage of the tunnel approaches, ramps for both NY and NJ. Video is provided through a Verint Nextiva server and is switched using a video switcher keyboard directly controlling an American Dynamics analog video switch located in a back room. The tour manager seemed to have memorized all of the camera numbers by location. Video selection, therefore, is not done graphically by location off of a map.

There are several workstations located along two rows of long curve-shaped desks configured and arranged for visibility of the video wall. The leftmost workstation is a general-use PC mostly used for Web-EOC (E-log) for logging of events and incidents. The tour manager will make all of his/her entry logs in E-log. OpenReach is not yet installed at this facility, but it is coming and will be on yet a separate workstation. One of the difficulties for the tour manager is the need to enter the same information several times. Logging of an event or incident requires the tour manager to log this into E-Log and OpenReach. It is the intent of this project to allow the user to only enter this information into the TMS, and the TMS to populate E-Log and OpenReach with this information, thus only requiring the tour manager to enter it once. The proposed TMS workstation is to replace the existing DYNAC once all TMS functions are duplicated and transferred over. In addition to the proposed workstation at the CommDesk, access to the TMS should also be possible from the facility tour manager's office using the existing PC in that location.

The second workstation at the desk is running HSQ and has a 28-inch widescreen monitor. HSQ is a program that operates legacy Lane Use Control Signals, Changeable Speed Limit Signs, and some DMS that serve the XBL. Since these are older non-NTCIP devices, they are operated from relay cabinets controlled by a SCADA system. The SCADA system is controlled by the HSQ software. The process in the morning of reversing the westbound lane to eastbound for the buses is complex and requires field crews to manually place markers along the lane line. The HSQ terminal does not have any video functions nor

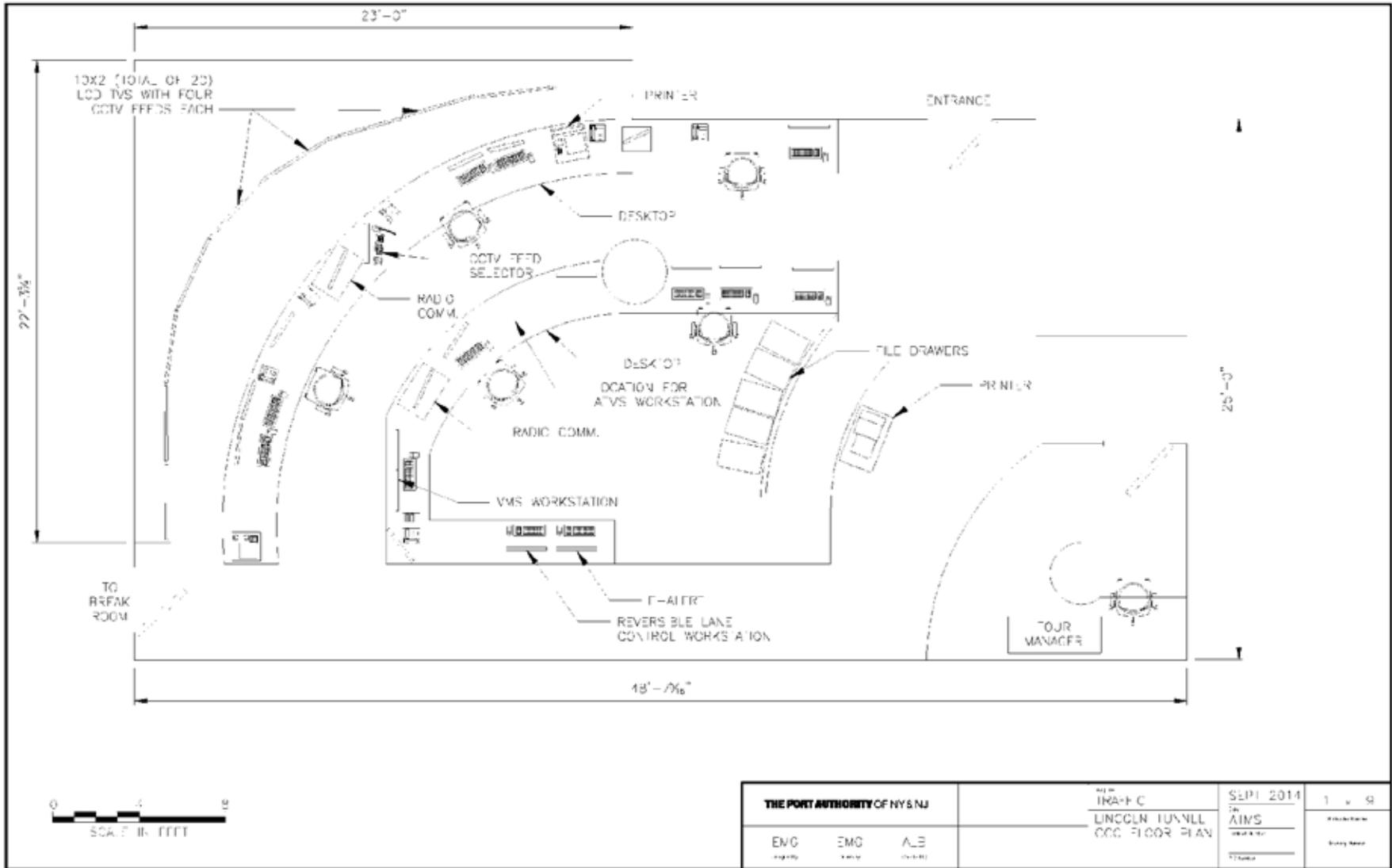
Revised 4/6/16

is it interfaced to the AD switch for video switching. The HSQ does not interface with any vehicle detection equipment and does not provide for automated operation from detected traffic conditions.

The next workstation over is the DYNAC DMS workstation. It is very different from HSQ, where HSQ focuses on the approach traffic to and from the tunnel, the DYNAC software focuses on the traffic within the tunnel and on arterial roadways outside of the facility in NY and NJ. A Video-based Stopped Vehicle Detection System does exist in the tunnel through the employment of Citilog. This is to notify the tunnel operators of an immediate occurrence of a stopped vehicle in the tunnel. Video switching is not controlled from DYNAC at this facility and the tour manager uses the video switch board and Nextiva directly. Through the combination of the detection system and the CCTV images on the video wall, the operators can monitor traffic strictly from the video on the wall and then change the DMS, VLS and LUCS accordingly. The TMS will need to interface to the tunnel Citilog system and provide the necessary alerts in the event of a detected incident. The proper camera of where the incident occurs should be brought up on the operator's main screen.

Travel time data from the TRANSMIT system is fed into the DYNAC software.

Similarly to GWB recommendations, the TMS workstation should have several screens for the four mostly used functions. The array of linear workstations can be consolidated into a single universal workstation or the tour manager with at least four main screens showing the most commonly used functions. Existing DMS are about ten (10) years old except for two (2) full color matrix DMS that were installed in 2013. The following is a complete inventory list of the required devices (both legacy and new), for which the contractor will need to provide System Interfaces (SIs) at LT.



THE PORT AUTHORITY OF NY & NJ			PREPARED BY LINDSEY LUNNELL OCC FLOOR PLAN	DATE SEPT 2014 BY AIMS	SHEET NO. 1 OF 9
ENGINEER EMG	CHECKED BY EMG	APPROVED BY ALB			

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INVENTORY AT LT

Dynamic Message Signs (DMS)

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Daktronics	VF-1320-48x112-6	8	VFC-3000	November 2004	NTCIP	IP
Daktronics	VF-1320-2-16x264-9	1	VFC-3000	September 2004	NTCIP	IP
Daktronics	VF-1320-2-16x336-9	1	VFC-3000	September 2004	NTCIP	IP
Daktronics	VF-2320-64x480-20-RGB	1	VFC-3000	2013	NTCIP	IP
Daktronics	VF-2320-128x128-20-RGB	1	VFC-3000	2013	NTCIP	IP

Vehicle Detection System (VDS)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Citilog	Citilog Video Detection System	18	Video Analyzer	Legacy	-	-
COHU	3930 DSP	72	Camera	Legacy	-	-

Closed Circuit TV System (CCTV)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Verint	Nextiva Video Management Server	1	Nextiva	Version 6	-	Verint SDK
American Dynamics	Analog Video Switch	1	-	Legacy	-	RS-232
COHU	1300 Series	17	-	Legacy	-	-

Lane-Use Control Signals (LUCS)

Existing LUCS on Route 495 approaching the LT facility are used for Exclusive Bus Lane (XBL) Operations during rush hour traffic. The LUCS are operated separately under a SCADA system called HSQ and will remain in operation until such time that the LUCS system is replaced in the future with an NTCIP-compliant system. No TMS interface to the LUCS is anticipated under this project.

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TRANSMIT (Travel Time System)

TRANSMIT is a TRANSCOM system that utilizes Kapsch Janus Multi-protocol readers. The TMS is to communicate with TRANSMIT through the use of TRANSCOM's API, which can be obtained at no cost from TRANSCOM. The Authority currently uses the existing API and data feed services by TRANSCOM to post travel times on permanent and portable VMS.

ID	Site	# of Reader Cabinets	# of Antennas	XMIT Server	Interface
MH01	Dyer Plaza NY Side	1	8	GWB	Cell Modem
MH02	Galvin Plaza	1	1	GWB	Cell Modem
NJ05	Rte 495 @ Kennedy Blvd	1	5	GWB	Cell Modem
NJ06	495 Helix@ Pleasant Ave	1	6	GWB	Cell Modem
NJ10	Bld East @ 495 Helix	1	3	GWB	Cell Modem
NJ11	NJ Plaza	1	4	GWB	Cell Modem
PA10	NJ Turnpike before LT	1	2	GWB	Cell Modem
PA11	Route 3 before LT	1	3	GWB	Cell Modem
PA12	Dyer Avenue and 34 th Street	1	3	GWB	Cell Modem
Fut81	10th Avenue & 41st Street	-	-	GWB	-
Fut82	10th Avenue & 30th Street	-	-	GWB	-
Fut83	11th Avenue & 40th Street	-	-	GWB	-

Holland Tunnel (HT)



The Holland Tunnel spans Manhattan, NYC and Jersey City, NJ under the Hudson River using Interstate 78. There is a pair of tubes, each providing two lanes in a 20-foot roadway width. Both tubes are approximately 1.5 miles long.

The Holland Tunnel has a fairly large CommDesk occupied by operators, with the facility tour manager's office just off to the side (but visible) from the CommDesk. Direct communication between rooms is possible without the need for an intercom. The tour manager has a 55-inch large LCD flat panel TV monitor in his office with DYNAC running on the main display. The most commonly used screen from the software displayed is the DMS screen with a windowed section of logged alarms in the lower portion of the screen. According to the tour manager, these are the most important screens he needs to see.

Similar to LT, there is a Video-based Stopped Vehicle Detection system employed in the tunnel through the use of Citilog and the CCTV cameras in the tunnel. The TMS is to interface with the existing CCTV cameras and Citilog system. Detected incidents or events are to automatically bring up an alert and the appropriate CCTV camera image on the large LCD display. For normal camera viewing, the manager prefers to use the separate workstation located behind him with a smaller screen running Verint Nextiva and a keyboard switch for the American Dynamics switch control to access CCTV images. Use of general camera surveillance in the regard is to remain with the Nextiva workstation. A new workstation dedicated for the TMS is to be installed at the CommDesk. In addition to the proposed workstation at the CommDesk, access to the TMS should also be possible from the facility tour manager's office using the existing PC in that location.

The TMS shall also provide complete control over all DMS at the facility based on the scenarios and response plans developed and programmed by the Contractor.

HT operations uses Web-EOC (E-log) for events but stated that multiple entries for the same event is cumbersome and needs to be streamlined into a single entry system. OpenReach has been installed in a separate office on another workstation. It is recommended that OpenReach be installed at the CommDesk. The TMS should be the single system of entry for incidents and events and, in turn, the TMS should populate E-log and OpenReach. This should be typical for all facilities.

Many of the DMS at the facility are about 10 years old and should have the ability to show the actual WYSIWYG message of the signs in the TMS.

The tour managers at this facility prefer to each have their own customized setup within the TMS, or rather profiles, which can be saved and retrieved during their shift.

Travel time data from the TRANSMIT system is presently fed into the DYNAC software. This TRANSMIT interface is to be transferred over to the TMS for travel times.

All traffic signals are operated by Siemens TACTICS as a central traffic management system. The TMS is to interface to the Siemens TACTICS software to allow for pre-emptive triggers based on certain scenarios. Such triggers may be based on an evacuation scenario where extended green signals may be

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necessary, or other requested change in traffic signal timings. These are to be specifically determined by the facility when working to develop the scenario/response plans. Iteris video detection is used for intersection control. The TMS is also to interface to the Iteris software to allow for video to be displayed on the video wall.

Similarly to GWB recommendations, the TMS workstation should have several screens for the four mostly used functions. Nextiva CCTV should be in front of the tour manager as part of the same screen array and not behind him. Nextiva does not need to be on the same workstation, but visibly appear to be the same as part of the workstation displays. The intent is to improve efficiency and workflow. The following is a complete inventory list of the required devices (both legacy and new) for which the contractor will need to provide System Interfaces (SIs) at HT.

The existing HT Supervisory Control System (SCS), scheduled to be replaced with a new SCADA system, will be integrated with the Automatic Control System (ACS) software that controls the ventilation and other systems. A common Human Machine Interface (HMI) is slated to operate both systems. The TMS will remain independent of these systems. However, under the SCADA improvements project a new video wall system is to be furnished and installed, which is intended to replace the legacy mimic board. The new dynamic video wall will display information from SCADA and ACS as well as CCTV video feeds.

The video wall system will consist of LED-based 50-inch diagonal Digital Light Projection (DLP) cubes capable of full HD (1,920 x 1,080) resolution. The video wall will be approximately 36 ft wide by 8 ft high (two rows of cubes by seven across) and controlled by a standard PC being provided under the SCADA project. The TMS is to interface and share the use of this wall to bring up a CCTV camera in response to an event or incident. Additionally, the TMS should be capable of displaying an overview graphic of the tunnel, its VIDS cameras and the status (condition) of traffic within each tunnel. Use of the wall with the TMS should be user-configurable.

INVENTORY AT HT

Dynamic Message Signs (DMS)

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Daktronics	VF-13X0-2-16x240-6	9	VFC-3000	October 2004	NTCIP	IP
Daktronics	VF-13X0-2-16x264-9	2	VFC-3000	September 2004	NTCIP	IP

Vehicle Detection System (VDS)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Citilog	Video Detection System	12	Video Analyzer	Legacy	-	-
COHU	3930 DSP	46	Cameras	Legacy	-	-

Closed Circuit TV System (CCTV)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Verint	Nextiva Video Management Server	1	Nextiva	Version 6	-	Verint SDK
American Dynamics	Analog Video Switch	1	-	Legacy	-	RS-232
COHU	Analog Camera	19	-	Legacy	-	-

TRANSMIT (Travel Time System)

TRANSMIT is a TRANSCOM system that utilizes Kapsch Janus Multi-protocol readers. The TMS is to communicate with TRANSMIT through the use of TRANSCOM's API, which can be obtained at no cost from TRANSCOM. The Authority currently uses the existing API and data feed services by TRANSCOM to post travel times on permanent and portable VMS.

ID	Site	# of Reader Cabinets	# of Antennas	XMIT Server	Interface
NJ07	HBE/NJTP@Kennedy Blvd	1	2	GWB	Cell Modem
NJ08	HBE/NJTP@Doremus Ave	1	2	GWB	Cell Modem
PA20	Inbound portal NJ side	1	1	GWB	Cell Modem
PA21	Inbound portal NY side	1	1	GWB	Cell Modem
PA22	Jersey Avenue @ 12th St	1	3	GWB	Cell Modem
PA23	Outbound portal NJ side	1	1	GWB	Cell Modem
PA24	Outbound portal NY side	1	1	GWB	Cell Modem

Staten Island Bridges (SIB)



The Staten Island Bridges consist of three Port Authority-owned bridges; the Goethals and the Bayonne Bridges, and the Outerbridge Crossing. All three span from New Jersey to Staten Island and cross the Arthur Kill and the Kill Van Kull. The Bayonne Bridge is currently under construction to have its roadway raised by 64 feet above the existing roadway to allow for a new generation of larger post-Panamax container ships to access the New York

Container Terminal and other New Jersey ports. The Goethals Bridge is being replaced entirely with a new cable-stayed twin span. All three bridges presently have limited ITS assets with the exception of CCTV cameras and/or TRANSMIT sites. However, all three bridges will be seeing ITS deployments in the near future. The Bayonne Bridge will be outfitted with all new ITS assets including Sensys Networks' wireless detection sensors. The scenarios and response plans for this bridge have been fully developed and are an example of the type of scenario/response plan detail that is expected to be developed for the other PA facilities.

Since the Goethals Bridge is being constructed as a Design-Build-Finance-Maintain (DBFM) project, the final design and layout of ITS has not yet been developed. Guidelines for ITS design of the Goethals Bridge will, however, follow the Bayonne Bridge closely such that type and size of DMS, VLS, CCTV, and Vehicle Detection is all the same helping to streamline the development of system interfaces. All three bridges will be on the new Verint Nextiva CCTV enterprise solution. CCTV images will reside on the Nextiva CCTV workstation. The only TMS integration with CCTV is for the TMS to bring up the necessary CCTV camera when and where an event on any of the three facilities occurs.

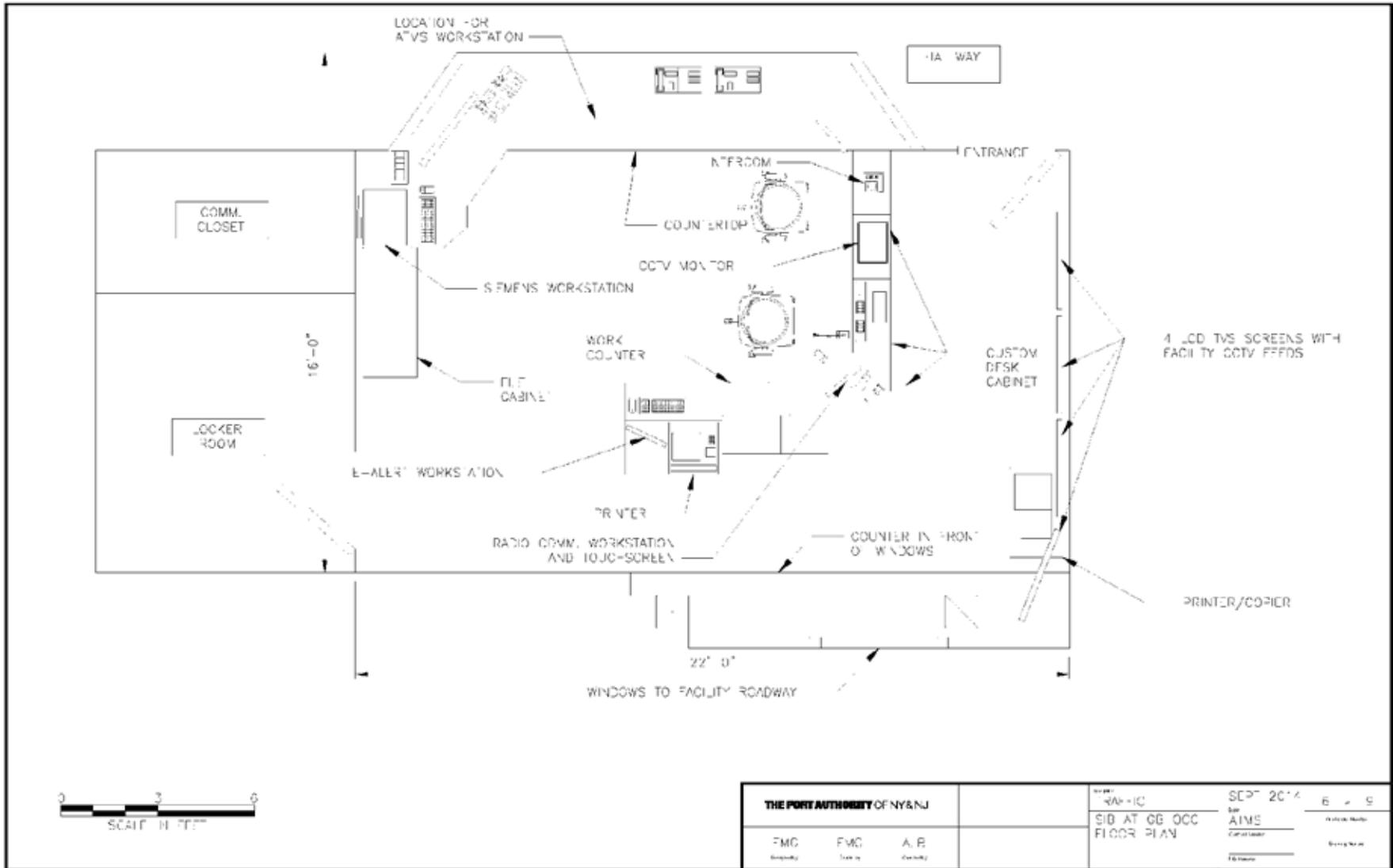
The three bridges are centrally controlled and monitored from the SIB CommDesk located at the Goethals Bridge. Each bridge will have its own local TMS workstation at each respective bridge facility, but central operations and control of the ITS assets is from the Goethals Bridge.

There are plans for an upgrade to the SIB CommDesk, including a new video wall. The schedule for this work is unknown at this time; however, each bridge will likely have one TMS workstation with three screens. The proposed location for this workstation is shown in the provided floor plan of the CommDesk. In addition to the proposed workstation at the CommDesk, access to the TMS should also be possible from the facility tour manager's office using the existing PC in that location.

Like the other TB&T facilities, in order to streamline workflow for the operator, all events and incidents are to be logged into the TMS. The TMS will, in turn, populate the E-log database and OpenReach.

The attached sample is based on the ITS Master Plan for the Bayonne Bridge facility. Defined within are the locations and quantities of ITS field assets, operational scenarios, incident scenarios, and the respective actions to be taken under those scenarios (response plans). Similar plans have been developed under other facility ITS master plans, but it will still be the responsibility of the Contractor to finalize and program the response plans for each TMS instance at each facility and for overall monitoring and control from the PA-AOC.

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INVENTORY AT GB, OBX, AND BB

The Staten Island Bridges (SIB) consist of the Goethals (GB) and Bayonne Bridges (BB) and the Outerbridge Crossing (OBX). All three facilities are operated from the SIB CommDesk at the Goethals Bridge. The quantities and System Interfaces (SIs) below represent anticipated ITS asset totals for all three bridges.

Dynamic Message Signs (DMS)

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Daktronics	VF-2329-96x336-20-RGB	11	VFC-3000	Future	NTCIP	IP
Daktronics	VF-2320-64x192-20-RGB	2	VFC-3000	Future	NTCIP	IP
Daktronics	VF-2320-64x288-20-RGB	2	VFC-3000	Future	NTCIP	IP
Daktronics	VF-2329-64x288-20-RGB	2	VFC-3000	Future	NTCIP	IP

Variable Speed Limit Signs (VSLS)

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Daktronics	VS-5220-2-18-W-VSLS	15	VFC-3000	Future	NTCIP	IP

Lane-Use Control Signals (LUCS)

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Daktronics	-	11	-	Future	-	IP

Vehicle Detection System (VDS)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Sensys Networks	In-pavement Wireless Detection Sensors	150	AP240-E	Future	NTCIP	IP
Wavetronics Microwave	Non-Pavement-Invasive Detection Sensors	36	Wavetronics	Future	NTCIP	IP

Road Weather Information System (RWIS)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Vaisala Networks	Weather Detection Stations	6	Vaisala	Future	NTCIP	IP

Revised 4/6/16

Weigh-In-Motion System (WIM)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
IRD	In-pavement Detection Sensors/CCTV images	3 (lanes)	-	Future	NTCIP	IP

Closed Circuit TV System (CCTV)

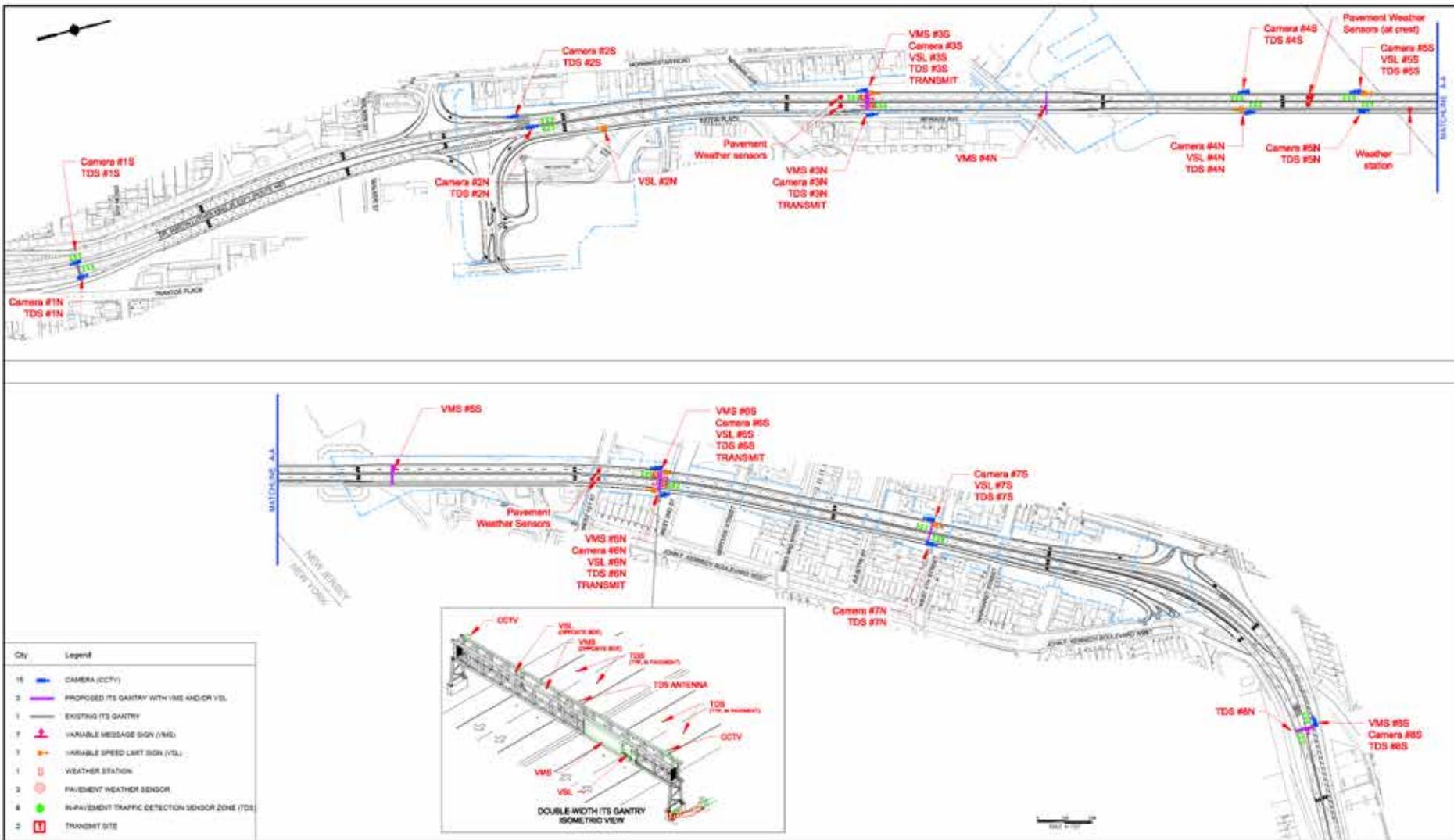
Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Verint	Nextiva Video Management Server	1	Nextiva	Version 6	-	Verint SDK
-	Camera	51	-	Future	-	IP

TRANSMIT (Travel Time System)

TRANSMIT is a TRANSCOM system that utilizes Kapsch Janus Multi-protocol readers. The TMS is to communicate with TRANSMIT through the use of TRANSCOM's API, which can be obtained at no cost from TRANSCOM. The Authority currently uses the existing API and data feed services by TRANSCOM to post travel times on permanent and portable VMS.

ID	Site	# of Lanes	# of Reader Cabinets	# of Antennas	XMIT Server	Interface
-	Goethals Bridge	4	1	3	GWB	Cell Modem
-	Goethals Bridge	4	1	3	GWB	Cell Modem
-	Goethals Bridge	4	1	3	GWB	Cell Modem
-	Goethals Bridge	4	1	3	GWB	Cell Modem
NJ01	I-278 @ Brunswick Ave (Goethals Bridge)	4	1	3	GWB	Cell Modem
PA31	I-278 Near GB Toll Plaza (Goethals Bridge)	4	1	3	GWB	Cell Modem
NJ09	North Approach (Bayonne Bridge)	3	1	2	GWB	Cell Modem
PA36	South Approach (Bayonne Bridge)	3	1	2	GWB	Cell Modem

ITS DEPLOYMENT PLAN



Qty	Legend
16	CAMERA (CCV)
2	PROPOSED ITS GANTRY WITH VMS AND/OR VSL
1	EXISTING ITS GANTRY
1	VARIABLE MESSAGE SIGN (VMS)
1	VARIABLE SPEED LIMIT SIGN (VSL)
1	WEATHER STATION
3	PAVEMENT WEATHER SENSOR
6	IN-PAVEMENT TRAFFIC DETECTION SENSOR ZONE (TDS)
2	TRANSMIT SITE

BAYONNE BRIDGE REPLACEMENT OF MAIN SPAN ROADWAY & APPROACH STRUCTURES

PANY&NJ Bayonne Bridge Navigational Clearance Program (BBNCP)

Bayonne Bridge
ITS Operational Scenarios

Updated: 11-28-2012

Heading Northbound

Proposed					Bayonne Facility Messages																	
Zone ²	Device Info.	Device Sta.	Mounting Method	Traffic Detectors	CCTV Cameras	Scenario 1 ¹	Scenario 2 ¹	Scenario 3 ¹	Scenario 4 ¹	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10	Scenario 11	Scenario 12	Scenario 13	Scenario 14	Scenario 15	Scenario 16	
						SB Left Lane Closure	SB Right Lane Closure	NB Left Lane Closure	NB Right Lane Closure	SB Full Bridge Closure	NB Full Bridge Closure	SB Rt 440 Full Closure S. of Bayonne Br.	NB Rt 440 Full Closure N. of Bayonne Br.	Full Bridge Closure	High Winds	High Winds (Restrictions)	Ice or Snow	Incident on Bridge ³	NYC Marathon	MTA Closures	Normal Condition	
Zone 1	VMS-1N ⁴	-4+80	Single Overhead Walk-through	In-pavement Vehicle Detection	Camera #1N			MUTCD SIGN W3-5 LEFT LANE CLOSED AHEAD	MUTCD SIGN W3-5 RIGHT LANE CLOSED AHEAD		BAYONNE BR CLOSED USE EXIT 13			MUTCD SIGN W3-5 RT 440 CLOSED AHEAD USE Kennedy Blvd	BAYONNE BR CLOSED USE EXIT 13	MUTCD SIGN W3-5 CAUTION HIGH WINDS REDUCE SPEED	MUTCD SIGN W3-5 ALL TRUCKS USE EXIT 13	MUTCD SIGN W3-5 CAUTION ICING (SNOW) REDUCE SPEED		TRAFFIC ALERT NYC MARATHON X TO Y EXPECT DELAYS	SUBWAY-LIRR ALERT XY LINES SUSPENDED	
		15+80	Toll Gantry		Camera #2N, 2S																	
Zone 2	VSL-2N	19+28	Parapet Mount	In-pavement Vehicle Detection		45 MPH	45 MPH	30 MPH	30 MPH	45 MPH		45 MPH	30 MPH		30 MPH	30 MPH	30 MPH			45 MPH	45 MPH	45 MPH
Zone 3	VMS-3N	31+00	Double Overhead Walk-through	In-pavement Vehicle Detection & TRANSMIT	Camera #3N			LEFT LANE CLOSED AHEAD	RIGHT LANE CLOSED AHEAD				RT 440 CLOSED AHEAD USE Kennedy Blvd		CAUTION HIGH WINDS REDUCE SPEED	MUTCD SIGN R5-2 NO TRUCKS	CAUTION ICING (SNOW) REDUCE SPEED					
Zone 4	VMS-4N	39+00	Static Panel Structure	In-pavement Vehicle Detection																		
	VSL-4N	47+50	Portal Mount	In-pavement Vehicle Detection	Camera #4N, 4S	45 MPH	45 MPH	30 MPH	30 MPH	45 MPH		45 MPH	30 MPH		30 MPH	30 MPH	30 MPH			45 MPH	45 MPH	45 MPH
Zone 6	VSL-6N	72+65	Double Overhead Walk-through	In-pavement Vehicle Detection & TRANSMIT	Camera #6N	45 MPH	45 MPH	30 MPH	30 MPH	45 MPH		45 MPH	30 MPH		30 MPH	30 MPH	30 MPH			45 MPH	45 MPH	45 MPH
	VMS-6N												RT 440 CLOSED AHEAD USE Kennedy Blvd		CAUTION HIGH WINDS REDUCE SPEED		CAUTION ICING (SNOW) REDUCE SPEED		TRAFFIC ALERT NYC MARATHON X TO Y EXPECT DELAYS	SUBWAY-LIRR ALERT XY LINES SUSPENDED		
Camera Controlled Activity by ATMS ⁴								All cameras active, Cameras #1N through 7N on priority screens	All cameras active, Cameras #1N through 7N on priority screens		All Cameras active, Cameras #6S and #2N on priority screens		All cameras active, Cameras #6N and 7N on priority screens	All Cameras active, Cameras #6S and #2N on priority screens	All cameras active, selection to priority screens based on need	All cameras active, selection to priority screens based on need	All cameras active, selection to priority screens based on need	All cameras active, Cameras #3N, 4N, 5S and 6S on priority screens	All cameras active, selection to priority screens based on need	All cameras active, selection to priority screens based on need	All cameras active, selection to priority screens based on need	

Heading Southbound

Proposed					Bayonne Facility Messages																	
Zone ²	Device Info.	Device Sta.	Mounting Method	Traffic Detectors	CCTV Cameras	Scenario 1 ¹	Scenario 2 ¹	Scenario 3 ¹	Scenario 4 ¹	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10	Scenario 11	Scenario 12	Scenario 13	Scenario 14	Scenario 15	Scenario 16	
						SB Left Lane Closure	SB Right Lane Closure	NB Left Lane Closure	NB Right Lane Closure	SB Full Bridge Closure	NB Full Bridge Closure	SB Rt 440 Full Closure S. of Bayonne Br.	NB Rt 440 Full Closure N. of Bayonne Br.	Full Bridge Closure	High Winds	High Winds (Restrictions)	Ice or Snow	Incident on Bridge ³	NYC Marathon	MTA Closures	Normal Condition	
Zone 8	VMS-8S	104+30	Double Overhead Walk-through	In-pavement Vehicle Detection	Camera #8S	MUTCD SIGN W3-5 REDUCED SPEED AHEAD	MUTCD SIGN W3-5 REDUCED SPEED AHEAD			BAYONNE BR CLOSED EXIT AVENUE A		MUTCD SIGN W3-5 RT 440 CLOSED AHEAD USE EXIT 13		BAYONNE BR CLOSED EXIT AVENUE A	MUTCD SIGN W3-5 CAUTION HIGH WINDS REDUCE SPEED	MUTCD SIGN W3-5 ALL TRUCKS EXIT AVENUE A	MUTCD SIGN W3-5 CAUTION ICING (SNOW) REDUCE SPEED			TRAFFIC ALERT NYC MARATHON X TO Y EXPECT DELAYS		
Zone 7	VSL-7S	84+70	Static Panel Overhead Structure	In-pavement Vehicle Detection	Camera #7N, 7S	30 MPH	30 MPH	45 MPH	45 MPH		45 MPH	30 MPH	45 MPH		30 MPH	30 MPH	30 MPH			45 MPH	45 MPH	45 MPH
Zone 6	VSL-6S					30 MPH	30 MPH	45 MPH	45 MPH		45 MPH	30 MPH	45 MPH		30 MPH	30 MPH	30 MPH			45 MPH	45 MPH	45 MPH
	VMS-6S	72+65	Double Overhead Walk-through (ITS Gantry-3)	In-pavement Vehicle Detection & TRANSMIT	Camera #6S	LEFT LANE CLOSED AHEAD	RIGHT LANE CLOSED AHEAD					RT 440 CLOSED AHEAD USE EXIT 13			CAUTION HIGH WINDS REDUCE SPEED	MUTCD SIGN R5-2 NO TRUCKS	CAUTION ICING (SNOW) REDUCE SPEED		TRAFFIC ALERT NYC MARATHON X TO Y EXPECT DELAYS	SUBWAY-LIRR ALERT XY LINES SUSPENDED		
Zone 5	VMS-5S	62+00	Canteriver	In-pavement Vehicle Detection																		
	VSL-5S	52+50	Portal Mount	In-pavement Vehicle Detection	Camera #5N, 5S	30 MPH	30 MPH	45 MPH	45 MPH		45 MPH	30 MPH	45 MPH		30 MPH	30 MPH	30 MPH			45 MPH	45 MPH	45 MPH
Zone 3	VSL-3S					30 MPH	30 MPH	45 MPH	45 MPH		45 MPH	30 MPH	45 MPH		30 MPH	30 MPH	30 MPH			45 MPH	45 MPH	45 MPH
	VMS-3S	31+00	Double Overhead Walk-through (ITS Gantry-2)	In-pavement Vehicle Detection & TRANSMIT	Camera #3S							RT 440 CLOSED AHEAD USE EXIT 13			CAUTION HIGH WINDS REDUCE SPEED		CAUTION ICING (SNOW) REDUCE SPEED		TRAFFIC ALERT NYC MARATHON X TO Y EXPECT DELAYS	SUBWAY-LIRR ALERT XY LINES SUSPENDED		
Camera Controlled Activity by ATMS ⁴						All cameras active, Cameras #2S through 8S on priority screens	All cameras active, Cameras #2S through 8S on priority screens			All Cameras active, Cameras #6S and #2N on priority screens		All cameras active, Cameras #2S and 3S on priority screens	All Cameras active, Cameras #6S and #2N on priority screens	All cameras active, selection to priority screens based on need	All cameras active, selection to priority screens based on need	All cameras active, selection to priority screens based on need	All Cameras active, Cameras #3N, 4N, 5S and 6S on priority screens	All cameras active, selection to priority screens based on need	All cameras active, selection to priority screens based on need	All cameras active, selection to priority screens based on need		

NOTES:
 1) For Scenarios 1 through 4, NB and SB lane closures are assumed to be on the bridge.
 2) For Zone location references, see "Detection Zones"
 3) For "Incident on Bridge" Scenarios see "ITS Detection Scenarios"
 4) All cameras have PTZ capability and can look in both directions, for camera redundancy.
 5) VMS-1N is located on NYSDOT property (approximately 480 feet south of the Port Authority property line).

**Bayonne Bridge
ITS Detection Scenarios**

Updated: 11-28-2012

Heading Northbound

Proposed			Detection Zones		Incident Scenarios					
Device Info.	Device Sta.	Mounting Method	Zone ¹	Traffic Detectors	Incident Scenario A NB N. Side of N. Approach	Incident Scenario B NB S. Side of N. Approach	Incident Scenario C SB N. Side of S. Approach	Incident Scenario D SB S. Side of S. Approach	Incident Scenario E NB on Main Span	Incident Scenario F SB on Main Span
VMS-1N	-4+80	Single Overhead Walk-through	Zone 1	Ü	MUTCD SIGN W3-5 ACCIDENT AHEAD BE PREPARED TO STOP	MUTCD SIGN W3-5 ACCIDENT AHEAD BE PREPARED TO STOP			MUTCD SIGN W3-5 ACCIDENT AHEAD BE PREPARED TO STOP	
VSL-2N	19+28	Parapet Mount	Zone 2	Ü	30 MPH	30 MPH	45 MPH	45 MPH	30 MPH	45 MPH
VMS-3N	31+00	Double Overhead Walk-through	Zone 3	Ü	ACCIDENT AHEAD BE PREPARED TO STOP				ACCIDENT AHEAD BE PREPARED TO STOP	
VMS-4N	39+00	Static Panel Structure	Zone 4		SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³
VSL-4N	47+50	Portal Mount		Ü	30 MPH	30 MPH	45 MPH	45 MPH	30 MPH	45 MPH
VSL-6N	72+65	Double Overhead Walk-through	Zone 6	Ü	30 MPH	30 MPH	45 MPH	45 MPH	30 MPH	45 MPH
VMS-6N					ACCIDENT AHEAD BE PREPARED TO STOP					
Camera Controlled Activity by ATMS ²					All cameras active. Camera #7N on priority screen	All cameras active. Camera #8N on priority screen	All cameras active	All cameras active	All cameras active. Camera #6N on priority screen	All cameras active

Heading Southbound

Proposed			Detection Zones		Incident Scenarios					
Device Info.	Device Sta.	Mounting Method	Zone ¹	Traffic Detectors	Incident Scenario A NB N. Side of N. Approach	Incident Scenario B NB S. Side of N. Approach	Incident Scenario C SB N. Side of S. Approach	Incident Scenario D SB S. Side of S. Approach	Incident Scenario E NB on Main Span	Incident Scenario F SB on Main Span
VMS-8S	104+30	Double Overhead Walk-through	Zone 8	Ü			MUTCD SIGN W3-5 ACCIDENT AHEAD BE PREPARED TO STOP	MUTCD SIGN W3-5 ACCIDENT AHEAD BE PREPARED TO STOP		MUTCD SIGN W3-5 ACCIDENT AHEAD BE PREPARED TO STOP
VSL-7S	84+70	Static Panel Structure	Zone 7	Ü	45 MPH	45 MPH	30 MPH	30 MPH	45 MPH	30 MPH
VSL-6S	72+65	Double Overhead Walk-through (ITS Gantry-3)	Zone 6	Ü	45 MPH	45 MPH	30 MPH	30 MPH	45 MPH	30 MPH
VMS-6S								ACCIDENT AHEAD BE PREPARED TO STOP		ACCIDENT AHEAD BE PREPARED TO STOP
VMS-5S	62+00	Cantilever	Zone 5		SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³	SLOW (STOPPED) TRAFFIC AHEAD ³
VSL-5S	52+50	Portal Mount		Ü	45 MPH	45 MPH	30 MPH	30 MPH	45 MPH	30 MPH
VSL-3S	31+00	Double Overhead Walk-through	Zone 3	Ü	45 MPH	45 MPH	30 MPH	30 MPH	45 MPH	30 MPH
VMS-3S										ACCIDENT AHEAD BE PREPARED TO STOP
Camera Controlled Activity by ATMS ²					All cameras active	All cameras active	All cameras active. Camera #6S on priority screen	All cameras active. Camera #3S on priority screen	All cameras active	All cameras active. Camera #4S on priority screen

NOTES:

- 1) For Zone location references, see "Detection Zones"
- 2) All cameras have PTZ capability and can look in both directions, for camera redundancy.
- 3) Messages to be displayed automatically based upon detection. 0-15 MPH display STOPPED TRAFFIC, 16-30 MPH display SLOW TRAFFIC. Messages can appear on signs independent of all other VMS's.

**THE PORT AUTHORITY
OF NY & NJ**

HDR/PA, A JOINT VENTURE
HNTB CORPORATION

JOHN DRANI
N.Y. Professional Engineer # 29223949-00

JOHN DRANI
N.Y. Professional Engineer # 09893

No.	Date	Revision	Approved
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ENGINEERING DEPARTMENT

**BAYONNE
BRIDGE**

TRAFFIC

Title
REPLACEMENT OF MAIN SPAN/ROWAY
AND APPROACH STRUCTURES

**ITS VMS
DISPLAY LAYOUT**

TRAFFIC MESSAGE BOARD (TMB) DISPLAY LAYOUT FOR THE BAYONNE BRIDGE. THE TMB IS A 12x12 GRID OF 144 CELLS. THE DISPLAY LAYOUT IS AS FOLLOWS: ROW 1: 1-12: A, A, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1. ROW 2: 13-24: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 3: 25-36: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 4: 37-48: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 5: 49-60: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 6: 61-72: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 7: 73-84: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 8: 85-96: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 9: 97-108: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 10: 109-120: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 11: 121-132: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10. ROW 12: 133-144: 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10.

DESIGNED BY: J. DRANI
CHECKED BY: J. DRANI
DATE: 02/15/2015

CONTRACT NUMBER: **AKB-264.039**

DRAWING NUMBER: **TRB 0643.010**



VMS MESSAGE NO. 1



VMS MESSAGE NO. 7



VMS MESSAGE NO. 13



VMS MESSAGE NO. 10



VMS MESSAGE NO. 20



VMS MESSAGE NO. 2



VMS MESSAGE NO. 8



VMS MESSAGE NO. 14



VMS MESSAGE NO. 22



VMS MESSAGE NO. 26



VMS MESSAGE NO. 3



VMS MESSAGE NO. 9



VMS MESSAGE NO. 15



VMS MESSAGE NO. 21



VMS MESSAGE NO. 27



VMS MESSAGE NO. 4



VMS MESSAGE NO. 12



VMS MESSAGE NO. 16



VMS MESSAGE NO. 23

MESSAGE NO.	ITS BOARD#	VMS SIGN NO.
1	A, A, 1, 1, 1, 1	10, 10, 10, 10, 10, 10
2	10	10, 10, 10, 10, 10, 10
3	10	10, 10, 10, 10, 10, 10
4	10	10, 10, 10, 10, 10, 10
6	6, 1	10, 10
6	1, 1	10, 10
7	6, 1	10, 10
6	10	10, 10, 10, 10, 10, 10
6	10	10, 10, 10, 10, 10, 10
10	3	10, 10, 10
11	7	10, 10
12	6, 1	10, 10
12	A THROUGH P	10, 10
14	11	10, 10
14	10	10, 10
14	11	10, 10
17	11	10, 10
18	4	10, 10
19	3	10, 10
20	1, 1	10, 10
22	7	10, 10
22	A, C, 2, 7	10, 10
22	6, 1, 7	10, 10
24	A THROUGH P	10, 10
26	10	10, 10
26	12	10, 10
27	A, 1, 1	10, 10



VMS MESSAGE NO. 5



VMS MESSAGE NO. 11



VMS MESSAGE NO. 17



VMS MESSAGE NO. 25



VMS MESSAGE NO. 6



VMS MESSAGE NO. 12



VMS MESSAGE NO. 18



VMS MESSAGE NO. 24

John F. Kennedy International Airport (JFK)



JFK International Airport is located in the borough of Queens in New York City about twelve (12) miles southeast of lower Manhattan. It is one of the busiest international gateway airports to the United States and the leading freight gateway by value of shipments. There are multiple operations control centers (OCC) on the airport property. The focus of this project deals with landside operations only.

JFK has three OCCs dealing with landside operations. One mostly deals with the observance of cameras owned by AirTrain and is situated within a set of cubicles and high monitors on the wall in an office-like environment, the second OCC is large with a fairly large video wall using current technology. Screens and workstation are dedicated by function, by virtue of the client software installed on a particular machine. The third OCC is seasonal and is referred to as the snow center. This OCC is active upon snow storms and is a sizeable elongated room with terminals for CCTV and Automatic Vehicle Location (AVL) called "In-Fleet" where plows can be tracked and monitored. There will be one instance of the TMS installed at JFK to be located in the second OCC. The floor plan layout with the TMS workstation location is shown below.

Roadways and arterials around JFK such as the Van Wyck Expressway (I-687), Nassau Expressway, Belt Parkway and JFK Expressway are all identified as having the need to convey delays to motorists. For local operations, this is one of the major requirements of the software. Working closely with the facility, the Contractor shall develop scenario and response plans based on the JFK ITS Master Plan that will be provided after award of this contract.

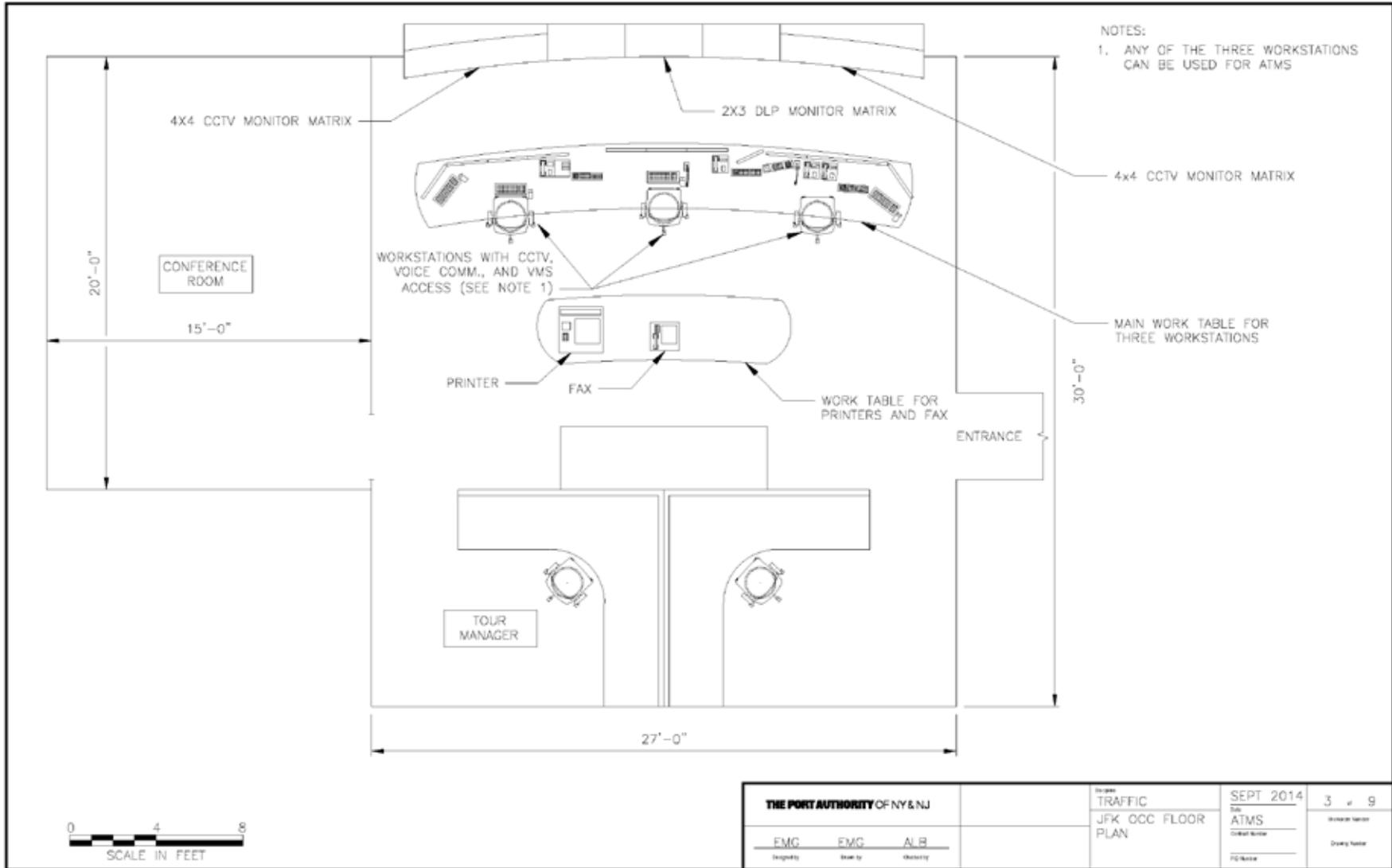
OpenReach will be installed at the facility. Similar to all other facilities, the logging of events, incidents, or delays are to be entered into the TMS and, in turn, the TMS should populate the E-log and OpenReach systems.

DMS for landside operations at JFK were upgraded about three (3) years ago. A total of 47 DMS are all recent Daktronics model signs that will need to be interfaced to the TMS. No VSLs exist. There is limited vehicle detection at the facility using VIDS technology. The JFK ITS master plan includes the installation of additional DMS, CCTV surveillance cameras and vehicle detectors to monitor volume, occupancy, and speed.

Over-Height Vehicle Detection (OHVD) could be employed at the Central Terminal Area and there is room for an escape route for over-height vehicles. This may be included in the final JFK ITS master plan.

All traffic signals are operated by Siemens TACTICS as a central traffic management system. The TMS is to interface to the Siemens TACTICS software to allow for pre-emptive triggers based on certain scenarios. Such triggers may be based on an evacuation scenario where extended green signals may be necessary, or other requested change in traffic signal timings. These are to be specifically determined by the facility when working to develop the scenario/response plans.

Revised 4/6/16



Revised 4/6/16

INVENTORY FOR JFK

Dynamic Message Signs (DMS)

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Daktronics	VF-2350-16x112-34-A	3	VFC-3000	August 2011	NTCIP	IP
Daktronics	VF-2350-8x96-34-A	5	VFC-3000	August 2011	NTCIP	IP
Daktronics	VF-2350-16x128-34-A	1	VFC-3000	August 2011	NTCIP	IP
Daktronics	VF-2350-8x112-34-A	2	VFC-3000	August 2011	NTCIP	IP
Daktronics	VF-2320-16x160-20-A	2	VFC-3000	March 2011	NTCIP	IP
Daktronics	AF-3400-32x128-20-A-SF-120	2	VFC-3000	October 2008	NTCIP	IP
Daktronics	VF-1350-8x112-9-A, IMP W/TAC	4	VFC-3000	May 2007	NTCIP	IP
Daktronics	VF-1350-8x128-9-A, IMP W/TAC	1	VFC-3000	May 2007	NTCIP	IP
Daktronics	VF-1350-24x128-9-*, IMP W/TAC	8	VFC-3000	May 2007	NTCIP	IP
Daktronics	VF-1350-8x152-9-A, IMP W/TAC	6	VFC-3000	May 2007	NTCIP	IP
Daktronics	VF-1350-8x176-9-A, IMP W/TAC	1	VFC-3000	May 2007	NTCIP	IP
Daktronics	VF-1350-8x208-9-A, IMP W/TAC	1	VFC-3000	May 2007	NTCIP	IP
Daktronics	VF-1320-56x192-9-A	1	VFC-3000	May 2007	NTCIP	IP
Daktronics	VF-1350-24x112-9-A	4	VFC-3000	April 2007	NTCIP	IP
Daktronics	VF-1320-56x168-9-A	1	VFC-3000	March 2007	NTCIP	IP
Daktronics	VF-1350-24x88-9-*	5	VFC-3000	June 2006	NTCIP	IP

Revised 4/6/16

Vehicle Detection System (VDS)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Autoscope	Rackvision Image Sensor Model AIS Color Zoom Camera	5	-	Legacy	-	-

Closed Circuit TV System (CCTV)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Verint	Nextiva Video Management Server	1	Nextiva	Version 6	-	Verint SDK
American Dynamics	Analog Video Switch	1	-	Legacy	-	RS-232
COHU	Analog Camera Model 3925	21	-	Analog - Encoder	-	-
COHU	Analog Camera Model 3965	6	-	Analog - Encoder	-	-

TRANSMIT (Travel Time System)

TRANSMIT is a TRANSCOM system that utilizes Kapsch Janus Multi-protocol readers. The TMS is to communicate with TRANSMIT through the use of TRANSCOM's API, which can be obtained at no cost from TRANSCOM. The Authority currently uses the existing API and data feed services by TRANSCOM to post travel times on permanent and portable VMS.

ID	Site	# of Reader Cabinets	# of Antennas	XMIT Server	Interface
JFK01	VWE @ Monorail	1	4	GWB	Cell Modem
JFK02	VWE @ S. Service Rd.	1	4	GWB	Cell Modem
JFK03	JFK Exp @ S. Cargo Rd.	1	4	GWB	Cell Modem
JFK04	JFK Exp @ 150th Ave.	1	4	GWB	Cell Modem

Newark Liberty International Airport (EWR)



EWR is located about fifteen (15) miles southwest of midtown Manhattan in New York City, straddling Newark and Elizabeth, NJ.

There are several operations control centers on the facility, but the main OCC dealing with security and landside operations is located in Building 1 near the north terminal area. EWR OCC allows for communications with an adjacent Emergency Operations Center (EOC) and yet has privacy separation when needed. Workstations are universal in that each one has the ability to perform several of the same functions as the other, which allows for redundancy and ease of maintenance without down time. Workstations are ergonomically oriented with multiple screens sharing a common mouse and keyboard through a hardwired KVM. One of the existing workstations in the back row as shown on the floor plan is to run the TMS in conjunction with other functions at that workstation. In addition to the workstation in the OCC, access to the TMS should also be possible from the facility manager's office using the existing PC in that location as well.

The video wall is an array of CRT screens, which is controlled by an American Dynamics video switch. Operations indicated that the number of video screens displayed is plenty for those observing. Video can also be displayed at the workstations. While most of the security cameras are on the new Nextiva enterprise system, many of the legacy surveillance cameras are not yet. The Nextiva Enterprise system is being implemented Agency-wide but the schedule for full conversion is unknown at this time.

There are only a handful of CCTV cameras on landside around the facility. Operations stated that it is not enough to cover the access roadways.

GPS is employed on snow vehicles and on buses using the In-Fleet AVL system. The AVL system will not be interfaced to the TMS.

All traffic signals will, in the future, be operated by Siemens TACTICS as a central traffic management system. The TMS is to interface to the Siemens TACTICS software to allow for pre-emptive triggers based on certain scenarios. Such triggers may be based on an evacuation scenario where extended green signals may be necessary, or other requested change in traffic signal timings. These are to be specifically determined by the facility when working to develop the scenario/response plans.

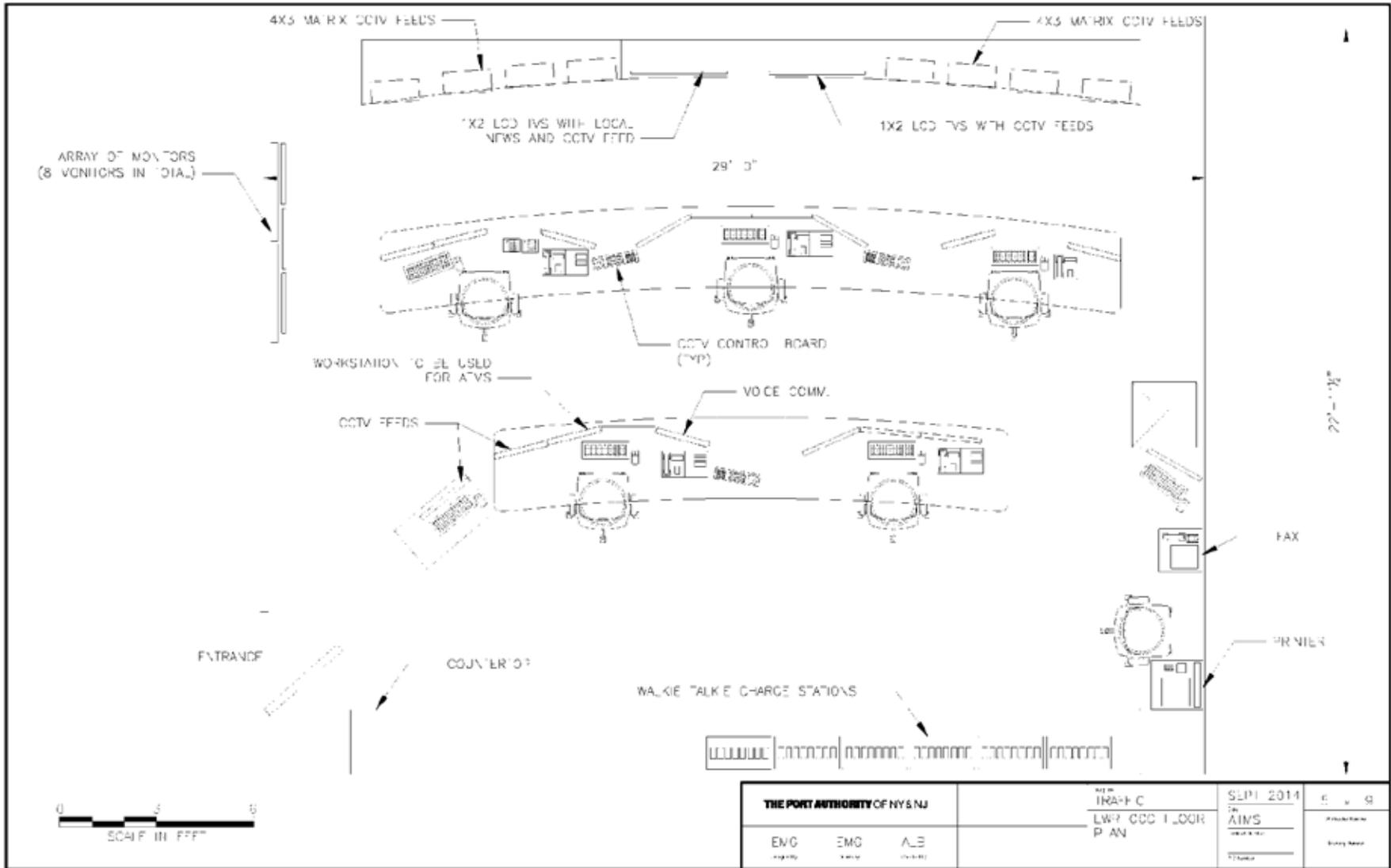
EWR will not need any workstation or video wall configuration upgrade for the TMS, other than the integration of video switching from event-driven triggers within and by the TMS.

INVENTORY FOR EWR

Closed Circuit TV System (CCTV)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Verint	Nextiva Video Management Server	1	Nextiva	Version 6	-	Verint SDK
American Dynamics	Analog Video Switch	1	-	Legacy	-	RS-232
-	Camera	7	-	Legacy	-	-

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LaGuardia Airport (LGA)



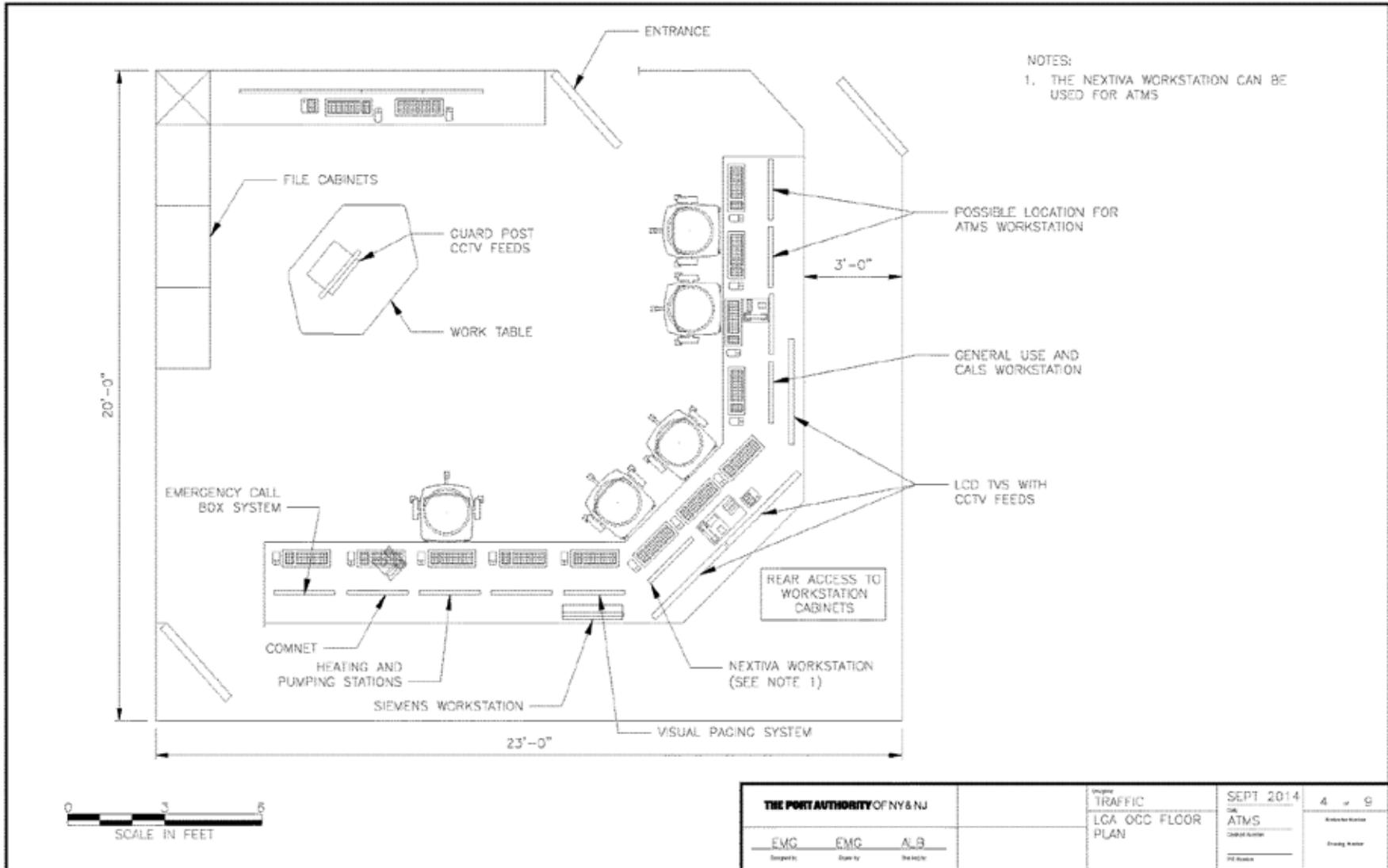
LGA is located in the northern part of the New York City borough of Queens. It is located on the waterfront of Flushing Bay and Bowery Bay and borders the neighborhoods of Astoria, Jackson Heights, and East Elmhurst. LGA is currently undergoing a major redevelopment program. It involves full demolition and rebuilding of Central Terminal, the parking structures and all access roads leading in and out of the airport.

There are few landside cameras overseeing the entrances and parking lots. Much of this will change with the start of construction, which will provide for a new Terminal Building, multi-level parking garages, and revised access roads.

Under the new LGA ITS master plan, Sensys Networks' in-pavement wireless detection will be employed at the entrance ramps and exits to and from the airport.

The facility mostly has portable DMS positioned throughout. These are locally programmed at the sign trailers themselves. A total of 27 permanent DMS (Daktronics) do exist and are remotely controlled using the standard Vanguard software and in the future 28 DMS will replace them as part of the LGA ITS master plan implementation. All permanent DMS are to be controlled from the TMS. Signs are currently controlled from the facility manager's office to provide ad-hoc messages only. In addition to the proposed workstation in the OCC, access to the TMS should also be possible from the facility manager's office using the existing PC in that location.

All traffic signals will, in the future, be controlled by Siemens TACTICS as a central traffic management system. The TMS is to interface to the Siemens TACTICS software to allow for pre-emptive triggers based on certain scenarios. Such triggers may be based on an evacuation scenario where extended green indications may be necessary, or other requested change in traffic signal timings. These are to be specifically determined by the facility when working to develop the scenario/response plans.



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INVENTORY FOR LGA

Dynamic Message Signs (DMS)

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Daktronics	-	20	VFC-3000	Future	NTCIP	IP

Vehicle Detection System (VDS)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Sensys Networks	In-pavement Wireless Detection Sensors	16	AP240-E	New	NTCIP	IP

Closed Circuit TV System (CCTV)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Verint	Nextiva Video Management Server	1	Nextiva	Version 6	-	Verint SDK
American Dynamics	Analog Video Switch	1	-	Legacy	-	RS-232
TBD	Camera	22	-	Future	-	IP

Port Newark-Elizabeth Port Authority Marine Terminal (PN-EPAMT)



The PN-EPAMT is a major component of the Port of New York and New Jersey. It is located on the Newark Bay and serves as the principal container ship facility for goods entering and leaving the metropolitan region. Port Newark and Elizabeth Port Authority Marine Terminal are side-by-side facilities and are owned and managed by the Port Authority. The PN-EPAMT monitors seaside ships coming in and out of the ports using the Automated Identification System (AIS) and tracks/logs the arrival and departures of ships. Presently, PN-EPAMT utilizes Portable Dynamic Message Signs to advise truck traffic arriving at and leaving the facility. All facility ITS assets listed below will be included under TMS operations.

PN-EPAMT has an average size OCC with three existing terminals as shown on the floor plan provided below. The TMS workstation would be located in the front row between the radar tracking workstation and the facility CCTV workstation. In addition to the proposed workstation in the OCC, access to the TMS should also be possible from the facility manager's office using the existing PC in that location. The OCC is staffed by at least one person, 24/7. Presently PN-EPAMT has 40 CCTV cameras. Existing CCTV are a combination of pan-tilt-zoom (PTZ) and fixed cameras. The existing system is on the Loronix platform in conjunction with an American Dynamics video switch, but this is expected to be converted over to the Nextiva enterprise system in the near future.

PN-EPAMT has 5 portable DMS which are used at the entry and exits to the facility, but mostly at the exits to direct trucks and other vehicles leaving the facility with respect to outside traffic conditions. This is the primary basis of their traffic management. There is no real purpose or need for incident detection. The portable DMS are controlled through cellular service using Raven modems. The portable DMS system is furnished through ASTI Systems and is by Precision Solar Controls. ASTI provides its own software control using its proprietary CHIPS software. PN-EPAMT does not change the DMS messages that frequently. On average they change messages once every 3 days. Some permanent DMS as well as Sensys Networks' in-pavement wireless detection are planned as part of the future construction projects scheduled for 2015-17 deployment. The TMS should control both legacy portable DMS and proposed new DMS for an integrated solution to traffic control in and out of the facility.

All traffic signals will, in the future, be operated by Siemens TACTICS as a central traffic management system. The TMS is to interface to the Siemens TACTICS software to allow for pre-emptive triggers based on certain scenarios. Such triggers may be based on an evacuation scenario where extended green signals may be necessary, or other requested change in traffic signal timings. These are to be specifically determined by the facility when working to develop the scenario/response plans. Iteris video detection is used for intersection control. The TMS is also to interface to the Iteris software to allow for video to be displayed on the video wall.

Most occurrences, traffic conditions and reports originate from Police calling in and reporting and motorists themselves. PN-EPAMT sometimes has a slowdown inbound to the facility but very rare that the PN-EPAMT will affect other roadways.

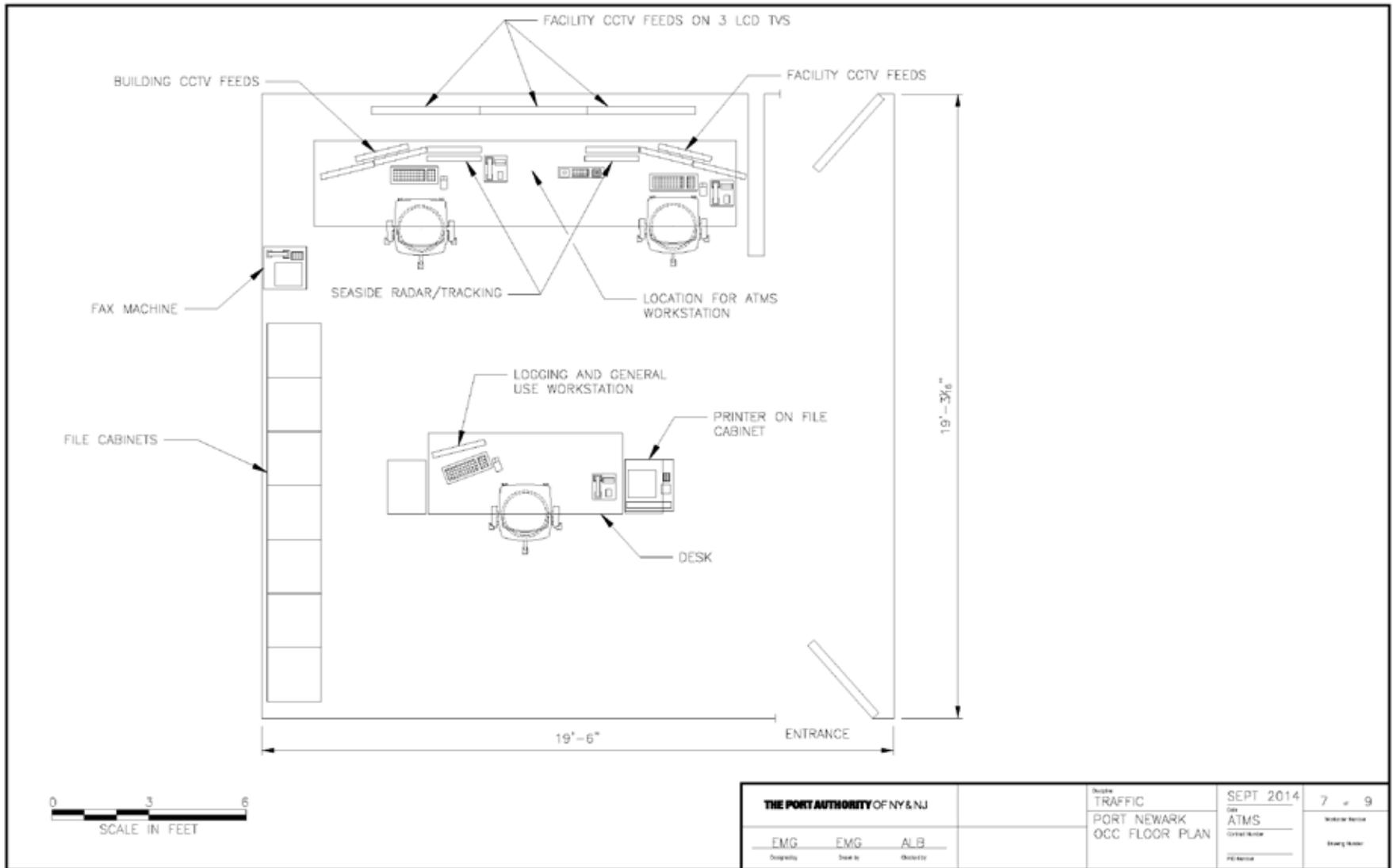
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The facility does not use E-Log to log incidents and planned closures. However, it does make entries into E-Alerts. As with the other facilities, the TMS is to be the central point for logging entries into the system and have it populate OpenReach and E-Alerts.

PN-EPAMT Operations is divided among three (3) floors; Police on one floor, Operations on another floor, and maintenance on a third floor. For improved workflow and efficiency, it is best to provide real-time awareness among the three entities. In doing so, TMS access should be provided at existing workstations for Police, Maintenance, and the facility manager's office, which will be in addition to the proposed workstation in the OCC.

Most important to PN-EPAMT are evacuations, as was determined from a recent study conducted by the facility. The Contractor, in the development of scenarios and response plans for this facility, is to take this into account and include this important provision within the TMS.

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INVENTORY FOR PN-EPAMTDynamic Message Signs (DMS)

Manufacturer	Sign Model / Matrix	Qty	Controller Model	Vintage	Protocol	Interface
Precision Solar Controls	SMC Model Series	5	-	Legacy	NTCIP	Cell Modem
Daktronics	-	6	-	Future	NTCIP	Cell Modem

Closed Circuit TV System (CCTV)

Manufacturer	Model Description	Qty	Controller Model	Vintage	Protocol	Interface
Verint	Nextiva Video Management Server	2	Nextiva	Version 6	-	Verint SDK
American Dynamics	Analog Video Switch	1	-	Legacy	-	RS-232
Camera	American Dynamics Speed Dome VIII (ADSDU8E35)	42	-	Legacy	-	-
Camera	SONY SSC-E-473	2	-	Legacy	-	-
Camera (Port Jersey)	American Dynamics Speed Dome VIII (ADSDU8E35)	6	-	Legacy	-	-

TRANSMIT (Travel Time System)

TRANSMIT is a TRANSCOM system that utilizes Kapsch Janus Multi-protocol readers. The TMS is to communicate with TRANSMIT through the use of TRANSCOM's API, which can be obtained at no cost from TRANSCOM. The Authority currently uses the existing API and data feed services by TRANSCOM to post travel times on permanent and portable VMS.

ID	Site	# of Reader Cabinets	# of Antennas	XMIT Server	Interface
PA60	Corbin St south of Marsh St	1	3	GWB	Cell Modem
PA61	Entrance to Port Elizabeth at North Avenue	1	4	GWB	Cell Modem
PA62	Mclester St bet. Polaris and APM Driveway	1	3	GWB	Cell Modem
PA63	Port Street west of Corbin Street ramp	1	3	GWB	Cell Modem
PA64	Port Street east of Corbin Street ramp	1	2	GWB	Cell Modem

Port Authority Trans-Hudson (PATH)



PATH is a rapid transit railroad that serves Newark, Harrison, Hoboken and Jersey City in northern New Jersey and Manhattan in New York City. PATH operates 24 hours a day and is 13.8 miles long, not including any route overlap. PATH runs underneath the Hudson River and uses only tunnels in Manhattan, Hoboken, and downtown Jersey City.

PATH is unlike the bridges or tunnel facilities in that the focus is on rail operations and not roadway operations. As such, there are less ITS assets and features such as incident detection for obvious reasons. The most critical aspect of train operations are arrival, departure times and delays. This is the information that needs to be exchanged with other facilities and/or conveyed to the public for optimal multimodal integration and awareness.

PATH employs PATHVision, a web-based application that provide train arrival departure information. PATH has used this system for nearly 20 years now and is pleased with its operation and purpose. PATHVision will not be integrated with the TMS; however, critical alerts such as delays, closures, etc are to be communicated with the TMS through XML or other industry-standard system interface.

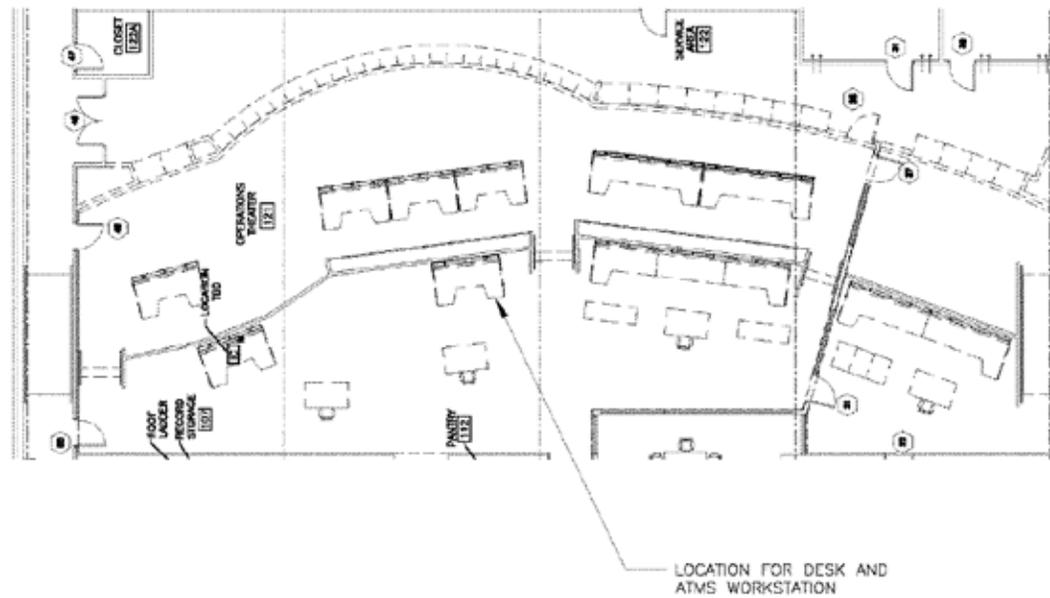
PATH has a new state-of-the-art OCC. With this new facility an enterprise solution for CCTV using Nextiva has been implemented. The TMS is not to integrate to the CCTV security system. However, some cameras related to general surveillance will be on the Nextiva enterprise system, which the TMS is to integrate with. Partial floor plan for the new OCC is shown below with the TMS workstation location identified. The video wall is significant in size and is driven by Activu Corporation data collaboration software.

A software instance is to be installed at the OCC for intercommunications with other PA facilities. Presently, PATH indicated that it relies on TRANSCOM for intercommunications with other facilities and other transit agencies, particularly NYC Transit and NJ Transit. The implementation of the TMS alongside OpenReach is to improve on the real-time awareness and consistency of distributed information with TRANSCOM and other PA facilities.

PATH makes its entries into a master log called IRS (by TRA Associates). They do not use the E-Log (Web-EOC) system that TB&T uses. PATH does use a broadcast alert system called "PATH Alerts" as well as Twitter and Text Messages to patrons that sign up. See discussion on Additional Interfaces below.

Since PATH is a transit operation, there was a discussion with the facility as to how an ATMS software would benefit or integrate with PATH operations. One suggestion would be to provide kiosks at the airports. If PATH, NYC Transit and NJ Transit schedule and on-time/delay information can be provided to travelers in advance in addition to roadway travel times, this could be advantageous. The TMS would serve as a data warehouse of information for complete regional awareness, software decision making, and dissemination of information through various means including kiosks, E-alerts, PATH-alerts, Twitter, 511, OpenReach, website and text messages. While the implementation of kiosks is not a requirement of this project, the TMS should be configured in anticipation of this feature in the future should the PA decide to enhance its system.

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			PTCC OCC FLOOR	ATMS	Worksheet Number
			PLAN	Sheet Number	Drawing Number
EMG	EMG	ALB			
<small>Drawn by</small>	<small>Drawn by</small>	<small>Checked by</small>			