



WORK SESSION - 11/19/2024 AGENDA

Tuesday, November 19, 2024 at 3:00 PM
City Hall – 38 1st Street West Dickinson, ND 58601

Commissioners:

President: Scott Decker
Vice President: Robert Baer
Jason Fridrich
John Odermann
Joe Ridl

CALL TO ORDER

ROLL CALL

1. ORDER OF BUSINESS: CONSIDERATION FOR APPROVAL

2. ADMINISTRATION / FINANCE

A. Special Improvement District Discussion

Presented by: Administrator Dassinger

3. ADJOURNMENT

Memorandum

Date: 10/31/2024
Author: Josh Skluzacek

RE: Concrete Repair and Removal Standard Operating Procedure for Projects

Remarks

The following guidelines are used for determining concrete replacements in projects where concrete improvements are assessed back to the adjacent landowner. Concrete meeting any of the following conditions is to be marked for replacement. These standards are intended to follow ASTM D6433 when determining the types and severity of distresses

- Distress Types Requiring Replacement
 - Cracking
 - Uncontrolled cracks that have separated by more than 0.25-inches or have a horizontal offset of greater than 0.5-inches. Many cracks are starting to experience chipping along the length of the cracks.
 - Concrete has multiple cracks, including a single longitudinal separating crack.
 - A minimum of 2 five-foot-long panels may left in place between panels that are designated for removal
 - A route and seal of all cracks being less than defined above shall be utilized. Five or more cracks in a single segment of curb and gutter is to be replaced. Three or more cracks in a single panel of sidewalk is to be replaced.
 - Spalling and Popouts
 - Concrete with 25% or more spalling/scaling.
 - Popouts that cover more than 250% of the surface and result in an uneven surface or are extremely unsightly.
 - Spalling and popouts greater than 0.25-inches deep and 9-square inches or more shall be repaired. No vertical face spall repairs are allowed.
 - If the spalling and popout depth is great than 1/3 of the concrete thickness, the concrete shall be replaced and not repaired.
 - Damaged (Blow up, Corner Break, Divided Slab, Faulting)
 - Damaged concrete that has any deficiencies listed above shall be removed.
 - Use engineering judgement to determine if curb and gutter with minor snowplow damage without drainage concerns may be left in place. In general



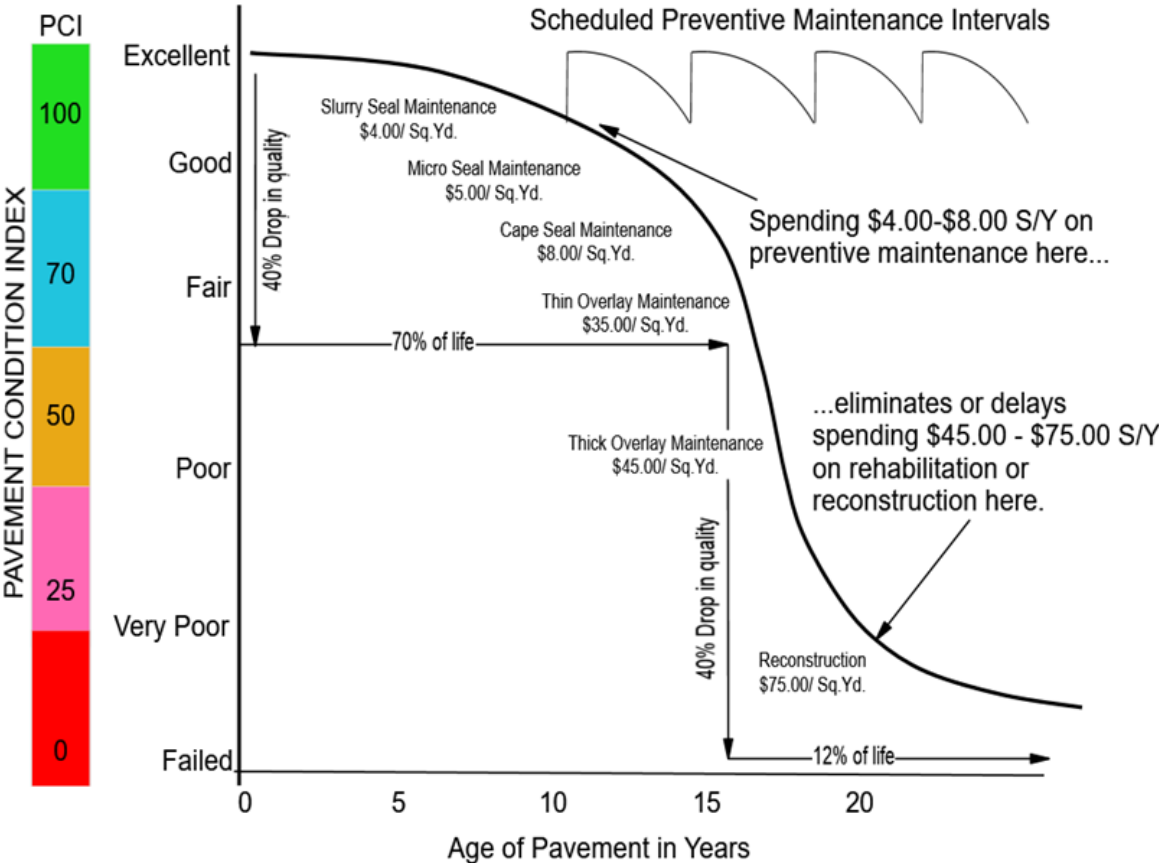
curb and gutter having a "snow plow chip greater than .5" deep or over 18 square inches in area shall be replaced.

- ADA Compliance
 - Sidewalk panels with greater than 0.25-inch vertical edge is considered a tripping hazard; typically, the panel that has settled is replaced.
 - If pedestrian ramp is not present at an intersection, ADA ramps shall be installed. Two sidewalk panels are typically removed for the ramp on a relatively flat grade. Use engineering judgment and follow ADA guidelines in areas with steep grades.
 - If pedestrian ramps are present, ramps are left in place if in good condition and do not otherwise warrant replacement.
 - If the sidewalk or driveway has more than a 2% cross slope section should be replaced. This may not be economically possible or require going off the Right of Way. Use judgement to validity.
- Drainage Issues
 - Concrete that is settled and holding water or causing a lack of drainage flow on the pavement.
 - Curb and gutter radii where new valley gutters are proposed.
 - Sidewalk and curb & gutter where trench drains are required.
 - Concrete that has had elevations impacted by tree roots.
- Designed Changes to Curb and Gutter
 - If there is a grade change required to provide positive drainage or improve a vertical or horizontal curve, these changes are not to be special assessed to the property owners.

Note: In some instances, there may be longer stretches of concrete replacement with one sidewalk panel or curb section that is questionable. In these cases, use engineering judgement to determine if the entire length should be replaced. i.e. saving segments of 5-feet or less should be considered from a constructability standpoint.

Chip Seal Information Sheet

“Chip Sealing” is a common pavement preservation practice that extends pavement life. The Chip Seal application “seals” the underlying pavement surface preventing water intrusion into the sub-base material and rejuvenates the underlying asphalt from the effects of oxidation while providing a good driving surface and higher friction. Our goal is to apply the preservation chip seal before the existing asphalt surface is degraded to a condition requiring rehabilitation or replacement.



Chip sealing costs approximately 6-10% of rehabilitation/reconstruction costs while maintaining the drivability of, and extending the life of the roadway.

It is expected that a single chip seal application will extend the life of the driving surface for 9 to 11 years, which will vary with the type and amount of daily traffic. Candidate roadways are reviewed annually for condition, and added to the chip seal program if warranted.

How are Chip Seals Different from Asphalt Overlays?

The difference is in the construction method. Hot Mix Asphalt pavement is pre-mixed (asphalt oil and aggregate mixture) and produced at an asphalt plant. The mix is then spread and compacted to form a durable road structure and riding surface approximately one inch thick. Chip Sealing uses the same ingredients as asphalt concrete paving, but the construction method is different. With chip seals, a thin film of heated asphalt emulsion is sprayed on the road surface, followed by the placement of small aggregates ("chips"). The chips are then compacted to orient the chips for maximum adherence to the asphalt, and excess stone is swept from the surface.

Why Use Chip Seals?

1. Chip seals provide the opportunity to maintain the roads in a safe manner for a very low cost.
2. A chip seal treatment costs considerably less than conventional asphalt overlays, as mentioned previously in this document.
3. By extending the time between asphalt overlays, chip seals result in better return on investment and performance over the long term.
4. Chip seals increase safety by providing enhanced skid resistance.
5. Chip seals provide an effective moisture barrier for the underlying pavement against water intrusion by sealing cracks in the pavement.
6. Chip seals prevent deterioration of the asphalt surface from the effects of aging and oxidation due to water and sun.

What steps are involved in Chip Seal application?

Prior to chip sealing a roadway, asphalt pre-leveling or full depth patching of the existing surface is completed to resolve deficiencies in the roadway, such as severe alligator cracking, potholes, localized settlement, or to restore roadway cross slope to ensure adequate surface water runoff from the travelled way. Roadway shoulders are often regraded, roadside ditches restored, and roadside or overhead vegetation removed. This preparatory work can occur a year prior to the intended chip seal application, but is often completed just before the actual work takes place.

Once all preparatory work is completed, an asphalt distributor truck applies hot liquid asphalt emulsion to one lane of travel at a rate of approximately 0.35 gallons per square yard, assuring an even distribution. The asphalt emulsion is applied at a temperature of approximately 125-195 degrees Fahrenheit. A chip spreader immediately follows with a 3/8 inch crushed rock application at a rate of 25 pounds per square yard. The asphalt emulsion must be fluid so the rock will be embedded by the displacement of the asphalt. Pneumatic (tire) rollers set and embed the rock into the liquid asphalt emulsion. Rolling orients the flat sides of the rock down and produces a tighter chip seal. Normal vehicle traffic, over time, continues to knead the rock into the asphalt material.

Excess rock is swept from the surface and warning signs are removed approximately two or three days after the chip seal application. A second sweeping is completed to remove residual loose rock material that becomes dislodged during the initial curing period. Permanent road striping is redone before the end of the season.

My roadway looks like a gravel road and creates more vehicle noise. Will it always be this way?

As explained previously in this document, Hot Mix Asphalt (HMA) is pre-mixed at an asphalt plant, which results in all of the aggregate being thoroughly coated with asphalt.

This results in its black appearance on the roadway. Chip seals are placed in two, consecutive applications; oil first, followed by the aggregate. The aggregate is embedded into the underlying asphalt leaving the top portion of the rock above the surface of the asphalt, and not coated with asphalt. The resulting surface is often brown or grey in color. As vehicles utilize the new chip seal surface the aggregate will begin to weather, rounding off the rough edges and changing its appearance. Any noticeable vehicle noise will quickly begin to diminish, and the appearance of asphalt will be very similar to that of an HMA surface.

When is Chip Seal work completed?

Chip seal applications occur during the warmer months and during dry weather. Temperatures at the time of application must be conducive to proper material performance. Warmer temperatures are required to allow the liquid asphalt to cure at a reasonably rapid rate. Generally speaking, it is best to begin chip sealing after June and strives to complete all work by early-September.



Fog Seal Information Sheet

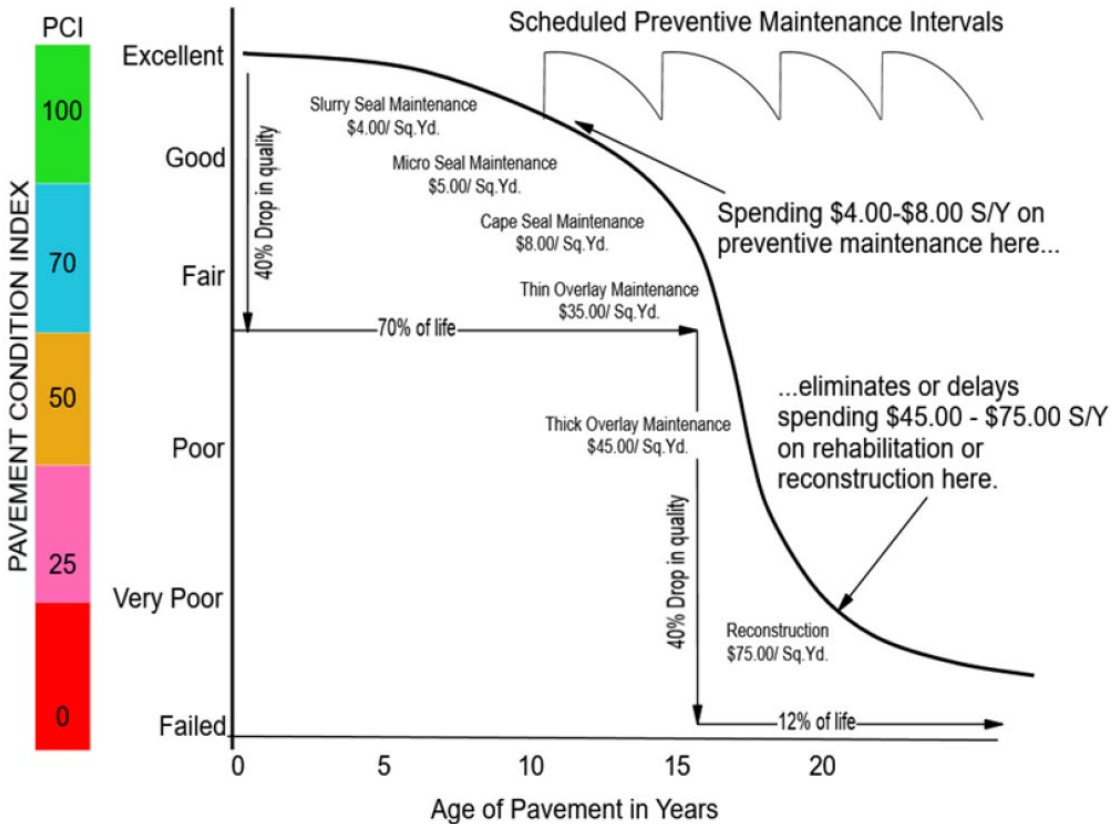
A fog seal is an application of a specially formulated asphalt emulsion (a thin liquid oil) to an existing asphalt pavement surface. A fog seal gets its name from its spray application, sometimes referred to as “fogging.”

Asphalt emulsions used in fog seal applications contain globules of paving asphalt, water, an “emulsifying agent” or surfactant, and sometimes a “rejuvenator.” Soap is a common form of a surfactant. In washing clothes or dishes, the surfactant helps remove the dirt and suspend the dirt particles in the wash water. Similarly, in asphalt emulsions, the surfactant keeps the paving asphalt globules in suspension until it is applied to the pavement surface when the water in the asphalt emulsion starts to evaporate. A “rejuvenator” is an asphalt additive which when applied to the existing pavement will slightly soften the pavement it is applied to creating a better bond.

Why is it important to fog seal a roadway?

As asphalt pavement is subjected to traffic loads and ages, it oxidizes and cracks develop in the surface due in part to the pavement becoming more brittle. Oxidation is one of the reasons asphalt concrete pavement fades in color from the deep, rich black color everyone remembers from when the road was constructed or last resurfaced. Fog seal applications serve to:

1. seal narrow cracks
2. slightly restore lost flexibility to the pavement surface
3. provide a deep, rich black pavement surface color, and
4. most importantly help preserve the underlying pavement structure.



On existing asphalt pavement, fog seals are typically applied on either an intermittent or cyclical basis. Location, weather, traffic loading, and pavement conditions are factors used to determine if a fog seal application is appropriate. Roadways selected for fog seal treatment are commonly those which have minor cracking, faded color, and where a fog seal would help extend the pavement life until resurfacing becomes necessary. Roadways chosen for cyclical fog seal applications would typically be treated every five(+) years depending on the factors stated above.

Fog seals are applied by a distributor truck. The distributor truck slightly heats the asphalt emulsion before spraying it onto the pavement. Once applied the surface has the appearance similar to the pavement having been spray painted black.



SID PROJECTS	Initial SID Balance
2020 Mill and Overlay	\$ 465,261.80
2021 Mill and Overlay	\$ 1,432,221.50
2022 Mill and Overlay	\$ 1,484,658.50
2024 Road Maintenance	\$ 328,915.20
2024 Watermain Replacement SID	\$ 655,229.43
2025 Road Maintenance	\$ 1,942,427.70
2025 Watermain Replacement SID	\$ 911,242.60
Fisher's East Side 2nd	\$ 555,800.00
Koch's Oaks Lighting	\$ 1,591,954.00
Sundance Coves	\$ 286,265.90
	\$ 9,653,976.63

**Current Certified
SID Balance (2024) Start Year**

Interest Rate	Number of Properties	SID Total	Avg/Prop	SD	90th Percentile
2020	446	\$ 1,375,000	\$ 3,083	\$ 4,500	\$ 8,843
2021	308	\$ 1,114,000	\$ 3,617	\$ 3,077	\$ 7,556
2022	248	\$ 1,436,000	\$ 5,801	\$ 4,461	\$ 11,511
2023					
2024	74	\$ 350,000	\$ 4,736	\$ 5,290	\$ 11,508
2025	288	\$ 1,924,000	\$ 6,681	\$ 4,954	\$ 13,022
		\$ 1,239,800			\$ 6,510.83
		\$ 577,164			

Int Rate	Avg	Avg -	90th -	90th -	Avg	Avg -	90th -
	Annual	Monthly	Annual	Monthly	Annual	Monthly	Annual
	Pmt 10-yr	Pmt 10-yr	Pmt 10-yr	Pmt 10-yr	Pmt 15-yr	Pmt 15-yr	Pmt 15-yr
3.50%	(\$371)	(\$31)	(\$1,063)	(\$89)	(\$268)	(\$22)	(\$768)
3.20%	(\$428)	(\$36)	(\$895)	(\$75)	(\$307)	(\$26)	(\$642)
2.60%	(\$666)	(\$56)	(\$1,322)	(\$110)	(\$472)	(\$39)	(\$937)
5.90%	(\$640)	(\$53)	(\$1,556)	(\$130)	(\$484)	(\$40)	(\$1,177)
5.40%	(\$882)	(\$74)	(\$1,719)	(\$143)	(\$661)	(\$55)	(\$1,289)

90th - Monthly Pmt 15-yr	C&G Remove \$/LF -bid	C&G Install \$/LF-bid	Concrete Removal \$/SY-bid	Sidewalk Concrete \$/SY-bid	Driveway Concrete \$/SY-bid	2020 YOY	
(\$64)	5.16	38.52	22.65	80.16	104.74		
(\$54)	5.6	45	26	92	117	13.32%	13.32%
(\$78)	6	48	27	95	122	19.02%	5.04%
	6.415	53	26.1	106.5	147	30.07%	9.32%
(\$98)	6.83	58	25.2	118	172	41.12%	8.05%
(\$107)							

C&G Remove \$/LF	C&G Install \$/LF	Concrete Removal \$/SY	Sidewalk Concrete \$/SY	Driveway Concrete \$/SY	2020 YOY	
6	44	24	86	90		
8	48	25	95	120	18.08%	18.08%
8	48	25	95	120	18.08%	0.00%
8	54	28.5	105	132.5	28.83%	9.49%
8	60	32	115	145	39.57%	8.47%
8	60	31	120	175	46.57%	4.38%

	Option 1	Option 2a	
Description	Current SID	Add Repair Option to Option 1	
Interest Rate (APR)	5.40%	5.40%	
SID Duration (Years)	10	10	
		30% reduction to SID	
		Estimated 15-yr repair life	
		Use Concrete Repair & Replacement SOP	
Estimated Total SID Assessment (to nearest \$100) per lot	\$13,000	\$9,100	
SID Hardship Form	Yes	Yes	
Code Enforcement Responsibilities		*This is an enforceable offence as stated in Chapter 33 of the Municipal Code, unless a project is planned within the reasonable planning period of 5 years	
Average SID 90th Percentile SID			
City Budget Gap	No Change	No Change	
Annual Pmt		\$1,716	\$1,201
Monthly Pmt		\$143	\$100

Option 2b

Repair or Replace - City covers Curb & Gutter

Option 3

SID Chip & Fog Seal

Estimated Cost of \$19.60/LF (2024)

5.40%	5.40%
10	5

Do not SID 2020-2022 Mill & Overlay Districts until after next Mill & Overlay (~15 years)

\$2.5 Million Bi-annually

Assess by deeded lot area
Mill and Overlay Projects are funded by the City of Dickinson

Use Concrete Repair & Replacemetn
SOP

Use Concrete Repair & Replacemetn
SOP

\$4,500
Yes

\$1,000
Yes

*This is an enforcable offence as stated in Chapter 33 of the Municipal Code, unless a project is planned within the reasonable planning period of 5 years

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\$750,000 for 2025 Project
Based on Averages & Unit Pricing
\$594
\$50

\$650,000 to \$850,000
Based on Past SID
\$234
\$19

St_Name	Fr_Street	To_St	Homes Per Block	Estimated Cost Per Home (@19.61/LF)
3RD ST SW	3RD AVE SW	2ND AVE SW		
3RD ST SW	2ND AVE SW	1ST AVE SW	7	\$1,022.41
3RD ST SW	1ST AVE SW	MAIN S	7	\$1,030.81
3RD ST SW	W END	4TH AVE SW	10	\$672.55
3RD ST SW	4TH AVE SW	3RD AVE SW	7	\$1,019.61
5TH AVE SW	SPRUCE ST	6TH ST SW	12	\$939.54
5TH AVE SW	6TH ST SW	7TH ST SW	18	\$943.36
5TH AVE SW	7TH ST SW	RUBY ST	5	\$1,286.27
5TH AVE SW	RUBY ST	JADE ST	9	\$814.81
5TH AVE SW	JADE ST	8TH ST SW	3	\$1,104.58
			Average =	\$981.55