Road Business

Spring 2019









Crushing Glass Cullet Myths

By: Marilee LaFond

We've heard the saying one person's trash is another's treasure...and if you've felt the challenge of the recyclables market recently in terms of excess glass your municipality cannot get rid of, you may be wondering just how to turn trash into treasure. The Lakes Region Planning Commission's February 6th Solid Waste Roundtable looked more closely at Processed Glass Aggregate (PGA) as an opportunity for use of glass in transportation projects, a program that is growing in popularity and has potential to help towns leverage existing glass stores as filler or base in some road and sidewalk projects.

Programs such as Northeast Resource Recovery Association's PGA Program allow participating communities the opportunity to collect, store, and recycle mixed glass in one container or pile. Four host sites have partnered with NRRA to act as consolidation sites throughout New Hampshire (with another site in Vermont), and when a site's stock of mixed glass reaches a few hundred tons, an industrial crusher is brought in to process the material to a smaller size. In most cases, to ensure the consolidation sites do not have to store an excess of PGA, contributing communities are asked to take crushed glass with them when dropping off mixed glass. Host sites may also sell the crushed material.

Before.....

What is Processed Glass Aggregate?

- Also known as glass cullet, it is mixed glass that has been crushed and tumbled to a fine stone-like size (enough for 100% of material to pass through a 3/8" sieve) to meet the requirements of AASHTO M318, or crushed twice to reduce the PGA to a smaller sand-like consistency.
- While zero contamination is still important in most recyclable markets, PGA can have a maximum of 5% ceramics, window glass, or porcelain, by mass of glass cullet.

What is Processed Glass Aggregate NOT?

- PGA does not have the same strict zero tolerance limitations of a standard "glass-to-glass" recycling method, and also does not require glass to be sorted by color.
- Unacceptable materials include headlights, thermometers, incandescent or fluorescent bulbs, auto shield glass, plastics, aluminum, tin, or other materials.
- PGA cannot be left on surfaces or used as a cover application.

How is be PGA being used?

- NHDES considers PGA a Certified Waste Derived Product #11, approved by NHDES for public works uses including as a subbase material for roads, bedding material for pipes, and fill around retaining walls and foundations.
- NHDOT standards state that no more than 20% PGA may be used to replace road base gravel (20% PGA/80% gravel mix) and that glass cullet shall meet the requirements of AASHTO M318.
- Crushed glass is used as a sub-base for sidewalks, parking lots, roundabouts, and road base projects by some New Hampshire towns.
- PGA that has been crushed twice to a sand-like consistency is being
 used in some southern areas of the US to replace sand on erosionimpacted beaches (note that this would not meet the requirements of AASHTO M318 for road construction).

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Want to be a contributor to UNH T2's Road Business newsletter?

Contact marilee.lafond@unh.edu to discuss your article or submission idea! We appreciate your input!

From the T₂ Team

Happy Spring!

I write this from an Amtrak car, bound for NJ to attend our regional NLTAPA meeting. LTAP representatives from throughout Mid-Eastern and New England will come together to talk about how they're supporting their state local road agencies in meeting diverse road transportation opportunities. I look forward to coming away with some new ideas, and additional resources and technologies to share with you.

We've also had the opportunity to attend some fantastic learning opportunities with partners, affiliates, and other great organizations in NH recently. The Lakes Region Planning Commission hosted a conversation on Crushed Glass a couple months ago, and FHWA and NHDOT hosted a workshop on the 20 countermeasures proven to promote Safe Transportation for Every Pedestrian. If you're planning (even far ahead) for some resurfacing or other road work, we'd love to share some resources with you on how a road diet or combination of pedestrian safety countermeasures might create safer streets in your community. Last week I participated in a workshop for law enforcement and transportation planners in New Hampshire to consider ways to leverage partnerships to increase roadway safety, and also look forward to sharing some thoughts from that in the future.

We know your busy season of patching, repairing, and reclaiming roads is now underway. Don't forget to check out AASHTO TC3's series of online learning modules on Pavement Management as your staff examines the many techniques at your disposal to maintain your local roads. Access to over 120 online courses is free for local road agencies- visit https://tz.unh.edu/TC3training for more information.

About 300 of you have now registered for a workshop through Learnforlife.unh.edu- our new online registration and payment platform, and over 60 municipalities or organizations in New Hampshire now have a corporate portal to assist with their T2 registrations. A huge thank you to the UNH T2 team for their enthusiasm and dedication to this project, and a thank you to you- our users- for your patience during this process. Please continue to watch for updates through PW.net, our email listserv.

Best wishes for a pleasant and safe Spring,

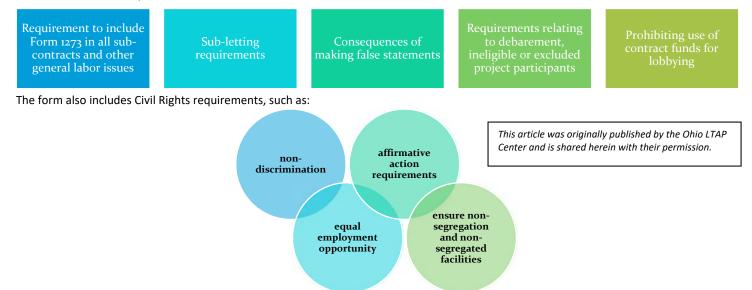
Marilee LaFond UNH T₂ Manager



What Does 1273 Mean to You? Does the number 1273 sound familiar to you? Sometimes we remember bits and pieces of information, like a number, but can't quite put our finger on the complete information we need when we need it. Then when we do remember it later, we regret being forgetful because it has a severe impact on us...like forgetting to insert FHWA Form 1273 in your contracts with your contractors. Forgetting to include FHWA Form 1273 in an LPA local-let contract with a contractor is a violation of Federal Law and can severely impact reimbursement on your local-let projects. Yikes! Or your contractor forgetting to insert FHWA Form 1273 into their contracts with subcontractors on your local-let jobs. Same result. Double Yikes!

Don't let this happen to you and your agency! Of all the requirements an LPA needs to complete for a locally-let project, including FHWA Form 1273 in each contract is a simple requirement to meet. Because the requirement seems do simple, it is at times not given a high priority and missed. Don't let this be your agency!

Why is FHWA Form 1273 so important? The information provided in the form is critical for everyone participating in the federal-aid project, at all contract levels. It provides information from FHWA on:



The Department of Labor and the Environmental Protection Agency also have sections in the form which outline specific requirements under their agencies' responsibilities.

It is important to note that FHWA Form 1273 must be inserted into your contracts and related sub-contracts exactly as it is written. Absolutely **NO changes** can be made to the form. It also **can NOT be incorporated by reference** in your contracts or related sub-contracts. The whole thing must be in the agreements. You can find the entire FHWA Form 1273 at the following hyperlink: https://www.fhwa.dot.gov/programadmin/contracts/1273/1273.pdf

How can my agency simplify including FHWA Form 1273 in each contract or related sub-contract and ensure it is rarely forgotten? Here is a list of recommendations for making this a reality:

- Use a checklist. Whether it is a checklist for your own contract review or for reviewing the related sub-contracts, a checklist will force you to confirm the FHWA Form 1273 is included in the contract / sub-contract.
- Require the FHWA Form 1273 to be printed on special color paper. This will enable you to quickly identify where the FHWA Form 1273 is included in the contract and check for completeness. However, if you are on a paperless system, this won't work because there is no special colored paper to look for in the packet.
- Designate a person in your agency as the back-up to confirm FHWA Form 1273 was included in each contract. Choose someone who isn't usually involved in the contract review process, but who is thorough with their work, and put them in charge of checking each contract / sub-contract as it comes through your agency. This does add another step to the process, but it is well worth it if the step keeps your agency risking federal reimbursement denial.
- Build the FHWA Form 1273 into your paperless system as an automatic part of the contract. This works for the paperless system your agency may be using, but the sub-contracts will probably still need to be checked manually.

Whether you choose one of the recommended ideas above or come up with your own, the key is to establish a process to ensure FHWA Form 1273 is always included in your contracts and related sub-contracts. The form itself is FHWA's way (process) to ensure required provisions are being included at all contract levels. Your agency is securing your place in the overall process by making sure the FHWA Form 1273 is included. If you have additional questions concerning FHWA Form 1273, the Federal-aid Essentials Video series provides a video on this topic. The video is available for viewing at: https://www.fhwa.dot.gov/federal-aidessentials/catmod.cfm?id=22

(Crushing the Glass Cullet Myth - continued from page 1)

Why use crushed glass in roadway projects?

- PGA can be easily stored outside.
- Crushed glass can compact similar to natural aggregate.
- It is not susceptible to frost so may reduce frost heave occurrence.
- It may be cheaper to "use" the glass than pay to landfill it or truck it away, so positioning PGA as a consumable product will have positive impact to environment as well as budget.

What challenges are being considered related to crushed glass?

- It's costly to ship PGA, so the system works best when the finished PGA product is used close to home.
- Adequate crushing equipment can be costly to purchase and maintain, so most locations rely on an industrial crushing partner that travels site-to-site.
- Although the material cannot cut tires, there may be a sparkle or glare to it in sunlight or headlights, so it's important to consider
 public perception and awareness when determining where and how to utilize PGA, and ensure it is used appropriately and not left
 uncovered on the surface.
- Preventing disbursement outside the project site, such as crushed glass tracking onto lawns or roadsides, is also necessary.

UNH T2 would like to follow up with more information on how PGA is being used in New Hampshire. If your community has used crushed glass in a local project, we'd love to hear from you. Please contact Marilee at 603.862.1362 or email marilee.lafond@unh.edu. For more information on PGA, check out:

- NH the Beautiful Video https://youtu.be/rHBMOXReYok
- New London Crushing https://youtu.be/OtExM3QE4HI
- https://youtu.be/EuPDPGc7mks
- https://granitegeek.concordmonitor.com/2018/04/09/glass-is-made-from-sand-so-can-it-be-used-in-place-of-sand/
- https://www.concordmonitor.com/glass-recycling-hooksett-nh-16372072
- https://www.concordmonitor.com/glass-recycling-16640706
- http://www.nrra.net/wp-content/uploads/NRRAs-Processed-Glass-Aggregate-PGA-Program-Packet-Guideline-for-Collection-Storage-and-End-Uses.pdf

Public Works Spotlight: Sam Hewitt- Meteorologist with a Public Works Hat

By: Bettina Sietz

Sam Hewitt, who has been with the Durham Public Works Department for over four years, sparked our interest because of his unique approach to public works: He is working in Buildings and Ground Maintenance, one of Durham's eight Public Works Divisions, and able to utilize his bachelor's degree in meteorology that he obtained from SUNY Oswego at the same time.

Before Sam enters the room to answer all our questions, I get a bit of insider knowledge about Sam provided by Mike Lynch, Durham's Director of Public Works. He describes him as this great "local kid" who demonstrated his leadership qualities from an early age on by pursuing Eagle Scout honors, and who is highly motivated and dedicated to his work. "He's usually the first one to be here, the first one to go out on the roads." says Mike.

Hear what Sam has to say about his job!

How did you get to where you are today? How does your education connect to your professional career and personal experiences?

I have always been fascinated with Public Works. I grew up in Durham and dreamed about plowing the street I grew up on. I would watch the plows from my window at night. As a teenager I held a lawn mowing business with my brother, and later worked summers at the Department of Public Works.

After going to SUNY, I had an internship with the Mount Washington Observatory. I did a lot of data analysis and weather models at the computer. And although I enjoy this kind of work, too, I enjoy "hands-on work" much better, which I figured out while interning at the Durham Department of Public Works.

What are you complimented on most in your work?

People usually compliment me on my attention to detail - that I am meticulous when picking up litter in downtown Durham. I take pride in taking care of the sidewalks, curbs and lighting. I have a certain kind of hometown pride.

(Mike Lynch adds, "He's spreading that certain Public Works Pixy Dust.")

(continued page 5)

(PW Spotlight continued from page 4)

In every kind of profession, including public works, there are challenging days. What have you found helpful in staying engaged, responsive and safe during difficult days?

I work on clearing off the sidewalks with a sidewalk tractor in Durham during storm events. Sidewalks are not an afterthought or lesser priority in Durham because of the large student and walking population that we have. If I get tired, I take more breaks to rest and eat. The job can get tiring and frustrating but seeing the safety we create by clearing the walking paths, makes me feel rewarded and lifts my spirits to keep going.

What do you think are the best skills that you bring to your job?

I am meticulous, good at problem solving, I have leadership qualities and the meteorology degree helps me to do my job better by being able to forecast major Winter storm events.



Sam Hewitt in front of Durham's plow route

When did you know you wanted to utilize your meteorology degree in a public works related setting? And why didn't you want to become the weather anchorman?

When you start out in meteorology, everybody wants to be on TV. Fact is, only three out of 25 people end up on TV; a lot of people will work in private companies. I knew I didn't want a desk job and work at the computer all day. After graduation and during my internship at the Public Works Department the degree seemed to be very helpful in my daily work.

Weather prediction is only 25% of the picture. During a storm, the important thing is "nowcasting" (a more localized, short-term forecast, specific to your area): Is the precipitation going to change? What's the temperature going to be like after a storm? This helps tremendously with the decision-making process: Do we use salt, sand or small rocks? Do we keep employees here or do we send them home to get rest? For example, in 2016 we had to deal with very wet and heavy snow that turned into heavy rain. While some towns may have sent their employees home, we were able to predict a rapid change and kept everyone here. Soon the rain turned back into a 3" per hour snow fall, and we could act immediately.

Mike adds that "Sam brings it to the next level, he makes the decision-making process that involves a lot of money, a lot easier."

What advice would you give someone considering a career in public works?

Figure out what you would like to do in Public Works, be willing to learn new things daily and enjoy being a team player. You should also be willing to work in all kinds of weather and don't mind longer days if your job requires it.

What is one thing you wish people better understood about the public works profession?

Patience with requests, I guess. There are a lot of day-to-day-projects that need to get done behind the scenes when we are not clearing roads. (For Durham DPW, this includes maintaining and fixing municipal buildings, sheds, pavilions, helping with the Wagon Hill Barn restoration process, and taking care of the Ice Rink and industrial refrigeration at Jackson's Landing, amongst many other tasks.)

Describe a time you were proud of your team:

The storm in late January of 2016: It was a crippling blizzard with high wind speeds and snow drifts that produced almost 3 ft. of snow in our area. The students had just returned to UNH, and school was supposed to start the next day. Our team got together, created a game plan and made safety happen. We deposited snow piles wherever possible and didn't rest before roads and sidewalks were cleared.

It is a rewarding feeling to know that people can do their jobs. If the roads aren't cleared, the fire department or ambulance can't get out to help with requests. (continued page 6)

Speaking of storms, which storm sticks out most in your mind?

The storms of March 2018: We had four Nor'easters in within a short period of time, and the wet and heavy snow was not only challenging to clear off the roads and sidewalks, but we also had so many trees drooping into the roadway which made it difficult to pass through. In addition to this, trees came down and fell on power lines. It was a mess.

What's your favorite moment in your workday?

That changes from day to day. But I enjoy completing projects, especially finishing larger tasks, like working on the Wagon Hill Barn rehab project.

What do you appreciate about working in Durham?

I grew up here. I like being part of a small town. There's a sense of familiarity. You get to see how areas change and parks develop through different landscaping projects. The Northeast has seasons: We change hats four times a year. After a long winter we look forward to planting flowers, mulching and landscaping. After a hot summer we look forward to crisp mornings and colorful leaves. It's a good place.

Do you have a public works colleague with an interesting story to share? Someone who is positively impacting your team and community in a unique way? Please let us know so we can consider another Public Works Profile! T2.Center@unh.edu

See you at a UNH T2 workshop soon? And other events of interest....

A Hard Road to Travel 101: Introduction to Highway Laws - 6/19 Concord

A Hard Road to Travel 201: Highway Laws & Funding Topics - 7/16 Concord

A Hard Road to Travel 301 Local Budgeting & Planning - 8/22 Concord *Register for all three Hard Road to Travel workshops for a discountuse code DC0469

Backhoe Operation & Safety Two Day Course – 9/16 (Day 1) and 9/17-9/20 (Day 2 Options) Dover

Chainsaw Safety & Maintenance - 9/19 Tilton

Culvert Maintainer Certification - 6/12 Concord

Culvert Maintainer Re-Certification - 9/24 Meredith

Excavator & Loader Operation (Hands-On One Day) – 10/1, 10/2, 10/3, and 10/4 Weare

Excavator Operations (Hands-On One Day) – 8/26, 8/27, 8/28, 8/29, and 8/30 Sanbornville

Flagger Renewal (ATSSA) - 6/27 Tilton

Grader Operation & Safety- Basic (Hands-On One Day) -9/3, 9/4, 9/5, and 9/6 Canaan

Grader Operation - Level 2 (Hands-On One Day) - 10/8, 10/9, 10/10, and 10/11 Hollis

Gravel Road Maintenance - 9/24 Bennington

Green SnowPro Refresher - 5/22 Keene, 7/31 Merrimack, 10/15 Sanbornville

Green SnowPro –The Power of Brine - 7/22 Plymouth, 8/20 Brookline

Green SnowPro - 9/12 Dover, 10/29 Claremont

Lines, Levels, Layouts - 6/13 Merrimack

Municipal Garages & Safety - 6/18 Rumney

NHPWA Technical Meeting (partner event) - 10/3 Manchester

NH Salt Symposium (partner event) - 9/10 Concord

Public Relations for Public Works - 6/26 Brookline

Road Safety 365 - 6/20 Derry

Submit your answer to our Riddle for a chance to win a free T2 workshop seat (valued up to \$100)! Four people have 17 minutes to cross a bridge in total darkness. The bridge can hold up to two people at once. The group only has one flashlight which must be carried back every time it crosses the bridge. Tim can cross in 1 minute, Janet can cross in 2 minutes, Suzy can cross in 5 minutes, and Charles can cross in 10 minutes. If two people cross together they do so at the pace of the slower of the two. How can they cross the bridge in 17 minutes or less?

CONGRATULATIONS TO LAST ISSUE'S WORD SCRAMBLE WINNER, AYRTON!

Thank you for entering: Paul Regis ~ Thomas Demers ~ Stefanie Casella and team ~ Dawn Tuomala ~ Karen Kehoe

What happens when soil is not "above the standards" but it is also not "clean?" Soil that contains low levels of contaminants, like heavy metals and polycyclic aromatic hydrocarbons (PAHs), is an emerging concern for states throughout the country, and New Hampshire is one of the states leading the way in how best to manage this soil

What are Mildly Contaminated Soils (MCS)?

MCS has concentrations of contaminants above naturally occurring background concentrations; however, the soil is not classified as hazardous waste nor has it been impacted by a specific release or discharge above levels requiring remediation if the soil is left in place. Commonly, such soil has been contaminated by decades of urban activities such as filing areas with coal and wood ash, and deposition of automotive and wood/coal burning emissions. In many cases, the soil has been in place for many years; however, when excavated, the soil must be managed according to state regulations. This presents a dilemma with respect to contaminated site programs, as the levels of metals and PAHs can exceed stringent risk-based screening levels that prohibit general soil reuse, yet the soil has also existed in the environment for many decades and may not present significantly greater risks than that of "natural" soil.



MCS can be found in the environment where anthropogenic (i.e., human) activities have occurred. Sources of MCS include areas adjacent to roads, construction activities in previously disturbed/urban areas, street sweepings/ catch basin sediments, and railroad corridors. Vehicle emissions and deposition of airborne particulates that contain PAHs along the roadside are a major source of contamination for soil adjacent to roadways. Transport of larger particulates from roadways to surrounding soil through stormwater flow or snow removal operations (i.e., mechanical means) in northern climates like New Hampshire may also be a source of PAH contamination.

Why should you care?

MCS may be generated in large volumes from public infrastructure projects and private development/construction projects. The costs, both financial and environmental, for disposal or treatment of the soil as waste or "contaminated soil" (e.g., in landfills, or with thermal treatment) can be high; but unrestricted reuse can also be problematic and may lead to inappropriate use of the soil in sensitive settings (e.g., at residential properties or near water supplies) that could cause or contribute to widespread low-level contamination. There is an evolving

understanding of the liabilities associated with MCS being removed, potentially unknowingly, from sites and used elsewhere.









What should you do?

Over the past several years, the New Hampshire Department of Environmental Services (NHDES) has worked with the New Hampshire Department of Transportation (NHDOT) to approve waivers from NHDES Solid Waste Rules to address limited reuse soil (LRS) generated by roadside and right-of-way excavations. LRS is mildly contaminated soil that is specific to the transportation corridors. These waivers allow for LRS to be re-used within the transportation corridor on property under the permanent control of NHDOT, with stipulations for meeting soil standards and setback requirements.

On January 19, 2019, the Environmental Business Council of New England, Inc. (EBC) held a program to update industry professionals on the management of LRS in New Hampshire.

NHDES and NHDOT were in attendance and presented on the waiver process along with Sanborn Head & Associates, Inc. NHDES noted that changes to the state rules to address LRS are not currently anticipated and that municipalities should consider the same waiver process utilized by NHDOT to address LRS management in their towns/cities. NHDES also suggested that municipalities can work together to create waivers that would be applicable to multiple towns/cities with similar LRS needs.

Lisa Damiano, P.E., is a Project Manager with Sanborn Head & Associates, Inc. and can be contacted at Idamiano@sanbornhead.com or 603.415.6126 for any questions.

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COMING SOON! ACCESS TO YOUR TRAINING RECORD AT LEARNFORLIFE.UNH.EDU!

We're in the final stages of transitioning training records to learnforlife.unh.edu, which will allow participants to access their past and future training records online, ondemand!

If you've already been registered for a 2019 UNH T2 workshop but through our new group account portal feature, you can still access your *individual profile* to see your training history and to receive communications regarding the workshops you're registered for in a timely manner! To finish your profile registration, email T2.Center@unh.edu and tell us your name and what email address you'd like connected to your individual profile, as well as what organization you're associated with. We'll update your profile and send you a user name and password so you can access learnforlife.unh.edu to see your training history, and you'll remain a member of your organization's group for future registration purposes!

About UNH T2 and NHLTAP

The UNH Technology Transfer Center fosters a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.

As the site of the state's Local Technical Assistance Program, it works to enable local counties, cities and towns to improve their roads and bridges by supplying them with a variety of training programs, an information clearinghouse, new and existing technology updates, personalized technical assistance, training videos and materials, and newsletters. LTAP Centers nationally are able to provide local road departments with workforce development services; resources to enhance safety and security; solutions to environmental, congestion, capacity and other issues.

Summer means cookouts and camping...





And thunderstorms...

And possible power outages.

Are your emergency generators ready?

Now's a good time to check fuel and oil, and make sure they're in good working order in the event you need them.

Check out the UNH T2 Tailgate Talk on Portable Generator Safety, or https://www.ready.gov/power-outages for tips

Is your community a member of NHPWMA?

If not- consider joining!

https://t2.unh.edu/joining-mutual-aid

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