

# Carroll Engineering Roadway Maintenance Evaluation

Dated November 2023

*Review and Comments*

11.27.2023

This review largely focuses on page 2 of the Carroll report with an emphasis on the contract responsibilities of General Asphalt.

Page 2 - Section "D" second paragraph: References the CEC Technical Assistance Memo drafted by Jason Snyder dated May 12<sup>th</sup>, 2023. The Carroll evaluation states in section D, second paragraph that Jason Snyder indicated that the tickets from May 4 through 8, 2020, and May 11 through 20, 2021 which were found to coincide with the tonnages noted on Payment Applications 3 and 6, respectively. However, asphalt tickets coinciding with Payment Applications 1, 2, 4, and 5 were not available. Therefore, Jason was unable to verify whether the total quantity of material placed matched the calculated tonnages. (important to note that the final application for payment was altered and Jason refused to sign as approved).

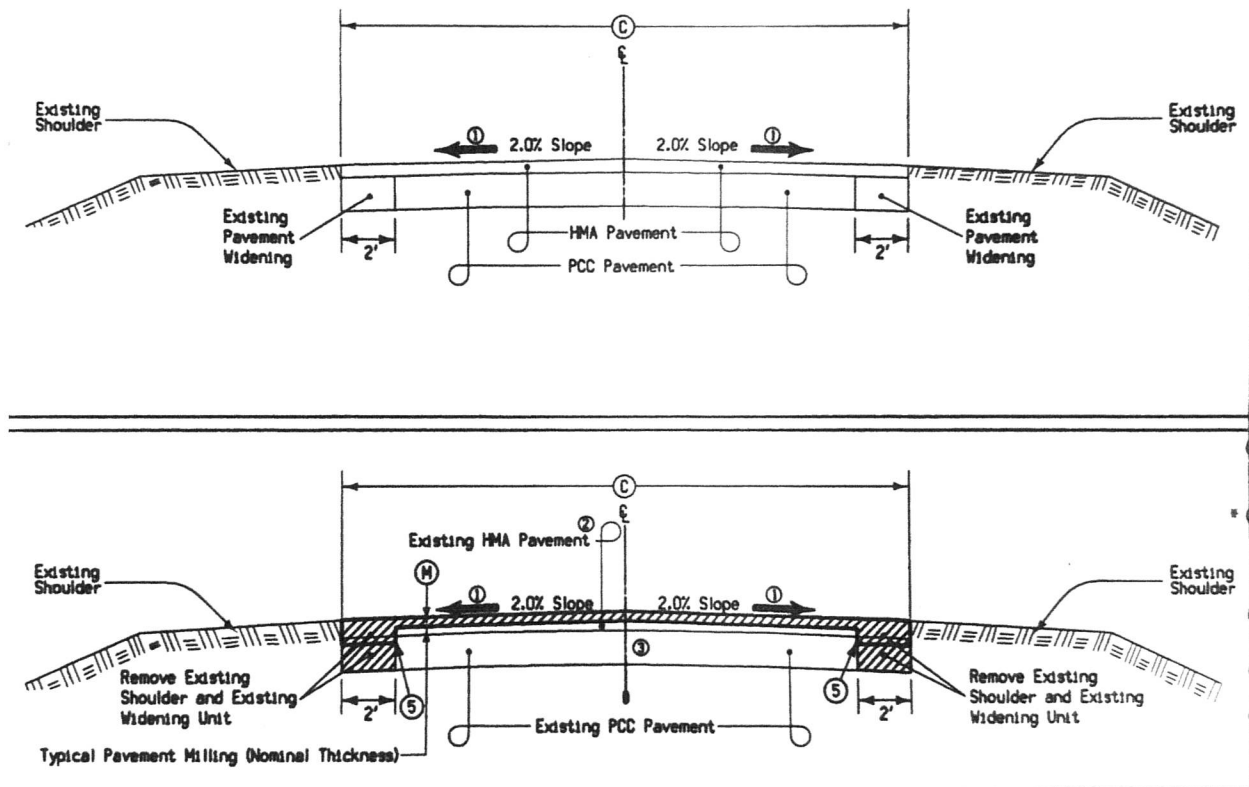
Although asphalt load tickets assist in verification of payment applications, it is not an accurate indication of proper application of the asphalt.

During the field survey that was conducted by Mr. Snyder, Mr. Pizzola, Ms. Seader, General Asphalt, and me, it was noted by Mr. Snyder that in the areas where center of the road asphalt was ½", the asphalt at the road edge was 3" or more. Indicating that the paver screed was not properly adjusted to the road's pitch or crown as stated in paragraph three.

Paragraph four goes on to explain that the delamination along Gillam and Highland Avenues is "exacerbated" (not caused) by heavy traffic. Leaving the cause to be the ½" overlay, not 1 ½" overlay as contracted.

Jason also defers his responsibility for full-time site inspections to the borough council, so as to relieve himself of the responsibility for a failed application.

# Example of a typical two lane road asphalt overlay



## C. FIELD INVESTIGATION

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On September 28<sup>th</sup>, 2023, Christopher Peterson, P.E., and Vincent Capaldi from CEC performed a visual street-level inspection of all the Borough roadways to evaluate the pavement conditions. The road surface conditions were inspected to determine if any of the following conditions existed:

- fatigue cracking
- longitudinal and transverse cracking
- reflective cracking
- rutting, depressions
- raveling
- patching
- micro surface remnants

CEC analyzed each street to the extent of the previous paving project. Generally, the condition and construction of the Borough's roads were typical of most Boroughs throughout Pennsylvania. Construction techniques were implemented when new sections of Borough expanded through in-fill or new land development and subdivision processes. The Pennsylvania Department of Transportation is responsible for the maintenance of the major and minor collectors in Borough, notably Bellevue Avenue, Comly Avenue, Hulmeville Avenue, W. Interchange Road, and Lincoln Highway. These roads were excluded from the Study, as well as Manor Avenue and a portion of Highland Avenue, which were not part of the pavement repair project.

## D. TECHNICAL ASSISTANCE MEMO

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CEC has reviewed the "Technical Assistance Memo" consisting of two (2) pages, prepared by Jason A. Snyder, P.E., dated May 12, 2023, and included in Appendix D of this report. We agree with the proposed maintenance techniques, which include crack sealing, curb sealing, and the mill and overlay of any areas of delamination. We have expanded upon these techniques in Section E below.

In reviewing the materials from the previous resurfacing project, CEC was able to obtain some of the original asphalt delivery tickets for the road paving program from the Borough. The tickets were from May 4 through 8, 2020, and May 11 through 20, 2021 which were found to coincide with the tonnages noted on Payment Applications 3 and 6, respectively. Asphalt tickets coinciding with Payment Applications 1, 2, 4, and 5 were not available. Therefore, we are unable to verify whether the total quantity of material placed matches the calculated tonnages.

We note that the Technical Assistance Memo indicates that the tonnages applied to the roadway mathematically calculate to a 2-inch placement thickness, but it also acknowledges that some areas of asphalt appear to be thin, possibly due to high spots in the existing pavement prior to the application of the fabric and overlay. This has led to areas where the asphalt overlay is delaminating from the underlying fabric.

We also observed this delamination in various locations along Gillam and Highland Avenue. This delamination appears to have been exacerbated by heavy vehicle traffic, also causing the pavement to "shove" at stopping areas. At each location where the delamination had occurred, we noted pavement overlay thickness was approximately 0.5 inches at each location. It is unclear if this thickness is representative of the entire overlay on Gillam and Highland Avenue, but the reduced thickness was consistent across the three (3) areas we observed. Furthermore, we understand that the Borough did not conduct full-time inspection of the pavement placement where inspection reports could be referenced. Full-time observation is beneficial in verifying the appropriate material, thickness, and installation techniques are used throughout the application. The resulting inspection reports may have offered more information on the placement of the asphalt.