

To: Dyersville Street Committee
Cc: Mick Michel, City Administrator
From: John F. Wandsnider, PE – Public Works Director/City Engineer
Date: February 19, 2025
Subject: Improvements to 1st Avenue W – West of Roundabout
Preliminary Design Study – **Executive Summary**

Approaches to Improvement


The City Engineer has been working with both the Delaware and Dubuque County Engineers to identify options for improving the roadway. Both counties have experience with numerous projects of a similar nature. From concrete pavement overlays (known in the industry as ‘whitetopping’), to asphalt pavement overlays, to various types of pavement preservation techniques, they have a good amount of experience to draw from and have been very helpful. They have also helped to provide the historic information and recent cost data to help in estimating the costs for improvements to 1st Avenue West.

1. **6-inch Whitetop:** The portion of Delaware County 210th Street immediately west of this pavement section was ‘Whitetopped’ with 6 inches of concrete pavement overlay in 2014. It appears to be holding up well, with only occasional minor cracking (and an annoying pitting of the surface that seems to have stabilized). Though the most costly approach to rehabilitation, Whitetopping can be expected to last the longest, approximately 35 years or more.
2. **4-inch HMA Overlay:** The most common approach to rehabilitation of highways in this condition in recent years has become the 4-inch Hot-Mixed Asphalt overlay with interlayer. The pavement section consists of a 1-1/2-inch “wedge, level, strength” course, a 1-inch “interlayer” course, and a 1-1/2-inch surface course. This approach is still quite costly and can be expected to last 25 years or more.
3. **2-inch HMA Overlay:** In talking with the county engineers, due to the same funding shortages Dyersville is facing, they will be looking more and more at ways to reduce costs. Overlays of 2 and 3 inch thickness appear to be in their futures as well. This uses a 1/2-inch “scratch leveling” course followed by a 1-1/2” surface course. A 2-inch overlay can be expected to last 15 years or more.
4. **Micro-Surfacing:** This uses a very thin asphalt emulsion material application. We have successfully applied this approach to alleys and a gravel parking lot in Dyersville. This would not eliminate smoothness (ride) issues with the existing pavement. It can be expected to last 5 years.
5. **1/2” Chip-Sealcoat:** Chip-sealing is a thin film of heated asphalt liquid sprayed on the road surface, followed by the placement of small aggregate (“chips”). The chips are then compacted to orient them for maximum adherence to the asphalt, and excess stone is removed from the surface. This is not utilized in more urban areas due to the fact that the small stones can become a nuisance until they are set in a stabilized. It can be expected to last 5 years.
6. **Do Nothing – Continue to Patch:** Since 2018, we have been able to track the costs spent on patching the pot-holes in the pavement. We spend \$3,000 to \$3,500 annually on this section of roadway. Although this would certainly be the least-expective approach, it is considered unacceptable due to the safety and nuisance of the reappearing potholes. And the pavement is only going to become worse moving forward.

Cost Comparisons

The following table provides a summary of the costs for the various approaches or options and then provides an estimate of the 'cost-per-year' for comparison.

Improvement Type	Cost Est. for 1st Ave (1.4 mi)	Length of Service (yrs)	Estimated Cost/Year
1. 6-inch Whitetop	\$765,951	35	\$21,884
2. 4-inch HMA Overlay	\$604,261	25	\$24,170
3. 2-inch HMA Overlay	\$287,500	15	\$19,167
4. Micro-Surfacing	\$92,000	5	\$18,400
5. 1/2" Chip-Sealcoat	\$80,500	5	\$16,100
6. Do Nothing - Patch		1	\$3,000 - 3,500

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p>FOR THE CITY OF DYERSVILLE,</p>	
	<p><i>John F. Wandsnider</i></p> <p>John F. Wandsnider, P.E.</p> <p>License Number: P12868</p> <p>My license renewal date is December 31, 2025</p> <p>Pages or sheets covered by this seal: All Pages</p>	<p><i>2/19/25</i></p> <p>Date</p>

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