

DOWN + DIRTY



Volume 24 February 2024

In This Issue

ESM Eligibility – 2

Grader Training
Recap – 3

Updates – 4

2023
Accomplishments – 5

DSA vs. 2RC - 9

Resources

Bradford County
Conservation District
www.bccdpa.com

Center for Dirt & Gravel
Road Studies
www.dirtandgravel.psu.edu

Bradford County Dirt, Gravel, and Low Volume Roads Program 2 Year Survey Preparation

This fall we will be conducting our two-year maintenance survey. Every road project ten years old and younger will be visited and ranked on a scale of 1 – 4 with 4 being excellent, and every municipality will receive their result letter once the survey has been completed. A project with an average score of 2 or less (a failing grade) is re-evaluated by our Quality Assurance Board. If it's agreed the project is failing, then the township will be ineligible for future funding until the road is brought back up to DGLVR Program Standards. Should this occur, the DGLVR staff will assist with options on how to get your road up to standards and once again be eligible for funding.

If you have any questions on potential maintenance, please reach out to us. You can also refer to your 2022 survey letter which included both your scores as well as maintenance suggestions. These surveys are meant to rate the quality of maintenance attempted on the road. As long as we see an honest attempt to maintain a road then your scores should be consistently high from year to year. The regularity and quality of maintenance continue to be the driving factor of road quality in our municipalities.

So, what makes a project stellar?

It's our job and privilege here at the conservation district to help in any way we can on any municipal road project underway, even when said road project isn't a DGLVR funded site. We encourage every road project to stand head and shoulders above "bare minimum maintenance". We've all seen a road that gets lightly graded, only to see those potholes reemerge a few months, or even weeks, later. This light duty work only serves to frustrate and aggravate, both the work crew and your residents. The single most important attribute to combat this is taking pride in your project! Being able to brag about a road you've taken from swiss cheese to smooth as can be, and stays that way, is something we all can relate to.

Scarifying potholes well below their bottom, reestablishing a crown steep enough to quickly drain off water and eliminate tire ruts, clearing off berms so water can get off the edge, and rolling after you grade are the nuts and bolts of this work. It all requires extra time, but the pride in a prime section of road is worth it.

Our goal in Bradford County is to assist every municipality in getting their road crews through the training, even if they decide not to participate in the program. Currently, 34 municipalities are eligible for funding in Bradford County, which is down from last year. The following table lists all municipalities and their eligibility status (x in the yes column depicts eligible) (red = eligibility expires in 2024).

<u>Municipality</u>	<u>Year</u>	<u>Yes</u>	<u>No</u>
Alba Borough			X
Albany Township	5/8/2019	X	
Armenia Township	10/8/2019	X	
Asylum Township			X
Athens Borough			X
Athens Township	3/16/2022	X	
Burlington Borough			X
Burlington Township	9/29/2020	X	
West Burlington Township	5/8/2019	X	
Canton Borough	3/23/2021	X	
Canton Township	9/29/2020	X	
Columbia Township	9/29/2020	X	
Franklin Township	3/16/2022	X	
Granville Township			X
Herrick Township	9/29/2020	X	
LeRaysville Borough			X
LeRoy Township	10/13/2022	X	
Litchfield Township	3/16/2022	X	
Monroe Borough			X
Monroe Township	10/17/2018		X
New Albany Borough	3/16/2022	X	
Orwell Township	9/30/2020	X	
Overton Township			X
Pike Township	8/9/2022	X	

<u>Municipality</u>	<u>Year</u>	<u>Yes</u>	<u>No</u>
Ridgebury Township	6/6/2018		X
Rome Township	5/8/2019	X	
Sayre Borough			X
Sheshequin Township	3/16/2022	X	
Smithfield Township	3/16/2022	X	
South Creek Township	9/29/2020	X	
South Waverly Borough	4/6/2021	X	
Springfield Township	3/16/2022	X	
Standing Stone Township	10/8/2019	X	
Stevens Township			X
Sylvania Borough			X
Terry Township	3/16/2022	X	
Towanda Borough	5/8/2019	X	
Towanda Township	5/8/2019	X	
North Towanda Township	5/8/2019	X	
Troy Borough			X
Troy Township	1/26/2021	X	
Tuscarora Township	10/13/2022	X	
Ulster Township	3/16/2022	X	
Warren Township	3/16/2022	X	
Wells Township	8/9/2022	X	
Wilmot Township	11/3/2022	X	
Windham Township	9/30/2020	X	
Wyalusing Borough			X
Wyalusing Township			X
Wysox Township	9/30/2020	X	

This database is maintained by the Center for Dirt and Gravel Road Studies. If anyone feels this information is inaccurate, please contact the Conservation District at 570-485-3144 or Center staff at 1-866-668-6683. Please register online at: <http://www.dirtandgravel.psu.edu/>. Please refer to page 4 of this newsletter for upcoming ESM training opportunities.

Training opportunities



Last year we told you that one of the questions we hear frequently here at the district is, “doesn’t anyone offer grader training in our area?”

Well, in most cases the answer has been no for those who have reached out to numerous agencies. The truth is, some of the “old guys” that used to be around to learn from are gone and now some of us are getting to be the old guys.

Last spring, we tried to start changing that. We held a grader demonstration in Smithfield township, and we had around 50 participants from numerous municipalities from PA and NY show up. The feedback we received was very positive. We went over some of the basics of road maintenance using a grader. We did do some one-on-one training with a local municipality shortly after and we are open to doing more of that on an as needed basis. In the future, I hope to put together a more in-depth, hands-on training that would cover more detailed instructions for grader operating and would allow individuals to try different techniques that might be needed on the job. A road grader is a very versatile machine if you understand what it can do, and we’d like to help new operators better understand its potential. If you have interest in learning more, please feel free to contact Tim Robson @ Timothy.Robson@pa.nacdnet.net or 570-485-3116. We welcome feedback on trainings as well as ideas for new training needs.



Policy News

Remember...

- You need all landowner agreements **BEFORE** contracting with BCCD.
- Any work bid out to a contractor needs to be paid at the prevailing wage rate. If you are contracting any part of the project out, you need to register the project and have a prevailing wage serial number.

New...

- You must perform a PA One Call prior to any work being completed and provide the PA One Call serial number to the Conservation District to keep in the project folder.

2024 DGLVR Application Period - April 1st to April 30th

Similar to previous years, grant applications will be accepted the entire month of April. We encourage you to submit your applications on your own, but we are available if you have any technical questions.

Consider adding more cross pipes to break up the water, filling the road to promote sheet flow, and shaping and stabilizing ditches and road banks. Please review the **current** Dirt, Gravel, and Low Volume Road Policy Manuals (Approved June 2020) for instructions on completing and submitting DG and LV grant application(s). **The updated**

manuals are available on BCCD's website <http://www.bccdpa.com/dirt-gravel-roads>.

Remember, you don't need to wait until April to start planning for your next project.



Important Dates!

Annual Update Meeting:

- **Who?** Road crews, Secretaries, Supervisors
- **What?** New updates, reviews of last years projects, Door prizes, Lunch, Guest speakers.
- **Where?** Wysox Fire Hall.
- **When?** 9 am March 20th, (21st snow day)
- **Call to Register (by 3/10):** 570-485-3144

ESM Training:

September 25th-26th
in Sayre @ the best western.
Please register online at: Dirtandgravel.psu.edu

Dirt, Gravel, and Low Volume Roads Program - 2023 Accomplishments

The Dirt, Gravel, and Low Volume Roads Program continues to provide significant funding to municipalities and other eligible road owning entities within Bradford County in order to achieve county and statewide environmental milestones. Bradford County's annual allocation for the Dirt and Gravel Roads Program is \$1,375,000 (\$1,100,000 for project implementation) and the Low Volume Roads Program allocation is \$102,220 (\$81,776 for project implementation).

Bradford County Conservation District (BCCD) received 21 Dirt and Gravel Road applications from 11 municipalities for projects to be constructed in 2024. These funding requests tallied approximately \$4.25 Million (386% over our allotted implementation funds) and applicants pledged approximately \$32,000 to in-kind equipment, materials, and labor. Typically in-kind commitments average approximately 20% of projects. Under new local policy adopted in 2023 the in-kind requirement is completely waived for those projects where a stream crossing replacement meeting our standards has already been finished. These stream crossing replacements previously would have been done during the project and counted as in-kind. So, while our recorded in-kind contributions from townships is lower than in previous years, the level of financial participation from our townships remains largely unchanged.

BCCD received 3 Low Volume Road applications from three municipalities during the April application period in 2023. The funding request was around \$248,000, which is nearly two and a half times our allotted implementation funds. The applicants pledged \$14,000 (nearly 6%) to in-kind contributions. One low volume road project was completed in Canton Borough in 2023.

Below are photos of Rowley Road in Wells Township.



Above: Rowley Rd in Wells Township required numerous solutions to address a wide range of issues. Establishing sheet flow, underdrain, and road fill were the primary methods of eliminating water from the road, with cross pipes regularly spaced to disperse rainwater into the surrounding woodlands. Flexamat was used to stabilize a long section of ditch. A new stream crossing accommodates even peak high flow events.

Construction was completed on 10 Dirt and Gravel Road projects and 1 Low Volume Road project in 2023 addressing 3.91 miles of road, which in turn, provided environmental improvements to local water resources. Through completion of municipal contracts, the following is a list of primary techniques or Best Management Practices (BMPs) that were installed to achieve program goals: raising the existing road profile to promote sheet flow and prevent water from concentrating on the road surface; establishing vegetative ditch linings to reduce scour and filter sediment and nutrients; addition of cross pipes to reduce volume of water treated in ditches; addition of headwalls and end walls to prevent excessive erosion at culvert inlets and outlets; select pruning and thinning; sloping banks; installation of Flexamat in newly shaped ditches to promote vegetation; replacement of undersized stream crossing with a bottomless arch structure complete with headwall and endwall, and reshaping of streambed; and other off site drainage improvements. The following table is a breakdown of Bradford County’s Dirt, Gravel, and Low Volume Road Program accomplishments for 2023:

Dirt and Gravel Road Activity	2023	Total to Date
Number of Completed Projects	10	186
Total Grant \$\$ in Completed Contracts	\$1,605,918	\$13,602,157
Total \$\$ Provided by Townships	\$325,93	\$3,655,516

Completed Dirt and Gravel Road Project Statistics for 2023:

Turn Outs Installed	8
New Cross Pipes Installed	22
Cross Pipes Replaced	9
Road Fill Added (Tons)	56,685
Underdrain Installed (Feet)	15,457
# of Stream Culverts Replaced	5
Sq. Yd. Vegetative Management	7,616

Low Volume Road Activity	2023	Total to Date
Number of Completed Projects	1	11
Total Grant \$\$ in Completed Contracts	\$68,761	\$793,325
Total \$\$ Provided by Townships	\$11,193	\$454,565

Completed Low Volume Road Project Statistics for 2023:

Turn Outs Installed	0
New Cross Pipes Installed	1
Replaced Cross Pipes	1
Road Fill Added	0
Underdrain Installed (Feet)	174
Sq. Yd. Vegetative Management	331
# of Stream Culverts Replaced	0

The following photos are from two Dirt and Gravel Road projects located in Columbia Township (top) and Leroy Township (bottom) where drainage was improved by: adding cross-pipes with appropriate headwalls, end walls, and inlet and outlet protection; shaping and vegetating ditches; installing Flexamat in ditches to stabilize; stream crossing replacements; opening tree canopy; addressing offsite drainage issues; raising the road profile to promote sheet flow; and crowning the road surface to prevent water from remaining on the driving surface.



Before: Large scour pools, undersized culverts, ditch scouring and large deposits of sediment from flood damage.

125% Bank full & reconstructed streambed

After: final surface placement at end of dirt work.



On this project tree removal provided room to establish a Flexamat stabilized ditch along the right side of the project, while establishing sheet flow on the left. Banks were sloped gently enough to allow for easy mowing to provide low-cost maintenance as well. We were also able to utilize an existing diversion swale to break up runoff from the project thanks to landowner cooperation.

Word Search!

Water runs through it!

T B P B A L E V E L S P R E A D E R W W
V K G D C I D B H M E T U H E A K A O A
T P K S Q T S Z W W C V M M N F X S J D
H V S I U S H E F X K V J G M O P P D J
T K T J N R W S D U I H S W A C N M I Q
M P O A D E P Z B O R Z T T F B Y P V A
O A R L E T R C L E A N S T O N E H E H
D R M F R E N C H M A T T R E S S O R V
R A D N D N Z S C F I N Z G B P N G S H
O B R F R T B T H X U N D E R D R A I N
P O A D A I R R A B Z K G K R U N D O M
B L I U I O A E N I H R E C U O C R N S
O I N G N N E A X U O Z O F I Z G A S B
X C B G M B W M L N Y S F G F P T M W A
A D R X L A U S H W R I A Q R N F R A V
R I I G S S J H F Q M A B B F Q J S L G
A T D R V I Y I K Z A S R Y C D Y L E B
T C G T F N Z Y Z X W Z I W H P D D F M
W H E C R O S S P I P E C A J S A F I C
S T R E A M C U L V E R T W Q V N H V L

french mattress

underdrain

stream culvert

bridge

parabolic ditch

retention basin

clean stone

underdrain

drop box

Geofabric

level spreader

Storm drain

cross pipe

Diversion Swale

stream

Word search key can be found on page 12

DSA VS 2RC ...Is it worth it?



This is a question that has been asked year after year and we'd like to say that we have the perfect answer for you, but we don't. However, what we do have is several years' worth of projects completed with both products as well as several years of maintenance assessments to see how the two materials are holding up.

There are so many factors that can go into trying to answer this question. Probably first and foremost, you must keep in mind that you are comparing two materials that are completely different. While they might look similar from a distance, when you view them in a giant pile at the quarry or even after it is freshly placed and rolled, I assure you that they are very different. DSA and 2RC, when you break them down to their specifications are two different materials. You might say, "Well it's all just crushed stone, what's the big deal?"

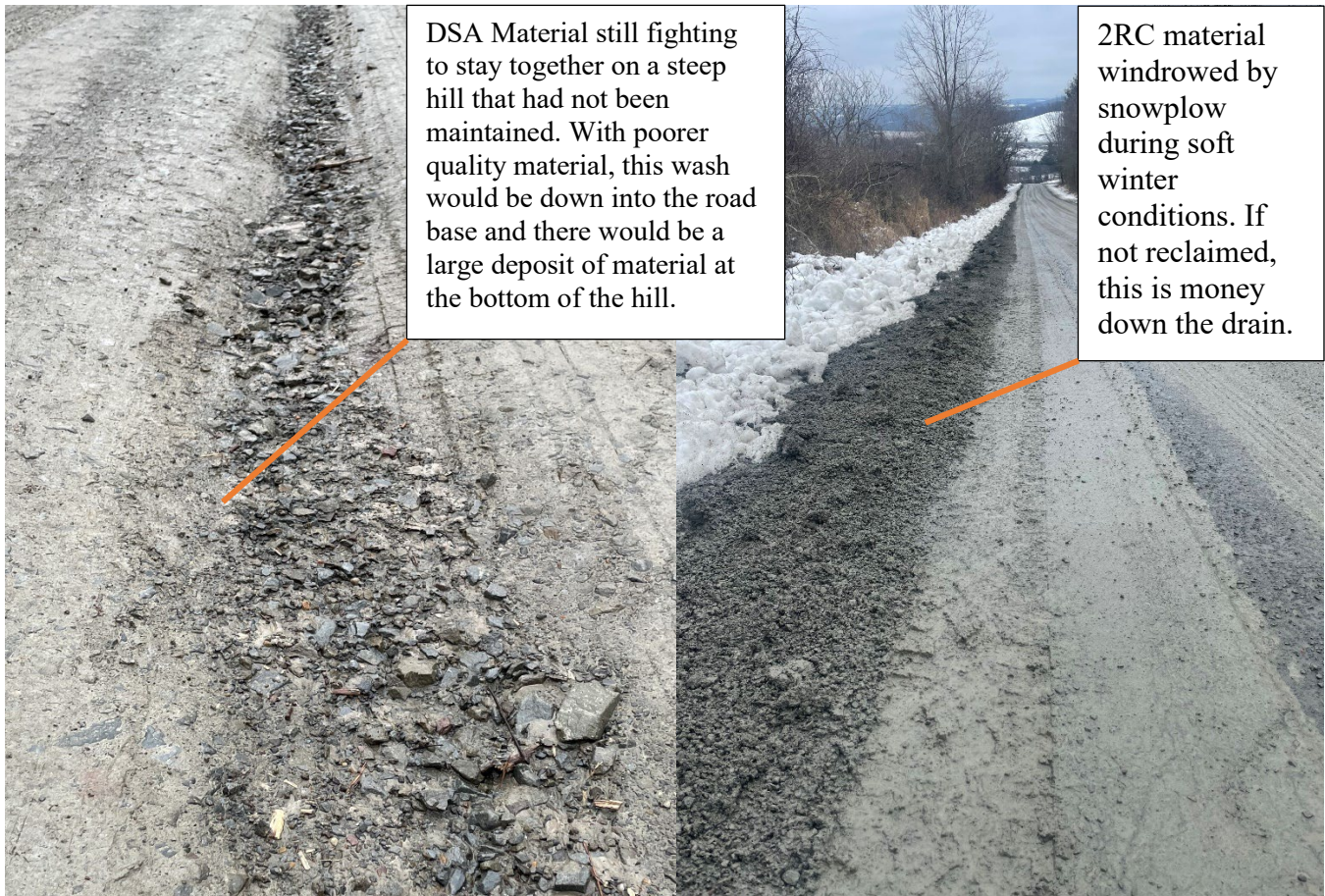
Well, when you break down DSA, it is a spec that has been formulated specifically for surface placement on dirt and gravel roads to resist wear from forces such as traffic, water, and wind erosion. It is a formula that uses only parent rock material from tested sources that are proven to be nearly clay free, and of proper soundness (hardness), and meeting several other specifications as well. DSA is comprised of many different sizes of Rock particles only and when properly made, all these different sizes of rock material knit together to make a road surface that nearly mimics concrete in appearance and hardness. This is why DSA wears so well over time from several different forces of nature as well as man made forces like traffic and maintenance equipment. Even when roads are not maintained properly, DSA holds up better than many other road surface materials used.

One of the issues with 2RC material is the much broader specifications for the product. Even if you are requiring your 2RC material to come from a state approved quarry, there is very little control as to what rock is being put in the crusher, not to mention it is a much looser spec with a greater range in sizes of material that the product can consist of. Unfortunately, what we see used in much of the county and state is an inferior product that comes with some notable and common problems. Many of you have probably noticed as we have, and this is verified by the complaints we here from municipalities, that 2RC often tends to "mud up", especially when it experiences its first rainfall. Some of the poorer materials do this after every rain/snow event. It produces a slimy surface that tends to stick to every part of the cars traveling it, this also causes the material to be pulled up by tire traffic, leaving ruts and potholes that never seem to go away. Another issue that is more prevalent is from winter maintenance. Being that the material is softer, it tends to not stay as compacted on the road and allows the snowplow equipment to bite in, causes a wash board effect, and causes costly material to be plowed off the road during multiple storm events. I'm not saying that this doesn't happen with DSA, but it is noticeably more prevalent with 2RC. Type of plow equipment and maintenance style can play a large roll in this as well.

Another factor that comes into play is placement method. While DSA (if used on a dirt and gravel road project with the district) must be placed with a motor paver, 2RC does not have to be and is often placed with a road grader and has even been initially placed with a bulldozer, though this is not ideal as it has to be re-shaped with a grader anyway and this causes more segregation. A particular problem we see with grader placement is thinning of material at the road edge paired with excess material being pushed outside of the road area where it can't be reclaimed and ends up in the road ditch system. This is like literally throwing money down the drain.

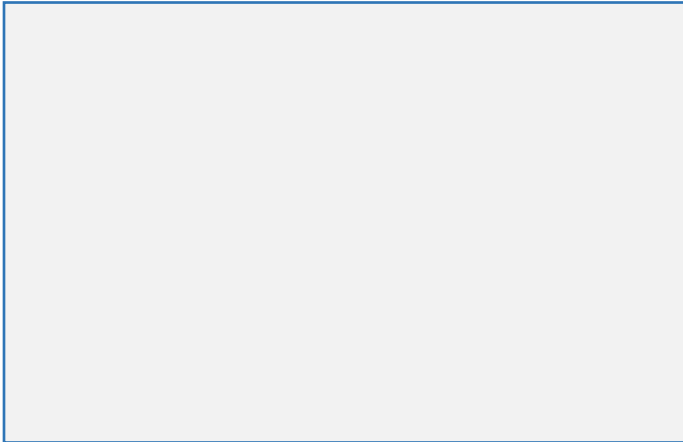
As shown in the pictures above, paver placement is more uniform in depth and width and allows for little to no segregation of materials. When grader placed, consistent width and depth are hard to achieve due to many factors, not to mention there is a lot more segregation because it takes so many passes to get a nice, finished product. Paver placing 2RC is an option we have seen a few municipalities try and it does help produce a nicer finished product. However, the consistency and quality control of the material is less overall than DSA, so the road still tends to deteriorate sooner than a DSA road might.

Overall, it is our opinion that DSA, when made and placed properly, is a superior product all the way around. As far as wear, what we see is that DSA, even when maintained improperly tends to hold together better. The tight compaction and specially designed formula allow the material to hold its shape longer even under the worst of circumstances. It may be more costly upfront because of trucking and placement methods, but when your road surface lasts 10-15 years instead of 4-5, isn't it worth it? So, as you're planning your next dirt and gravel road project or even a road surface project on your own, it may pay to consider your options when it comes to surface material. Below are some photos of DSA surfaces that have seen neglect and harsh weather conditions, but as you will see, the road material did not unravel even after channels were cut through it.





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Water runs through it!



BCCD's Mission is to *Lead, Educate, and Empower* people to manage resources wisely.

