September 7, 2024

TO: Roads Committee: Eileen Rothmeier, Rob Rayevsy, Jeff Weber
FR: Christina Young
RE: Evaluating the Use of Asphalt Millings on Our Private Roads

The following is an update on the information I have gathered to date regarding the use of asphalt millings, also known as millings or Recycled Asphalt Paving (RAP) on our roads. We start with two inescapable facts:

1. Our roads will always have ongoing maintenance requirements no matter what surface material we use.

2. Because we are a small community, our current membership dues severely limits the surfacing and maintenance options available to us.

In addition, we have very few contractors willing to travel to Elko Lake to work on our roads, which limits our options and bargaining power further.

The potential of using asphalt millings on our roads was suggested to the Board by Lynn Tomeo. As a year-rounder, Lynn has extensive experience with the challenging road conditions here in winter, and she is very attuned to and concerned about the community's ongoing road maintenance costs. She recently had her driveway surfaced with asphalt millings by Chris Dutcher, the contractor who currently plows our roads in winter, and she suggested Chris as someone who could apply the millings to our roads as a cheaper and superior alternative to crusher run.

In light of the projected savings, the Board decided to do a test run of the millings on the smallest of our private roads, Black Bear Drive. This would allow the community members to see and drive on the millings, and also give us a winter season to see how the millings held up to freezing, heaving, melting and snow plowing over the winter

months.

When the millings were applied by Chris Dutcher to Black Bear Drive in June, the community response ranged from very enthusiastic to neutral. A number of members, including Beth Farber whose house is on Black Bear Drive, did not like the millings because they preferred the dirt roads.

Questions were raised about how loose the millings were. The Board was told to expect that during the heat of the summer, the millings would “knit together” to form a more cohesive surface. In some areas this has happened, but as you can see, the road surface has not significantly hardened and the larger sized millings have rolled off the road to form a “shoulder” of loose millings.

Pat Freudenberg contacted Chris Dutcher to see if a top coat was called for to help the millings better adhere together on the road. Chris downplayed the need for a top coat or binder for the millings. As a result I began researching further into best practices when using asphalt millings. It was during this research that information turned up about the potential environmental concerns of unbound asphalt millings. I subsequently raised these concerns at the general meeting in July as something we should look into further before surfacing more of our roads in millings.

UNDERSTANDING THE ENVIRONMENTAL CONCERNS OF UNBOUND ASPHALT

The first thing to appreciate about the environmental concerns regarding unbound asphalt millings is it is impossible to get a definitive answer because there are too many variables at play. These variables include identifying the source of the asphalt millings, whether the millings used have been sifted to be uniform in size and reduce debris and potential environmental contaminants, whether the loose millings were refreshed by mixing them with new binding agent, how the millings are applied to the road, and whether the millings are sealed with a top seal.

We are surrounded by asphalt. Why are asphalt millings any different?

Asphalt is made using bitumen, a by-product of crude oil. As a result asphalt has an environmental impact, which is true of virtually any material from cement to gravel that is used to surface roads. But because asphalt paving is a bound material, the surface area for leaching petroleum by-products is minimized.

Why do asphalt millings pose a greater environmental risk than asphalt?

1. **Asphalt Millings Have Additional Contaminants**
   Asphalt millings are made when an old asphalt road or parking lot is being replaced. A milling machine excavates and grinds asphalt from the road surface.

   While asphalt milling involves a screening process to reduce contaminants, contaminants such as petroleum products, solvents, and heavy metals can potentially be found in asphalt millings, especially if they were sourced from industrial areas or heavily trafficked road-ways. These contaminants pose a risk to human health and the surrounding environment if not properly managed. Therefore, it is crucial to conduct proper testing and analysis of asphalt millings before using them in paving projects to ensure the safety of the final product. (Source: https://rockasphalt.com/4-pros-and-cons-of-asphalt-millings/)

2. **Increased Surface Area For Leaching**
   Unlike a bound asphalt roadway, asphalt millings range in size from large to very fine particles. This provides abundant surface areas for leaching and allows finer particles to blow off of or wash from the surface.

   The longer a road surfaced with millings is used, the more the millings grind down into fine particles. This is problematic because millings contain compounds known as polycyclic aromatic hydrocarbons (PAHs), a known carcinogenic, which are present in millings at higher levels than the criteria established by the New Jersey Department of Environmental Protection for general use in a loose fashion on land. (*source: https://shorturl.at/ub41p, See prohibited uses.*)

The New Jersey Office of Health Management says millings used alone without a paved top surface have the potential to significantly migrate from the roadway through the actions of water, wind, and physical displacement and possibly contaminate surrounding soils and/or surface water sediments. Traffic traveling on the unpaved millings could generate dust containing the compounds referenced above and the dust would be a major migration route to the surrounding environment.

The recommended restrictions include not using millings as fill or for unpaved surfaces in environmentally sensitive areas (e.g., surface water bodies, wetlands, etc.), and to minimize surface exposures in residential and recreational areas.

New York State DEC states recycled asphalt pavement can be used in or under asphalt pavement or other paved surface, if separated from other waste prior to use.
https://rb.gy/921cr2

3. **If Asphalt Millings Are So Contaminated, Why Are They Available?**
    - Asphalt millings are generated in large quantities due to re-paving and replacing of roads.

    - Due to the presence of PAHs, storing and recycling of millings has many restrictions, including the requirement to limit leaching and store stockpiles well away from waterways, making millings difficult and expensive to store.

    - Recycling options are very limited which has generated many legal and illegal piles of millings.

    - States and counties work hard to come up with acceptable uses for the millings in an effort to reduce their stockpiles. These uses include using

millings as backfill, and as a pavement alternative for construction surfaces, provided protection of water resources can be demonstrated via monitoring ground waters and evaluating stormwater runoff.

4. **On the Other Hand**

   Casual exposure to millings is not a major concern. We are all exposed to naturally occurring millings daily with so many crumbling streets, and shoulder areas with relatively small areas of millings. The question is do we want to increase our casual exposure to a more concentrated exposure by using millings on our roads in our environmentally sensitive area.

In an attempt to put this information into context I contacted the following people:

Roger Decker, Highway Supervisor for the Town of Rockland

Roger has not used unbound millings for roadways, but he has used millings added to a binding material like asphalt. He said that Elko Lake or our contractor should have contacted him before changing the road surface of Black Bear Drive because that private road abuts Anderson Road which is maintained by the county. We were required to post a $250 bond before beginning the work and schedule an inspection when the road was done. This is something that our road contractor should have been aware of and informed us to do.

I asked Roger if he was aware of any environmental impact of using millings on their own. He said he was not aware of any, although he had not looked into it. I asked if loose millings should be finished with a top coat. He said it is recommended to have a sealed top layer because eventually the “smalls” and “fines” wash or blow away which allows water to reach the sublayer and in winter cause heaving and shifting of the road surface causing ruts and potholes. Like any road surface, millings need ongoing maintenance.

I asked if we should consider turning our private roads over to the Town of Rockland. He

said (and I paraphrase) Rockland doesn't want our private roads, and in all the years he's worked for Rockland he has never seen them take over private roads. He essentially asked, "Why would Rockland want the expense and hassle of maintaining additional roads."

Jim Young, James Young Paving

Patty Cirigliano and I met Jim Young at Black Bear Drive to have him evaluate the road and give us suggestions on surface options. Paving contractors are not keen on using millings for roads because millings are a poor substitute for paving. Jim felt that the road crown was too steep and needed a revision. He proposed revising the crown, re-compacting the millings in place, topping the millings with crusher run, compacting the crusher run into the millings, and finally surfacing the road with black top. The finished paved road would likely be maintenance free except for plowing for 5 - 10 years. Cost: $16,500.00

We also asked Jim to look at our roads finished with crusher run. He said the crusher was good quality and that the roads were properly crowned. We found his evaluation surprising as contractors typically are eager to find fault with work that is not their own.

Prestige Paving, Middletown

Elko Lake is out of their service range. They explained that just getting their large trucks to our area would be a major expense so they were not interested in providing a quote.

Chris Poley, Poley Paving, Liberty

Chris did not feel the millings were of the quality to be ideally used for roads. He pointed out that the larger-sized millings were already rolling off the road onto the shoulders. He felt the millings were too dry (mixed with dirt) and not uniform enough in size to properly knit together. He was concerned that because the millings were loose that after one winter of plowing, a good bit of the millings would end up piled at the gate. I told him that the contractor that put down the millings was also our plow contractor and I anticipated he would be very careful that this did not happen. I asked Chris Poley to give us a

quote on 1. Removing the millings, 2. Removing the millings and paving the road. He has not provided a quote although I have followed up with him by text and by phone. Clearly he is not interested in the job.

Chris Dutcher, the Contractor who put millings on Black Bear Drive

After getting the input from the other professionals I called Chris to let him know there was some concern over the millings and to explore some potential solutions with him. Chris was surprised that there was any issue. I explained that I learned that the Town of Rockland was to be informed of any driveway or road that is being resurfaced that abuts a county road. He said he was unaware of that requirement. I asked about the quality of the millings he used. He said, “You get what you get” meaning all millings are simply millings. I explained that I am no expert, and Google searches can be misleading, but that my research indicated that millings used for roads were of a different quality (more uniform in size, sifted to remove dirt and other debris, and rock and binder were added to help the millings knit together) vs. millings used for backfill or other purposes. (One of many sources: https://rockasphalt.com/4-pros-and-cons-of-asphalt-millings/). Chris was unaware of this. Properly processed millings are more expensive. As a result the cost of this better quality of millings would likely rival that of the cost of properly paving. Chris and I did not come to a conclusion in this discussion.

In follow up discussions with Patty Cirigliano, we were left to guess that Chris Dutcher, while doing the best job he could, simply did not know what he did not know about using the millings. The Board did not expect Chris to use the millings as essentially a less expensive substitute for a gravel crusher run. We were expecting a more cohesive road surface that could hold up to plowing and years of use.

Beth Farber, Black Bear Drive

Beth, who is the only resident of Black Bear Drive, spoke with me. She does not like the millings on the road, and prefers the original dirt road. She is concerned about how close the millings are to her property and the potential impact to her well and soil. She also said she walks on the millings daily, she doesn’t like the smell of the road on hot

days (likely indicating the presence of volatile organic compounds a.k.a. VOCs), or the millings and milling dust that migrate onto her property. Ideally she would like the millings removed. She does not want the millings paved over as she feels that we would just be compounding the mistake of putting millings on the road.

Current Status

The Board is currently working to identify a lab to analyze samples of the millings on Black Bear Drive to determine whether contaminants are present. I will keep you updated.

OUR JOB

The job of the Roads Committee members is to make recommendations to the Board on how to proceed with the roads, bearing in mind the limits of our budget, our responsibility to the lake and the surrounding environment, and the goal to preserve and enhance our property values.

Your opinions, questions, input and independent research on the pros and cons and best practices of using asphalt millings vs. other potential options is critical. Please take the time to research independently and offer your own conclusions. Please take the time to talk to your neighbors and get their opinions.

Email your responses to me by October 1st. I am happy to arrange a date and time to meet if you prefer. Thank you for your time.

Feel free to contact me at any time.

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ADDITIONAL INFORMATION:

Roger Decker, Town of Rockland Highway Supervisor

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Pros and Cons of Using Asphalt Millings
https://rockasphalt.com/4-pros-and-cons-of-asphalt-millings/

New Jersey Department of Environmental Protection: https://shorturl.at/ub41p

NYS DEC
“Recycled aggregate from bricks, concrete pavement and/or asphalt pavement: This enforcement discretion directive allows for the use of recycled aggregate from bricks, concrete and/or asphalt pavement when used in or under asphalt pavement or other paved surface, if separated from other waste prior to processing and then processed and stored in a separate area as a discrete material stream.”
https://rb.gy/921cr2