

Cass County Pavement Preservation Plan

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I have been working at the Cass County Highway Department for 11 years doing design, construction management, and budgeting. Over this time, we have tried many different sections and we think we have narrowed it down to a process that works for us and may work for others throughout the state.

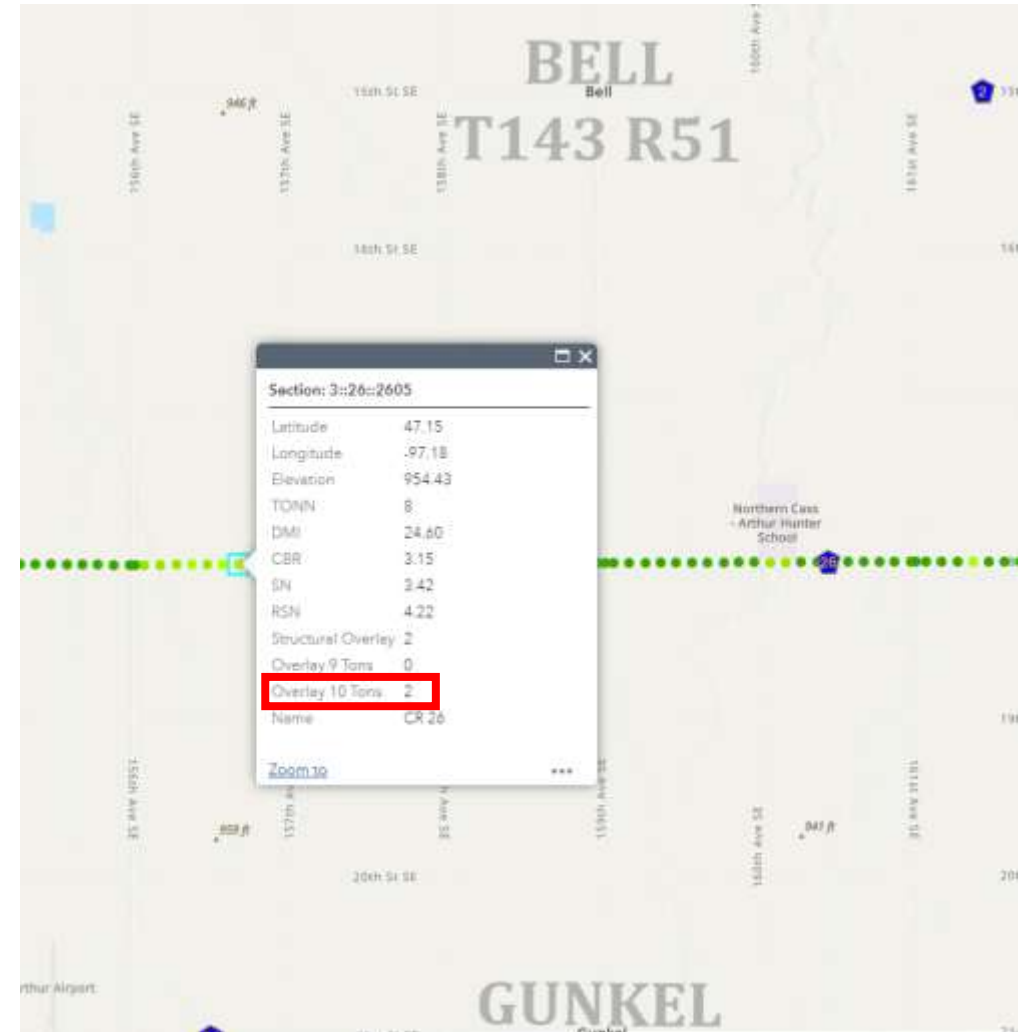
Planning

Where to start?

- Overall Goal
 - Get everyone of our paved roads to 10-ton Capacity
- Standard Projects (Cass County is confident with these three techniques)
 - Mill and Overlay
 - Crackseal
 - Chipseal
- Prioritization of Projects
 - Visual
 - Cracking
 - Blowouts
 - Rutting
 - Striping
 - Pavement Testing
 - Traffic Counts
 - Costs

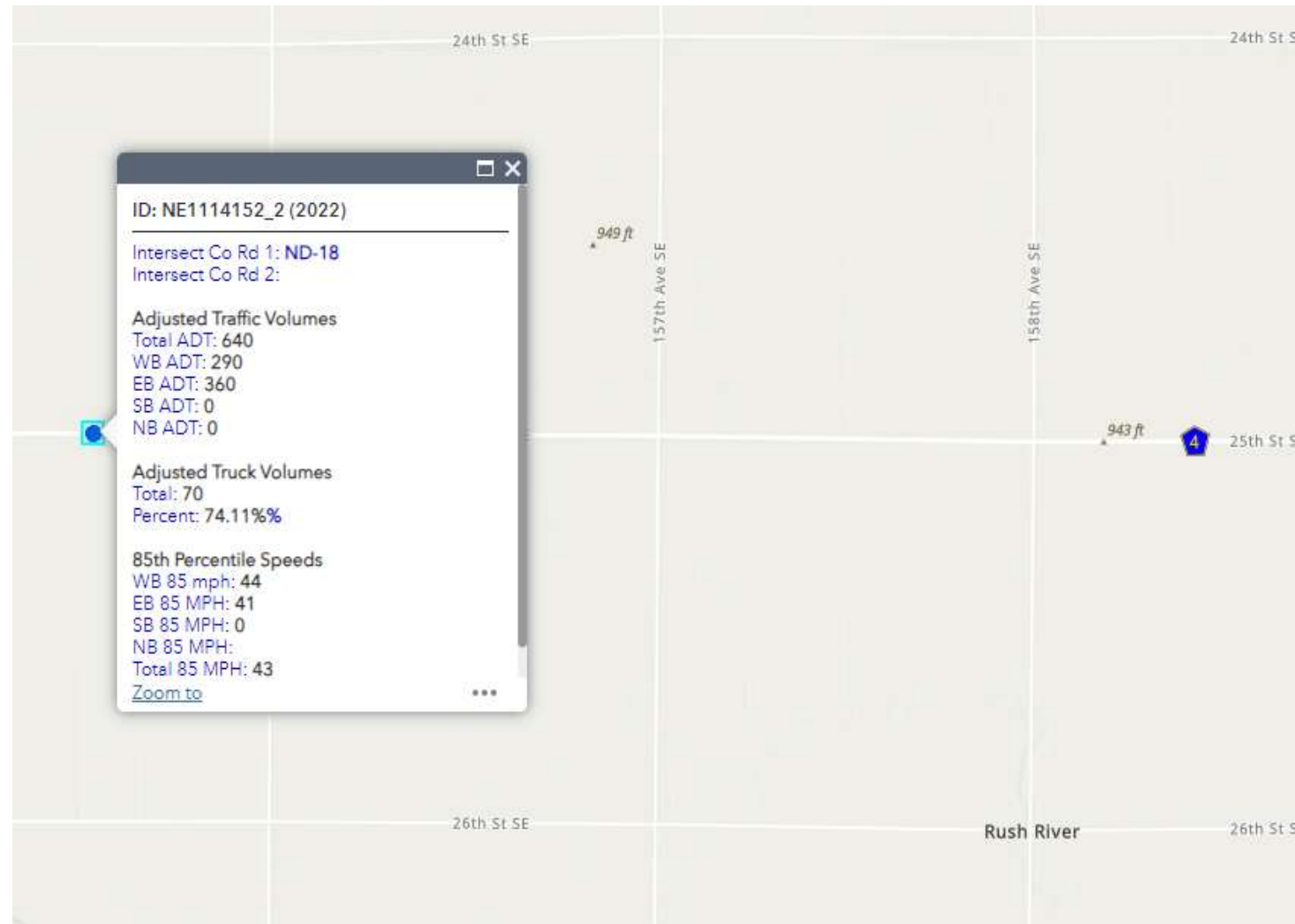
Pavement Testing

- Pavement Testing
 - FWD (Falling Weight Deflectometer) Testing
 - Completed every 5 years on all of our paved road sections every 0.1 Mile
 - Gives us existing road strength of roadway
 - California Bearing Ratio (CBR)
 - Structural Number (SN)
 - Can check if your recent projects achieved the strength what you planned
 - Road Capacity (Tons)
 - Gives us necessary Asphalt Overlay thickness (1-4IN) to achieve a 10-ton Roadway
 - If over 4IN overlay, then time to reconstruct
 - PCI (Pavement Condition Index) Testing
 - Completed every 5 years on all of our paved road sections
 - Gives us existing road top condition
 - Lets us know if another chipseal or other surface type is needed
 - Maybe the strength of the road is good, but it needs a surface treatment to improve ride



Traffic Counts

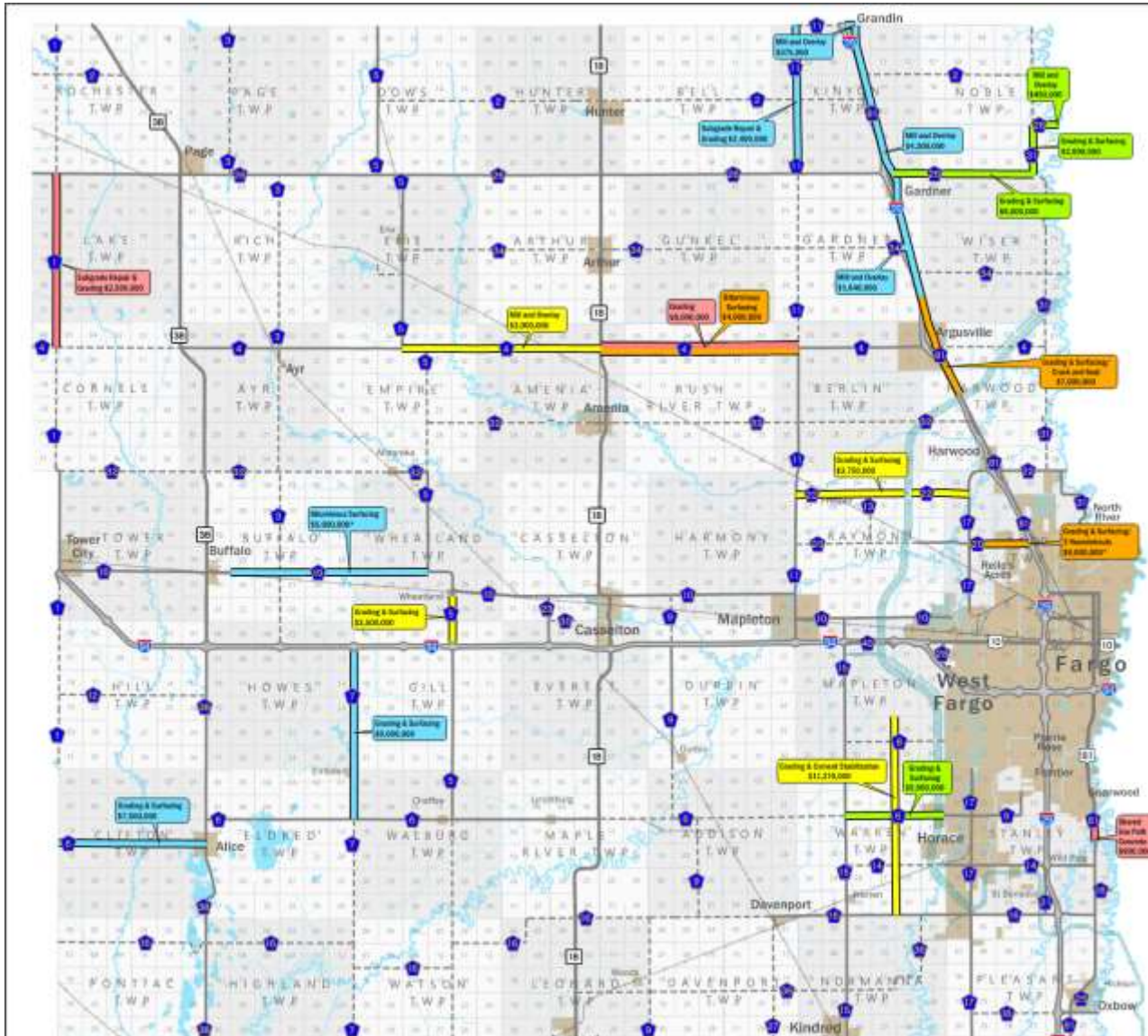
- Traffic Counts
 - Completed every 5 years on all of our roads
 - Lets us know where county road traffic coming/going, changes in traffic patterns, and what routes are seeing most traffic as well as how many trucks are traveling that route
 - Traffic counts are used in conjunction to the Pavement testing to give us more accurate numbers



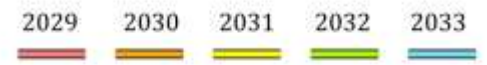
Construction Projects/Prioritization

- Mill & Overlay
 - Mill to correct cross slope and to get millings for RAP corporation into the mix
 - We use overlay thickness that came out of the Pavement Testing results to achieve a 10-ton road if applicable
 - Our Min Mill & Overlay requirements are 1.5" Mill and 2" Overlay
- Chipseal
 - Perform chipseal the next year after a new overlay project to preserve the new asphalt
 - Perform chipseal at the 10-15 year mark on asphalt pavement if PCI is low
- Crackseal
 - Perform crackseal the next year after a new overlay project to preserve the new asphalt
 - Perform crackseal every 5 years or so on asphalt pavement

5-10 year Plan



Appendix 15 2029 - 2033 6-10 Year Capital Improvement Plan Proposed Highway Projects



LONG RANGE PROPOSED HIGHWAY IMPROVEMENTS 2029-2033					
HWY	LOCATION	PROJECT TYPE	FUNDING	YEAR	COST
81	17th Ave to 20th Ave	Shoulder Tack Concrete	State	2029	\$980,000*
4	State Hwy 18 to Hwy 11	Local	Local	2029	\$8,000,000
1	Hwy 4 to Hwy 20	Shoulder Repair & Grading	Local	2029	\$2,700,000
4	State Hwy 18 to Hwy 11	Shoulder Grading	Local	2030	\$4,000,000
20	Hwy 17 to Hwy 11	Grading & Surfacing / Shoulder	State/FPP	2030	\$4,000,000*
81	20th Ave to Hwy 20	Grading & Surfacing / Mill & Overlay	Local	2030	\$1,000,000
5	Wheatland to 10th	Grading & Surfacing	Local	2031	\$1,500,000
4	State Hwy 18 to Hwy 11	Mill and Overlay	Local	2031	\$1,000,000
	Improvement 11: 20th Ave to Hwy 20	Grading & Shoulder Stabilization	Distal	2031	\$1,175,000
33	Hwy 17 to Hwy 11	Grading & Surfacing	Local	2031	\$1,000,000
30	27th St	Grading & Surfacing	Local	2032	\$8,000,000
31	Hwy 24 West to Hwy 18 East	Grading & Surfacing	Local	2032	\$1,000,000
20	Hwy 21 to Red River	Mill and Overlay	Local	2032	\$400,000
4	Statewide Extension to Hwy 27	Grading & Surfacing	Local	2032	\$1,000,000
7	10th to Hwy 5	Grading & Surfacing	Local	2032	\$8,000,000
10	17th to Buffalo	Shoulder Tack Concrete	Distal	2032	\$1,400,000*
11	Hwy 28 North & Main	Shoulder Repair & Grading	Local	2032	\$2,400,000
81	Hwy 20 to 23rd County	Mill and Overlay	Distal	2032	\$4,200,000
11	Through Station	Mill and Overlay	Distal	2032	\$275,000
84	Close 27	Mill and Overlay	Private	2032	\$1,400,000
4	Hwy 27 to State County	Grading & Surfacing	Local	2033	\$7,500,000

*Note: State to be completed on their schedule and subject to change when approved. Funding not to be necessary by the Road Advisory Committee.
*Funding for which grant is possible.

Cass County Highway Department

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CASS COUNTY
GOVERNMENT

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Asphalt Specifications

- Asphalt
 - Now we use PG58-34H
 - Have seen way better performance out of this oil with cracking and stripping
 - Special Provisions (we use on every paving job)
 - Ride Spec
 - Longitudinal Joint Spec
 - Intelligent Compaction
 - Used to use compaction spec before spec book put incentives for compaction
 - Rap
 - 15-20% Rap
 - We require contractor to crush millings to 5/8" for more consistence mix (we have seen tighter mats)
 - Tack
 - 0.05 Gal/SY on non milled surface
 - 0.1 Gal/SY on milled surface
 - 0.1 Gal/SY on centerline joint
 - Fog
 - We always fog after final lift while pavement is still warm @ 0.05 Gal/SY

Crackseal/Chipseal Specifications

- Crackseal
 - We always require routing on new cracks and band existing cracks (3/4"X3/4")
- Chipseal
 - CRS-2P Oil
 - 0.40 Gal/SY Mainline
 - 0.20 Gal/SY Shoulder (no chips)
 - CL 41 Agg.
 - Always Fog finished Chipseal
 - SS-1H or CSS1H Emulsified Asphalt
 - 0.05 Gal/SY



Questions?