b

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by November 20, 2019 . Please direct any questions to Alan Dybing at 701.231.5988 or countytwp@ugpti.org.
county: Adams County Highway Dept.
Contact: Nathum J. Nach 101-567-2235 adams countrand supernet, c
Preparer: Name Phone Phone Email Date Prepared: 2/18/2019
Aggregate Description
To provide information on the type and quality of aggregate used in your county, please check all boxes that apply. For example, if your county uses crushed, specification base gravel – select gravel, crushed material and specifications.
Gravel
Scoria
Pit Run
Screened
Crushed Material
Specifications
Tested
Other
Placement Practices
When aggregate overlays are placed in your county, please select the typical practice that is used to apply an aggregate overlay.
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0%	100%	
Hauling	80%	20%	
Placement	80%	20%	
Blading	100%	0%	
Dust Control	0%	0%	
Base Stabilization	0%	02	

Gravel Road Costs

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)		Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	,45	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/ho)
Average trucking distance for aggregate	10-12	Miles one-way ☐ Miles roundtrip	
Truck Payload	20	Cu. Yards	
Placement Costs	\$1800,00	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$575.80	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	\$0,00	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	\$0.00	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	. 12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	250	50-75	150-200	
Average Regraveling Thickness	3"	211-3"	1 1 m 4/1	
Blading Frequency (# per month)	2-3x/vc	3-5x/V.	1-2x/ma.	
Regraveling Frequency (years between	1 77	, ,	r r	
regraveling)	15-20 vos	10-15 Vrs.	Durs.	
Dust Suppressant (yes(no)				
Base Stabilization (yes/60)				

If you answered yes for Dust Suppressant – which type do you use?	
lf you answered yes for Base Stabilization — which type do you use?	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		
Good	2002	
Fair	30%	to the
Poor	50%	50%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

2019 COUNTY ROAD NEEDS STUDY SURVEY

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to Alan Dybing at 701.231.5988 or count	ytwp@ugpti.org.
County: <u>Barnes</u>	
Contact: Kerry Johnson	on 701-845-8508 Kjohnson@barnescounty.us Phone Email
Preparer: Kerry Johnson	Date Prepared: 10-23-19
Agg	gregate Description
To provide information on the type a all boxes that apply. For example, if gravel, crushed material and specifica	and quality of aggregate used in your county, please check your county uses crushed, specification base gravel — select ations.
Gravel	
Scoria	
Pit Run	
Screened	
Crushed Material	A
Specifications	
Tested	
Other	
PI	lacement Practices
When aggregate overlays are place used to apply an aggregate overlay.	d in your county, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	Ø 50°/6 □ Ø 50°/6 □

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

Task	Performed by:		
	County	Contractor	
Crushing	0 %	100%	
Hauling	100%	0%	
Placement	100%	0%	
Blading	100%	7%	
Dust Control	0%	100 %	
Base Stabilization	0%	100 %	

Gravel Road Costs

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	44,25	☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	#10.00	☐ Per loaded mile ☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/ho)
Average trucking distance for aggregate	20	✓ Miles one-way ☐ Miles roundtrip	
Truck Payload	amended and the second	∠ Cu. Yards☐ Tons	
Placement Costs	#250.00	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$1,000.00	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	n/A	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	D/A	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no :	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	> 20	20-50	50 ⁺
Average Regraveling Thickness	111	11/2"	2"
Blading Frequency (# per month)	1	2	2
Regraveling Frequency (years between		:	:
regraveling)	a	2	2
Dust Suppressant (yes/no)			
Base Stabilization (yes (no)			

If you answered yes for Dust Suppressant – which type do you use?		
If you answered yes for Base Stabilization – which type do you use?	•	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	,20°/2	0%
Good	70%	10°10
Fair	10%	90%
Poor	0%	0 %
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

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2019 COUNTY ROAD NEEDS STUDY SURVEY

to Alan Dybing at 701.231.5988 or countyt	
County: Benson Co	unty Highway Dest
Contact: Lester Ellergen	Phone Email Date Prepared: 2-27-2020.
Preparer: Laster Ellengson	Date Prepared: 2-27-3020.
Aggr	regate Description
To provide information on the type an all boxes that apply. For example, if yo gravel, crushed material and specificati	nd quality of aggregate used in your county, please check our county uses crushed, specification base gravel — select ions.
Gravel	
Scoria	
Pit Run	
Screened	
Crushed Material	
Specifications	
Tested	
Other	
Plac	cement Practices
When aggregate overlays are placed i used to apply an aggregate overlay.	in your county, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	

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In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perform	Performed by:		
	County	Contractor		
Task	County	100 %		
Crushing		, , , ,		
Hauling	100 %			
Placement	100 76			
Blading	106 /2			
Dust Control				
Base Stabilization	,			

Gravel Road Costs

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	5.75	Per cu. yard	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	1,25	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes no)
Average trucking distance for	20	☐ Miles one-way ☑ Miles roundtrip	
aggregate Truck Payload	20	☑-Cu. Yards☑ Tons	
Placement Costs	120	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$ 20.	Annual cost per mile	Is this Contractor Price? (yes (no)
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE		Traffic Levels	
ENTER ACTUAL BELOW	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	. no	no	Yes

County Entry		Traffic Leve	ls
county and y	Low	Medium	High
Daily Traffic (Total AADT)	50	100	
Average Regraveling Thickness	2"	4	
Blading Frequency (# per month)		12	24
Regraveling Frequency (years between regraveling)		5	
Dust Suppressant (yes/no)			
Base Stabilization (yes/no)			

If you answered yes for Dust Suppressant – which type do you use?	
If you answered yes for Base Stabilization – which type do you use?	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	10%	200
Good	50 %	140
Fair	25%	20
Poor	150,	20
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

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to Alan Dybling at 701.231.3988 or county	twp@ugptr.org.	
County: BILLINGS		
Contact: JEFF IVERSON	701-290-9581	jciverson@nd.gov
Name	Phone	Email
Preparer: JEFF IVERSON	Date P	repared: <u>10/31/19</u>
Agg	regate Descrip	tion
To provide information on the type an all boxes that apply. For example, if yo gravel, crushed material and specificat	our county uses crus	
Gravel	✓	
Scoria	$\overline{\checkmark}$	
Pit Run		
Screened		
Crushed Material	\checkmark	
Specifications	\checkmark	
Tested	\checkmark	
Other		
Pla	cement Practic	ces
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, ple	ease select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	✓	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perfor	med by:
Task	County	Contractor
Crushing		100%
Hauling	95%	5%
Placement	100%	
Blading	80%	20%
Dust Control	100%	
Base Stabilization	n/a	

Gravel Road Costs

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$8.00	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$8.50	☐ Per loaded mile ☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/100
Average trucking distance for aggregate	20	☐ Miles one-way ☐ Miles roundtrip	
Truck Payload	18	☐ Cu. Yards ☐ Tons	
Placement Costs	\$5500	Per Mile	Is this Contractor Price? (yes/100
Blading Cost	\$300	Annual cost per mile	Is this Contractor Price? (yes no
Dust Suppressant Costs	\$7500	Per mile	Is this Contractor Price? (yes/100)
Base Stabilization Cost	N/A	Per mile	Is this Contractor Price? (yes/no)

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EXAMPLE ENTER ACTUAL BELOW		S	
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	35	35-100	100-250	
Average Regraveling Thickness	2"	3"	4"	
Blading Frequency (# per month)	1	2	3	
Regraveling Frequency (years between regraveling)	5	3	3	
Dust Suppressant (yes/no)	NO	YES	YES	
Base Stabilization (yes/no)	NO	NO	YES	

If you answered yes for Dust Suppressant – which type do you use? Ca Cl

If you answered yes for Base Stabilization – which type do you use? Base 140%

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	40%	40%
Good	40%	40%
Fair	20%	10%
Poor		10%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

CMC'S ARE CL 13 MOD. 4-12 PI. OR ARMOUR COAT. NON CMC ARE BOTH CL 13 OR,

500000 134

Comments or Suggestions (please attach additional sheets if needed):

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to Alan Dybing at 701.231.5988 or countytw	/p@ugpti.org.
County: Bottineau	County
Contact: Ritch Gimbel	701-263-1607 rikh.g. mbe/ @ Co. Softhany, nd. Phone Email Date Prepared: 11-1-19
Preparer: Rikh Gimbel	Date Prepared:
Aggre	egate Description
To provide information on the type and all boxes that apply. For example, if you gravel, crushed material and specification	I quality of aggregate used in your county, please check or county uses crushed, specification base gravel – select ons.
Gravel	B
Scoria	
Pit Run	₩
Screened	
Crushed Material	⊠′
Specifications	
Tested	⊠
Other Class 13 Mod Gred	™
Blended Mullongs	×
Other <u>Class 13 Moduland</u> Blended Millongs + Crushed grael Place	cement Practices
When aggregate overlays are placed in used to apply an aggregate overlay.	n your county, please select the typical practice that is
Truck Drop and Blade	' \'\'\'\'\'
Windrow/Equalize	
Water/Rolling/Compaction	
Other	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

Task	Perfori	med by:
	County	Contractor
Crushing	0%	100%
Hauling	30%	70 %
Placement	100%	0%
Blading	100%	0%
Dust Control	90%	10%
Base Stabilization	90%	10%

Gravel Road Costs

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	£4,50	Per cu. yard Per Ton	Is this Contractor Price? (ves no)
Trucking Cost from Gravel Origin	. 35 ⁻⁴	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (ves/no)
Average trucking distance for aggregate	20	☑ Miles one-way ☐ Miles roundtrip	
Truck Payload	20	☑ Cu. Yards ☐ Tons	
Placement Costs	#22	Per Mile	Is this Contractor Price? (yes/න්ට්)
Blading Cost	#379	Annual cost per mile	Is this Contractor Price? (yes no)
Dust Suppressant Costs Brine witer	30 ⁴	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	17,000 To 20,000	Per mile	Is this Contractor Price? (yes no)

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EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry		Traffic Levels				
	Low	Medium	High			
Daily Traffic (Total AADT)	20	20-90	90-190			
Average Regraveling Thickness	1/2	1/2	1''			
Blading Frequency (# per month)	1	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	114. 2 · ·			
Regraveling Frequency (years between						
regraveling)	5 t	up 10 5	3			
Dust Suppressant (yes/no)	no	10	Some/yes			
Base Stabilization (yes/no)	10	no	Some/yes Some area's			

If you answered yes for Dust Suppressant – which type do you use?

Brine water

If you answered yes for Base Stabilization – which type do you use?

Base one

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)		
Very Good	20%	0 %		
Good	20%	1070		
Fair	35%	40 70		
Poor	25%	5070		
Total	100%	100%		

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

CMC - Most Times use The Class /3 Modify Non CMC (Townships) use most Times a class /3

Comments or Suggestions (please attach additional sheets if needed):

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to Alan Dybing at 701.231.5988 or count	γιwρωugpti.org.	
County: Bowman County		
Contact: Shane Biggs	701-253-5843	sbiggs@bowmancountynd.gov
Name	Phone	Email
Preparer: Shane Biggs	Date P	repared: <u>2/13/20</u>
Agg	gregate Descrip	otion
	our county uses crus	rate used in your county, please check shed, specification base gravel – select
Gravel	\checkmark	
Scoria	\checkmark	
Pit Run		
Screened		
Crushed Material	\checkmark	
Specifications	\checkmark	
Tested	\checkmark	
Other		
PI	acement Practi	ces
When aggregate overlays are placed used to apply an aggregate overlay.	d in your county, ple	ease select the typical practice that is
Truck Drop and Blade	\checkmark	
Windrow/Equalize	\checkmark	
Water/Rolling/Compaction Other	\checkmark	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing		100		
Hauling	30	70		
Placement	50	50		
Blading	100 Maintaining	90-100 Laying new gravel		
Dust Control	10	90		
Base Stabilization		100		

Gravel Road Costs

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	10 00		Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	120.00 Hourly	☐ Per loaded mile☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	15-20	■ Miles one-way □ Miles roundtrip	
Truck Payload	19	■ Cu. Yards□ Tons	
Placement Costs	3,000.00	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	420.00	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	7,000.00	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	60,000.00	Per mile	Is this Contractor Price? (yes/no)

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EXAMPLE	Traffic Levels			
ENTER ACTUAL BELOW				
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>30	30-100	100-150	
Average Regraveling Thickness	3 in	4 in	6-10 in, under chip seal or asphalt	
Blading Frequency (# per month)	When moisture allows	When moisture allows	Most of these roads are chip sealed or asphalt	
Regraveling Frequency (years between regraveling)	10 - 12	7 - 10	Other measures, eilher chip seal or asphalt	
Dust Suppressant (yes/no)	yes /some roads	yes / some roads	yes / some roads	
Base Stabilization (yes/no)	no	yes	yes	

If you answered yes for Dust Suppressant – which type do you use? Calcium Chloride, Water, Millings

If you answered yes for Base Stabilization – which type do you use? Cement based under some chip seal or pavement projects.

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)		
Very Good	5	5		
Good	40	30		
Fair	50	60		
Poor	5	5		
Total	100%	100%		

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

Most of our higher traffic roads in Bowman County are chip sealed or asphalt, with some of our chip seal not performing as expected due to weather related issues, freeze / thaw cycles and heavier traffic rutting issues, this in turn drives up the cost of maintaining them to keep them in a safe manner, which may result in the future of returning some of these roads back to gravel. Even our newly double chip sealed roads are deteriorating after 1-2 years. If it is determined that the cost of trying to stay ahead of maintaining these roads becomes too heavy of a financial burden and we do, as a result, have to return some of these roads back to gravel, our gravel needs will become even higher for Bowman County. Right now we have a pretty even balance between oiled roads (chip sealed,asphalt roads) and gravel roads in the County. We only have 38 miles of CMC routes with gravel surfacing. 0605 (14 miles), 0615 (10 miles), 0619 (3 miles), 0637 (5 miles) and 6041 (6 miles).

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.E WORKSHEET

f Transportation, Materials & Research 2001)

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zinooring Ino
gineering, Inc.

(mm)	Ret.	#1	#2	#3	#4	Sample Average	Spec.
100	4"						
90	3-1/2"						
75	3"						
63	2-1/2"						
50	2"						
37.5	1-1/2"						
25.0	1"	100	100	100	100	100	100
19.0	3/4"	95	98	96	98	97	70-100
16.0	5/8"	92	95	93	94	94	
12.5	1/2"	87	91	89	90	89	
9.5	3/8"	83	86	84	84	84	
4.75	No. 4	70	73	71	71	71	38-75
2.36	No. 8	58	60	59	59	59	22-62
2.00	No. 10	, 58	60	59	59	59	
1.18	No. 16	44	48	47	48	47	
600µm	No. 30	29	36	33	33	33	12-45
425µm	No. 40	29	36	33	33	33	
300µm	No. 50	19	26	22	22	22	
150µm	No. 100	10	16	12	15	13	
75µm	No. 200	6.5	11.0	7.6	10.3	8.9	7-15

	· · · · · · · · · · · · · · · · · · ·		

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2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed env to Alan Dybing at 701.231.5988 or <u>countytw</u>		November 20, 2019 . Please direct any questions org.
•		
Contact: Kenny Tetrault	<i>701-32</i> Pl	<u> </u>
Preparer: Kenny Tetrau	1+	Date Prepared:
Aggre	gate [Description
To provide information on the type and all boxes that apply. For example, if you gravel, crushed material and specificatio	r county	of aggregate used in your county, please check uses crushed, specification base gravel – select
Gravel	×	
Scoria		
Pit Run	Þ	
Screened		
Crushed Material	×	class 13 modified
Specifications	X	
Tested	X	
Other		
Plac	ement	t Practices
When aggregate overlays are placed in used to apply an aggregate overlay.	ı your c	ounty, please select the typical practice that is
Truck Drop and Blade	\(\rightarrow\)	
Windrow/Equalize	Z.	
Water/Rolling/Compaction	\(\overline{\ov	
Other		
	•	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:				
Task	County	Contractor			
Crushing	0%	150 %			
Hauling	40%	6050			
Placement	10000	0 %			
Blading	10090	0 9/2			
Dust Control	00%	1110%			
Base Stabilization	0%	100 %			

Gravel Road Costs

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$ 1000	Ճ Per cu. yard ☐ Per Ton	Is this Contractor Price? (Ves/no)
Trucking Cost from Gravel Origin	\$ 12500	Per loaded mile Per cu. yard Per Fon Hour	Is this Contractor Price? (res)(no)
Average trucking distance for aggregate	20	✓ Miles one-way✓ Miles roundtrip	
Truck Payload	20	☑ Cu. Yards ☑ Tons	
Placement Costs	\$ 217000	Per Mile	Is this Contractor Price? (yes/10)
Blading Cost	\$ 3000 00	Annual cost per mile	Is this Contractor Price? (yes/ര്
Dust Suppressant Costs	\$ 600000	Per mile	Is this Contractor Price? (ve3/no)
Base Stabilization Cost	\$ 200,0000	Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels				
	Low	Medium	High		
Daily Traffic (Total AADT)	>50	50-150	150-350		
Average Regraveling Thickness	3 in	4 in	5 in		
Blading Frequency (# per year)	8	12	16		
Regraveling Frequency (years between regraveling)	7	5	3		
Dust Suppressant (yes/no)	no	no	Yes		
Base Stabilization (yes/no)	no	no	Yes		

County Entry	Traffic Levels					
	Low	Medium	High			
Daily Traffic (Total AADT)	>50	50-150	150-400			
Average Regraveling Thickness	10	ユ ''	3"			
Blading Frequency (# per month)	1	2	4			
Regraveling Frequency (years between	11	7				
regraveling)	4	٥	~			
Dust Suppressant (yes/no)	Yes	Ye5	Yes			
Base Stabilization (yes/no)	NO	x es	yes			

If you answered yes for	Dust Sup	pressant – v	which type	do you use?	
Mag	05	Calc	ium	Chlorid	<u>e</u>
If you answered yes for $\int \int $	Base Stal	oilization— 1en +	which type Geo	do you use?	Fabric
		' ' ' 			,

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	25%	10%
Good	25%	40.70
Fair	50%	4/15 9/1
Poor		10%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

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BURKE COUNTY HIGHWAY DEPARTMENT

PHONE 701-377-2312 FAX 701-377-2866 CELL 701-339-2455 PO BOX 310 BOWBELLS ND 58721-0310

Burke County gravel spec

	Aggregate
Sieve Size Or Testing Method	Gravel Surfacing
	Percent passing or Test Limit
1"	100
3/4"	70 – 100
No. 4	38 – 75
No. 8	22 – 62
No. 30	12 – 45
No. 200	7 - 15
Plasticity Index (PI)	3 - 9
ND T 113, Shale (max %)	12.0%
AASHTO T 96, L.A. Abrasion (max %)	50%
NDDOT 4, Fractured Faces ¹	10%

	,		

AGGREGATE SAMPLE WORKSHEET
Department of Transportation, Materials & Research
SFN 9987 (Rev. 08-2015)

PCN		Siev	e Size	Wt. F	tet.	- I	., _D	ND S	Spec.	Falling	l	
NA NA				Non-Cum.	Cum.	% Ret.	% Pass		Upper	Sieve	1	
Laboratory No.		100 mm	4"									
WC Lab		90 mm	3 ½"									
Field Sample No.		75 mm	3"									
-ield Sample No. 1		63 mm	2 ½"								1	
Pit Location		50 mm	2"								İ	
\$19, T160N, R90\	۱۸/	37.5 mm	1 1/2"								1	
Owner	V V.	25.0 mm	1"	0.0	0.0	0.0	100.0	100			1	
Blwer		19.0 mm	3/4"	13.1	13.1	0.2	99.8	70	100		İ	
		16.0 mm	5/8"	73.4	86.5	1,6	98.4					
Project N18-ST313		12.5 mm	1/2"	219.3	305.8	5.5	94.5				1	
		9.5 mm	3/8"	317.5	623.3	11.2	88,8				1	
County Burke		4.75 mm	No. 4	1017.5	1640.8	29.6	70.4	38	75		1	
		Minus No.		3907.4	5548.2	20.0				L	1	
Material/Specification		Wt. Check		7,1060	5548.2		0.0)3%				
Class 13/302				5549.9	0040.2							
Date Received		Original W ND T 27	l	0040.0							J	
9-11-18		ND 1 27										
Date Sampled		Sio	re Size	Wt. F	2et			% Pa	ss Tot	ND S	pec.	Failing
9-10-18		3164	e oize	Non-Cum.	Cum.	% Ret.	% Pass.		npi	Lower	Upper	Sieve
Sampled From		0.00	No 0	84.3	84.3	18.9	81.1		7.1	22	62	
Stockpile		2.36 mm	No. 8	04.3	04.3	10.5	01.1	<u></u>				
Submitted By		2.00 mm	No. 10	60.0	154.2	34.6	65.4	16	3.0		 	<u> </u>
Brosz Engineerin	ig	1.18 mm	No. 16	69.9		52.0	48.0		3.8	12	45	
		600 um	No. 30	77.4	231.6	60,8	39.2		7.6	12	+-3	
FRACTURED FACES		425 um	No. 40	39.0	270.6		32.2		2.7		 	
FF= % of particles w/frac. faces		300 um	No. 50	31.3	301.9	67.8			3.0	 	 	—
WF= Wt. of frac. particles		150 um	No. 100	42.4	344.3	77.4	22.6			7.0	15.0	
	610.8	75 um	No. 200	19.3	363.6	81.7	18.3	L	2.9	7.0	1 10.0	1
WQ= Wt, of questionable frac. part			200 (75 um)	2.2	365.8							
	0.0	Original W		445.1				(0.11%			
WA= Wt. of total sample		Wt. After \		365.3		ł						
		Wash Los		79.8								
FF= [WF + (WQ/2)]/WA x 100	ND Spec.	Wt. Check	(<u> </u>	445.6	<u> </u>				ND T 44		
83,9%	10%	ND T 27		VELOUIT DIE						ND T 11		
NDDOT 4			LIGHTV	VEIGHT PIEC			A ttt					
	4,75mm) Mate			T		4, +No. 30 N		.1			1	
(A) % Retained on No. 4 Siev				(I) Weight of	Lt Wt Piec	es, -No. 4, -	FNo. 30 Mti	n.	=	4.0	,	
(B) % Passing No. 30, Total S	Sample		= 33.8							4.8		
(C) % Pass No. 4 - % Pass N	lo. 30, [100-(A	+B)] =		(J) Weight o					=	231.6	-1	
(D) Total Sample A+B+C				(K) Lt Wt Pie					=	2.07	4	
(E) Weight of Lt Wt Pieces in	+No. 4 Mtrl.		= 20.6	(L) Lt Wt Pie			laterial			0 77		
(F) Weight of +No. 4 Material		:	= 1640,8		al Sample	(KxC)/100			=	0.76	4	
(G) Lt Wt Pieces, +4 Mtrl. (E	/F)x100	:	= 1.26	8								
(H) Lt Wt Pieces, +No. 4 Mtrl	., % of Total S	ample (Gx	A)/100	.,					=	0.37		Spec.
				(M) Lightwei	ght Pieces	in Total Sar	nple (H+L)	<u> </u>	=	1.1	1 12	2.0%
ND T 113 LL = 24 / PL = 19 Plastic Index LA Abrasion 5	<u>-</u>											
Distribution: Engineer Contractor					9-12-18	-					ler Cox	
					Date					Ŧ	ester	

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			and the second s

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or countytwp@ugpti.org.

County: Bulleigh		
Contact: Marcus 5. Hall	701-204-7748	mahall@nd.gov
Name	. Phone	Email
Preparer: Marcus & othe	Date Prepa	ared: Nov
	o de Desemble	_
A	ggregate Description	11
To provide information on the typ all boxes that apply. For example, gravel, crushed material and speci	if your county uses crushed	used in your county, please check , specification base gravel – select
Gravel	×	
Scoria		
Pit Run		
Screened		
Crushed Material	*	
Specifications	0 Ch = 13	
Tested		
Other		
	Placement Practices	i
When aggregate overlays are plaused to apply an aggregate overla		select the typical practice that is
Truck Drop and Blade	×	
Windrow/Equalize	·	
Water/Rolling/Compaction		
Other		

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:				
Task	County	Contractor			
Crushing	0%	100%			
Hauling	35%	65%			
Placement	100 %	0%			
Blading	100 %	0%			
Dust Control	17%	83%			
Base Stabilization	100%	0 %			

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$18.23	▶ Per cu. yard▶ Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$ 0.57/mile	Per loaded mile Fer cu. yard Per Ton	Is this Contractor Price? (ve)/no)
Average trucking distance for aggregate	75	☐ Miles one-way *** ☐ Miles roundtrip	Vüriller-jasar riparasisasisa
Truck Payload	18	☑ Cu. Yards ☐ Tons	
Placement Costs	\$ 1,177	Per Mile	Is this Contractor Price? (yes/10)
Blading Cost	\$ 1,489	Annual cost per mile	Is this Contractor Price? (yes/100)
Dust Suppressant Costs	\$ 7,643	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	4 18,525	Per mile	Is this Contractor Price? (yes/10)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels					
	Low	Medium	High			
Daily Traffic (Total AADT)	>50	50-150	150-350			
Average Regraveling Thickness	3 in	4 in	5 in			
Blading Frequency (# per year)	8	12	16			
Regraveling Frequency (years between regraveling)	7	5	3			
Dust Suppressant (yes/no)	no	no	Yes			
Base Stabilization (yes/no)	no	no	Yes			

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	450	51-200	> 201
Average Regraveling Thickness	Z.0 in	3,0 in	4.0 in
Blading Frequency (# per menth) year	5	1 Mr. Mar Friedrich	gattige 1, 46 11.00 -
Regraveling Frequency (years between			
regraveling)	8	5	3
Dust Suppressant (🔊/no)	No	Spot Treatment	Ves
Base Stabilization (@)/no)	No	As needed	As needed

If you answered yes for D	iust Suppressant – whi	ch type do you u	ise ł	
Macl				2319990
				en anjerioù
If you answored yes for B	ace Stabilization - whi	ich type do you i	ise?	

Base One, Crucked Concrete, Blanded Base

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	10 %	10%
Good	40 %	Z5 %
Fair	35 %	50%
Poor	15 %	15 %
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

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GRAVEL CRUSHING BIDS BURLEIGH COUNTY HIGHWAY DEPARTMENT 2019 SEASON

Class 13 Aggregate Surfacing	
Crushing & Stockpiling using primary	and the second s
jaws capable of handling 18" dia.	
rock and secondary crushing (all	\$ per Cubic Yard
settings for this season).	

- (1) A performance bond of \$20,000 will be required immediately after award of the gravel crushing bid. Prior to award, successful contractor shall furnish an insurance certificate copy indicating adequate liability coverage.
- (2) Approximately two (2) settings totaling around 60,000 cubic yards, more or less, may be crushed this year. The minimum amount crushed in each pit will be 10,000 cubic yards. Prior to set up, Burleigh County will provide prospecting & pit maps for each site. Maps will include topsoil depth for each test hole, test hole locations, gravel depths, description of gravel, average over burden depth, average gravel depth & estimated amount in deposit. Burleigh County will stake pit and mark test hole by G.P.S.
- (3) The unit of measure to be used at a specific site will be cubic yards of material per stockpiling. Stockpile will be measured within 10 days of the contractor notifying the County that the pile is complete. In case of discrepancy, the County will re-measure the stockpile at Contractor's request and expense. Re-measured quantity will be the basis for final payment.
- (4) Contractor will crush material to meet the following specification: For the Class 13 Aggregate Surfacing.
- (5) Sampling and acceptance of material will follow the North Dakota Department of Transportation (NDDOT) "Standard Specifications for Road and Bridge Construction" and the NDDOT Field Sampling and Testing Manual.
- (6) Crushing bid to include stripping over burden of up to 24" average depth, backfilling and sloping of entire pit to a minimum slope of 4:1. If average overburden exceeds the 24" average, a method of payment for extra work shall be agreed upon prior to any work taking place. Contractor's crushing equipment must meet the approval of the County Road Superintendent prior to award of bid.
- (7) Successful bidder must complete all work no later than October 15, 2019. No stockpiling will be started until the County Engineer has been notified of the location.

Company:		
Signed:		
Printed Name:		
Title:	·	
Address:	3.	
Phone:		
Date:		

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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

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to Alan Dybing at 701.231.5988 or countyt	wp@ugpti.org.
County:Cass	
Contact: Blaine Laaveg	701-298-2377 laavegb @ cass county nd. go Phone Date Prepared: 11-14-19
Preparer: Blaine Laaveg	Date Prepared:
Agg	regate Description
To provide information on the type and all boxes that apply. For example, if you gravel, crushed material and specificate	nd quality of aggregate used in your county, please check our county uses crushed, specification base gravel – select tions.
Gravel	≱ 7
Scoria	
Pit Run	
Screened	
Crushed Material	×
Specifications	
Tested	⊠
Other	
Pla	acement Practices
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	O	100	
Hauling	80	30	
Placement	80	20	
Blading	100	0	
Dust Control	0	100	
Base Stabilization	0	(00	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	H 8 62	☑ Per cu. yard☑ Per Ton	Is this Contractor Price? (ves)(no)
Trucking Cost from Gravel Origin	B 0.30	☐ Per loaded mile ☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	50	☐ Miles one-way ☐ Miles roundtrip	
Truck Payload		☐ Cu. Yards ☐ Tons	
Placement Costs	R 1978	Per Mile	Is this Contractor Price? (yes/ho
Blading Cost	41400	Annual cost per mile	Is this Contractor Price? (yes/ຄວ
Dust Suppressant Costs	M 4,000	Per mile	Is this Contractor Price? (ve)/no)
Base Stabilization Cost Cement Treated	# 110,000	Per mile	Is this Contractor Price? (ves/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	4 50	50-150	150-400	
Average Regraveling Thickness	3/4"	۱ /۵ "	3,,	
Blading Frequency (# per month)		2-3	3⋅	
Regraveling Frequency (years between				
regraveling)	3	ک -3	1-2	
Dust Suppressant (yes/no)	70	No	No	
Base Stabilization (yes/no)	No	No	Some	

If you answered yes for Dust Suppressant – which type do you use?

Calcium Chloride

If you answered yes for Base Stabilization – which type do you use?

We have been doing cement treated base for approximately the last 8 years to treat 6-8 miles a year.

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	20%	20%
Good	45%	45%
Fair	30 %	3070
Poor	5%	5%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

GRADATION REPORT

Report Number:

M1191009.0008

Service Date:

06/14/19

Report Date:

Client

06/18/19 Revision 1 - Add LL/PL Correct spec

860 9th St. NE, Unit K West Fargo, ND 58078 701-282-9633

Project

Plant Tests 2019 - Mark Sand and Gravel Company

M1191009

525 Kennedy Park Road

Fergus Falls, MN

Project Number:

TEST OF AGGREGATE

DATE SAMPLED/SUBMITTED:

Mark Sand & Gravel Company

Fergus Falls, MN 56538-0458

Attn: Paula Dietman

PO Box 458

6-13-19/6-13-19

LOCATION SAMPLED:

Stockpile

SOURCE:

Olson Pit

SAMPLE NUMBER:

NDDOT SPECIFICATIONS SECTION 816.02

MECHANICAL ANALYSIS: (AASHTO T 27) 1" (25.0 mm) % Passing

100%

1

Class 13 100% 70-100

3/4 (19.0) 5/8 (16.0) 1/2 (12.5) 99 98 96

3/8 (9.5) #4 (4.75) 8 (2.36) 16 (1.18) 91 72 54

38-75 22-62

30 (600 µm) 50 (300)

35 21 15 12-45

100 (150) 200 (75)

11 8.3 7-15

TEST ON FRACTION PASSING #40: (AASHTO T89/T90)

Liquid Limit Plastic Limit 25 16

Plasticity Index

9

REMARKS: Sample was submitted by Mark Sand & Gravel on June 13, 2019.

Services:

Test sample submitted by the client or client's representative for gradation.

Terracon Rep.: Reported To: **Contractor:**

Report Distribution:

(1) Mark Sand & Gravel Company, Paula

Dietman

Reviewed By:

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials. AF0001, 9-28-10, Rev.1 Page 1 of 1

GRADATION REPORT

Report Number:

M1191009.0006

Service Date:

06/11/19

Report Date:

06/12/19 Revision 1 - Add Plasticity Index

Task:

Dakota

Tierracon

860 9th St. NE, Unit K West Fargo, ND 58078

701-282-9633

Client

I**ent** Mark Sand & Gravel Company

Attn: Paula Dietman

PO Box 458

Fergus Falls, MN 56538-0458

Project

Plant Tests 2019 - Mark Sand and Gravel Company

525 Kennedy Park Road

Fergus Falls, MN

Project Number:

M1191009

TEST OF AGGREGATE

DATE SUBMITTED:

6/11/2019

LOCATION SAMPLED:

Pit Stockpile

SOURCE:

Olson Pit, Lisbon, ND, Mark Sand and Gravel

NDDOT SPECIFICATIONS SECTION 816.02

MECHANICAL ANALYSIS: (AASHTO T 27) Class 13 100 100% 1" (25.0 mm) % Passing 98 70-100 3/4 (19.0) 5/8 (16.0) 95 1/2 (12.5) 90 3/8 (9.5) 85 ___ #4 (4.75) 72 38-75 54 22-62 8 (2.36) 34 16 (1.18) 12-45 21 30 (600 µm) 50 (300) 15 12 100 (150) 9.8 7-15 200 (75)

TEST ON FRACTION PASSING #40: (AASHTO T89/T90)

Liquid Limit28Plastic Limit18Plasticity Index10

REMARKS: Sample was submitted by Mark Sand and Gravel on June 11, 2019.

Services:

Test sample submitted by the client or client's representative for gradation.

Terracon Rep.: Gabriel Olivas

Reported To:

Contractor:

Mark Sand and Gravel

Report Distribution:

(1) Mark Sand & Gravel Company, Paula

Dietmar

Reviewed By:

Jeffrey J. Mathson

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

Page 1 of 1

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Cavalier		
Contact: Terry Johnston	701-256-2161	tjohnsto@nd.gov
Name	Phone	Email
Preparer: Terry Johnston	Date P	repared: <u>11/12/19</u>
А	ggregate Descrip	tion
	if your county uses crus	rate used in your county, please check shed, specification base gravel – select
Gravel	$\overline{\checkmark}$	
Scoria		
Pit Run	\checkmark	
Screened		
Crushed Material	$\overline{\checkmark}$	
Specifications	$\overline{\checkmark}$	
Tested	\checkmark	
Other		
	Placement Practi	ces
When aggregate overlays are pla used to apply an aggregate overla		ease select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compactior Other	✓ ✓ ✓	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing		100%		
Hauling		100%		
Placement	100%			
Blading	100%			
Dust Control		100%		
Base Stabilization	NA	NA		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$5.96	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$0.28	Per loaded milePer cu. yardPer Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	35	■ Miles one-way□ Miles roundtrip	
Truck Payload	22	☐ Cu. Yards☐ Tons	
Placement Costs	\$200.00	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$40.00	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	\$7400.00	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	NA	Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels				
	Low	Medium	High		
Daily Traffic (Total AADT)	>50	50-150	150-700		
Average Regraveling Thickness	2"	2"	3"		
Blading Frequency (# per month)	2	4	5		
Regraveling Frequency (years between	4	3	2		
regraveling)		0			
Dust Suppressant (yes/no)	no	no	yes		
Base Stabilization (yes/no)	no	no	no		

If you answered yes for Dust Suppressant – which type do you use?

Magnesium

If you answered yes for Base Stabilization — which type do you use?

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	22%	17%
Good	21%	20%
Fair	36%	41%
Poor	21%	22%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Class 13, Class 13 modified and Class 5

Comments or Suggestions (please attach additional sheets if needed):

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• •			
		·	

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION GRAVEL SURFACING

DESCRIPTION

This work consists of furnishing and placing aggregate as a roadway surface course.

EQUIPMENT

Equipment	Section
Tow-Type Pneumatic-Tired Rollers	151.01 A.2
Self-Propelled Pneumatic-Tired Rollers	151.01 A.3
Water Trucks	152.01 B
Aggregate Trucks	152.01 C

MATERIALS

A. General.

	Aggregate
Sieve Size Or Testing Method	Gravel Surfacing
	Percent passing or Test Limit
1"	100
3/4"	70 – 100
No. 4	38 – 75
No. 8	22 – 62
No. 30	12 – 45
No. 200	7 - 15
Plasticity Index (PI)	3 - 9
ND T 113, Shale (max %)	12.0%
AASHTO T 96, L.A. Abrasion (max %)	. 50%
NDDOT 4, Fractured Faces ¹	10%

¹Minimum weight percentage allowable for the portion of the aggregate retained on a No. 4 sieve having at least 1 fractured face.

The Engineer's testing procedures will follow Section 302 of the Field Sampling and Testing Manual. Frequencies will follow this specification.

B. Acceptance of Aggregate.

1. Gradation.

The Engineer will collect three samples for each 1,000 tons of material placed, except when more than 1,000 tons are placed in a day. If more than 1,000 tons are placed in a day, the Engineer will collect three samples for that day's placement. If the aggregate fails to meet the specified gradation, the Engineer will apply a price reduction as specified in Section 302.06 B, "Contract Price Adjustments".

			r



NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Dickey		
Contact: Jeff Hagen	701-349-3326	jhagen@nd.gov
Name	Phone	Email
Preparer: <u>Jeff Hagen</u>	Date P	repared: 02/14/2020
	Aggregate Descrip	tion
•	e, if your county uses crus	ate used in your county, please check shed, specification base gravel – select
Gravel	7	
Scoria		
Pit Run		
Screened		
Crushed Material	\checkmark	
Specifications		
Tested		
Other	_	
	Placement Practic	ces
When aggregate overlays are plants	ease select the typical practice that is	
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compactio Other	n	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perfor	med by:
Task	County	Contractor
Crushing	-	100%
Hauling	25%	75%
Placement	100%	-
Blading	100%	-
Dust Control	-	-
Base Stabilization	-	-

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$5.00	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$2.00/C.Y. up to 7 miles & \$.30 per C.Y. 8 miles +	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	20	■ Miles one-way □ Miles roundtrip	
Truck Payload	26-30	☐ Cu. Yards ☐ Tons	
Placement Costs	\$125.00	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$48.00	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. regraveling the traffic entry, please enter the thickness, Following frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW		Traffic Level	S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)			
Average Regraveling Thickness	1"	1"	1"
Blading Frequency (# per month)	3	4	5
Regraveling Frequency (years between regraveling)	3	3	2
Dust Suppressant (yes/no)	no	no	no
Base Stabilization (yes/no)	no	no	no

f you answered yes for Dust Suppressant – which type do you use?	
f you answered yes for Base Stabilization – which type do you use?	

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	10%	25%
Good	50%	35%
Fair	30%	15%
Poor	10%	25%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

Dickey County is budgeted for \$150,000 for contractor haulers

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2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

	The state of the s
County: Divide County	
Contact: Bryan Hausenor	701-965-6533 Dahaugenve Ondigor Phone
Preparer: Bryan Hauger	we Date Prepared: Oct 24/2019
Agg	gregate Description
•	and quality of aggregate used in your county, please check your county uses crushed, specification base gravel – select ations.
Gravel	⊠
Scoria	
Pit Run	~
Screened	
Crushed Material	×
: Specifications	
Tested	XT.
Other	
PI	acement Practices
When aggregate overlays are placed used to apply an aggregate overlay.	d in your county, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize	⊠ >>
Water/Rolling/Compaction	
Other	_ _

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing		100%	
Hauling	100%		
Placement	100070		
Blading	100070		
Dust Control	200%	80%	
Base Stabilization		100%	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Average Gravel/Scoria Cost	8,00 stock pi	Per cu. yard	Is this Contractor
(crushing & royalties at the pit)	\$ 5,50 pits	™ Per Ton	Price? (yes/10) con
Trucking Cost from Gravel Origin	.40	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/റ്റ്റ്റ് ഗ്രാ
Average trucking distance for aggregate	25	✓ Miles one-way✓ Miles roundtrip	
Truck Payload	26	☐ Cu. Yards ☐ Tons	
Placement Costs	20,96009	Per Mile	Is this Contractor Price? (yes no) (5)
Blading Cost	18007	Annual cost per mile	Is this Contractor Price? (yes/no) (m
Dust Suppressant Costs	6070 contracti	Per mile	Is this Contractor Price? (yes no)
Base Stabilization Cost	25,000.00 BASE IV	Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW		Traffic Level	S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry		Traffic Lev	els
	Low	Medium	High
Daily Traffic (Total AADT)	25	50-150	150-450
Average Regraveling Thickness	2"	4"	5"t 6"
Blading Frequency (# per month)	1	4	Ÿ
Regraveling Frequency (years between			:
regraveling)	465	2	
Dust Suppressant (yes/no)	yes	yes	ues ×2
Base Stabilization (ves/no)	uls	Les	yes

If you answered yes for Dust Suppressant – which type do you use?	
Mag Chloride and Calcium Chloride	·
If you answered yes for Base Stabilization – which type do you use?	
Base 1 1to 3" rock Ger- Grid Jabrica	

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	10%	
Good	65%	(0°70
Fair	25%	40%
Poor		
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

The need fur better roads increase daily with the rige of trucks + Equipment with the rige of trucks + Equipment with the rige of trucks + Equipment with the project with costs a stabilizing road project, this was a 12 mile project with costs at about 165,000/mile included reshaping, Base One in 4"of gravel and double chip real. Started working on Bridges, trying to repair 2 bridges per year. We need to start rebrilding and regrading CMC and non CMC Borites to make road safer through the fulls and curves. These roads have been pushed out from Heavy hould and Semi Truck Traffic.

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Sundre Sand & Gravel Inc.

Material Gradation Summary Riveland Pit 2018 (Divide County Crushing)

Class-13

Avg	24 25 26	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	∞	7	6	5	4	ω	2	H	Test#
	9/7	•	9/6		9/5	9/4		8/31		8/30		8/29		8/28		8/24		8/23		8/22		8/21		8/17	Date
100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	14
93.5%	93.8%	95.8%	92.3%	90.6%	93.8%	93.9%	93.2%	93.0%	93.5%	93.1%	96.2%	92.8%	91.5%	93.2%	92.6%	93.6%	93.6%	95.4%	92.9%	92.1%	94.1%	94.4%	95.0%	93.7%	3/4"
88.9%	88.2%	91.4%	87.1%	87.0%	90.9%	89.0%	88.4%	89.6%	89.2%	88.2%	92.9%	90.2%	87.2%	87.0%	89.0%	89.0%	89.7%	89.7%	87.2%	86.8%	88.3%	87.2%	90.7%	88.5%	5/8"
82.6%	80.8%	85.4%	81.2%	81.4%	84.9%	84.3%	82.6%	84.7%	83.3%	81.6%	87.4%	85.1%	79.4%	80.8%	82.0%	83.1%	83.7%	83.4%	79.2%	81.2%	82.7%	78.3%	84.1%	82.1%	1/2"
77.1%	75.1%	79.7%	74.7%	77.2%	79.9%	79.6%	77.7%	79.2%	77.9%	76.6%	82.3%	80.0%	73.6%	75.1%	77.2%	77.7%	78.4%	77.6%	72.6%	74.6%	76.9%	72.9%	77.9%	76.7%	3/8"
63.1%	61.5%	64.6%	62.4%	64.3%	64.5%	64.7%	64.4%	64.2%	64.8%	63.2%	64.4%	64.9%	60.6%	60.9%	64.9%	64.0%	63.8%	63.6%	60.1%	60.9%	63.2%	58.8%	63.0%	62.0%	黚
55.4%	53.7%	57.1%	53.6%	56.3%	58.9%	58.3%	58.2%	57.0%	57.4%	55.4%	58.0%	57.4%	53.0%	53.3%	56.2%	56.2%	55.3%	54.5%	51.6%	52.3%	55.3%	50.4%	54.1%	56.3%	#
46.9%	45.6%	46.7%	44.9%	48.7%	49.6%	51.3%	50.4%	48.4%	48.0%	45.5%	50.1%	51.1%	45.8%	45.8%	47.4%	47.9%	46.1%	45.3%	42.6%	42.8%	44.8%	42.1%	46.2%	48.5%	#16
37.0%	36.8%	36.0%	35.8%	37.7%	39.3%	40.8%	40.7%	38.7%	36.6%	33.9%	40.4%	41.3%	37.2%	37.3%	37.1%	37.7%	35.6%	35.0%	32.7%	32.7%	34.2%	32.7%	37.7%	40.1%	#30
24.5%	26.2%	23.8%	23.3%	24.7%	27.1%	26.2%	27.6%	25.4%	23.1%	20.6%	28.4%	27.3%	24.9%	25.8%	23.6%	23.8%	22.8%	21.8%	20.7%	21.1%	22.1%	20.6%	27.1%	28.8%	#50
14.6%	16.8%	14.3%	14.2%	15.9%	16.6%	13.6%	17.5%	16.1%	13.9%	11.9%	17.8%	14.9%	14.2%	15.3%	13.3%	12.6%	13.8%	11.6%	11.9%	12.2%	13.4%	12.4%	18.6%	17.6%	#100
10.6%	12.1%	10.7%	10.5%	11.5%	12.4%	9.8%	13.5%	12.4%	10.5%	8.6%	12.8%	10.1%	10.1%	11.2%	9.5%	9.0%	9.8%	8.7%	8.9%	9.3%	9.7%	9.5%	12.7%	11.8%	#200
66.6%										66.8%					62.6%				71.8%				65.2%		<u> </u>

MATERIAL TESTING SERVICES - WILLISTON GRADATION TEST RESULTS

6"_						
5 1/2"						
5"			PROJECT NO.:	EIDE PIT		
4 1/2"			REPORTED TO:	DIVIDE CO.		
4"_			PIT LOCATION:			
3 1/2"			PIT OWNER:	JOHN NYSTUER	4444	
3"_			SAMPLED FROM:			
2 1/2"_			MATERIAL:	CLASS 13		
2"_			SAMPLE NO.:			
1 1/2" _			DATE SAMPLED:	8/3/18	·	
1"_		100	DATE RECEIVED:	8/7/18		
3/4" _	93.4	70-100	SUBMITTED BY:	BRIAN	dahih daka sada sa	
5/8"_	87.4		LAB NO.:	W18-026		
1/2"_	77.5					
3/8"_	69.5					
#4_	56.1	38 -76 (5)				
#8_	47.6	22-62	MATERIAL TESTING	AUTHORIZED SIGNATURE		
#10_	45.5					
#16_	39.1					
#20 _	34.9					
#30_	30.7	12-45				
#40_	26.8	i				
#50_	23.8					
#100_	16.4					
#200_	12.8	7-15				
FRACTURE	ED FACES 83.3%	10% MIN.		PASTIC LIMIT (.PL.) 26 LIQUID LIMIT (L.L.) 17 PASTIC INDEX (P.I.) 9	_ P.I. RANGE	
			•			

MATERIAL TESTING SERVICES, LLC

PO Box 634 Minot, ND 58702 (701) 852-5553

PARTICLE-SIZE ANALYSIS

7101 W 2nd Avenue Williston, ND 58801 (701) 572-4226

PROJECT:

PRODUCTION CHECK

EIDE PIT (JOHN NYSTUER)

DATE:

13-Aug-18

REPORTED TO:

Divide County Road Department

PO Box 71

Crosby, ND 58730

ATTERBERG LIMITS (AASHTO/ND T-89, T90):

Liquid Limit

Plastic Limit Plasticity Index COPIES:

bdhaugenoe@nd.gov

Laboratory Nu	umber W18-026			
SAMPLE IDEN	NTIFICATION:	Class 13		
		Eide pit		
DATE SAMPL	ED:	8/3/18		NDDOT
DATE SUBMI		8/7/18	by Brian	Table 816-01
				<u>Class 13</u>
MECHANICA	L ANALYSIS (AASHTO/ND T-11, T-27):			
	passing 1"	100		100
	3/4"	93,4		70 - 100
	1/2"	77.5		
	3/8"	69.5		
	# 4	56.1		38-おり
	# 8	47.6		22 - 62
	# 16	39.1		
	# 30	30.7		12 - 45
	# 50	23.8		
	# 100	16.4	;	
	# 200	12,8		7 - 15
FRACTURES ((%, 1 face, NDDOT 4):	83.3		Minimum 10

26

17

REMARKS:

The sample was submitted to the laboratory by Divide County.

The sample meets the listed NDDOT Class 13 requirements.

AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL.

Material Testing Services, LLC

by Sta Wold

			A Company
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MATERIAL TESTING SERVICES, LLC

PO Box 634 Minot, ND 58702 (701) 852-5553

PARTICLE-SIZE ANALYSIS

7101 W 2nd Avenue Williston, ND 58801 (701) 572-4226

PROJECT:

PRODUCTION CHECK

EIDE PIT (JOHN NYSTUER)

DATE:

COPIES:

24-Sep-18

REPORTED TO: Divide Co

Divide County Road Department

PO Box 71

Crosby, ND 58730

bdhaugenoe@nd.gov

Laboratory Number

Laboratory Number W18-026					
SAMPLE IDENTIFICATION:	Class 13, 1	Eide pit			
SAMPLE NO.	2	3	4	5	
DATE SAMPLED:	7/25/18	8/2/18	9/6/18	9/13/18	NDDOT
DATE SUBMITTED:	9/14/18	9/14/18	9/14/18	9/14/18	Table 816-01
					<u>Class 13</u>
MECHANICAL ANALYSIS (AASHTO/ND T-11, T-27):	40.5	400	100	140	400
passing 1"	100	100	100	100	100
3/4"	89.7	93.0	93.6	93.5	70 - 100
1/2"	76.0	73.4	80.5	86.0	
3/8"	69.0	65.3	73.1	81.5	/ -
# 4	55.4	50.6	61.9	69.5	38 - 75 6.
# 8	47.6	37.5	52.1	59.5	22 - 62
# 16	39.1	29.0	44.1	47.3	
# 30	29.8	22,4	35,5	35.5	12 - 45
# 50	20.3	17.0	26.1	24,2	
# 100	13,8	13.3	18.6	18.2	
# 200	10.6	10.9	14,0	14.6	7 - 15
FRACTURES (%, 1 face, NDDOT 4):	73.8	67.9	58.5	51.9	Minimum 10
ATTERBERG LIMITS (AASHTO/ND T-89, T90):					
Liquid Limit	23	29	24	27	
Plastic Limit	19	18	18	17	
Plasticity Index	4	11	6	10	

REMARKS: The sample was submitted to the laboratory by Divide County.

The sample meets the listed NDDOT Class 13 requirements.

AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL.

Material Testing Services, LLC

by

Sundre Sand & Gravel Inc.

Material Gradation Summary Aaberg Pit - Divide County Crushing 2019

Crushed Gravel

Avg	Test# 1 2 3 4 4 5 6 6 7 7 10
	<u>Date</u> 10/6 10/7 10/8 10/9
100.0%	100.0% 100.0% 100.0% 100.0% 100.0% 100.0%
94.3%	3/4" 94.5% 95.5% 93.4% 93.6% 95.1% 93.6%
89.0%	5/8" 89.3% 92.4% 88.9% 87.3% 88.7% 87.3%
81.5%	1/2" 82.9% 84.7% 82.9% 78.9% 78.9% 78.9%
75.3%	3/8" 77.2% 77.6% 77.4% 74.4% 72.4%
61.4%	#4 64.6% 63.0% 60.9% 59.7% 59.7%
51.5%	#8 56.1% 51.7% 52.4% 48.4% 51.8% 48.4%
42.1%	#16 46.1% 41.2% 43.0% 39.8% 42.8% 39.8%
32.9%	#30 36.3% 32.2% 33.5% 31.0% 33.3% 31.0%
21.8%	#50 23.1% 21.7% 22.1% 20.6% 22.8% 20.6%
14.5%	#100 14.7% 15.0% 15.0% 13.3% 13.3% 13.3%
10.9%	#200 11.1% 12.3% 10.8% 10.2% 11.3% 9.8%
	5000 10000 15000 20000 25000 30000
54.7%	1FF 54.2% 55.1%

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•					

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

V

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Dunn County		
Contact: David Lym	701-764-5546	david.lym@dunncountynd.org
Name	Phone	Email
Preparer: David Lym	Date F	Prepared: <u>2/13/20</u>
	Aggregate Descrip	otion
	le, if your county uses cru	gate used in your county, please check shed, specification base gravel – select
Gravel		
Scoria	\	
Pit Run		
Screened		
Crushed Material		
Specifications		
Tested		
Other		
	Placement Practic	ces
When aggregate overlays are pused to apply an aggregate over		ease select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction	on 🗸	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

And the production of the state	Performed by:		
Task	County	Contractor	
Crushing	5	95	
Hauling	70	30	
Placement	80	20	
Blading	100	0	
Dust Control	95	5	
Base Stabilization	95	5	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	9.00	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	9.6	☐ Per loaded mile☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	15	■ Miles one-way□ Miles roundtrip	
Truck Payload	18	■ Cu. Yards□ Tons	
Placement Costs	5200	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	6000	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	8500	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	8500	Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter regraveling the thickness, frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE	Traffic Levels		
ENTER ACTUAL BELOW			
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no.	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>25	120	1200
Average Regraveling Thickness	3"	4"	9"
Blading Frequency (# per month)	>1	1	2
Regraveling Frequency (years between regraveling)	12	7	5
Dust Suppressant (yes/no)	no	yes/no	yes
Base Stabilization (yes/no)	no		

If you answered yes for Dust Suppressant – which type do you use? Mag Chloride

If you answered yes for Base Stabilization – which type do you use? Mag Chloride

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	20	15
Good	45	25
Fair	25	35
Poor	10	25
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

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9

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by November 20, 2019.	Please direct any questions
to Alan Dybing at 701.231.5988 or countytwp@ugpti.org.	

to ritali by billig at round 210000 of totalit	1 CAN DECEMBER 1
County: Eddy	
Contact: Todd Web er	701-341-7390 + jweber (3) nd . gov Phone Email Date Prepared: 2-20-20
Preparer: Todel Weber	Date Prepared:
Agg	gregate Description
· · · · · · · · · · · · · · · · · · ·	and quality of aggregate used in your county, please check your county uses crushed, specification base gravel – select ations.
Gravel Scoria Pit Run Screened Crushed Material Specifications Tested Other	
Pla	acement Practices
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	X X X

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0	100%	
Hauling	0	100%	
Placement	100 %	0	
Blading	100%	0	
Dust Control	0	0	
Base Stabilization	0	0	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	45.00	Per cu. yard Per Ton	Is this Contractor Price (yes/no)
Trucking Cost from Gravel Origin	. 30	Per loaded mile Der cu. yard Per Ton	Is this Contractor Price? (yes/ho)
Average trucking distance for aggregate	10 miles	Miles one-way Miles roundtrip	
Truck Payload	25	☐ Cu. Yards ☐ Tons	
Placement Costs	4,500	Per Mile	Is this Contractor Price? (yes no)
Blading Cost	420	Annual cost per mile	Is this Contractor Price? (yes no)
Dust Suppressant Costs	Do not use on County Rds	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	Have not used	Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3,
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)			,
Average Regraveling Thickness	.3"	4"	4.19
Blading Frequency (# per month)	/	1	1
Regraveling Frequency (years between			
regraveling)	8		
Dust Suppressant (yes/no)	10	No	No
Base Stabilization (yes/no)	No	20	NO

If you answered yes for Dust Suppressant – which type do you use?

If you answered yes for Base Stabilization – which type do you use?

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	15%	10%
Good	40%	40%
Fair	25%	35%
Poor	20%	25%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

71.7 miles	of non-FAS gravel roads
19.5 miles	of FAS gravel roads
63 miles	of FAS paved roads

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2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Emmons County		
Contact: Nick Lawler	254-5491	ecshop@nd.gov
Name	Phor	ne Email
Preparer:		Date Prepared: 11/14/19
	Aggregate De	escription
	mple, if your county u	f aggregate used in your county, please check uses crushed, specification base gravel – select
Gravel Scoria Pit Run Screened Crushed Material Specifications Tested Other	V V V Placement F	Practices
When aggregate overlays are used to apply an aggregate ov	,	inty, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compa Other	ction	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing	0%	100%		
Hauling	100%	0%		
Placement	100%	0%		
Blading	100%	0%		
Dust Control	N/A			
Base Stabilization	N/A			

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$8.70	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$6.00	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	16	■ Miles one-way □ Miles roundtrip	
Truck Payload	20	☐ Cu. Yards ☐ Tons	
Placement Costs	\$425.00	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$350.00	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	N/A	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	N/A	Per mile	Is this Contractor Price? (yes/no)

			r

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels				
	Low	Medium	High		
Daily Traffic (Total AADT)	15	50	>100		
Average Regraveling Thickness	2"	2"	3" - 4"		
Blading Frequency (# per month)	1	2	4		
Regraveling Frequency (years between regraveling)					
Dust Suppressant (yes/no)					
Base Stabilization (yes/no)					

f you answered yes for Dust Suppressant – which type do you use?
f you answered yes for Base Stabilization – which type do you use?

		·

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMG		
Very Good				
Good	100%	75%		
Fair		25%		
Poor				
Total	100%	100%		

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

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2019 COUNTY ROAD NEEDS STUDY SURVEY

- 11 - 124 224 E000 total	nvelope by November 20, 2019 . Please direct any questions wp@ugpti.org.
Eacher C	au to
County:COSPC C	ounty
Contact: Brad Solbug	701-652-244/ bradsolberg@hd. 900 Phone Email Date Prenared: 10-25-19
Preparer: Nate Monsus	Date Prepared: 10-25-19
Aggr	regate Description
To provide information on the type an all boxes that apply. For example, if yo gravel, crushed material and specificati	d quality of aggregate used in your county, please check our county uses crushed, specification base gravel – selections.
Gravel	×
Scoria	
Pit Run	×
Screened	
Crushed Material	×
Specifications	%
Tested	, S
Other	
Pla	cement Practices
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, please select the typical practice that i
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County Contrac			
Crushing	7) %	100%		
Hauling	1500	85%		
Placement	150%	85%		
Blading	10000	12 20		
Dust Control	0%	100%		
Base Stabilization	NA	NA		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$6.40	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	. 28	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (ves)no)
Average trucking distance for aggregate	14	☐ Miles one-way ☐ Miles roundtrip	
Truck Payload	25	Cu. Yards Tons	
Placement Costs Gravel, Trucking blading.	\$2,000	Per Mile	Is this Contractor Price? (ves/no)
Blading Cost	\$75.00	Annual cost per mile	Is this Contractor Price? (yes (no)
Dust Suppressant Costs	\$5,300	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	NA	Per mile	Is this Contractor Price? (yes no)

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Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	715	16-40	41-100
Average Regraveling Thickness	211	31/	4"-6"
Blading Frequency (# per month)	1.5	ユ	W
Regraveling Frequency (years between			
regraveling)	4-5	4	$ $ λ
Dust Suppressant (yes/no)	No	VPS	Ves
Base Stabilization (yes/no)	no	no	ho

If you answered yes for Dust Suppress: Myanesium	ant – which type do you use?
Magnesium	chloaide

If you answered yes for Base Stabilization – which type do you use?

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	90%	75%
Good	10 %	50%
Fair	,-	15%
Poor		10%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Attached

Comments or Suggestions (please attach additional sheets if needed):

All of our gravel roads are becoming tougher to maintain due to increased traffic A also the Size of Farm machinery. The increase in corn + bean crops has also changed the amount of traffic under and also the timing (thater Fall Haffic when Roads are wet). We are Finding that we have to maintain (blade) the roads more often just to stay even that improve many gravel roads.

"North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

Foster County

Class 13 Aggregate Surface Course

Sieve Size or Testing Method	% Passing
1 Inch	100
¾ Inch	70-100
No. 4	38-75
No. 8	22-62
No. 30	12-45
No. 200	7-15
ND T 113, Shale (max%)	12.0%
NDDOT 4, Fractured Faces ¹	10%
15.41.1	

¹Minimum weight percentage allowable for the portion of the aggregate retained on a No. 4 sieve having at least 1 fractured face.

the state of the s

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or countytwp@ugpti.org.

County: Golden Valley		
Contact Pete Wirtzfeld	701-872-4123	gushop@midstate.net
Name O	Phone	Email
County: Golden Valley Contact: Pete Wirtzfeld Preparer: Pete Wirtzfeld	Date Prep	ared: <u>//-/3-/9</u>
Αg	ggregate Descriptio	n
To provide information on the type	e and quality of aggregate	used in your county, please check
all boxes that apply. For example, it	f your county uses crushed	d, specification base gravel – select
gravel, crushed material and specifi	cations.	
Gravel	☑′_	
Scoria		
Pit Run		
Screened		
Crushed Material	I	
Specifications	<u>u</u>	
Tested		
Other	· · · •	
P	Placement Practices	3
When aggregate overlays are placeused to apply an aggregate overlay.		e'select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction	র র র	

Water/Rolling/Compaction
Other_____

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0	100	
Hauling	100	0	
Placement	100	0	
Blading	900	10	
Dust Control	100		
Base Stabilization	Na		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost		,	
Average Gravel/Scoria Cost (crushing & royalties at the pit)	7.50 gravel 5.00 scoria	☑ Per cu. yard ☑ Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	3.80	☐ Per loaded mile ☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (ves) no)
Average trucking distance for aggregate	15	☑ Miles one-way ☐ Miles roundtrip	
Truck Payload	21 gravel 24 scoria	☑ Cu. Yards ☐ Tons	
Placement Costs	2880	Per Mile	Is this Contractor Price? (yes no
Blading Cost	560	Annual cost per mile	Is this Contractor Price ((yes)/no)
Dust Suppressant Costs	5,756	Per mile	Is this Contractor Price? (yestho)
Base Stabilization Cost	-	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	\$ <50	50 - 100	100- 285+	
Average Regraveling Thickness	6"	6"	6"-8"	
Blading Frequency (# per month)	1	1-3.	1-3	
Regraveling Frequency (years between regraveling)	10	7	3-5	
Dust Suppressant (yes/no)	no	no	yes	
Base Stabilization (yes/no)	no	no	no	

If you answered yes for Dust Suppressant - which type do you use?

Mg C/2 Flakes - spreader truck, water truck, motorgraded wpacker

If you answered yes for Base Stabilization – which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	30	17
Good	. 58	66
Fair	7	10
Poor	5	7
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed er to Alan Dybing at 701.231.5988 or countyty	nvelope by November 20, 2019 . Please direct any questions twp@ugpti.org.
County: Grand Forks	
Contact: Nick Wes C	10-780-8248 Nickwest Boscounty. Org
Preparer: Nick West Sue Mue Millan	Date Prepared: 1-8-20
Aggr	regate Description
To provide information on the type and all boxes that apply. For example, if your gravel, crushed material and specifications.	
Gravel	M NDDOT CL 13
Scoria	٥
Pit Run	
Screened	
Crushed Material	concrete - special locations
Specifications	٥
Tested	S
Other	<u>a</u>
^ Plač	cement Practices
When aggregate overlays are placed i used to apply an aggregate overlay.	in your county, please select the typical practice that is .
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	Since westering

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing		100%		
Hauling	10%	9.0%		
Placement	10%	90%		
Blading	100%			
Dust Control	A second	1.00%		
Base Stabilization -	NA	NA		

Hopefully 1st Project in 2020
Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs

for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

ravel/Scoria Cost	•.		
Average Gravel/Scorla Cost (crushing & royalties at the pit)	# 3.55	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	# 0.18	2 Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	60	M Miles one-way ☐ Miles roundtrip	
Truck Payload	32,	☐ Cu. Yards Martin Tons	
Placement Costs	#7241	Per Mile	Is this Contractor Price? (ves/no)
Blading Cost	\$ 550	Annual cost per mile	Is this Contractor Price? (yes 100)
Dust Suppressant Costs	# 57 5 0	Per mile	Is this Contractor Price? (Vel/no)
Base Stabilization Cost	; <u> </u>	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Dally Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE Traffic Levels	
ENTER ACTUAL BELOW	
Jow Medium	High
Daily Traffic (Total/AADT) \$50 \$50 £150 Average Regnaveling Thickness: 3 in \$3 in \$4 in \$50 £150	150-350 5 in
Blading Frequency (# per year): 8 37 12	716
Regraveling Frequency (years 1771) 5	3
between regraveling)	
Dust Euppressant (yes/no) inc inc inc inc inc inc inc inc inc inc	Yes Yes

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	7.50	50-150	150-350	
Average Regraveling Thickness	14	12	111	
Blading Frequency (# per month)	2	4	4	
Regraveling Frequency (years between			*	
regraveling)	2.0	1.5	1.0	
Dust Suppressant (yes/no)	No	No	Yes / Selectively	
Base Stabilization (yes/no)	No	No	No	

If you answered yes for Dust Suppressant – which type do you use? Calcium Chloride	
If you answered yes for Base Stabilization – which type do you use?	and the state of t

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	Ó	0
Good	25	25
Fair	-50	50
Poor	25	25
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

We use NDDOT LL 13 with No modifications materials do not differ

Comments or Suggestions (please attach additional sheets if needed):

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2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

, 0				
County: Grant County				
Contact: Jon Alt	701-42	25-9251	jalt@nd.gov	
Name		Phone	Er	mail
Preparer: Jon Alt		Date P	Prepared: 2/19/202	0
	Aggregate	Descrip	otion	
To provide information on the all boxes that apply. For examply gravel, crushed material and sp	ple, if your coun	•		
Gravel	√]		
Scoria	V	1		
Pit Run		=		
Screened				
Crushed Material	\checkmark]		
Specifications	\checkmark			
Tested	\checkmark	_		
Other]		
	Placemer	nt Practio	ces	
When aggregate overlays are used to apply an aggregate over	•	county, ple	ease select the typi	cal practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compac	tion ✓			

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing	0%	100%		
Hauling	80%	20%		
Placement	80%	20%		
Blading	100%	0%		
Dust Control	0%	0%		
Base Stabilization	0%	0%		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$11.50	Per cu. yard Per Ton	Is this Contractor Price? (yes/ <u>no)</u>
Trucking Cost from Gravel Origin	\$7.00	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/ <u>no</u>)
Average trucking distance for aggregate	20-25	■ Miles one-way □ Miles roundtrip	
Truck Payload	20	■ Cu. Yards□ Tons	
Placement Costs	\$19,500	Per Mile	Is this Contractor Price? (yes / <u>no)</u>
Blading Cost	\$60.00	Annual cost per mile	Is this Contractor Price? (yes / <u>no)</u>
Dust Suppressant Costs	0	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	0	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. please the regraveling thickness, Following the traffic entry, enter frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE		Traffic Level	S
ENTER ACTUAL BELOW			
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years	7	5	3
between regraveling)			
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	15	75	175	
Average Regraveling Thickness	3"	2 lifts of 3"	2 lifts of 3"	
Blading Frequency (# per month)	1	2	3	
Regraveling Frequency (years between regraveling)	10years	5 years	4 years	
Dust Suppressant (yes/no)	no	no	no	
Base Stabilization (yes/no)	no	no	no	

If you answered yes for Dust Suppressant – which type do you use? N/A

If you answered yes for Base Stabilization – which type do you use? N/A

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		
Good	80%	50%
Fair	20%	30%
Poor		20%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

GRADATION REPORT

Report Number:

M2111371.0038

Service Date: Report Date: 10/23/18 10/24/18 llerracon

1805 Hancock Dr, PO Box 2084 Bismarck, ND 58501 701-258-2833

Client

Grant County ND Attn: Accounts Payable

PO Box 227 Carson, ND 58529 Project

Pit Check

Various Locations Grant County, ND

Project Number:

M2111371

SAMPLE NUMBER:

SAMPLE IDENTIFICATION:

DATE SUBMITTED:

10-18-18

l

R-2

SOURCE:

J. Ruschienski

MECHANICAL ANALYSIS:

Passing	4"	100%	
•	3	89	
	2	86	
	1 1/2	84	
		. 81	100
·	3/4	78	70-100
	5/8	77	
	1/2	74	
	3/8	71	
	#4	58	38-75
•	. 8	46	38-75 22-62 12-45
۲,	16	36	
	30	28	12-45.
	50	20	
	100	9.3	
-	200	6.0	7-15

ATTERBERG LIMITS:

Liquid Limit NP
Plastic Limit NP
Plasticity Index NP

REMARKS: Sample was submitted to and received here at the laboratory for test,

ASTM Test Methods: C136, C117, D4318

Services:

Terracon Rep.:

Reported To: Contractor:

Report Distribution:

(1) Grant County ND, Lynn

Mutschelknaus (1) Sauber Engineering, Inc. John Sauber (1) Sauber Engineering, Inc, Jeff Wright

Reviewed By:

Ty E. Kelsch, CET

CMT Dept Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client

GRADATION REPORT

Report Number:

M2191167.0003

Service Date: Report Date:

07/25/19

Task: Client 07/25/19

Project

SC-1927(619)

Grant County Hwy Dept

Grant County, ND

Project No. M2191167

Grant County ND

Auditor

Attn: Sara Meier 1062nd Ave NW

Carson, ND 58529-5014

				9,000,1101	1432171107		
ND T11	Materials Finer than I	Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing					
ND T27	Sieve Analysis of Fin	Sieve Analysis of Fine and Coarse Aggregates					
ND T89	Liquid Limit of Soils		-47,9810	jatos			
ND T90	Plastic Limit and Plas	sticity Inde	ex of Soils				
ND T113	Lightweight Pieces in	Aggregate	9				
NDDOT 4	Percentage of Fractur	ed Particle	es in Coar	se Addreds	ota .		
AASHTO T96	Resistance to Degrad	lation of Si	nall-Size (Coarse And	gregate by Abrasion in the	I A A4 - 1	
Sample Number:	7			91.007.91	Biodaro na Votagion in file	LA Mach	ne
Aggregate Type:	Aggregate Surface (Course					}
Sample Location:	Zimmerman Pit						
Date Submitted:	7/23/19						
Sleve A	Analysis	NDD	OT Table	816-01	Test Item	Donult	
		Class	13 Specifi	cations	Lightweight Pieces	Result	Specs
Sieve Size	Percent Passing	Min.	Max.	Result	Plus #4 (%)	0.0	
1 in.	100	100		pass	Minus #4 (%)	0.3 0.8	
. 3/4 in.	96	. 70	100	pass	Total Sample (%)	0.6	Max. 12%
5/8 in.	90				rotal cample (70)	0.0	Wax. 12%
1/2 in.	84				Liquid Limit	23	
3/8 in.	74				Plastic Limit	15	
#4 #8	60	38	75	pass	Plasticity Index	8	3 - 9
#16	50	22	62	pass	-		"
#30	45	40			Fractured Particles		
#50	42 35	12	45	pass	Plus #4 (1 or more)(%)	94.2	Min. 10%

Notes:

NT=Not tested

Services:

Testing of NDDOT Class 13 Aggregate Surface Course

35

23

14.9

Terracon Rep: Kelly Melchior

#100

#200

Reported To: Contractor:

Report Distribution

(1) Grant County ND, Sara Meier

(1) Sauber Engineering Inc, Jeff Wright

(1) Sauber Engineering Inc, John Sauber

Reviewed By:

pass

LA Abrasion

Grading "C" (% loss)

Office Manager

NT

Max. 50%

1805 Hancock Dr. PO Box 2084

Bismarck, ND 58501

701-258-2833

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

15

CT0002, 6-28-10, Rev.6

Page 1 of 1

2019 COUNTY ROAD NEEDS STUDY SURVEY

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to Alan Dybing at 701.231.5988 or <u>countytw</u>	p@ugpti.org.
County: 60 1995	
Contact: Wayne Over 5	1017973420 Wayne, Oien @griggs Countynd & gov Phone Email Date Prepared:
Preparer: Wayne Osen	Date Prepared:
Aggre	egate Description
To provide information on the type and all boxes that apply. For example, if you gravel, crushed material and specification	I quality of aggregate used in your county, please check ir county uses crushed, specification base gravel – select ons.
Gravel	
Scoria	
Pit Run	
Screened	
Crushed Material	
Specifications	
Tested	•
Other	
Plac	ement Practices
When aggregate overlays are placed i used to apply an aggregate overlay.	n your county, please select the typical practice that is
Truck Drop and Blade	
Windrow/Equalize	
Water/Rolling/Compaction	
Other Truck drop/Windows	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0	100	
Hauling	96	700	
Placement	95	5	
Blading	100	2	
Dust Control	0		
Base Stabilization	0		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	650	Per cu. yard	Is this Contractor Price?((yes/no)
Trucking Cost from Gravel Origin	125	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (ves/no)
Average trucking distance for aggregate	15	Miles one-way☐ Miles roundtrip	
Truck Payload	18	② Cu. Yards☐ Tons	
Placement Costs	# 450	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$ 425	Annual cost per mile	Is this Contractor Price? (yes(no)
Dust Suppressant Costs	0	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	0	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW		Traffic Level	S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	25	50-150	150-200
Average Regraveling Thickness	1/2"	2"-3"	4"
Blading Frequency (# per month)	2	3	
Regraveling Frequency (years between regraveling)	5	5	4
Dust Suppressant (yes/no)	Ô	0	0
Base Stabilization (yes/no)	0	0	0

If you answered yes for Dust Suppressant – which type do you use?

If you answered yes for Base Stabilization – which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	50	25
Good	25	50
Fair	20	20
Poor	5	5
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Multiplead Class 13 With a Aiger retainage on The 4 11 Screen

Comments or Suggestions (please attach additional sheets if needed):

The reason our CMC routes are very good, is because of The Special oil revenue.

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."



2019 COUNTY ROAD NEEDS STUDY SURVEY

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County: Hettinger County		
Contact: Elliott Finck	701-824-2050	efinck@nd.gov
Name	Phone	Email
Preparer: Elliott Finck	Date P	repared: <u>2-24-2020</u>
A	ggregate Descrip	tion
•	if your county uses crus	ate used in your county, please check shed, specification base gravel – select
Gravel		
Scoria	√	
Pit Run		
Screened		
Crushed Material		
Specifications		
Tested		
Other		
F	Placement Praction	ces
When aggregate overlays are placused to apply an aggregate overlay		ease select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other		

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

Task	Performed by:		
	County	Contractor	
Crushing		100%	
Hauling	100%		
Placement	100%		
Blading	100%		
Dust Control	NA		
Base Stabilization	NA		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

ravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	7.00	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	.65	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	14	■ Miles one-way□ Miles roundtrip	
Truck Payload	21	☐ Cu. Yards ☐ Tons	
Placement Costs	NA	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	150	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	NA	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	NA	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. please enter the regraveling thickness, Following the traffic entry, frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW				
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	2 in	4 in	4 in	
Blading Frequency (# per month)	1	1	1	
Regraveling Frequency (years between regraveling)	10	10	10	
Dust Suppressant (yes/no)	no	no	no	
Base Stabilization (yes/no)	no	no	no	

If you answered yes for Dust Suppressant – which type do you use?	
If you answered yes for Base Stabilization – which type do you use?	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	0	0
Good	50	25
Fair	25	25
Poor	25	50
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."



2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Kidder County		
Contact: Jean Schoenhard	701-475-4547	jschoenhard@nd.gov
Name	Phone	Email
Preparer: Jean Schoenhard	Date P	Prepared: <u>2/14/2020</u>
Ag	ıgregate Descrip	otion
•	your county uses cru	gate used in your county, please check shed, specification base gravel – select
Gravel		
Scoria		
Pit Run		
Screened		
Crushed Material	\checkmark	
Specifications	\checkmark	
Tested		
Other Class 5	\checkmark	
Р	lacement Practi	ces
When aggregate overlays are place used to apply an aggregate overlay.	ed in your county, ple	ease select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	✓	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0	100%	
Hauling	0	100%	
Placement	100%	0	
Blading	100%	0	
Dust Control	0	0	
Base Stabilization	0	0	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$7.00	Per cu. yard Per Ton	Is this Contractor Price? (yes/ no)
Trucking Cost from Gravel Origin	\$6.00	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/ no)
Average trucking distance for aggregate	10	■ Miles one-way □ Miles roundtrip	
Truck Payload	22	■ Cu. Yards□ Tons	
Placement Costs	\$5,700	Per Mile	Is this Contractor Price? (yes /no)
Blading Cost	\$390	Annual cost per mile	Is this Contractor Price? (yes /no)
Dust Suppressant Costs	None	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	None	Per mile	Is this Contractor Price? (yes / no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)		50-150	
Average Regraveling Thickness	3	4	5
Blading Frequency (# per month)	5	9	15
Regraveling Frequency (years between regraveling)		As Needed	
Dust Suppressant (yes/no)	no	no	no
Base Stabilization (yes/no)	no	no	no

If you answered yes for Dust Suppressant – which type do you use?
None

If you answered yes for Base Stabilization – which type do you use? None

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	0	0
Good	75	0
Fair	20	50
Poor	5	50
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

Funding is limited in Kidder County and extra funding would help tremendously and would be greatly appreciated.

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2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

-	
County: LaMoure Lounty	
Contact: Josh Loegenna	701-403-9030 Josh. loegering @ co.lamourc.nd.u.
Preparer: Josh Loegenns	Date Prepared: 11/5/19
Aggı	regate Description
· · · · · · · · · · · · · · · · · · ·	d quality of aggregate used in your county, please check our county uses crushed, specification base gravel – select ions.
Gravel	₫
Scoria	
Pit Run	
Screened	
Crushed Material	
Specifications	
Tested	
Other	
Pla	cement Practices
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	100%		
Hauling	100%		
Placement	100%		
Blading	100%		
Dust Control		wo %	
Base Stabilization	100%		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$4.65	Per cu. yard	Is this Contractor Price? (yes/10)
Trucking Cost from Gravel Origin	\$10.30/mile	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes 100
Average trucking distance for aggregate	· 18 miles	☐ Miles one-way ☐ Miles roundtrip	
Truck Payload	22	☑ Cu. Yards ☐ Tons	
Placement Costs Approx	The state of the s	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$1618/mi	Annual cost per mile	Is this Contractor Price? (yes/100
Dust Suppressant Costs	NA	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	NA	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
ENTER ACTORE DELOTE	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7.	5	3. (1) (1) (1) (1) (1)
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	725	25-100	100 L	
Average Regraveling Thickness	2 ⁿ	3"	3"	
Blading Frequency (# per month)	1.5	2	2	
Regraveling Frequency (years between regraveling)	2 3	3 2	32	
Dust Suppressant (yes/no)	\mathcal{N}_0	No	No	
Base Stabilization (yes/no)	N •	ØD No	Yes	

If you answered yes for Dust Suppressant – which type do you use?

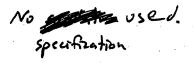
If you answered yes for Bas	e Stabilization – which	type do you us	e?	
Base One				

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	50	2.0
Good	25	2.0
Fair	25	40
Poor	0	20
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.



Comments or Suggestions (please attach additional sheets if needed):

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2019 COUNTY ROAD NEEDS STUDY SURVEY

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County: Logan		
Contact: Blanche Schumacher	701-321-1544	baschuma@nd.gov
Name	Phone	Email
Preparer: Blanche Schumacher	Date P	repared: 02-13-2020
Δ	\ggregate Descrip	tion
·	, if your county uses crus	ate used in your county, please check hed, specification base gravel – select
Gravel	$\overline{\checkmark}$	
Scoria		
Pit Run	$\overline{\checkmark}$	•
Screened		
Crushed Material	\checkmark	
Specifications		
Tested		
Other		
	Placement Practic	es
When aggregate overlays are plaused to apply an aggregate overla		ase select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other		

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perfor	med by:
Task	County	Contractor
Crushing	0	100
Hauling	100	0
Placement	100	0
Blading	100	0
Dust Control	0	0
Base Stabilization	0	0

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	3.85	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	103.00	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	12.15	■ Miles one-way □ Miles roundtrip	
Truck Payload	.65	☐ Cu. Yards ☐ Tons	
Placement Costs		Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	100.00	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. thickness, Following the traffic entry, please enter the regraveling blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	â	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	-50		
Average Regraveling Thickness	2 in		
Blading Frequency (# per month)	1		
Regraveling Frequency (years between regraveling)	10		
Dust Suppressant (yes/no)	no		
Base Stabilization (yes/no)	no		

f you answered yes for Dust Suppressant – which type do you use?		
If you answered yes for Base Stabilization – which type do you use?		

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		
Good	50	50
Fair	50	50
Poor		
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

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2019 COUNTY ROAD NEEDS STUDY SURVEY

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County: McHenry County			
Contact: Darlene Carpenter	701-537-5724	dcarpenter@nd.gov	
Name	Phone	Email	_
Preparer: Darlene Carpenter	Date P	repared: 02/14/2020	
Age	gregate Descrip	tion	
To provide information on the type all boxes that apply. For example, if gravel, crushed material and specifical	your county uses crus	•	
Gravel	$\overline{\checkmark}$		
Scoria			
Pit Run		•	
Screened			
Crushed Material	\checkmark		
Specifications	\checkmark		
Tested			
Other			
PI	acement Practio	ces	
When aggregate overlays are placed used to apply an aggregate overlay.	d in your county, ple	ase select the typical practice that	is
Truck Drop and Blade	\checkmark		
Windrow/Equalize			
Water/Rolling/Compaction			
Other			

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0%	100%	
Hauling	0%	100%	
Placement	0%	100%	
Blading	100%	0%	
Dust Control	0%	100%	
Base Stabilization	0%	100%	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

ravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$6.00	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$7.00	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	25	■ Miles one-way □ Miles roundtrip	
Truck Payload	20	■ Cu. Yards□ Tons	
Placement Costs	\$1.50	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$160	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	N/A	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	N/A	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. regraveling enter the thickness, Following the traffic entry, please blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	Assi no	Yes
Base Stabilization (yes/no)	no	no no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	<50	50-150	>150
Average Regraveling Thickness	1	1	1
Blading Frequency (# per month)	1	3	3
Regraveling Frequency (years between regraveling)	10	5	3
Dust Suppressant (yes/no)	No	No	No
Base Stabilization (yes/no)	No	No	No

If you answered yes for Dust Suppressant – which type do you use?	
f you answered yes for Base Stabilization — which type do you use?	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		50
Good	40	
Fair	50	50
Poor	10	
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Class 13

Comments or Suggestions (please attach additional sheets if needed):

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NDSU TRANSPORTATION INSTITUTE

2019 COUNTY EDGED MEETING A DADY BURNEY

Please return this survey in the enclosed envisione by November 20, 2019. Please direct any questions to Alan Dybing at 701.231.5988 or countries a supplicate.

County:	McIntosh					
Contact	: Chris Opsahl	701-709-0832	copenhl(gnd.gov			
	Name	Phone	Fmail			
Prepare	r: Chris Opsahl	Date Propared: 95/03/2020				
	Assay	o ode Desert,	ngyert.			
all boxe		year county uses dec	are ased in your county, please check chad, specification base gravel – select			
(Gravel	$\overline{\mathcal{A}}$				
9	Scoria	- 144 6000				
i	Pit Run					
Ç	Screened					
(Crushed Material					
9	Specifications					
-	Tested	~~				
(Other					
	\$)	terme ent Person	$\{y_i,y_i\}$			
	aggregate overlays are places apply an aggregate overlay.	i in you r co unt y, plo	case select the typical practice that is			
,	Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other					

Overestonal Looks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. To, example, if your county owns the pit and does all of the crushing using county fabor, 100% would be entered into the first column, and 0% in the second column.

	Perfor med by:			
Task	County	Contractor		
Crushing	0%	100%		
Hauling	100%	0%		
Placement	100%	0%		
Blading	100%	0%		
Dust Control	0%	0%		
Base Stabilization	()%	0%		

Seawel Road Co. (c)

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scorial Cost (crushing & royalties at the pit)	\$5.21	M Pericul yard Of PeriTon	Is this Contractor Price? (ves/no)
Trucking Cost from Gravel Origin	\$10.00	Den loaded mile Per cu. yard Der Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	27)	Miles one-way A Miles coundtrip	
Truck Payload	12	* Co. Yards * Fons	
Placement Costs	\$250.00	Per Mi le	Is this Contractor Price? (yes/no)
Blading Cost	\$1,000.00	Annual cost per	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	NIM	Per rolle	Is this Contractor Price? (yes/no)
Base Stabilization Cost	14//4	Fer mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traftic Levels			
	Low	Iviedium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 ln	O in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years	7	ij	3	
between regraveling)				
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	110	Yes	

County Entry	Imífic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>20	20-50	50+	
Average Regraveling Thickness	1"	1 1/2"	2"	
Blading Frequency (# per month)	1	7	2	
Regraveling Frequency (years between	0	× N	0	
regraveling)	J		Ů	
Dust Suppressant (yes/no)	Ino	110	no	
Base Stabilization (yes/no)	no	110	110	

If you answered yes for Dust Suppressant — which type do you use?
If you answered yes for Base Stabilization - which type do you use?

Gravei Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	GO%	10%
Good	40%	50%
Fair	0%	30%
Poor	0%	10%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marifal status, or public assistance status. One of inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Pargo, NO 58108. (201) 231-7708."





2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by November 20, 2019 . Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u> .
County: MCKINZIE
Contact: TOMMY Glover 701-580-1660 tglovera co. mckenzie. nd. u.s.
Preparer: Tommy Glover Date Prepared: 9-30-19
Aggregate Description
To provide information on the type and quality of aggregate used in your county, please check all boxes that apply. For example, if your county uses crushed, specification base gravel – select gravel, crushed material and specifications.
Gravel Scoria
Pit Run
Screened
Crushed Material
Specifications
Tested
Other
Placement Practices
When aggregate overlays are placed in your county, please select the typical practice that is used to apply an aggregate overlay.
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County 850/0	Contractor 15%		
Crushing NA		1376		
Hauling	85%	150/		
Placement	25%	1506		
Blading	250/2	150/-		
Dust Control	050/0	15 10		
Base Stabilization //A	02/0	15 70		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (erushing & royalties at the pit)	\$14.00	Per cu. yard	Is this Contractor Price? (yes/10)
Trucking Cost from Gravel Origin	\$3,25	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes(no)
Average trucking distance for aggregate	30 miles	Miles one-way Miles roundtrip	
Truck Payload	25	☐ Cu. Yards ☐ Tons	
Placement Costs	事 3,25	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$1,500+	Annual cost per mile	Is this Contractor Price? (yes (no)
Dust Suppressant Costs	华10,000十	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	NA	Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE	Traffic Levels		
ENTER ACTUAL BELOW			
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3în	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years	7	5	3
between regraveling)			
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)			><	
Average Regraveling Thickness	(ZINCh	4 inan		
Blading Frequency (# per month)			Not	
Regraveling Frequency (years between				
regraveling)			4	
Dust Suppressant (yes/no)			UPS	
Base Stabilization (yes/no)		NO	000	

If you answered yes for Dust Suppressant – which type do you use?	
maa-chloride	
If you answered yes for Base Stabilization – which type do you use?	

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		
Good	0 1	1 A s \
Fair ()	no Fedora	H AO
Poor		
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

I. Description

The board of McKenzie County Commissioners has advertised for sealed bids to be submitted to:

Erica Johnsrud McKenzie County Auditor 201 5th St NW, Suite 543 Watford City, ND 58854

For furnishing McKenzie County Road and Bridge Department, hereinafter referred to as the County, with stockpiling aggregate at two (2) sites, hereinafter referred to as the Project.

II. Scope

The Project consists of furnishing all labor, materials, and equipment to perform the hauling and stockpiling of 115,000 total tons of Class 13 Modified that will be divided between two (2) sites.

III. Site

The site(s) are located at two (2) location(s), is/are known as the Site # 1 and Site # 2 and described as follows:

Site # 1: Will be known as Watford City and is located in NW ½ of Section 29, T150N, R98W on the southeast edge of town. The Contractor will stockpile 75,000 Tons of Class 13 Modified at this site. The completion date for this site is 09/30/2020.

Site # 2: Will be known as Rawson and is located in SW ½ SE ¼ of Section 12, T150N, R98W on the west edge of town. The Contractor will stockpile 40,000 Tons of Class 13 Modified at this site. Completion date for this site is 09/30/2020.

The County will prepare the site and will provide the Contractor access. The Contractor shall provide a two week notice for each site prior to hauling and stockpiling the material.

Upon completion of each stockpile location, the Contractor shall perform clean-up operations on the site to minimize County restoration. This will include the removal of structures supplied by the Contractor, the removal of material spills on the site, and the disposal of any chemical spills. Clean-up shall be considered incidental to the project.

IV. Construction Requirements

The Contractor shall supply all labor, materials, and equipment to perform the hauling and stacking operations at the designated site. The Contractor shall notify the County of the

proposed source of the material prior to delivery of the materials to site and provide a NDDOT Material Source Certificate of Approval.

The stockpiled material shall be free of sod, roots, plants, trash, or other objectionable material. Stockpile material to prevent segregation. Do not use equipment or methods that cause segregation, degradation, or contamination of the aggregate when constructing stockpiles or delivering material. Do not incorporate segregated, degraded, or contaminated material into the work. The material shall be stacked with a conveyor belt and in a continuous and uniform pile.

The Contractor shall not be permitted to haul material during inclement weather nor at any time when the contractor's operation will damage the existing road surface leading to any site. Should the County restrict roads due to inclement weather, the Contractor shall adhere to the restrictions and cease hauling. If the Contractor chooses to continue hauling once restrictions are in place, the County will not pay for any loads delivered to site after restrictions are in effect. Do not supply tickets to truck drivers if the weight of the load is in excess of the legal load limits in place on the haul route. If the Contractor supplies tickets in excess of legal load limits in place on the haul route, the load will be rejected or not paid for.

The County shall only accept small overruns on the specified quantities.

V. Material

Aggregate Class 13 Modified			
Sieve Size or Testing	Percent Passing or Testing		
Method	Requirement		
1 Inch	100		
3/4 Inch	70-100		
No. 4	38-75		
No. 8	22-62		
No. 30	12-45		
No. 200	7-15		
Plasticity Index (PI)	5.0 - 8.0		
ND T 113, Shale (max %)	12%		
AASHTO T 96, L.A.	50%		
Abrasion (max %)	3076		
NDDOT 4, Fractured Faces ¹	10%		
¹ Minimum weight percentage allowable for the portion of			

¹Minimum weight percentage allowable for the portion of the aggregate retained on a No. 4 sieve having at least 1 fracture face

VI. Material Acceptance

The Contractor shall provide the County's testing agency one (1) sample per 1,000 tons of material delivered or one day's production for delivered quantities less than 1,000 tons for gradation tests and PI determination. If the aggregate fails to meet the specified gradation, the County will apply a price reduction as specified in the North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction Section 302.06 B "Contract Price Adjustments". If two consecutive tests fail to meet the specified gradation or PI, the Contractor shall cease production immediately and shall not resume until corrective actions are taken and the material passes a gradation test.

The Contractor shall provide the County's testing agency three (3) sample per 10,000 tons of material delivered to determine fractured faces and maximum shale content. If the material fails to meet the requirement for fractured faces, the Contractor shall cease production immediately and shall make corrections to the stockpile before incorporating additional material. If the material exceeds the maximum shale content by less than 3 percentage points, the County will apply a price reduction as specified in Section 302.06 B of the NDDOT Standard Specifications for Road and Bridge Construction. The County will reject the material if the maximum shale content is exceeded by 3 or more percentage points.

If 10 consecutive samples taken meet the material requirements for gradations and plasticity index, the County may reduce the frequency of sampling. In the event that a sample fails the gradations and plasticity index requirements, after the County has reduced the sampling frequency, the County will resume the original sampling frequency. All testing will be performed in accordance with the NDDOT Field Sampling and Testing Manual. In the event of a discrepancy between the NDDOT Field Sampling and Testing Manual and these 2020 Aggregate Stockpile Specifications, frequencies and locations in the 2020 Aggregate Stockpile Specifications govern.

Testing shall be performed by the County or a testing agency hired by the County. Upon request by the Contractor, the County will provide all testing related credentials and certifications of the testers who will be performing the on-site tests.

Within 24 hours of the testing sample being taken, the testing agency shall distribute the results of the test to the County and the Contractor.

All material samples shall be taken from the stacking belt located at the site.

VII. Mobilization

Mobilization for the Project shall be considered incidental to the Project.

VIII. Completion Date

The Project shall be completed on or before 09/30/2020. The contractor shall inform the County of completion 10 days after contractor operations are finished.

IX. Measurement

The Contractor shall furnish weight tickets, in duplicate, for each load of material delivered to the job site. The Contractor shall also furnish daily haul reports to be provided within 24 hours after a day's production. The weight tickets and haul sheets shall conform to the specifications outlined in Section 109.01 J.6 of the NDDOT's Standard Specifications for Road and Bridge Construction.

Provide scales that meet Section 109.01 J.1 of the NDDOT's Standard Specifications for Road and Bridge Construction and submit a copy of the certification to the County before starting weighing operations. The County will conduct Random Comparison Tests as outlined in Section 109.01 J.5 of the NDDOT's Standard Specifications for Road and Bridge Construction.

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2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701,231,5988 or <u>countytwp@ugpti.org</u>.

County: McLean		
Contact: Jim Grey	701 462-8802	jagrey@nd.gov
Name	Phone	Email
Preparer: Jim	Date P	repared: 2-20-2020
A	ggregate Descrip	tion
	if your county uses crus	ate used in your county, please check hed, specification base gravel – select
Gravel	7	
Scoria		
Pit Run	✓	
Screened		
Crushed Material		
Specifications	\checkmark	
Tested		
Other		
F	Placement Practic	es
When aggregate overlays are placused to apply an aggregate overlay		ase select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	✓	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perfor	med by:
Task	County	Contractor
Crushing	O	100%
Hauling	100%	0
Placement	100%	0
Blading	100%	0
Dust Control	0	
Base Stabilization	0	0

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$4.75	☐ Per cui yard ☐ Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$4.20	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes /60)
Average trucking distance for aggregate	15	Miles one-way Miles roundtrip	
Truck Payload	25	☐ Cu. Yards ☐ Tons	
Placement Costs	\$700	Per Mile	Is this Contractor Price? (yes/10)
Blading Cost	\$750	Annual cost per- mile	Is this Contractor Price? (yes/ no)
Dust Suppressant Costs	0	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	0	Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE		Traffic Leve	(S)
ENTER ACTUAL BELOW			
	Low	Medium	High
Daily Traffic (Total AADT)	.º ≥50	50-150	150-350
Average Regraveling Thickness	3 in	4in	5 in
Blading/Frequency (# per year)	8.	12	16
Regraveling Frequency (years	7	5	3
between regraveling)			
Dust Suppressant (yes/no)	no	r no	Yes
Base Stabilization (yes/no)	, no	na	Yes —

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-125	125-350	
Average Regraveling Thickness	2in	3in	4in	
Blading Frequency (# per month)	2	2	4	
Regraveling Frequency (years between regraveling)	4	4	2	
Dust Suppressant (yes/ no)				
Base Stabilization (yes/no)		у у у у у у у у у у у у у у у у у у у	1	

If you answered yes for Dust Suppressant – which type do you use? none

If you answered yes for Base Stabilization – which type do you use? none

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories. Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	0	A Mon Federal Ald Roads (non-CMC)
Good	1000	0
Fair	10%	20%
	80%	50%
Poor	10%	30%
Total	100%	100%
		100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Morcer			
Contact: Kon Miller Name	70 (- 873-	5586	Kenmiller endiger
Name	Phone		Email
Preparer: Kir Milbr	Da	ate Prepa	red: <u>380ct.19</u>
Agg	gregate Des	criptio	n
To provide information on the type a all boxes that apply. For example, if y gravel, crushed material and specifical	our county uses ations.	s crushed	
Gravel	⊠ Cla ⊠ scr	55 13	
Scoria	X Scr	eored	
Pit Run			
Screened			
Crushed Material			
Specifications			
Tested	, •		
Other			
PI	acement Pra	actices	
When aggregate overlays are placed used to apply an aggregate overlay.	d in your county	/, please	select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other			

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0%	(00%	
Hauling	90%	10%	
Placement	/80 %	0%	
Blading	100%	0%	
Dust Control	0%	100%	
Base Stabilization	0%	100%	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

ravel/Scoria Cost	Cintractor Price.		
Average Gravel/Scoria Cost (crushing & royalties at the pit)	5.75/h= 9.00 gravel Sooin	Per cu. yard Per Ton	Is this Contractor Price? (yes (no)
Trucking Cost from Gravel Origin	17.50	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	35	Miles one-way Miles roundtrip	
Truck Payload	Enddump 15 Side / Belly 25	☐ Cu. Yards ☐ Tons	
Placement Costs	127,000/mile 28'mile top 4" thick	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	166.00	Annual cost per mile	Is this Contractor Price? (yes/60
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
ENTER ACTUAL DELOTE	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	2"	3 n	4"
Blading Frequency (# per month)	1	2	3
Regraveling Frequency (years between			
regraveling)	7	5	3
Dust Suppressant (yes/no)	No	No	No
Base Stabilization (yes/no)	No	. No	K/O

lf you answered yes for Dust Suppressant – which type do you use	?
--	---

If you answered yes for Base Stabilization – which type do you use?

Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	75%	75%
Good	2.5%	12.5%
Fair		12.5%
Poor		12.0 /0
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Morton County		
Contact: John Saiki	701.667.3346	john.saiki@mortonnd.org
Name	Phone	Email
Preparer: John Saiki	Date F	Prepared: February 12, 2020
Agg	regate Descrip	tion
To provide information on the type ar all boxes that apply. For example, if you gravel, crushed material and specificat	our county uses crus	•
Gravel		
Scoria	7	
Pit Run	<u> </u>	
Screened		•
Crushed Material	✓	
Specifications		
Tested	✓	
Other		
Other		
Pla	cement Praction	ces
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, ple	ase select the typical practice that is
Truck Drop and Blade	\checkmark	
Windrow/Equalize	\checkmark	
Water/Rolling/Compaction	\checkmark	
Other		

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perfor	med by:
Task	County	Contractor
Crushing		100%
Hauling	100%	
Placement	100%	
Blading	100%	
Dust Control	100%	
Base Stabilization	0	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$5.75 Crushing \$2 Royalties	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$6.94	☐ Per loaded mile ☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	15 miles	■ Miles one-way□ Miles roundtrip	
Truck Payload	18	☐ Cu. Yards ☐ Tons	
Placement Costs	\$ 4,500	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$ 375	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	\$ 145	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	None	Per mile	Is this Contractor Price? (yes/no)

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Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. traffic the thickness, Following the entry, please enter regraveling frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)			
Average Regraveling Thickness	3 inches	3 inches	3 inches
Blading Frequency (# per month)	1	2	3
Regraveling Frequency (years between regraveling)	8	5	3
Dust Suppressant (yes/no)	No	No	No
Base Stabilization (yes/no)	No	No	No

If you answered yes for Dust Suppressant – which type do you use?		
If you answered yes for Base Stabilization – which type do you use?		

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Gravel Road Condition

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	75%	60%
Good	10%	10%
Fair	10%	15%
Poor	5%	15%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

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* · ·	

SPECIFICATIONS AND PROPOSAL GRAVEL CRUSHING MORTON COUNTY SPECIFICATIONS

All work shall be done in accordance with section 816 and all other applicable sections of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, October 2014 or as directed by the Morton County Engineer.

The locations of the pits are pre-determined by Morton County and maps are attached.

Crushed gravel shall meet the following specifications.

CLASS 13 MODIFIED

SIEVE SIZE	% PASSING	
1"	100%	
3/4"	70-100%	
# 4	38-75%	
# 8	22-62%	
# 30	12-45%	
# 200	7-15%	
NDT 113, SHALE MAX %	12%	

Payment for the finished product shall be made after pile is completed in its entirety less \$10,000 until pit release agreement is received, in accordance with Section 109 of the 2014 North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction according to the following schedule:

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SIEVE SIZE	AVERAGE OF 3 SAMPLES DEVIATION FROM GRADATION RANGE LIMITS IN PERCENTAGE POINTS	DEDUCTION CONTRACT UNIT PRICE
3/4"	0.00 to 2.00 2.01 to 3.00 3.01 and over	10% 30% Rejected
#4	0.00 to 5.00 5.01 to 10.00 10.01 and over	10% 30% Rejected
#30	0.00 to 5.00 5.01 to 10.00 10.01 and Over	10% 30% Rejected
#200	0.00 to 2.00 2.01 to 3.00 3.01 to 4.00 4.01 and over	3% 5% 10% Rejected

The contractor shall take random samples from the conveyor belt representative of approximately each 2500 cubic yard lot, and provide conformance with specification results to the county. Samples shall be split with the split sample to be provided to the county for quality management. Price reductions for failing gradation to be as indicated in the above chart. Electrical supply and connector to on site Morton County testing lab shall be provided by the contractor.

The finished product shall be stockpiled in a minimum of four (4) equal lifts to minimize aggregate separation of stockpile.

Reclaiming reject material shall be handled as directed by County Road Superintendent or landowner of the pit. Price of reclaiming reject material shall be included in the crushing bid price.

All material passing a 22" ring shall be crushed. Crushing shall be done in one continuous operation and any operation not capable of meeting such conditions will not be accepted.

Quantity shall be measured by the contractor on the basis of a belt scale or other approved methods. Morton County shall also measure the completed stockpile. If the contractor feels the amount is different than what has been determined, then he shall have it measured at his own expense.

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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or countytwp@ugpti.org.

County: Mountrail County		
Contact: Jana Hennessy	7016282390	janah@co.mountrail.nd.us
Name	Phone	Email
Preparer: Jana Hennessy	Date	Prepared: <u>11-5-2019</u>
Agg	regate Descri	otion
To provide information on the type a	nd quality of aggre	gate used in your county, please check
	our county uses cru	ished, specification base gravel – select
Gravel		
Scoria		
Pit Run		
Screened		
Crushed Material	1	
	7	
Specifications	7	
Tested	-	
Other	L	
Pla	cement Practi	ices
	in your county, pl	ease select the typical practice that is
used to apply an aggregate overlay.	1	
Truck Drop and Blade	✓ .	
Windrow/Equalize		
Water/Rolling/Compaction		
Other		

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Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0%	100%	
Hauling	20%	80%	
Placement	20%	80%	
Blading	100%	0%	
Dust Control	100%	0%	
Base Stabilization	0%	100%	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

ravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$8.92	Per cu. yard Per Ton	Is this Contractor Price? (ves/no)
Trucking Cost from Gravel Origin	\$11.54	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes)(no)
Average trucking distance for aggregate	15	■ Miles one-way□ Miles roundtrip	
Truck Payload	28.50	☐ Cu. Yards ☐ Tons	
Placement Costs	\$400	Per Mile	Is this Contractor Price? (yes no)
Blading Cost	\$7,600/MILE/YEAR; \$300/MILE PER ACCU	Annual cost per mile	Is this Contractor Price? (yes(no)
Dust Suppressant Costs	\$8,451.52	Per mile	Is this Contractor Price? (yes no
Base Stabilization Cost	\$175,291.53/MILE	Per mile	Is this Contractor Price? (yes) no)

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Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. thickness, blading the regraveling traffic please enter **Following** the entry, frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	50-150	150-350	350-700+	
Average Regraveling Thickness	2	2	3	
Blading Frequency (# per month)	1	2	2	
Regraveling Frequency (years between regraveling)	3	2	1	
Dust Suppressant (yes/no)	YES	YES	YES	
Base Stabilization (yes/no)	NO	NO	YES	

If you answered yes for Dust Suppressant – which type do you use? CALCIUM CHLORIDE, MAGNESIUM CHLORIDE

If you answered yes for Base Stabilization – which type do you use? CEMENT STABILIZATION

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This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	50%	0%
Good	30%	50%
Fair	10%	40%
Poor	10%	10%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

ATTACHED

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

MATERIAL TESTING SERVICES, LLC

P.O. 80x 634 Minot, ND 58702 (701) 852-5553

CLASS 13M

7101 w 2ND Ave Williston, ND 58801 (701) 572-4226

PROJECT:

PRODUCTION CHECK

DATE:

8/6/19

REPORTED TO:

Fritel Construction

COPY:

samfritel@gmail.com

PO Box 1650 Stanley, ND 58784

Laboratory Num	ber 19-001		
SAMPLE IDENT	IFICATION:	Fritel Pit	
DATE SUBMITT	ED:	8/1/19	
			Mountrail
MECHANICAL A	ANALYSIS (AASHTO T-11, T-27):		County
	passing I"		Specifications
			Class 13M
	3/4"	99	100 %
	1/2"	94	
	3/8"	88	
	# 4	71	50 - 78
	# 8	57	37 - 67
,	# 16	45 .	
	# 30	36	
	# 40	31	13 - 35
	# 50	26	
	# 100	19	
	# 200	12.3	4 - 15
SHALE:		2.8	12 Maximum
FRACTURES (NE	DDOT 4):	75	50 Minimum
ATTERBERG LIM	IITS (AASHTO/ND T 89, T 90):		
	quid Limit	25	
	astic Limit	19	

6

REMARKS:

The sample was submitted on the date shown.

Plasticity Index

AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL.

Material Testing Services, LLC

4 - 12

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1. NDDOT Aggregate Base - Class 5

Total % Passing by Weight
100%
90 – 100%
35 - 75%
16 - 40%
4 -10%

2. Mountrail County Modified Class 13 Aggregate Base - Class 13

A. The required gradation for the stockpile Mountrail County Gravel Surface Spec. as shown below:

Sieve Size	Total % Passing by Weight
3/4"	100%
No. 4	50-78%
No. 8	37-67%
No. 40	13-35%
No. 200	4-15%

- B. The plasticity index shall be from 4-12. Tests will be run in accordance to AASHTO-T90.
- C. LA Abrasion of less than 40%
- D. A maximum allowable percentage of Shale 12%
- E. There will be a minimum of 50% fractured faces, at least 1 fractured face, NDDOT method.
- F. Clay additive material to be provided by the Mountrail County Road and Bridge Department.

4. <u>Testing</u>

A. The Contractor will be required to provide one test per 5,000 cubic yards of material produced for sieve analysis, plasticity index and fractured faces. Tests for each 5,000 cubic yards produced must be run by an approved testing agency and submitted to the County Engineer for review and approval. Final acceptance

(1)

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Nelson County		
Contact: Seth	701-322-4433	nchd@gondtc.com
Name	Phone	Email
Preparer: Seth Hamre	Date P	repared: 11-Feb-2020
	Aggregate Descrip	tion
•	e, if your county uses crus	ate used in your county, please check shed, specification base gravel – select
Gravel	$\overline{\checkmark}$	
Scoria		
Pit Run	✓	
Screened	$\overline{\checkmark}$	
Crushed Material	$\overline{\checkmark}$	
Specifications		
Tested		
Other		
	Placement Praction	ces
When aggregate overlays are pused to apply an aggregate over		ase select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compactic Other	on	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing	0	100		
Hauling	65	35		
Placement	100	0		
Blading	100	0		
Dust Control	0	100		
Base Stabilization	0	0		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

vel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$5	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$0.25-\$0.30	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	18	■ Miles one-way □ Miles roundtrip	
Truck Payload	22	■ Cu. Yards□ Tons	
Placement Costs	\$2975	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$1130	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	\$9,000	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. traffic entry, please enter the regraveling thickness, Following the frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	<25	25-75	>75	
Average Regraveling Thickness	2	2	3	
Blading Frequency (# per month)	1	2	4	
Regraveling Frequency (years between regraveling)	10	7	5	
Dust Suppressant (yes/no)	Haul Roads	Haul Roads	Haul Roads	
Base Stabilization (yes/no)	n	n	n	

If you answered yes for Dust Suppressant – which type do you use? Magnesium Chloride

If you answered yes for Base Stabilization – which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	5	10
Good	75	55
Fair	20	30
Poor		5
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

Dust suppressionis only done on "Haul roads" in front of Farms that are within 200ft of a County Road.

Haul Roads are designated as roads that the county uses to haul gravel with County trucks.

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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Oliver		
Contact: kyle	2070397	countyshop@westriv.com
Name	Phone	Emall
Preparer: kyle	Date	Prepared: <u>2/13/2020</u>
Agg	gregate Descr	iption
	your county uses cr	egate used in your county, please check rushed, specification base gravel – select
Gravel	V	
Scorìa	V	
Pit Run	~	
Screened		
Crushed Material	V	
Specifications		
Tested		
Other		
PI	acement Prac	tices
When aggregate overlays are placed used to apply an aggregate overlay.	d in your county,	please select the typical practice that is
Truck Drop and Blade	V	
Windrow/Equalize	~	
Water/Rolling/Compaction	~	
Other		

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing		100	
Hauling	100		
Placement	100		
Blading	100		
Dust Control	1008		
Base Stabilization			

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	8.70	☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	3.50	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	35	☐ Miles one-way ☐ Miles roundtrip	
Truck Payload	35-40	☐ Cu. Yards ☐ Tons	
Placement Costs	160	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	80	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		
Good		
Fair	100	100
Poor		
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed): need to find gravel

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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

lease return this survey in the enclosed envelope by November 20, 2019 . Please direct any questions of Alan Dybing at 701.231.5988 or countytwp@ugpti.org.
Alah Dybilig at 701.251.5988 of <u>countytwhee agpt.org</u> .
County: Vembina Lounty
Contact: Desin Julyana 701-265-\$208 Pemby W.D. GOV
Preparer: Devin Jumson Date Prepared: 1-28-20
Aggregate Description
To provide information on the type and quality of aggregate used in your county, please check all boxes that apply. For example, if your county uses crushed, specification base gravel — select gravel, crushed material and specifications.
Gravel
Scoria
Pit Run
Screened
Crushed Material
Specifications
Tested
Other
Placement Practices
When aggregate overlays are placed in your county, please select the typical practice that is used to apply an aggregate overlay.
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

The second secon	Performed by:		
Task	County	Contractor	
Crushing		/00	
Hauling	100		
Placement			
Blading		The state of the s	
Dust Control	Street of the state of the stat		
Base Stabilization		* ************************************	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	4.25	Per cu. yard Su Per Ton	Is this Contractor Price? (yes)(no)
Trucking Cost from Gravel Origin		Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	14	☑ Miles one-way☑ Miles roundtrip	
Truck Payload	8	🙎 Cu. Yards	
Placement Costs		Per Mile	Is this Contractor Price? (yes/no)
Blading Cost		Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)			
Average Regraveling Thickness	-	· ·	
Blading Frequency (# per month)	4. ***		·
Regraveling Frequency (years between regraveling)		Amazan I	^_
Dust Suppressant (yes/no)	Strength Strength and an a		* A Company
Base Stabilization (yes/no)		- harmonia in the second secon	Access of the contract of the

If you answered yes for Dust Suppressant – which type do you use?				
If you answered yes for Base Stabilization – which type do you use?				

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

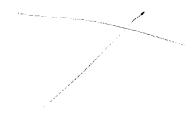
Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		
Good		
Fair		
Poor		
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.



Comments or Suggestions (please attach additional sheets if needed):



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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

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to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u> .	

to Alan Dybing at 701.231.5988 or countyt	wp@ugpti.org.	
County: PIERCE		And the second s
Contact: Karin Fursather Preparer: Karin Fursather	776.5335 Phone	Kfursathend.gov
Preparer: Karin Fursather	Date Pr	repared: 11-5-19
Aggr	egate Descript	tion
To provide information on the type an all boxes that apply. For example, if yo gravel, crushed material and specificati	ur county uses crus	
Gravel	2	
Scoria		
Pit Run	₽	
Screened	4	
Crushed Material	Z	
Specifications		
Tested	Ā	
Other		
Plac	cement Practic	es
When aggregate overlays are placed is used to apply an aggregate overlay.	in your county, plea	ase select the typical practice that is
Truck Drop and Blade	⋪	
Windrow/Equalize		
Water/Rolling/Compaction		
Other		

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	6	100	
Hauling	0	100	
Placement	0	100	
Blading	100 010	0	
Dust Control	0	100	
Base Stabilization	0	100	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Gravel/Scoria Cost			
Average Gravel/Scoria, Cost (crushing & royalties at the pit)	6.20-7.00	Per cu. yard Per Ton	Is this Contractor Price? (ves/no)
Trucking Cost from Gravel Origin	1.75-3 mles 384 after	☐ Per loaded mile ☐ Per cu. yard へ) ☐ Per Ton	Is this Contractor Price?(yes/no)
Average trucking distance for aggregate	15 miles.	☑ Miles one-way ☐ Miles roundtrip	
Truck Payload	1.00 yd	℃u. Yards ☐ Tons	
Placement Costs	24l	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	205.00	Annual cost per m <u>il</u> e	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	٥	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW		Traffic Level	S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	. 5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	750	*		
Average Regraveling Thickness	2.5		3-4	
Blading Frequency (# per month)	1-M.	1 - mo	1-md	
Regraveling Frequency (years between		:		
regraveling)	5.4	4-6	3-5	
Dust Suppressant (yes/no)				
Base Stabilization (yes/no)				

If you answered	yes for D)ust Suppressant – wi	nich type do you user	

If you answered yes for Base Stabilization – which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	75%	
Good	25%	50 9/2
Fair	20/0	25
Poor		70 1/0
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

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to Alan Dybling at 701.231.3988 of coun	tytwp@ugpti.org.		
County: RAMSEY		***************************************	
Contact: KEVIN FIELDSEND Name Preparer: KEVIN FIELDSEND	701-662-7015 Phone	hwydept e gondt	e.com
Preparer: KEVIN FIELDSEND	Date Pre	pared: 10/29/	19
Ag	gregate Descripti	on	
To provide information on the type all boxes that apply. For example, if gravel, crushed material and specific	your county uses crush		
Gravel	×		
Scoria			
Pit Run	ø		
Screened			
Crushed Material	M		
Specifications			
Tested	×		
Other			
PI	acement Practice	s	
When aggregate overlays are placed used to apply an aggregate overlay.	d in your county, pleas	e select the typical practic	e that is
Truck Drop and Blade	M SPOT GR		
Windrow/Equalize	M LESS THA		
Water/Rolling/Compaction Other		re.	

Operational Tasks

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing	0%	100%		
Hauling	20%	80%		
Placement	100%	0%		
Blading	100%	0%		
Dust Control	0%	100%		
Base Stabilization	0%	100%		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	5.25	➤ Per cu. yard □ Per Ton	Is this Contractor Price? (ves no)
Trucking Cost from Gravel Origin	.33 \$	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes)no)
Average trucking distance for aggregate	30	Miles one-way Miles roundtrip	
Truck Payload	20	☑ Cu. Yards ☐ Tons	
Placement Costs	* 800. <u>00</u>	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$ 634.67	Annual cost per mile	Is this Contractor Price? (yes no)
Dust Suppressant Costs	\$ 7200°°	Per mile	Is this Contractor Price? (ves no)
Base Stabilization Cost	\$35,714°C	Per mile	Is this Contractor Price? (yes)no)

		•	

Gravel Road Practices

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels					
	Low	Medium	High			
Daily Traffic (Total AADT)	>50	50-150	150-350			
Average Regraveling Thickness	3 in	4 in	5 in			
Blading Frequency (# per year)	8	12	16			
Regraveling Frequency (years between regraveling)	7	5	3			
Dust Suppressant (yes/no)	no	no	Yes			
Base Stabilization (yes/no)	no	no	Yes			

County Entry	Traffic Levels				
	Low	Medium	High		
Daily Traffic (Total AADT)	>40	40-100	100		
Average Regraveling Thickness	1"	2"	3"		
Blading Frequency (# per month)	1	4	12		
Regraveling Frequency (years between regraveling)	4	3	2		
Dust Suppressant (yes/no)	No	No	YES		
Base Stabilization (yes/no)	YES	YES	YES		

If you answered yes for Dust Suppressant – which type do you use?

Mag - chloride

If you answered yes for Base Stabilization – which type do you use?

BASE ONE * BAGS OF CEMENT

			•	
		•		
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CLASS OF AGGREGATE AND SPECIFICATION LIMITS

B. Specific Requirements.

Table I: Aggregates for Subgrade Repair, Trench Backfill, Bases, and Surfacing

Sieve Size Percent Passing	Permeable Trench Backfill	Aggr. for Subgrade Repair ⁵	Aggr, for Blended Base	Shldr. Aggr. Surface	Aggr. Base ⁵	Permeable Base Aggr,	Temp. Traffic Surface Aggr.	Aggr. Surface
	2	3	3M	4	5	7	8	13
3"		100						
1-1/2"							100	
1-1/4"								
1"	•		100		100	100		100
3/4"	100	80-100	80-100	100	90-100	95-100		70-100
5/8"		·						
1/2"						85-100		
3/8"	50-95		*			60-90		
No. 4		35-85	35-85	35-85	35-70	15-25	35-80	38-75
No. 8						2-10		22-62
No. 10	0-15							
No. 16								
No. 30	0-4	20-50	20-50	10-50	16-40			12-45
No. 50								
No. 100								
No. 200		0-15	4-10	7-17	4-10	0-3		7-15
Shale ¹		12%	12%	15%	12%	8%	20%	12%
L. A. Abrasion ¹				50%	50%	40%		50%
Plasticity Index ²								
Fractured Faces ³				10%	10%	85%		10%

Footnotes for Tables I and II:

1 Maximum Allowable Percentages.

2 Maximum allowable Percentages.

2 Maximum allowable unless range shown. N.P. = Non Plastic as per AASHTO T-90. Use material passing the No. 40 sieve (standard method). For Class 5 aggregate the maximum allowable Plasticity Index shall be determined from the following formula: Max. allowable Pl for Class 5 = 10 - (% Passing No. 40 Sieve / 10)

3 Minimum weight percentage allowable for the portion of the aggregate retained on a No. 4 sieve having at least 1 fractured face for Classes 4, 5, 13, 27, 29, 31, and 33, and at least 2 fractured faces for Class 7.

4 Minimum percentage of material passing a No. 4 sieve that is composed of fractured material produced by a crushing process. The Contractor shall demonstrate that the crushing operation produces this result.

5 Salvaged Base meeting the requirements of Section 302 and 817 may be substituted for Cl. 3 or Cl. 5 virgin aggregate, unless otherwise specified on the Plans.

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	570	0%
Good	6070	35%
Fair	2570	50%
Poor	10%	15%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available. WE SPEC CLASS 13 State spec for all of our graveling projects.

Comments or Suggestions (please attach additional sheets if needed):

We also have costs for mowing road ditches, culvert instablations and bridge repairs that come from tax payer dollars. Building * grounds maintenance and equipment repairs are a part of road maintenance also

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2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed to Alan Dybing at 701.231.5988 or coun	d envelope by November 20, 2019 . Please direct any questions tytwp@ugpti.org .
county: Ransom Cou	nt q
Contact: Jeff Hopkins	701680 8363 jeff. hopkinsoco-ransom. nd. us
Preparer: Jeff Hophins	Date Prepared: <u>2-20-</u> 20
Ag	gregate Description
	and quality of aggregate used in your county, please check your county uses crushed, specification base gravel — select rations.
Gravel	
Scoria	
Pit Run	
Screened	
Crushed Material	
Specifications	
Tested	
Other	
PI	lacement Practices
When aggregate overlays are place	d in your county, please select the typical practice that is
used to apply an aggregate overlay.	
Truck Drop and Blade	
Windrow/Equalize	
Water/Rolling/Compaction	
Other	

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In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perfor	med by:
Task	County	Contractor
Crushing	٥	100
Hauling	3	9.7
Placement	3	97
Blading	100	0
Dust Control	0	100
Base Stabilization	0	100

Gravel Road Costs

ravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	3.75	☐ Per cu. yard 爲 Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	1,25 0-4mile .25 5-20+ miles	Per loaded mile Kal Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	11 miles	Miles one-wayMiles roundtrip	
Truck Payload	26	☐ Cu. Yards	
Placement Costs		Per Mile	Is this Contractor Price? (yes/no)
Blading Cost		Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. thickness, entry, please enter the regraveling **Following** the traffic frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW		Traffic Level	S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-100	100-300
Average Regraveling Thickness	2	3	4
Blading Frequency (# per month)	3	Ŋ	4
Regraveling Frequency (years between regraveling)	6	Y	2
Dust Suppressant (yes/no)	no	no	yes
Base Stabilization (yes/no)	no	no	yes

If you answered yes for Dust Su	uppressant – which type do you use?	
maa	chlorida	

If you answered yes for Base Stabilization - which type do you use?

Base One use on one Tmile stretch

		i

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	30	30
Good	30	30
Fair	30	30
Poor	10	10
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

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2019 COUNTY ROAD NEEDS STUDY SURVEY

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to Alan Dybing at 701.231.5988 or <u>c</u>		
County: Renville	-	
Contact: Sean Mattern	(701) 756-6442 Phone	Smattern@nd.gov Email Dared: 2-13-2020
Preparer: Sean Motter	Date Prep	pared: <u>2-13-2020</u>
	Aggregate Description	on
To provide information on the ty all boxes that apply. For example gravel, crushed material and spe	e, if your county uses crushe	used in your county, please check d, specification base gravel – select
Gravel		
Scoria		•
Pit Run	X	
Screened	T.	
Crushed Material	129	
Specifications		
Tested		
Other	0	
	Placement Practices	S
When aggregate overlays are pused to apply an aggregate over		e select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction	□ on □	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	()	100	
Hauling	20	80	
Placement	20	80	
Blading	100	. Navana, O ₂ in the second of the	
Dust Control	0	0	
Base Stabilization	0	0	

Gravel Road Costs

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	The second	Per cu. yard	Is this Contractor Price? (ves)no)
Trucking Cost from Gravel Origin	My Man	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (ves/no)
Average trucking distance for aggregate	20		
Truck Payload	20	☑ Cu. Yards ☐ Tons	
Placement Costs		Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	# 23 8	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	0	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	0	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7.,	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels					
	Low	Medium	High			
Daily Traffic (Total AADT)	10	20	30			
Average Regraveling Thickness	2 in	2 in	2in			
Blading Frequency (# per month)	3	3	3			
Regraveling Frequency (years between		:	40.8 A. A. A. A. A. A. A. A. A. A. A. A. A.			
regraveling)	10.	10	10			
Dust Suppressant (yes/no)	no	no	по			
Base Stabilization (yes/no)	no	no	110			

If you answered yes for Dust Suppressant – which type do you use?

If you answered yes for Base Stabilization – which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		
Good		50%
Fair		50%
Poor		
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

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to Alan Dybing at 701.231.5988 or <u>count</u>	ytwp@ugpti.org.
County: Richland	
Contact: <u>Jesse Sedler</u>	701-642-7810 jseller@co.richland.wo.us Phone Email Date Prepared: 11/15/19
Preparer: Jesse Sedle	Date Prepared:
Agg	gregate Description
To provide information on the type a all boxes that apply. For example, if y gravel, crushed material and specifical	and quality of aggregate used in your county, please check your county uses crushed, specification base gravel – select ations.
Gravel	
Scoria	
Pit Run	
Screened	
Crushed Material	
Specifications	<u> </u>
Tested	
Other	
PI	acement Practices
When aggregate overlays are place used to apply an aggregate overlay.	d in your county, please select the typical practice that is
Truck Drop and Blade	Y
Windrow/Equalize	
Water/Rolling/Compaction	
Other	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perfo	ormed by:		
Task	County	Contractor		
Crushing	0	100		
Hauling	70	30		
Placement	100	6		
Blading	100			
Dust Control	0	0		
Base Stabilization	Ó	100		

Gravel Road Costs

Gravel/Scoria Cost							
Average Gravel/Scor (crushing & royalties	Vanale	Crushing 1.218 (Clay 1.20)	☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/no)			
Trucking Cost from G	Trucking Cost from Gravel Origin		☐ Per loaded mile ☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (Ves/no)			
Average trucking dist aggregate	Average trucking distance for aggregate						
Truck Payload	Avg	21	☐ Cu. Yards ☐ Tons	Truck 10-12ton Con Truck/Pap 15-20ton Bellydump 18-22ton	trador-25 ta		
Placement Costs	Aug	\$2,900	Per Mile	Is this Contractor Price? (yes/no)			
Blading Cost	Aug	\$1,500	Annual cost per mile	Is this Contractor Price? (yes/no)			
Dust Suppressant Cos	its	NB	Per mile	Is this Contractor Price? (yes/no)			
Base Stabilization Cos	Base Stabilization Cost		Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)	

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW		Traffic Level	S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels						
	Low	Medium	High				
Daily Traffic (Total AADT)	> 9075	75 💯 -360	300-550				
Average Regraveling Thickness	3	3	3				
Blading Frequency (# per month)	64	4	4				
Regraveling Frequency (years between regraveling)	3	3	3				
Dust Suppressant (yes/no)	Λs	no	no				
Base Stabilization (yes/no)	ho	10	^°				

If you answered yes for Dust Suppressant – which type do you use?

If you ar	nswere	ed yes	for B	ase St	abilization	– whic	ch type	e do you	use?				
11	1				1		hor	Ĺ		Lich	but	havent	1
usel	any	in	SOM	ctime	hesiles	for	base	work	Lor	placen	newt	of aspi	hit

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	25 70	10%
Good	50 70	40%
Fair	25%	407.
Poor	0%	10%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

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The Board of County Commissioners reserves the right to reject any or all bids or to waive any informality in the bids received and to accept any bid deemed to be most favorable to the interests of Richland County.

Gravel Crushing Specifications

- 1. Approximately 125,000 tons of gravel material shall be crushed in the Richland County pit located southwest of Hankinson, North Dakota.
- 2. Approximately 125,000 tons of gravel material shall be crushed to meet the following North Dakota Highway Department Specifications for Aggregate Surfacing, Class 13 (as modified by Richland County):

Sieve Size	Total % Passing
1"	100
3/4"	70-100
#4	38-75
#8	22-62
#30	12-45
#200	9-15
% Shale and Soft Rock	Max. 15%
L.A. Abrasion Loss	Max. 50%
Plasticity Index	4-12
Fractured Faces	10%

- 3. All crushed material shall be weighed on a belt scale or in a manner approved by the County Engineer or Road Foreman.
- 4. The price bid for crushing aggregate material shall be on a ton basis for crushing and stockpiling at the Hankinson site, including all labor, materials, equipment, supplies, bond, and all other things necessary or incidental to the cost of producing this material.
- 5. The County Road Foreman shall instruct the contractor as to the area in the pit from which the material is to be processed. The aggregate processing shall not commence until such time that the clay material in the bank can be incorporated into the crushing process. These statements shall not release the contractor from the requirement to provide the specified class of aggregate material.
- 6. The contractor shall use the appropriate crushing equipment to meet the fractured faces requirement as outlined in the specification for Aggregate Surfacing, Class 13 Modified, and minimize the amount of rejected rock. All rejected rock, if any, during the crushing process, shall be in the form of rock rip rap which can be utilized as such by the Richland County Highway Department. All materials shall remain the property of Richland County and shall not be removed from the

		,	

- Richland County pit. No additional compensation shall be awarded for the sizing and separation of reject material.
- 7. The pit area shall be restored, after completion of the work, to the satisfaction of the County Engineer or Road Foreman. All debris and waste material shall be disposed of in a manner approved by the County Engineer or Road Foreman.
- 8. The maximum number of working days allowed for completion of the aggregate crushing, as outlined in Section 108.06, shall be **30 working days** with the successful bidder completing the work no later than **May 31, 2019**. A penalty of \$500 per working day will be assessed if the Contractor fails to meet this deadline.

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2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed e to Alan Dybing at 701.231.5988 or <u>county</u> i	twp@ugpti.org.
County: Rolette	
Contact: Val McCoul	Mcclard gov Phone Email
Preparer: Tara McDou	Date Prepared: 11/7/19
Agg	regate Description
To provide information on the type ar	nd quality of aggregate used in your county, please check
	our county uses crushed, specification base gravel – select
gravel, crushed material and specificat	ions.
Gravel	Ŭ .
Scoria	
Pit Run	
Screened	
Crushed Material	
Specifications	
Tested	
Other	
Pla	cement Practices
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	Rd STTE	Mickleson Kgr.	
Hauling)/	RUSTTE CO.	
Placement	7)	1) 1)	
Blading	1)	2) ()	
Dust Control			
Base Stabilization		22	

Gravel Road Costs

ravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	5.∞	☑ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes no)
Trucking Cost from Gravel Origin	1.90/mile for first 3miles, 354/mile after	☐ Per loaded mile☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (yes no)
Average trucking distance for aggregate	10	Miles one-way Miles roundtrip	
Truck Payload	20	Cu. Yards ☐ Tons	
Placement Costs	600	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	160.00/hr	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-200	200-800
Average Regraveling Thickness	311	4"	411
Blading Frequency (# per month)	7	12	18
Regraveling Frequency (years between			
regraveling)	7	5	3
Dust Suppressant (yes/no)	No	んりご	NO
Base Stabilization (yes/no)	NO	NO	NO

If you answered yes for Dust Suppressant – which type do you use?

If you answered yes for Base Stabilization – which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		
Good		56°76
Fair		50%
Poor		
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in	the enclosed envelope	e by November 20, 2019 .	. Please direct any questions
to Alan Dybing at 701.231.5	988 or countytwp@ug	gpti.org.	
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, , ,	Carried State Control of Control	
County: Sarge)	of County	
		MILL ONG 41 & COSANJONT, NDUS
		red: 2-12-2020
Treparent Themps To July	Jan Hapan	

Aggregate Description

To provide information on the type and quality of aggregate used in your county, please check all boxes that apply. For example, if your county uses crushed, specification base gravel – select gravel, crushed material and specifications.

Gravel	V
Scoria	
Pit Run	44
Screened	
Crushed Material	4
Specifications	4
Tested	4
Other	

Placement Practices

When aggregate overlays are placed in your county, please select the typical practice that is used to apply an aggregate overlay.

Truck Drop and Blade	V	
Windrow/Equalize	V	1
Water/Rolling/Compaction	V	•
Other		

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing		100	
Hauling		100	
Placement	100		
Blading	661	3 Printer 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Dust Control	100	4.43004.13000.07915.1775.57	
Base Stabilization	100		

Gravel Road Costs

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	4,50	Per cu. yard	Is this Contractor Price? (ves/no)
Trucking Cost from Gravel Origin	, 214	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (ves/no)
Average trucking distance for aggregate	20MI	Miles one-way☐ Miles roundtrip	
Truck Payload	26- 30	Cu. Yards Tons	
Placement Costs	8000	Per Mile	Is this Contractor Price? (yes/ho)
Blading Cost	1200	Annual cost per mile	Is this Contractor Price? (yes/10)
Dust Suppressant Costs	3,000	Per mile	Is this Contractor Price? (ve)/no)
Base Stabilization Cost	5000	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE	Traffic Levels					
ENTER ACTUAL BELOW						
	Low	Medium	High			
Daily Traffic (Total AADT)	>50	50-150	150-350			
Average Regraveling Thickness	3 in	4 in	5 in			
Blading Frequency (# per year)	8	12	16			
Regraveling Frequency (years between regraveling)	7,	5	3			
Dust Suppressant (yes/no)	no	no	Yes			
Base Stabilization (yes/no)	no	no	Yes			

County Entry	Traffic Levels					
ON COMPANY OF THE COM	Low	Medium	High			
Daily Traffic (Total AADT)	> 50	50-150	150-550			
Average Regraveling Thickness	1.5	2,5	3,5			
Blading Frequency (# per month)	2	3	4			
Regraveling Frequency (years between						
regraveling)	8	6	4			
Dust Suppressant (yes/no)			yes			
Base Stabilization (yes/no)			yes			

	EUF
If you answered yes for Dust Suppressant – which type do you use?	
Mag	
If you answered yes for Base Stabilization – which type do you use?	
Base ONE	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CM		
Very Good				
Good	70	60		
Fair	25	30		
Poor	<u> </u>	10		
Total	100%	100%		

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

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GRADATION REPORT

Report Number: M3141021,0003

Service Date:

07/15/14

Report Date:

07/15/14

Midwest Testing A TEMPORTHY COMMANY

4102 7th Ave. N. Fargo, ND 58102-2923 701-282-9633

Client

Bear Creek Gravel, Inc. Attn: Delores Anderson

405 4th St.

Englevale, ND 58033-5021

Project

Plant Tests 2014 - Bear Creek Gravel

405 4th Street

Englevale, ND 58033

Project Number:

M3141021

TEST OF AGGREGATE BASE

SAMPLE NUMBER:

3

NDDOT **SPECIFICATIONS SECTION 816.03**

Class 5

Class 13

DATE SUBMITTED:

7-14-14

LOCATION SAMPLED:

Stockpile

SOURCE:

Jorgenson Pit

MECHANICAL ANALYSIS:(AASHTO T 27)

% Passing 1" (25.0 mm)	100%	100%	100%
3/4 (19.0)	97	90-100	70-100
5/8 (16.0)	92	denomina dipot	
1/2 (12.5)	84	80) 10E 806	*****
3/8 (9.5)	79	ný pa sá	má sur-sur
#4 (4.75)	66	35-70	38-75
8 (2.36)	56	Service-ser	22-62
16 (1.18)	44		-
30 (600 μm)	30	16-40	12-45
50 (300)	17	Pépavi	anded pa
100 (150)	13	\$10 pinds	ern é.
200 (75)	10.0	4-10	7-15

REMARKS:

Sample was submitted to the laboratory by Bear Creek Gravel, Inc. and received here on July 14, 2014.

Services:

MTL, Inc. Rep.: Jamison Veil

Reported To:

Contractor:

Report Distribution: (1) Bear Creek Gravel, Inc., Delores

Reviewed By:

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client Indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials. AF0001, 9-28-10, Rev 1 Page 1 of 1

AGGREGATE SAMPLE WORKSHEET Department of Transportation, Materials & Research SFN 9987 (Rev. 07-2007)

In all	Siove	Size	Wt. F	Ref			ND S	Spec.	Failing	1	4
PCN	(mm)	(Inch)	Non-Cum.	Cum.	% Ret.	% Pass.	Lower		Sieve	1	2
LaW-estant No	100	4"									
Laboratory No.	90	3 1/2"								1	
Field Sample No.	75	3"]	*
1	63	2 1/2"]	
Pit Location	50	2"]	
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Owner	25	1"	0.0	0.0	0.0	100.0				_	
	19	3/4"	135.1	135.1	5.1	94.9	70	100		_	and the same of th
Project	16	5/8*	143.1	278.2	10.6	89.4				1	
	12.5	1/2"								_	
County	9.5	3/8"	389.2	667.4	25.3	74.7				_	- or enapse
SARGENT	4.75	No. 4	416.4	1083.8	41.1	58.9	38	80		_	į
Material/Specification	Minus	No. 4	1551.3	2635.1		Λ.()5%				
MODIFIED CLASS 13	Wt. C	Check		2635.1		0.0) .				
Date Received	Origin	al Wt.	2636.4							_	
					and the second						
Date Sampled											
5-8-2015	Sieve	Size	Wt. F	Ret.	% Ret.	% Pass.		ss Tot	ACC 10170 TO 10170	Spec.	Failing
Sampled From	(mm)	No.	Non-Cum.	Cum.	70 1 (01)	****		npl	Lower	Upper	Sieve
STOCKPILE	2.36	8	72.8	72.8	21.8	78.2	46	6.0	22	62	
Submitted By	2	10			octorio i						.
ENDERSON CONSTRUCTION	1.18	16	59.4	132.2	39.7	60.3		5.5			
	600 um	30	40.8	173.0	51.9	48.1	28	3.3	12	45	
FRACTURED FACES	425 um	40									_
FF= % of Particles wifractured faces	300 um	50							ļ		
WF= Weight of fractured particles	150 um	100	77.2	250.2	75.0	25.0		47		<u> </u>	
/	75 um	200	19.4	269.6	80.9	19.1	11	1.3	10	15	ــــــــــــــــــــــــــــــــــــــ
WQ= Wt of questionable fractured particles	Minus No. 2	200 (75 um)	1.0	270.6			_				
		al Wt.	333.4				(0.09%			
WA-Weight of total sample		er Wash	270.3		_						
	Wash	Loss	63.1								
FF= (WF+WQ/2)/WA X 100 ND Spec	Wt. C	Check		333.7							
10%	J	UTBELOUT	DIFOEE								
		HTWEIGHT	PIECES	No. 4	, + No. 30 N	talorial					
+No. 4 (4.75mm) M	ateriai		(I) Weight of				trl	=		7	
(A) % Retained on No. 4 Sieve			(i) weight of	Li. VVI. F160	200, -11U. T,	1 140. 50 14	ш.				
(B) % Passing No. 30, Total Sample	= = = = = = = = = = = = = = = = = = =		(1) Mojaht of	F. No. 4 + 1	Vo. 30 Mate	rial		=		1	
(C) % Pass No. 4 - % Pass No. 30 [100-(A+B)] = =		(J) Weight of - No. 4, + No. 30 Material = (K) Lt. Wt. Pieces, - No. 4, + No. 30 (I/J)x100 =								
(D) Total Sample A+B+C (E) Wt. of Lt. Wt. Pleces in + No. 4 Mtrl.			(L) Lt. Wt. Pi	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			οf			1	
1122			Total Sample			Iviateriai 70	OI .	122			
(F) Weight of + No. 4 Material (G) Lt. Wt. Pieces, + 4 Mtd (E/F)x100			Total Gample	3 (1010)1101						1	
(H) Lt. Wt. Pieces, + No. 4 Mirl., % of Total			<u></u>					=		ND	Spec
(H) Lt. VVt. Pieces, + No. 4 Min., % of 100	a Sample (OX	7//100	(M) Lightweig	oht Pieces i	n Total San	nole (H+L)		=======================================			2%
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AGGREGATE SAMPLE WORKSHEET Department of Transportation, Materials & Research SFN 9987 (Rev. 07-2007)

		Sleve	Size	Wt. R	et.	% Ret.	% Pass.	ND Spec.	Falling		
PCN [*]		(mm)	(Inch)	Non-Cum.	Cum.	% Ret.	70 Fass.	Lower Upper	Sleve		
		100	4"								
aboratory No.	·	90	3 ½"		CALCULATION OF THE PARTY OF THE PARTY.						
a planting and a second	and the second	75	3"	er te de la company							
Field Sample No.	a i ja samaa Shis	63	2 ½"		****			表的人类的			
2	776 3 3 3 46 K		2"	THE STATE OF		***************************************					
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	(5-15-16-16-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16-18-16	37.5		0.0	0.0	0.0	100.0	2012/07/19 19:19:19:19:19			
Owner)	androva i sekroze	25	1"	123(8	123.8	4.0	96.0	70 100			
Marlo /	AVSIA MA	19	3/4"	The second secon	325,4	10.4	89.6				
Project	4 Mg. 150	16	5/8*	201.6		16.3	83.7				
W/1504077		12.5	1/2H	184.7	510.1		76.8				
County		9.5	3/8"	216,8	726.9	23.2					
Sargent		4.75	No. 4	379.1	1106.0	35.4	64.8	4880 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Material/Specification		Minus	No. 4	2020.3	3126.3		0.0)2%	1		
Mod CL-13		Wt. C	heck		3126.3						
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Sale Medalved	ol zaky.										
Date Sampled								r	l NEA		
645-15	randan y	Sleve	Size	Wt. F	tet.	% Ret.	% Pass.	% Pass Tot			Fallin Sleve
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Sampled From	inger sport i die s	2.36	8	78,9	78.9	16.6	83.4	53.9		62	
		2	10						SOURCE STATE OF THE		
Submitted By		1.18	16	90.1	169.0	35.6	64.4	41.6		力引	
		- Colonia de la colonia de la	30	79.7	248.7	52.3	47.7	30,8	12	45	
		600 um		40.7	289.4	60.9	39,1	25.3	《安徽》		
FRACTURED FACES		425 um	40		326.3	68.7	31.3	20.2			
FF= % of Particles w/fractured fac	28 8	300 um	50	36,9		AMERICAN PROPERTY.	20.1	13.0			
WF= Weight of fractured particles		150 um	100	53.1	379.4	79.9				15	×
	- file of the second	75 um	200	25.4	404.8	85.2	14.8	- (9.0 / -	6 35993(colf)3	J.W. 313	
WQ=Wt of questionable fractured		Minus No. 2	200 (75 um)	12,3	417.1						
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W∧≕ Weight of total sample		Wt. Afte Wash			474.2						
W∧≕ Weight of total sample	21	Wt. Afte Wash Wt. 0	n Loss	57.1	474.2			Maria de la companio de la companio de la companio de la companio de la companio de la companio de la companio	and the second s		
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WA= Weight of total sample FF= (WF +WQ/2)WA X 100 +No. 4 (A) % Retained on No. 4 Siev (B) % Passing No. 30, Total (C) % Pass No. 4 - % Pass N (D) Total Sample A+B+C (E) Wt. of Lt. Wt. Pleces in +	ND Spec (4.75mm) Mat ve Sample No. 30 [100-(A	Wt. After Wash Wt. C	n Loss Check HTWEIGHT	FIECES (I) Weight of (J) Weight of (K) Lt. Wt. P	- No. 4 Lt. Wt. Ple f - No. 4, + leces, - No. eces, - No.	No. 30 Mate , 4, + No. 30 4, + No. 30	+ No. 30 N erial) (I/J)x100	STATE OF THE PARTY			
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Aggregate Gradation & Physical Properties Report

PCN			Laboratory !	_		
Project:	0		Field Sample	0 :No.:		
r rojoot.	0		, tota autopio	1		
	ecification		Date Receiv			
	IFIED CLAS	SS 13	Data Camal	0		
Pit Locatio	n: MARLOW		Date Sampl	ea: 5-8-2015		
Pit Owner:			Sampled Fr	om:		
	0			STOCKPILE		
County:	SARGENT		Submitted ENDERS	By: ON CONSTRI	JCTION	
Sieve		Comparison Results		Failing		Spec.
Inch	(mm)	(%Passing)	(%Passing)	Sieve	Lower	Upper
3"	75.0	(70. 4009)				
2 1/2"	63	- And Andrews -				
2"	50					
1 1/2"	37.5	<u> </u>				
1"	25.0		100			
3/4"	19.0		95		70	100
5/8"	16.0	eg endet sent om en en en en en en en en en en en en en	89			
1/2"	12.5					
3/8"	9.5		75	***		
No. 4	4.75		59		38	80
No. 8	2.36		46		22	62
No. 10	2.00	4.000 (day)				
No. 16	1.18		36	1000		
No. 30	600um		28	2000	12	45
No. 40	425um	And the second s				
No. 50	300um	And the second s	- Control of the Cont			
No. 100	150um		15			
No. 200	75um		(/11.3)		10.0	15.0
Shale					-	2%
Fractured Fa	aces	· · · · · · · · · · · · · · · · · · ·	+		10)%
L.A. Abrasic	n					
Wt. Lbs. / C.	F. Loose				ļ	
Wt. Lbs. / C.	F. Rodded				<u> </u>	
Remarks:						
ivoitiai No.						
		SENT COP	Y TO SPARKY E.			
Distribution	n;					
		Approved	X	The second secon	UTSON	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Engineer Contractor		Not Approved		1 itie/\$	Superviso	JI
CONTRACTOR		Date	5-8-2015		SF	N 9987
					-	

ort Number: rvice Date:

M1151010.0006

Report Date:

12/14/15 12/15/15

Fargo, ND 58102-2923 701-282-9633

Client

Bernard Mahrer Construction, Inc.

Attn: Mitch Mahrer

PO Box 57

Rutland, ND 58067-0057

Project

Plant Tests 2015 - Bernard Mahrer Construction, Inc.

305 1st St. N.

Rutland, ND 58067

Project Number:

M1151010

TEST OF AGGREGATE

DATE SUBMITTED:

12/12/2015

LOCATION SAMPLED:

Stockpile, Sargent County Project

SOURCE:

Mahrer Construction

MECHANICAL ANALYSIS:(AASHTO T 27)		NDDOT SPECIFICATIONS SECTION 816,02
% Passing 1" (25.0 mm) 3/4 (19.0) 5/8 (16.0) 1/2 (12.5) 3/8 (9.5) #4 (4.75) 8 (2.36) 16 (1.18) 30 (600 μm) 50 (300) 100 (150) 200 (75)	100 95 89 84 78 64 50 39 28 19	Class 13 Modified ,Sargent Co. 100% 70-100 38-75 22-62 12-45

HEMARKS:

Sample meets the above Modified NDDOT Class 13 gradation requirements. Sample was submitted by Mitch Mahrer and received here on December 12, 2015.

Services:	Test sample submitted by the client or client's representative for gradation.

Terracon Rep.: Reported To:

Contractor:

Report Distribution: (1) Bernald Maluer Combination, Inc., (701) 734-3041

Revi	iewed	By:
------	-------	-----

Jeffrey J. Mathson

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

Page 1 of 1

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed entoosed entoosed entooleng at 701.231.5988 or countytw	velope by November 20, 2019 . Please direct any questions vp@ugpti.org.
county: Sheridan	
Contact: Shirley A. Murray	701-363-2205 SMUPPay@nd.gov
Preparer: Shirley A. Muna	70/-363-2205 SMURRAY@nd.gov Phone Email Date Prepared:
Aggre	egate Description
	I quality of aggregate used in your county, please check or county uses crushed, specification base gravel – select ons.
Gravel	
Scoria	
Pit Run	<u>u</u>
Screened	
Crushed Material	•
Specifications	
Tested	
Other	
Plac	ement Practices
When aggregate overlays are placed in used to apply an aggregate overlay.	your county, please select the typical practice that is
Truck Drop and Blade	
Windrow/Equalize	
Water/Rolling/Compaction	
Other	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	-0-	10090	
Hauling	25%	75%0	
Placement	25%	75%	
Blading	75%	25%	
Dust Control	-0-	100%	
Base Stabilization	-0-	100%	

Gravel Road Costs

avel/Scoria Cost		,	
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$ 4.75	Per cu. yard Per Ton	Is this Contractor Price? (yes/100)
Trucking Cost from Gravel Origin	\$3.25 plus .55 for each mile after 3 miles	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price?(yes/no)
Average trucking distance for aggregate	10	 ☑ Miles one-way☑ Miles roundtrip	
Truck Payload	12	☑ Cu. Yards ☐ Tons	
Placement Costs	NA	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$ /25.00	Annual cost per mile	Is this Contractor Price? (yes/10)
Dust Suppressant Costs	N/A	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	N/A	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices, based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	> 50	50-150	150-350
Average Regraveling Thickness	2	3	ろ
Blading Frequency (# per month)	1	2	3
Regraveling Frequency (years between regraveling)	8	16	5
Dust Suppressant (yes/no)			
Base Stabilization (yes/no)			

f you answered yes for Dust Suppressant – which type do you use?	
f you answered yes for Base Stabilization — which type do you use?	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good		K
Good	80	20
Fair	30	30
Poor	50	50
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Class # 13 or # 5 gravel is used on roads.

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Sioux	
/	
Contact: Steven Snides	901-422-3316 smsnider@nd.go
Name	Phone Email
Preparer: <u>Steven Snider</u>	Date Prepared: <u>// 22 - 2019</u>
Aggr	egate Description
	d quality of aggregate used in your county, please check ur county uses crushed, specification base gravel – select ons.
Gravel	X Í
Scoria	
Pit Run	
Screened	A
Crushed Material	×
Specifications	点
Tested	
Other	
Plac	cement Practices
When aggregate overlays are placed in used to apply an aggregate overlay.	n your county, please select the typical practice that is
Truck Drop and Blade	≱ .
Windrow/Equalize	
Water/Rolling/Compaction	
Other	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing		100%	
Hauling	100 te		
Placement	100 20		
Blading	100 %		
Dust Control	IVA		
Base Stabilization	NA		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

ravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	800	☐ Per cu. yard ☑ Per Ton	Is this Contractor Price? (ves no)
Trucking Cost from Gravel Origin	6.00	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/ho)
Average trucking distance for aggregate	3/mils	Miles one-way Miles roundtrip	, 1, , 2
Truck Payload	a4ton	☐ Cu. Yards ☑ Tons	
Placement Costs	43119.26	Per Mile	Is this Contractor Price? (yes/ho)
Blading Cost	53,10	Annual cost per mile	Is this Contractor Price? (yes/10)
Dust Suppressant Costs		Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	. 7	.5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	750	50-150		
Average Regraveling Thickness	311	411		
Blading Frequency (# per month)	1	/	. ,	
Regraveling Frequency (years between				
regraveling)	15 no But	of 15-20 no Bu	Roet	
Dust Suppressant (yes/no)	V		V	
Base Stabilization (yes/no)				

If you answered yes for Dust Suppressant – which type do you use?		
If you answered yes for Base Stabilization – which type do you use?	٠	** -

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	50	
Good	30	60
Fair	10	20
Poor		20
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

(Lass 13)

Comments or Suggestions (please attach additional sheets if needed):

We don't get to regard regravel much do to our (Sioux lo) tax base, We just don't have much of a budget and still have alot of dirt roads to maintain (siele roads). Cind all the water this year our reads have taken a beating.

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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

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County:	Stope	Coun	t-/			4.1449.0000000
Contact:	Nathan 1	riller	701-206	6-0710	nlmiller	Ond.gov
	Name		Phon	ie	Em	ail
Preparer	: Nathan	Mille		Date Prep	ared: <u>10 - 2</u>	3-19

Aggregate Description

To provide information on the type and quality of aggregate used in your county, please check all boxes that apply. For example, if your county uses crushed, specification base gravel – select gravel, crushed material and specifications.

Gravel	×
Scoria)
Pit Run	
Screened	
Crushed Material	X
Specifications	× 00T class 13
Tested	×
Other	

Placement Practices

When aggregate overlays are placed in your county, please select the typical practice that is used to apply an aggregate overlay.

Truck Drop and Blade	X
Windrow/Equalize	X
Water/Rolling/Compaction	
Other spot scitter	Ø
+ 3/1/-	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0	100 %	
Hauling	10 %	90%	
Placement	10 %	90 %	
Blading	100 %	0	
Dust Control	50%	50 %	
Base Stabilization	0	100 %	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Average Gravel/Scoria Cost (crushing & royalties at the pit)	46.00	Per cu. yard Per Ton	Is this Contracto Price? (yes/no)
Trucking Cost from Gravel Origin	Prices vary Based on Mileage	□ Per loaded mile □ Per cu. yard □ Per Ton	Is this Contracto Price? (yes/no)
Average trucking distance for aggregate	10	Miles one-way ☐ Miles roundtrip	
Truck Payload	22		
Placement Costs	M120 - 50 Per Hour Blade Time	Per Hour	Is this Contracto Price? (yes/no)
Blading Cost	Rate	Annual cost per	Is this Contracto Price? (yes/no)
Dust Suppressant Costs	18100/24' wide mile	Per mile	Is this Contracto Price? (yes/no)
Base Stabilization Cost	unknown	Per mile	Is this Contracto Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels							
	Low	Medium	High					
Daily Traffic (Total AADT)	>50	50-150	150-350					
Average Regraveling Thickness	3 in	4 in	5 in					
Blading Frequency (# per year)	8	12	16					
Regraveling Frequency (years between regraveling)	7	5	3					
Dust Suppressant (yes/no)	no	no	Yes					
Base Stabilization (yes/no)	no	no	Yes					

County Entry	Traffic Levels						
	Low	Medium	High				
Daily Traffic (Total AADT)	> 50	50 -150					
Average Regraveling Thickness	3	3					
Blading Frequency (# per	1500103 FAILOS	1-3	1				
Regraveling Frequency (years between			·				
regraveling)	10-15	10					
Dust Suppressant (yes/no)	NO	7 € 5					
Base Stabilization (yes/no)	NO	No					

If you answered yes for	Dust Suppressant –	which type	do you useî	?	
Calcium			-		

If you answered yes for Base Stabilization – which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)			
Very Good	50	10			
Good	40	40			
Fair	10	45			
Poor	0	5			
Total	100%	100%			

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

All roads use ND DOT class 13 spec grad

Comments or Suggestions (please attach additional sheets if needed):

[&]quot;North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veteran's status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Vice President of Equity, Diversity, and Global Outreach, 205 Old Main, Fargo, ND 58108, (701) 231-7708."

M #20 NDSU UPPER GREAT PLAINS E-Mailer TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: STARK		
Contact: AL HEISER	701-290-8429	aheiser@starkcountynd.gov
Name	Phone	Email
Preparer: TODD MILLER, Road Op	erations Specialist Date P	repared: 10/23/2019
	Aggregate Descrip	tion
·	, if your county uses crus	ate used in your county, please check hed, specification base gravel — select
Gravel	$\overline{\checkmark}$	
Scoria	$\overline{\checkmark}$	
Pit Run	▼	
Screened		
Crushed Material	$\overline{\checkmark}$	
Specifications	\checkmark	
Tested	\checkmark	
Other		
	Placement Practic	es
When aggregate overlays are pla used to apply an aggregate overla		ase select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other		

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:							
Task	County	Contractor						
Crushing	0	100						
Hauling	80	20						
Placement	100	0						
Blading	95	5						
Dust Control	90 10							
Base Stabilization	100	0						

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

ravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$6.13	Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$110.00/HR	☐ Per loaded mile☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	25	■ Miles one-way □ Miles roundtrip	
Truck Payload	18-20	■ Cu. Yards□ Tons	
Placement Costs	\$156.99/HR Per Mile		Is this Contractor Price? (yes/no)
Blading Cost	\$146.70/HR	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	7,000	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	6,000	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels							
	Low	Medium	High					
Daily Traffic (Total AADT)	>50	50-150	150-350					
Average Regraveling Thickness	3 in	4 in	5 in					
Blading Frequency (# per year)	8	12	16					
Regraveling Frequency (years between regraveling)	7	5	3					
Dust Suppressant (yes/no)	no	no	Yes					
Base Stabilization (yes/no)	no	no	Yes					

County Entry	Traffic Levels						
	Low	Medium	High				
Daily Traffic (Total AADT)	>50	50-250	250-up				
Average Regraveling Thickness	3	6	6				
Blading Frequency (# per month)	2	4	12				
Regraveling Frequency (years between regraveling)	15	10	5				
Dust Suppressant (yes/no)	NO	NO	YES				
Base Stabilization (yes/no)	NO	NO	YES				

If you answered yes for Dust Suppressant – which type do you use? MAG CHLORIDE

If you answered yes for Base Stabilization – which type do you use? BASE-1 and GEO GRID and Fabric

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	80	65
Good	10	10
Fair	10	10
Poor	0	15
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

ATTACHMENT

Comments or Suggestions (please attach additional sheets if needed):

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AGGREGATE QUALITY TESTS SUMMARY

North Dakota Department of Transportation, Marenals & Research Division SEM 10072 (28v. 11.2015).

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	10/18/18	Belt	18-SCG07	100	99	68	56	39	12.4	2.9			
T	10/22/18	Belt	18-SCG08	100	97	63	52	38	13.9	2.5			
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If the PI and LL are required, these should also be shown. Sieve size percentages and physical property results shall be reported to the required specification. Include all tests conducted, both passing and failing and circle all failing percentages. Indicate under "Remarks" the action taken to correct the situation causing failing tests. As each item of the project is completed, submit the original copies of these reports to the district materials coordinator for correction and review. When the district materials coordinator for correction and review.

Submitted by Project Engineer Name	
Mike Njos, Highlands Engineering	Legena :
Reviewed by District Material: Coordinator Name	Legena i V - zegla
	P. Fisign-
Vale	L-Indeper

AGGREGATE QUALITY TESTS SUMMARY

North Dakota Department of Transportation, Materials & Research Division, SEN 10072 (Rev. 11-2015)

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	1 1/27/18	Belt	18-SCG19	100	983	65	54	38	13.7	4.5		
	11/28/18	Belt	18-SCG20	100	99	65	54	38	11.4	3.2		
	11/29:18	Bell	18-SCG21	100	96	68	57	43	13.3	fs, 1		
	12/3/18	Belt	18-SCG22	100	95	58	49	37	11.7	7.99		The second section of the second section of the second section
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	Gary	DISTRIBUTION	00,00	0.00	2019SocialSorvices	Haul Material			0 Haurs \ \$45,00	GRAVEL 126,00 \$9,88
	Reindel, Cary	HIGHWAY DISTRIBUTION	10.00	0.00		Haul Material		18-15	0 Hours \$73,35 10 Hours \$15.01 10 Hours \$67.89	SHALE : 200,00 ; \$0,00
10/22/2019	Kudma, Roger	HIGHWAY DISTRIBUTION	00.01	0.00	2019SocialServices	Haul Material		18-13	10 Hours \$72,95 19 Hours \$15,01 0 Hours \$73,35	GRAVEL: 200.00 (\$9.88
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10/29/2019	Hatayi, Paut		10 00	9,00		Material Hauf Material		18-15	10 Hours \$73,35 10 Hours \$15,01	SHALE 20,00 - \$5,10 SCORIA 260,00 (\$6.25
10/22/2019			16.00	0 00		Material Haul		11-21	1 Hours \$59,69 10 Hours \$15,01	GRAVEL 180,00 \$9,88 SCORIA 320,00 \$6,25
10/21/2019			0.00	1.00	2019SocialServices	Material Haul		11-21	10 Hours \$59.69 1 Hours \$15.01	GRAVEL 180,00 ; \$9 88
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10/21/2019		DISTRIBUTION HIGHWAY	0,00	1.00	2019SocielSarvices	Material Usul			: 10 Hours , \$45,00	GRAVEL 126,00 \$9,88
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	Namington, Doug	HIGHWAY DISTRIBUTION	8.50	0.00		Haul Material		18-20	8 5 Hours \$15,01 8 5 Hours \$73,35	SHALE , 260 00 \$5,10
10/19/201	B Dillinger. Randy	HIGHWAY DISTRIBUTION	0.00	6 00		Hauf Material			1 10 Hours \$15 01 6 Hours \$73,35	GRAVEL 100 00 \$9.88
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Cost Hamington, Doug 737.50 530,830.86 Hernul, Paul \$1,478.01 821,50 \$30,939.88 34,00 \$1,514.02 Kuntz, Leon 285,00 513,149,80 HAW MATERIAL 1,00 \$48 30 Schack, Keith \$4,671.62 0.00 Schank, Myron \$0.00 \$32,128.93 33,50 Schaper, John \$1,501 14 154.00 \$5,527.50 26.00 Schmidt, Robert \$1,124.76 152.00 \$6,195,52 0.00 Tysyer, Richard \$0.00 557.50 \$23,150.78 Kitzen, Cary 8.50 \$380.89 20,00 \$896,90 Messer, Marvin 14.50 \$717.61 *3*67 00 \$11,232.96 66,00 \$2,562.00 Mosser, Chad 73,50 \$1,034,47 0.00 Stoltz. Chad \$0.00 55.50 \$2,267.81 0.00 Kubas, Melvin 311.00 \$12,967.49 Reladel, Cary 3.50 \$156.91 778.50 \$31,136.85 44 50 Masser Jr. Jaseph \$1,994.16 390,00 \$14,044,35 Kudera, Roger 26.25 \$1,091,81 615.00 \$24,718,89 Miller, Todd 4 00 \$171.16 47.50 \$2,365.50 Deinger, Rendy 0.00 \$0.00 24 50 \$1,219,37 7,50 \$414.83 Stephens, Inomas 4.00 \$194.16 0.00 \$0.00 Schaff, Gary 94.00 53,807 94 \$49.06

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https://nd-co-stark.timecard-plus.rtvision.com/reports.php?r=3

Stark County Road Department Mayor, Gary 13.00 \$589.10 Heidl, James 0.00 13.00 \$564.95 **Equipment Subtotals** 0.00 \$0.00 Equipment 18-70 Quantity ().37 916.75 Hours 18-15 874.75 Hours 11-34 880.5 Haurs 18-\$7 883,5 Hours 11-26 141 Hours 18-16 744.25 Hours 11-32 805 Hours 18-21 876,5 Hours 11-33 926.5 Hours 18-13 916.5 Hours F1-35 979.5 Hours 953,5 Hours 11-27 886 25 Hours 18-19 183.75 Hours 11-31 718.25 Hours 11-06 739.25 Hours 11-05 60 Hours 11-22 125 Hours 11-21 22.5 Hours 11-29 113 Hours 11-36 2.5 Hours 11-23 35 Hours 11-24 53 Hours 18-18 54 Haurs 17-03 14 Hours 389 11-25 20 Hours 10 Hours Inventory SCORIA Quantity GRAVEL 25074 Biereled 56252 5 SAND 3048 SHALE TOP SOIL 40182.5 768

Inventory Subtotals Mitangs (Blacktop) Blacktop-Cold Mix 16516 24" Culved 440 MagChlonds 520 Used > 48" Culvert 33500 Rock for Rup Rap Repoted Material 415 WATER 870 Fill Det 60000 CONCRETE FOR RIP HAP 112 48' Culvert 66 Steel Boams 40 PAVEMENT 700

Maling Make

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10/22/2019 Schmidt, Robert	HIGHWAY DISTRIBUTION	00.00 00.00		Blading Roads		15-21 (8.25 Hours \$118.16		
Employee	Hours / Cost (Reg Time =	4386,5 / \$187,506,07,	Overtime = 466 / \$22,672,23))	Made	Equipment Hours (4730)			
Employee Subtotals					Edochusest Gents (4530)			\$210,178,30
	ployee		Regular Hours		Cost	Overtimo Hours		Cast
Schmidt, Robert				457,00	\$18,627.32		25.00	\$1,248.25
Messer, Char				469.50	\$20,667.39		13.50	\$662,31
Stephens, Thomas				306.00	\$14,619.60		38,50	\$2,067,07
Miller, Todd				225.50	\$11,105,66		33.00	
ನದಣಿಗೆ, Gary				436,00	\$17,550,84		63.75	\$1,826.56
Mayor, Gary				529,50	\$23,742.87		73,50	\$3,127.58
Messer Marvin				439.00	\$18,463.03		41.50	\$3,637 52
Schaper, John				394.60	\$14,171.14			\$1,898.63
Kuntz, Leon				306.00	\$14,130,71		18.50	\$800.31
Schank, Keith				325 50	\$12,982.23		51.25	\$2,619.18
Кёзал, Свту				315 50	\$14,116.18		55.50	\$2,479.64
Baer, Wayne				16.50	\$793.49		15.50	\$767 10
Schank, Myron				2.50	\$101.98		0.00	\$0.00
Harrington, Doug				125.50			28.50	\$1,277.09
Hott, Justin				38.00	\$5,181.94		8.00	\$381 (14
Equipment Subtotals		enc. No.	Name of the State		\$1,251.72		0.00	\$0.00
	Equipme	ent				Quantity		
15-21						,	700 754	
15-19							386,75 Hours	
15-17							508 Hours	
15-15							277 25 Hours	
15-20							236 Hours	
15-18							487,75 Hours	
15-11							615 Hours	
15-10							\$10,5 Hours	
15-14							329.5 Hours	
15-13							315.5 Hours	
15-16							339 Hours	
15-22							399 Hours	
							325.75 Hours	

Blading

	J.J						Sta	ek County Danid Dan		
	Chad	DISTRIBUTION					Sta	rk County Road Depa	arlment	
09/25/2019						Gravel				
09/25/2019	Tond	HIGHWAY DISTRIBUTION	2 00	0.00		Spread Gravel		15-15 2 Hours \$97.05		
	Robert	HIGHWAY DISTRIBUTION	10.00	0.00		Spread Gravel		15-21) 9 Hours : \$118.16		
09/28/2019	Chad	HIGHWAY DISTRIBUTION	10.00	0.00		Spread Gravel		15-19 10 Hours : \$118.96		
09/26/2019	Messer, Marvin	HIGHWAY DISTRIBUTION	2,00	9 00		Spread Gravel		15-18 2 Hours \$97.05		
10/07/2019	Kuntz, Leon	HIGHWAY DISTRIBUTION	10.00	0.00		Spread Gravel		15-20 10 Hours \$118,96		
10/07/2019	Messer. Marvin	HIGHWAY DISTRIBUTION	10.00	0.00		Spread Gravet		15-11 : 10 Hours \$80.80		
10/08/2019	Messer, Marvin	HIGHWAY DISTRIBUTION	7.00	0.00		Spread Gravel		15-11 7 Hours \$80 80		
10/09/2019	Schmidt, Robert	HIGHWAY DISTRIBUTION	10.00	0.00		Spread Gravel		15-21 - 9 Hours \$118,16		
10/14/2019	Kuntz. Leon	HIGHWAY DISTRIBUTION	10.00	0.00		Spread		15-20 10 Hours \$118.96		
10/15/2019	Kuntz, Leon	HIGHWAY DISTRIBUTION	10.00	0.00		Gravel Spread		15-20 10 Hours \$118.96		
10/16/2019			10.00	0.00		Gravel Spread		15-20 10 Hours \$118.96		
10/17/2019		HIGHWAY	10,00	0.00		Gravel Spread		15-20 10 Hours \$118.96		
10/17/2019	Kuntz,	DISTRIBUTION	0.00	1.00		Gravel Spread		15-20 1 Hours \$118.98		
10/21/2019	Leon Kuntz	DISTRIBUTION HIGHWAY	10.00	0.00		Gravel Storead				
10/21/2019	Leon Musser,	DISTRIBUTION	10.00	0 00		Gravel Spread		15-20 10 Hours \$118.96		
10/22/2019	Marvin Messer,	DISTRIBUTION	10.00	0 00		Gravel Spread		15-11 10 Hours \$80.80		
10/22/2019	Marvin Messer,	DISTRIBUTION	0.00	0,50		Gravel		15-11 10 Hours \$80.80		
10/22/2019	Marvin	DISTRIBUTION	5,00			Spread Gravel		15-11 0.5 Hours \$80.80		
	Todd	DISTRIBUTION		0.00		Spread Graves		15-20 6 Hours \$118.96		
Employe		ors room than the	- 12/6/	54,847.15, Ovortime =	27.25 / \$1,344,53))		Equipment Hours (1312.25)			\$56,191.68
rmploye	e Subtotals									
	Employee	10.1		Regular	Haure					
Schank, Kuit	1				30,00		Cost	Overtime Hours		Cast
Schaff, Gary					160,00		\$1,117,40		0.00	\$0.00
Kuntz, Leon					269.00		\$6,465.20		0.00	\$0.00
Schmidt, Rob	ert				344.00		\$12,286.67		15.75	\$783.72
Messer, Chac	1				292.00		\$14,021.44		1.50	\$74.90
Kifzan, Cary							\$12,853 84		3.50	\$171.71
Mosser, Mary	fa.				65.00		\$2,847 10		2.50	\$123.73
Miller, Todd					92.00		\$3,909,08		2.00	\$91.50
Baer, Wayne					13.00		\$647,40		0.00	\$0.00
Mayor Gary					3.00		\$145.62		0.00	50.00
					1 92		v-253,40		2.00	\$98.98
Equipmen	nt Subtotals									
		Equipa	nnst.							
15-13		Equipii	10711				Q	vantity		
15-22									24	Hours
15-20										Hours
15-21									360.75	Hours
									313.5	
15-14										Hours
15-19									308,51	
15-16									503,5 1	
15-11										
15-15										lours
15-18									71	Hours

Sprend Gravel

30 Hours

https://nd-co-stark.timecard-plus.rtvision.com/reports.php?r=3

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by November 20, 2019. Please direct any questions

to Alan Dybing at 701.231.5988 or county	<u>/twp@ugpti.org</u> .
county: Steele Count	Ty
Contact: Reed L. Oien	201-789-0536 STEELE COLIZAWAY CNAGOI
Preparer: <u>2-13-20</u>	TY 201-789-0536 Steele Cohigh Way Chigo Phone Email Date Prepared: 2-13-20
Agg	gregate Description
To provide information on the type a all boxes that apply. For example, if y gravel, crushed material and specifica	and quality of aggregate used in your county, please check your county uses crushed, specification base gravel – select ations.
Gravel	
Scoria	
Pit Run	\vdash
Screened	
Crushed Material	
Specifications	
Tested	
Other	
PI	lacement Practices
When aggregate overlays are placed used to apply an aggregate overlay.	d in your county, please select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:				
Task	County	Contractor			
Crushing	0 %	100%			
Hauling	25%	75%			
Placement	25 % 75 %	25%			
Blading	100 %	0%			
Dust Control	0%	100 %			
Base Stabilization	25%	75%			

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$ 7.50	☑ Per cu. yard ☑ Per Ton	Is this Contractor Price? (ves) no)
Trucking Cost from Gravel Origin	# 17.00	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (ve)/no)
Average trucking distance for aggregate	33 miles	Miles one-way Miles roundtrip	
Truck Payload	22	☑ Cu. Yards ☐ Tons	
Placement Costs	Included in contraction	Per Mile	Is this Contractor Price?(ves/no)
Blading Cost	\$95/W	Annual cost per mile	Is this Contractor Price? (yes/ന്റ്)
Dust Suppressant Costs	All Contractor	Per mile	Is this Contractor Price (yes/no)
Base Stabilization Cost	All Contractor	Per mile	Is this Contractor Price? (ves/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels					
ENTER ACTORE BLEOW	Low	Medium	High			
Daily Traffic (Total AADT)	>50	50-150	150-350			
Average Regraveling Thickness	3 in	4 in	5 in			
Blading Frequency (# per year)	8	12	16			
Regraveling Frequency (years between regraveling)	7	5	3			
Dust Suppressant (yes/no)	no	no .	Yes			
Base Stabilization (yes/no)	no	no	Yes			

County Entry	Traffic Levels						
	Low	Medium	High				
Daily Traffic (Total AADT)	530	30.80	> 80				
Average Regraveling Thickness	4:2	4:~	4:5				
Blading Frequency (# per month)	2	3	4				
Regraveling Frequency (years between regraveling)	3	3	3				
Dust Suppressant (yes/no)	No	No	o lo				
Base Stabilization (yes/no)	No	N.	\sim				

f you answered yes for Dust Suppressant – which type do you use?	_
If you answered yes for Base Stabilization – which type do you use?	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	A single-property of the single-property of t	27000 CONMISSION OF THE PROPERTY OF THE PROPER
Good	(00	1,0
Fair	40	40
Poor		
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

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Steele County Highway Department 201 Gordon Street, PO Box 291 Finley ND 58230-0291 (701) 789-0536

Re: Road Standards

To Whom It May Concern:

It is the standard practice of the Steele County Highway Department to maintain a minimum of four inches of Crushed gravel and four inches of class five or higher gravel on its entire County Road gravel surfaces.

Sincerely,

Reed L. Oien, Road Superintendent
. Steele County Highway Department

	÷		

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by November 20, 2019. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County:	Stutsman		
Contact:	Mickey Nenow	701 25 29040	mnenow@stutsmancounty.gov
	Name	Phone	Email
Prepare	r: Jim Wentland	Date	Prepared: Feb.25 2020
	Agg	grega te Descri _l	otion
all boxes	, .	your county uses cru	gate used in your county, please check ished, specification base gravel – select
C	Gravel	$\overline{\checkmark}$	
S	coria		
F	it Run		
S	creened		
C	Crushed Material	$\overline{\checkmark}$	
S	pecifications	$\overline{\checkmark}$	
	- Tested		
C	Other		
	PI	a cemen t Practi	ces
	ggregate overlays are placed apply an aggregate overlay.	l in your county, pl	ease select the typical practice that is
Т	ruck Drop and Blade	\checkmark	
٧	Vindrow/ Equalize		
	Water/Rolling/Compaction		
C	Other		

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0	100	
Hauling	80	20	
Placement	80	20	
Blading	90	10	
Dust Control	0	0	
Base Stabilization	0	0	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

Average Gravel/Scoria Cost (crushing & royalties at the pit)	6.41	☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	.45	☐ Per loaded mile☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	12	☐ Miles one-way ☐ Miles roundtrip	
Truck Payload	18	☐ Cu. Yards☐ Tons	
Placement Costs		Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	1140.00	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	О	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	O	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. regraveling thickness, blading Following the traffic entry, please enter the frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW		Traffic Levels			
	Low	Medium	High		
Daily Traffic (Total AADT)	>50	50-150	150-3 50		
Average Regraveling Thickness	3 in	4 in	5 in		
Blading Frequency (# per year)	8	12	16		
Regraveling Frequency (years	7	5	3		
between regraveling)					
Dust Suppressant (yes/no)	no	no	Yes		
Base Stabilization (yes/no)	no	no	Yes		

County Entry		Traffic Levels			
	Low	Medium	High		
Daily Traffic (Total AADT)	50	10	40		
Average Regraveling Thickness	3in	3in	4in		
Blading Frequency (# per month)	7	7	12		
Regraveling Frequency (years between	e''}	9	· **		
regraveling)	hen .	L.	Lan.		
Dust Suppressant (yes/no)	no	no	no		
Base Stabilization (yes/no)	no	no	no		

If you answered yes for Dust Suppressant – which type do you use?

If you answered yes for Base Stabilization -- which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	10	10
Good	30	20
Fair	40	40
Poor	20	30
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Class 13 road gravel.

Comments or Suggestions (please attach additional sheets if needed):

Water this spring is not going to help as we are very wet already. Stutsman county has a disaster declaration since fall 2019.

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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: Towner		
	5.00	T
Contact: Kevin Rinas	739 ~ 6225 Phone	Frem # gondic.com
Preparer: Keren Puns		pared: ///s//9
• -		
Agg	regate Descripti	on
To provide information on the type ar all boxes that apply. For example, if your gravel, crushed material and specificat	our county uses crush	
Gravel		
Scoria		
Pit Run		
Screened		
Crushed Material	4	
Specifications		
Tested		
Other		
Pla	cement Practice	es
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, pleas	se select the typical practice that is
Truck Drop and Blade	◪	
Windrow/Equalize		
Water/Rolling/Compaction	<u> </u>	
Other		

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing	Ölo	100 %		
Hauling	20%	30 6/0		
Placement	70%	30 %		
Blading	100%	0%		
Dust Control	0%	0%		
Base Stabilization	0%	0%		

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	8.30 - 2.00	Per cu. yard	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	F6.00	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	ลร	☑ Miles one-way ☐ Miles roundtrip	
Truck Payload ·	20 413	► Cu. Yards ☐ Tons	
Placement Costs	·	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	£90.00	Annual cost per mi le	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	: :	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost		Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no ,	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry		Traffic Levels		
	Low	Medium	High	
Daily Traffic (Total AADT)	50			
Average Regraveling Thickness		401		
Blading Frequency (# per month)	-	10		
Regraveling Frequency (years between				
regraveling)		5		
Dust Suppressant (yes/no)	No			
Base Stabilization (yes/no)	No			

ır.	you answered y	£	Durat Cummuna	ant which	tuna da	
IT '	vou answered v	Jes Tor	Duscouppress	sanı — wnich	type ao	-vou user
	you uniberer	,	- acc - app. cc		-,	,

	 - /	377 117
If you answered yes for Base Stabilization – which type do you use?		
and the control of th		

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	16%	10%
Good	26%	30%
Fair	60%	30%
Poor	10%	36%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

"我们的","我们是我们的"我们","我们","我们们","我们们"。"我们们","我们们","我们们","我们们","我们们","我们们","我们们","我们

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NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2019 COUNTY ROAD NEEDS STUDY SURVEY

Please return this survey in the enclosed envelope by **November 20, 2019**. Please direct any questions to Alan Dybing at 701.231.5988 or <u>countytwp@ugpti.org</u>.

County: <u> </u>		
Contact: Corwyn MARTIN	701636 4341	CORWYN M @ NO. GOV
Preparer: Colwyn Martin	Phone Date Pro	<u>CoRwyw M & NO. Gov</u> _{Email} epared: <u>10 - 21 - 19</u>
Ag	gregate Descript	ion
	your county uses crush	te used in your county, please check ned, specification base gravel – select
Gravel	×	
Scoria		
Pit Run		
Screened		
Crushed Material		
Specifications	丛	
Tested		
Other		
Р	lacement Practice	es
When aggregate overlays are place used to apply an aggregate overlay.		se select the typical practice that is
Truck Drop and Blade Windrow/Equalize Water/Rolling/Compaction Other		

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Pe		
Task	County	Contractor	
Crushing			
Hauling	25%	75%	
Placement	25%	75%	
Blading	100%		
Dust Control		100%	
Base Stabilization	MA	MA	

Gravel Road Costs

Please report costs for gravel for county roads in the table below. The table asks for unit costs for graveling, maintaining, and operating gravel roads. If you are quoting contractor prices, please circle "yes" in the right hand column.

ravel/Scoria Cost				
Average Gravel/Scoria Cost (crushing & royalties at the pit)	17.20 - CONTROPE	☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (ve)/no)	
Trucking Cost from Gravel Origin	included Above	☐ Per loaded mile☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (ves/no)	
Average trucking distance for aggregate	tuctured above	☐ Miles one-way ☐ Miles roundtrip		
Truck Payload	Contractor: there	Cu. Yards		
Placement Costs	County: 6.00	Per Mile	Is this Contractor (o Price? (Ve)/no)	Noinet
Blading Cost	\$35.00	Annual cost per mile	Is this Contractor Price? (yes/no)	
Dust Suppressant Costs	315,000	Annul 11 y	Is this Contractor Price? (yes/no)	
Base Stabilization Cost	N/A	Per mile	Is this Contractor Price? (yes/no)	

of courty budgets \$15,000 Awarily for Dust control, would do more if funding was Available

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3 ************************************
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>20	50-150	120-320
Average Regraveling Thickness	111	۵"	311
Blading Frequency (# per month)	4-5	4-5	4-5
Regraveling Frequency (years between regraveling)	3	2	1
Dust Suppressant (yes/no)	As weeded	As weeded	As needed
Base Stabilization (yes/no)	N/A	NA	NIA

If you answered yes for Dust Suppressant – which type do you use?

If you answered yes for Base Stabilization – which type do you use?	
\mathcal{A}	

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	٥٧.	0>.
Good	67,	0>
Fair	25%	252
Poor	75%	75%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Comments or Suggestions (please attach additional sheets if needed):

Typically we Regravel AT 300 yard per/mile

But Do To ROAD CONDITIONS WE ARE going TO

400 yards Per Mile IN 2020 AS Budget Permits,

TRAIL County Does NOT Have Aug gravel Left And

HAS NO CHoice But To go for Contracted gravel

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2019 COUNTY ROAD NEEDS STUDY SURVEY

County: Walsh		
Contact: Sharon Lipsh	701-352-1530	slipsh@nd.gov
Name	Phone	Email
Preparer: Sharon Lipsh	Date P	repared: 11/21/2019
Agg	gregate Descrip	tion
	our county uses crus	ate used in your county, please check hed, specification base gravel – select
Gravel		
Scoria		
Pit Run		
Screened		
Crushed Material	4	
Specifications	₹	
Tested		
Other		
Pia	acement Practic	ces
When aggregate overlays are placed used to apply an aggregate overlay.	in your county, ple	ase select the typical practice that is
Truck Drop and Blade Windrow/Equalize		
Whater/Rolling/Compaction	 	
Other		

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing	0	100	
Hauling	33	67	
Placement	100	0	
Blading	100	0	
Dust Control	0	0	
Base Stabilization	25	75	

Gravel Road Costs

vel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	3.50	☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	0.19	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	40	■ Miles one-way□ Miles roundtrip	
Truck Payload	20	☐ Cu. Yards ☐ Tons	
Placement Costs	181.66 avg. blading only	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	1,071 (avg. 2019)	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	County does no dust suppressant	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	17,900 (Base One w/reclaimer)	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. thickness, Following traffic entry, please enter the regraveling blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels		S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry		Traffic Leve	els
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150+
Average Regraveling Thickness	2"	2" - 3"	3" - 4"
Blading Frequency (# per month)	2	3	3-4
Regraveling Frequency (years between regraveling)	4	3	1-2
Dust Suppressant (yes/no)	N	N	N
Base Stabilization (yes/no)	As needed	As needed	As needed

If you answered yes for Dust Suppressant – which type do you use?

If you answered yes for Base Stabilization – which type do you use?

BaseOne with reclaimer application or county crew digout and replace with fabric, pit run and gravel.

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	13	8
Good	21	23
Fair	52	57
Poor	14	12
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

We use 816.03B for gravel surfacing for normal maintenance gravel. For regrading projects we have used SP714(14).

Comments or Suggestions (please attach additional sheets if needed):

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2019 COUNTY ROAD NEEDS STUDY SURVEY

<u></u>	· · · · · · · · · · · · · · · · · · ·	
County: Ward County		
Contact: Dana Larsen	701-838-2810	dana.larsen@wardnd.com
Name	Phone	Email
Preparer: Dana Larsen	Date P	Prepared: 11-19-2019
Ag	ıgregate Descrip	otion
	your county uses crus	rate used in your county, please check shed, specification base gravel – select
Gravel		
Scoria		
Pit Run		
Screened		
Crushed Material	✓	
Specifications	\checkmark	
Tested	\checkmark	
Other		
Р	lacement Practio	ces
When aggregate overlays are place used to apply an aggregate overlay.	ed in your county, ple	ease select the typical practice that is
Truck Drop and Blade	\checkmark	
Windrow/Equalize	$\overline{\checkmark}$	
Water/Rolling/Compaction Other Soft Spots Repair & Roadway Reshaping	✓	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Perfor	med by:
Task	County	Contractor
Crushing	0%	100%
Hauling	50%	50%
Placement	50%	50%
Blading	100%	0%
Dust Control	50%	50%
Base Stabilization	0%	100%

Gravel Road Costs

avel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$6.00	Per cu. yard	Is this Contractor Price? (ves)no)
Trucking Cost from Gravel Origin	\$4.00	☐ Per loaded mile☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (ves/no)
Average trucking distance for aggregate	30	☐ Miles one-way ☐ Miles roundtrip	
Truck Payload	24	☐ Cu. Yards ☐ Tons	
Placement Costs *	\$9,000	Per Mile	Is this Contractor Price? (ves)(no)
Blading Cost	\$3,800	Annual cost per mile	Is this Contractor Price? (yes no
Dust Suppressant Costs	\$9,000	Per mile	Is this Contractor Price? (ves)no)
Base Stabilization Cost	\$125,000	Per mile	Is this Contractor Price? (yes/no)

^{*} Placement Cost include \$3,000/mile to pull shoulders and reshape roadway, \$1,000/mile soft spot repair, \$5,000/mile lay-down; including the cost for water, signing and mobilization 2

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. traffic please enter the regraveling thickness, blading Following the entry, frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW		Traffic Level	S
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-350
Average Regraveling Thickness	3 in	4 in	5 in
Blading Frequency (# per year)	8	12	16
Regraveling Frequency (years between regraveling)	7	5	3
Dust Suppressant (yes/no)	no	no	Yes
Base Stabilization (yes/no)	no	no	Yes

County Entry	Traffic Levels		
	Low	Medium	High
Daily Traffic (Total AADT)	>50	50-150	150-300
Average Regraveling Thickness	3	4	6
Blading Frequency (# per month)	2	3	5
Regraveling Frequency (years between regraveling)	7	5	5
Dust Suppressant (yes/no)	no	Only on haul routes	Yes
Base Stabilization (yes/no)	no	yes on haul routes	yes

If you answered yes for Dust Suppressant – which type do you use?

Calcium Chloride and Magnesium Chloride and starting to use Brine Water

If you answered yes for Base Stabilization – which type do you use? 12-16 inch Cement-treated base (CTB)

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	5	0
Good	35	15
Fair	50	50
Poor	10	35
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Attached is a copy of our Gravel Spec that we have used for about 15 years but added the PI spec about 6 years ago. We have added a 1/2 inch sieve and increased the fractured faces to 30% to make sure the crushing contractor does not screen out the rock and making sure we have enough fractured rock.

Comments or Suggestions (please attach additional sheets if needed):

For the Gravel Road Condition i use South Dakota rating guidelines, which i attached. We have focus that last 8 years on making sure our roads had a 4% and have be adding between 3-6 inches of new gravel. When we gravel. Most of our roads in the Fair to Poor category are at least partially deficient in the following; have bridges, culvert that need repaired, replaced or cleaned, inslopes range between 2:1 and 4:1, ditches separation is less then 4 feet in places, vertical and horizontal curves do not meet design standards, backslopes create snow traps and sloughs, rip rap, culvert ends and fences are within clear zone.

For gravel road practices, we are looking at using CTB on our road to bring them up to a 105,500 pound load rating on roads with over 150 ADT, higher truck volumes, and roads with poor soil (silt)

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BIDDER'S FORM FOR ROAD GRAVEL CRUSHING AND STOCKPILING

Governing Specifications:

Standard Specifications for Road and Bridge Construction, adopted by the North Dakota Department of Transportation, October, 2014 shall apply to all North Dakota Department of Transportation contracts, standard drawings currently in effect, and other contract provisions submitted herein.

Class 13 (modified type 1), NDDOT Specifications, Sections 816.02. Modify percent passing the ½" sieve to 50-90%, Plastic Index (PI) between 4-9; minimum fracture faces of 30%; delete reference to shale and L.A. Abrasion.

Class 13 (modified type 2), NDDOT Specifications, Sections 816.02. Modify percent passing the ½" sieve to 50-90%, minimum fracture faces of 30%; delete reference to shale and L.A. Abrasion.

Payment shall be made on measured stockpile quantity. The cost of testing, stripping, stockpiling and restoration of excavated, shall be included in the bid amount.

Bidders shall make necessary site investigations to determine satisfactory pit location. All prebid test holes shall be filled and leveled before leaving the site. Do not bid crushing at a specific site unless assured of making product specified.

The Contractor shall make the necessary sieve analysis to assure a specified product, and use good practices to prevent segregation in the stockpile. For this crushing bid a lot will be defined as 5000 ton of production of the specified material. Three random belt samples will be taken for each lot and tested by a certified testing laboratory and reported to Ward County and will be incidental to the crushing. If the material from all three samples meets the gradation specified only one of the three samples will be tested from each subsequent lot. The laboratory will also need to run one hydrometer test per lot. If the sample tested does not meet the gradation requirements, the remaining two samples will be tested. The average gradation of these three samples will then be used to determine acceptance of the material. The testing of three samples will continue until all three samples meet the gradations specified then only one of the three samples will be tested from each lot. When the aggregate does not meet the gradation specified, a reduction in the Contract Unit Price will be made. If the aggregate fails to meet the specified gradation on one or more sieves or fracture face, the reduction will be the sum of the deductions as calculated below.

Unit Price Reduction: Percent of deduction = 5×10^{-5} x percent of deviation from the range limits.

If material is produced that deviates from the specified gradation for two consecutive lots or good crushing and stockpile techniques are not use, incorporation of additional materials into the work will not be allowed until the contractor takes the necessary corrective action to meet the specifications. If the average does not meet the specified limits for fractured faces, the Contractor shall correct the stockpile so the material meets specifications.

Table 1. Gravel Roadway Rating and Evaluation Scheme.

Surface Rating	Visible Distresses and Overall Roadway Condition
100 to 81 (Excellent)	Roadway surface is in excellent condition with very good rideability. Good gravel thickness and excellent drainage. No distresses in the roadway, with the exception of dusting in dry conditions.
80 to 61 (Good)	Adequate gravel thickness, good pavement crown, and good drainage. Moderate loose aggregate and slight washboarding. Slight rutting (< 25 mm [1 in]) in some areas during wet weather.
60 to 41 (Fair)	Good crown of 75 to 150 mm (3 to 6 in). Primary ditches present on more than 50 percent of the roadway. Some culvert cleaning is necessary. Secondary ditches beginning to develop along portions of the shoulder line. Gravel layer is adequate, but additional aggregate is necessary in isolated areas. Moderate washboarding (25 to 50 mm [1 to 2 in] deep) over 10 to 25% of the area. Moderate rutting (25 to 50 mm [1 to 2 in] deep), especially in wet weather. Occasional small potholes (< 50 mm [2 in] deep). Some loose aggregate (50 mm [2 in] deep).
40 to 21 (Poor)	Travel at slow speeds (< 40 kph [25 mph]) is required. Little or no roadway crown (< 75 mm [3 in]). Adequate primary ditches on less than 50 % of the roadway. Deep secondary ditches located along more than 50 % of the roadway length. Some areas (up to 25 %) with little or no aggregate. Culverts partially filled with debris. Moderate to severe washboarding (> 75 mm [3 in] deep) over 25 % of area. Severe rutting (> 75 mm [3 in]) in 10 to 25 % of roadway during wet weather. Moderate potholes (50 to 100 mm [2 to 4 in] deep) over 10 to 25 % of area. Severe loose aggregate (> 100 mm [4 in]).
20 to 0 (Failed)	Travel on roadway is very difficult. No roadway crown, or the road is bowl-shaped with extensive ponding. Little, if any, primary ditches. Deep secondary ditches are located along most of the roadway. Culverts are damaged or filled with debris. Severe rutting (> 75 mm [3 in]) on more than 25 % of area, especially in wet weather. Severe potholes (over 100 mm [4 in] deep) over at least 25 % of the area. Many areas (over 25 %) with little or no aggregate.

_____ INTRODUCTION

Table 1. Gravel Roadway Rating and Evaluation Scheme (cont.).

Surface Rating	Typical Repair	Level of Repair
100 to 81 (Excellent)	Little or no maintenance needed. Routine blading.	None
80 to 61 (Good)	Routine blading. Cut out washboard areas and relay the gravel when moisture is present.	Routine/preventive maintenance.
60 to 41 (Fair)	Regrading of the surface is necessary to eliminate washboarding and secondary ditch. The regrading should be done when moisture is present. Some areas may need additional gravel. Some ditch improvement and culvert cleaning may be necessary.	Heavy maintenance.
40 to 21 (Poor)	Reshaping of the roadway surface and shoulders is necessary, along with the placement of additional aggregate. Major ditch reconstruction and culvert maintenance are also required.	Rehabilitation.
20 to 0 (Failed)	The entire roadway cross section must be reshaped, and a new gravel layer must be constructed. Ditches must be reestablished, and new culverts are typically needed.	Reconstruction.

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2019 COUNTY ROAD NEEDS STUDY SURVEY

County:	Wells County		
	Brent Keller	701-341-0167	brekeller@nd.gov
	Name	Phone	Email
Preparer	: Brent Keller	Date P	repared: 2-25-2020
	Agg	regate Descrip	tion
all boxes		our county uses crus	ate used in your county, please check hed, specification base gravel – select
G	Gravel	7	
S	coria		
Р	it Run	and the following	
S	creened		
C	crushed Material	Activities and the second	
S	pecifications		
Т	ested		
С	ther		
	Pk	a ce men t Practio	es:
-	ggregate overlays are placed apply an aggregate overlay.	in your county, ple	ase select the typical practice that is
V V	ruck Drop and Blade Vindrow/Equalize Vater/Rolling/Compaction Other	✓	

In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:		
Task	County	Contractor	
Crushing		100%	
Hauling	75%	25%	
Placement	75%	25%	
Blading	100%		
Dust Control	NA	NA	
Base Stabilization	NA	NA	

Gravel Road Costs

Gravel/Scoria Cost			
Average Gravel/Sconal Cost (crushing & royalties at the pit)	\$5.50	☐ Per cu. yard ☐ Per Ton	Is this Contractor Price? (yes/no)
Trucking Cost from Gravel Origin	\$.50	☐ Per loaded mile☐ Per cu. yard☐ Per Ton	Is this Contractor Price? (yes/no)
Average trucking distance for aggregate	20	☐ Miles one-way☐ Miles roundtrip	
Truck Pa yloa d	12	☐ Cu. Yards☐ Tons	
Placement Costs		Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$100	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	NA	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	NA	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. please enter the regraveling thickness, blading Following the traffic entry, frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-3 50	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years	7	5	3	
between regraveling)				
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	20-50	50-150	150 +	
Average Regraveling Thickness	1 in	2 in	3 in	
Blading Frequency (# per month)	1	1	1-2	
Regraveling Frequency (years between	0 40	6 7	A year	
regraveling)	8-10	6-7	4-5	
Dust Suppressant (yes/no)	no	no	ńO	
Base Stabilization (yes/no)	no	no	110	

If you answered yes for Dust Suppressant – which type do you use?

If you answered yes for Base Stabilization – which type do you use?

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)
Very Good	65%	45%
Good	35%	35%
Fair		15%
Poor		5%
Total	100%	100%

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

see attached

Comments or Suggestions (please attach additional sheets if needed):

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MATERIAL TESTING SERVICES, LLC

P.O. Box 634 Minol, ND 68702 (701) 852-6553

CLASS 5 & 13

7101 w 2710 Ave

Witiston, 180, 88891 (701) 572 4226

PROJECT: PRODUCTION CHECK

DATE:

6/13/19

REPORTED TO:

Wells County Rd Department

COPIES:

brekeller@nd.my

1203 5th Street NE Pessenden, ND 58438

Laboratory Number 19-001 SAMPLE IDENTIFICATION: Beaver Pit Hartel Pit Johnson Pit DATE SUBMITTED: 6/10/19 6/10/19 6/10/19 NDDOT Section 816.01 MECHANICAL ANALYSIS (AASHTO T-1.1, T-27): Class 5 Class 13 passing Γ^{n} 100 100 100 100 % 100 % 3/48 97 94 94 90 - 100 70 - 100 $1/2^{18}$ 87 76 81 70 72 #4 70 57 58 35 - 7038 - 75# 8 56 44 46 22 - 62 #16 43 32 # 30 32 19 22 16 - 40 12 - 48 # 50 18 9.8 15 # 100 9.6 7.0 8.2 # 200 7.0 6.5 5.7 4 - 10 7 - 15 ATTERBERG LIMITS: Liquid Limit non-plastic non-plastic non-plastic Plastic Limit non-plastic non-plastic non-plastic non-plastic Plasticity Index non-plastic non-plastic

The sample was submitted by Wells County Road Department.

AS A MUTUAL PROTECTION TO CLIENTS, THE PURISC AND OURSELVES, AT I REPORTS ARE SUBMITTED AS THE COMPRESENTAL PROPERTY OF CUERTS, AND AUTHORIZA CIGH FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGGARDING OUR REPORTS IS RESERVED PEDIDING OUR WRITTEN APPROVAL

Material Testing Services, LLC

2019 COUNTY ROAD NEEDS STUDY SURVEY

to Alan Dybing at 701.231.3308 or coar	itytwp@ugpti.org.	
County: Williams		
Contact: Dennis Nelson	(701)577-4521	dennisn@co.williams.nd.us
Name	Phone	Email
Preparer: Dennis Nelson	Date P	repared: <u>11/13/19</u>
Ag	ıgregate Descrip	tion
·	your county uses crus	ate used in your county, please check hed, specification base gravel – select
Gravel	✓	
Scoria		
Pit Run		
Screened		
Crushed Material	7	
Specifications	$\overline{\checkmark}$	
Tested	$\overline{\checkmark}$	
Other Specifications (Class 5)		
P	lacement Practic	es
When aggregate overlays are place	d in your county, plea	ase select the typical practice that is
used to apply an aggregate overlay.		
Truck Drop and Blade	\checkmark	
Windrow/Equalize		
Water/Rolling/Compaction Other_Water/Rolling/Compaction(when possible)	\checkmark	

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In this section, please provide a percentage of tasks that are done using county resources versus the percentage of work done by a contractor. For example, if your county owns the pit and does all of the crushing using county labor, 100% would be entered into the first column, and 0% in the second column.

	Performed by:			
Task	County	Contractor		
Crushing	0%	100%		
Hauling	70%	30%		
Placement	80%	20%		
Blading	95%	5%		
Dust Control	0%	100%		
Base Stabilization	10%	90%		

Gravel Road Costs

Gravel/Scoria Cost			
Average Gravel/Scoria Cost (crushing & royalties at the pit)	\$5.43	Per cu. yard Per Ton	Is this Contractor Price? (ye)/no)
Trucking Cost from Gravel Origin	\$3.39	Per loaded mile Per cu. yard Per Ton	Is this Contractor Price? (ves/no)
Average trucking distance for aggregate	15	■ Miles one-way □ Miles roundtrip	
Truck Payload	26	☐ Cu. Yards ☐ Tons	
Placement Costs	\$1,500	Per Mile	Is this Contractor Price? (yes/no)
Blading Cost	\$3,125	Annual cost per mile	Is this Contractor Price? (yes/no)
Dust Suppressant Costs	N/A	Per mile	Is this Contractor Price? (yes/no)
Base Stabilization Cost	\$133,000	Per mile	Is this Contractor Price? (yes/no)

This section asks for information regarding gravel road practices based upon differing traffic levels. Under the "Daily Traffic" row, please enter what you would consider low, medium and high traffic levels on gravel roads within your county. In the example below, low is categorized as less than 50 vehicles, medium 50-150 vehicles and high 150-350. This is expected to vary significantly from county to county, so please use your own estimates of traffic levels. Following the traffic entry, please enter the regraveling thickness, blading frequency, regraveling frequency, and whether dust suppressant or base stabilization are used at each of these traffic categories.

EXAMPLE ENTER ACTUAL BELOW	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	>50	50-150	150-350	
Average Regraveling Thickness	3 in	4 in	5 in	
Blading Frequency (# per year)	8	12	16	
Regraveling Frequency (years between regraveling)	7	5	3	
Dust Suppressant (yes/no)	no	no	Yes	
Base Stabilization (yes/no)	no	no	Yes	

County Entry	Traffic Levels			
	Low	Medium	High	
Daily Traffic (Total AADT)	100	100-350	350-600	
Average Regraveling Thickness	1"	2"	2" to 3"	
Blading Frequency (# per month)	1	2	3	
Regraveling Frequency (years between regraveling)	4	3	2	
Dust Suppressant (yes no)				
Base Stabilization (yes/no)				

If you answered yes for Dust Suppressant – which type do you use?			
If you answered yes for Base Stabilization – which type do you use?			

Cement or Permazyme

This section asks for information regarding gravel road conditions and is broken into two separate categories: Federal Aid, and Non-Federal Aid. Please provide a rough estimate of the percentage of unpaved roads by condition for these two categories.

Condition	% Federal Aid Roads (CMC)	% Non-Federal Aid Roads (non-CMC)		
Very Good	30%	20%		
Good	20%	30%		
Fair	30%	20%		
Poor	20%	30%		
Total	100%	100%		

Gravel Materials Specifications

Please attach a sample specification and sample gradation, or state materials specification number. If materials used on CMC routes differ from non-CMC routes, please provide sample specifications and gradation by system type, if available.

Class 5 DOT

Comments or Suggestions (please attach additional sheets if needed):

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		Victoria de 18
