

Municipal Quick-Guide to Driving Surface Aggregate

The purpose of this document is to briefly outline the requirements and recommendations regarding placement of Driving Surface Aggregate (DSA) through the PA Dirt, Gravel, and Low Volume Road Maintenance Program (DGLVRP). Additional details can be found in the "DSA Handbook". Since the DGLVR Program emphasizes "local control", potential applicants should always check with their local Conservation District for county-specific policies regarding DSA and other aspects of the Program.

Pre-project Logistics (Full Details in chapter 4 of DSA Handbook)

- Notify Conservation District of intent to apply.
- Conduct pre-application site-visit with Conservation District.
- The DGLVR Program focuses on long-term road and environmental improvements. Projects are **Required** to focus on drainage, road base, and environmental issues prior to DSA placement. DSA is NOT required on every project.

Purchasing DSA:

- Normal bidding procedures apply.
- Prevailing Wage applies to DGLVR projects over \$25,000. **Required**
- Sample DSA "Request for Quote" in DSA handbook. Contact local Conservation District to determine any county specific requirements for DSA material or bidding procedures.
- Notify Conservation District once DSA supplier is chosen. District and/or Program representative will test DSA to ensure it meets Program standards. **Required**

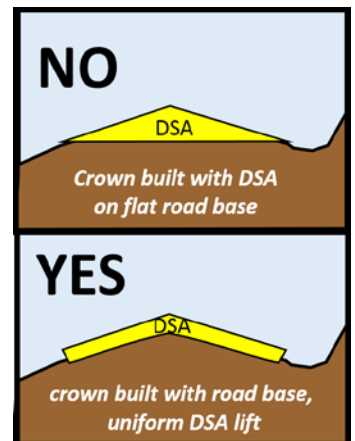
How much DSA should I order?			
DSA Needed =	Road Width	x Road Length	0.04
(tons)	(ft)	(ft)	8" loose depth compacted to 6"
			0.03
			6" loose depth compacted to 4½"

Road Preparation (Full Details in chapter 5 of DSA Handbook)

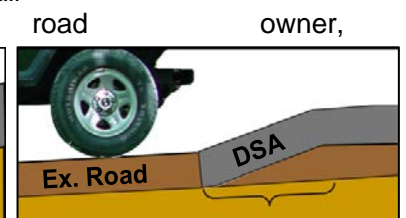
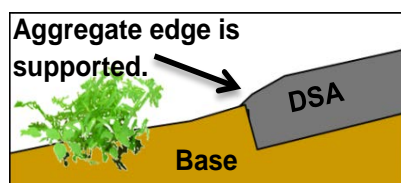
- Make provisions for road closure if possible (during placement and drying), and notify any residents.
- Drainage and base improvements must be done before DSA placement. **Required**
- Establish proper crown or cross-slope (½ to ¾ inch per horizontal foot (4% - 6% slope)) in the road base if necessary by grading. **Required**
- Scarify existing road if surface has adequate crown but is extremely tight.
- Cut 3"- 4" key along edge of DSA placement site to support the edge of aggregate when possible.
- Cut a "paving notch" across the road at ends of planned DSA placement to butt edge of DSA into existing road instead of trailing it off. **Required**
- Placement of DSA directly on separation fabric is not recommended. If fabric is used, consider placing a few inches of other aggregate before placing DSA.

DSA Placement (Full Details in chapter 6 of DSA Handbook)

- Aggregate must be delivered at optimum moisture in tarped trucks. **Required** Stockpiling DSA is not recommended, as it adds costs, causes segregation, and puts the responsibility of placement at optimum moisture on the stockpiling entity instead of the aggregate supplier.
- DSA Certification must accompany the first truck of aggregate to the jobsite. **Required**
- DSA should be allowed to dry or "cure" before being exposed to traffic, otherwise deformations or rutting may occur.
- If freezing temperatures or precipitation are forecast that may cause the material to freeze, or prevent the material from drying out, placement shall be postponed at the discretion of the Conservation District, or aggregate supplier. **Required**
- **Paver placement recommended on all jobs, and Required on jobs over 1,000 tons.**



Reflect cross-slope in road base.



Paver Considerations:

- Track pavers are recommended, especially on steeper slopes.
- Paver should be capable of placing entire road width in one pass. Avoid multiple lane placements if possible.
- Paver must be able to match crown or cross-slope previously established in road base ($\frac{1}{2}$ to $\frac{3}{4}$ inch per horizontal foot (4% - 6% slope)). **Required**
- Place DSA in one uniform lift. **Required**

Tailgating Considerations:

- Tailgate material in as uniform of a lift as possible, avoiding large piles.
- Handle the material as little as possible with grader in attempting to establish road shape. Overworking DSA will cause it to segregate by size and it will not perform as desired.



Paver placement of DSA.

DSA Compaction (Full Details in chapter 6 of DSA Handbook)

- Maximum compaction requires optimum moisture **Required**. Insure compaction occurs before aggregate dries out. If excess material sticks to the roller drum, it may be too wet and some drying time may be required before continuing compaction.
- A minimum 10-ton vibratory roller is **required** for DSA compaction.

Compaction Sequence:

- Initial passes should be done in static (non-vibratory) mode.
- Subsequent passes should be done in vibratory mode.
- Do not use vibratory mode when going down steep sections of road or if it brings excessive water and fines to the surface.
- Overlap passes from the road edge towards the crown.
- Compact the crown from both sides, but do not “straddle” the crown with the roller.
- Compaction testing using a density gauge is recommended, and the cost of testing can be incorporated into the DGLVRP grant.

DSA Maintenance (Full Details in chapter 7 of DSA Handbook)

- **Grading:** DSA behaves differently than other materials and requires special considerations:
 - DSA requires adequate moisture to avoid segregation and insure proper compaction.
 - Grading **MUST** be done when adequate moisture is in the road.
 - Water should be added during grading if the road is too dry.
 - Compaction after grading is critical to ensure DSA functions as designed.
 - Carbide-tipped grader blades are highly encouraged for grading DSA
 - It provides extra cutting force to cut deeper into the tightly compacted surface.
 - It reduces aggregate segregation by size.
 - DSA should not be graded “on a schedule” if it is not necessary. The decision to grade DSA should be based on the condition of the road.
 - See “DSA Handbook” for grading sequence and additional information.
- **Winter Maintenance:**
 - **Plowing:**
 - Use shoes or a rubber blade when possible to avoid gouging the DSA surface.
 - Consider leaving a “skiff” of snow on less traveled roads.
 - Be sure to take crown or cross-slope into account while plowing. Avoid plowing straight down the middle of a crowned road.
 - **Salts:** The use of chloride-based ice melt products is not recommended on DSA or other aggregate roads if it can be avoided, as they will retain moisture, worsen freeze/thaw issues, and extend the “mud season”.