

Benton County Public Works

Road District Gravel Road and Hard Surface Maintenance Plan

May 17, 2017 (updated 12/03/20)

Ditching Program:

- Recommended ditching cycle is every 7 years since a ditch will fill up naturally in 7 to 10 years.
- Light ditching is preferred to heavy ditching as it removes less material and leads to fewer erosion problems.
- Fore slopes should be less steep than back slopes.
- Recommended fore slope is a 2 to 1 ratio. This will help the crown to your roadway, as well as pull shoulders from ditch line and add support on the edge of the roadway.

Rocking Program:

- Grading your roadway will tell you how much rock you have on your road.
- Crown should be 4% to 6% on a gravel road, 2% on a paved road.
- Rock your roads in the fall and late January. Any other time of the year, the rock also needs to be graded into the road.
- If potholes return in less than 2 months, your rock base is weak.
- If you have a real dust problem in the summer, your rock blend is wrong.
- Not all rock is the same, ask your contractor or County for recommended type and sizes.

Culverts Program:

- Cleaning your culverts is by far the best bang for your dollar.
- Leaves plug culverts, so make sure to clean culverts when most of the leaves have fallen and the rain has started water moving into the ditch line.
- One plugged culvert can wash rock off the road and lead to the need to regrade the road.

Limbing:

- Every five years look at low limbs and hazardous trees and cut if necessary.
- Remember it is safer to take down trees during a calm day then in the middle of a storm.
- Always contact the electric company when needing to cut limbs or debris out of wires.

Grading:

- Grading in the fall and spring is the average time to grade.
- Moisture is the key for when to grade. Recommended moisture levels change per season.
 - Fall grading: Would like to be less moisture so the fines will be below the rock.
 - Winter grading: Would like there to be a good mix of moisture so the blend is better.
 - Spring grading: Would like there to be more moisture so the rock will be below the fines.

Mowing:

- The best time to mow brush back is in the spring and winter when there is no foliage and you can see the brush. Fewer things are hit when there is high visibility.

- May and June are the best months to mow grass due to less fire danger and it is not yet too tall.
- Spraying as an alternate option:
 - Best time for shoulder is spring. Best time for broadleaf is fall.
 - Must hire a Contractor who is fully licensed in public and private right of ways.

Crack Sealing Program - *The placement of asphalt or other elastic materials into medium and larger cracks to prevent the intrusion of water and incompressible material.*

- Should be done in August or September (need to call and schedule in spring). Our area has a lot of clay in the soil which causes cracks in the road to open up and take the sealant better.
- Make sure your contractor has new machines, they handle the material better.
- Average cost is \$2.50 per lb. to \$4.50 per lb., dependent on the amount that you are having done. We recommend teaming up with other road districts to get a better price.
- Clean before sealing, 2000 psl air pressure or higher works well.
- Cracks need to be ¼ inch or wider to seal.

Fog Seal - *A light application of asphalt emulsion diluted with water and without the addition of any aggregate applied to the surface of asphalt pavements.*

- Used to protect new asphalt or patching work. Waterproof your patches in the same year and new overlay in the first 5 years.
- Fog seals help old asphalt from losing aggregate and seals up road surface that will stabilize your road for 2 to 3 years. This gives you time to collect and save money for a bigger project.
- Average cost is \$3,000 per mile.

Slurry Seal - *A mixture of emulsified asphalt and fine aggregate used to fill small cracks, restore surface texture and protect pavement.*

- Works well for cul-de-sacs and parking lots. Slurry seals are made with a harder oil, which lasts longer in tight areas than fog or chip seals do.
- Average cost is \$0.19 per square yard.

Chip Seal - *A surface treatment in which the pavement is sprayed with asphalt and then immediately covered with crushed 3/8" aggregate and rolled.*

- Chip seals are used to seal small cracks, protect aging asphalt, restore surface friction and provide a wearing course on low volume roads.
- Chip Seals last between 7 to 10 years.
- Average cost is \$30,000 per mile.
- You can apply a double chip seal for a tight seal. Use 3/8 for the first layer and 1/4 for the second.

Pavement Markings Program - *Pavement markings are used to convey messages to the roadway user. They indicate which part of the road to use, provide information about conditions ahead and indicate where passing is allowed.*

- Striping: White and Yellow lines
 - Heavy trafficked roads striped yearly.

- Light trafficked roads striped every 3 years.
- Signs: Various signs with words and symbols
 - Average replacement every 7 years.

Small Pavement Repair Program: - *Repair potholes, alligator cracking, edge cracking & level patching. Poor base drainage and insufficient pavement structure are the main causes.*

- Repair treatments for potholes, alligator cracking and edge cracking.
 1. Cut pavement around repair site.
 2. Remove material down to 4 to 6 inches.
 3. Plug hole with hot asphalt.
- Level Patching
 1. Contractor can bring roadway up to grade by leveling surface with hot asphalt.
 2. Make sure the contractor seals the edges of the patch.
 3. To make your repairs last longer, fog seal the road after.

Contact and Resource Information

- Benton County Public Works Road Maintenance Website:
<https://www.co.benton.or.us/publicworks/page/road-maintenance>
- Benton County Facebook: <https://www.facebook.com/bentoncounty.oregon/>
- Main Line : 541-766-6821