

TOWNSHIP OF BYRAM

NEW JERSEY

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MEMORANDUM

TO: Township Council

FROM: Joseph W. Sabatini, Township Manager

DATE: September 25, 2020

RE: Road Resurfacing – Annual Dedicated Funding and Program Support

Objective:

- Establish and support an annual dedicated road resurfacing budget.
- Council support for road resurfacing program.
- Byram Township's roadway improvement plan covers the maintenance of 52 miles and about 718,516 square yards of Streets and Roads.
- Milling and Paving is the desired Road Treatment Program.
- To Mill and Pave all roads in the Township using estimated 2021 costs it would total \$11,855,519.
- Annual requested Dedicated Budget for 2021 starts at \$900,000, adjusting annually based on price indicators, and assuming an average 13-year pavement schedule.
- This dedicated budget does not include additional maintenance costs for replacement of berms, fixing of potholes, crack sealing and other patch repairs.

History:

See Minutes from July 2, 2013 Mayor and Council Meeting.

2012 through 2015:

- During the February 7, 2012 meeting of the Mayor and Council there was a discussion regarding the Township's 10-year Road Resurfacing Plan.
- At the time, the Township had completed topcoat paving in West Brookwood which ended a very lengthy cycle of paving all the Township's roads and the

Township is at point of cycling back to the roads that were last top coated in 1999.

- The cost of asphalt had continued to increase, but the budget did not. There was discussion about alternatives for a lower-cost solution to extend the life of the roads. An oil and stone program was presented as one of the alternatives.
- 2012 – Oil and Stone was completed on roads off Route 206 (i.e., Rosemarie Lane, John/Pierson, etc.)
- In 2013, the Township completed oil and stone in Lackawanna and Tamarack area. At the July 2, 2013 meeting of the Mayor and Council there was a lengthy discussion of the Township's street and road program due to opposition from the residents of Lackawanna.
- Underlying issue; the amount of funding allocated to improvements to the Township's street and roads remained inadequate.
- 2014/2015 – oil stone was completed in Forest Lakes section on the local roads.
- The process of oil and stone evolved to require public bidding to support a process of application that included an asphalt paving box to evenly spread the stone, and the completion of double and triple passes on sections of the roads that had severely degraded.
- This increased the cost of oil and stone program but remained the lower cost option to the alternatives.

2016 to Present:

- In 2016, was the first time the Township completed a cape seal project. This was completed on Forest Lakes Drive that is considered a collector roadway.
- 2018 – completed cape seal in Lackawanna area.
- 2019 – completed cape seal and oil and stone on roads in Tamarack Road area.

2008 to Present:

- Each year there has been the combination of mill and pave projects, or complete road reconstruction projects completed on arterial and collector roads.
- These were road improvements in addition to the oil and stone and cape seal programs.
- Many of these roadways were supplemented with NJDOT grant funding.

Late 2019 to Present:

- See memo from Township Engineer dated December 31, 2018.
- Through the 2019 Capital Budget the Department of Public Works received the requested equipment in late 2019.

- Starting in spring of 2020, the Department of Public Works incorporated road edge maintenance as well as properly addressing potholes and other severely deteriorated sections of the roadways.
- In comparison through the end of August 31, 2020, the DPW has placed 166 tons of asphalt material compared to only 124 tons for all of 2019.

Roadway Improvement Types:

Oil and Stone Program:

- The process includes a layer of emulsified asphalt that is placed over existing pavement that has been prepped to address potholes, and other roadway damage. A layer of stone is then placed over the pavement and rolled to lock the stone into the emulsified asphalt.
- An oil and stone program is a method of sealing and providing a new wearing surface. There is very little grade change when you oil and stone. Grade changes introduce issues with water runoff from the roadway and increase steepness of driveways.
- This program was proposed to provide the Township a means to extend the life of the roadways.
- Average cycle is 3-5 years.

Cape Seal:

- Cape Seal is the combination of an oil and stone application with a slurry seal application.
- The oil and stone portion of this application helps provide a waterproof membrane to repel moisture from entering the sub-grade and adds elasticity to prevent reflective cracking from showing through the new surface.
- After the oil and stone process has been completed, the slurry seal is applied to hold the loose stone material in place and provides a smoother texture for the final product.
- This program was proposed to provide the Township a means to extend the life of the roadways.
- More desirable option because provides for a smoother riding service but is an increased cost over just oil and stone.
- There is very little grade change when you cape seal.
- Challenges – requires a period during application of slurry seal when roads need to be closed. Significant resident complaints of inconvenience.
- Application on many of the Township's local roads is very difficult.
- Average cycle is 8 years.

Microsurfacing:

- Microsurfacing is most effectively used as a pavement preservation technique on roads that have started to show signs of aging, cracking, oxidation, and other minor distressing.
- Only includes a slurry seal application.
- Does not support providing a waterproof membrane to repel moisture from entering the sub-grade as supported with the oil and stone portion of cape seal.
- There is very little grade change.
- Challenges – requires a period during application of slurry seal when roads need to be closed. Significant resident complaints of inconvenience.
- Application on many of the Township's local roads is very difficult.
- Average cycle is 8 years.

Resurfacing Only:

- This is the program that was completed at the end of 1999.
- This program typically comprises applying a 2-3-inch top course to existing pavement.
- There is no reconstruction of the road or addressing any of the subbase.
- This is a favored program since it can immediately be driven on and provides for a smooth riding service.
- The program has resulted in significant issues. The profile of the roadway was raised creating issues with drainage and drastically increased the requirement for berms. Additionally, the roadway in most cases was widened with pavement extending beyond existing road subbase. This has resulted in deterioration of the road edges and ruts that have been cut by water erosion.

Milling and Paving (RECOMMENDED PROGRAM):

- The milling process consists of using a milling machine to scrape off the top layer of asphalt to a specific depth.
- Once the asphalt is scraped off the remaining asphalt is swept clean and an asphalt tack emulsion is applied.
- Once the tack is applied a new layer of asphalt is paved over the milled surface, compacted, and striped (if needed).
- Milling will support returning the road to the original profile reducing the need for berms and better managing water runoff.

Road Reconstruction:

- Reconstruction is reserved for those streets and roads that have exceeded their useful life and cannot be maintained further. This is the most expensive roadway improvement program.

- The Township has done complete road reconstruction on arterial and collector roads. There should not be a need to consider road reconstruction if we are addressing these roadways before there is a deterioration of the subbase.
- The process includes a complete excavation of the existing road and reconstruction.
- This has included reclaiming the road, removing, and replacing material, rolling, and using calcium chloride to stabilize the base. This is followed by a 3-4-inch base course, followed by a 2-3-inch top course.

Byram Township 10 Year Roadway Improvement Plan:

- Township maintains a 10-year capital roadway improvement plan.
- This plan includes a list of every roadway in the Township.
- Byram Township's roadway improvement plan covers the maintenance of 52 miles and about 718,516 square yards of Streets and Roads.
- The plan categorizes the Township's Streets and Roads into three categories of roadway types:
 - LOCAL – A local road is a street that is primarily used to gain access to are resident's property.
 - COLLECTOR ROADWAY – A collector road is a low-to-moderate-capacity road which serves to move traffic from local streets to arterial roads.
 - ARTERIAL ROADWAY - An arterial road is a higher-capacity urban road. The primary function of an arterial road is to deliver traffic from collector roads to highways or urban centers.
- The plan attempts to estimate and plan out 10 years of roadway improvements considering the varying roadway improvement types.
- Working on including a Pavement Condition Index (PCI) into the plan. This gives a numerical rating to the condition of every road in the Township's inventory. The PCI system is a subjective rating system done through observation. The system considers the different road conditions and faults, as well as the comfortability of the ride.