

Longmeadow Ad Hoc Committee Visit – 12/8/16

Members Present: Bob Andrews, Craig Baldwin, John Bergendahl, Greg Short, Glen Warner, Sharon Verrilli

Met with: Dr. Walaa Mogawer, UMass Director Highway Sustainability Research Center

Paul Montenegro, asphalt expert

Location: UMass Dartmouth, Center for Innovation & Entrepreneurism, Fall River, Ma.

Summary: After meeting Mr. Mogawer (Walla), Mr. Montenegro (Paul), and Mr. Baldwin (Craig) in the lobby, we were brought to a conference room where we listened to Walaa speak of his program. We were instructed to ask questions at any time. Mr. Montenegro and Mr. Baldwin also interjected freely. Following this meeting, we were given a tour of the laboratory facilities.

“Introduction”: Walaa has 27 years of experience in the field of “green” pavement technologies. While the use of recycling materials in asphalt is not new, government agencies such as DOT, FAA, etc. are slow to adapt to new technologies. It is the goal of Walaa’s program to work to a level of 60-75% recycled “sustainable” materials in asphalt compounds. They are currently working with primarily roofing materials and tire rubber as recycled components in asphalt.

“Thin lift materials”: Walaa described that due to both the stiffness, and the flexibility characteristics of their recycled compounds, they can be used in a much thinner cross section, down to as little as a $\frac{3}{4}$ ” thickness. Walaa is suggesting a $\frac{3}{4}$ ” topping be used as a topcoat in Longmeadow. Walaa explained that the “glue” used to bond the recycled materials with the asphalt is key to the success of the product and that he has been working with Paul Montenegro to refine Paul’s idea of a product that incorporates the use of polymers, tire rubber, and about 1% recycled asphalt product (RAP) in the thin lift.

When asked about the use of thin lift materials in Longmeadow, several positives were mentioned:

- Due to the thinner cross-section, raising of catch basins, adjusting driveway apron heights, and replacement of curbing may be avoided.
- The stiff, yet flexible characteristics of the product do not promote transfer of underlying defects (cracks, depressions, etc.). Paul commented that due to these characteristics, a thin mix is actually more forgiving than a traditional 2” asphalt topping.
- With proper maintenance, this solution may result in an extension of up to 15 years before major restoration is necessary.
- While the cost of this engineered product may exceed the cost of traditional asphalt on a per ton basis, the fact that it is a thin layer results in much less tonnage used and keeps the product costs similar.

Negatives to using the thin lift approach:

- While Walaa and Paul are confident in their performance claims of the product, the proposed compound is yet unproven in the real world. Use of this product in Longmeadow would essentially be a “real world test”.
- Following the life span of the product, current technologies would dictate that the road would then have to be traditionally milled and repaved which would result in release of the coal tar dust at that time. Paul suggested that he felt that in 15 years, technologies for removal of pavement should have progressed to the point that this would no longer be a factor. He also mentioned that just wetting the pavement while milling will keep the dust down.

“Tack Coats”: A tack coat would be used to promote adhesion between the current road surface and the applied thin lift top coat. Walaa explained that researchers at Louisiana State University (LSU) are experts in tack coat technologies and that his lab would work in conjunction with LSU to determine the best tack coat for this project. We spoke of our concern for proper adhesion to the PDC product based on the information that has been presented to our group, Paul said that the PDC product not only contains coal tar but also contains carbon black; both of these components are known to bond well with tack coats. Walaa explained that the UMass labs have test equipment that will test the bond to ensure the proper bond is achieved. We asked about the bond between the existing asphalt surface and the PDC product and suggested that this may very well be the weakest link in overall bonding, but Walaa suggested that since this product is not just a surface coat, he felt there should be no concern about this bond. We also inquired about whether or not the testing would simulate real world conditions like snow plowing, salt/sand exposure etc. and Walaa explained that the testing would test fracture characteristics at both high and low temperatures based on the current DOT specifications “64/22”. We asked about the application of a test strip in Longmeadow but were told that typically the cost to apply a test strip is prohibitive as it essentially requires a full day of equipment and labor costs. Additionally a test strip might not offer conclusive wear/longevity data for several years.

“Road testing”: Walaa suggested that several cores be taken from various sections of Longmeadow to be used to test adhesion with the thin lift product. This testing would be done in conjunction with LSU. Furthermore, Walaa and Paul have agreed to do a walk-thru inspection of Longmeadow in the near future to get a better understanding of present conditions. The committee asked to be informed of the date/time of this visit so members can be available to escort them. Craig mentioned that the roads in Longmeadow had been rated a “4” using a nationally recognized rating system by both the Pomfret Road Foreman and Mr. Montenegro prior to the latest road improvements (patching, replacement of settled areas, road crowning, application of rejuvenator, and crack filling). Following completion of this work, it has now been rated an “8” and a “9” by each person respectively. Paul was asked to what level his inspection was done, and he stated it was a “windshield” inspection. He stated that this is common and the only time an inspector would need to leave the vehicle for closer inspection would be if a suspect condition were encountered. He remembers that he saw nothing that would make him think there were substandard conditions that had not been addressed with

the rework. Craig said he would inquire with Glen, the Road Foreman to determine how his assessment was done and to see if any “before” photos were taken. Walaa commented that for a road to have an initial rating as low as a 4 would indicate the road had major problems and makes him suspicious of the base. He mentioned that if the base is suspected to be sub-standard, a process called trenching should be performed in suspected areas to make a proper determination. He stated that to lay a topcoat on a faulty road would be a waste of money as it would prematurely fail. He asked if the evaluation had been done utilizing the Michigan method which involves rating the roadway on a series of factors in an itemized and weighted approach rather than looking at all the factors as a composite. Paul stated that he had looked at all factors as a composite, therefore without documentation of the findings, it is impossible to know what the factors were that resulted in rating of 4. Paul mentioned that he felt the crack filling had the largest impact on the rating improvement. The Committee asked about the suggestion that the original Longmeadow road base was substandard and that previous Pomfret government administrations were well aware of that fact. Craig said he is in possession of photographs from the original road installation which details engineering testing being performed. Members of the Committee informed Craig that due to the fact that several developers were involved in the construction of the development, that the road had been construction in three major sections over a several year period. At least two members present have first-hand knowledge of this fact. Craig will share the photos with the Committee. Paul mentioned that Fred Serrine was a selectman during the period of time that the road was under construction and had informed him that the road had initially been installed with a substandard base but the town required the road be dug up and replaced properly which according to him had been done. When it was suggested that the road is now an 8 or a 9, Walaa asked why it is that we are asking that anything be done to the road. He mentioned that by governmental standards, a road with a rating such as this would not qualify for federal grant funding. The Committee then had a chance to voice our concerns over health and environmental implications of the rejuvenator product used. Walaa admitted that he had not heard of the PDC product and that our information was new to him. We have since forwarded him an MSDS for the product and will follow up with additional information. Paul even mentioned that we should also have a property value concern just based on the aesthetics of the “ugly” crack filling job that was done and that a topping of the road would also correct this condition.

“Going forward”: Walaa explained that following both an initial walkthrough of the development, core sample testing, and a follow up inspection following the winter, if the road is deemed structurally sound, a mix would be developed and lab tested and specifications would be developed. These specifications would be used to attain proposals for the manufacture of the mix as well as the application, both of which are within the capabilities of existing suppliers and contractors.

Next full committee meeting: TBD, after Jan 1.

Submitted by: R. Andrews