

Lowell Route 133

Repair and Reconstruction Options

Presented by

Howard Stein Hudson and MassDOT

Presented to

City of Lowell

September 4, 2024



HOWARD STEIN HUDSON

Engineers + Planners

Concrete Roadway Repair

Engineers + Planners

■ Cost

- \$3-\$4 Million

■ Proposed Work

- Cleaning and Resealing Existing Pavement Joints
- Full Depth Patching
- Partial Depth Patching
- Cleaning and Sealing Cracks
- Pavement Restriping



HOWARD STEIN HUDSON

HMA Overlay

■ Cost

- \$2-\$3 Million

■ Proposed Work

- $\frac{3}{4}$ " Concrete Surface Milling
- Drainage Structure Adjustments
- Partial Depth Patching and Joint and Crack Sealing
- Hot Mix Asphalt Overlay
 - Stress-Absorbing Membrane Interlayer (SAMI) / Rubber Chip Seal
 - Polymer Modified $\frac{3}{4}$ " Ultra Thin Bonded Overlay (UTBO)
- Pavement Restriping



HMA Overlay

Process Overview

The process utilizes a combination of industry proven applications sequenced together to treat the roadway.



Surface Milling

Thin milling (<1") as needed for a consistent profile



Structure Adjustments

Adjustment and/or repair of utility structures



Patching & Isolated Repairs

Filling of potholes and larger areas of deterioration



Mastic / Crack Seal

Sealing of all joints and cracks in the surface



Pavement Marking Removal

Eradication of old pavement markings (if needed)



Asphalt-Rubber SAM

Application of crumb rubber modified stress absorbing membrane interlayer



Bonded Wearing Course

Final surface paving with ultra-thin (~3/4") bonded wearing course

Treatment Benefits

Treatment Performance

- Restores roadway profile, providing a smoother and safer ride for multi-modal traffic.
- Seals and waterproofs the existing surface from moisture intrusion.
- Resists raveling and delamination with superior bonding of the open, ultrathin overlay.
- Proven durable wearing coarse in demanding high traffic/high speed applications.

Construction Process

- Significantly quicker and less disruptive processes minimize delays to the public and allow more miles to be completed compared to alternatives.
- Roadways can remain open to traffic and processes can be completed at night (if needed).
- Thin profile of treatments retains curb reveal, maintains bridge and overpass clearances, and minimizes impact on driveway aprons.

Cost Savings

- Lower overall project and lifecycle costs than alternative methods.
- Allows for budget dollars to be stretched and significantly more miles to be completed compared to other treatments options.
- Sealing and preserving road surface delays or prevents future costly repairs and rehabilitation.



Full Depth Hot Mix Asphalt Roadway*

Engineers + Planners

- **Cost**
 - \$15-\$20 Million
- **Proposed Work**
 - Concrete Roadway Removal
 - Drainage Structure Adjustment
 - Full Depth Hot Mix Asphalt Construction
 - Pavement Restriping

****Slide included for comparison only. Not for consideration at this time****



HOWARD STEIN HUDSON

Questions?



HOWARD STEIN HUDSON

Engineers + Planners