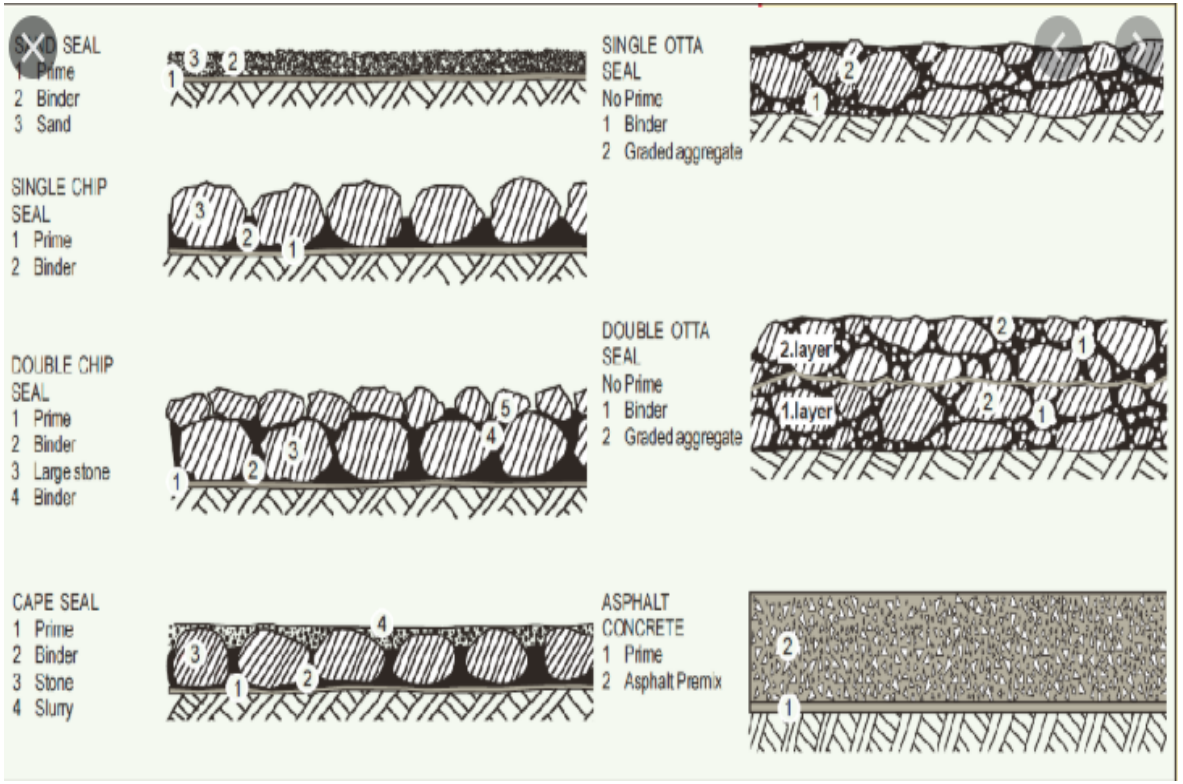
Panoramic Road Improvement Summary



Mission of Road Improvement Committee

- Investigate road improvement options, their pros and cons and their costs – both the initial investment and the annual maintenance

- Determine options for financing any improvements

- Perform outreach to property owners to gauge the level of support and to address any questions or concerns.

What has the committee completed?

- With the Board, sent letters to the landowners as well as two surveys to gauge landowners support of project as well as payment options (results of the surveys are scheduled to be reviewed in today's meeting).
- Interviewed Deschutes Country road officials, representatives of Pinewood and Lazy River SRDs, suppliers of Otta Seal products and several contractors with knowledge of road construction techniques.
- Completed the FAQ report based on information available, including a statement of pluses and minuses of different project options (on website).
- Worked with the Board to get five bids for review for gravel, Otta Seal and asphalt.
- Inspected Otta Seal roads completed by Deschutes County and Vic Russell, a local Otta Seal contractor (map and directions on website).
- Reviewed information from Norwegian history of Otta Seal, studies completed by the Iowa State University, research for Minnesota Department of Transportation and Deschutes County Road Department.

Findings

We are familiar with gravel and asphalt surfaces, so we will concentrate on the lesser-known Otta Seal process.

Otta Seal Process:

- The first layer consists of an oil mixture and ¾-inch rock. The rock and oil is then mixed with specialized rollers (similar to kneading bread). A large roller is then used to smooth the surface. The roads will then be put into use for about 2 weeks.
- Next, the road is cleaned, oiled and 3/8-inch in rock is added and rolled. The road will then be put into service for one week.
- A final layer of fog seal is then used to close all cracks and openings in the top layer.
- Note that Otta Seal differs from typical “chip sealing.” Otta Seal is applied thicker than chip sealing and uses different sized rock to obtain a denser surface. It also uses a different type of “emulsion” than chip seal. Otta Seal is also less expensive than chip seal in most situations.

Statements on Otta Seal

- **Lazy River Road District (Sunriver)**

  Their project was completed in 2019 on .53 miles of the 3.50 miles in District. Some of their considerations in choosing Otta Seal included estimated life of 7 – 12 years and lower estimated maintenance cost than gravel (mainly grading, adding gravel and dust abatement).

- **Pinewood Country Estates Road District (Sunriver)**

  Their project was completed on 3.25 miles of road in 2019. Some of their considerations were an estimated life of 7 – 12 years and lower maintenance cost. Pinewood estimates that savings on maintenance of gravel roads (grading, adding gravel and dust abatement) will cover cost of Otta Seal installation in 10 years. They report no issues involving speeding; no separation or deflection issue; no snowplow problems; no washboarding, even in the heavier traveled roads (10x of least-traveled); no problems from heavy truck traffic in areas where new houses are built. They are very happy with results after the first year.

Statements on Otta Seal

- **Norwegian Public Roads Administration**

  Otta seal was first developed to be used as temporary surfacing on new roads. However, after seeing its strength it has been used as a permanent surface as well. The main advantage of Otta Seal is the flexibility and variety of materials that can be used.

- **Minnesota Road Department**

  Service life varies depending on construction materials, environmental conditions, and traffic volumes. Reported serviceable lives for double-layered Otta seals range from 8 to 15 years. Otta seal has been used for roads administered by various agencies in Minnesota, and performance history exists for several years of service. Most of their roads have been in use for approx. 7 years.

- **Iowa State University**

  The excellent performance of Otta seal as a bituminous surface treatment (BST) and dust mitigation technology offers a low-cost solution to county road engineers…”

Costs and Maintenance

- **Construction Bids: Project Cost Only**

  The costs below represent only the contractor current bids and do not include other fees and costs associated with administrative costs, loan fees:

	Project Cost Only	Per Lot Costs
Gravel	$753,632	$ 5,234
Otta Seal	$ 680,480	$ 4,726
Asphalt	$ 1,546,635	$10,734

- **Maintenance Cost per Deschutes County**

  Gravel roads requiring grading 2 or 3 times per year and annual dust palliative. Material is added every 8 years. Maintenance cost is approximately $5,000 to $7,500 per mile, per year.

  Annual maintenance cost for County Otta Seal roads residential areas is approximately $6,000 to $8,000 per mile per year.

  NOTE: This information is based on roads built to county specs, and maintained by the county.

Summary Overview of Additional Gravel

- **Pluses**

  This option is less expensive than asphalt paving but maintenance is more. It will result in improved roads in the short term.

- **Minuses**

  Adding more gravel to all our roads still represents a significant cost that will require financing. While the roads will immediately improve, the District's experience with adding gravel to specific sections of our roads has shown that the improvements are short-lived and require frequent, continued maintenance. In addition, issues of increased vehicle and home maintenance and health risks from dust as well as rough road surfaces remain.

Summary Overview of Asphalt

- **Pluses**

  This is the most durable option we have available. The portion of Panoramic Drive between Camp Polk Road and the intersection of Buck Horn Drive was paved with this method about 15 years ago and has held up very well with just occasional crack sealing. It is the longest-lived option we are considering and is expected to last decades with intermittent maintenance such as crack repair and re-sealing. Asphalt paving all but eliminates the problems of dust and rough roads present with gravel surfacing.

- **Minuses**

  It will cost significantly more than the other options and requires financing. While definite information is not yet available, it will require intermittent maintenance, such as crack repair and re-sealing.

Summary Overview of Otta Seal

- **Pluses**

  Otta Seal constitutes a middle ground between asphalt paving and gravel. It involves compacted layers of gravel and a specially formulated oil product and results in a hard, smooth and durable surface. It is being used successfully worldwide, especially in Scandinavia. It is also used in several areas around Central Oregon, specifically by Deschutes County and the Pine River and Lazy River subdivisions near Sunriver.

  Otta Seal is significantly less expensive than traditional asphalt paving. Its durable surface is expected to last at least 8 to 12 years with only periodic maintenance, according to information provided by the Deschutes County Road Department. It often lasts longer in areas of lower traffic volume, such PASRD. Otta Seal all but eliminates the problems of dust and rough roads present with gravel surfacing.

- **Minuses**

  It will cost more than maintaining the status quo and requires financing. It will require intermittent maintenance, such as crack repair and re-sealing.