UGPTI Updates

2019 County Roads Conference
Alerus Conference Center, Grand Forks
1/31/19

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UGPTI / NDLTAP

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Overview

- HIVE
- SST
- GRIT
- Safety
- International LVR Conference

HIVE VEHICLE

HIVE VEHICLE

- Developed by MnDOT Rochester District
  - Information at: http://www.dot.state.mn.us/research/projects/hive/hive.html
  - SDDOT and MnDOT districts have several in use
  - Building directions, supply list and help available at website
  - NDLTAP willing to help with own build
  - Average cost: $1,500/vehicle

HIVE VEHICLE

- Remote controlled vehicle with camera and tablet
- Creates High Definition videos of interior of culverts for inspection
- Best used on culverts 12”-48” in diameter
- Available for counties to borrow from NDLTAP
  - Requires Training from HIVE Coordinator
  - Requires rental agreement
  - Cost: **FREE**

https://www.ndltap.org/resources/equipment.php

HIVE VEHICLE

Equipment Loan Program

- NDLTAP has acquired other equipment for Counties
  - Dynamic Cone Penetrometer (DCP)
  - Ball Bearing Bank
  - Slope Meter
- Free for counties to rent

https://www.ndltap.org/resources/equipment.php

Surface Selection Tool

- Developed in 2015-2016
- Final Report 2017
- Web-based economic model for pavement and gravel
- Can be used for both Paving and un-paving decisions

http://dotsc.ugpti.ndsu.nodak.edu/SurfaceSelection/Default

SST Existing Data

- North Dakota
  - Regional Level
    - 3 Regions – West, East and Oil
  - Some County Level Data
- Available for updating
  - Contact me for log in information
  - Each county has ability to edit data

SST Steps for Analysis

1. Gather General Data
2. Identify Road Section
3. Select Surface Types to Analyze
4. Identify Common Parameters
5. Update Specific Roadway Costs
6. Analyze!

SST Analysis

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Local Road Surface Selection Tool

Home Analysis Administration Help Contact

General Setup

Selection of Default Setting Type	Region-Level	Default Base Year: 2017
	County-Level	Select county is not updated.

Selection of Surface Types

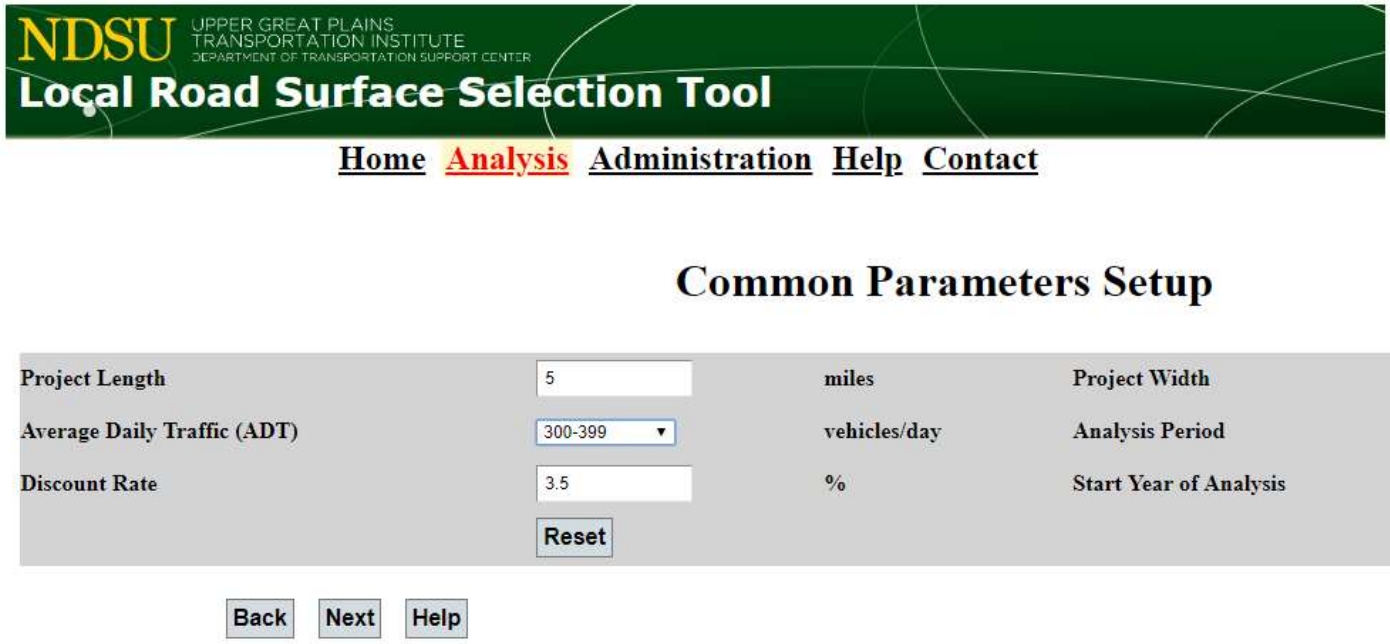
- [x] Hot-Mix Asphalt (HMA)
- [x] Asphalt Surface Treatment (AST)
- [x] Gravel
- [x] Dust Control
- [x] Stabilized Gravel

Selection of Alternative Cost Items

- [ ] Include salvage value
- [ ] Include user costs

Back Next Help

SST Analysis



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Agency Cost Parameters Setup

HMA | AST | Gravel | Dust Control | Stabilized Gravel

HMA

INITIAL COST

Total Initial Cost ($/mile): $ 372,615 Initial Cost Calculator

MAINTENANCE COST

Treatment Selection	Treatment Name	Application Times Per Year	Year Interval Between Applications	Application Start Year	Unit Cost (dollars)	Unit Selection
☑	Crack Sealing	1	7	4	4000	per mile
☑	Seal Coat	1	7	3	40000	per mile
☑	Thin Lift OverLay	1	20	21	200000	per mile
☑	Striping and Marking	1	1	2	1500	per mile
☑	Patching/Maintenance	1	5	9	6000	per mile
☐	Other	1	1	1	0	per mile

Reset

Next Surface | Back to Common Parameters Setup | View Analysis Summary | Help

SST Analysis

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HMA Initial Cost Parameters Setup

PARAMETER	VALUE	UNIT	PARAMETER	VALUE	UNIT
HMA Thickness (new)	4	inches	Reshaping / Sub-grade Prep	15000	$/Mile
HMA Cost (placed)	60	$/Ton	Reclaiming / Milling (if asphalt)	2.5	$/Sqyd
Base Thickness (New)	6	inches	Widening (if necessary)	0	$/Mile
Base Gravel Cost (placed)	26	$/Ton	Pavement Marking	1500	$/Mile
			Engineering / Contingencies	15	% of total

Total Initial Cost ($/mile) $ 372,615

Done Cancel Reset Help

SST Output

- Outputs cost summary and line chart summing costs over analysis period
- Can create PDF report of analysis information and outputs

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Local Road Surface Selection Tool

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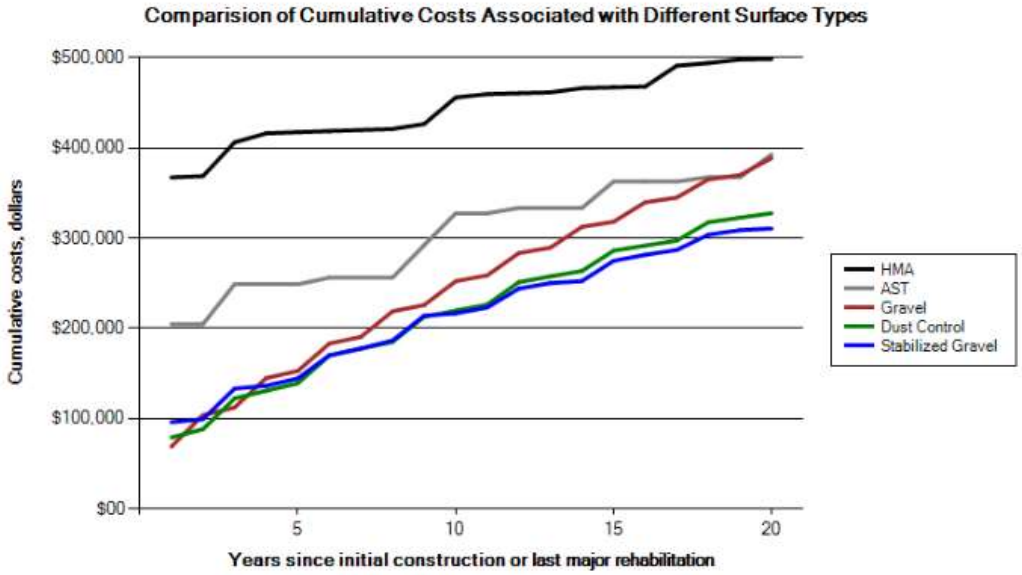
Agency Cost Short Summary - Per Mile

Surface Type	HMA	AST	Gravel	Dust Control	Stabilized Gravel
Total Initial Cost	$ 372,615	$ 204,564	$ 63,386	$ 69,386	$ 89,386
Total Maintenance Cost	$ 126,200	$ 188,099	$ 325,348	$ 258,175	$ 221,219
Total Salvage Value	$ 0	$ 0	$ 0	$ 0	$ 0
Total Agency Cost	$ 498,815	$ 392,663	$ 388,734	$ 327,561	$ 310,605

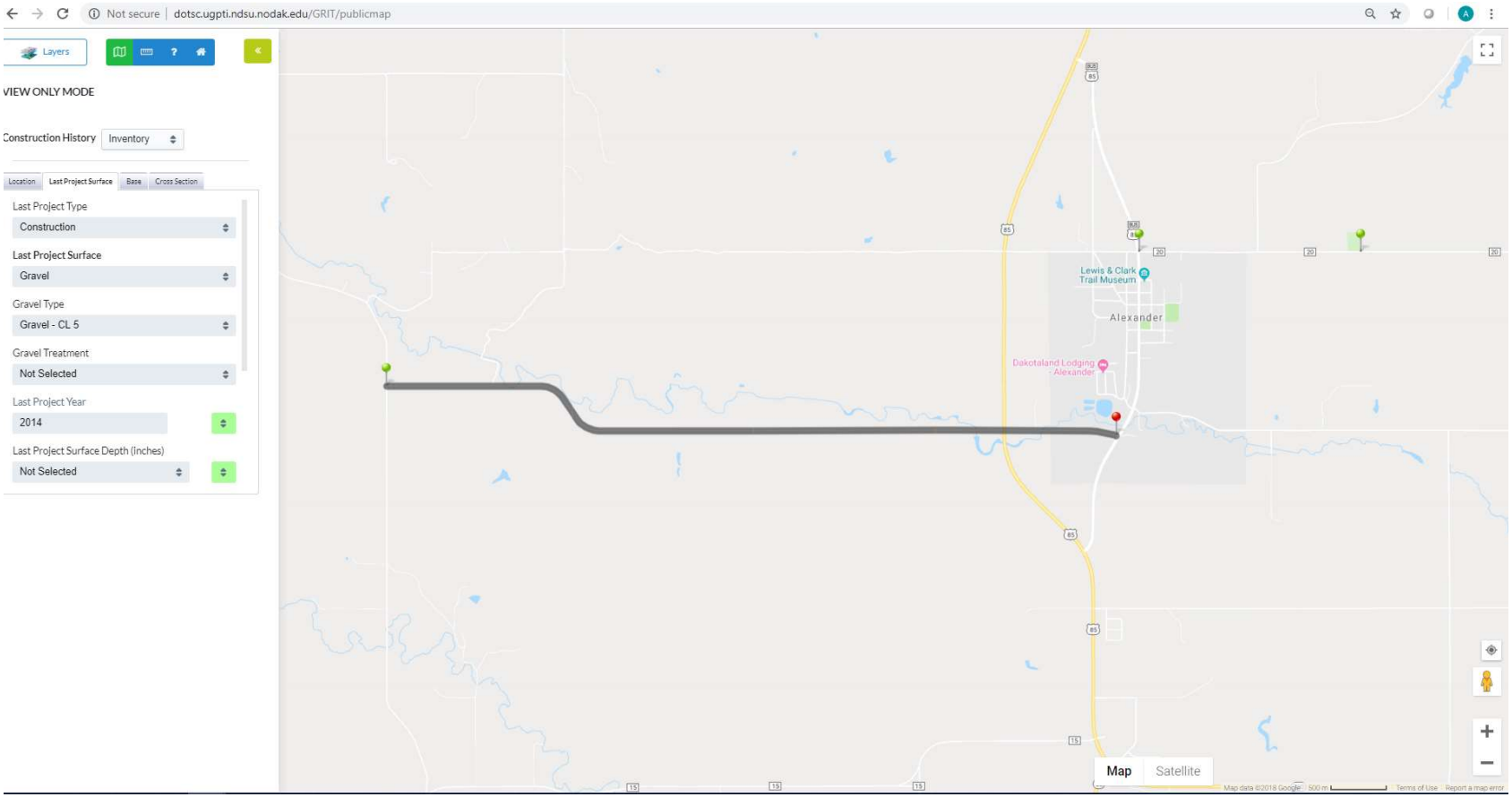


Back Generate PDF Report

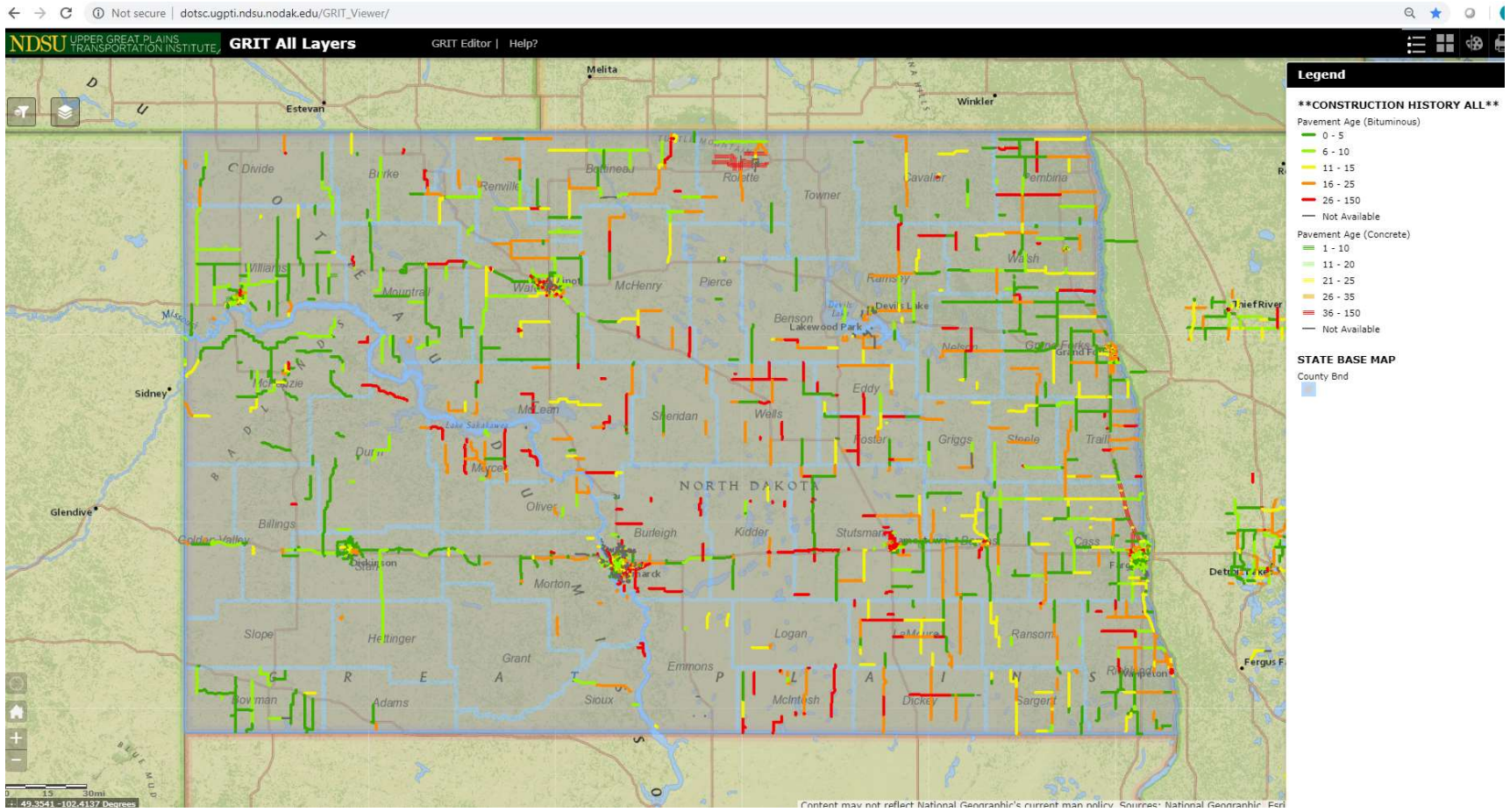
GRIT

- GRIT 2.0 update released May 2018
  - Updated interface
  - Updated mobile system
  - Data moved to new system
  - Web viewers remain same

GRIT


Not secure | dotsc.ugpti.ndsu.nodak.edu/GRIT/publicmap
Layers
VIEW ONLY MODE
Construction History
Inventory
Location
Last Project Surface
Base
Cross Section
Last Project Type
Construction
Last Project Surface
Gravel
Gravel Type
Gravel - CL 5
Gravel Treatment
Not Selected
Last Project Year
2014
Last Project Surface Depth (inches)
Not Selected
Lewis & Clark Trail Museum
Alexander
Dakotaland Lodging - Alexander
Map
Satellite

GRIT Viewer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GRIT All Layers
GRIT Editor | Help?
Legend
CONSTRUCTION HISTORY ALL
Pavement Age (Bituminous)
0 - 5
6 - 10
11 - 15
16 - 25
26 - 150
Not Available
Pavement Age (Concrete)
1 - 10
11 - 20
21 - 25
26 - 35
36 - 150
Not Available
STATE BASE MAP
County Bnd
NORTH DAKOTA
Melita
Estevan
Winkler
Sidney
Glendive
Billings
Golden Valley
Dickinson
Devils Lake
Lakewood Park
Thief River
Detroit Lake
Fergus F
Divide
Burke
Renville
Bottineau
Rolette
Towner
Cavalier
Pembina
Williams
Mountrail
Ward
Minot
McHenry
Pierce
Ramsey
Walsh
Benson
Nelson
Eddy
Griggs
Steele
Trail
Cass
McLean
Sheridan
Wells
Foster
Oliver
Burleigh
Kidder
Stutsman
Morton
Slope
Hettinger
Grant
Logan
LaMoure
Ransom
Emmons
Sioux
McIntosh
Dickey
Sargent
Richland
Wilkin
Bowman
Adams
Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri

GRIT – Minor Structures

- GRIT has the ability to help keep inventory of minor structures
  - Can enter in via aerial data/visual data
  - Helpful to keep track of existing records
- All NBIS bridges are inventoried via NDDOT

GRIT – Load Limits

- Working with NDDOT on adding County load limits to statewide map
  - Add load limits if implemented
  - Update load limits this winter
- Looking to combine before spring load limits implemented

GRIT

- Working with MnDOT/LRRB on forecasting model
  - Takes GRIT construction history and applies AASHTO 93 model
  - Pulls traffic data from public sources
  - Added as additional layer to Construction History

Safety

VISION ZERO

Zero fatalities. Zero excuses.

Safety

- 2014 Local Road safety plans
  - Developed by NDDOT, CH2M Hill and SRF
  - Many low cost safety projects and forms to apply for HSIP Funds
- Available online for review:

https://www.dot.nd.gov/divisions/safety/trafficsafety.htm#safetyprogram

Safety

- Future project to survey counties safety strategies and use of HSIP and LRSP
- Follow-up to 2009 UGPTI Study
- Surveys coming out shortly

International Low Volume Road Conference

International Low Volume Road Conference

- Kalispell, MT
  - Transportation and Registration Information at NDLTAP Booth
- Workshops on Sunday
- Field Tour in National Forest on Tuesday
- Current research presentations M/W

- More Information to come

QUESTIONS?

Thank You

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