Connecticut Work Zone Reviews

Annual Report

2015

State of Connecticut

Department of Transportation

Office of Construction

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Contents

Introduction

The Connecticut Department of Transportation (CTDOT) Office of Construction (OOC) conducts work zone field reviews to evaluate the effectiveness of practices and procedures relative to work zone safety and mobility. The reviews take place on randomly selected active highway construction projects administered by CTDOT.

The reviews include an overview of traffic control devices, sign installation and removal, sign recognition and visibility, and a personnel questionnaire to determine strengths and opportunities for improvement in work zone procedures. The focus areas include temporary lane closure, temporary signalization, pedestrian/bicycle access, stage construction, detour, and night work. There is also an overarching focus to correlate findings with the various types of projects.

During a regular field review, personnel from the OOC and the Division of Traffic Engineering (Traffic) are accompanied by the project staff from the Construction District to tour selected projects during active construction. The review team evaluates what is implemented but also uses the findings as teaching tools to other Construction inspection staff. The OOC has set a goal to conduct a minimum of ten regular field reviews a year.

For in-depth reviews, the review team may include personnel from the OOC, Traffic, and Federal Highway Administration (FHWA). This team, which is comprised of subject matter experts, will tour the work zone with the project personnel to review what is implemented and evaluate the overall work zone for possible enhancements and potential systemic issues. The OOC has set a goal to conduct four in-depth field reviews a year.

For both types of review, reports of findings with photographs of current field conditions and recommendations for improvements and/or best practices are compiled and distributed to all participants. Those reports either help identify issues that need immediate action, systemic issues found on multiple projects, or to find best practices that could be implemented on other projects.

For the 2015 construction season, the OOC was successful in meeting the goal of completing twelve regular reviews and four in-depth reviews. The findings from these reviews were compiled and sorted by similarities. These findings were categorized by the following:

- Best practices
- Design issues
- Completeness of design plans
- New Work Zone Information Technology Systems (ITS)
- Changes to policies or procedure guidance
- Specification clarity
- Specification enforcement

- Training needs
- Enterprise coordination

Findings of work zone field reviews are added to the action item list of the Work Zone Safety and Mobility Process Review for resolution by the appropriate Department unit. The Process Review is an evaluation tool used for the Department's work zone program. With a Process Review team comprised of personnel from the OOC, Office of Highway Operations, Traffic, Bureau of Policy and Planning, and the FHWA; areas of needed improvement, successful practices, and implementation of new technologies are addressed to develop a holistic work zone program the Department can benefit from.

Findings and Recommendations by Category

GOOD PRACTICES			
Project No.	**Impacted WZ Component**	**Finding**	**Recommendation**
0053-0177	High Visibility Apparel	Truck drivers getting out of trucks while waiting for loading or off-loading should wear high visibility apparel.	A best practice to consider is recommending all Contractor personnel exposed within a work zone should wear high visibility apparel. Once project staff advised the Prime Contractor of this issue, all Subcontractors including Truckers complied with the best practice.
0069-0077	M&PT Revision	During the design phase of the project, the Division of Traffic Engineering (Traffic) revised the scheme for the maintenance and protection of traffic plan. This project was originally designed to have an alternating one-way traffic pattern with stop signs and uniformed flaggers, but because an adjacent project with a similar traffic pattern was in place, there would have been significant traffic impacts. The plans were changed to include a temporary signal.	Revising the plans during design to include a temporary signal to address traffic flow between the two projects is an example of a proper coordination. This is a best practice that should be continued. Knowing future projects, the work required to complete the projects, and the type of traffic patterns needed is important to consider when designing traffic plans.
0069-0079	Detour Signs	Secondary roads in rural areas may have little to no existing lighting along roadways. Therefore the angle of the construction sign is critical for proper retro-reflectivity.	The Project Engineer stated that he drives through the detour for the project at night periodically to ensure that the signs are clear, their directions are clear, and the retro-reflectivity is adequate. This is a common practice for District 2 Project Engineers.
0092-0522	Rolling Road Block	The project used a rolling road block to install advance warning signs. Once completed, the traffic was let through the open lane and a truck-mounted attenuator was used to continue in the closed lane to set up the traffic pattern.	The use of the rolling road block when setting up the traffic pattern was done correctly and should be an example of how to use one on limited access highways.

0092-0612	Rolling Road Block	A rolling road block was used for a total of 10 minutes (7:19 PM – 7:29 PM) to set up the work zone traffic pattern and then traffic was allowed through the left lane. The residual queue length is estimated to be about 3 miles.	The Contractor stayed within a reasonable time period when setting up the pattern.
0115-0114	Pedestrian Access	A temporary pathway was built to meet the requirement of having a sidewalk open at all times. The Contractor installed formwork for the parapet walls that would be poured at a later date but then built the sidewalk on top of the forms.	The Contractor was able to maintain pedestrian access and still progress the work using creative means and methods.
0157-0083/ 0157-0084	Detour Revision	The original plan for the two projects was to have a detour for both projects, but they had to run consecutively. One project was not able to be completed on time creating a substantial traffic impact on the route than originally planned, so a revision to the detour plan was needed.	The Contractor proposed to change the detour for the retaining wall (Project 157-084) to a temporary signal, this way both projects could be done concurrently allowing adequate traffic flow during construction.
DESIGN ISSUES			
0028-0201/ 0120-0091	Context Sensitive Design	Although the project was allowed to work at night, the project limits were adjacent to campgrounds which would have impacted campers.	The limits of operation should take into consideration the local businesses and utilize the context sensitive design philosophy.
0028-0201/ 0120-0091	Stage Plan Revision	The maintenance and protection of traffic (M&PT) was difficult to maintain when the milling machine had to make a pass in the center of a two-lane road.	During design, accommodations should be made for proper traffic flow around the milling operation.
0035-0195	Detour Revision	The Chief Inspector drove the suggested detour route for Exit 12 off ramp and had to modify the plans because of a low bridge with posted 11’-3” clearance. This bridge and others on other suggested detours are too low for trucks to pass.	Suggested detour plans should ensure that height clearances for overpasses meet the minimum requirement.

0042-0320	Lane Merge	Motorists were confused when the two lanes that merge onto Route 15 from I-84 WB were closed with minimum warning of a temporary exit to Route 15. This caused motorists to veer into the traffic pattern before the temporary exit on I-84.	Construction and Traffic revised the traffic plan to mitigate the merging issue. Motorists were channeled from two lanes down to one lane around the work zone which improved traffic flow. Temporary exits should be clearly delineated for the traveling public.
0069-0077	Temporary Signals	From the Contractor's experience on prior projects with temporary signalization, the Contractor installed poles and hard wire temporary signals instead of using portable signals as a preferred method.	Traffic should consider having details in the plans for hard-wired temporary signals where feasible.
0092-0612	Shortened Transition	The traffic pattern started right after the I-91 SB Interchange 8 on ramp. The length of the transition from a one-lane closure to a two-lane closure was found to be insufficient. The shortened transition area for a two-lane closure for the entrance ramp traffic was too abrupt. This resulted in a slowdown of mainline and entrance traffic flow.	The pattern should have been started after the Interchange 8 off ramp, closing only one lane and channeling the mainline traffic into three lanes. Another taper should have been started after the Interchange 8 on ramp to allow entrance traffic to merge into the one-lane traffic pattern with the mainline traffic. Once the entrance traffic merged with the mainline traffic, the second lane should have been taken, channeling all traffic into the open lanes. Construction staff should consult with Traffic when encountering complex geometry.
0092-0612	Temporary Pavement Marking Tape	The contract called for tape to be used for the temporary pavement markings; however, it did not bond to the milled surface.	The District applied best practices by changing the pavement markings from temporary tape to hot-applied paint. Engineering should avoid using tape.

0094-0255	Detour Plan Revision	The original detour plan would have negatively impacted local roads with congestion. Although it would be safer for the project to close exits within the work area and detour traffic, there would be a high impact on local roads. The resolution for this project was to shift the right lane traffic into the existing wide shoulder and maintain access to the off ramps.	Establish a protocol for possible traffic impacts on adjacent local roads if ramps are to be closed near work areas on highways.
0157-0083/ 0157-0084	Detour Plan Revision	The Project Engineer stated that motorists were having difficulty going through the detour for Project 157-083 without getting confused on the direction because the detour is too long.	The project needed additional and larger signs to better direct motorists through the detour.
COMPLETENESS OF DESIGN PLANS			
0028-0201/ 0120-0091	Bridge Load Ratings	The bridge repairs were found to be more extensive than initially planned and the load ratings for allowable limits weren't done prior to the use of heavy equipment.	Better scoping should be done for bridge work including load ratings to find out allowable weight limits for paving equipment.
0053-0177	Incomplete M&PT Plans	There were no details in the plans for taking two lanes. There were areas on the highway where there was a climbing lane. The plans showed how to take one lane but not two lanes which could be applied to areas where both the right lane and climbing lane had to be closed.	Provide standard details in the traffic plans to close two lanes on a roadway where there is an auxiliary climbing lane or three lanes for two throughway lanes and an auxiliary climbing lane.
0069-0079	Staging Plan Revision	The staff had to use an alternating one-way traffic pattern from another project so they can perform work on the bridge parapets and reopen the bridge for use.	An optional alternating one-way traffic plan should be included if work on narrow bridges will call for lane width reduction.

0092-0522	Transportation Management Plan (TMP)	This project is a significant project on Interstate-95, but it does not have a TMP.	Future significant projects on I-95 should include a TMP in accordance with the Department Policy No. E&C-46: Systematic Consideration and Management of Work Zone Impacts.
SPECIFICATION ISSUES			
0035-0195 & 0104-0164	Field Office Specification Revision	The inspection staff did not have computers set up in the field office for months at the beginning of the project to do electronic tasks (i.e. print out the electronic State Police form for signature or enter Daily Work Reports).	The lead time to get computers set up for inspectors to use should be reduced. There are too many tasks that are computer-based where the delay to access a computer can hinder the job duties. Note: A Construction Bulletin (April 22, 2016) for a field office device order form has been issued to address this issue.
OPPORTUNITY FOR POLICY IMPROVEMENTS			
0035-0195	Rolling Road Block	To set up the traffic pattern, the State Police and Contractor used a rolling road block which stopped traffic for 45 minutes (9:15 pm to 10:00 pm). The Contractor is required to maintain the minimum number of lanes shown in the Limitations of Operation charts included in the Prosecution and Progress special provision.	The rolling road blocks have become a common practice for projects on limited access highways. Subsequent to the Work Zone review findings, a Rolling Road Block Construction Directive has been issued (April 11, 2016).
0042-0320	Use of State Police	State police should have a cancellation policy to notify project personnel in a timely manner if they are unable to fill a request. This can help prevent Contractors from working without police presence or at least be able to plan to work without one accordingly.	Contractors are allowed to work on the highway without State Police. There was discussion between CT State Police and CTDOT to clarify the State Police cancellation policy.

0053-0177 & 0104-0164	Reduce Speed Signs	Construction Work Zone "Reduce Speed to 45 mph" signs are no longer being used because they aren't enforceable.	Construction recommended continued use of "Reduce Speed to 45 mph" signs for awareness. Traffic opposed the recommendation. Now Construction is reviewing other strategies to reduce speeds in work zones such as radar speed displays.
0092-0522	Use of State Police	It is an observed reoccurrence for State Police to not show up after being assigned.	Discussion on how to mitigate the issue of State Police not being available for construction work after being requested needs to take place. Subsequently, meetings have been held with CT State Police and CTDOT to address this issue. Monitoring will continue.
0151-0273	Reduce Speed Signs	During the review, discussion about the Reduce Speed to 45 mph advisory signs being taken out of plans came up. Although the signs aren't enforceable, project personnel felt that it was a good means to get motorists to slow down when entering the work zone. For this project, regulatory signs legally reducing the speed limit through the Office of the State Traffic Administration (OSTA) have been installed due to reduced roadway width between temporary barriers during construction.	With subsequent discussions with the Division of Traffic, the Reduce Speed signs will not be used. Only when approved by OSTA, new legally reduced speed limit signs are used.
SPECIFICATION ENFORCEMENT			
0088-0166	Breakaway Sign Brackets	Various breakaway sign posts mounted on sidewalks had brackets 6 inches in height.	Breakaway sign anchor brackets should not exceed 4 inches in height from ground line per specification.
0088-0166	Detour Signs	Detour signs were pinned only at the top of sign allowing movement at bottom. They also weren't in the best condition.	Signs should be properly secured to prevent wind blowing them off posts and the conditions should be checked periodically to ensure specification compliance.

0094-0255	Work Area Positive Protection	The work truck parked diagonally behind the work area next to live traffic lanes posed a hazard to the work crew. If a vehicle veered and hit the truck it would impact workers.	Project staff can increase awareness through tail-gate talks or training of the proper placement of work trucks next to live traffic, as well as, proper protection of work crews next to live traffic. The use of TMAs is the proper protection of the work area rather than a work truck. If work trucks are needed by the crew, they need to be parked parallel to live traffic lanes in a protected area or clear zone.
0151-0273	Barricade Warning Lights	No post-mounted "diamond-shaped" construction signs had barricade warning lights.	Barricade warning lights should be installed according to the Maintenance and Protection of Traffic Special Provision. M&PT Notes say, “If this plan is to remain in operation during the hours of darkness, install barricade warning lights – high intensity on all post-mounted diamond signs in the advance warning area.”
0160-0145	Sign Overhead Clearance	Initially, the Contractor did not want to use 7-foot stands for the temporary exit signs which are called for in the specifications.	If roadways have sightline issues with temporary exit signs on tripods being obstructed by the 42” traffic cones and traffic drums, the use of 7-foot stands for the exit signs should be a best practice to use for projects with those conditions.
TRAINING NEEDS			
0035-0195	Use of State Police	State Police are unaware of the electronic time card procedure that is being piloted on the project or don’t have the means to fill them out electronically.	Training is required for the CT State Police. Subsequent to this finding, it was determined that the pilot was not successful because CSP was reluctant to implement it.

0053-0177	Sign Pattern Procedure	The procedure used on this project for removing the traffic pattern from both ends of the pattern was unsafe and against policy.	The procedure of removing the traffic control devices from the end of the pattern going backwards towards the advance warning signs needs to be enforced.
0053-0177	Sign Pattern Procedure	Moving the traffic cones or traffic drums into the travel lanes to allow more space in the work area is unsafe.	If more space is needed, the devices can be moved for a temporary solution but must be moved back to their alignment when completed. If necessary, an additional lane should be taken. Traffic lanes should not be reduced to less than 11 feet.
0088-0166	Quality of Devices, Conflicting Signs	DETOUR and ROAD CLOSED TO THRU TRAFFIC signs on West Main Street and on the "alternate route" needed to be covered. The Alternate Route signs were sufficient to advise motorists which route to take. The extra detour signs had the potential to be confusing.	Signs can be mounted before they're needed, but should be covered if not currently in use. The conflicting advance warning signs can confuse motorists.
0088-0166	Wrong Sign	The Legal Series 16 signs for Road Use Restricted on West Main Street were 16-M.	The specifications states that Series 16-M signs are only for local roads and West Main Street (SR 555) is a state road. The correct size for state roads should be 16-H.
0088-0166	Quality of Devices	Temporary Precast Concrete Barrier Curb (TPCBC) used for positive protection has some marginally acceptable units.	Relevant manuals such as the MUTCD, ATSSA Quality Guidelines for Traffic Control Devices, etc. provide guidance on acceptable devices. Inspectors should refer to those guidelines and enforce the requirements.
0092-0612	Quality of Devices	Most of the traffic control devices were in poor condition; either they were dirty, scuffed, bent, or had very little reflectivity.	For traffic control signs and devices that were dirty, they need to be cleaned or removed. For bent or scuffed devices or devices missing reflective tape, they should be replaced. Devices in poor condition will prevent motorists from properly seeing the delineation of the traffic pattern.

0092-0612	Incorrect Flashing Arrow	The advance flashing arrow in the closed lane was not in the correct mode and the Changeable Message Sign had a message too long to read while driving.	Proper use of the advance warning devices will notify motorists of the road conditions ahead. Messages should be in accordance with the contract plans.
0094-0255	Training Need	The project staff was unaware of the Transportation Management Plan (TMP) for the project.	Better communication between Engineering and Construction to bring awareness of the TMP requirements.
0151-0273	Incorrect CMS Height	The height of the Changeable Message Sign on I-84 Eastbound was placed too low, especially with a guiderail immediately in front of it.	CMS should be installed at the proper height for visibility.
0153-0118	ADA Requirements	Some of the detectable tactile warning did not extend to the full width of the curb.	According to ADA requirements, the detectable tactile warning needs to extend a minimum of two feet in the direction of travel and the full width of the curb ramp.
0153-0118	Pedestrian Hazard	The plywood protecting the sidewalk from the concrete barrier projected into the walkway of the new sidewalk and posed a trip hazard to pedestrians.	The plywood should be cut down to flush with the edge of the barrier or smaller pieces be used to rest the barrier on.
0153-0118	Incorrect Delineators	The delineators on the concrete barrier were in poor condition, were not facing in the correct direction, or were missing the appropriate color on one side.	The delineators should be replaced if in poor condition or incorrect application. Delineators with the appropriate colors of white (used on the right side of oncoming traffic) and yellow (used on the left side of oncoming traffic) should be applied.
0160-0145	Public Outreach	The Project Engineer was unaware that informing nearby hospitals was a necessary part of the public outreach for the project.	Project staff should contact all the stakeholders of the project and inform them of the work being done and how it could affect them. Stakeholders include police (either State or municipal), fire departments, hospitals or medical facilities, etc.

0160-0145	Rolling Road Block	State Police closed the left and middle lane to aid in the setup of the traffic pattern. When the pattern is setup at the beginning of the allowable work hours, only one lane could be taken at that time not two.	State Police should incorporate a Rolling Road Block for advance signs and the taper. Subsequently, a Construction Directive for Use of Rolling Road Blocks was issued on April 11, 2016.
0160-0145	Blunt Object Clear Zone	The Changeable Message Sign was placed within the 30 feet clear zone and only protected by two traffic drums.	Any equipment or material stored within 30 feet of the roadway's clear zone needs to have positive protection.
WORK ZONE TECHNOLOGY			
0094-0255	Work Area Positive Protection	The work crew was adjacent to live traffic on a high-speed interstate roadway. The work activities called for the workers to be on their knees or bending over most of the time. Workers not standing have less time to move out of the way of vehicles that could veer into work area. A Truck Mounted Attenuator (TMA) was placed behind the work area for oncoming traffic; however, there was no protection on the side of the work area. The traffic cones or drums were not sufficient protection.	Positive protection should be considered to prevent errant vehicles intruding the work area where activities call for workers to work on their knees or bending over (e.g. bridge joint repairs).
0104-0164	Speed Enforcement	Motorists are exceeding the speed limit through work zones.	An extra trooper should be requested solely for enforcement in work zones. Also, use of Speed Trailers may also be used to calm down speeds in work zones.

0151-0273	Rolling Road Block	The Contractor used a rolling road block to install the advance warning signs and the taper of the traffic pattern. The road block took place from 9:35 PM to 9:54 PM (19 minutes) and a queue length of approximately five miles accumulated which didn't clear until just prior to 11:00 PM.	Traffic Stoppages/Rolling Road Blocks: a. Section 3d of the M&PT special provision discusses how traffic may "under certain circumstances" be "briefly impeded" during the Installing and Removing Traffic Control Patterns using "slowing techniques". b. The Department needs to establish a policy on use of the Rolling Road Blocks for Work Zones where multiple lanes exists rather than solely relying on a case by case determination by the Engineer and/or State Police c. Note: A Construction Directive for Use of Rolling Road Blocks was issued on April 11, 2016.
ENTERPRISE COORDINATION			
0069-0077	Temporary Traffic Signal	It was observed that the timing of the signal phases appeared to be prolonged.	Traffic Engineering will follow up to make an adjustment for correct timing of the signal lights.
0069-0079	Overweight / Oversize Permits	Bridge Operations (Overweight / Oversize Permits) didn't know that the bridge was closed on Route 148 and didn't inform trucks taking that route to find an alternate route.	Communication between the project staff and Bridge Operations needs to be improved to make sure trucks don't get stuck on routes that are closed.
0151-0273	Case 2 M&PT Revision	The Chief Inspector said that the project received permission to start at 9:30 PM instead of 11:00 PM as noted in the Specifications. However, Traffic did not recall reviewing this request.	When requesting a change to the hours of operation, the Traffic Engineering needs to be consulted before approving the change to see if the traffic volumes will allow lane closures at the time requested. The District should maintain a written concurrence from Traffic in the project files.

Summary

The successful practices and areas that require improvement found during the reviews will be addressed through the Work Zone Process Review. The Process Review will coordinate among the Department units to ensure that any systemic issues are mitigated and best practices implemented statewide. The recommendations associated with the findings may be addressed as follows:

- Good practices can be implemented through specification changes, creation of new policies or procedures, and inspector training.
- Discrepancies found in the plans and specifications can be addressed through Lessons Learned presentations to the working level engineers.
- Clarity of the plans and specifications can reduce time spent mitigating issues during the construction phase. Proposed specification changes can be brought to the Specifications Committee or the Division of Traffic Engineering.
- Modifications to existing policies and procedures for work zone field activities and common practices that pose a potential safety hazard to the traveling public must be implemented.
- New policies can be created to address potential unsafe practices in the field. Currently, a policy on the use of the Rolling Road Block is being considered by the Department.
- Training is the most effective tool to address systemic issues found in the field, such as specification enforcement and the proper use of safety devices. Inspectors can be made aware of deficiencies through verbal communication, review reports, and during the annual winter inspectors' training. Another form of training is the use of the Inspectors' Pocket Guide Checklists.
- New technologies can be researched and piloted to improve Work Zone Safety and Mobility.
- Timely communication between the Construction field staff and other Department units will yield effective project coordination in getting issues resolved.

With streamlining of the Work Zone Process Review, addressing work zone safety and mobility concerns will increase the effectiveness of the work zone field reviews and should reduce traffic impacts within work zones. The process is continuously improving and becoming more efficient and effective with the implementation of innovative work zone management strategies.

Appendix:

2015 Work Zone Safety Field Review Reports

Regular Field Reviews

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0028-0201/0120-0091 **District:** 2

Date: 8/25/2015 **Time:** 9:00 AM **Weather, Temp.:** Partly cloudy, 80°

Town: Colchester, Salem **Route:** 11

Road Type: ☐ Interstate ☒ Expressway ☐ Secondary ☐ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure ☒ Stage Construction

☐ Temporary Signalization ☐ Detour

☐ Pedestrian/Bicycle Access ☐ Night Work

Project Engineer: Brian Gustafson **Chief Inspector:** Kevin Fahey

Prime Contractor: American Industries Inc. **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $7,275,000.00 **Percent Complete:** 40%

Calendar Days Allotted: 153 **Calendar Days Completed:** 75

REVIEW PARTICIPANTS

NAME	REPRESENTING
Brian Gustafson	District 2 Construction
Kevin Fahey – Chief Inspector	Weston & Sampson
Bahira Korkutovic	Office of Traffic
Anthony Kwentoh	Office of Construction
Shannon Browne	Office of Construction – Quality Assurance
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No. The Inspection staff drives through the entire project when first arriving to the site to check all the devices that are in place. If any devices are out of place or damaged, the Inspectors direct the Contractor to correct it.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What documents do you reference for work zone information?

   The Chief Inspector references the MUTCD, ATSSA guides including the Quality Guidelines for Temporary Traffic Control Devices, Construction Manual, Standard Specifications – Form 816, and the contract specifications and plans.

4. What, if any, accommodations have been made for Emergency Services?

   The project contacts the State Police to notify them about ramp closures and use an escort for Emergency vehicles. They also use a remote Changeable Message Sign to warn motorists 48 hours in advance and install detour signs for closures properly.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   Not applicable.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored in a stockpile area at the south end of the project near Exit 4 NB on ramp.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is stored near Exit 4 NB on ramp and along the road outside the clear zone depending on where the work is being done.

9. Chief Inspector Comments:

   The Chief Inspector said that although the project is allowed to do milling and paving at night in the Town of Salem, but since there is campground adjacent to Route 11, they do majority of the work during the day to prevent noise disturbance to visitors.

10. Project Engineer Comments:

    The Project Engineer said they had a hard time maintaining traffic during the milling operation. Since the miller is 8 feet wide, the passes it takes puts it in the way of traffic. On the ramps, the project has to use the suggested detours to allow traffic to bypass the operation. He requested that during the design phase the maintenance of traffic during milling operations on the mainline be planned better.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no TMP for this project. The Chief Inspector did know they were on ProjectWise and would contact the Designer to send him the link to the file if needed. However, the Review Team informed them specifically which folder on ProjectWise it would be filed in.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Use of State Police Officers, Rev. 062912
   NTC – NCHRP 350 Req. For Work Zone Traffic Control Devices, Rev. 05/05/14
   Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 12/02/02
   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12

   The project staff had no concerns with the above listed special provisions.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   Standard plans included in the Maintenance and Protection of Traffic special provisions. The project had more bridge repairs than designed for. The project ended up having to use stage construction to complete the work. They used the staging plans from other projects including Project 94-255 in New London to know how to properly set up a work zone for staging.

4. Is there stage construction? If so, explain.

   Yes. The project initially was not designed for stage construction but after the start of the project it was discovered that the bridge repairs on the 6 bridges within the project limits was more than anticipated. Instead of having temporary lane closures, the project had several stage construction work zones throughout the project limits. The stages start on the right lane and then switch to the left lane.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   Yes. The Office of Bridge Design did not do a load analysis on the bridges before the start of the project and did not inform the Contractor the acceptable loads allowed on the bridges. The Contractor already used a miller on a bridge before it was discovered the equipment was too heavy to use. Since then, the Contractor has obtained equipment with acceptable loads to use.

6. If there is temporary signalization? If so, explain.

   No.

7. If there is a detour? If so, explain.

   Yes. Detours are used when the ramps are closed for milling and paving operations. Traffic is detoured down to the next exit to bypass the operations except at the beginning of the project limits where traffic was detoured using Witch Meadow Road.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☒	☐	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☒ Regulatory ☐ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored?
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☐ Low intensity
☒	☐	a. Functioning?
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☐ Truck-mounted
☒	☐	a. Functioning in the correct mode?
		b. Location? **Within the taper and closed lane of staged work on bridge.**
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Three**
		b. Location? **Before Exit 19 SB, Before Exit 5 SB, Before Exit 5 NB**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Three**
☒	☐	e. Timing between screens acceptable?
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many? **One**
		b. Location? **Within the closed lane of the stage construction**
C.		**Temporary Pavement Markings**
☐	☒	Temporary pavement markings? Type: ☐ Tape ☐ Paint ☐ Epoxy
☐	☐	a. Legible?
☐	☐	b. Conflicting other markings?
☐	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☒ State Police ☐ Municipal Police ☐ Uniformed Flagger

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 SB: A post-mounted legal series sign.

Route 11 SB: A temporary fines doubled sign.

Route 11 SB: A temporary ROAD WORK AHEAD sign with a high-intensity barricade warning light attached.

Route 11 SB: A temporary RIGHT LANE CLOSED sign with a warning light attached.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 SB: A temporary merge left sign with a warning light.

Route 11 SB: Approaching the first work zone starting at Exit 6. The taper is comprised of traffic drums. A temporary BUMP sign and an advance flashing arrow are in the taper.

Route 11 SB: State Police within the taper and a truck-mounted attenuation system in the closed right lane. The flashing arrow on the TMA is signaling a bar meaning lane closed.

Route 11 SB: The Contractor's work crew milling the roadway adjacent to a bridge.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 SB: The bridge structure behind Temporary Precast Concrete Barrier Curb (TPCBC) and traffic cones along the curb.

Route 11 SB: A sweeper cleaning the milled surface in the right lane.

Route 11 SB: Temporary signs warning motorists of BUMP AHEAD and BUMP, respectively, as they transition from the newly paved section which is lower than the section with the existing pavement.

Route 11 SB: A Changeable Message Sign (CMS) that is currently not being used. It also is not behind any positive protection.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 SB: Approaching the second work zone with a lane closure starting at Exit 5. The taper is comprised of traffic drums and has a flashing arrow signaling to merge left.

Route 11 SB: The bridge structure behind TPCBC and traffic cones.

Route 11 SB: A CMS just after Exit 5 stating LEFT LANE CLOSED on its first frame.

Route 11 SB: The CMS stating REDUCE SPEED on its second frame.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 SB: The CMS stating BRIDGE WORK AHEAD on its third frame.

Route 11 SB: Approaching the third work zone in the left lane. The taper is comprised of traffic drums and there is a flashing arrow within. The flashing arrow is on but the lights are very dim due to the angle the board is tilted.

Route 11 SB: The taper of traffic drums transitioning into the lane closure using traffic cones. A TMA with a flashing arrow signaling lane closed is in the closed left lane.

Route 11 SB: The work crew doing bridge repairs within the closed lane.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 SB: Getting off Route 11 at Exit 4 and at the junction of Route 82, a post-mounted END ROAD WORK sign.

Route 11 NB: A post-mounted legal series sign at the Exit 4 on ramp.

Route 11 NB: The laydown yard for the materials and equipment on the left. In front of it is a temporary ROAD WORK AHEAD sign with a high-intensity barricade warning light.

Route 11 NB: The stockpiled materials in the laydown yard.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 NB: A temporary LEFT LANE CLOSED AHEAD sign with warning light and a merge right sign with warning light.

Route 11 NB: Approaching the fourth work zone with a taper of traffic drums. An advance flashing arrow in the taper is not on.

Route 11 NB: A temporary sign warning MOTORCYLES USE EXTREME CAUTION.

Route 11 NB: A traffic cone in the shoulder next to the uneven edge of pavement and a sign depicting UNEVEN PAVEMENT.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 NB: The left lane closed with the use of traffic cones and a TMA in the closed lane with a straight bar warning light to signal lane is closed.

Route 11 NB: A CMS just before Exit 5 stating REDUCE SPEED on its first frame.

Route 11 NB: The CMS stating RIGHT LANE CLOSED on its second frame.

Route 11 NB: The CMS stating BRIDGE WORK AHEAD on this third frame.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 NB: Approaching the fifth work zone with traffic drums starting the taper from Exit 5 gore area. A flashing arrow is signaling to merge left. However, on the Exit 5 off ramp the gore area is closed with traffic cones.

Route 11 NB: A Type A Impact Attenuation System with a DE-9 delineator on front protecting the end of the TPCBC used to close the right lane.

Route 11 NB: A worker from the sign pattern crew turning the CMS to face traffic and turning the device on.

Route 11 NB: Approaching the sixth work zone starting at Exit 6. The taper is comprised of both traffic drums and traffic cones. The flashing arrow within is on and signaling to merge left but wasn't captured in the photo.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 11 NB: Route 11 merging with Route 2. Temporary signs warning motorists of BUMP AHEAD and BUMP, respectively. The reflectivity of the BUMP AHEAD sign is visibly displayed.

PART 5: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. The bridge repairs were found to be more extensive than initially planned and the load ratings for allowable limits weren't done prior to the use of heavy equipment.
2. Although the project was allowed to work at night, the project limits were adjacent to campgrounds which could have had sleeping visitors at night.
3. The maintenance of traffic was difficult with the use of the miller and making passes between travel lanes.

RECOMMENDATIONS:

1. Better scoping should be done for bridge work including load ratings to find out allowable weight limits for paving equipment.
2. The hours of operation for projects near campgrounds could be considered to end work before nightfall so visitors will not be disturbed.
3. Suggested M&PT plans can be designed and submitted by the Contractor for milling operations to maneuver traffic around the miller more efficiently.

Submitted by: Kiah Patten Date: 1/13/16

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2016.01.13 12:13:04-05'00' Date: 1/13/15

Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0035-0195 **District:** 3

Date: 7/28/2015 **Time:** 7:00 pm **Weather, Temp.:** Sunny, 83°

Town: Darien, Norwalk **Route:** I-95, Route 7

Road Type: ☒ Interstate ☒ Expressway ☐ Secondary ☐ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure ☐ Stage Construction

☐ Temporary Signalization ☐ Detour

☐ Pedestrian/Bicycle Access ☒ Night Work

Project Engineer: Stacey Epps **Chief Inspector:** Kyle Watterworth

Prime Contractor: O & G Industries, Inc. **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $14,488,177.50 **Percent Complete:** 10%

Calendar Days Allotted: 194 **Calendar Days Completed:** 90

REVIEW PARTICIPANTS

NAME	REPRESENTING
Stacey Epps	District 3 Construction
Jan Pacanski – Resident Engineer	AI Engineers
Kyle Watterworth – Chief Inspector	AI Engineers
Oddler Fils	Office of Traffic
Anthony Kwentoh	Office of Construction
Dean Dickinson	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   Yes. There have been four incidents and three accidents.

Causes of incidents were driver fell asleep at wheel and drove into pattern, driver hit a construction sign installed at median and claims sign was in middle of high speed lane, car rear-ending another, and road opened over an hour after time limitations.

Causes of accidents were car rear-ending tractor trailer, vehicle losing control entering pattern and hitting median, and driver lost control of vehicle and hit metal beam rail causing car to flip over.

3. What manuals, guides, etc. do you reference for work zone information?

   The Chief Inspector uses MUTCD, Project Specifications, and Construction Manual. He is also ATSSA Certified as a Traffic Supervisor. He highly recommends the ATSSA Traffic Control Supervisor training class for those working in work zones.

4. What, if any, accommodations have been made for Emergency Services?

   The project sends out press releases about the project. They have held a Work Zone Safety Meeting at the beginning of the project where State Police, Norwalk Police, and Darien Police were invited. State Police didn't attend but Norwalk and Darien Police did. The project staff relied on the local police to notify nearby hospitals about the project. Norwalk Hospital is located right off of Exit 15 which is just beyond the project limits.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   Not applicable.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored on the Southbound Exit 13 on ramp gore area or at 171 Glover Avenue (end of Route 7) in Norwalk.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is stored in the same location as the materials, SB Exit 13 and Glover Avenue.

9. Chief Inspector Comments:

   The Resident Engineer had concern with the new e-time card system for the State Police that is being piloted on the project. He says that the State Police that come to the job are unaware of the new system of maintaining the time cards electronically. They do not fill out timecards and submit electronically, they usually have the existing

hard copy time cards to be filled out manually. Most of the police don't even have laptop computers in their vehicle to fill them out electronically anyway. The field office also doesn't have a computer set up for the first two months of the project which interferes with them printing and signing the police time cards. This defeats the purpose of having the time reported directly to the State Police payroll office the night they are working instead they are delaying time reporting like previously done before.

The Chief Inspector had concern with the typical traffic plans in the M&PT calling for the use of only traffic drums for lane closures. PLAN 4 calls for the use of traffic drums on the transverse and on the tangent as well. The MUTCD lays out traffic drums on the transverse and traffic cones on the tangent. According to him, when taking a lane, especially on a curve, and using just drums driver's sightline is misled when transitioning from the one lane closed to two lanes closed. By the time the driver realizes that the second lane is closed and traffic is merging, they end up hitting the drums before merging over properly. In order to transition from a one lane closure to a two lane closure, the traffic pattern can extend 3000 feet from beginning of pattern to the end. He would like to have the option of using cones on the tangent of the closed lane. (See attached traffic plan and notes.) The Office of Traffic said that the motorists may think the transition is over if the traffic drums are replaced with traffic cones within the transition area. Unless there are other reasons why traffic drums should be replaced with traffic cones, Traffic recommends that the traffic control plans are to be followed as shown in the M&PT special provisions.

The project had an issue with the suggested detour plans for the ramp closures. Some of the detours rerouted traffic under bridges with heights 11 feet high like Northbound Exit 12 off ramp detour. The minimum overpass height for trucks to clear under is 14 feet. The inspection staff revised some of the detours as they've used them and submitted to the District and the District forwarded them to Office of Traffic to inform them of the field changes made.

10. Project Engineer Comments:

The Project Engineer didn't have any comments.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

This project has a Transportation Management Plan. The Project Engineer was unaware the project had a TMP. The review team explained where the plans can be located on ProjectWise, future plans to have an NTC included in the contract to make project staff aware of its existence, and the purpose of having a TMP on a project is for managing effectively the assessed work zone impacts for safety and mobility throughout construction phases.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   The inspection staff had concern with the Use of State Police Officers. They're not able to use the new electronic time card because the officers are still bringing hard copy time cards to be approved. The Chief has concerns with the Traffic Drums and Traffic Cones. He would like to use both drums and cones when closing lanes. The Project Engineer mentioned one of the temporary detectors had a cracked screen so they couldn't program the microwave detectors. Currently they are about to mill and pave the ramp so they don't have any temporary loops on one of the ramps and will keep it like that until after the paving is done unless they receive complaints about the signal cycle.

   NTC – Use of State Police Officers, Rev. 062912
   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 05/05/14
   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008
   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 10/14
   Item # 0979003A – Construction Barricade Type III, Rev. 4/22/14
   Item # 1111201A – Temporary Detection (Site No. 1), Rev. 1/13
   Item # 1111202A – Temporary Detection (Site No. 2), Rev. 1/13
   Item # 1111203A – Temporary Detection (Site No. 3), Rev. 1/13
   Item # 1111204A – Temporary Detection (Site No. 4), Rev. 1/13
   Item # 1131002A – Remote Control Changeable Message Sign, Rev. 12/02/02
   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   There are no traffic plans specific to the work zone for this project. However, there were suggested detour plans attached to the M&PT for the ramp closures.

4. Is there stage construction? If so, explain.

   No.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   No. The Resident Engineer said the project doesn't have any restrictions for the use of a Materials Transfer Vehicle. The bridges within the project limits may have been evaluated by Bridge Design using an old rating system. What may have been acceptable when the project was in design may not be acceptable now. The review team suggested they call Bridge Design to check if the bridges can withstand the construction loads from the project work. The Project Engineer said that they were having a meeting on Monday with Bridge Design about the milling and paving so they will bring up this issue to them then.

6. Is there temporary signalization? If so, explain.

   No, but there is temporary detection on the ramps. However, the cycle that the existing traffic lights are longer than they were originally planned.

7. Is there a detour? If so, explain.

   Yes, there are suggested detours for the ramp closures. Essentially, the detour will redirect traffic locally through Norwalk or Darien down to the next exit if a ramp is closed. There was an issue with the bridge heights on the suggested plans being too low but the inspection staff made field changes to them and notified the Office of Traffic of them.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes. All equipment is removed off the road at the end of every shift and stored in the laydown area.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☒	☐	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☐	☒	c. Anchored?
☐	☒	**3. Warning lights?** Type: ☐ High intensity ☐ Low intensity
☐	☐	a. Functioning?
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☒ Truck-mounted
☒	☐	a. Functioning in the correct mode?
		b. Location? **Within the closed left shoulder near Exit 11 on ramp, within taper in the left lane near Exit 13**
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Three (One on I-95 NB, one on I-95 SB, one on Route 7)**
		b. Location? **Exit 9 NB on ramp, the two on I-95 SB and Route weren't on**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Two**
☒	☐	e. Timing between screens acceptable?
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many? **Three**
		b. Location? **Two within taper and one on Exit 12 on ramp**
C.		**Temporary Pavement Markings** Type: ☐ Tape ☒ Paint ☐ Epoxy
☒	☐	Temporary pavement markings?
☒	☐	a. Legible?
☐	☒	b. Conflicting other markings?
☒	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☐ State Police ☐ Municipal Police ☐ Uniformed Flagger

PART 5: WORK ZONE INSPECTION PHOTOS

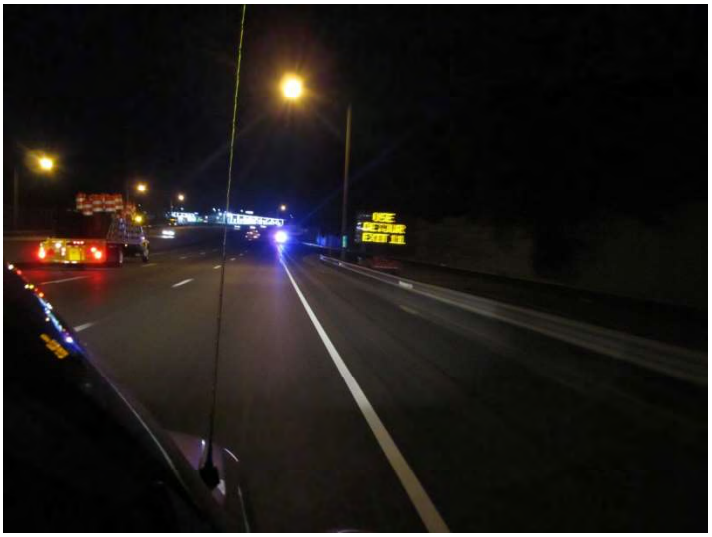
FINDINGS:

1. State Police are unaware of the electronic time card procedure that is being piloted on the project or don't have the means to fill them out electronically.
2. The inspection staff doesn't have computers set up in the field office for months in the beginning of the project to print out State Police form to sign them.
3. The Chief Inspector drove the suggested detour route for Exit 12 off-ramp (attached) and had to modify the plans because of a low bridge with posted 11'-3" clearance. This bridge and others on other suggested detours are too low for trucks to clear under.
4. To set up the traffic pattern the State Police and Contractor used a rolling road block which stopped traffic for 45 minutes (9:15 pm to 10:00 pm). The Contractor is required to maintain the minimum number of lanes shown in the Limitations of Operation charts included in the Prosecution and Progress special provision.

RECOMMENDATIONS:

1. Training for or at least memorandums to the State Police explaining the trial electronic approval system can help bring awareness to have the right form to be used or a computer to fill them out when on projects with this specification.
2. The time to get computers set up for inspectors to use should be reduced. There are too many tasks that are computer-based where the delay to access a computer can be hinder the job duties including paying State Police.
3. Suggested detour plans should ensure that height clearances for overpasses meet the minimum requirement.
4. The rolling road blocks seem to be common practice for the projects on major highways. Training for the inspection staff may be needed to reiterate Department policy for Work Zone Safety requirement when using rolling road blocks and the right method to use for installing traffic patterns.

PART 5: WORK ZONE INSPECTION PHOTOS



I-95 NB: Changeable Message Sign (CMS) near Exit 9 displaying a message to USE DETOUR EXIT 11 which was for the previous night's exit ramp detour.

I-95 NB: A ROAD WORK AHEAD construction sign on the left side of the highway.

I-95 NB: The work crew setting up the advance warning signs.

I-95 NB: The work crew setting up the next sign.

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: A LEFT LANE CLOSED AHEAD sign on the left side of the highway.

I-95 NB: The advance warning signs on the both sides of the highway.

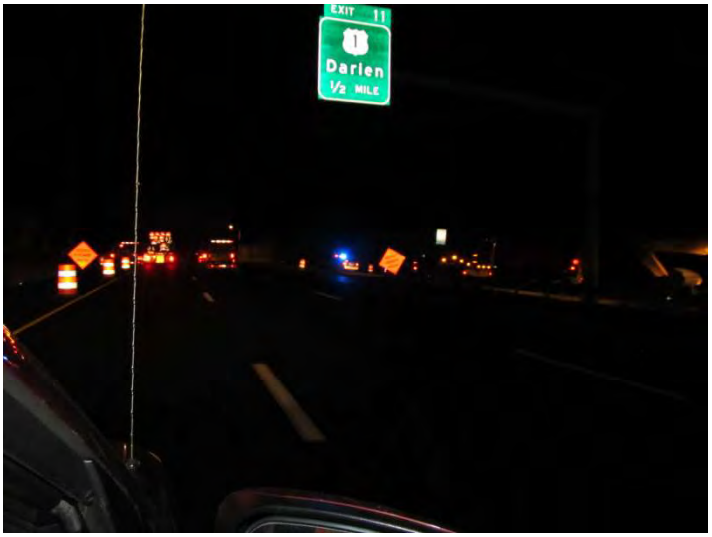
I-95 NB: A merge right depiction sign on the left side of the highway.

I-95 NB: The work crew is placing the traffic drums for the traffic pattern taper.

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: A temporary construction sign stating GROVED PAVEMENT AHEAD for the milled surface on the road from the night before.

I-95 NB: The advance flashing arrow within the taper signaling to motorists to merge right.



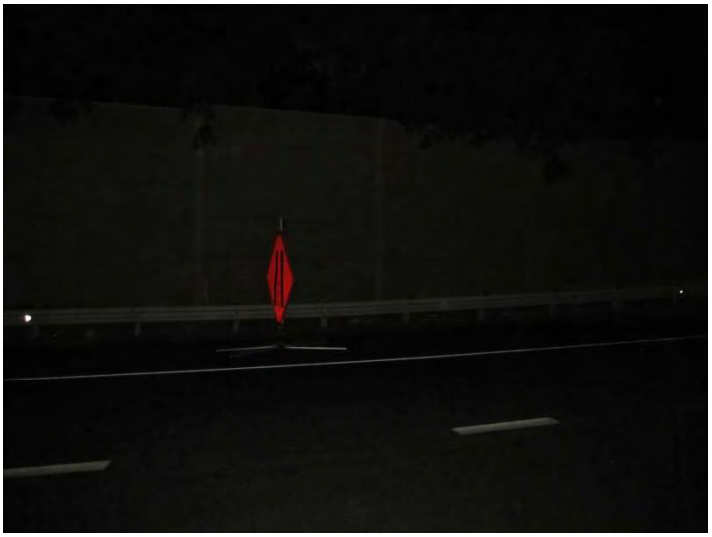
I-95 NB: The advance warning signs on both sides with the taper of the traffic pattern starting.

I-95 NB: State Police using a rolling road block on Exit 11 on ramp, preventing motorists from coming onto the highway while the traffic pattern and signs were put in place.

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: The taper extending into a full lane closure of the left lane with the work crew on the inside of the pattern.

I-95 NB: The Contractor's work truck behind the work crew setting up the traffic pattern. To the side is the merge right sign that will be used later in the night when the second lane is taken.



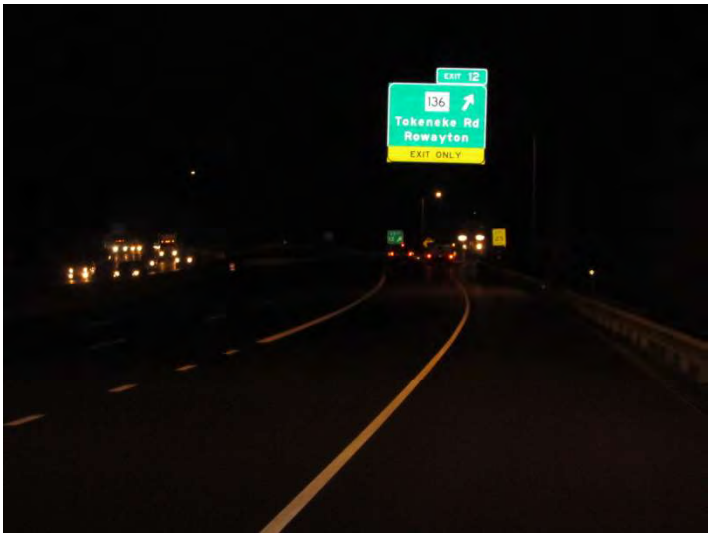
I-95 NB: A merge right sign turned away from oncoming traffic. It was set up during the sign placement but will not be used until the second (center) lane is taken.

I-95 NB: The rolling road block done by State Police behind the work crew with a queue that ended up being 3 miles long starting to form.

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: An advance flashing arrow in the closed lane signaling with a straight bar that the lane is closed.

I-95 NB: The paver with balloon lights that prevents bright lighting from shining into the motorists line of sight.



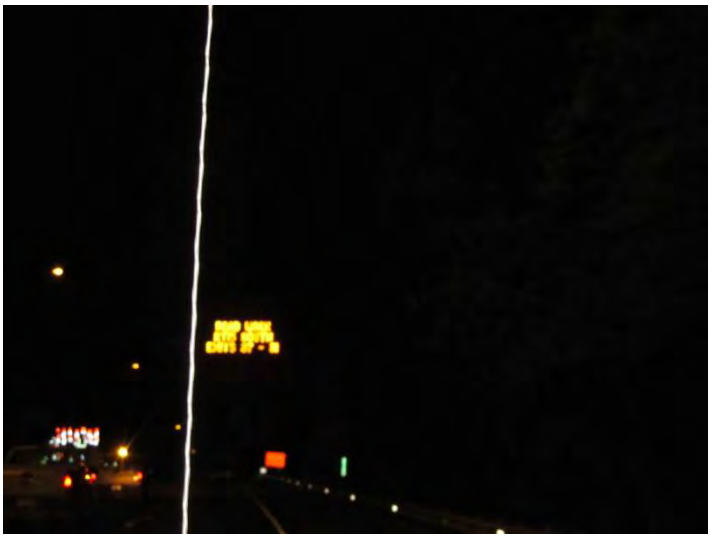
I-95 NB: The paving crew at Exit 12 off ramp back onto the highway to get in between the traffic pattern crew and the rolling road block.

I-95 NB: An truck-mounted impact attenuator with a flashing arrow at Exit 12 on ramp.

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: More of the Contractor's crew coming onto the highway.

I-95 NB: A post-mounted sign saying SHOULDER CLOSED and dump trucks loaded with asphalt lined up for the paving operation.



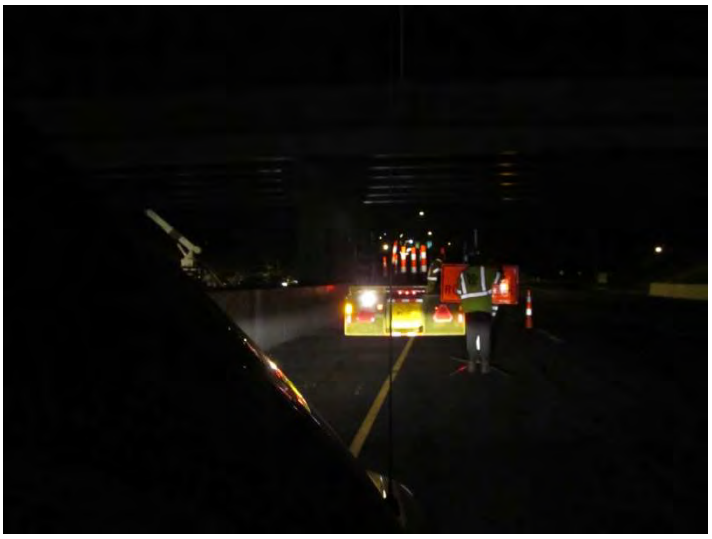
I-95 NB: A Variable Message Sign (VMS) displaying the message ROAD WORK RT15 SOUTH EXITS 37-31. The first frame stated LEFT LANE CLOSED which was for the project that VMS was over. However, the second frame stated a message for another project on another route. The work zone review team felt that the cross messaging may confuse motorists.

I-95 NB: Temporary exit sign for Exits 14 & 15 on a 7-foot sign post anchored/protected by two traffic drums.

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: Traffic cones used for the traffic pattern around the closed left lane.

I-95 NB: The END ROAD WORK AREA sign directly after the lane closure with traffic starting to bypass the work zone. This sign was not visible to motorists and was not installed on both sides of the road.



I-95 NB: The work crew setting up the END ROAD WORK sign at the end of the work area.

I-95 NB: The traffic bypassing the work zone after release of the rolling road block.

Submitted by: Kiah Patten Date: 8/7/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.08.10 14:32:58-04'00' Date: 8/10/2015

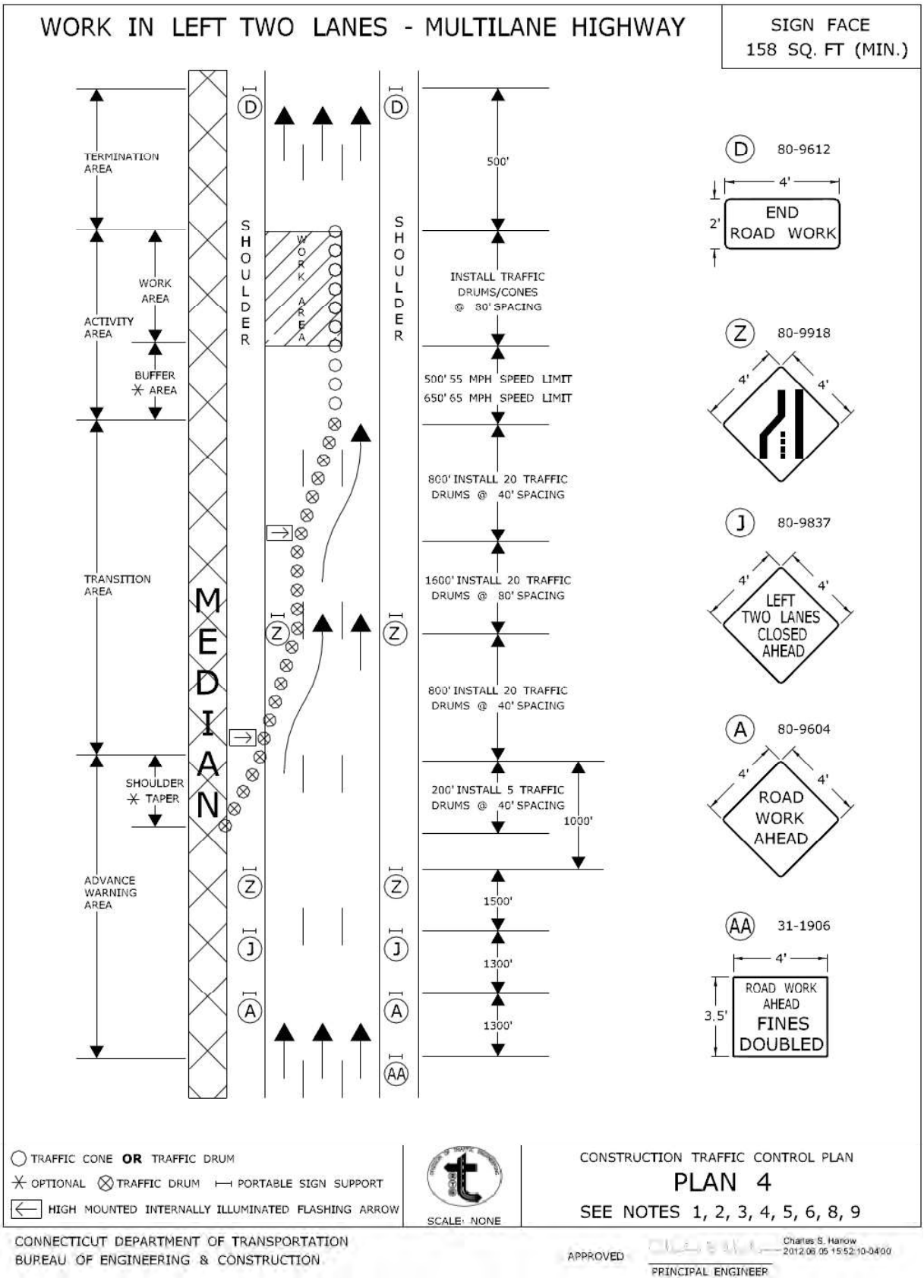
Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

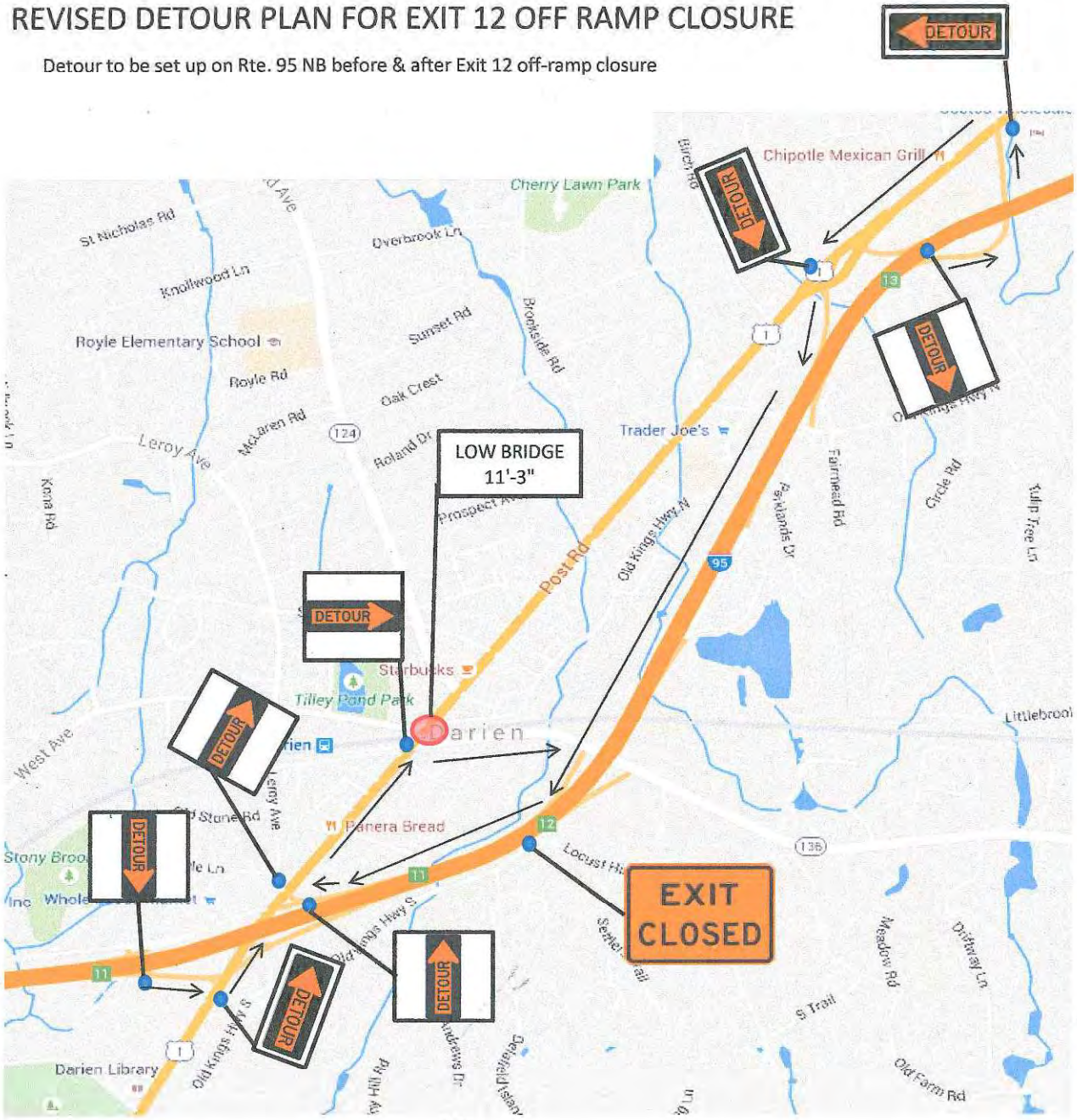
TRAFFIC PLAN THAT SHOWS THE USE OF TRAFFIC DRUMS ON THE TANGENT OF LANE CLOSURE AND THE USE OF DRUMS AND/OR CONES AROUND THE WORK AREA

Rev. Date 10/14



REVISED DETOUR PLAN FOR EXIT 12 OFF RAMP CLOSURE

Detour to be set up on Rte. 95 NB before & after Exit 12 off-ramp closure



VMS Board @ Exit 9 to read:

Exit 12	Exit 11
Closed	Follow
Use	Detour

Detour set befefore Ramp closure, If cars/trucks miss Exit 9, Exit 12 detour in place as backup.

NOTE:
Specs. Show detour through Low Bridge 11'-3"

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0053-0177 **District:** 1

Date: 5/27/2015 **Time:** 5:30 pm **Weather, Temp.:** Cloudy, 77°

Town: Glastonbury **Route:** 2

Road Type: ☐ Interstate ☒ Expressway ☐ Secondary ☐ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure ☐ Stage Construction

☐ Temporary Signalization ☐ Detour

☐ Pedestrian/Bicycle Access ☒ Night Work

Project Engineer: Paul Carl **Chief Inspector:** Daniel Waida

Prime Contractor: Tilcon Connecticut, Inc. **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $17,013,972.42 **Percent Complete:** 20%

Calendar Days Allotted: 360 **Calendar Days Completed:** 297

REVIEW PARTICIPANTS

NAME	REPRESENTING
Paul Carl	District 1 Construction
John O'Dierna – Resident Engineer	Dewberry
Daniel Waida – Chief Inspector	Dewberry
Brien Smith	Office of Traffic
Anthony Kwentoh	Office of Construction
Dean Dickinson	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No, the Chief Inspector is also the project's Maintenance & Protection of Traffic coordinator so he is consistently checking the devices to make sure they meet specification. If they are unacceptable he flags them and has them removed immediately.

2. Have there been any incidents on your project? If any, what caused them?

   Yes, there have been six (6) incidents since the start of the project last year but are non-pattern related. The main cause for incidents on the project is distracted driving. The accidents mainly occur on the straight-aways of the traffic pattern. In one incident, a driver hit a state police vehicle, and in another, one hit and destroyed a truck-mounted attenuation.

3. What manuals, guides, etc. do you reference for work zone information?

   The Chief Inspector references the guides he received from an ATSSA course he took, the MUTCD, and the project's special provisions for M&PT.

4. What, if any, accommodations have been made for Emergency Services?

   The staff has contacted Glastonbury Police Department at the start of its sister project 53-186. Marlborough has a resident state police so they have been informed through him. The staff contacts Highway Operations before proceeding out on the highway. They have a trooper on site that will assist with any emergencies. Also, the staff has had a safety meeting that included the awareness of the endangered rattle snakes within the area of the project.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   Not applicable.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   Material is stored in a stock pile yard on Route 17, guardrail is stored in a lot on Main Street in Glastonbury, and millings are stored in an expanded turnaround in the Route 2 median.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is stored in a commuter lot at the Route 2 Exit 12.

9. Chief Inspector Comments:

   The Chief Inspector has concern with the Contractor's workers not backing down the pattern with crash truck or rather removing cones and drums starting from the end of the pattern and reversing down to the beginning. He says they are not comfortable with this practice with regards to safety next to the oncoming traffic. He has come to

an agreed practice with the workers to collect from both ends of the pattern and meet in the middle. This is not a recommended practice.

The main concern the Chief has is the speed limit through the work zone. The typical traffic sign plans have taken out the "Reduce to 45 mph" signs because they aren't enforceable. He feels the 65 mph posted speed limit is too fast to feel safe next to the travel lane. He wants to enforce a lower speed limit for work zones or at least bring back the 45 mph construction signs because although they aren't enforceable they can at least make the motorists aware of slowing down for the work zone. The Chief has received complaints from the nearby residents about the noise of the trucks from going too fast through the project. To mitigate the speed issue, the Chief has the state police drive through the project to make motorists slow down for police.

A best practice the Chief Inspector enforces is additional safety on the project. He stopped trucks from using the turnaround areas in the median which had the potential of causing accidents for motorists by rejecting their loads. He also enforces the truck drivers to wear high visibility vests when getting out of their trucks while on the highway.

10. Project Engineer Comments:

The Project Engineer has concern with the Contractor's workers moving cones/drums without notifying the project staff. The workers move them to get more room within their work area but then don't move them back into place. Eventually it accumulates to a mile of cones in the travel lane making it narrow for motorists to travel through.

Another concern is placing the pattern out around areas with a climbing lane. There are plans on how to take one lane but in areas where one lane becomes essentially two with the climbing lane on the right, the staff would like plans to show how to properly close that lane. What they have been doing so far is extending the taper of the right lane to close off the climbing lane and they don't put out a second flashing arrow.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no TMP but the Project Engineer is aware of the use of TMPs and where to find them if there was one.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

The staff felt the following provisions were working well for the project and didn't have any concerns.
NTC – Staging Area for Equipment and Materials
NTC – Use of State Police Officers, Rev. 03/12/08
NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 04/19/05
Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 01/2008
Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 01/2008
Item # 0971001A – Maintenance and Protection of Traffic
Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 12/02/02
Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 01/05/12
Item # 1803070A – Type B Impact Attenuation System (Flared), Rev. 06/28/13
Item # 1803071A – Type B Impact Attenuation System (Tangential), Rev. 09/21/11

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   There weren't any details for closing two lanes which the staff would use in areas with a climbing lane. The staff felt the use of a Type A attenuation system was needed but no details for it were included in the plans. They used details from another project on the right configuration (16 drums for the posted speed of 65 mph).

4. Is there stage construction? If so, explain.

   No.

5. Are there any permitted load issues?

   There travel lane is too narrow for wide loads especially on bridges. The flags on the trailers clip the parapets. Linda Hope in the Permits office does notify the staff when wide loads are coming through which has been helpful.

6. If there is temporary signalization? If so, explain.

   No.

7. If there is a detour? If so, explain.

   No.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☒	☐	2. Traffic congestion due to work zone? **About ¼ to 1 mile.**
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Low.**
☐	☒	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored?
☐	☒	**3. Warning lights?** Type: ☐ High intensity ☐ Low intensity
☐	☐	a. Functioning?
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☒ Truck-mounted
☒	☐	a. Functioning in the correct mode?
		b. Location? **EB: Between Exit 8 & 9; WB: At Exit 13, not turned on**
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **2 on WB & EB**
		b. Location? **Left lane on EB, right lane on WB**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **2**
☒	☐	e. Timing between screens acceptable?
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many? **3 TMAs with flashing arrows**
		b. Location? **On EB side in traffic pattern (Because only one officer showed and two didn't, all TMAs were used to set up traffic pattern afterwards 2 TMAs were on WB and 1 on EB**
C.		**Temporary Pavement Markings**
☒	☐	Temporary pavement markings? Type: ☐ Tape ☒ Paint ☐ Epoxy
☒	☐	a. Legible?
☐	☒	b. Conflicting other markings?
☒	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☒ State Police ☐ Municipal Police ☐ Uniformed Flagger

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. ***The procedure used for removing the traffic pattern from both ends of the pattern is unsafe and against policy.***

2. ***"Reduce Speed to 45 mph" signs are no longer being used because they aren't enforceable.***

3. ***Truck drivers getting out of trucks while waiting for loading or off-loading should wear high visibility apparel.***

4. ***Moving the traffic cones or traffic drums into the travel lanes to allow more space in the work area is unsafe.***

5. ***There were no details in the plans for taking two lanes. There were areas on the highway where there was a climbing lane. The plans showed how to take one lane but not two for areas where both the right lane and climbing lane had to be taken.***

RECOMMENDATIONS:

1. ***The policy of removing the traffic cones and drums from the end of the pattern going backwards to the beginning of the advance warning signs needs to be enforced. Motorists not seeing the pattern at the beginning could change lanes and drive in to the pattern or placing the workers in conflict with live traffic.***

2. ***"Reduce Speed to 45 mph" signs should continue to be used even if for awareness to the motorists to slow down for the work zone. It should be looked into to make them enforceable if possible.***

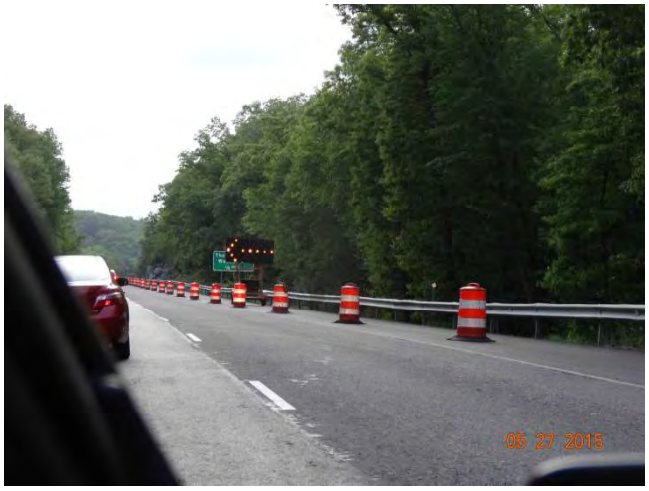
3. ***A best practice to consider is enforcing everyone in the work zone to wear high visibility apparel including truck drivers dropping off a load. If they are to get out of their trucks they need to wear the apparel to be safe while out on the road.***

4. ***If more space is needed the devices can be moved for a temporary solution but must be replaced back. Only two cones should be moved at most at a time. It should not be allowed to move all devices throughout the pattern and then have to move them back. If a motorist drives through a pattern where all the devices are in the travel lane, it narrows the space to be traveled and can also cause the devices to get damaged from being hit by the motorists.***

5. ***Have details for closing two lanes in traffic plans where highways have climbing lanes or three lanes if two travel lanes and a climbing have to be closed.***

PART 5: WORK ZONE INSPECTION PHOTOS

Westbound (WB): Signs are set up on both sides of the road



WB: The condition of the signs being used is acceptable

WB: A portable flashing arrow within the taper is signaling for motorists to move over

PART 5: WORK ZONE INSPECTION PHOTOS

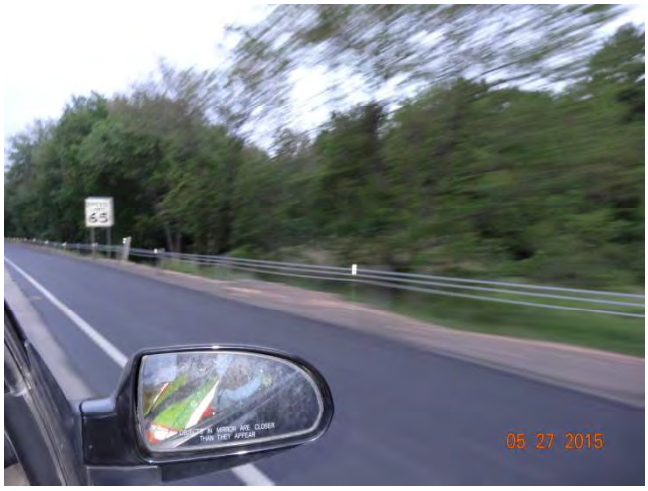
WB: The drums being used were acceptable to marginal in condition

WB: The rubblizing crew working within the pattern; all the workers are wearing their Type III reflective gear

Eastbound (EB): The Changeable Message Sign (CMS) in the median

PART 5: WORK ZONE INSPECTION PHOTOS

EB: The queue on the eastbound side while the traffic pattern is being set up



EB: Posted speed limit of 65 MPH

EB: More advance warning for the traffic queue

PART 5: WORK ZONE INSPECTION PHOTOS

EB: A crew working setting up the traffic pattern

EB: The state police officer, TMAs with flashing arrows, and portable flashing arrow all working to move traffic into the appropriate lane while the pattern is being set up

Submitted by: Kiah Patten Date: 6/16/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.06.16 15:53:54-04'00' Date: 6/16/15

Anthony Kwentoh

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0069-0077 **District:** 2

Date: 6/18/2015 **Time:** 9:30 am **Weather, Temp.:** Partly sunny, 70°

Town: Killingworth **Route:** 79

Road Type: ☐ Interstate ☐ Expressway ☒ Secondary ☐ Local

FOCUS OF REVIEW:

☐ Temporary Lane Closure ☒ Stage Construction

☒ Temporary Signalization ☐ Detour

☐ Pedestrian/Bicycle Access ☐ Night Work

Project Engineer: Patrick Warzecha **Chief Inspector:** Torrie Schwab

Prime Contractor: Black & Warner Construction Co., Inc. **Inspection Forces:** ☒ State ☐ Consultant

Contract Value: $1,051,721.00 **Percent Complete:** 25%

Calendar Days Allotted: 230 **Calendar Days Completed:** 61

REVIEW PARTICIPANTS

NAME	REPRESENTING
Patrick Warzecha	District 2 Construction
Torrie Schwab	District 2 Construction
Bahira Korkutovic	Office of Traffic
Anthony Kwentoh	Office of Construction
Shannon Browne	Office of Construction – Quality Assurance
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

None.

3. What manuals, guides, etc. do you reference for work zone information?

   MUTCD, Construction Manual, ATSSA guides

4. What, if any, accommodations have been made for Emergency Services?

   The project staff has contacted Killingworth and Madison Fire Department and explained the details of the project. There is no hospital or convalescent homes in the nearby vicinity for the project to notify.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   There are only a few occasions of bicyclists that travel through the project site. The cyclists move with the traffic on the open travel lane. No other accommodations have been made for them. There are no pedestrians that use the route so there is no need for special accommodations for them.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored on site behind the temporary concrete barrier that separates the work zone from the travel lane.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is also stored on site behind barrier. The Contractor also has permission from the adjacent property owner to use their land to store equipment there.

9. Chief Inspector Comments:

   None.

10. Project Engineer Comments:

    The Project Engineer said there was a change to the temporary signalization installation. The Contractor needed power to the project site for work operations. While commissioning Eversource to install it they chose to install poles and hard wire the temporary signals as well instead of having them portable. The PE says on the few projects that called for portable trailer mounted traffic signals that contractors prefer to hard wire the temporary signals instead of keeping them portable. This is likely due to equipment availability and cost. The spacing between the stop bars on the road was increased at the request of the Contractor, with no exception taken by the

Department, which allowed for a greater work zone (the spacing between the temporary signals on the plans was only 60-feet, which did not allow for an adequate work area).

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no TMP for this project. The Project Engineer knew of projects having TMPs but he didn't know where to locate them if his project had one. He was told that he could find them on ProjectWise in the project folders.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05

   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 05/05/14

   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008

   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 2/25/13

   Item # 0981101A – Opposing Traffic Lane Divider, Rev. 10/15/10

   Item # 1118101A – Temporary Signalization, Rev. 01/25/12

   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12

   The project staff had no concerns with the above listed special provisions.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   M&PT Stage 1 and M&PT Stage 2

   The only changes to the plans were to hard-wire the temporary signals instead of keeping them portable and to add more signs on Route 148 per direction of the Office of Traffic. The extra signs were the Fines Doubled, Road Work Ahead, and Signal Ahead.

4. Is there stage construction? If so, explain.

   There are two stages. Stage 1 is to replace the east side of the structure, utilizing an alternate one-way traffic pattern on the west side. There is no traffic queues during rush hour times using the alternate one-way. Stage 2 will switch to replace the west side of the bridge.

5. Are there any permitted load issues?

   No.

6. If there is temporary signalization? If so, explain.

   Yes, there are signals on either end of the structure that signal traffic to proceed through travel lane. The signal is timed and allows full queues to travel through.

7. If there is a detour? If so, explain.

   No.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   No, there is enough room in the project area to allow the 30-foot clearance but all materials and equipment are stored behind concrete barrier.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Properly installed on posts.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored? **Temporary Precast Concrete Barrier along the centerline of bridge.**
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☐ Low intensity
☒	☐	a. Functioning?
☐	☒	**4. Advance Flashing Arrow?** Type: ☐ Portable ☐ Truck-mounted
☐	☐	a. Functioning in the correct mode?
		b. Location?
☐	☒	**5. Changeable Message Sign (CMS)?**
		a. How many?
		b. Location?
☐	☐	c. Message understandable?
		d. Number of frames displayed?
☐	☐	e. Timing between screens acceptable?
☐	☒	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many?
		b. Location?
C.		**Temporary Pavement Markings** Type: ☒ Tape ☐ Paint ☐ Epoxy
☒	☐	Temporary pavement markings?
☒	☐	a. Legible?
☐	☒	b. Conflicting other markings?
☐	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
☐	☒	☐ State Police ☐ Municipal Police ☐ Uniformed Flagger

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. From experience on other projects with temporary signalization like this one, Contractors would rather install poles and hard wire temporary signals instead of using portable signals, if feasible.

2. During the design phase of the project, the Office of Traffic revised the scheme for the maintenance and protection of traffic. This project was originally planned to have an alternating one-way traffic pattern with stop signs and uniformed flaggers but because another project adjacent to it will impact the traffic to this one, the plans were changed to include a temporary signal. Project 69-79 which is on Route 148 which junctures with Route 79 before the project site will be doing a bridge replacement with a detour to reroute the traffic from Route 148.

3. It was observed that the timing of the signal phases appeared to be prolonged.

RECOMMENDATIONS:

1. The Office of Traffic may want to consider having details in the plans for hard-wired temporary signals since Contractors tend to do hard wire the signals anyway.

2. Changing the plans to include a temporary signal instead of just an alternating one-way pattern is good coordination of traffic impacts. This is a best practice that should be used statewide. Knowing future projects in queue, the work required to complete the projects, and the type of traffic patterns needed is important to consider when making traffic plans. Hopefully this example can be done on a larger scale in major corridors.

3. Traffic Engineering will follow up to make or suggest the correct timing for signal lights phasing.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 79 SB: A post-mounted "Road Work Zone Ahead" sign with a high-intensity warning light attached

Route 79 SB: A "One Lane Road Ahead" sign with warning light

Route 79 SB: A post-mounted Signal Ahead sign with a high-intensity warning light

Route 79 SB: Traffic heading north signaled to go through the one-lane road.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 79 SB: The temporary signal that the Contractor installed and hard wired.

Route 79 NB: A post-mounted legal series sign

Route 79 SB: A post-mounted "End Road Work" sign

Route 79 NB: A post-mounted "Fines Doubled" sign

PART 5: WORK ZONE INSPECTION PHOTOS

Route 79 NB: A "One Lane Road Ahead" sign with a high-intensity warning light that is flashing

Route 79 NB: The material stored on site in adjacent property owner's land

Route 79 NB: The hard-wired temporary signal and the stop bar and post-mounted stop bar sign

Route 148 WB: The regulatory sign stating the upcoming junction for Route 79 along with a post-mounted "Road Work Ahead" sign with warning light behind it. The construction sign is one of the extra signs the project staff added on this route.

PART 5: WORK ZONE INSPECTION PHOTOS

The junction of Route 79 and Route 148

Route 79 SB: The traffic drums used for the taper leading up to the one-lane travel way.

Route 79 SB: The stop bar with stop bar sign. The stop bar was moved back to accommodate the temporary signal being hard wired. Black out tape was used to cover over the existing pavement markings.

Route 79 SB: The Type I Attenuation System with the DE-9 delineator in front

PART 5: WORK ZONE INSPECTION PHOTOS

Route 79 SB: Within the work zone behind the Temporary Precast Concrete Barrier (TPBC) with the delineators attached on top. The yellow side of the delineator facing the southbound traffic is correct to be on the motorists' left side. A car is seen coming through the one-lane travel way after being signaled to do so.

Route 79 NB: The white side of the delineator facing the northbound traffic is correct to be on their right side.

The work area where piles were being drive is behind the TPCB

Submitted by: Kiah Patten Date: 6/22/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.06.22 11:25:06-04'00' Date: 6/22/15

Anthony Kwentoh

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0069-0079 **District:** 2

Date: 7/30/2015 **Time:** 9:00 am **Weather, Temp.:** Partly sunny, 83°

Town: Killingworth **Route:** 148

Road Type: ☐ Interstate ☐ Expressway ☒ Secondary ☐ Local

FOCUS OF REVIEW:
☒ Temporary Lane Closure
☐ Temporary Signalization
☐ Pedestrian/Bicycle Access
☐ Stage Construction
☒ Detour
☐ Night Work

Project Engineer: John Dunn **Chief Inspector:** Matthew Collins

Prime Contractor: Trademark Contractors, LLC **Inspection Forces:** ☒ State ☐ Consultant

Contract Value: $2,379,374.25 **Percent Complete:** 33%

Calendar Days Allotted: 168 **Calendar Days Completed:** 104

REVIEW PARTICIPANTS

NAME	REPRESENTING
John Dunn	District 2 Construction
Matthew Collins	District 2 Construction
Bahira Korkutovic	Office of Traffic
Anthony Kwentoh	Office of Construction
Shannon Browne	Office of Construction – Quality Assurance
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What manuals, guides, etc. do you reference for work zone information?

The Chief Inspector references the project plans and MUTCD.

4. What, if any, accommodations have been made for Emergency Services?

   The project staff sent out an email notification to the Town of Killingworth's First Selectman and the resident state trooper. The project staff said the Town of Killingworth notified the Durham Fire Department for mutual aid. The Town's Public Works foreman comes to the project's progress meetings.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   No special accommodations have been made for pedestrians and bicyclists. There is one person that walks to the job but goes around work area limits. There are rarely any pedestrians and any bicyclists have to take the detour to get around the project site.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   The materials are stored within the project limits on ground higher than the 100 year storm plane. If there is heavy rain forecast, the materials are moved to higher ground.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   The equipment is stored within the project limits as well.

9. Chief Inspector Comments:

   None.

10. Project Engineer Comments:

    None.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no TMP for this project. The Project Engineer wasn't aware that projects can have TMPs. The review team explained the importance of having a TMP and where to find it, if the project had one, on ProjectWise.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Use of State Police Officers, Rev. 062912
   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 05/05/14
   Item # 0912503A – Protective Fence (4' High)
   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008
   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008
   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 2/24/14
   Item # 0979003A – Construction Barricade Type III, Rev. 4/22/14
   Item # 1131002A – Remote Control Changeable Message Sign, Rev. 12/02/02
   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12

   There were no concerns with the above listed special provisions.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   The project plans had a detour plan but it needed to be revised to accommodate not only the traffic from 69-79 but also the three sites of the sub-project 172-393 as well. For example, signs stating 5 miles to closed bridge for 69-79 had to be changed to 1.8 miles to closed bridge because one of the bridges for 172-393 was in between the sign and 69-79 project site.

4. Is there stage construction? If so, explain.

   No.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   No. The Motor Transport (Overweight/Oversize Permits) Office didn't know the project had closed Route 148 and a Chief Inspector from an adjacent project stopped a truck that had planned to use the route before it got to a point where it couldn't reroute easily. The Project Engineer called Motor Transport to notify them about the closure. He also feels there is disconnect between Permits allowing trucks to use certain routes and when project narrow lane widths on bridges on those routes. If a bridge has nine feet wide lanes, trucks will be brushing along the parapets to get through.

6. If there is temporary signalization? If so, explain.

   No.

7. If there is a detour? If so, explain.

   Yes, traffic is rerouted to take Route 81 to Route 80 to Route 79 or the reverse for opposing traffic. The detour is 16 miles long. In an effort to keep the residents from being disturbed, the Town has placed up additional signs along the detour to help

motorists who are misguided find their way along the detour and not ask residents where to go.

When the bridge is replaced, work will be done on the bridge reducing the travel way down to an alternating one-way traffic pattern using a stop sign. There weren't any plans for this pattern but the PE and Chief took a plan already laid out from Project 101-113 in North Stonington that had a similar project scope.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

No, equipment can't be stored at 30 feet from the roadway without getting permission from the residents since it would be on private property. Some equipment like a Changeable Message Sign was observed while coming to the review was not positively protected. We brought it to the staff's attention for them to take corrective action. The Project Engineer did make a point that the clearance space should be determined by the speed of the adjacent roadway. Office of Construction reiterated that the specification is as it stands.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☒	☐	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☒ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☐	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☒ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored?
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☒ Low intensity
☒	☐	a. Functioning?
☐	☒	**4. Advance Flashing Arrow?** Type: ☐ Portable ☐ Truck-mounted
☐	☐	a. Functioning in the correct mode?
		b. Location?
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Three**
		b. Location? **On Rt 148 near Rt 81, Rt 79 NB and SB near Rt 148**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Two**
☒	☐	e. Timing between screens acceptable?
☐	☒	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many?
		b. Location?
C.		**Temporary Pavement Markings**
☐	☒	Temporary pavement markings? Type: ☐ Tape ☐ Paint ☐ Epoxy
☐	☐	a. Legible?
☐	☐	b. Conflicting other markings?
☐	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☐ State Police ☐ Municipal Police ☒ Uniformed Flagger

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS

1. The staff had to use an alternating one-way traffic pattern from another project so they can do work on the bridge parapets and reopen the bridge for use.
2. Bridge Maintenance (Overweight/Oversize Permits) didn't know that the bridge was closed on Route 148 and didn't inform trucks taking that route to find another route to go around.
3. Secondary roads in rural areas may have little to no nighttime lighting along roadways, construction signs detouring traffic because of a bridge closure may be overlooked if not reflective enough or could give confusing directions if arrow direction is skewed.

RECOMMENDATIONS

1. The Office of Traffic can include a suggested alternating one-way traffic plan if work on narrow bridges will reduce the lane widths considerably and the project staff choose to reopen the bridge for use by the public.
2. Communication between the Office of Construction and Bridge Maintenance (Overweight/Oversize Permits) need to be improved to make sure trucks don't get stuck on routes that are closed and may not be able to turn around.
3. The Project Engineer stated that he drives through the detour for the project at night every two weeks to ensure that the signs directions are clear and the signs themselves are reflective enough for motorists traveling at night. This is a common practice for District 2 inspection staff.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 81 SB: A detour sign directing motorists to the Route 79

Route 148 WB: A Changeable Message Sign with the first frame saying RT 148 TO BE CLOSED. The CMS is not 30 feet off the travel way and is behind traffic drums which aren't adequate protection.

Route 148 WB: Behind the route sign, construction signs stating NO ACCESS TO ROUTE 79 and BRIDGE CLOSED 5.0 MILES AHEAD RTE 148 TRAFFIC ONLY.

Route 148 WB: The second frame on the CMS states 6/26 THRU 8/23.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 148 EB: A legal series sign for an adjacent project within the detour.

Route 79 SB: A CMS with one frame that states FOLLOW DETOUR.

Additional detour signs put up by the Town of Killingworth to help guide motorists without asking residents for directions

Route 79 SB: A legal series 16 sign for adjacent project.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 79 SB: A Fines Doubled Sign for an adjacent project.

Route 79 SB: A sign saying ROUTE 148 CLOSED DETOUR AHEAD which is for this project and a behind it a signal light sign with warning light for the adjacent project.

Route 79 SB: A ROAD WORK AHEAD sign with a high-intensity warning light.

In the midst of all the construction signs, here is a sign showing bus stop ahead. I was told by a sub-inspector for the project that the catalyst for the time frame for the projects in the area was to do all work impacting traffic while school was let out for the summer. With these routes being the bus routes for nearby schools, it would be very cumbersome to reroute all the school bus routes as well.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 79 SB: Another detour sign for Route 148.

Route 79 SB: Approaching the Route 79 / Route 80 roundabout.

Route 79 SB: Bypassing Route 148 which is closed except for local traffic.

Route 79 SB: A detour sign for Route 148 right before entering the roundabout.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 79/80: A detour sign while in the roundabout to bypass approaching Route 80 WB exit and proceed on.

Route 79/80: A detour sign directing motorists to take approaching Route 80 EB exit to continue on Route 148 detour.

Route 79/80: A detour sign while in roundabout to bypass Route 79 SB exit and proceed on.

Route 79/80: A detour sign for oncoming motorists from Route 80 WB to take first exit to Route 79 NB for Route 148 detour.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 79/80: Detour sign at Route 79 SB exit again but this time its reflectivity was captured in the photo.

Route 80 EB: Approaching the Route 80 / Route 81 roundabout.

Route 80 EB: Another Route 148 detour sign.

Route 80 EB: A Route 148 detour sign at entrance of roundabout.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 80/81: A detour sign signaling to motorists to bypass the exit for Route 81 SB.

Route 80/81: A detour sign signaling to motorists to take the exit for Route 81 NB.

Route 80/81: A detour sign signaling to motorists to bypass the exit for Route 80 EB.

Route 81 SB: A sign for Route 79 detour back towards the Route 80/81 roundabout.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 81 WB: A detour sign at the entrance to the Route 80/81 roundabout.

Route 79 NB: A Changeable Message Sign stating RT 148 CLOSED.

Route 80 WB: A detour sign for Route 79.

Route 79 NB: A sign saying ROUTE 148 BRIDGE CLOSED, .1 MILES AHEAD, LOCAL TRAFFIC ONLY.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 148 EB: A ROAD WORK AHEAD sign with a low-intensity warning light attached and a legal series ROAD USE RESTRICTED sign.

Route 148 WB: Construction trucks leaving the closed road and entering Route 79 traffic.

Route 148 EB: Concrete barrier closing the travel way on the road.

Route 148 EB: Concrete barrier propped on wooden posts.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 148 EB: Material stored on the side of the road within the closed section of the road.

Route 148: The work crew fine grading the road for paving with the newly installed bridge in the rear.

Route 148 EB: Another concrete barrier closing the road with Type III barricades in front with ROAD CLOSED and STOP signs on them.

Route 148 EB: Another work crew working on the structures on the side of the road.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 148 EB: Two flaggers with safety gear and paddles to direct traffic around the closed lane on the bend the in the road on westbound side.

Route 148 WB: Barricades indicating the road is closed. Signs with high-intensity warning lights on them saying ROAD CLOSED or STOP.

Route 148 WB: A work crew working on the drainage.

Blue Hills Road: An END OF WORK sign.

Submitted by: Kiah Patten Date: 8/7/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.08.10 08:14:21-04'00' Date: 8/10/2015

Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0088-0166 **District:** 1

Date: 7/13/2015 **Time:** 9:00 am **Weather, Temp.:** Sunny, 73°

Town: New Britain **Route:** SR 555 (West Main Street) & Burritt Street

Road Type: ☐ Interstate ☐ Expressway ☒ Secondary ☒ Local

FOCUS OF REVIEW:

☐ Temporary Lane Closure
☐ Temporary Signalization
☒ Pedestrian/Bicycle Access
☒ Stage Construction
☐ Detour
☐ Night Work

Project Engineer: Juan Ruiz **Chief Inspector:** David Gentile

Prime Contractor: New England Infrastructure, Inc. **Inspection Forces:** ☒ State ☐ Consultant

Contract Value: $6,989,789.00 **Percent Complete:** 10%

Calendar Days Allotted: 790 **Calendar Days Completed:** 120

REVIEW PARTICIPANTS

NAME	REPRESENTING
Juan Ruiz	District 1 Construction
David Gentile	District 1 Construction
Joseph Grasso	Office of Traffic
Anthony Kwentoh	Office of Construction
Shannon Browne	Office of Construction – Quality Assurance
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No. If any traffic drums are misplaced by vehicles hitting them, they're moved back into place.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What manuals, guides, etc. do you reference for work zone information?

   The project staff indicated that they reference the Prosecution and Progress (Section 1.08 in the Standard Specifications), Maintenance and Protection of Traffic, Stage 1 Construction (HWY-26) plan.

4. What, if any, accommodations have been made for Emergency Services?

   The City of New Britain, New Britain Fire Department, and New Britain Police Department were notified about the project at the Pre-construction and Work Zone Safety meetings. New Britain Police and the City Engineer come to the progress meetings and are updated about the project's progress. Any EMS can travel unimpeded through the project since the road is still open in this stage. New Britain General Hospital is about a mile from the project which the project staff said that the City or Police most likely notified of the project. The staff was told it is a best practice to ensure that all hospitals are notified about their project. The hospital will be notified in Stage 3 Construction next summer.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   There is a "Sidewalk Closed" sign posted on the north side of West Main Street before the project to allow pedestrians to cross at the crosswalk to the south side of the bridge.

6. Have ADA requirements been met for pedestrians?

   Existing ADA controls, if any, will be utilized for pedestrian with disabilities. No other controls will be added. However, the final design will have new ADA controls incorporated.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored in the contractor's yard on Old Burritt Road near the field offices or in a gated lot east of the bridge on West Main Street.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment not being used is stored in the Contractor's yard, the gated lot, or behind the barrier on the project site.

9. Chief Inspector Comments: ***None.***

10. Project Engineer Comments:

    The Project Engineer suggested that projects similar to this one could close the road and use a detour instead of doing three stages of construction and building a temporary road. It would save time and money to have the road closed and the bridge

replaced in one season instead of keeping the road open and having a temporary road built over the railroad.

Traffic indicated that the City requested to keep the road open to accommodate the amount of traffic that uses West Main Street. The design accommodated the request and decided to build a temporary bypass lane adjacent to the existing in Stage 2.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no TMP for this project. The staff was told where to find it on ProjectWise if there was one and told about the significance of TMPs on projects.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   There weren't any concerns about the below listed special provisions. It was mentioned that a number of them haven't been used yet. The staff was told to contact the Work Zone Review Team if any concerns arose once they used them.

   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 05/05/14
   Item # 0822005A – Temporary Precast Concrete Barrier Curb (Structure)
   Item # 0904902A – Temporary Protective Fence (Bridge)
   Item # 0913068A – Temporary 6' Chain Link Fence
   Item # 0913955A – Protective Fence (7' High) (Curved)
   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008
   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008
   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 6/09/14
   Item # 0979003A – Construction Barricade Type III, Rev. 4/22/14
   Item # 1111201A – Temporary Detection (Site No. 1), Rev. 1/13
   Item # 1111202A – Temporary Detection (Site No. 2), Rev. 1/13
   Item # 1131002A – Remote Control Changeable Message Sign, Rev. 12/02/02
   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12
   Item # 1803060A – Type B Impact Attenuation System (Non-Gating), Rev. 6/28/13
   Item # 1803071A – Type B Impact Attenuation System (Tangential), Rev. 6/28/13
   Item # 1807202A – Repair of Temporary Impact Attenuation System
   Item # 1808210A – Impact Attenuator

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   All the following plans are complete and current for what has been used so far.

Traffic Control Signal Plan, Temporary Traffic Control Signal Plan (Site No. 1) – Stage 1, Temporary Traffic Control Signal Plan (Site No. 1) – Stage 2, Temporary Traffic Control Signal Plan (Site No. 1) – Stage 3, Temporary Traffic Control Signal Plan (Site No. 1) – Stage 4, Temporary Traffic Control Signal Plan (Site No. 1) – Stage 5, Temporary Traffic Control Signal Plan (Site No. 2), West Main Street Temporary Detour Plan

4. Is there stage construction? If so, explain.

   Yes, currently the project is in Stage 1 Construction. Stage 1 consists of partially removing the abutments on the north side and replacing one beam. Stage 2 consists of partially removing the abutments on the south side and replacing three beams. Stage 3 consists of partially removing the abutments in the middle. To complete Stage 3, a temporary lane is being built to reroute traffic adjacent to West Main Street.

5. Are there any permitted load issues?

   No.

6. If there is temporary signalization? If so, explain.

   A temporary signal will be used in Stage 3 when a temporary lane will be in place to reroute traffic off of West Main Street and through an alternate one-way traffic pattern.

7. If there is a detour? If so, explain.

   A detour will be used one night to remove the beam in Stage 1 and then again to install the new one. Another detour will be used when the three beams need to be removed in Stage 2 and then again to install the new ones. In total a detour will be used four nights. A detour can only be used during the night or over the weekend.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Equipment and materials are stored behind concrete barrier if they are not stored in the Contractor's lot.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☒	☐	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☒	☐	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☒ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate, however the DETOUR signs were too low.**
☐	☒	d. Mounted properly? **Issue with the 7 foot clearance above sidewalk.**
☒	☐	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☐ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☐	☒	c. Anchored?
☐	☒	**3. Warning lights?** Type: ☐ High intensity ☐ Low intensity
☐	☐	a. Functioning?
☐	☒	**4. Advance Flashing Arrow?** Type: ☐ Portable ☐ Truck-mounted
☐	☐	a. Functioning in the correct mode?
		b. Location?
☐	☒	**5. Changeable Message Sign (CMS)?**
		a. How many?
		b. Location?
☐	☐	c. Message understandable?
		d. Number of frames displayed?
☐	☐	e. Timing between screens acceptable?
☐	☒	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many?
		b. Location?
C.		**Temporary Pavement Markings**
☒	☐	Temporary pavement markings? Type: ☐ Tape ☒ Paint ☐ Epoxy
☐	☒	a. Legible? **Fading lines need to be refreshed.**
☐	☒	b. Conflicting other markings?
☐	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☐ State Police ☒ Municipal Police ☐ Uniformed Flagger

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. Detour signs used under Alternate Route signs were pinned only at top of sign allowing movement at bottom. They also weren't in the best condition with staples all over the signs.
2. DETOUR and ROAD CLOSED TO THRU TRAFFIC signs on West Main Street and through alternate route needed to be covered. The Alternate Route signs were sufficient to advise motorists which route to take. It seemed the extra Detour signs were put up for extra emphasis but could in turn confuse motorists that the road is closed and they have to take the detour.
3. The Series 16 signs for Road Use Restricted on West Main Street are were 16-M.
4. Various breakaway sign posts mounted on sidewalks had brackets 6 inches in height.
5. Temporary Precast Concrete Barrier Curb (TPCBC) used for positive protection has some marginal units acceptable.

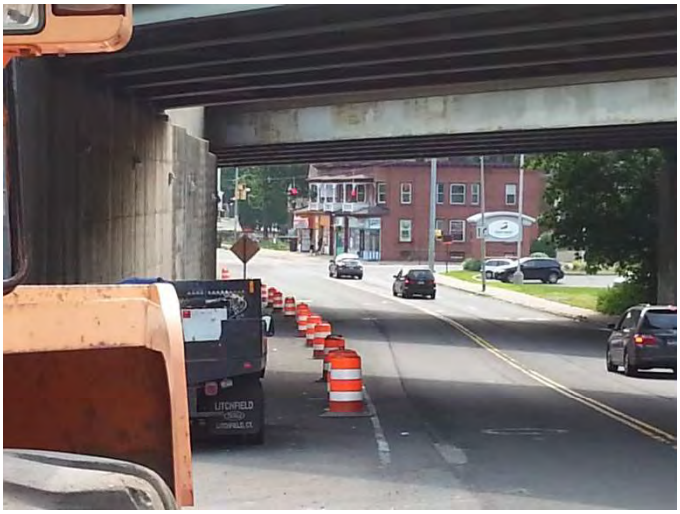
RECOMMENDATIONS:

1. Signs should be properly secured to prevent wind blowing them off posts.
2. Signs can be mounted before they're needed but should be covered if not currently in use. The conflicting advance warning can confuse motorists and can cause delays or crashes.
3. The specifications states that Series 16-M signs are only for local roads and West Main Street (SR 555) is a state road. The right size for state roads should be 16-H.
4. Breakaway sign anchor brackets should not exceed 4 inches in height from ground line per specification.
5. Relevant manuals such as the MUTCD, ATSSA Quality Guidelines for Traffic Control Devices, etcetera are recommended for project staff to familiarize with standards for Work Zone Safety and Mobility.

PART 5: WORK ZONE INSPECTION PHOTOS

West Main Street EB: Project site on north side of the bridge behind barrier.

West Main Street EB: A post-mounted ROAD NARROWS sign west of the bridge.



West Main Street WB: Traffic drums closing shoulder on the north side of road just west of the project site.

West Main Street EB: A Sidewalk Closed Ahead sign directing pedestrians to use the available crosswalk before proceeding through the work zone.

PART 5: WORK ZONE INSPECTION PHOTOS

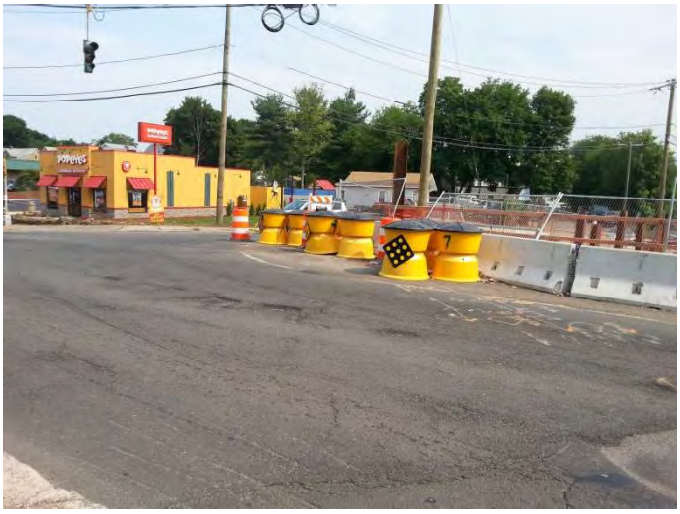
West Main Street EB: Signs advising motorists of the alternate route that can be used instead of traveling through the work zone. A DETOUR Sign is also being used to emphasize the alternate route but the signage can be confusing. The DETOUR sign should be covered up until the detour is being used.

West Main Street: A pay loader parked in front of the attenuation system. When the inspection staff was told that it should be parked elsewhere to prevent a serious accident they said that it was temporarily there to move the barrier for the Contractor to get in and out of the work site.

West Main Street: The Impact Attenuation System Type "A" at the west side of the bridge.

West Main Street: The gated lot on the south side of the bridge west of the railroad.

PART 5: WORK ZONE INSPECTION PHOTOS



West Main Street: The Impact Attenuation System on the east side of the project site.

West Main Street: The Contractor working on the north side abutment.

West Main Street: Two-way traffic on the road adjacent to the project site.

Burritt Street NB: The Impact Attenuation System on the north side of site and an END OF WORK sign mounted.

PART 5: WORK ZONE INSPECTION PHOTOS

Burritt Street: The Pan-Am Railroad flagger notifying the workers to clear the rails.

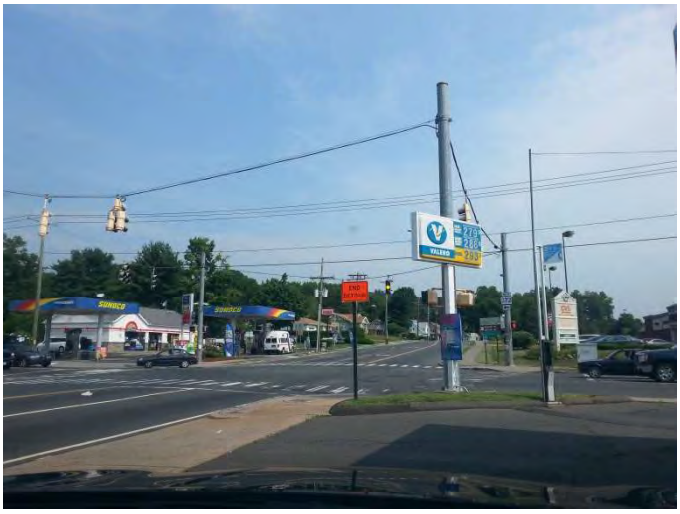
West Main Street: The workers clear of the rails for the train coming through.

Burritt Street: The commercial train coming through the project site.

West Main Street EB: Existing sidewalk ramp on the south side of road.

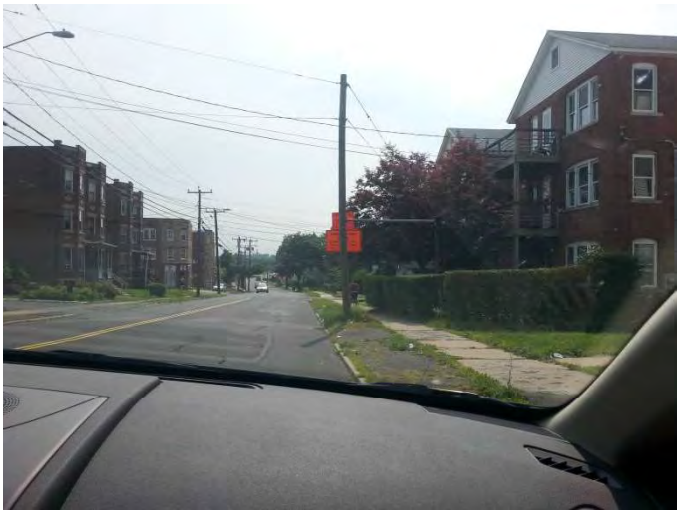
PART 5: WORK ZONE INSPECTION PHOTOS

West Main Street EB: Existing sidewalk ramp on the north side of road.



West Main Street EB: An END DETOUR sign which should be covered since the detour is not currently being used.

West Main Street EB: The Legal Series signs for Road Use Restricted and Sidewalk Use Restricted. The Road Use Restricted sign is a 16-M and should be a 16-H since it's on a state road.



West Main Street WB: The Legal Series signs were placed just behind the utility pole. Despite placing the sign at the proposed location according to the plans, a good judgement would to place them in front of the pole to be more visible to the motorists.

PART 5: WORK ZONE INSPECTION PHOTOS

West Main Street WB: A post-mounted ROAD WORK AHEAD sign east of the project.

Lincoln Street: The alternate route site with DETOUR sign and an END ROAD WORK sign.

West Main Street WB: A post-mounted ROAD NARROWS sign east of the project.

Burritt Street: The Series 16 signs for Road Use Restricted and Sidewalk Use Restricted.

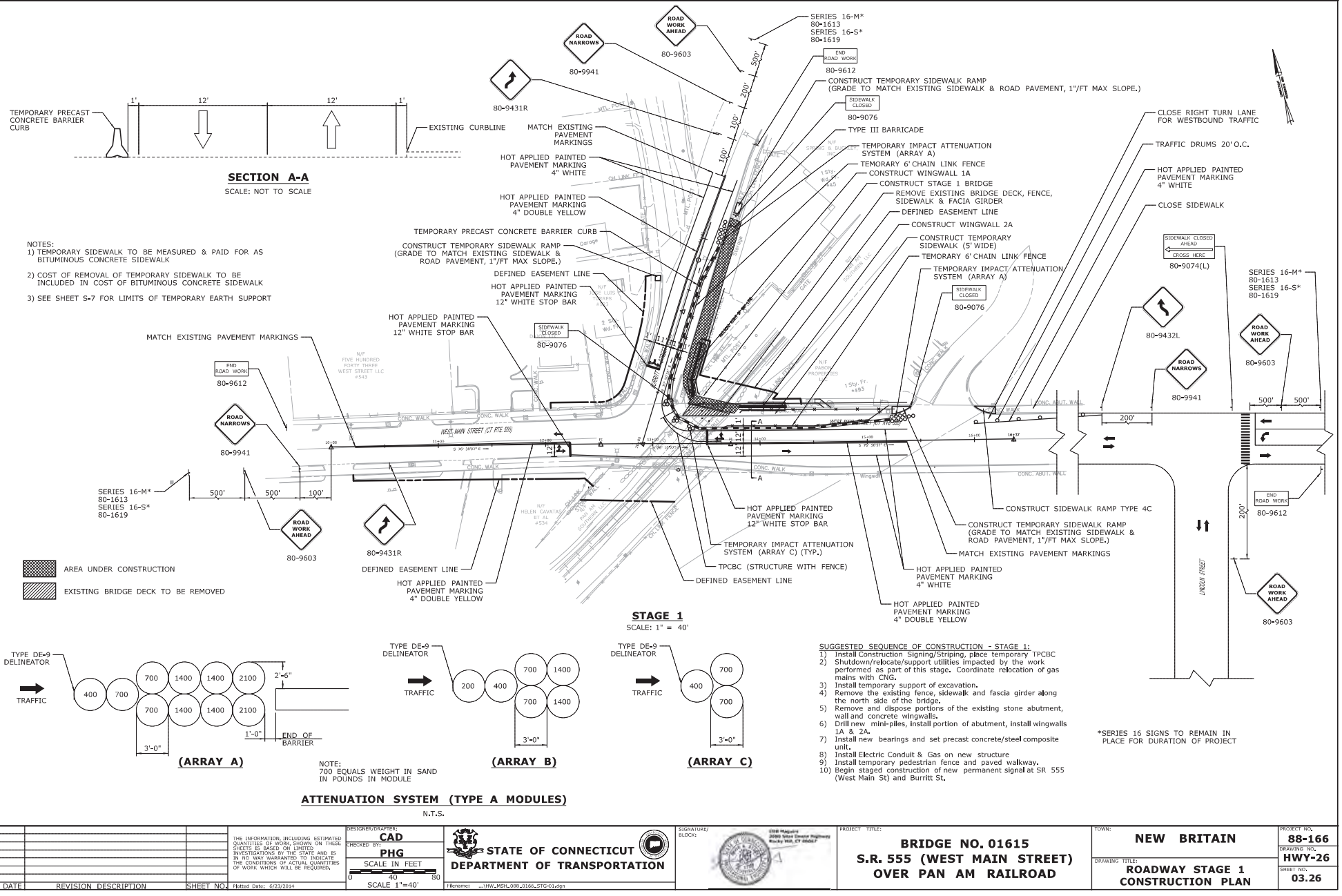
Submitted by: Kiah Patten _____ Date: 7/20/15

Kiah Patten

Reviewed by: _____ Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.07.20 08:59:56-04'00' Date: 7/20/2015

Anthony Kwentoh

STAGE THAT WAS IN PLACE AT THE TIME OF REVIEW



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/23/2014

DESIGNER/DRAFTER: CAD
CHECKED BY: PHG
SCALE IN FEET 0 40 80
SCALE 1"=40'

Filename: ...\HW_MSH_088_0166_STG-01.dgn

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

SIGNATURE/BLOCK:

PROJECT TITLE:
BRIDGE NO. 01615
S.R. 555 (WEST MAIN STREET)
OVER PAN AM RAILROAD

TOWN: NEW BRITAIN

DRAWING TITLE:
ROADWAY STAGE 1 CONSTRUCTION PLAN

PROJECT NO. 88-166
DRAWING NO. HWY-26
SHEET NO. 03.26

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0092-0612 **District:** 3

Date: 9/16/2015 **Time:** 6:00 pm **Weather, Temp.:** Clear, 77°

Town: New Haven **Route:** I-91, Route 5

Road Type: ☒ Interstate ☐ Expressway ☒ Secondary ☐ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure ☐ Stage Construction
☐ Temporary Signalization ☒ Detour
☒ Pedestrian/Bicycle Access ☒ Night Work

Project Engineer: Mohammad Masoud **Chief Inspector:** Peter Nowik

Prime Contractor: Abhe & Svoboda, Inc. **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $13,597,418.00 **Percent Complete:** 50%

Calendar Days Allotted: 350 **Calendar Days Completed:** 263

REVIEW PARTICIPANTS

NAME	REPRESENTING
Mohammad Masoud	District 3A Construction
Tom Sprong – Chief Inspector	Dewberry-Goodkin
David Tompkins	Division of Traffic
Anthony Kwentoh	Office of Construction
Dean Dickinson	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   There has been one minor incident. The driver of the truck-mounted attenuator stopped on ramp, got of vehicle to answer a motorist's question and TMA rolled back and hit the motorist's car.

3. What documents do you reference for work zone information?

   The inspection staff says they reference project documents and the Manual on Uniform Traffic Control Devices.

4. What, if any, accommodations have been made for Emergency Services?

   The inspection staff made the Contractor aware to accommodate EMS. The Contractor keeps one lane open which EMS can pass through. The inspectors contact State Police and Bridgeport Highway Operations before proceeding out onto the highway every time.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   At least one sidewalk is open on State Street (Route 5) at all times. If there is an alternating one-way traffic pattern, there are local police present to accommodate bicyclists through.

6. Have ADA requirements been met for pedestrians?

   The existing conditions have been maintained and no reconstruction of existing sidewalk will be done.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored in the Contractor's yard at 155 State Street which is fenced.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is stored in the same fenced Contractor's yard too.

9. Chief Inspector Comments:

   The Chief Inspector has no comments.

10. Project Engineer Comments:

    The Project Engineer has no comments.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   The project is referenced in the Transportation Management Plan for the I-95 Q-Corridor Project (No. 0092-0531), but it does not have a standalone TMP of its own. The Project Engineer is aware that if the project did have one he could locate a copy on ProjectWise.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Use of State Police

   NTC – Traffic Drums and Traffic Cones

   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices

   Item # 0970006A – Trafficperson (Municipal Police Officer)

   Item # 0970007A – Trafficperson (Uniformed Flagger)

   Item # 0971001A – Maintenance and Protection of Traffic

   Item # 0979003A – Construction Barricade Type III

   Item # 1131002A – Remote Control Changeable Message Sign

   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting

   There were no concerns with the above listed special provisions.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   Maintenance and Protection of Traffic, Advanced Warning Sign Location Plan, State Street Sidewalk Closure Details, Ferry Street Sidewalk Closure Details

   The only concern about the plans was with using temporary plastic tape for temporary pavement markings. The Project Engineer said that it was not suitable to use with a milled surface so they have changed that detail to using hot-applied paint.

4. Is there stage construction? If so, explain.

   No.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   No.

6. Is there temporary signalization? If so, explain.

No.

7. Is there a detour? If so, explain.

   For one night at a time, the entrance and exit ramps for Exit 6 to State Street are closed and traffic is detoured to Exit 4 for southbound traffic and Exit 7 for northbound traffic.

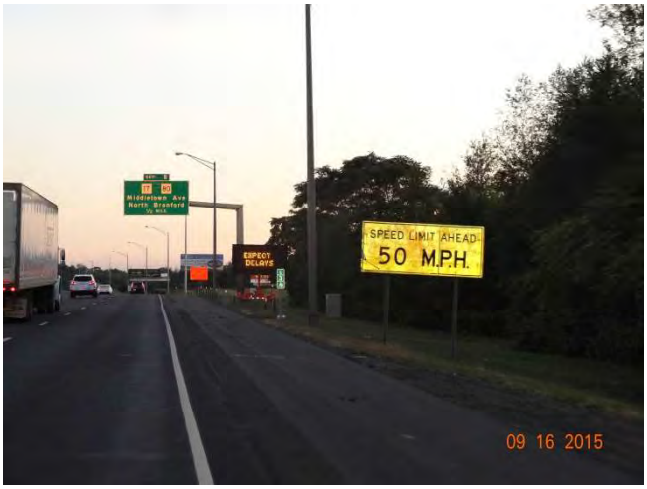
8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes.

PART 3: WORK ZONE INSPECTION CHECKLIST

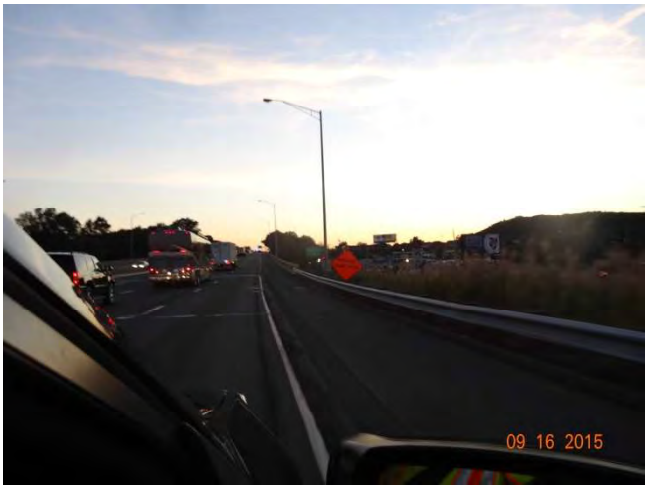
Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☒	☐	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☒	☐	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored?
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☐ Low intensity
☒	☐	a. Functioning?
☒	☐	**4. Advance Flashing Arrow?** Type: ☐ Portable ☒ Truck-mounted
☐	☒	a. Functioning in the correct mode?
		b. Location? **Within the closed lane**
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Two**
		b. Location? **Near Exit 8**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Two**
☒	☐	e. Timing between screens acceptable?
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many? **One**
		b. Location? **Within taper**
C.		**Temporary Pavement Markings**
☒	☐	Temporary pavement markings? Type: ☐ Tape ☒ Paint ☐ Epoxy
☐	☒	a. Legible?
☐	☒	b. Conflicting other markings?
☐	☒	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☒ State Police ☒ Municipal Police ☐ Uniformed Flagger

PART 4: WORK ZONE INSPECTION PHOTOS



I-91 SB: A Changeable Message Sign (CMS) stating on its first frame EXPECT DELAYS placed behind the guide cables right before Exit 8.

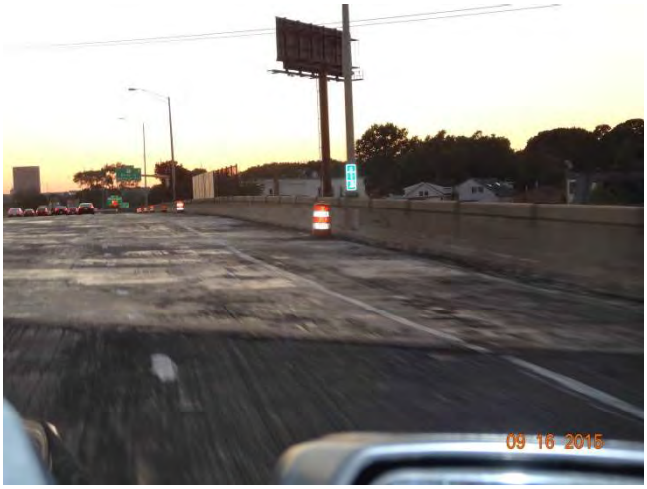
I-91 SB: A post-mounted legal series 16 sign right before Exit 8.



I-91 SB: A temporary construction sign behind the guiderail saying ROUGH SURFACE with a barricade warning light attached.

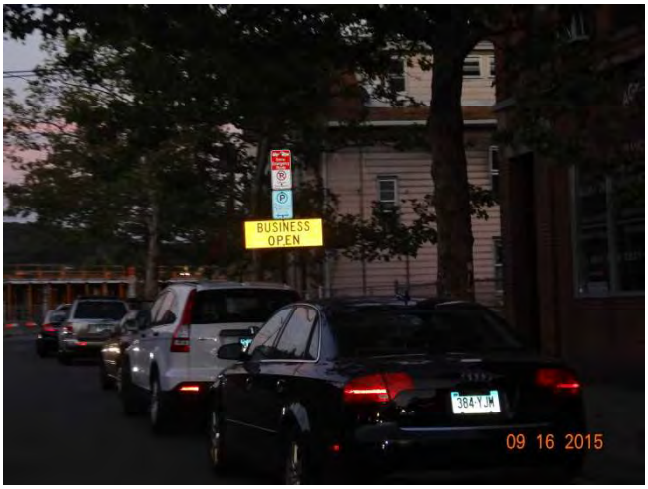
I-91 SB: A post-mounted ROAD WORK AHEAD sign with a barricade warning light attached. The bottom point of the sign has been broken off; the condition of the sign is poor and should be replaced.

PART 4: WORK ZONE INSPECTION PHOTOS



I-95 SB: This section of the road is the work site being repaired. The surface has been milled and temporary pavement markings placed but are faded. Traffic drums are lined up on the bridge parapet where work is being done.

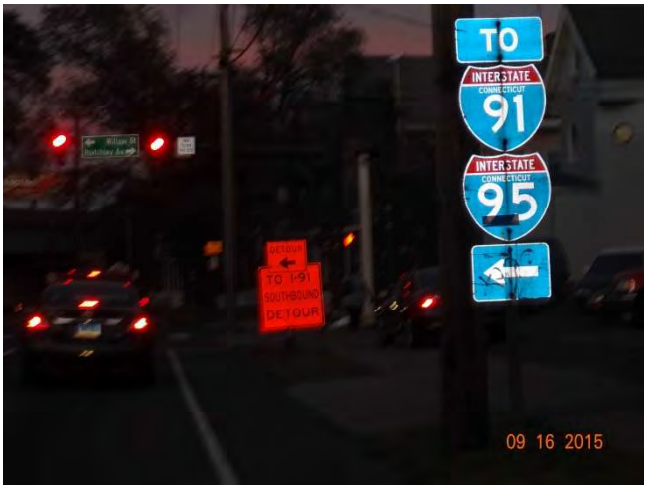
I-91 SB: The work site is adjacent to Exit 6 which gets closed when needed and traffic detoured to Exit 4 or Exit 7.



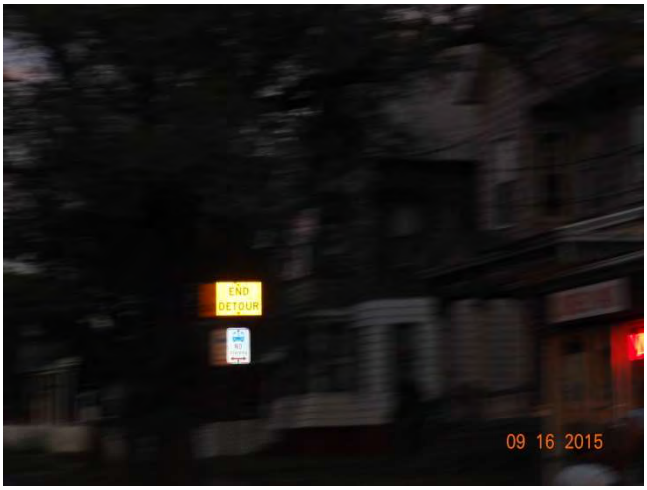
State Street (Route 5): A construction sign stating BUSINESS OPEN for local businesses near the I-91 overpass.

State Street (Route 5): A temporary construction sign stating ONE LANE ROAD AHEAD. This photo captures how well the condition and reflectivity is for the sign.

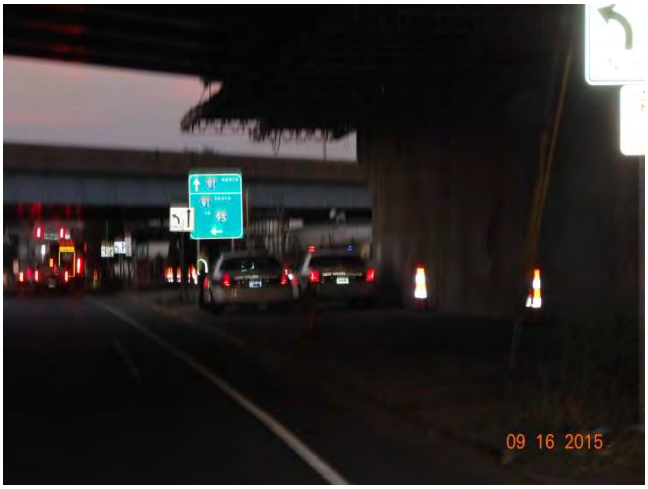
PART 4: WORK ZONE INSPECTION PHOTOS



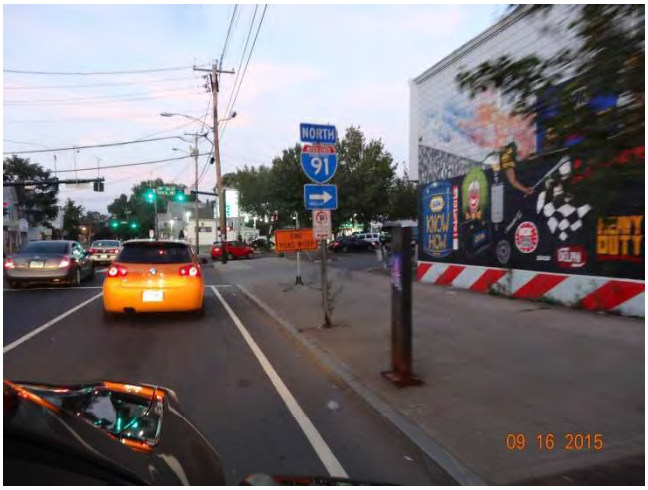
State Street (Route 5): Behind the highway signs is a detour sign for I-91 SB when Exit 6 is closed.



State Street (Route 5): Mounted on an existing post is a END DETOUR sign.

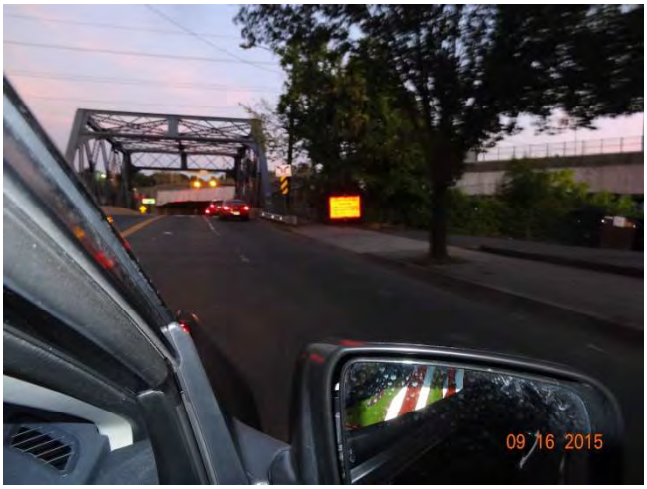


State Street (Route 5): Local police parked near the work area on State Street.



State Street (Route 5): A temporary END ROAD WORK construction sign at the corner of State Street and Ferry Street.

PART 4: WORK ZONE INSPECTION PHOTOS



Ferry Street: A temporary legal series sign for road work overhead on I-91.

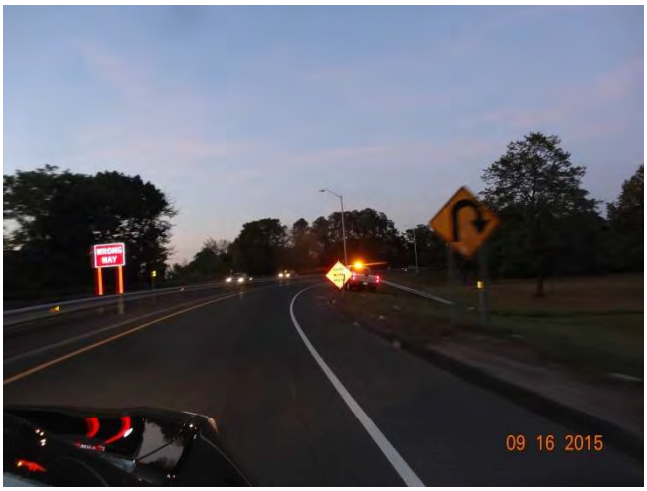
Ferry Street: The bridge that carries I-91 over Amtrak railroad. There is debris shield over the bridge to protect the travel ways below.

Ferry Street: At the intersection with Middletown Avenue is the work zone beneath I-91. A temporary ROAD WORK AHEAD sign with a barricade warning light next to a height clearance sign which is blocked by a pole from this view. There is a Type III barricade closing the sidewalk with a SIDEWALK CLOSED, CROSS HERE sign pointing to the crosswalk. Along the street are traffic cones and traffic drums. Although it is dark, there is a bicyclist riding past the work zone.

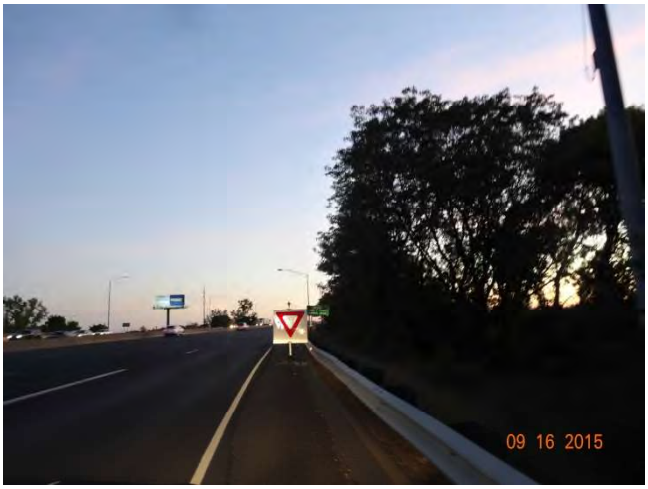
Middletown Avenue: An END ROAD WORK sign right before the Exit 7 on ramp.

PART 4: WORK ZONE INSPECTION PHOTOS

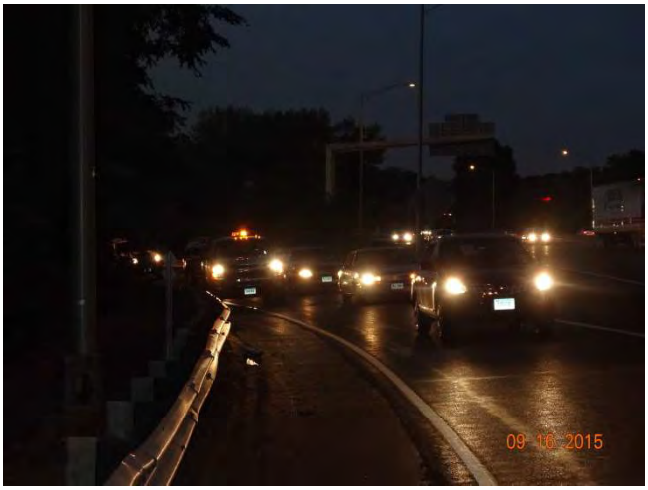
I-91 SB Exit 8 On Ramp: A post-mounted legal series 16 sign.



I-91 SB Exit 8 On Ramp: A temporary ROAD WORK AHEAD sign. Behind it is the Contractor's work truck parked behind the curb.

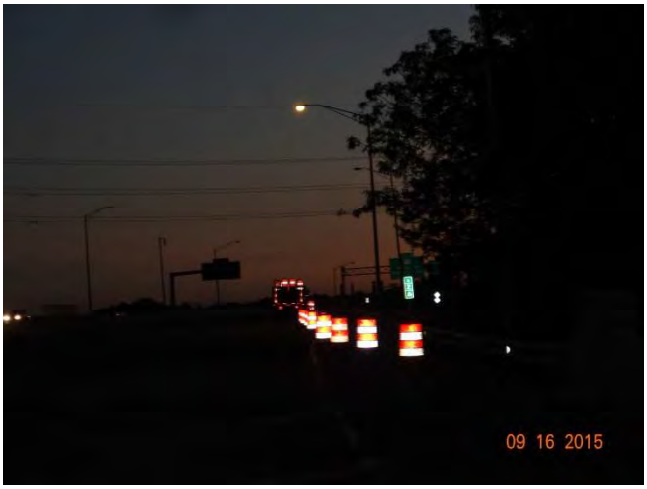


I-91 SB Exit 8 On Ramp: A temporary YIELD sign reminding on-comers to yield to motorists on the mainline.

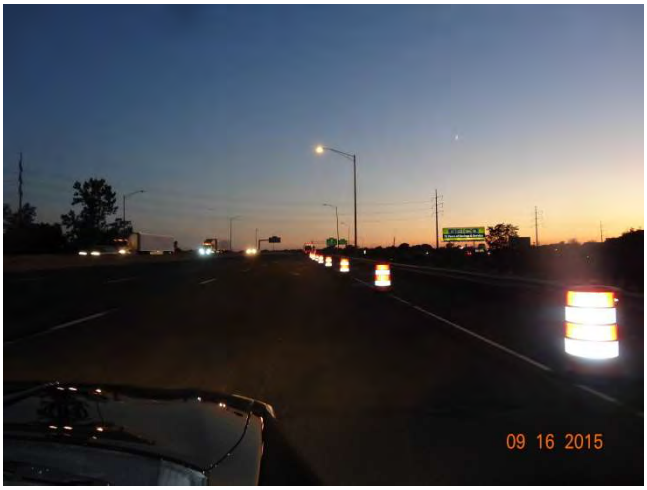


I-91 SB Exit 8 On Ramp: The Contractor moved his truck just outside the shoulder to slow on-coming traffic as they merge onto the highway as the traffic pattern is being set up.

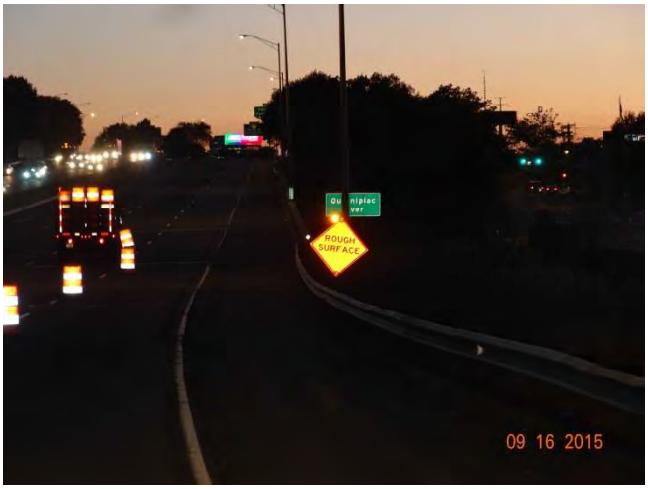
PART 4: WORK ZONE INSPECTION PHOTOS



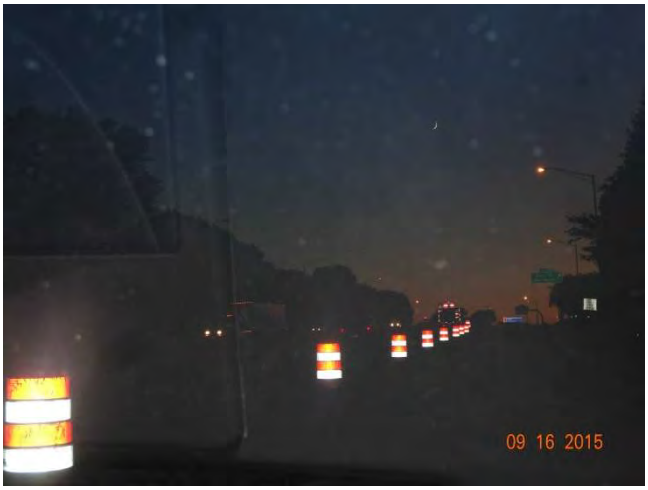
I-91 SB: The work crew starting to set up the taper using traffic drums. The taper starts just after motorists come on to I-91 from Exit 8.



I-91 SB: The taper starts off by closing the right shoulder. The reflectivity of the traffic drums is strong.



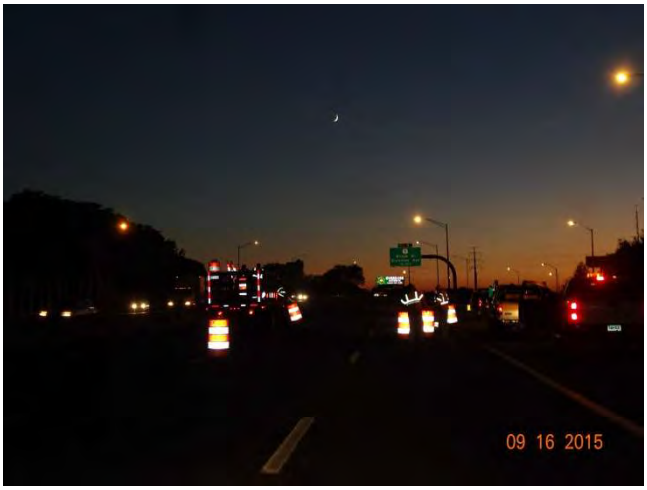
I-91 SB: The ROUGH SURFACE sign shown previously but now with its high-intensity barricade warning light flashing since the sun set.



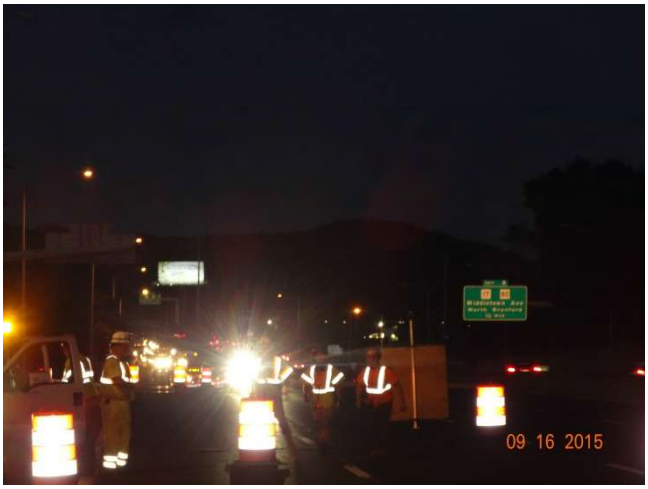
I-91 SB: The taper has now closed the right lane and is moving over to take the middle lane.

PART 4: WORK ZONE INSPECTION PHOTOS

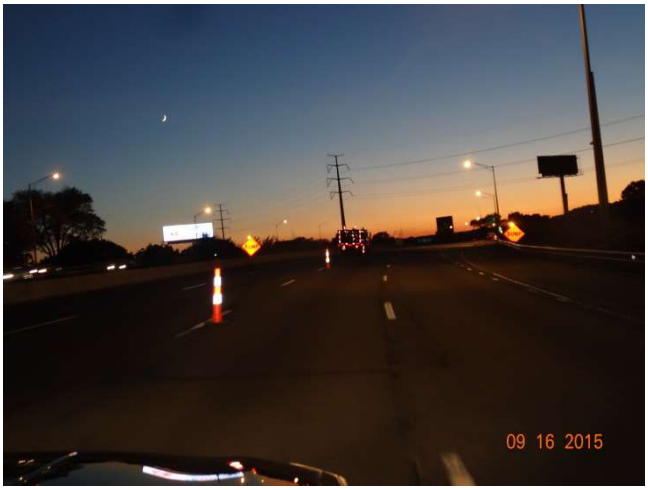
I-91 SB: The taper delineates across the closed lane to allow motorists to exit I-91 at Exit 7.



I-91 SB: The work crew places traffic drums to on the opposite side of the Exit outlet and across the two closed lanes to prevent motorists from entering the traffic pattern after the Exit.

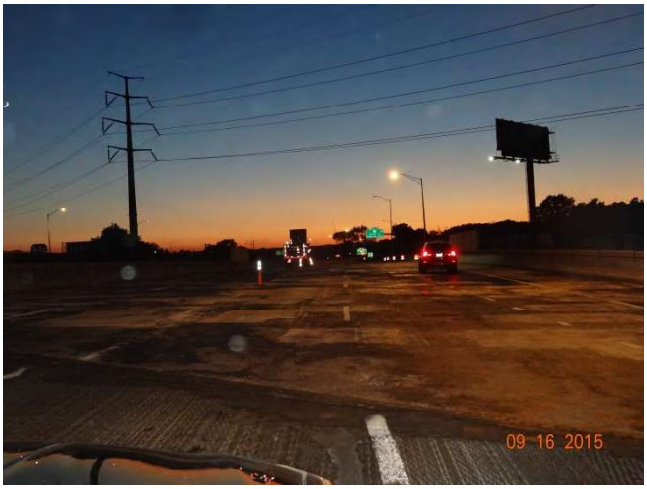


I-91 SB: Beyond the work crew setting up the pattern is the traffic queue from the rolling road block.



I-91 SB: The tangent of the traffic pattern is being set using traffic cones.

PART 4: WORK ZONE INSPECTION PHOTOS



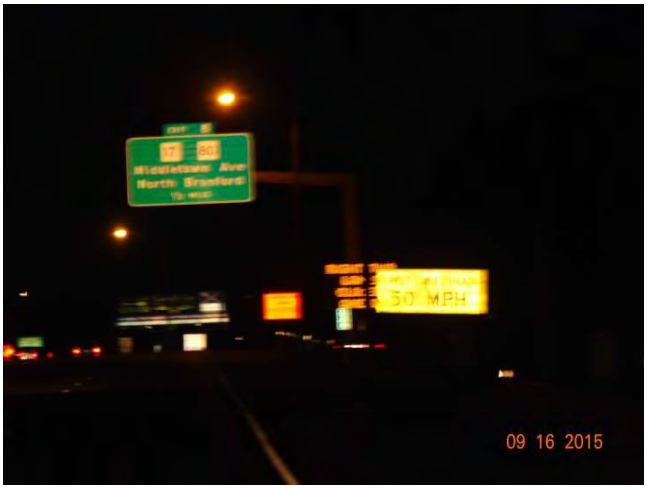
I-91 SB: The milled surface on the bridge. The reflectivity of the temporary pavement markings is poor.

I-91 NB: Driving on I-91 NB, the queue length that formed after use of the rolling road block can be seen.

I-91 SB: These are a couple of traffic cones that were in poor condition. The reflective collars were missing, they weren't clean, and some were bent out of shape.

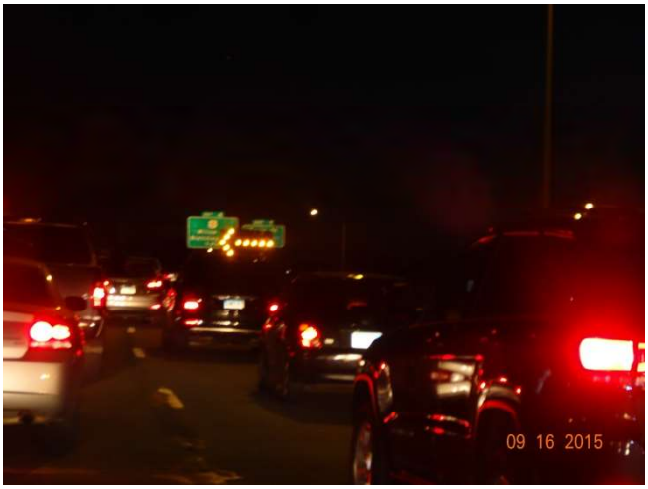
I-91 SB: A Variable Message Sign (VMS) stating the 2 RIGHT LANES CLOSED.

PART 4: WORK ZONE INSPECTION PHOTOS



I-91 SB: The second frame on the CMS previously mentioned says RIGHT TWO LANES CLOSED AHEAD. The second frame seems rather long for motorists to read in the time passing by. It may be better to reduce the message to RIGHT TWO LANES CLOSED OR RIGHT LANES CLOSED.

I-95 SB: A temporary merge left sign placed just before the Exit 8 off ramp since the taper starts just after the Exit 8 on ramp.

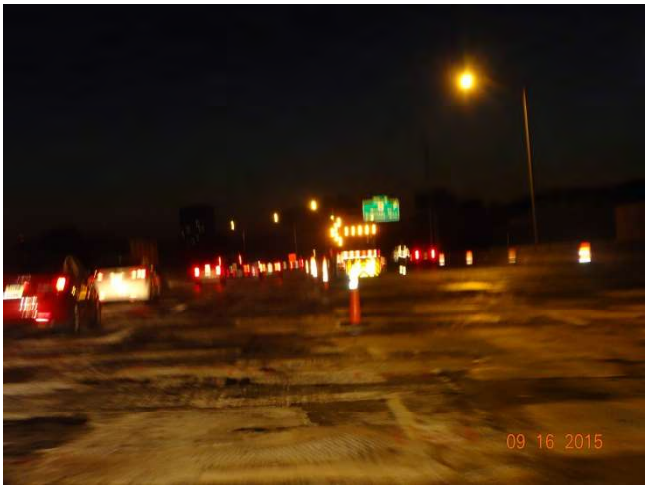


I-91 SB: A portable flashing arrow signaling for motorists to merge left.

I-91 SB: The arrow is within the taper just beyond the Exit 7 off ramp.

PART 4: WORK ZONE INSPECTION PHOTOS

I-91 SB: The condition of the traffic drums shows that they either need to be cleaned or if scuffed, replaced.



I-91 SB: The other flashing arrow is mounted on a Truck-Mounted Attenuator in the closed lane. It is signaling for motorists to merge left but since it is in the closed lane it should signal lane closed using a straight bar.

PART 5: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. Most of the traffic control devices were in poor condition; either they were dirty, scuffed, bent, or very little reflectivity where it would prevent motorists from seeing them well when traveling at night.

2. The traffic pattern started right after the Exit 8 on ramp and the separation of a one-lane closure to a two-lane closure was reduced. With oncoming traffic and shortened length for a two-closure, the closures seemed abrupt. This resulted in a slowdown of mainline and on-ramp traffic flow.

3. The advance flashing arrow in the closed lane was not in the correct mode and the Changeable Message Sign before Exit 8 had a message that seemed rather long.

4. A Rolling Road Block was used for a total of 10 minutes (7:19 PM – 7:29 PM) to set up the work zone traffic pattern and then the left lane was opened up. The residual queue length is estimated to be about 3 miles.

5. The contract called for tape to be used for the temporary pavement markings; however, it would not be able to bond to the milled surface well.

RECOMMENDATIONS:

1. For traffic control signs and devices that were dirty, the best effort to clean them will help improve the reflectivity of the device. For bent or scuffed devices or devices missing reflective tape, they should be replaced. Devices in poor condition will prevent motorists from properly seeing the delineation of the traffic pattern possibly causing them to move into a closed lane.

2. The taper should be started after the Exit 8 off ramp closing only one lane and channeling the mainline traffic into three lanes. Another taper should be started for Exit 8 on-ramp traffic to merge them into the middle lane where the mainline traffic is. Once the Exit 8 traffic merges into traffic, the second lane should be taken channeling all traffic into the open lanes. This layout provides better spacing to allow traffic more time to stabilize between lane closures (see attached plan and aerial photo).

3. Proper use the advance warning devices will help better notify motorists of the road conditions ahead as well as where they are to be to avoid impedance on the road.

4. Contractor stayed within the allowed full road closure of up to 10 minutes.

5. The District applied best practices by changing the pavement markings from temporary tape to hot-applied paint.

PART 5: FINDINGS AND RECOMMENDATIONS

Submitted by: Kiah Patten Date: 10/14/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.10.14 11:38:34-04'00' Date: 10/14/2015

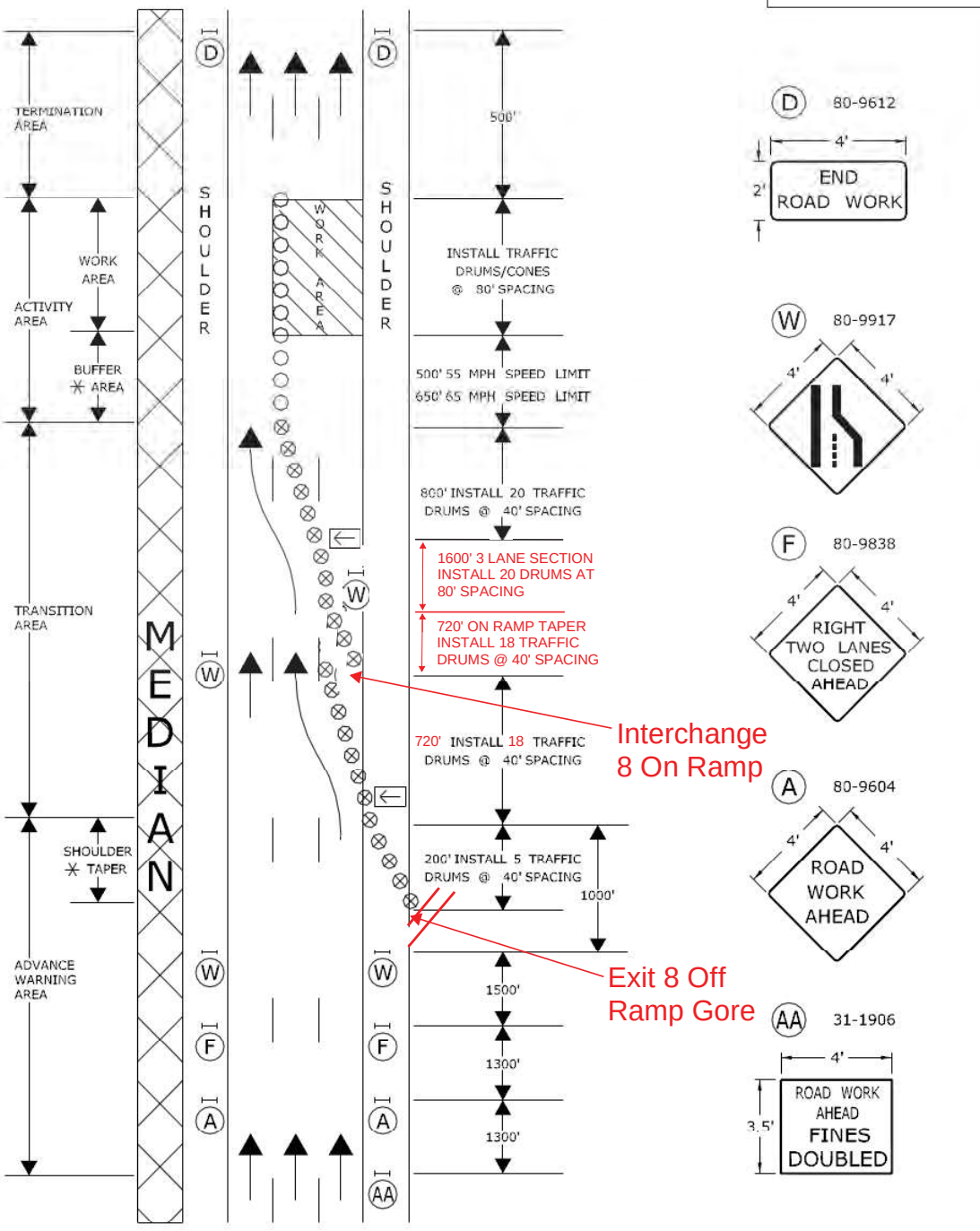
Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

WORK IN RIGHT TWO LANES - MULTILANE HIGHWAY

SIGN FACE
158 SQ. FT (MIN.)



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 2

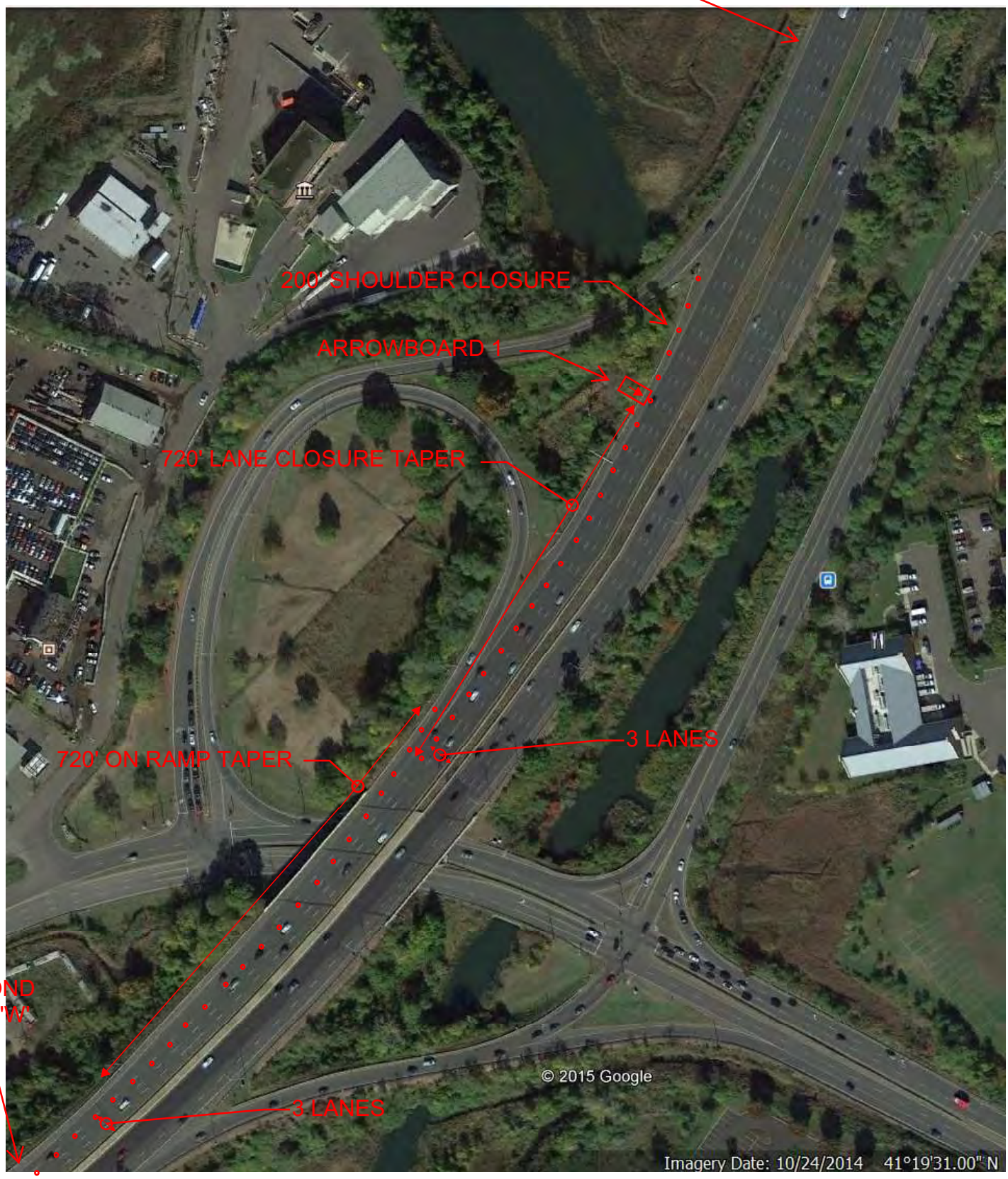
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 15:51:23-04'00'

ITEM #971001A


INSTALL SIGNS AA, A, F, and W
WITH 500' - 1500' SPACING
BEFORE THE EXIT 8 OFF RAMP
200' SHOULDER CLOSURE
ARROWBOARD 1
720' LANE CLOSURE TAPER
3 LANES
720' ON RAMP TAPER
SECOND
SIGN 'W'
3 LANES
© 2015 Google
Imagery Date: 10/24/2014 41°19'31.00" N

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0104-0164 **District:** 2

Date: 6/24/2015 **Time:** 7:00 pm **Weather, Temp.:** Clear, 76°

Town: Old Lyme **Route:** I-95

Road Type: ☒ Interstate ☐ Expressway ☐ Secondary ☐ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure ☐ Stage Construction

☐ Temporary Signalization ☐ Detour

☐ Pedestrian/Bicycle Access ☒ Night Work

Project Engineer: James Parsons **Chief Inspector:** Frank Morse

Prime Contractor: Tilcon Connecticut, Inc. **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $23,939,958.90 **Percent Complete:** 13%

Calendar Days Allotted: 610 **Calendar Days Completed:** 85

REVIEW PARTICIPANTS

NAME	REPRESENTING
James Parsons	District 2 Construction
Eugene Chuang – CEO	Garg Engineering
Frank Morse – Resident Inspector	Garg Engineering
Paul Stein – Chief Inspector	Garg Engineering
Steve Bartha – Office Engineer	Garg Engineering
Joseph Grasso	Office of Traffic
Anthony Kwentoh	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No, the Contractor performs their M&PT duties well and has the necessary devices to close the required lanes.

2. Have there been any incidents on your project? If any, what caused them?

There was one minor incident early in the project. A vehicle came into the closed lane and bumped a vehicle in front of them. The driver stated that they were distracted when changing the radio. A DOT incident report was sent out for the incident.

There was another minor incident where a bus broke down within the project limits early in the morning. The project worked with Highway Operations and the State Police to get the bus removed before the end of the shift at 0600 hours. There was no incident report filed for the incident.

3. What manuals, guides, etc. do you reference for work zone information?

   Special provisions, plans, MUTCD, and ATSSA guides. The Chief Inspector and the Resident Engineer are ATSSA trained and have many years of experience performing similar work.

4. What, if any, accommodations have been made for Emergency Services?

   To date no special accommodations have been made. Highway Operations is notified before coming out onto highway each night. There was a safety meeting held where East Lyme Police were invited but they didn't show up. The project will need the use of the local police when a detour is in place for the ramp closures in the third year of the project duration. They staff was told by the Office of Construction that they should notify the local fire departments and first responders of the work in the area to prevent any delay to emergency response.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   Not applicable.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   Material is stored in the Exit 72 gore area, East Lyme DOT Maintenance yard at Exit 74, and the Tilcon Plant in Old Saybrook.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is stored in the Exit 72 gore area and in the median behind the concrete barrier when not in use.

9. Chief Inspector Comments:

   The Resident Engineer asked about the use of State Police to enforce the speed limit within the work zones. He felt it was a successful strategy to get drivers to reduce their speeds while in the work zone although the project did call for the use of "Reduce

Speed to 45 mph" signs. He noticed how the adjacent project (Project 140-167) was able to use those signs and he thought it was an effective tool in getting drivers to slow down.

10. Project Engineer Comments:

The Project Engineer questioned why the adjacent project was able to go out onto the highway earlier than their project when there wasn't any difference in traffic volumes or loads from one project to the next. Resident Engineered stated that he did discuss with the Office of Traffic their concern and their response was that there was a change in traffic volumes on this segment of the highway from the time the adjacent project was designed to the time this one was designed. The Office of Construction suggested that they could send a request to the District to change their hours of operation if they feel it necessary to do so.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

There is no TMP for this project. The Project Engineer wasn't aware of where to find one if there was. He was told that a copy could be found on ProjectWise in the project's folder. It was discussed that there are efforts being made to improve notifying projects of existence of TMPs which applies to significant projects.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

NTC – Coordination with Flat Rock Road Project

NTC – Existing IMS, Rev. 4/16/13

NTC – Lighting for Night Work

NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 04/19/05

NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05

NTC – Use of State Police Officers, Rev. 062912

Section 12.08 – Sign Face – Sheet Aluminum, Rev. 11/03

Item # 0822064A – Moveable Temporary Barrier, Rev. 06/23/14

Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008

Item # 0971001A – Maintenance and Protection of Traffic, Rev. 2/25/13

Item # 0979003A – Construction Barricade Type III, Rev. 1/17/01

Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 12/02/02

Item # 1216020A – 6" Black Aggregate Cover-up Resin Pavement Markings

Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12

Item # 1803070A – Type B Impact Attenuation System (Flared), Rev. 6/28/13

Item # 1131015A – Radar Speed Trailer Display – Trailer Mount, Tow Behind, Rev. 8/29/14

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   Maintenance and Protection of Traffic – Shoulder Reconstruction, Maintenance and Protection of Traffic – Typical Staging Plan, Maintenance and Protection of Traffic – Typical Staging Section and Plan, Detour Plan – Southbound Exit 71 On-Ramp, Detour Plan – Southbound Exit 71 Off-Ramp

   The project staff says the plans are complete and current.

4. Is there stage construction? If so, explain.

   The stages proceed as follows: reconstruction of the right shoulder, reconstruction of the median, and finish with milling and paving. Currently, the Contractor is reconstructing the median one mile at a time behind 5000 feet of moveable barrier.

5. Are there any permitted load issues?

   No.

6. If there is temporary signalization? If so, explain.

   No.

7. If there is a detour? If so, explain.

   Yes, but not at the time of the review. The Contractor is allowed a fourteen day window to reconstruct the on and off ramps at Exit 71. When the ramps are being reconstructed there will be detours in place to redirect traffic. I-95 traffic will be detoured to bypass Exit 71 and take Exit 72 and local traffic will detour using local roads to get on at Exit 72.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes. If not, activities and/or objects are behind barrier.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☒	☐	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored?
☐	☒	**3. Warning lights?** Type: ☐ High intensity ☐ Low intensity
☐	☐	a. Functioning?
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☒ Truck-mounted
☒	☐	a. Functioning in the correct mode?
		b. Location? **One located in taper on NB side and one in taper on SB.**
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Two on NB and one on SB.**
		b. Location? **SB Exit 72 on ramp, NB Exit 69 gore area, NB Exit 69 on ramp**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Two**
☒	☐	e. Timing between screens acceptable?
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many? **Two**
		b. Location? **Within taper on NB and SB**
C.		**Temporary Pavement Markings** Type: ☐ Tape ☒ Paint ☐ Epoxy
☒	☐	Temporary pavement markings?
☒	☐	a. Legible?
☐	☒	b. Conflicting other markings?
☒	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☒ State Police ☐ Municipal Police ☐ Uniformed Flagger **Two troopers**

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. Motorists are exceeding the speed limit through work zones, let alone slowing down while in them.
2. The “Reduce Speed to 45 mph” signs weren’t included in project plans.
3. The length in time it takes for the computer to get set up in the field office by OIS, a backlog of reports is created.

RECOMMENDATIONS:

1. Adapt the use of Operation Big Orange for construction projects. Having an extra trooper tasked solely for enforcement brings confidence to project workers that speeds will be reduced.
2. Contact the Office of Traffic to see about getting the reduce speed signs back into project plans. Although not enforceable, still they are an effective tool in bringing awareness to motorists to slow down while in the work zone.
3. Update the field office specification to allow faster equipment prep and set up times.

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: The Changeable Message Sign in the Exit 69 gore area.

I-95 NB: "Left Lane Closed Ahead" sign

I-95 NB: Fines Doubled sign

I-95 NB: Deployment of the traffic pattern. The taper extending out to close the high speed (left) lane.

I-95 NB: "Road Work Ahead" sign

I-95 NB: A portable advance flashing arrow within the taper

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: A Type B Attenuation System with delineator on front

I-95 NB: "End Road Work" sign on top of patching in the high speed lane on the joint seam. The patching was done to prevent accidents especially for motorcyclists due to traffic shifts from the median work.

I-95 NB: The radar speed trailer in the median behind TPCB barrier

I-95 SB: The Changeable Message Sign in the Exit 72 gore area. This was the best location for the message sign although it is partially obstructed by the rock. The project is looking to move it to a better location now that the adjacent project is completed and their advance warning is removed.

I-95 NB: The moveable barrier and with moving device

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 SB: The advanced warning deployed on both sides of the highway

I-95 SB: A portable advanced flashing arrow within the taper

I-95 SB: Merge right signs on both sides of the highway

I-95 SB: A crash truck with a flashing arrow within the traffic pattern

I-95 SB: The Variable Message Sign stating there's a work zone near Exit 70

Route 9 SB: A Changeable Message Sign and a legal series 16 sign on the I-95 NB on ramp

PART 5: WORK ZONE INSPECTION PHOTOS

Traffic devices stored in the Tilcon, Old Saybrook yard

Stock piled material stored in the Tilcon, Old Saybrook yard

Submitted by: Kiah Patten Date: 7/8/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.07.08 08:56:03-04'00' Date: 7/8/15

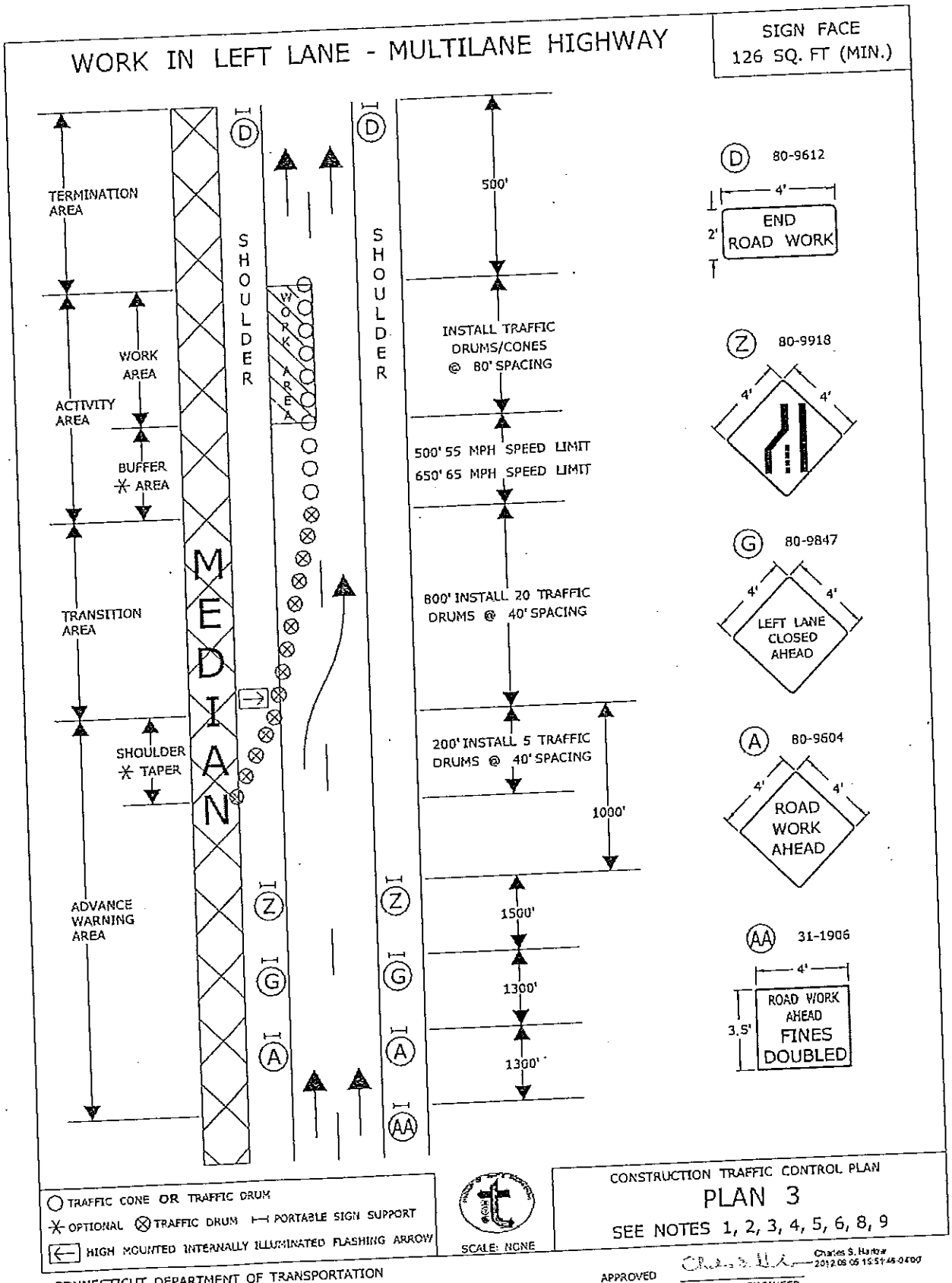
Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

TRAFFIC PATTERN IN PLACE AT THE TIME OF WORK ZONE REVIEW

Rev. Date 2/25/13



ITEM #0971001A

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0115-0114 **District:** 2

Date: 9/9/2015 **Time:** 1:00 pm **Weather, Temp.:** Sunny, 88°

Town: Putnam **Route:** 44

Road Type: ☐ Interstate ☐ Expressway ☒ Secondary ☐ Local

FOCUS OF REVIEW:

☐ Temporary Lane Closure
☒ Temporary Signalization
☒ Pedestrian/Bicycle Access
☐ Stage Construction
☒ Detour
☐ Night Work

Project Engineer: James Parsons **Chief Inspector:** Joel Dillis

Prime Contractor: Northern Constr. Service, LLC **Inspection Forces:** ☒ State ☐ Consultant

Contract Value: $3,687,378.50 **Percent Complete:** 67%

Calendar Days Allotted: 243 **Calendar Days Completed:** 162

REVIEW PARTICIPANTS

NAME	REPRESENTING
James Parsons	District 2 Construction
Joel Dillis	District 2 Construction
Brett Stoeffler	Division of Traffic
Anthony Kwentoh	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What manuals, guides, etc. do you reference for work zone information?

The project personnel reference the special provisions, plans, and specifications. DOT Traffic was contacted for special situations (signal timings, added signs, etc.)

4. What, if any, accommodations have been made for Emergency Services?

   Siren-activated pre-emption detectors are installed on the temporary signalized intersections for Emergency vehicles. Local EMS services were notified of construction activities in a Work Zone Safety meeting prior to the project initiation. The meeting was held at the Town Police Department where Putnam Police, Day Kimball Hospital, and Putnam Fire attended. The project is working with local police to get project information disseminated to other parties.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   The contract plans call for sidewalks to be available at all times across the structure during construction. The Contractor built a temporary walkway over the work area to allow pedestrians to cross the site.

6. Have ADA requirements been met for pedestrians?

   Yes, the temporary walkway is ADA compliant.

7. Where is the designated laydown area for materials to be stored?

   Materials are to be stored at the southeast corner of the bridge including a commuter parking lot which is fenced and the northwest corner of the project near the radio station parking area. Laydown areas do not affect pedestrian access through the project.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   The equipment is stored in the southeast and northwest corners of the project along with the materials.

9. Chief Inspector Comments:

   The Chief Inspector has no comments.

10. Project Engineer Comments:

    The Project Engineer has no comments.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no Transportation Management Plan for this project. The Project Engineer knows that if there was a TMP, he could find it on ProjectWise.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 05/05/14

   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05

   Item # 0201451A – Temporary Protective Fence, Rev. 05/15/14

   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 01/08

   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 01/08

   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 2/25/13

   Item # 0979003A – Construction Barricade Type III, Rev. 4/22/14

   Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 12/02/02

   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12

   Neither the Project Engineer nor Chief Inspector had any concerns with the above listed special provisions.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   The project plans include a detour Plan and an M&PT Plan. Neither of them have any concerns with the plans. The work zone was installed according to plan and tweaked them by installing more signs as requested by local police.

4. Is there stage construction? If so, explain.

   No.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   No, however, the Office of Motor Transport (Load Permits) wasn't informed that the road was closed. All the redirected traffic is able to go through the detour without issue.

6. Is there temporary signalization? If so, explain.

Yes. Temporary signalization is used in the detour to route traffic around the work zone. A temporary signal was installed at the intersection of Pomfret Street (Route 44) and Church Street (originally a beacon) and another at the intersection of Bridge Street and Church Street (originally a four-way stop). The timing and equipment modifications were done to the existing signal at the intersection of Route 44 and Kennedy Drive.

7. Is there a detour? If so, explain.

   Yes. Since Route 44 at the bridge is closed, traffic is detoured from Route 44 to Kennedy Drive to Route 171 to Church Street back to Route 44. See detour map attached.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☒	☐	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☒ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☐ Cones ☒ Drums ☒ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored?
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☐ Low intensity
☒	☐	a. Functioning?
☐	☒	**4. Advance Flashing Arrow?** Type: ☐ Portable ☐ Truck-mounted
☐	☐	a. Functioning in the correct mode?
		b. Location?
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **One**
		b. Location? **Kennedy Drive at Bridge Street**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Two**
☒	☐	e. Timing between screens acceptable?
☐	☒	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many?
		b. Location?
C.		**Temporary Pavement Markings** **Town requested to not mark Church Street yet.**
☐	☒	Temporary pavement markings? Type: ☐ Tape ☐ Paint ☐ Epoxy
☐	☐	a. Legible?
☐	☐	b. Conflicting other markings?
☐	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☐ State Police ☒ Municipal Police ☐ Uniformed Flagger

PART 4: WORK ZONE INSPECTION PHOTOS

Pomfret Street (Route 44) EB: The road closure with use of Type III barricades. There is a STOP sign, BRIDGE OUT sign, and dated start to end.

Church Street NB: The temporary signal that replaced the existing four-way stop at the intersection of Bridge and Church Streets.

Pomfret Street (Route 44) EB: There is a SIDEWALK CLOSED AHEAD sign with arrows to notify pedestrians to cross the street to the temporary pedestrian walkway on the other side. There is a sign notifying all road users that the bridge will be closed from May 6. 2015 to November 30, 2015.

Church Street NB: A DETOUR sign atop a route sign advising motorists the detour route to get to Route 44 around the bridge closure.

PART 4: WORK ZONE INSPECTION PHOTOS

Church Street NB: Detour signs directing motorists to turn onto Providence Street (Route 171).

Providence Street (Route 171) SB: The detour route connecting back to School Street (Route 44) and advising motorists that turning left will keep them on Route 44.

Providence Street (Route 171) SB: A construction sign informing motorists that ROUTE 44 AND KENNEDY DRIVE BUSINESSES ARE OPEN DURING CONSTRUCTION. The sign beneath it put up by the Town says DOWNTOWN STORES OPEN FOR BUSINESS.

School Street (Route 44) EB: An END DETOUR sign advising motorists that after turning left onto Route 44 the detour has ended.

PART 4: WORK ZONE INSPECTION PHOTOS

School Street (Route 44/12) WB: A post-mounted ROAD WORK AHEAD sign with a barricade warning light affixed.

School Street (Route 44/12) WB: The bridge closure from the west side. Detour signs posted to route traffic down Bridge Street.

School Street (Route 44/12) WB: A construction sign saying ROUTE 44 WEST CLOSED, FOLLOW DETOUR with an extra barricade warning light affixed.

School Street (Route 44/12) WB: Another date range sign informing motorists how long the bridge will be closed for.

PART 4: WORK ZONE INSPECTION PHOTOS

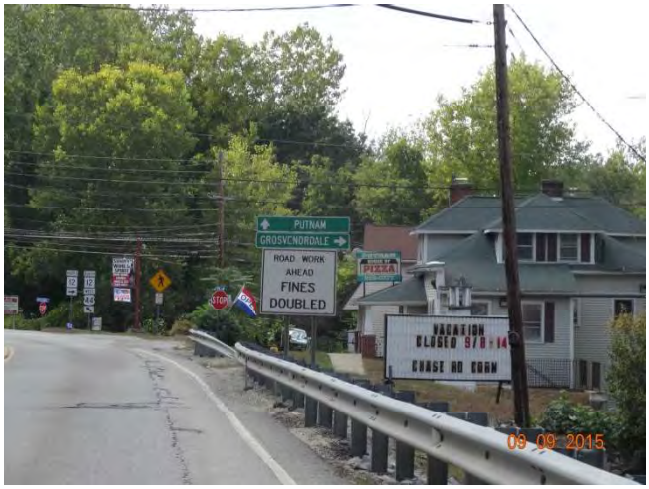
Kennedy Drive NB: The only Changeable Message Sign (CMS) for the project which is located behind the sidewalk. The first frame says DOT NOT BLOCK.

School Street (Route 44/12) EB: The END DETOUR sign just beyond the intersection of Route 171 and Route 44/12.

Kennedy Street NB: The second frame says INTERSECTION.

School Street (Route 44) WB: A legal series sign approaching the junction with Route 12 and the intersection with Route 171.

PART 4: WORK ZONE INSPECTION PHOTOS



School Street (Route 44) WB: A FINES DOUBLED sign that was mounted on the existing locational signs.

School Street (Route 44/12) WB: A post-mounted ROAD WORK AHEAD sign with a high-intensity barricade warning light attached.

School Street (Route 44/12) WB: Approaching the intersection with Providence Street (Route 171), there is a post-mounted sign with an extra barricade warning light attached stating ROUTE 44 CLOSED AT KENNEDY DRIVE, LOCAL TRAFFIC ONLY. Another construction sign behind it is posted to the utility pole. It states DOWNTOWN BUSINESSES OPEN DURING CONSTRUCTION.

Providence Street (Route 171) NB: A construction sign posted on a utility pole states ROUTE 44 AND KENNEDY DRIVE BUSINESSES OPEN DURING CONSTRUCTION.

PART 4: WORK ZONE INSPECTION PHOTOS

Church Street SB: Approaching the intersection with Pomfret Street (Route 44), a construction sign with a warning light is mounted on an existing advisory sign pole. It depicts a temporary signal ahead.

Pomfret Street (Route 44) EB: The construction site where the bridge over the Quinebaug River is closed.

Pomfret Street (Route 44) EB: The temporary pathway built over the work area allowing pedestrians to still use Route 44. To the left,, material is stored in the parking lot of the local radio station.

Pomfret Street (Route 44) EB: The Quinebaug River to the left of the pathway.

PART 4: WORK ZONE INSPECTION PHOTOS

Pomfret Street (Route 44) EB: The work area on the right of the pathway.

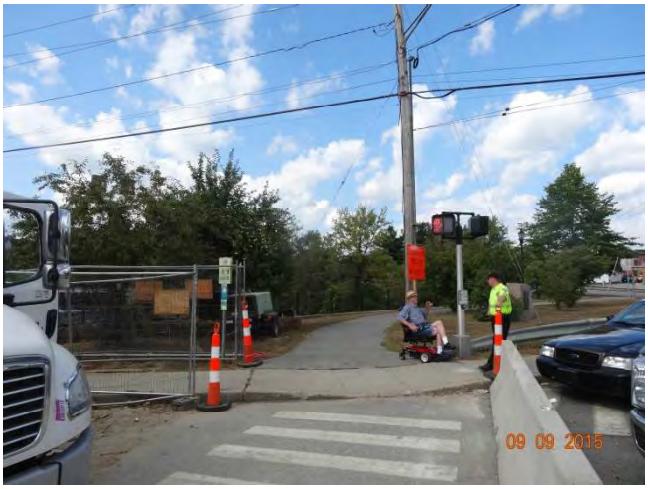
Pomfret Street (Route 44) EB: The Contractor built a temporary walkway for workers to access the work surface below on the north side of the bridge.

Pomfret Street (Route 44) WB: A pedestrian using the temporary pathway crossing over the work area.

Pomfret Street (Route 44) WB: Material stored at the southeast corner of the project and a work table for the workers to craft forms.

PART 4: WORK ZONE INSPECTION PHOTOS

Pomfret Street (Route 44) WB: A temporary stairway built for workers to access the area beneath the south side of the bridge.



Pomfret Street (Route 44) WB: The local police on site with a disabled pedestrian on the sidewalk adjacent to the temporary pathway.

PART 5: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. The temporary pathway was built to meet the requirement of having a sidewalk open at all times, however, the Contractor installed the forms for the parapet walls that will be poured at a later date and then built the sidewalk on top.

RECOMMENDATIONS:

1. Meeting two contract requirements of installing concrete formwork and a temporary sidewalk over a bridge done in one installation a good practice in saving time and money when completing similar bridge rehabilitation projects.

Submitted by: Kiah Patten Date: 10/14/15

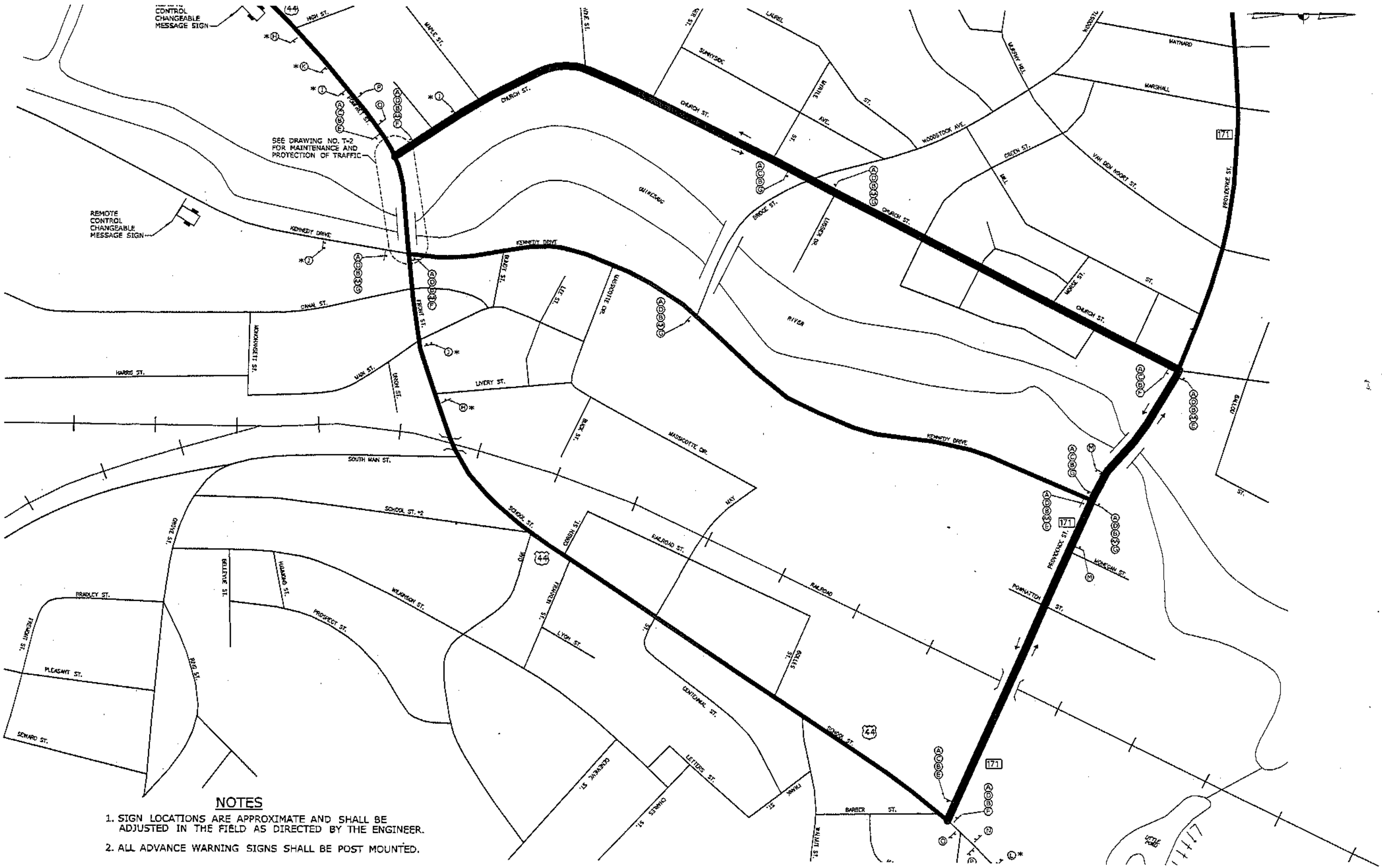
Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.10.14 11:40:48-04'00' Date: 10/14/2015

Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)



NOTES

1. SIGN LOCATIONS ARE APPROXIMATE AND SHALL BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.
2. ALL ADVANCE WARNING SIGNS SHALL BE POST MOUNTED.

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0153-0118 **District:** 4

Date: 8/3/2015 **Time:** 9:00 am **Weather, Temp.:** Sunny, 78°

Town: Watertown **Route:** 73

Road Type: ☐ Interstate ☐ Expressway ☒ Secondary ☐ Local

FOCUS OF REVIEW:

☐ Temporary Lane Closure ☐ Stage Construction

☐ Temporary Signalization ☐ Detour

☒ Pedestrian/Bicycle Access ☐ Night Work

Project Engineer: James Zaharevich **Chief Inspector:** Bruce Leavenworth

Prime Contractor: Dayton Construction Co, Inc. **Inspection Forces:** ☒ State ☐ Consultant

Contract Value: $ 1,191,120.34 **Percent Complete:** 90%

Calendar Days Allotted: 255 **Calendar Days Completed:** 225

REVIEW PARTICIPANTS

NAME	REPRESENTING
Bruce Leavenworth	District 4 Construction
Brian Martins	District 4 Construction
Chris Zmuda	District 4 Construction
Michael Chachakis	Office of Traffic
David Rundio	Office of Traffic
Anthony Kwentoh	Office of Construction
Shannon Browne	Office of Construction – Quality of Assurance
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What manuals, guides, etc. do you reference for work zone information?

   Highway plans, contract specifications, and the MUTCD.

4. What, if any, accommodations have been made for Emergency Services?

   During the use of an alternating one-way traffic pattern, EMS has priority to go through the open lane. Watertown Police Department attended the Work Zone Safety meeting held at the start of the project and Town of Watertown attends the project's biweekly progress meetings.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   No special accommodations have been made for pedestrians or bicyclists because the road was wide enough for them to travel alongside vehicular traffic. When the stage construction was in place, pedestrians were guided behind concrete barrier. The road did not originally have a sidewalk alongside it even though there was a lot of pedestrian traffic. The Town requested the Department to include an installation of a five-foot sidewalk in the project which was added during the construction phase. The Department paid for the installation but the Town will maintain it once installed.

6. Have ADA requirements been met for pedestrians?

   Yes, the newly installed sidewalks are ADA compliant and include ramps with detectable warning surface.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored in the gravel parking area behind the gym located at the 900 Main Street business complex or at the back of the pizza place parking area across the street.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   The equipment is stored in the area behind the gym, pizza place, or behind barrier within the work zone.

9. Chief Inspector Comments:

   The Chief Inspector said the design of the project was changed significantly than originally planned. The sidewalk was added to the project after the start of construction. The biggest change was to resolve drainage issues. The utility companies had a test pit done but the findings weren't reliable. The drainage plans were discarded and the drainage had to be redesigned.

10. Project Engineer Comments:

    The Project Engineer didn't attend the review to comment.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There was no TMP for this project. The Chief Inspector was told the significance of having a TMP on the project and where to find the TMP on ProjectWise if the project had one.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Traffic Drums and Traffic Cones, 04/19/05
   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 04/19/05
   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008
   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008
   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 12/16/13
   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/17/01

   The project staff didn't have any concerns with the above listed special provisions.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   There weren't any specific traffic plans for the project but there were Staging Plans within the Highway Plans.

4. Is there stage construction? If so, explain.

   Yes. Stage 1: Installed barrier on the southbound side of Route 73 and rock removal done; Stage 2: Remove barrier and do drainage on southbound side; Stage 3: Shifted traffic and widened northbound side; Stage 4: Install barrier on northbound side and complete drainage; Stage 5: Remove barrier and do pavement overlay.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   No.

6. If there is temporary signalization? If so, explain.

   No.

7. If there is a detour? If so, explain.

   No.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes, but if the 30 feet clear zone can't be maintained the materials/equipment are protected by barrier. Also, the barrier ends are protected by Type A impact attenuation.

PART 3: WORK ZONE INSPECTION CHECKLIST

With failed communication, at the time of the review the Contractor was not working on this day. No project activities or use of trafficpersons were observed.

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored?
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☐ Low intensity
☒	☐	a. Functioning?
☐	☒	**4. Advance Flashing Arrow?** Type: ☐ Portable ☐ Truck-mounted
☐	☐	a. Functioning in the correct mode?
		b. Location?
☐	☒	**5. Changeable Message Sign (CMS)?**
		a. How many?
		b. Location?
☐	☐	c. Message understandable?
		d. Number of frames displayed?
☐	☐	e. Timing between screens acceptable?
☐	☒	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many?
		b. Location?
C.		**Temporary Pavement Markings**
☒	☐	Temporary pavement markings? Type: ☐ Tape ☒ Paint ☐ Epoxy
☒	☐	a. Legible?
☐	☒	b. Conflicting other markings?
☐	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☐ State Police ☒ Municipal Police ☐ Uniformed Flagger

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. Some of the detectable warning did not extend the width of the sidewalk.
2. The plywood protecting the sidewalk from the concrete barrier projected into the travel way of the new sidewalk and posed as a trip hazard to pedestrians.
3. The delineators on the concrete barrier were in poor condition, were not facing in the correct direction, or were missing the appropriate color on one side.

RECOMMENDATIONS:

1. According to ADA requirements, the detectable warning needs to extend a minimum of two feet in the direction of travel and the width of the curb ramp.
2. The plywood should be cut down to the edge of the barrier or smaller pieces be used to rest the barrier on.
3. The delineators should be replaced. Delineators with the appropriate colors of white (used on the right side of oncoming traffic) and yellow (used on the left side of oncoming traffic) should be used.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 73 NB: A post-mounted legal series sign and a RAISED STRUCTURES IN ROADWAY at the south end of the project.

Route 73 NB: The detectable warning in the newly installed sidewalk. The width of the warning is too short. The requirement for detectable warning is a minimum of two feet in the direction of travel and the full width of the curb ramp.

Route 73 SB: A new sidewalk with the detectable warning. There are traffic drums moved onto the sidewalk so the road could get paved.

Route 73 NB: Newly paved roadway with traffic devices along the sides covering structures in the road.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 73 NB: Concrete barrier that was previously separating the road from the pedestrian walkway. The Contractor put the barrier on the plywood to protect the new sidewalk but refused to cut it because they were good pieces. The large pieces of plywood were trip hazards to pedestrians using the sidewalk.

Route 73 NB: A traffic drum over a catch basin to inform motorists of structure when it was raised higher than the roadway before paving.

Route 73 NB: A temporary lane divider moved to the side of the road so it could be paved.

Route 73 NB: The lane divider to advise motorists of two-way traffic on the road before paving and line striping was done.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 73 NB: The delineators on the concrete barrier were in poor condition. They were bent over and misshapened. Some were facing the wrong direction or didn't have the second color on the opposite side.

Route 73 NB: A traffic drum on a raised manhole and the mark out on the road where the bituminous concrete curb will be installed.

Route 73 SB: A pedestrian using the sidewalk and walking over the wood boards.

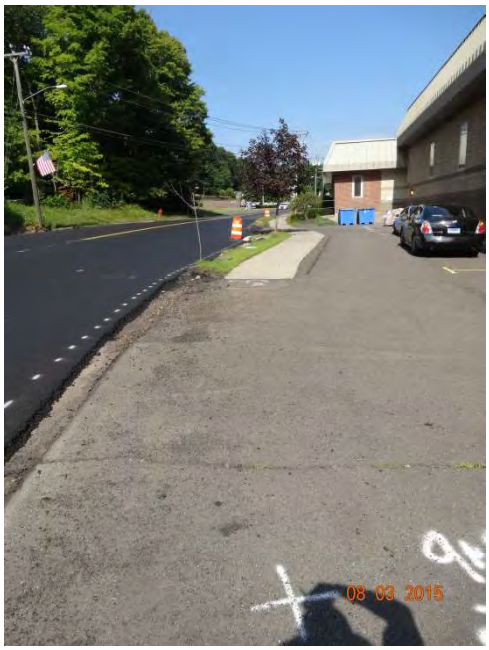
Route 73 NB: A manhole cover over with plastic and tape to prevent it being sealed from the concrete pour for the sidewalk.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 73 NB: Plywood covering a detectable warning pad. This poses as another unnecessary trip hazard.

Route 73 NB: Asphalt that was temporary placed in an adjacent driveway to Route 73 to make a transition from the higher roadway to lower lot. The mark out is where the Contractor will sawcut and take out the existing pavement and replace with new pavement.

Route 73 SB: The sidewalk curb lip is higher than the half inch requirement from the roadway. Although this is a new sidewalk on the route, it still needs to meet ADA requirements during construction not just at the finished state.



Route 73 NB: The existing sidewalk that matches the existing driveway.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 73 SB: A temporary construction sign warning motorists of what used to be a bump from the existing pavement to the lower thin lift of pavement on project. If the presence of a hazard to motorists is no longer a threat, signs warning motorists of said threat should be removed.

Route 73 SB: A post-mounted SHOULDER CLOSED sign with a high-intensity warning light attached.

Route 73 NB: A post-mounted END ROAD WORK sign at the north end of the project.

Route 73 SB: A post-mounted ROAD WORK AHEAD sign with a warning light attached.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 73 NB: The mark out curved around the manhole to ensure that the bituminous curb is placed behind the structure and not over it.

Rockdale Avenue: A post-mounted legal series sign and a post-mounted ROAD WORK AHEAD sign with a high-intensity warning light attached.

Rockdale Avenue: A post-mounted END ROAD WORK sign on the road adjacent to the business complex with the fitness center.

Route 73 SB: A post-mounted END ROAD WORK sign at the south end of the project.

Submitted by: Kiah Patten Date: 8/17/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.08.19 14:00:39-04'00' Date: 8/19/2015

Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0157-0083 & 0157-0084 **District:** 3

Date: 8/18/2015 **Time:** 9:00 AM **Weather, Temp.:** Sunny, 86°

Town: Weston **Route:** 57

Road Type: ☐ Interstate ☐ Expressway ☒ Secondary ☐ Local

FOCUS OF REVIEW:

☐ Temporary Lane Closure
☒ Temporary Signalization
☒ Pedestrian/Bicycle Access
☒ Stage Construction
☒ Detour
☐ Night Work

Project Engineer: Shawn Beaulieu **Chief Inspector:** Raza Ahmad

Prime Contractor: McNamee Construction Corp. **Inspection Forces:** ☒ State ☐ Consultant

Contract Value: $2,688,935.90 **Percent Complete:** 33%

Calendar Days Allotted: 203 **Calendar Days Completed:** 133

REVIEW PARTICIPANTS

NAME	REPRESENTING
Shawn Beaulieu	District 3 Construction
Raza Ahmad	District 3 Construction
Mohamad Alramahi	District 3 Construction
Claudel Meronnis	Office of Traffic
Anthony Kwentoh	Office of Construction
Shannon Browne	Office of Construction – Quality Assurance
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What manuals, guides, etc. do you reference for work zone information?

The inspection staff refers to the project plans and Department sign catalog.

4. What, if any, accommodations have been made for Emergency Services?

   157-083: The town of Weston is aware of the ongoing project and was a part of planning the detour for the project. The Town made accommodations with neighboring towns (Georgetown, Reading, and Wilton) for emergency services for motorists detoured through their towns. There is a dry hydrant near the waterway on the edge of the project limits available for use.

   157-084: The road is still open for EMS to bypass project.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   157-083: No accommodations have been made. There weren't any pedestrians and bicyclists in the area that need to be rerouted during the progress of the project.

   157-084: For bicyclists, signs have been put up to warn them to obey traffic signals. There weren't any pedestrians that walked through the area prior to the start of the project. If there were any, they would use the shoulder which is still open for use.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   157-083: Materials are stored within the closed roadway next to the project.

   157-084: Materials are stored within the closed lane behind concrete barrier.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   157-083: Equipment is stored within the closed roadway next to the project.

   157-084: Equipment is stored within the closed lane behind concrete barrier.

9. Chief Inspector Comments:

   157-083: The Chief Inspector had no comments.

   157-084: The Chief Inspector felt the Contractor did well in proposing to change from using a detour to using a temporary signal at no cost to the State.

10. Project Engineer Comments:

    157-083: The Project Engineer thinks the detour with the one-way traffic flow on the portion of Route 57 adjacent to the project is not desirable. With the length of the

detour being approximately 15 miles, it presents a challenge to the motorists traveling towards the one-way outlet. Motorists are limited to get to their destination and may travel an extensive route to get there.

157-084: The Project Engineer had no comments.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no TMP for this project. The Project Engineer was informed about the purpose of the TMPs for significant projects and the location of TMPs on ProjectWise for future reference.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 05/05/14
   Item # 0913952A – Protective Fence (5' High), Rev. 07/16/14
   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008
   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008
   Item # 0979003A – Construction Barricade Type III, Rev. 4/22/14
   Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 12/02/02
   Item # 1206023A – Removal and Relocation of Existing Signs, Rev. 1/5/12
   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12
   Item # 1803060A – Type B Impact Attenuation System (Non-Gating), Rev. 6/28/13
   Item # 1803071A – Type B Impact Attenuation System (Tangential), Rev. 6/28/13

   The project personnel had no concerns with the above listed special provisions.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   157-083: Detour Plan

   157-084: Stage Construction

4. Is there stage construction? If so, explain.

   157-083: No.

157-084: Yes. Traffic is shifted to the northbound side through an alternating one-way traffic pattern with use of a temporary signal. The southbound side is closed with a concrete barrier in place for work to replace the retaining wall.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   157-083: The Project Engineer called Linda Hope in the Motor Transport (Permits) Office before the detour went into place to inform them to take that portion of Route 57 out of truck routes.

   157-084: No issues.

6. If there is temporary signalization? If so, explain.

   157-083: No.

   157-084: Yes. There is an alternating one-way traffic pattern on the northbound side of Route 53 with the use of a temporary signal.

7. If there is a detour? If so, explain.

   157-083: Yes. There is a 15 mile detour with a portion of Route 57 adjacent to the project allowing only one-way traffic. The detour reroutes traffic from Route 57 to Route 53 to Route 7.

   157-084: No.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes. If equipment or materials are within 30 feet of the edge of the roadway, they are positively protected.

PART 3: WORK ZONE INSPECTION CHECKLIST

157-083 WORK ZONE INSPECTION

Yes	No	
A. Travel Hazards		
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B. Traffic Control Devices		
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☐ Cones ☒ Drums ☒ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☐	☒	c. Anchored?
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☐ Low intensity
☒	☐	a. Functioning?
☐	☒	**4. Advance Flashing Arrow?** Type: ☐ Portable ☐ Truck-mounted
☐	☐	a. Functioning in the correct mode?
		b. Location?
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Four**
		b. Location? **Along detour route**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Three frames**
☒	☐	e. Timing between screens acceptable?
☐	☒	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many?
		b. Location?
C. Temporary Pavement Markings		
☐	☒	Temporary pavement markings? Type: ☐ Tape ☐ Paint ☐ Epoxy
☐	☐	a. Legible?
☐	☐	b. Conflicting other markings?
☐	☐	c. If nighttime, markings visible?
D. Personal Protective Equipment		
☒	☐	Is everyone wearing the proper reflective equipment?
E. Traffic Control Personnel		
		☐ State Police ☒ Municipal Police ☐ Uniformed Flagger

PART 3: WORK ZONE INSPECTION CHECKLIST

157-084 WORK ZONE INSPECTION

Yes	No	
A. Travel Hazards		
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B. Traffic Control Devices		
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **On 7 foot posts**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☒ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☒	☐	c. Anchored?
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☐ Low intensity
☒	☐	a. Functioning?
☐	☒	**4. Advance Flashing Arrow?** Type: ☐ Portable ☐ Truck-mounted
☐	☐	a. Functioning in the correct mode?
		b. Location?
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Two**
		b. Location? **Various locations**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **One frame**
☒	☐	e. Timing between screens acceptable?
☐	☒	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many?
		b. Location?
C. Temporary Pavement Markings		
☒	☐	Temporary pavement markings? Type: ☐ Tape ☒ Paint ☐ Epoxy
☒	☐	a. Legible?
☐	☒	b. Conflicting other markings?
☐	☒	c. If nighttime, markings visible?
D. Personal Protective Equipment		
☒	☐	Is everyone wearing the proper reflective equipment?
E. Traffic Control Personnel		
		☐ State Police ☒ Municipal Police ☐ Uniformed Flagger

PART 4: WORK ZONE INSPECTION PHOTOS

0157-0083 PROJECT PHOTOS

Route 57 SB: A post-mounted legal series sign on 7-foot posts.

Route 57 SB: Approaching the work zone where traffic drums are closing the northbound side of Route 57.

Route 57 SB: A post-mounted ROAD WORK AHEAD sign with a high-intensity barricade warning light.

Route 57 SB: Type III barricades with high-intensity warning lights on top and a ROAD CLOSED sign attached in front. The plans called for a stop sign in front as well but with the angle of the barricades, motorists bypassing don't need to stop, they need to continue pass. A stop sign would be needed if motorists were trying to turn onto the roadway that was closed.

PART 4: WORK ZONE INSPECTION PHOTOS

Cobbs Mill Road WB: A blue BUSINESS ACCESS sign notifying that a restaurant near the project site was still open. A DETOUR sign on top of a regulatory Route 57 sign instructing motorists to stay on current route to get to Route 57. This sign may show that the signs on the detour may not be visible enough for motorists to be directed appropriately through the detour.

Old Mill Road NB: A post-mounted legal series sign on 7-foot posts.

Old Mill Road NB: A temporary ROAD WORK AHEAD FINES DOUBLED sign.

Old Mill Road NB: Type III barricades closing the northbound lane with a ROAD CLOSED and STOP sign in front. Also a Changeable Message Sign notifying motorists of the closure.

PART 4: WORK ZONE INSPECTION PHOTOS

Old Mill Road NB: The first frame of the CMS stating ROAD CLOSED NORTHBOUND.

Old Mill Road NB: The third frame stating TURN AROUND NOW!!!!

Old Mill Road NB: The second frame stating ONE WAY, DO NOT ENTER.

Old Mill Road NB: An impact attenuation system with a chevron sign on front in the northbound side just beyond the barricades.

PART 4: WORK ZONE INSPECTION PHOTOS

Old Mill Road SB: A concrete barrier curb in the northbound lane with end protected by impact attenuation system.

Old Mill Road NB: Traffic drums closing the northbound lane and guiding traffic in the southbound lane down Route 57.

Old Mill Road NB: Fiberglass bracing and an excavator within the closed northbound lane.

Route 57 NB: The dewatering system and material stored adjacent to the project.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 57 NB: The filtration system for the water deviated from the brook.

Route 57 NB: The work area with sheet piling installed and the work crew working on the southbound side of Route 57.

Route 57 NB: A pile of gravel next to an excavator behind a concrete barrier curb in the closed northbound lane.

Route 57 NB: The work crew within the excavation working on the footing of the new bridge.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 57 SB: Motorists driving through the one-way portion of the detour around the project.

Route 57 SB: Materials stored in the northbound side of Route 57 behind the traffic drums. The materials should be stored in an area that is positively protected.

PART 4: WORK ZONE INSPECTION PHOTOS

0157-0084 PROJECT PHOTOS

Route 53 NB: A Changeable Message sign with one frame notifying motorists CAUTION SIGNAL AHEAD. The CMS is only behind traffic drums but should be positively protected since it is a blunt end.

Route 53 NB: A post-mounted ROAD WORK AHEAD sign with a high-intensity barricade warning light.

Route 53 NB: A post-mounted traffic signal sign and a sign warning cyclists that CYCLISTS MUST OBEY SIGNALS.

Route 53 NB: Approaching the work zone which has an alternating one-way traffic pattern with a temporary signal.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 53 NB: Another sign reminding cyclists to obey the traffic signal.

Route 53 NB: The green light of the temporary signal.

Route 53 NB: The stop bar with sign and red light on the temporary signal.

Route 53 NB: The work zone behind concrete barrier curb.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 53 NB: The work crew is replacing the retaining wall.

Route 53 NB: An END ROAD WORK sign.

Route 53 NB: The temporary signal at the entrance to the Weston Racquet Club.

Route 53 SB: A Changeable Message sign with one frame notifying motorists CAUTION SIGNAL AHEAD. The CMS is behind traffic drums but should be positively protected.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 53 SB: A post-mounted legal series sign.

Route 53 SB: A post-mounted ROAD WORK AHEAD FINES DOUBLED sign.

Route 53 SB: A post-mounted ROAD WORK AHEAD sign with a high-intensity warning light.

Route 53 SB: A post-mounted ONE LANE ROAD AHEAD sign with a warning light.

PART 4: WORK ZONE INSPECTION PHOTOS

Route 53 SB: A post-mounted traffic signal light and a sign warning cyclists.

Route 53 SB: A temporary NO SHOULDER sign. The project staff stated that if there are pedestrians on the route they would use the shoulder. The work zone causes the shoulder to be closed.

Route 53 SB: A red light on the temporary signal and a truck waiting at the stop bar signaled by the sign. There is another sign at the stop bar reminding cyclists to obey the traffic signal.

Route 53 SB: The green light of the temporary signal.

PART 5: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. The Project Engineer stated that motorists are having difficulty going through the detour for Project 157-083 without getting confused on the direction because the detour is very long.
2. The original plan for the two projects was to have a detour for both projects but they had to run consecutively. The Contractor thought he would not be able to the finish the retaining wall in time to do the bridge replacement within the time frame given.

RECOMMENDATIONS:

1. The project needed two more signs and bigger signs to better direct motorists through the detour.
2. The Contractor proposed to change the detour for the retaining wall (Project 157-084) to a temporary signal, this way both projects could be done concurrently allowing him enough time to do both projects without rushing the work and to finish within the time frame given.

Submitted by: Kiah Patten Date: 9/14/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.09.15 09:06:21-04'00' Date: 09/15/15

Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0160-0145 **District:** 1

Date: 7/22/15 **Time:** 5:00 pm **Weather, Temp.:** Sunny, 80°

Town: Willington **Route:** I-84

Road Type: ☒ Interstate ☐ Expressway ☐ Secondary ☐ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure
☐ Temporary Signalization
☐ Pedestrian/Bicycle Access
☐ Stage Construction
☐ Detour
☒ Night Work

Project Engineer: Dilraj Josen **Chief Inspector:** Bret Kaczka

Prime Contractor: Palmer Paving Corporation **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $ 11,151,751.90 **Percent Complete:** 10%

Calendar Days Allotted: 169 **Calendar Days Completed:** 75

REVIEW PARTICIPANTS

NAME	REPRESENTING
Dilraj Josen	District 1 Construction
Terry McAuliffe – Asst. Resident Engineer	Tectonic
Brett Stoeffler	Office of Traffic
Anthony Kwentoh	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What manuals, guides, etc. do you reference for work zone information?

The inspection staff uses the project specifications. The inspectors should be familiar with ATSSA Guides for Work Zone Traffic Control.

4. What, if any, accommodations have been made for Emergency Services?

   When the Contractor sees an Emergency vehicle's flashing lights, the State Police will assist the Emergency vehicle through the work zone. The project held a Work Zone Safety Meeting and invited both the State Police and Tolland Police but neither showed up. They were informed afterwards of the details of the project. The Rockville General Hospital is near the project site but wasn't informed of the project activities.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   Not applicable.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored in the Contractor's yard next to the field office off Exit 74.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is stored at the Contractor's yard off Exit 74. All equipment brought out onto the highway is brought back in at the end of the shift to be stored there.

9. Chief Inspector Comments:

   The Officer Engineer said there was an issue with the Contractor complying with the specification to have 7-foot stands for the temporary exit signs. The Office Engineer said the Contractor may have had an issue with the high cost of $1500. It was observed that adjacent projects don't use the 7-foot stands either so that may be a recurring problem. Once enforced that they had to comply, the Contractor still had trouble this time with procuring them. It took two to three weeks to come in.

   Another concern was with taper at the end of the Exit 72 on ramp that merged oncoming motorists into the mainline traffic. He felt it should be comprised of traffic drums not traffic cones. He felt the drums would be more visible to the oncoming motorists and may prevent them from merging too late and potentially colliding into motorists on the mainline. The Office of Traffic stated that the room for merging may be limited where there is an issue with merging.

   His next concern was with the use of the rolling road blocks. Although he knows that the Contractor shouldn't use them after putting up the advance warning signs but still the State Police allow them to do it. The concern doesn't want to be brought to the

State Police because they will use what they feel in their judgement is best for public safety.

10. Project Engineer Comments:

    The Project Engineer had no comments relating to this project.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no TMP for this project. The Project Engineer was told about the purpose of having a TMP for a project and where he could locate it on ProjectWise if the project had one.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Use of State Police, Rev. 062912
   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 05/05/14
   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008
   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 2/24/14
   Item # 0979003A – Construction Barricade Type III, Rev. 4/22/14
   Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 12/02/02
   Item # 1220013A – Construction Signs – Bridge Fluorescent Sheeting, Rev. 1/5/12

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   There are suggested detour plans for the ramps that were added to the M&PT specification.

4. Is there stage construction? If so, explain.

   No.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   No.

6. If there is temporary signalization? If so, explain.

No.

7. If there is a detour? If so, explain.

   There are detours for the ramps when they are closed. Motorists are detoured down to the next ramp before entering or exiting I-84.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes, no equipment is stored on the highway.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized? **Some cones appear to be marginal.**
☒	☐	c. Anchored?
☐	☒	**3. Warning lights?** Type: ☐ High intensity ☐ Low intensity
☐	☐	a. Functioning?
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☒ Truck-mounted
☒	☐	a. Functioning in the correct mode?
		b. Location? **WB: within taper**
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **One**
		b. Location? **WB: between Exit 74 and truck weigh station**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Two frames**
☒	☐	e. Timing between screens acceptable?
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many? **One**
		b. Location? **WB: within taper**
C.		**Temporary Pavement Markings**
☒	☐	Temporary pavement markings? Type: ☐ Tape ☒ Paint ☐ Epoxy
☒	☐	a. Legible?
☐	☒	b. Conflicting other markings?
☒	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☒ State Police ☐ Municipal Police ☐ Uniformed Flagger

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. Initially, the Contractor did not want to use 7-foot stands for the temporary exit signs which are called for in the specifications.
2. The Project Engineer was unaware that informing nearby hospitals was a necessary part of the public outreach for the project.
3. State Police closed the left and middle lane to aid in the setup of the traffic pattern. When the pattern is setup initially at the beginning of the shift, only one lane can be taken not two.
4. The Changeable Message Sign was placed within the 30 feet of the edge of the roadway and only protected by two traffic drums.

RECOMMENDATIONS:

1. If roadways have sharp curves and temporary exit signs on tripods will be obstructing by the 42" traffic cones and traffic drums, the use of 7-foot stands for the exit signs might be a best practice to use for projects with those conditions.
2. Project staff should contact all the stakeholders of the project and informing them of the work being done and how it could affect them. Stakeholders include police (either State or municipal), fire departments, hospitals or medical facilities, etc.
3. State Police should only take the two lanes when setting up the advance warning signs not the traffic pattern. When the signs are in place they should move into the lane being closed and allow traffic to proceed in the required through lanes as stated in the Prosecution and Progress.
4. Any equipment or material stored within 30 feet of the roadway needs to have positive protection whether guardrail, inertia barrels, or concrete barrier. Otherwise, the equipment/material will be a blunt end to a motorist that veers off the road.

PART 5: WORK ZONE INSPECTION PHOTOS

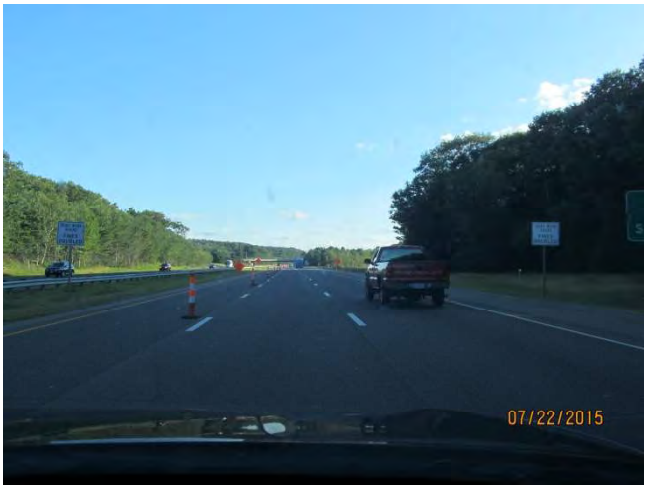
I-84 WB: The portable flashing arrow within the taper signaling to merge right.

I-84 WB: Another State Police car parked in the closed lane.

I-84 WB: State Police car parked within the taper.

I-84 WB: Another portable flashing arrow placed within the closed lane incorrectly signaling that the shoulder is closed instead of having a straight bar to signal that the lane is closed.

PART 5: WORK ZONE INSPECTION PHOTOS



I-84 WB: Post-mounted ROAD WORK AHEAD FINES DOUBLED signs on both sides of the highway.

I-84 WB: Temporary ROAD WORK AHEAD FINES DOUBLED signs on both sides of the highway.

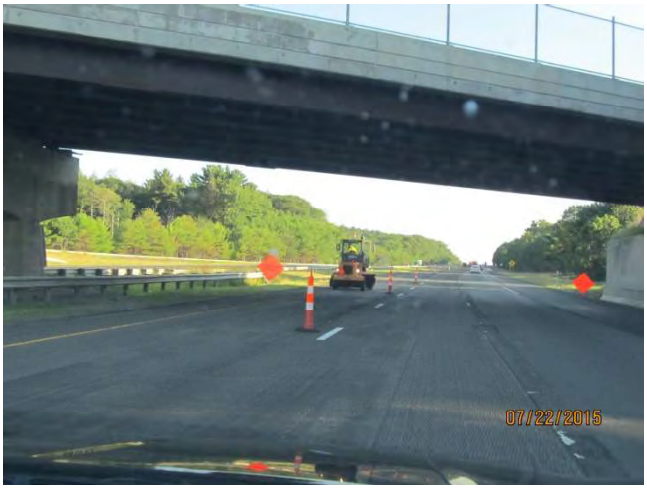
I-84 WB: Advance warning signs on both sides of highway.

I-84 WB: The first frame for the Changeable Message Sign. The CMS is within 30 feet of the edge of the roadway and is improperly protected by two traffic drums. It should have positive protection around it if it is placed this close to road.

PART 5: WORK ZONE INSPECTION PHOTOS

I-84 WB: The second frame of the CMS.

I-84 WB: Post-mounted advance warning signs on both sides of the highway and traffic cones along the work zone tangential.



I-84 WB: OVERHEAD WIRES signs to warn truck drivers of the low wire when raising their truck beds.

I-84 WB: The Truck-Mounted Attenuator with a flashing arrow incorrectly signaling to merge right. Since the truck is in a closed lane not a taper the arrow should have a straight bar to signal the lane is closed.

PART 5: WORK ZONE INSPECTION PHOTOS

I-84 WB: The work crew paving in the closed left lane.

I-84 WB: A better view of the proximity of the CMS to the highway.

I-84 WB: ROAD WORK AHEAD on both sides of highway with the Changeable Message Sign behind them.

I-84 WB: A LEFT LANE CLOSED AHEAD sign

PART 5: WORK ZONE INSPECTION PHOTOS

I-84 WB: A Legal Series 16 sign posted after the work zone began.

Two more Truck-Mounted Attenuators in the Contractor's yard.

The other Changeable Message Sign for the eastbound side stored in the Contractor's laydown yard.

Equipment stored in the Contractor's yard.

Submitted by: Kiah Patten Date: 8/7/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.08.10 08:38:08-04'00' Date: 8/10/2015

Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

In-Depth Field Reviews

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0042-0320 **District:** 1

Date: 7/14/2015 **Time:** 6:00 pm **Weather, Temp.:** Light rain, 80°

Town: East Hartford **Route:** 15

Road Type: ☐ Interstate ☒ Expressway ☐ Secondary ☐ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure ☐ Stage Construction
☐ Temporary Signalization ☐ Detour
☐ Pedestrian/Bicycle Access ☒ Night Work

Project Engineer: Jaspal Jutla **Chief Inspector:** Russell Christensen

Prime Contractor: American Industries Inc. **Inspection Forces:** ☒ State ☐ Consultant

Contract Value: $3,250,000.00 **Percent Complete:** 25%

Calendar Days Allotted: 182 **Calendar Days Completed:** 59

REVIEW PARTICIPANTS

NAME	REPRESENTING
Russell Christensen	District 1 Construction
Brett Stoeffler	Office of Traffic
Anthony Kwentoh	Office of Construction
Dean Dickinson	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What manuals, guides, etc. do you reference for work zone information?

   Traffic control plan TR-02, modified Maintenance and Protection of Traffic plans for I-84 Westbound.

4. What, if any, accommodations have been made for Emergency Services?

   The project staff notifies DOT Highway Operations Center – Newington and State Police every night before going out onto the highway.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   Not applicable.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   Material is being stored in a fenced DOT Maintenance facility on Brainard Road.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   When equipment is not being used it is being stored in a commuter lot on Route 5 which is approved by DOT.

9. Chief Inspector Comments:

   The Chief Inspector asked the Work Zone Review Team if they could send him DOT-acceptable CMS messages for milling and paving anticipated to start August 2, 2015.

10. Project Engineer Comments:

    The Project Engineer wasn't there to comment.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no TMP for this project. The Work Zone Review Team told the Chief Inspector the significance of a TMP on a project and future changes on making the project staff aware of them.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Traffic Monitoring Stations, Rev. 09/17/14
   NTC – Use of State Police Officers, Rev. 06/29/12
   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 05/05/14
   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008
   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008
   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 7/29/14
   Item # 1111201A – Temporary Detection (Site No. 1)
   Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 12/02/02
   Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12
   Item # 1803066A – Type B Impact Attenuation System (High-Incident) Non-Gating

   The Chief Inspector had concern with the use of State Police. If the project wanted to cancel the request for State Police, they have to provide 28 hour notice. However, if the State Police want to cancel, they can do so whenever and it is typically a few hours before they are needed. He felt there should be a timeframe given for State Police to cancel on a request so the project can then make other arrangements about work for that night.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   The MP&T Plan shows the details for the work zone. Plan sheet TR-02 (attached) had to be modified to eliminate the two-lane closure on the I-84 Westbound merge with Route 15 Southbound. The modified plans (attached) have traffic merge from two lanes down to just the left lane. Also the barricades within the closed lanes have been changed to traffic drums.

4. Is there stage construction? If so, explain.

   No.

5. Are there any permitted load issues?

   There is a statewide issue for bridge load ratings for construction equipment. The project isn't allowed to have heavy equipment on the Charter Oak Bridge. They have been approved to use the miller and one truck on the bridge. The Material Transfer Vehicle is another piece of equipment that would cause concern but the one being used on the project is acceptable to use so there is no restriction for it.

6. If there is temporary signalization? If so, explain.

   No.

7. If there is a detour? If so, explain.

   There are detours for the ramps in the M&PT plans if they need to be closed. Ramps will be closed if a 30-foot wide paved throughway is not available for paving operations.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes, all equipment and material are stored in approved lots off the highway.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height? **Adequate.**
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☐	☒	c. Anchored?
☐	☒	**3. Warning lights?** Type: ☐ High intensity ☐ Low intensity
☐	☐	a. Functioning?
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☒ Truck-mounted
☒	☐	a. Functioning in the correct mode?
		b. Location? **Within traffic pattern on Rte 15 NB**
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Two**
		b. Location? **Rte 15 NB Exit 88 and I-84 WB between Exits 59 and 60**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Two**
☒	☐	e. Timing between screens acceptable?
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many? **Two used for pattern set up/take down, one used for the night**
		b. Location? **Within traffic pattern on Rte 15 NB**
C.		**Temporary Pavement Markings**
☐	☒	Temporary pavement markings? Type: ☐ Tape ☐ Paint ☐ Epoxy
☐	☐	a. Legible?
☐	☐	b. Conflicting other markings?
☐	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☒ State Police ☐ Municipal Police ☐ Uniformed Flagger

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS

1. State police should have a cancellation policy to notify project personnel in a timely manner if they are unable to fill a request. This can help prevent Contractors from working without police presence or at least be able to plan to work without accordingly.

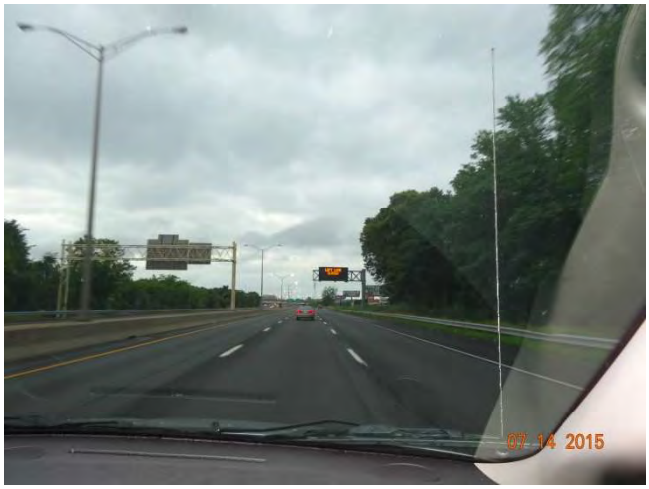
2. Motorists were confused when the two lanes that merge onto Route 15 from I-84 were closed with a small merge opening too close to the end of the off ramp. Motorists were veering into the traffic pattern to exit I-84.

RECOMMENDATIONS

1. Contractors are allowed to work on the highway without State Police. Further discussion with management has to be held to request a proper procedure for State Police to use for cancellation.

2. Good communication between Construction and Traffic to revise the traffic plan has mitigated the problem of properly directing traffic to merge unto Route 15. Motorists are channeled from two lanes down to one lane around the work zone has helped motorists from traveling into the traffic pattern.

PART 5: WORK ZONE INSPECTION PHOTOS



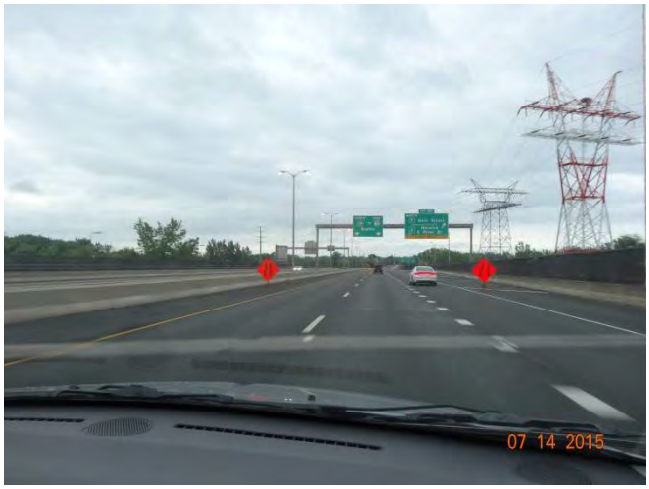
Route 15 NB: Variable Message Sign stating LEFT LANE CLOSED.

Route 15 NB: Advance Warning Signs on both sides of highway stating ROAD WORK AHEAD.

Route 15 SB: Legal Series sign at Exit 89

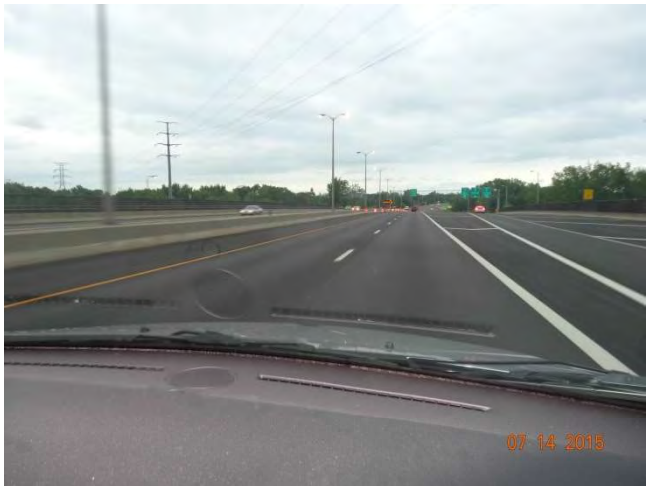
Route 15 NB: Signs on both sides of highway stating LEFT LANE CLOSED.

PART 5: WORK ZONE INSPECTION PHOTOS



Route 15 NB: Merge right signs on both sides of the highway.

Route 15 NB: Traffic drums composing the taper.



Route 15 NB: Approaching the work zone. A portable flashing arrow in the taper directing motorists to merge left.

Route 15 NB: Traffic cones closing the left high-speed lane.

PART 5: WORK ZONE INSPECTION PHOTOS

Route 15 NB: The State Police Officer in the closed left lane to warn motorists of the upcoming work zone.

Route 15 NB: The equipment within the work area.

Route 15 NB: Truck-mounted attenuator protecting the work area with a flashing arrow signaling the lane is closed.

I-84 WB: A Construction Message Sign that is currently not being used but will advise motorists of the work zone on Route 15 SB in future.

PART 5: WORK ZONE INSPECTION PHOTOS

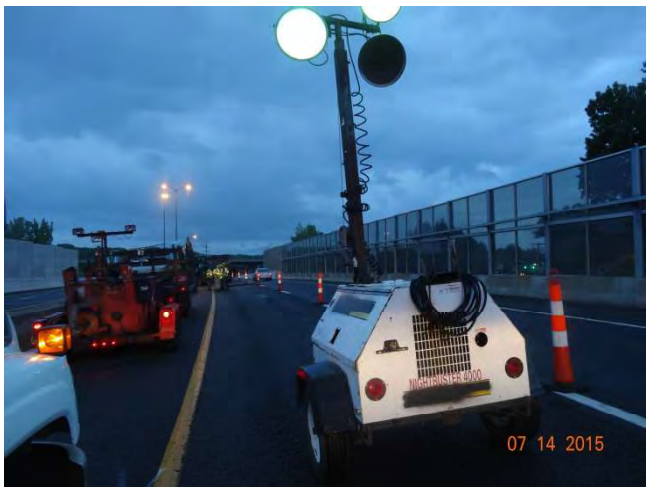
I-84 WB: The legal Series signs located before Exit 57.

Route 15 NB: A Variable Message Sign before Exit 89.

Route 15 NB: A Changeable Message Sign at the Exit 88 on ramp.

The laydown yard for the Contractor's equipment and materials in the commuter lot on Route 5

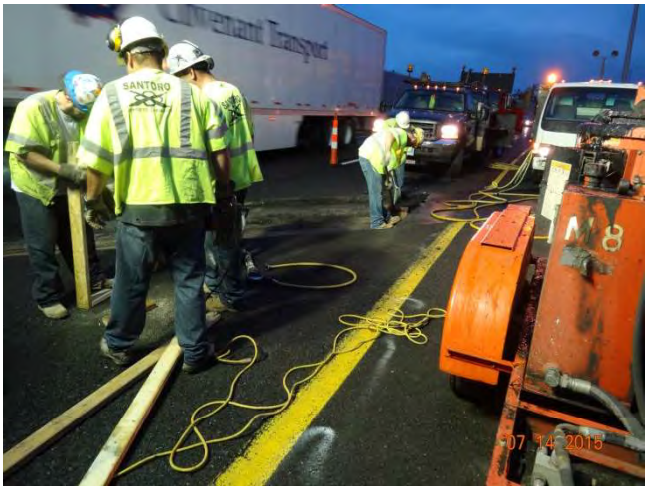
PART 5: WORK ZONE INSPECTION PHOTOS



Route 15 NB: Illumination for the work area which is facing away from traffic.

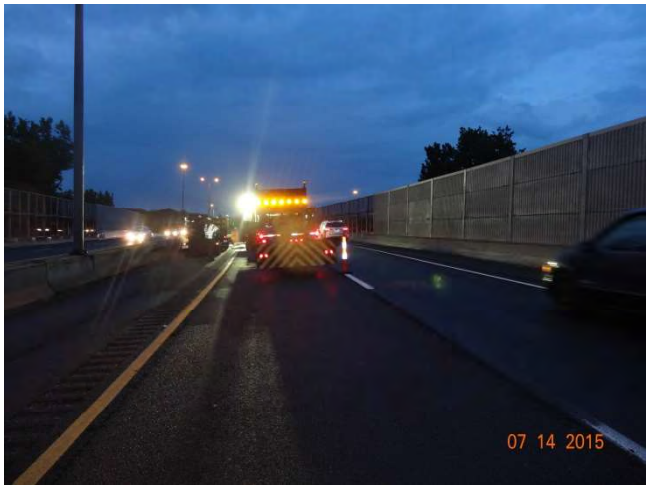
Route 15 NB: A temporary END ROAD WORK sign located just beyond the work area.

Route 15 NB: The inspection team looking at an open bridge joint.



Route 15 NB: The work crew working next to live traffic. They are building a shield to block any concrete chips that may propel into the live traffic lanes.

PART 5: WORK ZONE INSPECTION PHOTOS



Route 15 NB: The truck-mounted attenuator with the flashing arrow signaling the lane is closed.

Route 15 NB: The Contractor's crew jack-hammering the concrete headers down on the bridge joint.

Route 15 NB: The State Police Officer in the closed lane with lights flashing to advise motorists of the work area ahead.

Submitted by: Kiah Patten Date: 7/16/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.07.20 07:54:53-04'00' Date: 7/20/2015

Anthony Kwentoh

All in Attendance
Cc: James Connery – Donald Ward
Robert Turner (FHWA)

ORIGINAL M&PT PLAN WITH TWO LANE CLOSURE

SIGN LEGEND

AA	ROAD WORK AHEAD FINES DOUBLED	31-1906
A	ROAD WORK AHEAD	80-9604
B	LEFT TWO LANES CLOSED AHEAD	80-9837
P	EXIT	51-6147L
Z		80-9917
D	END ROAD WORK	80-9612

(INSTALL 500' BEYOND WORK AREA)

LEGEND

- WORK AREA
- TRAFFIC DRUM
- SIGN ON PORTABLE SIGN SUPPORT
- CONSTRUCTION BARRICADE TYPE-III
- HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

NOTE:

FOR LEFT LANE CLOSURE ON ROUTE 15 SB, SEE CONSTRUCTION TRAFFIC CONTROL PLAN NO. 3 CONTAINED IN ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC SPECIAL PROVISION.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OR ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 11/24/2014

DESIGNER/DRAFTER: YSS
CHECKED BY: BMS
SCALE IN FEET 0 80 160
SCALE 1"=80'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\TR_MST_00042_0320_MPT.dgn

SIGNATURE/BLOCK: OFFICE OF ENGINEERING
APPROVED BY: Mark Mahuski

PROJECT TITLE: PAVEMENT PRESERVATION ON CT. ROUTE 15

TOWN: EAST HARTFORD
DRAWING TITLE: M&PT PLAN

PROJECT NO. 42-320
DRAWING NO. TR-02
SHEET NO. 04.02

REVISED M&PT PLAN WITH MERGE LEFT

SIGN LEGEND

AA	ROAD WORK AHEAD FINES DOUBLED	31-1906
A	ROAD WORK AHEAD	80-9604
B	LEFT LANE CLOSED AHEAD	80-9847
C	RIGHT LANE CLOSED AHEAD	80-9848
P	EXIT	51-6147L
Z		80-9918
X		80-9917
D	END ROAD WORK	80-9612

(INSTALL 500' BEYOND WORK AREA)

LEGEND

- WORK AREA
- TRAFFIC DRUM
- SIGN ON PORTABLE SIGN SUPPORT
- CONSTRUCTION BARRICADE TYPE-III
- HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

NOTE:

FOR LEFT LANE CLOSURE ON ROUTE 15 SB, SEE CONSTRUCTION TRAFFIC CONTROL PLAN NO. 3 CONTAINED IN ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC SPECIAL PROVISION.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/24/2015

DESIGNER/DRAFTER: YSS
CHECKED BY: BMS
SCALE IN FEET 0 80 160
SCALE 1"=80'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

SIGNATURE/BLOCK: OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: PAVEMENT PRESERVATION ON CT. ROUTE 15

TOWN: EAST HARTFORD
DRAWING TITLE: M&PT PLAN

PROJECT NO. 42-320
DRAWING NO. TR-02
SHEET NO.

Filename: ...\TR_MST_0042_0320_MPT1.dgn

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0092-0522 **District:** 3

Date: 9/1/2015 **Time:** 8:00 pm **Weather, Temp.:** Clear, 82°

Town: West Haven **Route:** I-95

Road Type: ☒ Interstate ☐ Expressway ☒ Secondary ☒ Local

FOCUS OF REVIEW:
☒ Temporary Lane Closure ☒ Stage Construction
☒ Temporary Signalization ☒ Detour
☒ Pedestrian/Bicycle Access ☒ Night Work

Project Engineer: Ghazi Alsaqri **Chief Inspector:** George Cooper

Prime Contractor: The Middlesex Corp. **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $133,463,842.10 **Percent Complete:** 44.5%

Calendar Days Allotted: 1825 **Calendar Days Completed:** 639

REVIEW PARTICIPANTS

NAME	REPRESENTING
Ghazi Alsaqri	District 3A Construction
George Cooper – Resident Engineer	STV Incorporated
Carl Carlson – Senior Inspector	STV Incorporated
Mark Makuch	Division of Traffic
Ed Brown	Division of Traffic
Anthony Kwentoh	Office of Construction
Dean Dickinson	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

Yes. There have been many incidents usually rear-end collisions due to the heavy traffic volumes in the morning rush hours and not construction-related. The Resident Engineer said it's difficult to use enforcement since there is no safe place to pull offenders over in that stretch of I-95.

This project has received approval from the Office of State Traffic Administration (OSTA) through the Division of Traffic to reduce the regulatory speed limit for this section of I-95 down to 40 mph.

3. What manuals, guides, etc. do you reference for work zone information?

   The project staff refers to the contract plans and specifications, MUTCD, FHWA Guidelines for Ensuring Positive Guidance in Work Zones, ATSSA Guidelines for Temporary Traffic Control, ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features, and other ATSSA guides.

4. What, if any, accommodations have been made for Emergency Services?

   The project personnel held a Work Zone Safety Meeting at the beginning of the project. All emergency services including the Fire Department and emergency responders were invited but only local and State police attended. The inspection staff notifies the City when major activities (i.e. closures) are about to take effect. The City will then contact emergency services. The Town of West Haven and West Haven Police has been given detour plans.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   Kimberly Avenue: Pedestrian walkways are currently dirt paths to be reconstructed back to concrete sidewalks. There is protected walkway with overhead shielding on the east side of the road but the west side is closed.

   Sea Street and Ella Grasso Boulevard: The existing conditions do not have a sidewalk for pedestrians. During construction, traffic drums are used to delineate a pathway for pedestrian until a temporary bituminous sidewalk is installed. The project plans has proposed a new concrete sidewalk to be installed.

   There is no detour in place for pedestrians. They would have to cross at the next intersection to avoid the closed portion of the walkway and pass on the open side.

   Directional signs will be posted on the local streets for bicyclists riding through the area upon completion of the permanent signing.

6. Have ADA requirements been met for pedestrians?

   The existing sidewalks are not ADA compliant and the project is currently maintaining the existing sidewalks. Once the project is complete, the new sidewalks will be ADA compliant.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored off Kimberly Avenue under the I-95 overpass and off Ella Grasso Boulevard Extension, both of which are fenced areas.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is stored in the same locations as the materials. If equipment is used on the highway at the farther ends of the project, it may be stored off and clear of the roadway.

9. Chief Inspector Comments:

   The Resident Engineer says the inspection staff observes traffic and the M&PT schemes as they are laid out to plan and make changes when needed.

10. Project Engineer Comments:

    The Project Engineer stated that State Police not showing up to monitor traffic is a major problem for the project. The project staff order State Police a month in advance and the police will cancel the day of. Cancelling with such little notice impedes the work planned for the night. The Division of Traffic commented that police not showing up is a reoccurring problem with many projects and that it is currently being addressed at the managerial level.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is no Transportation Management Plan for this project.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Signing and Pavement Markings, Rev. 8/14/12

   NTC – Location of Changeable Message Sign, Rev. 02/05/13

   NTC – Use of State Police Officers, Rev. 08/04/12

   NTC – Incident Management System Equipment Installations, Rev. 08/15/12

   NTC – Existing IMS, Rev. 11/09

   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05

   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev. 04/19/05

NTC – Stage Construction Coordination, Rev. 10/13/12

Item # 0100600A – Construction Access, Rev. 03/12/13

Item # 0822001A – Temporary Precast Concrete Barrier Curb, Rev. 08/25/09

Item # 0822002A – Relocated Temporary Precast Concrete Barrier Curb, Rev. 08/25/09

Item # 0822005A – Temporary Precast Concrete Barrier Curb (Structure), Rev. 11/01/012

Item # 0822006A – Relocated Temporary Precast Concrete Barrier Curb (Structure), Rev. 11/01/12

Item # 0822042A – Temporary Glare Screen Modular Units, Rev. 11/99

Item # 0822043A – Relocated Temporary Glare Screen Modular Units, Rev. 11/99

Item # 0822072A – Temporary Precast Concrete Barrier Curb (Pinned), Rev. 3/10/10

Item # 0822073A – Relocated Temporary Precast Concrete Barrier Curb (Pinned), Rev. 3/10/10

Item # 0969030A – Project Coordinator (Minimum Bid), Rev. 01/29/13

Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 02/06/13

Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 02/06/13

Item # 0971001A – Maintenance and Protection of Traffic, Rev. 12/16/13

Item # 0973725A – Worksite Traffic Supervisor (Minimum Bid), Rev. 01/26/13

Item # 0979003A – Construction Barricade Type III, Rev. 1/17/01

Item # 0981101A – Opposing Traffic Lane Divider, Rev. 10/15/10

Item # 1020030A – Temporary Illumination Unit, Rev. 2/11

Item # 1050107A – Motorist Aid Variable Message Sign – Type B, Rev. 2/13

Item # 1050113A – Motorist Aid Variable Message Sign System Operations (Estimated Cost), Rev. 3/10

Item # 1108725A – Phase Selector (Modified), Rev. 9-00

Item # 1112413A – Detector (Type A) (Modified), Rev. 9-00

Item # 1112471A – Pre-Emption System Chassis (Modified), Rev. 9-00

Item # 1113552A – Detector Cable (Optical) (Modified), Rev. 9-00

Item # 1113059A – Traffic Flow Monitor, Rev. 12/12

Item # 1113813A – Removal of Existing ATMS, Rev. 2/14/13

Item # 1113814A – Removal and/or Relocation of Existing ATMS, Rev. 3/06

Item # 1118051A – Temporary Signalization (Site No. 1), Rev. 1-09

Item # 1118051A – Temporary Signalization (Site No. 2), Rev. 1-09

Item # 1118051A – Temporary Signalization (Site No. 3), Rev. 1-09

Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 10/02/02

Item # 1220013A – Construction Signs –Bright Fluorescent Sheeting, Rev. 1/5/12

The project staff had no concerns with any of the above listed special provisions.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

IMS Plan
Temporary IMS Plan
VMS Site 1 Location Plan
VMS Site 2 Location Plan
IMS Trenching Details
Temporary Signalization Site 1 Stage 1C Construction
Temporary Signalization Site 1 Stage 1D Construction
Temporary Signalization Site 3 Stage 1C, 1D, 2A, & 2B Construction
Temporary Signalization Site 2 Stage 1C, 1D, and 2A Construction
MPT Stage 1A Plan
MPT Stage 1B Plan
MPT Stage 1C Plan
MPT Stage 1D Plan
MPT Pre-Stage 2A Plan
MPT Stage 2A Plan
MPT Stage 2B Plan
MPT Stage 3 Plan
Maintenance and Protection of Traffic Stage 1A Sections
Maintenance and Protection of Traffic Stage 1B Sections
Maintenance and Protection of Traffic Stage 1C Sections
Maintenance and Protection of Traffic Stage 1D Sections
Maintenance and Protection of Traffic Stage 2A Sections
Maintenance and Protection of Traffic Stage 2B Sections
Maintenance and Protection of Traffic Stage 3 Sections
MPT Temporary Ramp Profiles
MPT Temporary Wedge Course Typical Sections
Maintenance and Protection Temporary Drainage Structures

The Resident Engineer commented that they are constantly making improvements to the traffic plans overall.

4. Is there stage construction? If so, explain.

Yes. The first stage is to replace I-95 Southbound, the second stage is the northbound side, and the third stage is the median.

5. Are there any issues with oversize/overweight or construction loads on bridges?

No.

6. Is there temporary signalization? If so, explain.

   Yes. There are three intersections that have new signals installed. They are currently on a temporary cycle during construction.

7. Is there a detour? If so, explain.

   Yes, only when needed for ramp closures.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes. If anything is stored within the clear zone, it is positively protected.

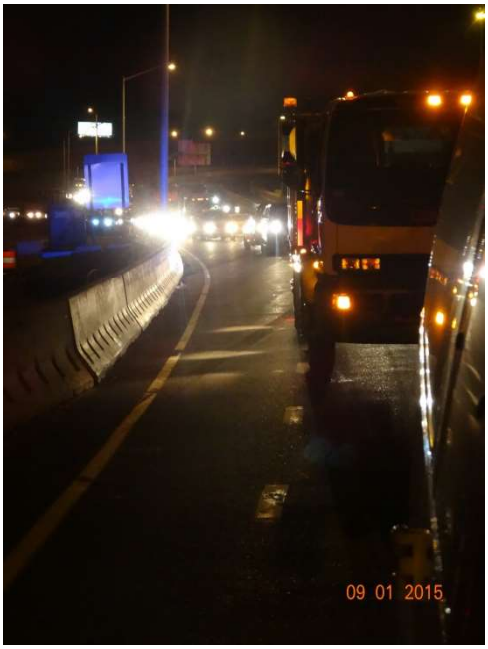
PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No	
A.		**Travel Hazards**
☒	☐	1. Clear and understandable guidance through the work zone?
☐	☒	2. Traffic congestion due to work zone?
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?
☐	☒	4. Any horizontal/vertical clearance issues?
B.		**Traffic Control Devices**
☒	☐	**1. Signs?** Type: ☒ Regulatory ☒ Construction
☒	☐	a. Clean, visible, legible per ATSSA guide?
☒	☐	b. Reflectorized?
		c. Mounting height?
☒	☐	d. Mounted properly?
☐	☒	e. Need to be covered?
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☐ Cones ☒ Drums ☐ Barricades
☒	☐	a. Clean and visible?
☒	☐	b. Reflectorized?
☐	☒	c. Anchored?
☒	☐	**3. Warning lights?** Type: ☒ High intensity ☐ Low intensity
☐	☒	a. Functioning? **Lights on post-mounted signs are not working.**
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☒ Truck-mounted
☒	☐	a. Functioning in the correct mode?
		b. Location?
☒	☐	**5. Changeable Message Sign (CMS)?**
		a. How many? **Five**
		b. Location? **SB side near Exit 46, Exit 44 off ramp, throughout project**
☒	☐	c. Message understandable?
		d. Number of frames displayed? **Two**
☒	☐	e. Timing between screens acceptable?
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**
		a. How many? **Three**
		b. Location? **Within in the closed lane.**
C.		**Temporary Pavement Markings** Type: ☐ Tape ☒ Paint ☐ Epoxy
☒	☐	Temporary pavement markings?
☒	☐	a. Legible?
☐	☒	b. Conflicting other markings?
☒	☐	c. If nighttime, markings visible?
D.		**Personal Protective Equipment**
☒	☐	Is everyone wearing the proper reflective equipment?
E.		**Traffic Control Personnel**
		☒ State Police ☒ Municipal Police ☐ Uniformed Flagger

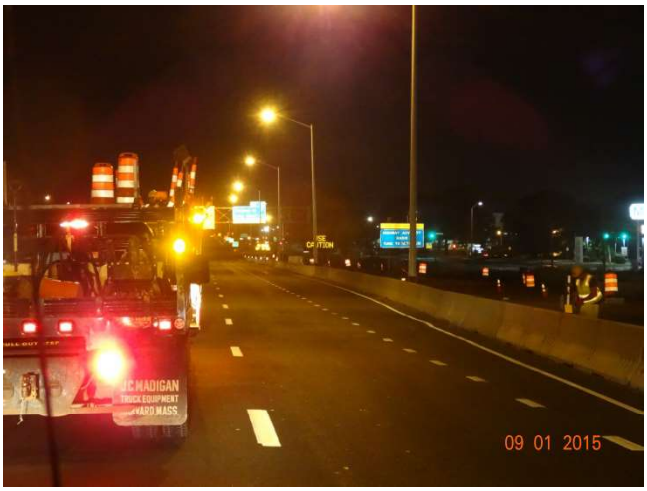
PART 4: WORK ZONE INSPECTION PHOTOS

I-95 SB: A sign advising motorists that traffic lanes will be shifting left ahead.

I-95 SB: The sign pattern crew setting up a FINES DOUBLED sign on the right side of the highway.

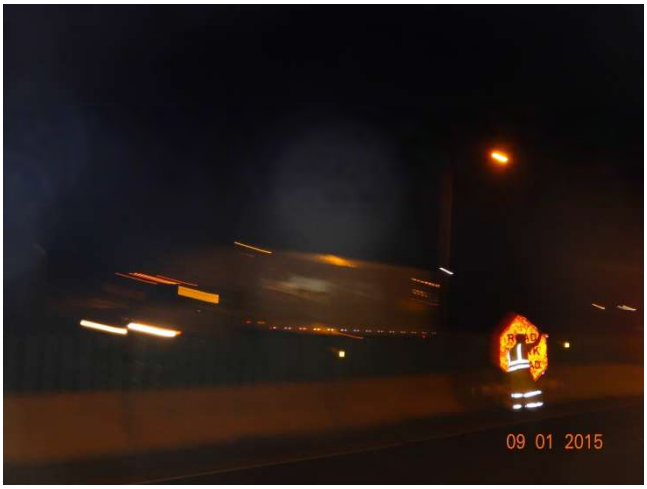


I-95 SB: The queue forming behind the moving operation.

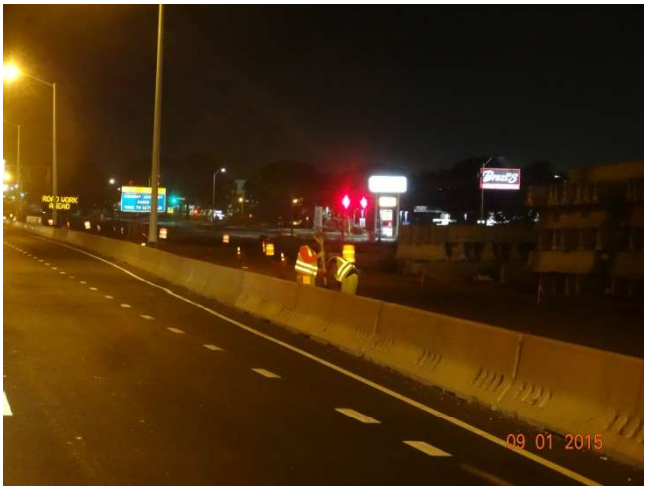


I-95 SB: A worker installing a sign post on the concrete barrier curb on the right.

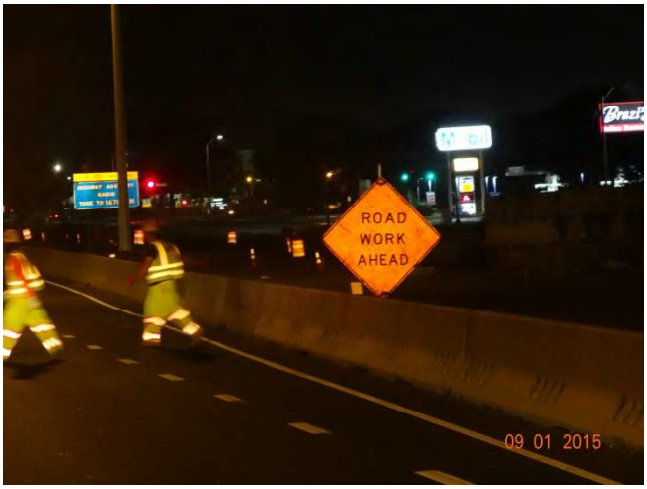
PART 4: WORK ZONE INSPECTION PHOTOS



I-95 SB: A worker installing a ROAD WORK AHEAD sign in the narrow left shoulder with the edges cut off to avoid the sign being hit by motorists.



I-95 SB: Two workers setting up another post on the TPCBC on the right.

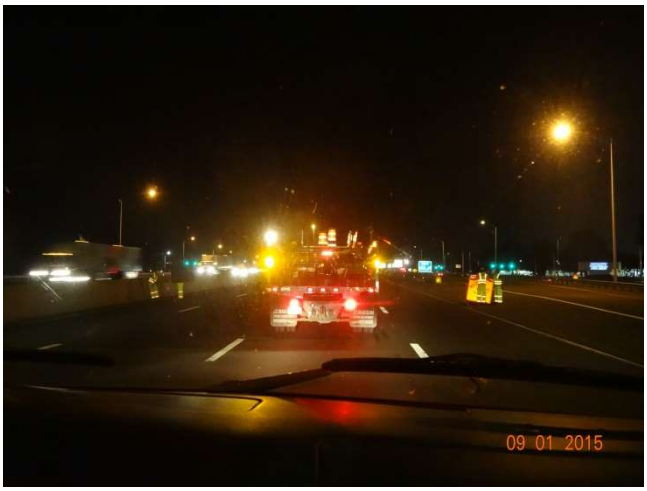


I-95 SB: The workers installed a temporary ROAD WORK AHEAD sign.

I-95 SB: A Changeable Message Sign displaying ROAD WORK AHEAD on its first frame.

PART 4: WORK ZONE INSPECTION PHOTOS

I-95 SB: A worker setting up another temporary construction sign support.



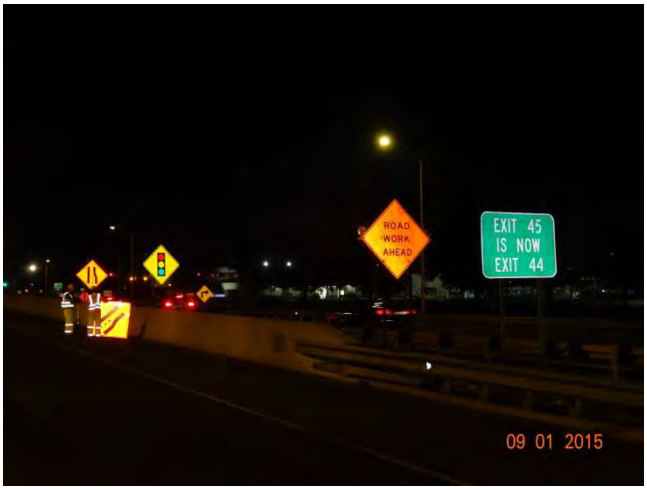
I-95 SB: Two workers installing a temporary RIGHT LANE CLOSED.

I-95 SB: State Police and the Contractor's work truck prohibiting traffic from proceeding while signs were installed.

I-95 SB: Another RIGHT LANE CLOSED sign being installed but on the left side of the road.

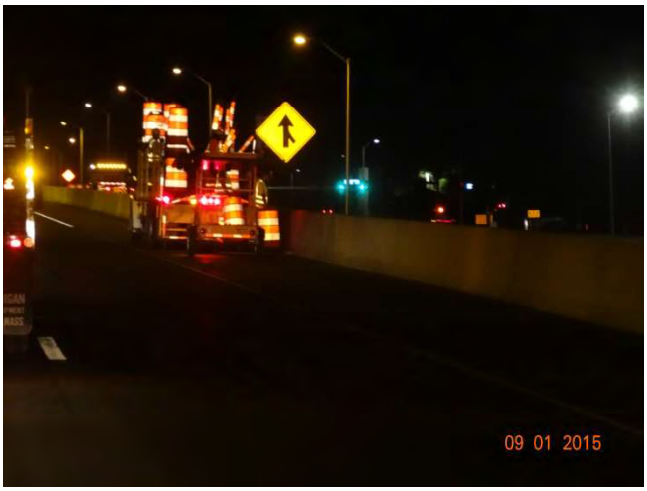
PART 4: WORK ZONE INSPECTION PHOTOS

I-95 SB: The reflectivity of the RIGHT LANE CLOSED is seen here. The sign is reflective but the dirt on it does affect its effectiveness.



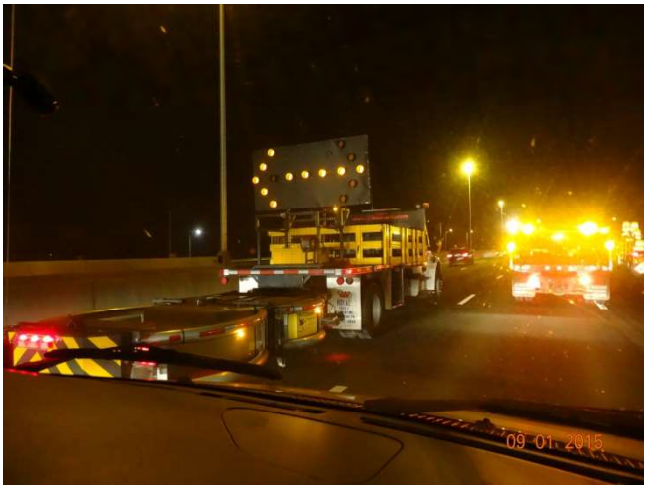
I-95 SB: Here is a good shot of a number of signs along the right side of I-95 near Exit 45. There is a new exit sign stating the change of Exit 45 to Exit 44. There is a post-mounted ROAD WORK AHEAD sign with a high-intensity warning light. There is a traffic signal sign and a merge left sign on the left side of the off ramp telling motorists of the traffic signal at the end of the ramp. Lastly, workers are installing a temporary merge left sign on the right side of the highway.

I-95 SB: A worker is installing a merge left sign on the left side of the highway. Since the sign is in a narrow shoulder, its sides are cut off to prevent motorists from hitting it and knocking it over.



I-95 SB: The sign crew starting to deploy traffic drums for the taper.

PART 4: WORK ZONE INSPECTION PHOTOS



I-95 SB: A truck-mounted impact attenuator with a flashing arrow signaling to merge left.

I-95 SB: A flashing arrow about to signal to merge left in the taper of the traffic pattern.

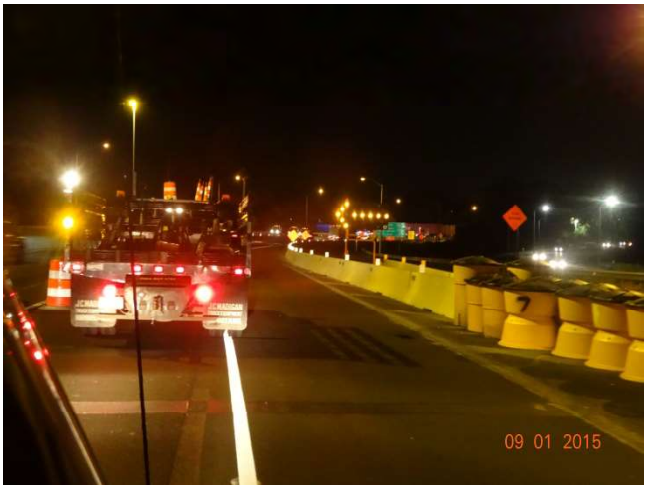
I-95 SB: The taper of the traffic pattern forming.

I-95 SB: The left lane is opened for motorists to proceed through.

PART 4: WORK ZONE INSPECTION PHOTOS

I-95 SB: Exit 45 on ramp is delineated with traffic drums to I-95 mainline and preventing motorists from taking the proceeding exit where barrier is going to be moved.

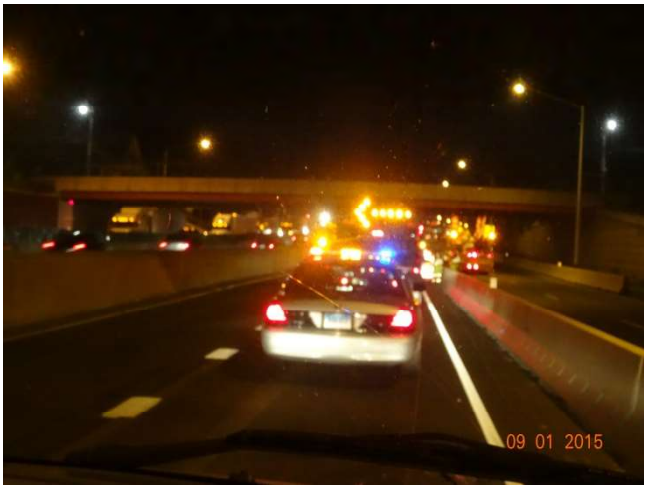
I-95 SB: A temporary traffic shift sign is installed and another portable flashing arrow signaling to merge left for oncoming traffic.



I-95 SB: Type A Impact Attenuation System in front of the TPCBC and a portable flashing arrow in the gore of the off ramp.

I-95 SB: A temporary STAY IN LINE sign in the right shoulder.

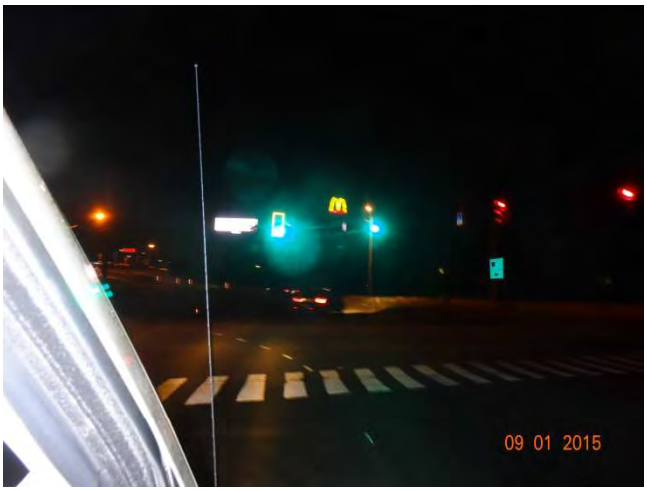
PART 4: WORK ZONE INSPECTION PHOTOS



I-95 SB: State Police in the lane that is being taken, notifying the motorists of the approaching work zone.

I-95 SB: The sign pattern crew placing traffic drums to take the right lane and close the next exit.

I-95 SB: The red time on the temporary signal cycle off Exit 44 off ramp.

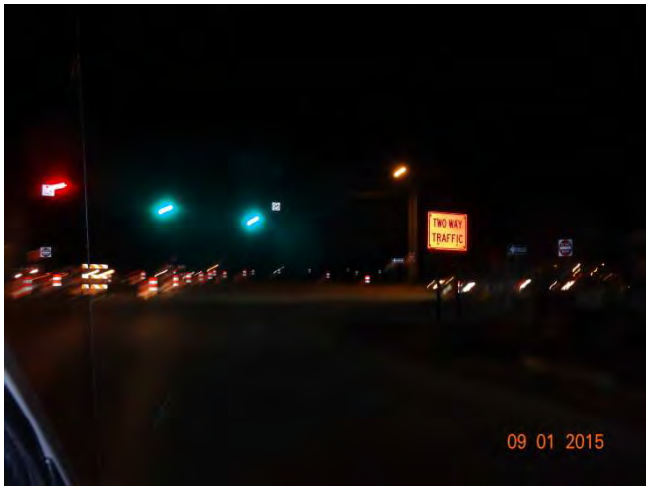


I-95 SB: The green time on the temporary signal cycle.

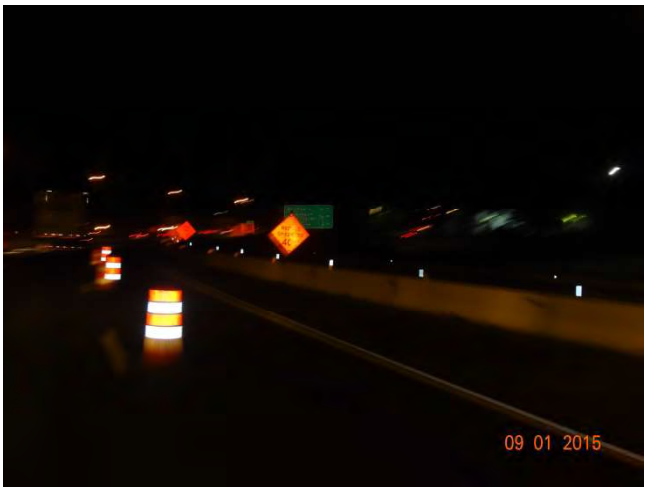
PART 4: WORK ZONE INSPECTION PHOTOS

I-95 SB: A directional construction sign informing motorists which lanes will take them to which route.

I-95 SB: The laydown yard off of Route 10.



I-95 SB: A TWO WAY TRAFFIC construction sign in the modified intersection where there is temporary limited street access on some streets.



I-95 SB: A REDUCED SPEED TO 40 MPH construction sign. The speed limit was legally reduced for the duration of the project.

PART 4: WORK ZONE INSPECTION PHOTOS

I-95 SB: A legal series sign near Exit 43 with a Variable Message Sign (VMS) overhead stating ROAD WORK, LEFT LANE, EXITS 44-47.

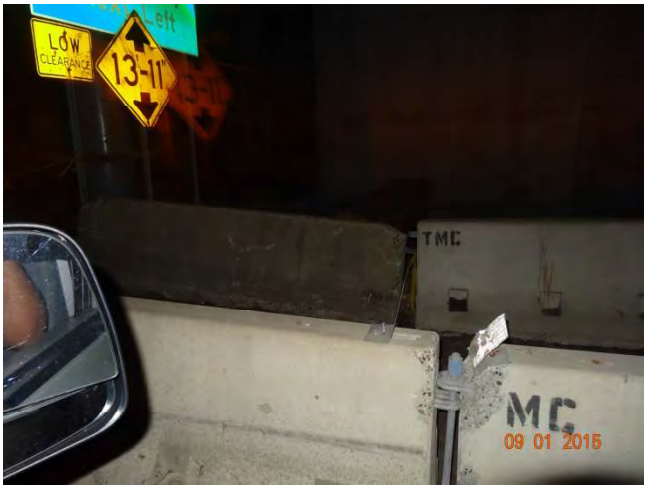
I-95 SB: Another VMS stating LEFT LANE CLOSED.

I-95 SB: A Changeable Message Sign (CMS) near Exit 46 stating USE EXTREME CAUTION.

Ella Grasso Boulevard: A CMS at the end of the Exit 44 off ramp advising motorists how to access Sea Street which now has limited access during construction. Behind the CMS the intersection has a number of traffic drums and barricades blocking access to the street from the ramp.

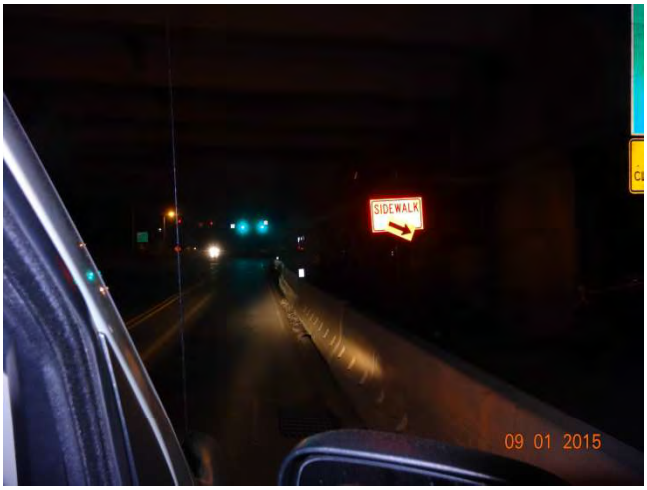
PART 4: WORK ZONE INSPECTION PHOTOS

Ella Grasso Boulevard: The second frame of the CMS stating to access Sea Street, use Kimberly Avenue.



Ella Grasso Boulevard: The pathway under the I-95 overpass along Route 10 for pedestrians. The pathway is positively protected.

Sea Street: A legal series sign on Sea Street heading towards I-95.



Kimberly Avenue: A SIDEWALK sign directing pedestrians walking along Route 10 to use the pathway.

PART 4: WORK ZONE INSPECTION PHOTOS

Kimberly Avenue: A DETOUR sign at the end of the pathway directing pedestrians to cross the street to continue using a sidewalk.

Kimberly Avenue: The other laydown yard under the I-95 overpass on Kimberly Avenue.

PART 5: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. It is common for State Police to not show up after being ordered well in advance.
2. The project used a moving operation to install advance warning signs. Once done, the traffic was let through the open lane and a truck-mounted attenuator was used to close the other lane to install the traffic pattern.
3. This project is a significant project on Interstate-95, but it does not have a TMP.

RECOMMENDATIONS:

1. Discussion on how to mitigate this State-wide issue of State Police not assisting construction work after being requested needs to take place.
2. The use of the moving operation when setting up the traffic pattern as a whole was done correctly and should be an example of how to use one on major highways.
3. Future significant projects on Interstate-95 should include a TMP in accordance with the Department Policy No. E&C-46: Systematic Consideration and Management of Work Zone Impacts.

Submitted by: Kiah Patten Date: 9/29/15

Kiah Patten

Reviewed by: _____ Date: _____

Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0094-0255 **District:** 2

Date: 6/8/2015 **Time:** 5:00 pm **Weather, Temp.:** Cloudy, 69°

Town: New London, Groton **Route:** I-95

Road Type: ☒ Interstate ☐ Expressway ☒ Secondary ☐ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure ☒ Stage Construction

☐ Temporary Signalization ☐ Detour

☐ Pedestrian/Bicycle Access ☒ Night Work

Project Engineer: Brian Gustafson **Chief Inspector:** Frank Dawidowicz

Prime Contractor: Tilcon Connecticut, Inc. **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $ 6,997,965.13 **Percent Complete:** 7.1 %

Calendar Days Allotted: 161 **Calendar Days Completed:** 76

REVIEW PARTICIPANTS

NAME	REPRESENTING
Brian Gustafson	District 2 Construction
Frank Dawidowicz – Chief Inspector	Weston and Sampson
Timothy O'Connor – Office Engineer	Weston and Sampson
Rob Colantonio – Senior Inspector	Weston and Sampson
Yevgeniy Saykin	Office of Traffic
Robert Turner	Federal Highway Administration
Anthony Kwentoh	Office of Construction
Dean Dickinson	Office of Construction
Jeffrey Hunter	District 2 Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   No.

3. What manuals, guides, etc. do you reference for work zone information?

   The project staff references the contract specifications, MUTCD, and ATSSA guides including Quality Guidelines for Temporary Traffic Control Devices and Features. Rob Colantonio who handles the traffic control for the project is ATSSA certified.

4. What, if any, accommodations have been made for Emergency Services?

   The Project Engineer says that Bridgeport Highway Operations are notified every night before the Contractor goes out on the road. During the Work Zone Safety Meeting the State Police and New London Police were informed of the project work and there are two State Police Officers requested to accompany the work crew out on the road. Groton Police weren't needed since the work being done is on the Gold Star Bridge overhead and no local roads in Groton are included in the scope of the work. There is the Lawrence + Memorial Hospital a mile from the project that was not notified but access to the hospital isn't impeded in any way. For public outreach, the Project Engineer sends out press releases notifying the public of any major change that will impact traffic.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   Not applicable.

6. Have ADA requirements been met for pedestrians?

   Not applicable.

7. Where is the designated laydown area for materials to be stored?

   Materials are stored 30 feet off the road under the Williams Street Bridge past Exit 83 of I-95.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   Equipment is stored in the same area as the material under the Williams Street Bridge.

9. Chief Inspector Comments:

   None.

10. Project Engineer Comments:

    The contract plans proposed to close ramps next to the work area and use detours to divert the traffic to bypass the closed ramp and use the next ramp, taking local roads to reach the area of the city needed. The proposed detours would have considerable impacts on the local traffic and cause a lot of delays. The detours could not get the proper approval from the City of New London. The project staff worked with the Office

of Traffic to revise the plans to eliminate the detours and use lane closures instead. Motorists are able to use the shoulder as a travel lane to maintain required lanes and take two lanes for work area. The agreement to change the detour plans to lane closure plans is required but was not settled before the project was advertised or awarded.

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is a TMP for this project but the Project Engineer was not aware there was one or that a copy could be obtained on ProjectWise. A copy was given to the project staff for review. Federal Highway explained the intent of the TMP which is to manage mobility through the work zone whenever the project is on a significant roadway. It was discussed that there are efforts being made to improve notifying projects of existence of TMPs. TMPs will be added to the Stewardship Checklist for Design and will have a Notice to Contractor included in the construction contract provisions.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
   NTC – NCHRP 350 REQ. for Work Zone Traffic Control Devices, Rev. 05/05/14
   NTC – Use of State Police Officers, Rev. 06/29/12
   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008
   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008
   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 10/20/14
   Item # 0979003A – Construction Barricade Type III, Rev. 4/22/14
   Item # 1111201A – Temporary Detection (Site No. 1), Rev. 1/13
   Item # 1111202A – Temporary Detection (Site No. 2), Rev. 1/13
   Item # 1111203A – Temporary Detection (Site No. 3), Rev. 1/13
   Item # 1111204A – Temporary Detection (Site No. 4), Rev. 1/13
   Item # 1111205A – Temporary Detection (Site No. 5), Rev. 1/13
   Item # 1131002A – Remote Controlled Changeable Message Sign, Rev. 12/02/02
   Item # 1220013A – Construction Signs - Bright Fluorescent Sheeting, Rev. 1/5/12

   The project staff has no issues with ordering State Police. They do have problems getting New London Police to come out for the project. The Contractor may use Uniformed Flaggers (which is also their Disadvantaged Business Enterprise (DBE)) but has not as of yet.

   The staff said there are items for hot-applied painted pavement markings for the project but they are general items and not special provisions. Black epoxy paint for pavement markings in two widths was added for blacking out existing markings.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

Traffic Control Plan Stage 1 and Traffic Control Plan State 2 are current. The Detour Plan Stage 1 & 2 was revised to utilize shoulder as travel lane.

4. Is there stage construction? If so, explain.

   Yes, for the bridge joint repair. Half of the bridge joint which crosses two lanes can be replaced at a time, so traffic will be shifted to other lanes accordingly. When replacing the other half, traffic will be shifted to the previously closed lanes.

5. Are there any permitted load issues?

   I-95 Northbound over the Gold Star Bridge has restriction for overweight loads. Heavy loads will have to go to Pequot Trail exit and turn around. The contract doesn't call for the use of a Material Transfer Device (MTV) which would be too heavy for the bridge.

6. If there is temporary signalization? If so, explain.

   No.

7. If there is a detour? If so, explain.

   No, not any more. The detours were eliminated.

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No		
A.		**Travel Hazards**	
☒	☐	1. Clear and understandable guidance through the work zone?	
☐	☒	2. Traffic congestion due to work zone?	
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?	
☐	☒	4. Any horizontal/vertical clearance issues?	
B.		**Traffic Control Devices**	
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction	
☒	☐	a. Clean, visible, legible per ATSSA guide?	
☒	☐	b. Reflectorized?	
		c. Mounting height?	**Adequate.**
☒	☐	d. Mounted properly?	
☐	☒	e. Need to be covered?	**The signs for the detour are covered and not removed as directed but signs actively used do not need to be covered.**
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☒ Barricades	
☒	☐	a. Clean and visible?	
☒	☐	b. Reflectorized?	
☐	☒	c. Anchored?	
☐	☒	**3. Warning lights?** Type: ☐ High intensity ☐ Low intensity	
☐	☐	a. Functioning?	
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☒ Truck-mounted	
☒	☐	a. Functioning in the correct mode?	
		b. Location?	**Portable arrow was at the beginning of the taper at Exit 83 off ramp on I-95 NB, the truck-mounted arrow was within taper near Exit 83 on ramp on I-95 NB.**
☒	☐	**5. Changeable Message Sign (CMS)?**	
		a. How many?	**2**
		b. Location?	**I-95 SB near Exit 88 (partially obscured by tree branches but was told by Senior Inspector that it was the best location in that area), I-95NB next to Exit 81.**
☒	☐	c. Message understandable?	
		d. Number of frames displayed?	**2**
☒	☐	e. Timing between screens acceptable?	
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**	
		a. How many?	**Initially 1 but after inspection 2 per Review Team request.**
		b. Location?	**At Exit 83 on ramp within taper**
C.		**Temporary Pavement Markings** Type: ☐ Tape ☒ Paint ☒ Epoxy	
☒	☐	Temporary pavement markings?	
☒	☐	a. Legible?	
☐	☒	b. Conflicting other markings?	
☒	☐	c. If nighttime, markings visible?	

D. Personal Protective Equipment		
☒	☐	Is everyone wearing the proper reflective equipment?
E. Traffic Control Personnel		
		☒ State Police ☒ Municipal Police ☐ Uniformed Flagger

Additional Field Inspection Comments:

The Senior Inspector stated that rolling road block by the State Police was used to set up the advanced warning on both sides of the highway.

The work area for the bridge joint repair operation is located immediately adjacent to the live traffic lanes (On ramp for I-95 Northbound over the Gold Star Bridge). There was one crash truck used far before work area and the Contractor's work truck was parked diagonally right before work area with tail of truck bed adjacent to traffic lanes. During the field inspection we called to the inspectors that it was unsafe to have the truck parked at that angle so close to work area. It was deemed unsafe protection and a field change was made to have the Contractor's work truck parked parallel to bridge parapet, and to have another crash truck parked within the space from the current crash truck and the work area. They repositioned the work truck and brought in another crash truck in closer proximity to work area as directed.

It was discussed amongst the review group of how exposed the work area was adjacent to live traffic and whether something more like the use of concrete barrier for positive protection will be a good option to exercise for future projects similar to this one.

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. ***The original traffic plan for detours would negatively impact local roads with congestion. Although it would be safer for highway motorists to close exits within the work area and have the motorists take the next exit, it would be too much for the town to handle the extra traffic volume through their roads. The resolution to have a lane closure and use the shoulder for a travel lane was a better option to accommodate the work area and keep congestion low.***
2. ***The work truck parked diagonally behind the work area next to live traffic lanes posed a hazard to the work crew. If a vehicle veered over and hit the truck it would run right into the whole work crew.***
3. ***The project staff was unaware of the TMP for the project.***
4. ***During the field inspection, it was felt to be an unsafe exposure for the work crew to be next to live traffic on a high-speed interstate when doing work on the road where the work activities called for the workers to be on their knees or bending over most of the time. Workers not standing have less time to move out of the way of vehicles that could veer into work area. A TMA was used behind work area for oncoming traffic but there was nothing on the side of the work area. The traffic cones or drums are not adequate protection.***

RECOMMENDATIONS:

1. ***Establish protocol for possible traffic impacts on adjacent local roads if ramps are to be closed near work areas on highways.***
2. ***Bring awareness through tail-gate talks or training to the field staff of the proper parking placement of work trucks next to live traffic, as well as, protection of work crew next to live traffic. The use of TMAs is the proper protection of the work area than a work truck. If work trucks are needed by the crew to keep hand equipment or material on, they need to be parked parallel to live traffic lanes and farthest point of the work area from live traffic, if possible.***
3. ***Follow up on the notification process to inform project staff of the project's TMP.***
4. ***Research if the use of concrete barrier can be used for work areas immediately adjacent to live traffic lanes on a high-speed highway where activities call for workers to physically work on their knees or bending over (i.e. bridge joint repairs).***

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: Variable Message Sign (VMS) with a message stating the right two lanes are closed.

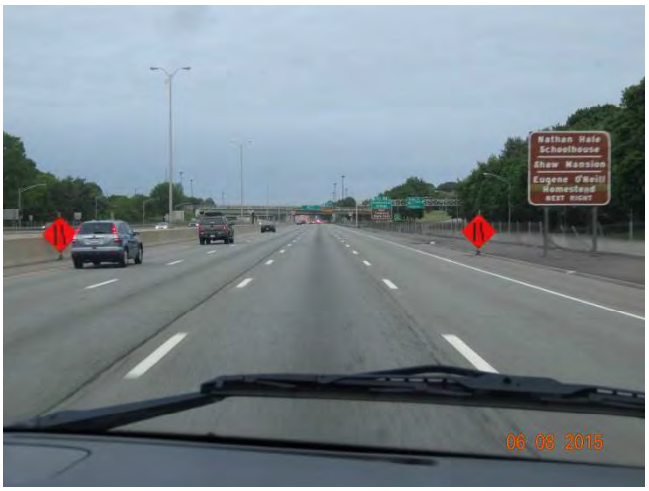
I-95 NB: Work area where bridge joints are being repaired; two right lanes are taken; workers are sitting or bending over to do the work

I-95 NB: Barricades and crash truck closing off lanes for work zone; traffic drums to delineate traffic for Exit 83 on ramp onto I-95

I-95 NB: Changeable Message Sign (CMS) at Exit 81 with a message to reduce speed.

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: Advance warning sign before Exit 82



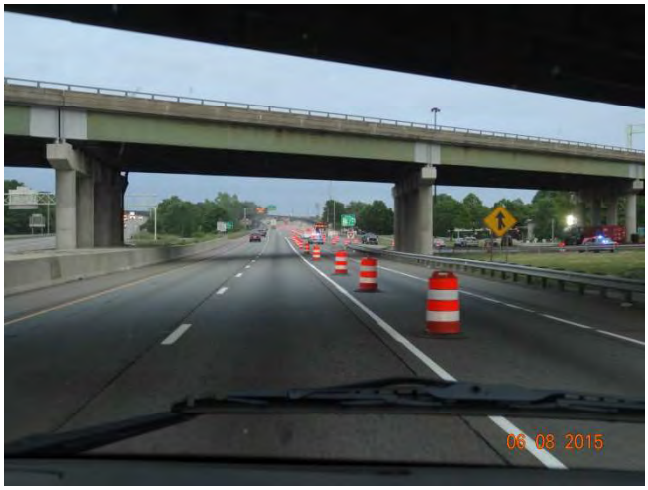
I-95 NB: Merge left signs on both sides of the road

I-95 NB: Advance warning signs on both sides of the road saying "Right Lane Closed Ahead"

I-95 NB: Traffic pattern taper beginning at Exit 83 with a portable flashing arrow inside the pattern

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: State Police car within the taper near Exit 83 on ramp



I-95 NB: State Police car on Exit 83 on ramp and one at the end of ramp inside next pattern

I-95 SB: CMS in grassy area just after Exit 88. The sign is hard to see since there are a lot of trees and brush surrounding area. The Senior Inspector this was the safest area to put it ahead of exit it is referring to.

I-95 NB: Advance warning sign at on ramp

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: Fines Doubled sign while approaching work zone

I-95 NB: The laydown yard has the proper clearance from the edge of road

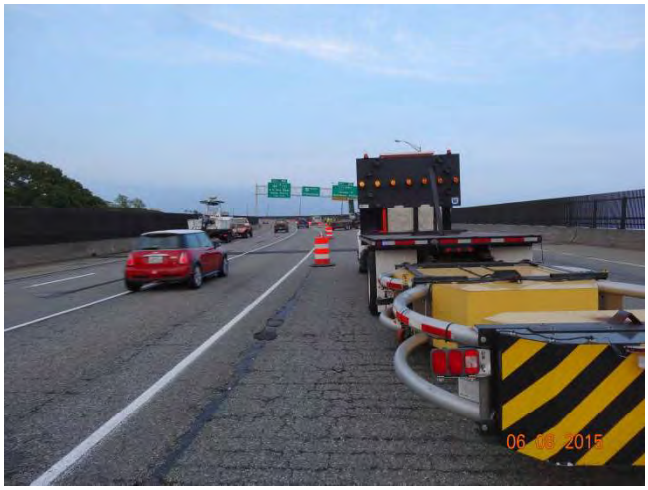
I-95 NB: Laydown yard underneath Williams Street Bridge where material and equipment are stored

I-95 NB: Facing south at work zone; traffic drums are the only protection against the traffic

PART 5: WORK ZONE INSPECTION PHOTOS

I-95 NB: The Contractor's work truck just before the work zone adjacent to travel lanes

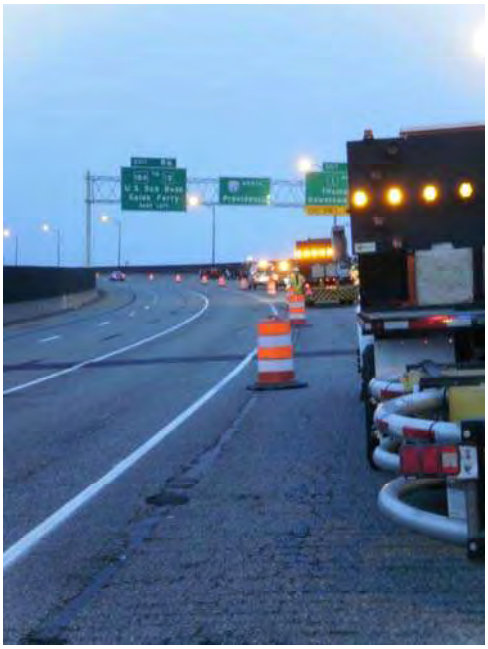
I-95 NB: Facing north at work zone with work truck just before zone



I-95 NB: Facing north towards the work zone behind crash truck placed at the end of on ramp

I-95 NB: The second crash truck requested by the review team coming in

PART 5: WORK ZONE INSPECTION PHOTOS



I-95 NB: Viewing the two crash trucks in place looking north

Submitted by: Kiah Patten Date: 6/16/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.06.16 15:36:42-04'00' Date: 6/16/2015

Anthony Kwentoh

CONSTRUCTION
WORK ZONE REVIEW FORM

Project Number: 0151-0273 **District:** 4

Date: 8/12/2015 **Time:** 8:30 PM **Weather, Temp.:** Clear, 75°

Town: Waterbury **Route:** I-84

Road Type: ☒ Interstate ☐ Expressway ☒ Secondary ☒ Local

FOCUS OF REVIEW:

☒ Temporary Lane Closure ☒ Stage Construction

☒ Temporary Signalization ☒ Detour

☒ Pedestrian/Bicycle Access ☒ Night Work

Project Engineer: Chris Zukowski **Chief Inspector:** Christopher Hylas

Prime Contractor: I-84 Constructors J.V. **Inspection Forces:** ☐ State ☒ Consultant

Contract Value: $ 260,554,618.00 **Percent Complete:** 5%

Calendar Days Allotted: 1915 **Calendar Days Completed:** 130

REVIEW PARTICIPANTS

NAME	REPRESENTING
John Ploski – Chief Inspector	AECom
Robert Turner	Federal Highway Administration
Phil Cohen	Division of Traffic
James Massini	Division of Traffic
Anthony Kwentoh	Office of Construction
Dean Dickinson	Office of Construction
Kiah Patten	Office of Construction

PART 1: PROJECT STAFF QUESTIONNAIRE

1. Do you have a hard time ensuring traffic control devices are in functioning condition and installed according to plan? If yes, explain.

   No.

2. Have there been any incidents on your project? If any, what caused them?

   Yes, there have been about twenty to thirty incidents within the limits of the work zone. Most of the incidents were rear-end collisions due to the heavy congestion normally within this segment of I-84. The crash rates are no different from the pre-existing conditions. State Police researched their records for the area prior to the start of construction to establish a baseline for crash rates. The Division of Traffic said that at the beginning of the project they wrote a report to the Office of State Traffic

Administration (OSTA) requesting that the existing regulatory speed of 55 mph be reduced to 45 mph within the project work limits.

3. What manuals, guides, etc. do you reference for work zone information?

   The Chief Inspector references the special provisions for work zone information. The inspection staff and Contractor both have ATSSA certified personnel. There is a person from both the Contractor and inspection staff that is designated with the additional duty to ensure the traffic devices are installed according to the plans during the day and night.

4. What, if any, accommodations have been made for Emergency Services?

   The project staff submitted Change Order No. 1 to include a wrecker service in the contract. The project area on I-84 has a heavily monitored Intelligent Transportation System (ITS) that monitors traffic conditions. The project held an Emergency Services Coordination meeting which State Police, Waterbury Police, Cheshire Police, Wolcott Police, Prescott Police, Waterbury Fire Department, and the wrecker service attended. St. Mary's and Waterbury Hospitals are adjacent to the project limits and they were notified about the project work through the use of the project's Transportation Management Plan.

5. What, if any, accommodations have been made for pedestrians and bicyclists?

   The project is maintaining at least the existing conditions on local roads included in the project.

6. Have ADA requirements been met for pedestrians?

   The existing ADA controls on local roads are being maintained, and the new sidewalks will be ADA compliant.

7. Where is the designated laydown area for materials to be stored?

   The Contractor is storing materials in a lot on Plank Road, on the side of the road of Exit 27 behind barrier, and within the work zone behind barrier.

8. Where is the designated area for equipment to be stored when construction is not in progress?

   The equipment is also being stored on Plank Road and within the work zone.

9. Chief Inspector Comments:

   The Chief Inspector had no comments.

10. Project Engineer Comments:

    The Project Engineer did not attend the meeting to comment.

PART 2: PLANS AND SPECIFICATIONS

1. Are you aware if there is a Transportation Management Plan for this project? Has it been helpful?

   There is a TMP for this project and it was distributed before and discussed at the Preconstruction Meeting.

2. What special provisions related to work zones were added to this contract? (List item numbers, descriptions, and provision dates.) Are there any concerns with them?

   NTC – Detour Roadways
   NTC – Use of State Police Officers, Rev. 062912
   NTC – IMS Electrical Services, Rev. 06/11/09
   NTC – IMS Installation, Rev. 4/14
   NTC – Information Shown on the Plans (IMS), Rev. 09/01
   NTC – NCHRP 350 Req. for Work Zone Traffic Control Devices, Rev.04/19/05
   NTC – Traffic Monitoring Stations, Rev. 2/10/14
   NTC – Traffic Drums and Traffic Cones, Rev. 04/19/05
   Item # 0913952A – Protective Fence (1.525 M High)
   Item # 0970006A – Trafficperson (Municipal Police Officer), Rev. 1/2008
   Item # 0970007A – Trafficperson (Uniformed Flagger), Rev. 1/2008
   Item # 0971001A – Maintenance and Protection of Traffic, Rev. 9/22/14
   Item # 0979003A – Construction Barricade Type III, Rev. 1/17/01
   Item # 1020030A – Temporary Illumination Unit, Rev. 1/10/14
   Item # 1050110A – Motorist Aid Variable Message Sign – Type B Walk-In, Rev. 4/4/14
   Item # 1050113A – Motorist Aid Variable Message Sign System Operations, Rev. 08/00
   Item # 1118051A – Temporary Signalization (Site #1), Rev. 04/02
   Item # 1118052A – Temporary Signalization (Site #2), Rev. 04/02
   Item # 1118053A – Temporary Signalization (Site #3), Rev. 04/02
   Item # 1118054A – Temporary Signalization (Site #4), Rev. 04/02
   Item # 1118055A – Temporary Signalization (Site #5), Rev. 04/02
   Item # 1118056A – Temporary Signalization (Site #6), Rev. 04/02
   Item # 1118057A – Temporary Signalization (Site #7), Rev. 04/02
   Item # 1118058A – Temporary Signalization (Site #8), Rev. 04/02
   Item # 1131002A – Remote Control Changeable Message Sign, Rev. 12/02/02
   Item # 1131007A – Portable Work Zone Management System Deployment, Rev. 3/25
   Item # 1131008A – Portable Work Zone Management System Operation, Rev. 3/25
   Item # 1131009A – Portable Work Zone Management System Queue Trailer/Sensor (PQT), Rev. 3/25
   Item # 1131013A – Portable Work Zone Management System Changeable Message Sign/Queue Sensor Trailer (PCMQ), Rev. 3/25
   Item # 1131013A – Portable Work Zone Management System Trailer Relocation, Rev. 3/25
   Item # 1131014A – Portable Work Zone Management System Mobile Video Camera/Queue Sensor Trailer (PVQS), Rev. 3/25
   Item # 1201603A – VMS Support Post

Item # 1220013A – Construction Signs – Bright Fluorescent Sheeting, Rev. 1/5/12
Item # 1803064A – Type B Impact Attenuation System (Tangential) Replacement Parts, Rev. 4/12/07
Item # 1808100A – Type B Impact Attenuation System (Tangential), Rev. 4/12/07
Item # 1808100A – Impact Attenuator (C-A-T), Rev. 03/04/01
Item # 1808101A – Impact Attenuator (C-A-T) Replacement Parts, Rev. 03/14/01

The Chief Inspector had no concerns with any of the special provisions listed above. The project has just started so some of the items have yet to be used.

3. What work zone traffic plans are included in the project plans? Are they complete and current?

   MPT Details & Detour Signing, MPT Temporary Signs, MPT Pre-Stage, Maintenance and Protection of Traffic, and VMS Location Plan.

   There are no concerns with the plans that relate to work zones and they are complete as much as they've been used to date.

4. Is there stage construction? If so, explain.

   Yes. (1) Traffic will be shifted to the outside lanes and the median will be built, (2) traffic will be shifted to the inside lanes and the outside lanes will be built, (3) traffic will be shifted to the outside lanes as split traffic and the middle lanes will be built.

5. Are there any issues with oversize/overweight or construction loads on bridges?

   There has been a lot of communication between the project and the Office of Permits about wide loads coming through the project. There is an issue with wide loads cannot come through when the lanes are reduced in width.

6. If there is temporary signalization? If so, explain.

   There have been modifications to the signal heads and the cycles of existing traffic signals on Hamilton Avenue over I-84.

7. If there is a detour? If so, explain.

   Exit 24 on I-84 WB has been closed; traffic is detoured to Exit 25. Plank Road is closed at Harpers Ferry; traffic is detoured to White Oak Drive to East Main Street back to Harpers Ferry Road. (See attached detour.)

8. Is the 30 feet clear zone being maintained per specification? If not, explain.

   Yes.

PART 3: WORK ZONE INSPECTION CHECKLIST

Yes	No		
A.		**Travel Hazards**	
☒	☐	1. Clear and understandable guidance through the work zone?	
☒	☐	2. Traffic congestion due to work zone?	
☐	☒	3. Hazards to the traveling public (i.e. blunt ends, drop-offs, etc.)?	
☐	☒	4. Any horizontal/vertical clearance issues?	
B.		**Traffic Control Devices**	
☒	☐	**1. Signs?** Type: ☐ Regulatory ☒ Construction	
☒	☐	a. Clean, visible, legible per ATSSA guide?	
☒	☐	b. Reflectorized?	
		c. Mounting height? **Adequate.**	
☒	☐	d. Mounted properly?	
☐	☒	e. Need to be covered?	
☒	☐	**2. Cones, Drums, and Barricades?** Type: ☒ Cones ☒ Drums ☒ Barricades	
☒	☐	a. Clean and visible?	
☒	☐	b. Reflectorized?	
☒	☐	c. Anchored?	
☐	☒	**3. Warning lights?** Type: ☐ High intensity ☐ Low intensity	**Missing lights on post-mounted signs.**
☐	☐	a. Functioning?	
☒	☐	**4. Advance Flashing Arrow?** Type: ☒ Portable ☒ Truck-mounted	
☒	☐	a. Functioning in the correct mode?	
		b. Location? **Within taper of left lane closure on I-84 EB.**	
☒	☐	**5. Changeable Message Sign (CMS)?**	
		a. How many? **Four**	
		b. Location? **Two on WB and two on EB**	
☒	☐	c. Message understandable?	
		d. Number of frames displayed? **Two**	
☒	☐	e. Timing between screens acceptable?	
☒	☐	**6. Crash Trucks (Truck Mounted Attenuators)?**	
		a. How many? **Two**	
		b. Location? **I-84 EB in traffic pattern**	
C.		**Temporary Pavement Markings**	
☒	☐	Temporary pavement markings? Type: ☐ Tape ☒ Paint ☐ Epoxy	
☒	☐	a. Legible?	
☐	☒	b. Conflicting other markings?	
☒	☐	c. If nighttime, markings visible?	
D.		**Personal Protective Equipment**	
☒	☐	Is everyone wearing the proper reflective equipment?	
E.		**Traffic Control Personnel**	
		☒ State Police ☒ Municipal Police ☐ Uniformed Flagger	

PART 4: FINDINGS AND RECOMMENDATIONS

FINDINGS:

1. During the review, discussion about the Reduce Speed to 45 mph advisory signs being taken out of plans came up. Although the signs aren't enforceable, project personnel felt that it was a good means to get motorists to slow down when entering the work zone. For this project, regulatory signs legally reducing the speed limit through the Office of the State Traffic Administration (OSTA) have been installed due to reduced roadway with between temporary barriers during construction.
2. The Contractor used a rolling road block to install the advance warning signs and the taper of the traffic pattern. The road block took place from 9:35 PM to 9:54 PM (19 minutes) and a queue length of approximately five miles accumulated which didn't clear until just prior to 11:00 PM.
3. The Chief Inspector said that the project received permission to start at 9:30 PM instead of 11:00 PM as noted in the Specifications Addendum No. 3 (which is an hour later than 10:00 PM originally stated in Specifications). However, Traffic did not recall reviewing this request.
4. No post-mounted construction signs had barricade warning lights.
5. The height of the Changeable Message Sign on I-84 Eastbound before the Exit 18 (Chase Parkway) on ramp is too low, especially with a guiderail immediately in front of it.

RECOMMENDATIONS:

1. Review research from other states on the effectiveness of speed limit reduction in work zones.
2. Traffic Stoppages/Rolling Road Blocks
   a. Per the M&PT special provision, traffic stoppages in work zones are only supposed to be implemented for ten minutes at a time for designated activities and at designated times. Traffic should be allowed to proceed through after ten minutes time to prevent long queues from forming.
   b. Section 3d of the M&PT special provision discusses how traffic may "under certain circumstances" be "briefly impeded" during the Installing and Removing Traffic Control Patterns using "slowing techniques".
   c. The Department needs to establish a policy on use of the Rolling Road Blocks for Work Zones where multiple lanes exists rather than solely relying on a case by case determination by the Engineer and/or State Police.
3. When requesting a change to the hours of operation, the Division of Traffic needs to be consulted before approving the change to see if the traffic volumes will allow lane closures at the time requested.
4. Barricade warning lights should be installed. The Maintenance and Protection of Traffic Special Provision Notes says, "IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE

HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS – HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA."

5. The CMS needs to be raised for advance visibility.

PART 5: WORK ZONE INSPECTION PHOTOS

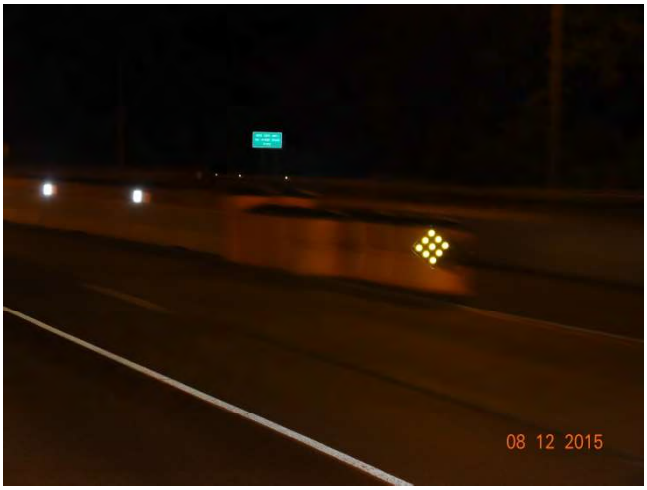
I-84 EB: The post-mounted legal series sign at the Exit 23 on ramp.

I-84 EB: The sign crew heading out onto I-84 to set up the traffic pattern.

I-84 EB: A post-mounted ROAD WORK AHEAD sign.

I-84 EB: A sign on the back of the sign/device truck, CONSTRUCTION VEHICLE DO NOT FOLLOW.

PART 5: WORK ZONE INSPECTION PHOTOS



I-84 EB: A Type A Impact Attenuation System with delineator in front of the blunt end of concrete barrier.

I-84 EB: ROAD WORK AHEAD signs installed on both sides of the road.

I-84 EB: The sign crew setting up a ROAD WORK AHEAD FINES DOUBLED sign on the left side of the road.

I-84 EB: The Contractor's crane stored on the side of the highway behind T.P.C.B.Cs.

PART 5: WORK ZONE INSPECTION PHOTOS

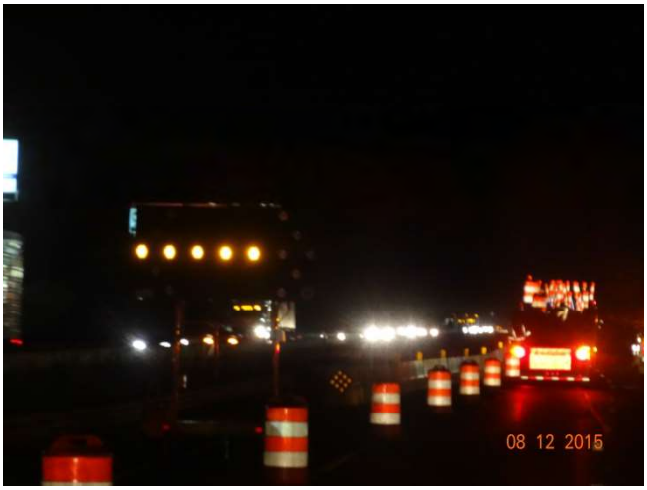
I-84 EB: LEFT LANE CLOSED AHEAD sign being set up.

I-84 EB: The work crew setting up traffic drums for the taper of the traffic pattern.

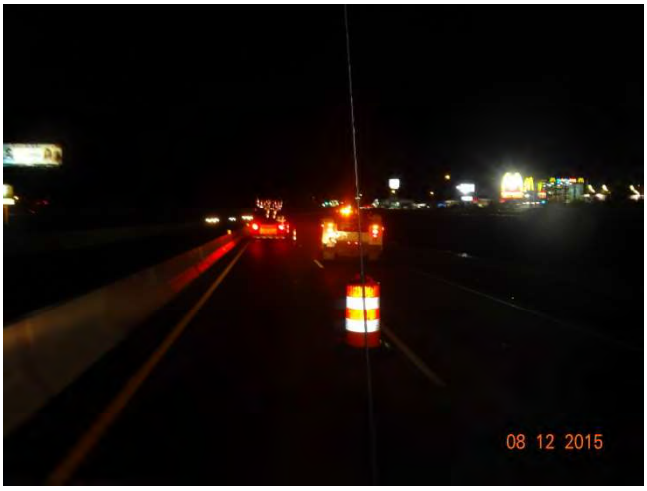
I-84 EB: Merge right signs on both sides of the road.

I-84 EB: A post-mounted SHOULDER CLOSED sign on the median without a warning light.

PART 5: WORK ZONE INSPECTION PHOTOS



I-84 EB: An advance flashing arrow signaling to merge right (right arrow wasn't captured in photo) within the taper. Also another Type A impact attenuation system on the blunt end of the concrete barrier just beyond the arrow.



I-84 EB: The taper has ended and traffic cones are placed to close the left lane.

I-84 EB: A sign placed in the closed lane warning motorists of trucks entering or exiting the closed lane.

I-84 EB: The Contractor is using his work truck to temporarily stop traffic on the on ramp as the sign crew is setting up the pattern on the mainline.

PART 5: WORK ZONE INSPECTION PHOTOS

I-84 EB: The traffic queue on I-84 and an on ramp for I-84 from the rolling road block.

I-84 EB: The traffic being let through after the traffic pattern is finished being installed. The rolling road block start at 9:35 PM and ended at 9:54 PM.

I-84 EB: An advance flashing arrow mounted on a truck-mounted impact attenuator in the closed lane signaling for traffic to merge right when it should be a straight bar to signal the lane is closed like stated in Section 4d in the M&PT special provision.

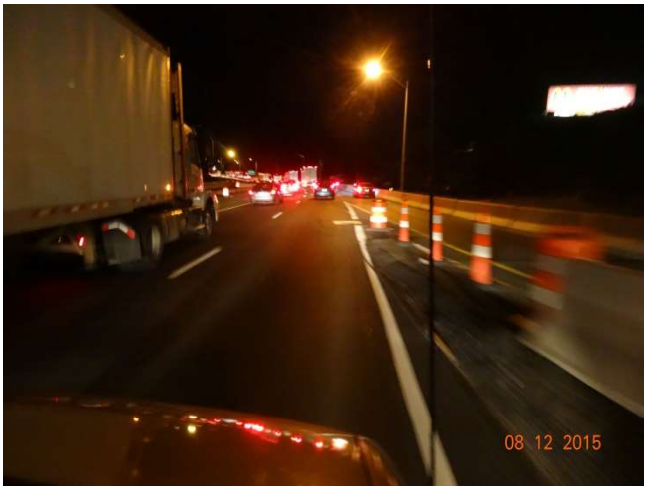
I-84 EB: Delineators on the concrete barrier with the yellow side on the left side of the motorists.

PART 5: WORK ZONE INSPECTION PHOTOS

I-84 EB: The work crew working in the median with an excavator.

I-84 EB: A Changeable Message Sign in the far back stating 9:30-11:30 EXPECT DELAYS was left on from the daytime blasting operation.

I-84 EB: The Contractor switched the signal on the flashing arrow to the straight bar to show the lane is closed.



I-84 EB: The traffic passing through the work zone.

PART 5: WORK ZONE INSPECTION PHOTOS

I-84 EB: The area east of the current highway where the new lanes for I-84 will be built.

I-84 EB: A merge right construction sign.

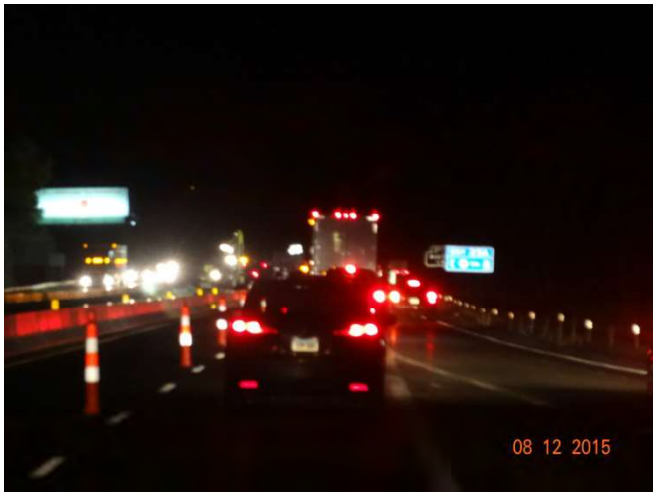
I-84 EB: A LEFT LANE CLOSED AHEAD construction sign. The sign reflectivity is marginal. Signs should be cleaned before placement to prevent motorists from not being able to see them or understand them.

I-84 EB: Traffic bypassing two merge right construction signs on both sides of the road.

PART 5: WORK ZONE INSPECTION PHOTOS

I-84 EB: Traffic merging right when approaching the traffic pattern. A construction sign saying SHOULDER CLOSED and traffic drums for the taper.

I-84 EB: A State Police vehicle with lights flashing in the closed left lane.



I-84 EB: Oncoming traffic merging into the one lane of traffic.

I-84 EB: A legal series sign on the Exit 17 on ramp.

PART 5: WORK ZONE INSPECTION PHOTOS

I-84 EB: A SPEED LIMIT AHEAD 45 MPH construction sign informing the motorists that the speed limit for this section of I-84 has been legally reduced to 45 mph.

I-84 EB: The VMS stating LEFT LANE CLOSED on its second frame.

I-84 EB: A Variable Message Sign stating ROAD WORK AHEAD EXITS 23-25A on its first frame.

I-84 EB: A CMS near the Exit 18 (Chase Parkway) on ramp stating the ROAD WORK AHEAD on its first frame. The CMS is rather low behind the guiderail and could be difficult for motorists to see.

PART 5: WORK ZONE INSPECTION PHOTOS

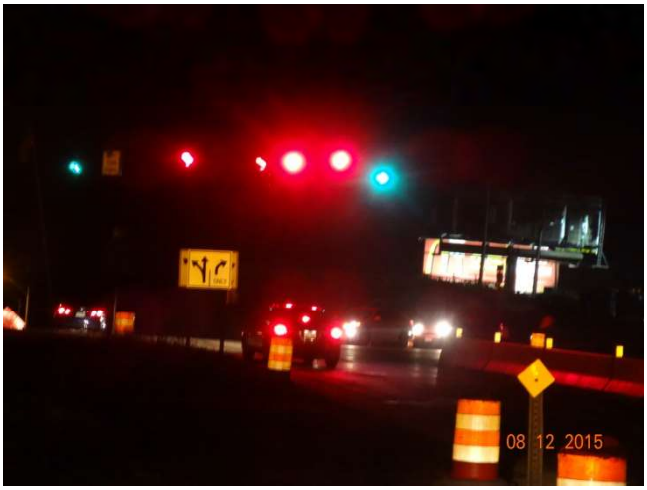
I-84 EB: The CMS near Exit 18 stating LEFT LANE CLOSED on its second frame.

I-84 EB: The CMS near Exit 23 stating TO EXIT 25A in its second frame.

I-84 EB: A CMS near Exit 23 in the gore stating HEAVY DELAYS on the first frame.

I-84 EB: A Type A Impact Attenuation System at the end of concrete barrier along the right side of Exit 23.

PART 5: WORK ZONE INSPECTION PHOTOS



I-84 EB Exit 23: The traffic signal that has been modified temporarily for the traffic impacts from the construction on Hamilton Avenue.

I-84 EB: A new lane that will be constructed for the traffic shift. A Type A Impact Attenuation System in front of the barrier and a construction sign that says I-84 EAST HARTFORD LEFT LANE.

I-84 EB Exit 23: The green cycle of the temporary signalization.

I-84 EB: The Contractor's storage container stored behind barrier on the right side of the current eastbound lanes.

Submitted by: Kiah Patten Date: 9/3/15

Kiah Patten

Reviewed by: Digitally signed by ANTHONY KWENTOH DN: C=US, E=ANTHONY.KWENTOH@CT.GOV, O=DOT, OU=OOC, CN=ANTHONY KWENTOH Date: 2015.09.03 16:01:36-04'00' Date: 9/3/15

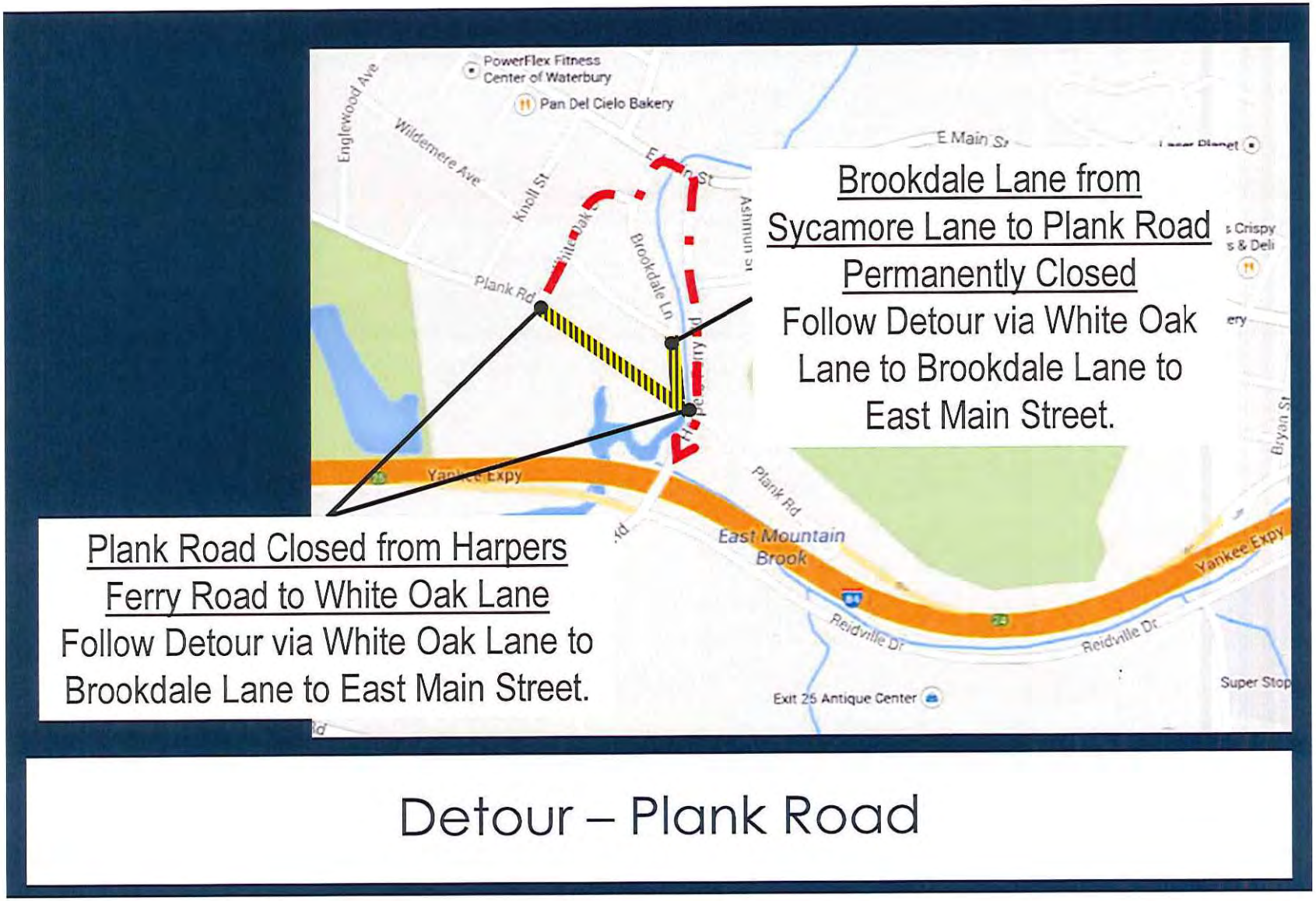
Anthony Kwentoh

All in Attendance

Cc: James Connery – Donald Ward
Robert Turner (FHWA)

Plank Road Extended Closure: Spring 2015 - Fall 2016

Brookdale Lane Access from Plank Road Permanently Closed - Spring 2015



Detour – Plank Road