DEALING WITH ASPHALT ROADWAYS FOR FUTURE GROWTH

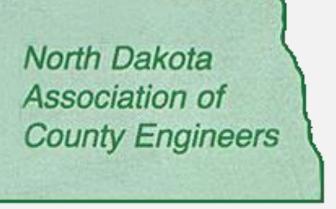
Presenters:

- Mike May Senior Project Manager
- Zach Hatting Project Manager
- Jacob Fandrich, EIT Staff Engineer



INTRODUCTION

- NDDOT 105,500 lbs current requirement
 - Looking at increasing to 120,000 lbs
- Little to no room height & width for future expansion
- Why testing is important
- Common roadway issues encountered
- Solutions and examples of projects we have had success with
- Construction costs associated with these types of projects
- Any project needs maintenance







ROADWAY ISSUES

- Raveling
- Transverse Cracking
- Longitudinal Cracking
- Rutting

- Fatigue Cracking (Alligator Cracking)
- Cross Slope Concerns
- Safety Concerns (Sloughs & Shoulders)
- Road Top Width Limitations







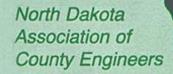


MILL & OVERLAY

- Pros
 - Fast Timeline
 - Cost Effective Option
 - Short Term Solution

- Cons
 - Short Term, Not For Longevity
 - Doesn't Address Potential Subgrade Issues
 - Limited Road Top Width For Future Growth

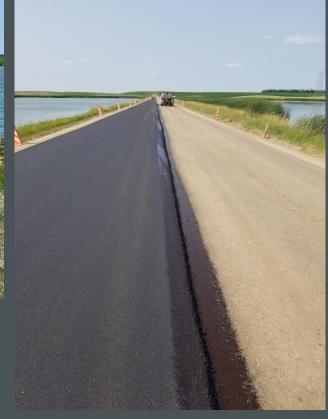
- Construction cost: \$530,000 Per Mile
 - Rough Estimate, does not include Engineering, Testing, and other fees
- 5-10 Year Fix













CEMENT TREATED BASE

Pros

- Addresses Subgrade Issues
- Gaining Road Top Width (Future Overlays)
- Possible Solution For Most Soil Conditions
- Aids In The Reduction Of Cracking

- Cons
 - Traffic Control
 - Higher Cost
- Susceptible To Supply Issues (Cement)

- Construction cost: \$935,000 Per Mile
 - Rough Estimate, does not include Engineering fees
- 15-20 Year Fix (Minimum)





SLIVER WIDENING

- Pros
- Increases Width for Future Expansion
- Addresses In-slope Safety Concerns

- Cons
 - Doesn't Address Potential Subgrade Issues
 - Differential Settlements
- Longitudinal Cracking On Shoulder Line

- Construction cost: \$ 980,000 Per Mile
- Rough Estimate, does not include Engineering, Testing, and other fees
- 10-15 Year Fix





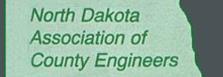


RECONSTRUCTION

- Pros
 - Best Longevity
 - Ability To Correct Multiple Issues In One Project
 - Correct Any Subgrade Issues For Long Term

- Cons
- Most Expensive
- Multi Year Project
- Detours (Long Term)

- Construction cost: \$1,350,000 Per Mile
 - Rough Estimate, does not include Engineering fees
- 20-25 Year (Minimum)





QUESTIONS?

Contact Information

- Mike May Senior Project Manager
 - (701)-320-4299
 - Mike.May@interstateeng.com

Contact Information

- Zach Hatting Project Engineer
 - (605)-270-3628
 - Zach.Hatting@interstateeng.com

Contact Information

- Jacob Fandrich, EIT Staff Engineer
 - (701)-307-0129
 - Jacob.Fandrich@interstateeng.com

