



Division of Public Works  
Department of Engineering and  
Construction Management  
355 Montevue Lane, Suite 200  
Frederick, Maryland 21702

Effective Date: March 6, 2017

Division Director Signature:

# STANDARD PROCEDURES

Subject:  
**Gravel Road Maintenance  
Grading Policy**

## Description/Purpose

Gravel roads require routine maintenance throughout the year as potholes develop and washouts occur from storms. Proper maintenance improves gravel road durability and ride quality.

The purpose of this document is to describe the basic maintenance techniques, materials, and equipment that Frederick County staff will utilize when maintaining gravel surfaced roads.

## Equipment Notes

Grader – Operating speeds shall be limited to prevent hopping which would cause a washboard effect.

Stinger Blade – A toothed blade used to minimize aggregate segregation when grading.

Roller – smooth drum vibratory roller shall be used whenever possible to consolidate newly shaped aggregate.

## Aggregate Types

**Fine Gravel** – also known as “dirty crushed stone”, should be used on all steep slopes, which allows the material to bind together and prevents kicking out of stones and washboarding.

**No. 8 Crush Run (CR-8)** – suitable for use on all gravel roads.

**Driving Surface Aggregate (DSA)** – should be use only when resources are available to install per Center for Dirt and Gravel Roads Studies protocol (i.e., place when wet on prepared base with asphalt paver and apply vibratory roller).

**Densely Graded Aggregate (DGA)** – A plant mix of gravel that contains more fines than CR-8 that provides for better compaction while filling potholes.

## General Notes

**Signage** – All proper work zone signs shall be in place prior to start of road repair.

**Drainage** – Good drainage is required on all gravel roads. Ditch lines will be cleaned prior to grading.

**Potholes** - Once ditch lines are clean, potholes will be scarified to a depth below the bottom of the deepest pothole, and the area regraded.

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## Acceptable Road Cross Sections

**Crown** – The road will be reshaped with a well-defined crown, where the centerline is the highest point and each side slopes down to the outer edge of the road. The cross slope will be steeper than that found on a paved road, and should not be rounded.

**Superelevation** - If the roadway has been designed/constructed to be super-elevated, where the roadway drains to one side, the super elevation will be maintained when regrading the road. The cross slope will be steeper than that found on a paved road.

## General Grading Procedures

**Spring Grading** – To be performed after end of winter weather season.

1. Potholes will be dug out with a stinger or toothed grader blade as described above, and aggregate remixed.
2. Entire road will then be scraped
3. New material will be spread along the roadway (tailgating).
4. The grader will then use the stinger blade to level out the new material.
5. After the material is level, the crown will be established as described above.
6. Whenever possible, the road should be rolled to pack all loose material.

**Dust Control** - Dust control agent (calcium chloride) should be applied between late April and mid May.

1. Road surface should be scraped with a stinger blade to loosen the material prior to application of calcium chloride. Crown should be established if not present and maintained during preparation work.
2. Calcium chloride applied per manufacturer's instructions as soon as practicable.
3. Road should not be rolled after application of calcium chloride.

**Intersections** - The crown of the major road through an intersection should be maintained.

1. Gradually eliminate the crown of the minor road 50 to 100 feet before the intersection.
2. Pull any aggregate off the paved road.
3. Perform extra passes as needed to eliminate crown and provide correct shoulder slope.
4. Remove any bumps, dips, or loose material at the edge of the paved road.

**Road Reshaping** - The purpose of reshaping is to remove surface irregularities, restore surface drainage, and to remix the aggregate to improve surface stability.

1. Install work zone traffic control devices.
2. Check if more aggregate or fines need to be added to the road surface.
3. Tilt the moldboard to a cutting position

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4. Angle the moldboard 30 to 40 degrees. Move aggregate to the center of the road.
5. Tilt the front wheels 10 to 15 degrees from vertical in the direction the aggregate rolls across the blade.
6. Put enough pressure on the blade to cut shoulders and washboard ridges. Remove gravel material off of bridges.
7. Scarify the surface when necessary.
8. Check to see if more passes are necessary.
9. Windrow remixed aggregate to the center of the road.
10. Distribute aggregate evenly, blading material to the proper crown.
11. Blade the shoulder downward towards ditch so the slope is greater than the slope of the road.
12. Consolidation of the surface aggregate by smooth drum vibratory roller, instead of traffic, will extend the life of the reshaping job.

**Localized Pothole Repair** – If the road surface is generally in good condition, localized potholes can be filled by hand to avoid disturbing a larger area.

1. Fill potholes by hand with DGA.
2. Use hand tamper to consolidate.

Last revised on 3/6/17