Low Volume Road Surface Selection Tool

October 21, 2015

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Presentation Outline

- Purpose and Need for Tool
- Existing South Dakota Tool
- Objectives for enhancements to SD Tool
- Overview of newly developed SST
- Deployment Plans
- Questions

Purpose and Need for Tool

- Should I turn this paved (kind of) road back to gravel?
- Should we pave this gravel road?
- Should we do dust control?

Purpose and Need for Tool

"When you gonna pave this damn dusty gravel road?"

Becker County
- 450 miles Paved
- 250 miles gravel

Purpose and Need for Tool

- The answer usually involved something like…We just don't have enough $ for that or some rule of thumb.

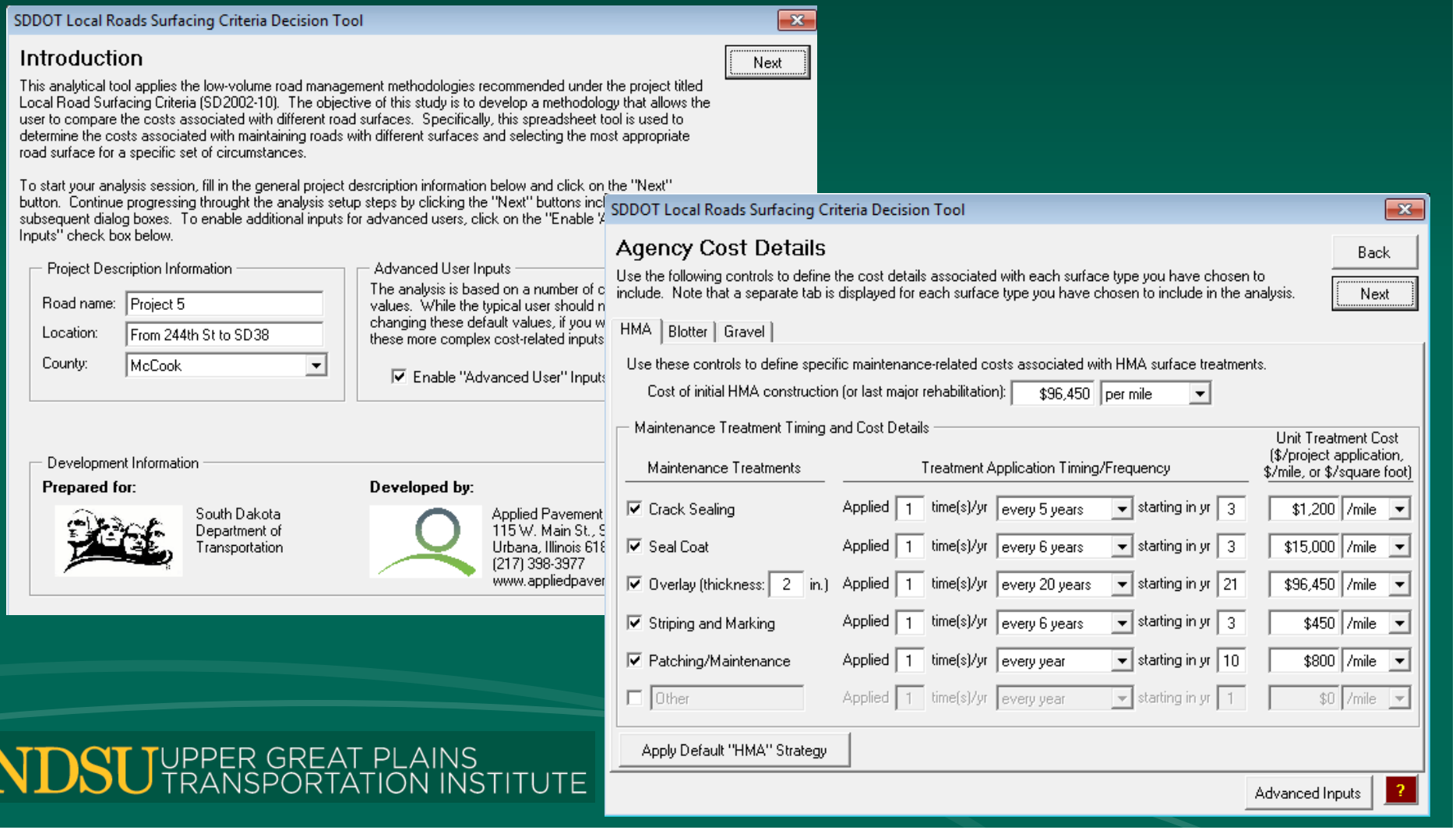
- Instead we should be analyzing and reporting total life cycle costs of available options considering…
  - Various levels of traffic
  - Several surface type options
  - Initial construction and all maintenance costs
  - Agency and optional user costs

Existing South Dakota Tool

- This type of analysis is typically not done

- South Dakota tool developed to assist Counties in developing this type of detailed cost analysis
  - Spreadsheet tool for download
  - Default values with ability to change
  - Reporting of total life cycle costs with 4 treatments

Existing South Dakota Tool



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Objectives for enhancing SD Tool

- Update the hard coded default values
- Transform to a Web-based tool
- Consider additional surface types
- Add options to improve initial construction costs
- Add capability for storing County and Regional values
- Allow Counties to create a save default values
- Update user cost methods

Overview of ND/SD SST

Local Road Surface Selection Tool

Home Analysis Administration Help Contact

This analytical tool applies the low-volume road management methodologies recommended under the project titled "Local Road Surfacing Criteria (SD 2002-10)". The objective of this study is to develop a methodology that allows the user to compare the costs associated with different road surfaces. Specifically, this tool is used to determine the costs associated with maintaining roads with different surfaces and selecting the most appropriate road surface for a specific set of circumstances. More information about this project and tool can be found by clicking "Software Introduction".

Click "Start Analysis" to start a regular analysis.
Click "Administrator Login" to log in if you are an administrator.
Detailed user's guide is available by clicking "User's Guide".

DISCLAIMER: Although the information generated by this model has been produced and processed from data that is believed to be reliable, the information generated by this model is for estimation uses only. The Upper Great Plains Transportation Institute and North Dakota State University make no representation or warranty, expressed or implied, regarding the accuracy or reliability of the model or results.

Start Analysis

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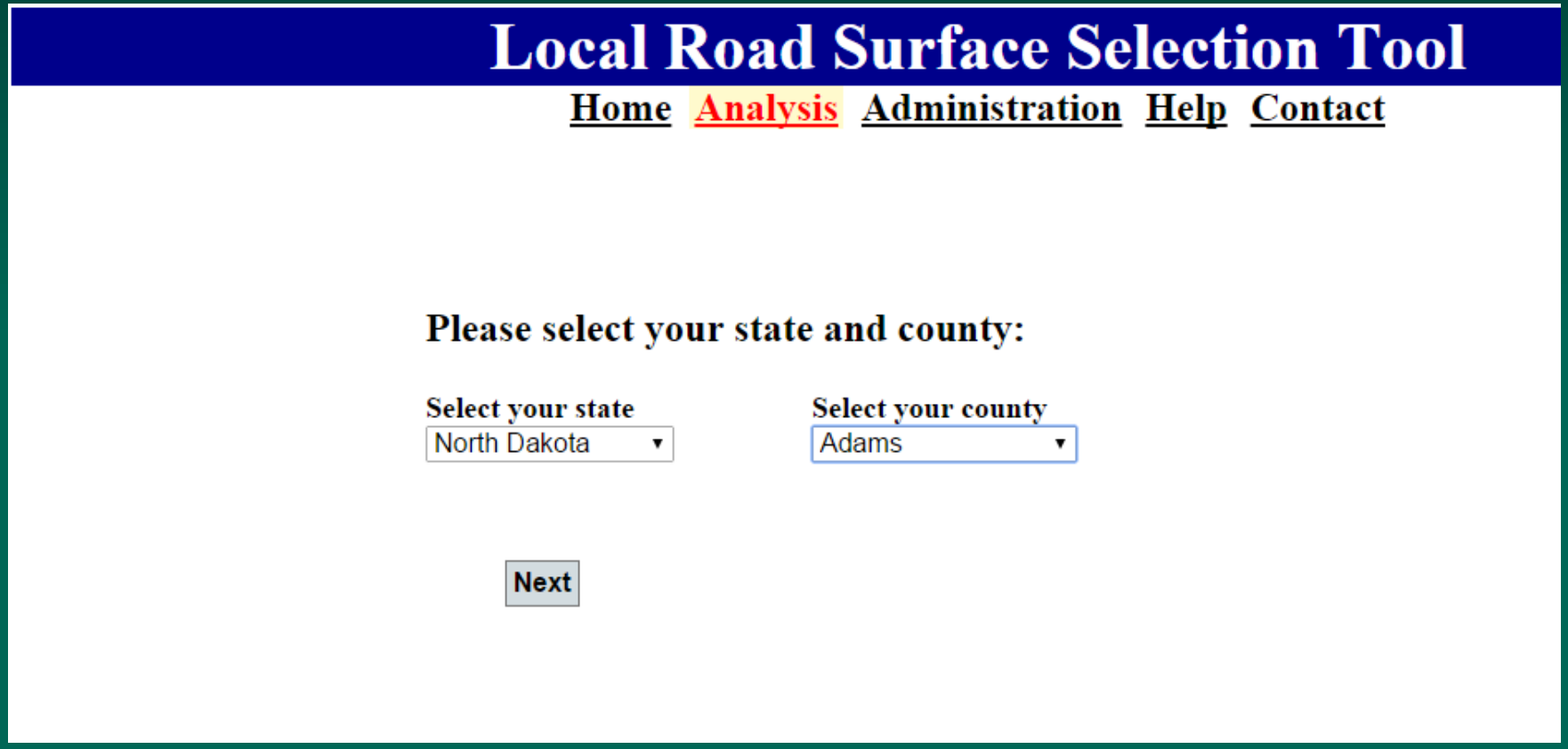
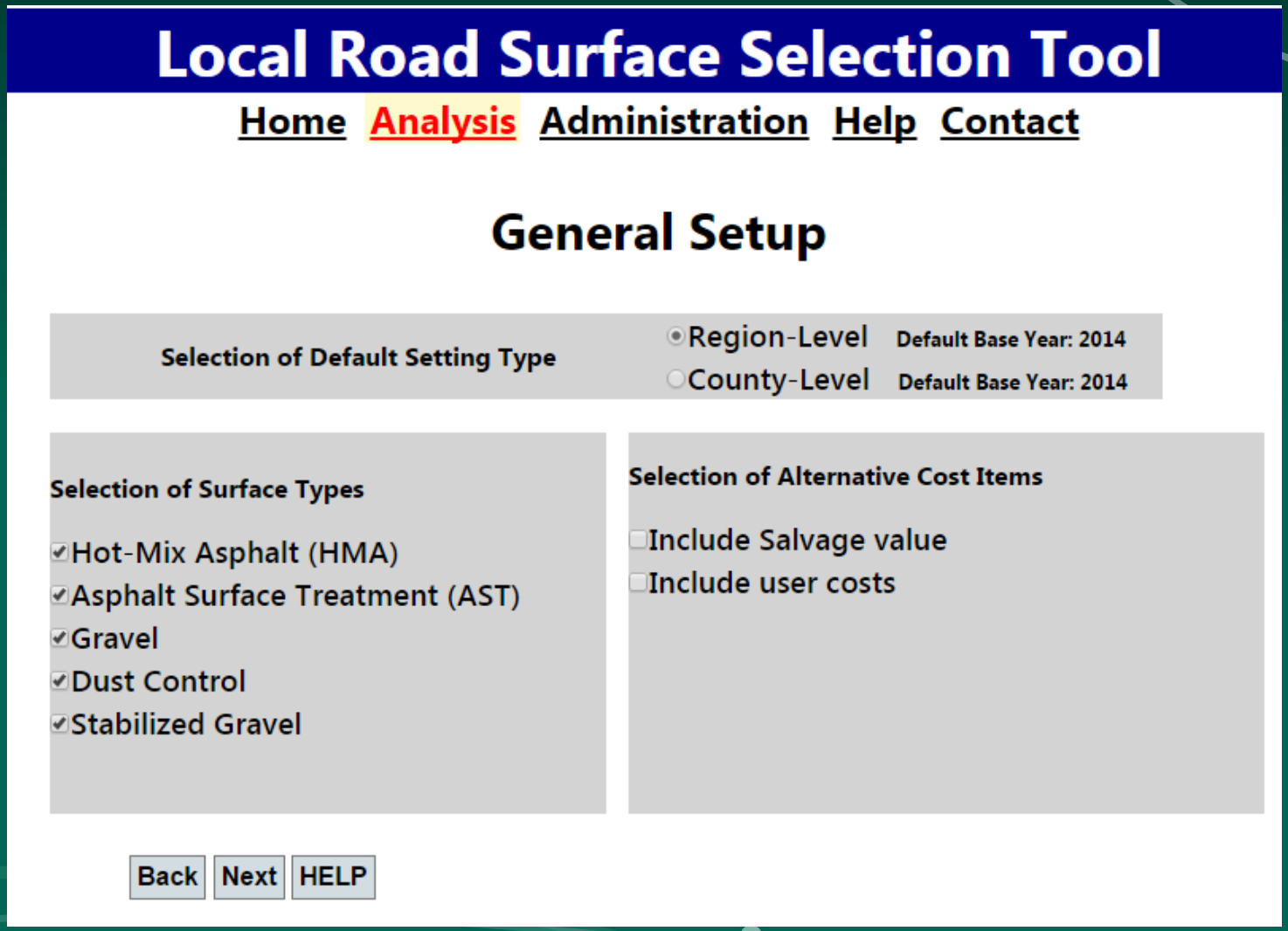
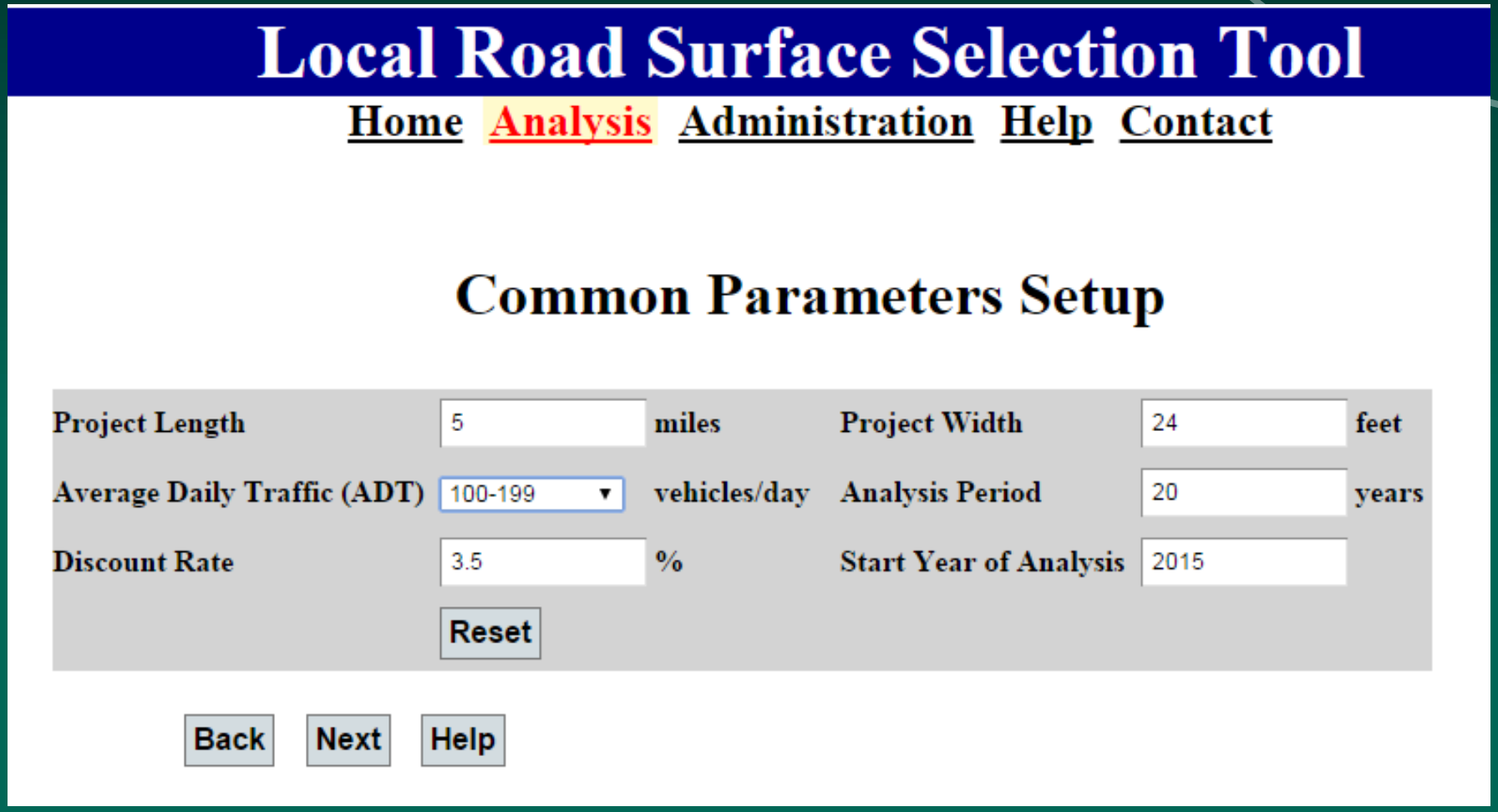
Overview of ND/SD SST



Overview of ND/SD SST



Overview of ND/SD SST



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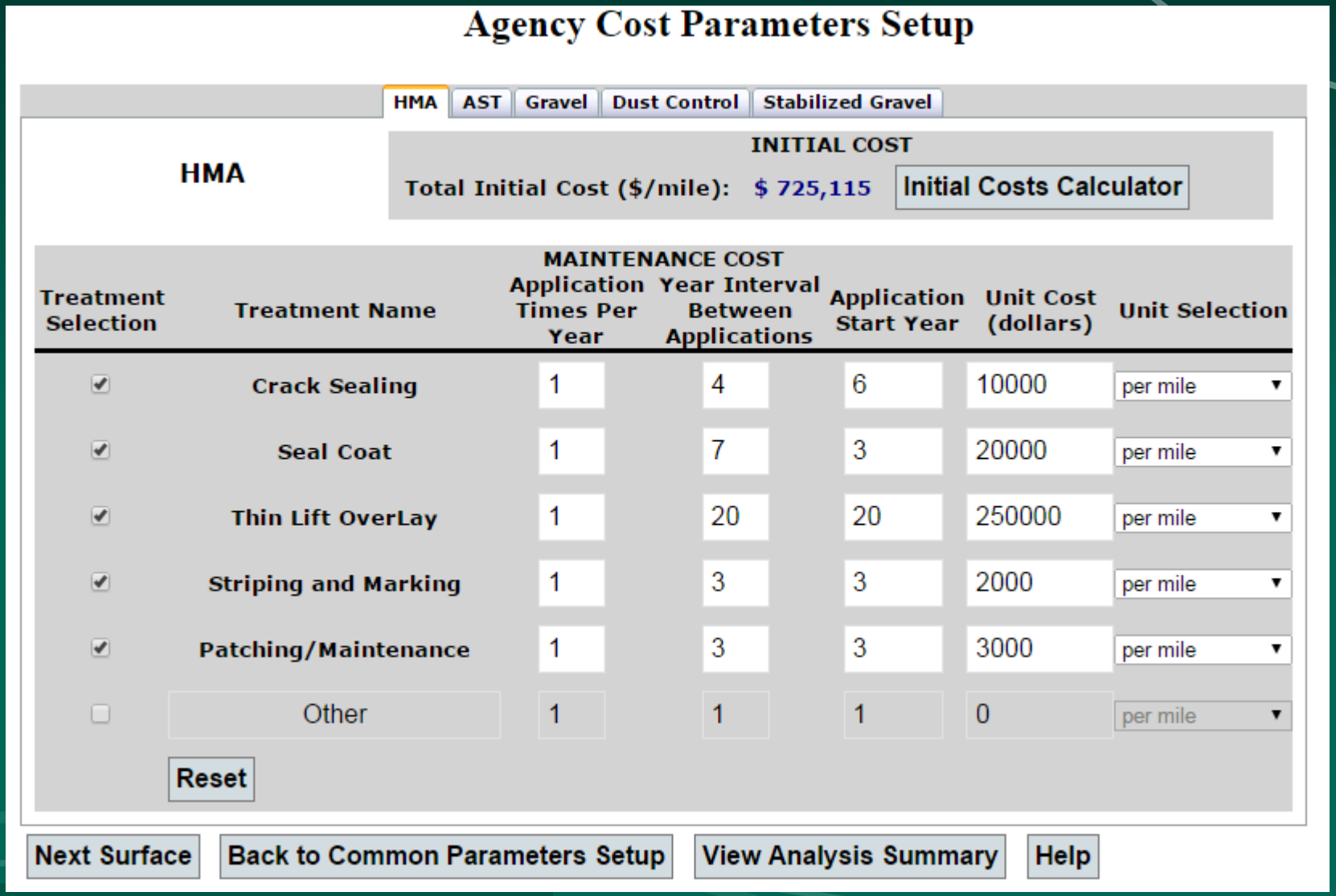
Overview of ND/SD SST



Agency Cost Parameters Setup

HMA | AST | Gravel | Dust Control | Stabilized Gravel

HMA

INITIAL COST

Total Initial Cost ($/mile): $ 725,115 [Initial Costs 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	4	6	10000	per mile
☑	Seal Coat	1	7	3	20000	per mile
☑	Thin Lift OverLay	1	20	20	250000	per mile
☑	Striping and Marking	1	3	3	2000	per mile
☑	Patching/Maintenance	1	3	3	3000	per mile
☐	Other	1	1	1	0	per mile

[Reset]

[Next Surface] [Back to Common Parameters Setup] [View Analysis Summary] [Help]

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Overview of ND/SD SST

Local Road Surface Selection Tool

Home Analysis Administration Help Contact

HMA Initial Cost Parameters Setup

PARAMETER	VALUE	UNIT	PARAMETER	VALUE	UNIT
HMA Thickness (new)	4	inches	Reshaping / Sub-grade Prep	200000	$/Mile
HMA Cost (placed)	120	$/Ton	Reclaiming / Milling (if asphalt)	0	$/Sqyd
Base Thickness (New)	4	inches	Widening (if necessary)	0	$/Mile
Base Gravel Cost (placed)	26	$/Ton	Pavement Marking	2000	$/Mile
			Engineering / Contingencies	20	% of total

Total Initial Cost ($/mile) $ 725,115

Done Cancel Reset Help

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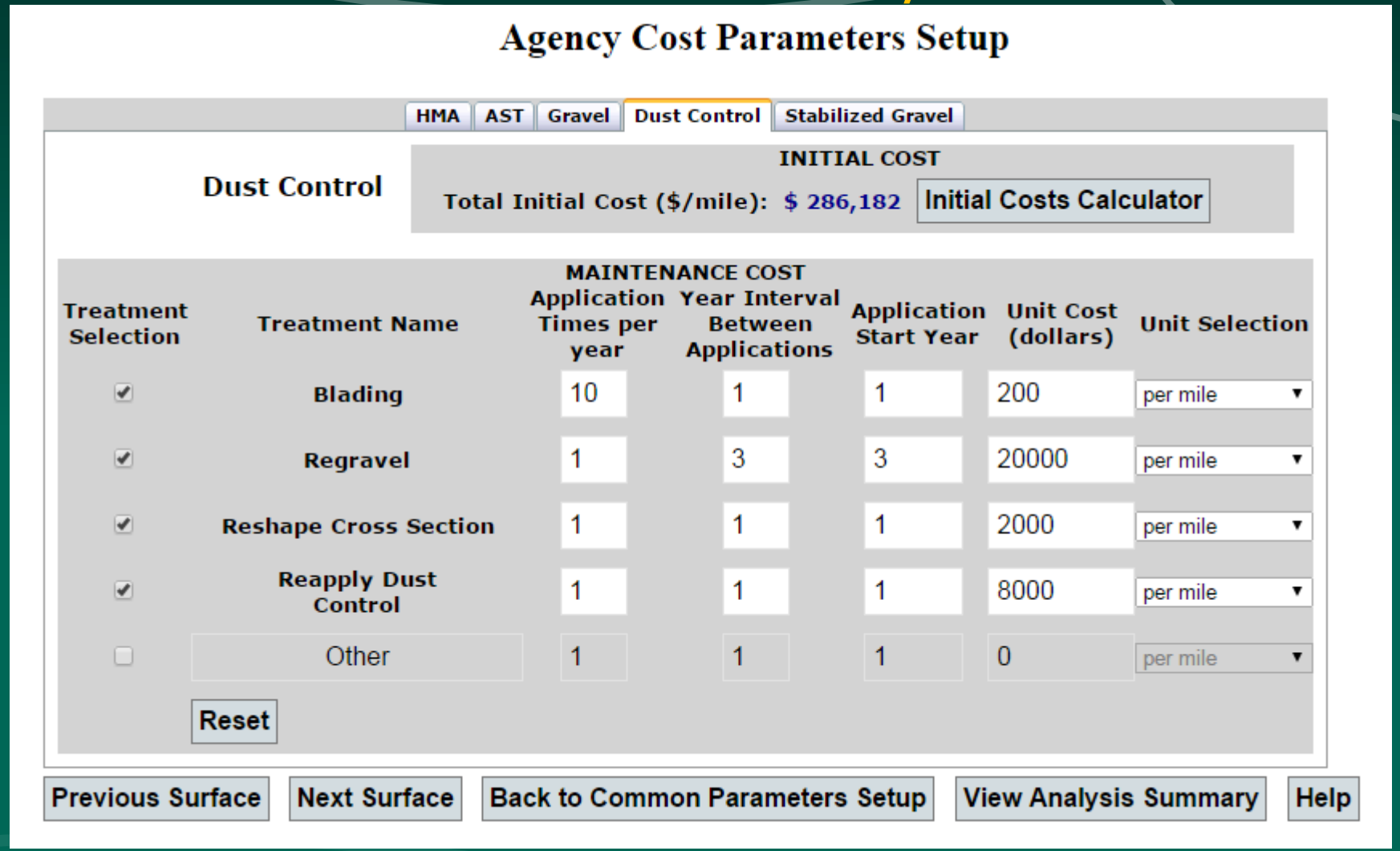
Overview of ND/SD SST



Agency Cost Parameters Setup

HMA | AST | Gravel | Dust Control | Stabilized Gravel

Dust Control

INITIAL COST

Total Initial Cost ($/mile): $ 286,182 Initial Costs Calculator

MAINTENANCE COST

Treatment Selection	Treatment Name	Application Times per year	Year Interval Between Applications	Application Start Year	Unit Cost (dollars)	Unit Selection
☑	Blading	10	1	1	200	per mile
☑	Regravel	1	3	3	20000	per mile
☑	Reshape Cross Section	1	1	1	2000	per mile
☑	Reapply Dust Control	1	1	1	8000	per mile
☐	Other	1	1	1	0	per mile

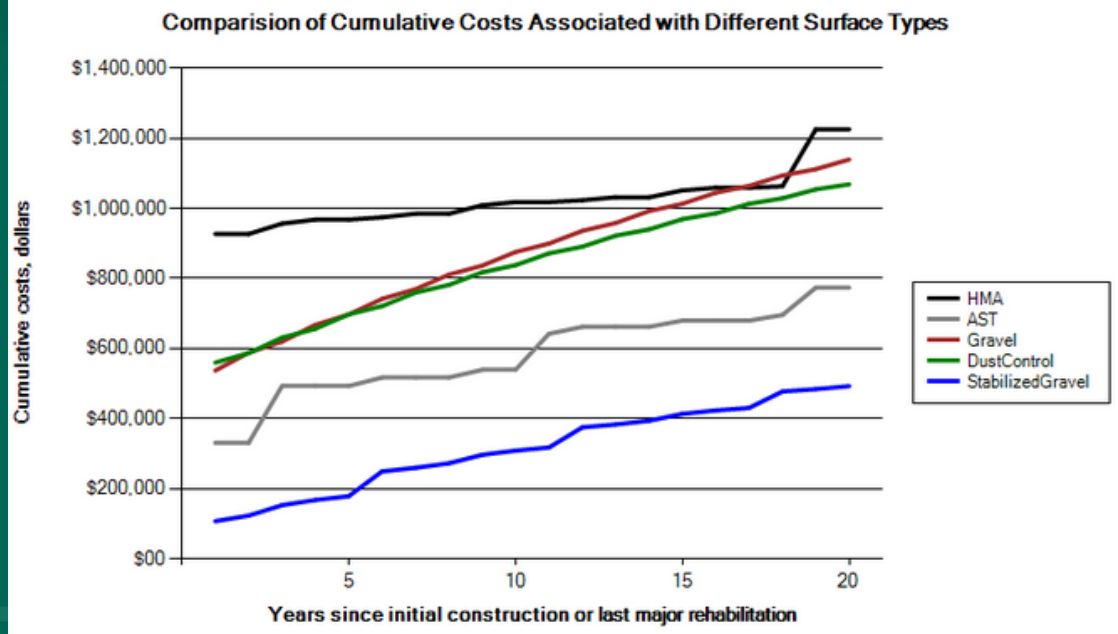
Reset

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

Overview of ND/SD SST

Agency Cost Short Summary - Per Mile

Surface Type	HMA	AST	Gravel	Dust Control	Stabilized Gravel
Total Initial Cost	$ 927,149	$ 330,455	$ 506,773	$ 531,773	$ 94,182
Total Maintenance Cost	$ 299,164	$ 443,442	$ 633,314	$ 537,404	$ 398,303
Total Salvage Value	$ 0	$ 0	$ 0	$ 0	$ 0
Total Agency Cost	$ 1,226,313	$ 773,897	$ 1,140,087	$ 1,069,177	$ 492,485



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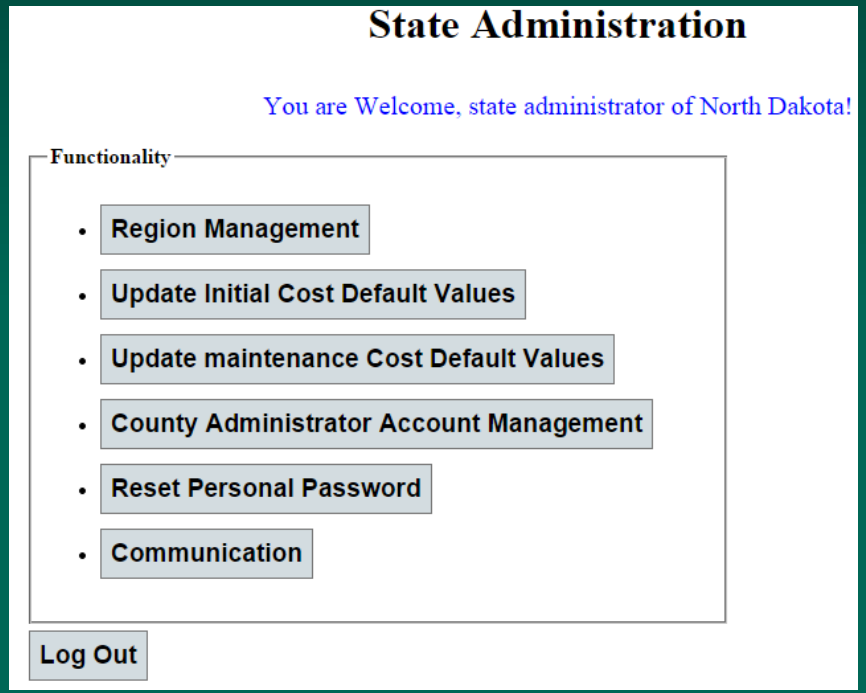
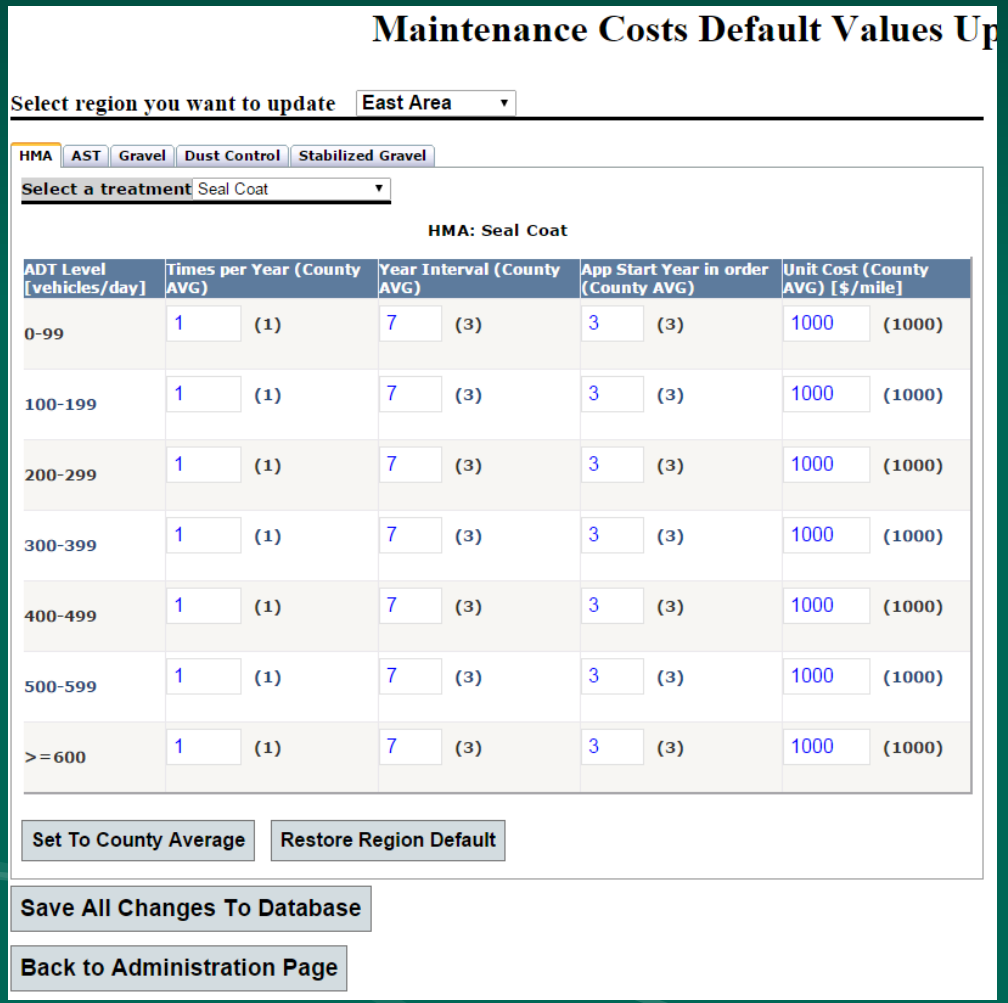
Overview of ND/SD SST

- Administration – Region and County





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Deployment Plans

- Finish any missing items such as..
  - User Costs
  - Help links
  - Any bugs identified in testing
- Meet with LTAP Directors and complete Region Defaults
- Create County contact email list and send out link
- Complete Tool and put link on UGPTI website by end of year

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Questions?

Demonstration

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