

## Mixmaster Rehabilitation NEWSLETTER

OCTOBER 2019

#### this issue

Project Status Interview with Dave Ferraro Employee Spotlight Why is Rehabilitation

Necessary?







#### Project Status – What's Been Done So Far...

The Mixmaster Rehabilitation project is into its 17<sup>th</sup> month. The project consists of the rehabilitation of numerous bridges located within the Route 8 and I-84 Interchange and was awarded to Walsh Construction Company at a cost of \$152,960,945.27 on April 18, 2018 and is scheduled to be completed September 10, 2022. To date, there have been significant improvements made with minimal traffic disturbance.

Bridge rehabilitation continues including replacing the bridge deck ends and bridge joints, safety modifications to the bridge parapets and bridge deck repairs.

In order to facilitate the rehabilitation work and to provide safe and efficient passage for all motorists, a median U-turn (off of Exit 35, Route 8 Northbound) and a Temporary Bypass were established. These are both being utilized and have been received well by the traveling public.



If you have any comments or concerns relative to this project, please feel free to contact us at <u>info@mixmaster-rehab.com</u> or visit our project website <u>https://mixmaster-rehab.com/</u>. All future updates will continue to be posted on all social media outlets.

## Employee Spotlight



#### SHRAVANI VENKATA

**COMPANY**: GM2 Associates, Inc.

**POSITION:** Inspector

#### **EDUCATION**:

- B.S. Civil Engineering, Jerusalem College of Engineering, India
- M.S., Structural & Earthquake Engineering from SUNY

**EXPERIENCE**: Shravani has almost three (3) years experience and has been an inspector on this project since it began in June 2018.

FAVORITE PART OF THE JOB: "My favorite part of the job is getting to see the detailed stages of construction. For me, that is the most important part of learning. I also get to work with an amazing team!"



### An Interview with .....

**Dave Ferraro** *Project Engineer* Connecticut Department of Transportation

#### 1. To date, what has been the most complex part of the project?

The most complex part of the project up to this point is maintaining the project schedule. This project has an aggressive schedule in an effort to have the overall impact to the traveling public minimized. Because of high traffic volumes within the Interchange, lane closures on I-84 are allowable only at night. This results in short windows of time for our contractors to complete the bridge rehabilitation work.

#### 2. How has the traveling public handled the opening and use of the U-turn and Bypass?

The opening and use of the Route 8 Northbound Temporary Bypass and U-turn has been going really well. We have not experienced any problems with these revised temporary traffic patterns or have received any complaints. Driving on the bypass provides a different perspective or view of the Interchange. Motorists have commented that they have a new appreciation for the bridges and the height of these structures.

"Working closely with major stakeholders has really helped with keeping the public informed of the impacts the project may have on their commute."

# 3. What is the biggest difference between the Mixmaster Rehabilitation and I-84 Widening project?

The biggest difference between the two projects is that there will not be any changes to the bridges or added capacity. The I-84 Widening Project changed the and added landscape increased capacity to the highway and local roads. The Rehabilitation Mixmaster Project involves repair and rehabilitation work to most of bridges within the the Interchange.

Repairs and/or replacement of the concrete decks, repairs to the concrete sub- structure (piers and columns) and repairs to the structural steel will extend the life of the bridges and bring them up to current design standards.

# 4. What do you think is the main contribution to this project's success?

Working closely with major stakeholders including the City of Waterburv and the Republican American has really helped with keeping the public informed of the impacts the project may have on their commute. Maintaining а project website, social media accounts on all platforms and sending out email updates help with greatly disseminating information. traffic information Live through our smart work zone system (cameras, speed boards) sensors, message provides constant up-to-theminute traffic information.

#### Why is Rehabilitation Necessary?

In an effort to restore the structural integrity of the bridges and to meet Federal Highway Standards, it is necessary to rehabilitate the bridges within the Mixmaster Interchange. To date, our team has made significant headway on these repairs.

#### **Substructure Repairs**

In addition to the very evident superstructure repairs previously noted, repairs to the bridge columns and steel girders and cross frames are underway. Similar to the bridge deck repair process, the columns are "sounded" by repeatedly beating on the concrete with hammers to find hollow spots. Once delineated, soft concrete is chipped to expose and engage existing reinforcing steel (rebar).

Often, new rebar is required where the concrete is found to be hollow. Note that to maintain design strength, reinforcing steel must work in conjunction with the concrete. Where steel is strong (tension), concrete is weak and viceversa.

A column or pier cap that has been repaired is distinguishable by its surface. In most cases a repaired column will have bump-outs where repairs have been completed. This is done to ensure a minimum of 1" of concrete cover over the rebar in the repaired area.

As has been publisized, the extensive repairs that are underway are intended to last 25 years. To meet that objective, ~430,000 lbs of repair steel is being added to the structure. Repair areas are identified by section loss and location during biennial inspections. Repairs are identified as D (corrosion), S (strengthening), or C (crack). Corroded steel does not always require a repair and many cracks are terminated by adding a ½" drilled stop hole at the end of the crack. These determinations are made following an inspection and design review of the nearly 1500 repairs needed throughout the Mixmaster.



After Repair

Before Repair

**Constructing the Temporary Bypass** 

The temporary bypass was constructed to allow for the entire replacement of the existing Route 8 Northbound concrete decks, bridge joints and parapets. With only two lanes of travel and narrow shoulders on the existing bridge, it was not possible to perform traditional stage construction without severly restricting travel through the Mixmaster without construction of a bypass.

This two-lane highway, less than one mile in length, consists of three temporary bridges: two over the Naugatuck River and one over Freight Street. Cranes were used to install the piles (steel beams) which support the abutments and piers of the new bridges. The piles were driven 60 to 70 feet into the ground and spaced 4 to 5 feet apart.

The bypass was open to traffic on August 24, 2019.

#### U-Turn (Exit 35)

Work will be performed on each of the ramps requiring ramp closures from time to time. When these closures occur traffic will be detoured to the bypass and to the U-turn off of Exit 35 Oakville-Watertown, Route 73 east of Aurora Street. Traffic will then proceed on Route 8 Southbound allowing motorist to proceed to their entended destination.

When permanent bridge deck repairs are performed, the asphalt surface is milled off and the deck "sounded" as noted above. After completion of the concrete repairs by the contractor, a protective membrane is placed over the entire deck to significantly reduce or eliminate water and salt infiltration before the deck is repaved. This significantly increases the service life of the rehabilitated concrete bridge deck.

#### SafeSpan (Work Platforms)

Platforms were set up above and below the highways and bridges. These work platforms are used to provide access to complete the concrete and steel repair work. The platform also serves to provide protection of any falling debris. Since the bridges were built back in 1960's, it is imperative to rehabilitate them for the safety of the traveling public.



Temporary Bridge #2 – North View



U-Turn (Exit 35) – South View



Safespan Beneath Bridge



Temporary Bypass - Construction



To view additional project photos, please visit: <u>https://mixmaster-rehab.com/construction-photos</u>

