

Stabilized Full Depth Reclamation in a Suburban Application

Shoreview's Experience – 2007 - 2015

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Background

The City of Shoreview Minnesota has been using Stabilized Full Depth Reclamation (SFDR) as a pavement rehabilitation technique since 2007. The process has been used on residential streets as well as higher volume MSA roadways.

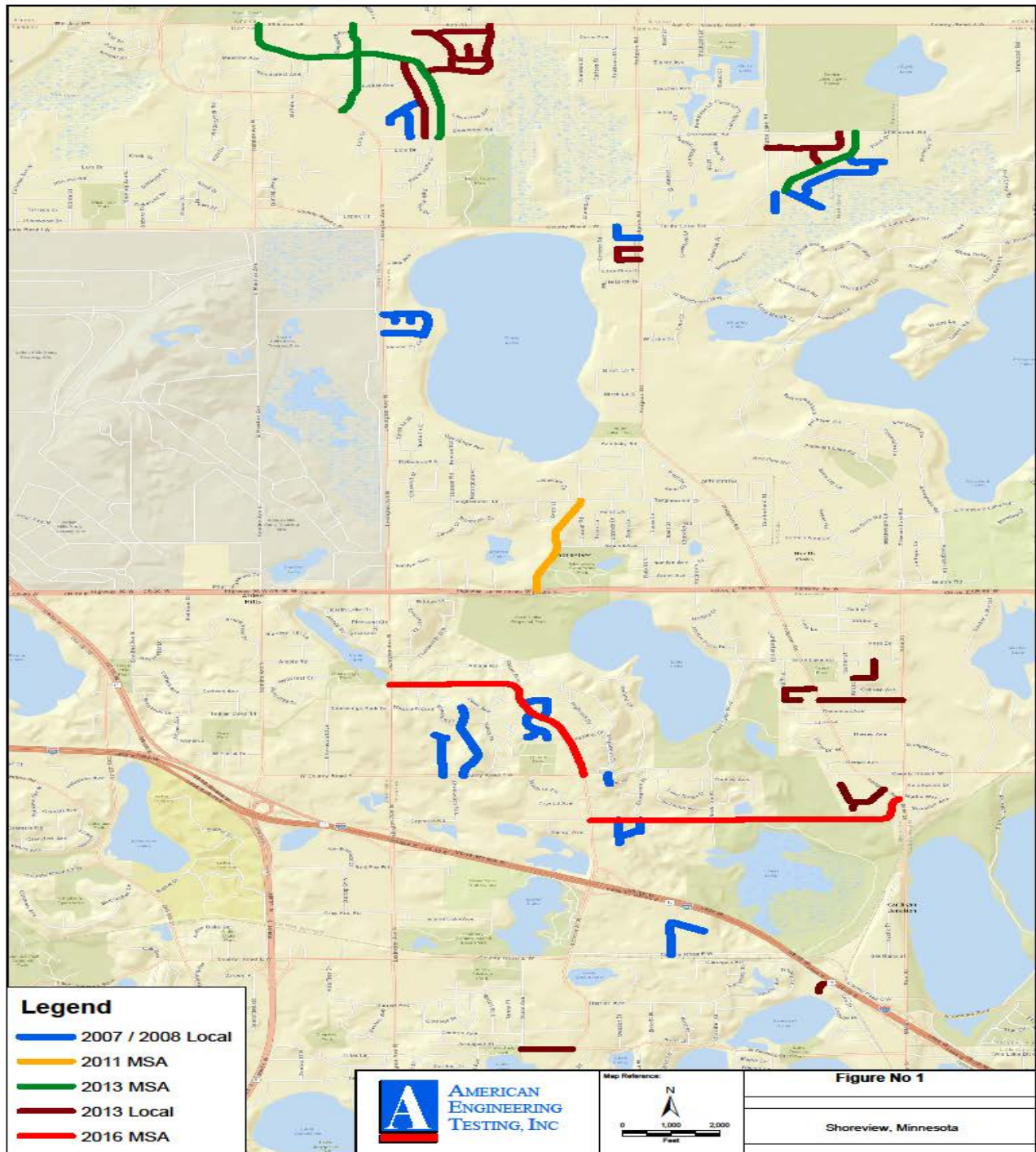
2007 – 5 miles local streets – 7-ton design

2008 – 1 mile local streets – 7-ton design

2011 – 1.5 miles MSA Street – 10-ton
design

2013 – 5.3 miles MSA and Local Streets –
10-ton design MSA 7-ton Local

2016 – 2.3 miles of MSA Streets – 10-ton
design



TYPICAL PAVEMENT CONDITIONS



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05/16/2011

REHABILITATION OBJECTIVES – Local Roads

Replace Existing 7-Ton Pavement (under traffic)

- Equal or Greater Load Capacity

Reduce Rehabilitation Cost

- Fixed Level of Funding with Increasing Needs

Reduce Reflective Cracking

- Lower Future Maintenance Costs

REHABILITATION OBJECTIVES – Local Roads

FDR with Emulsified Base

- Pregrind to depth of 6 - 8", remove excess, reshape, 3% +/- MC target
- Emulsify to 5" - 6" depth, Reshape, Vibratory and Pneumatic Roller
- Overlay - 2" Wear (MVWE35035B – SPWEB240C)
- Saw/Seal @ 40 ft. o.c.

REHABILITATION OBJECTIVES – MSA Roads

Replace Existing 9-Ton Pavement (under traffic)

- 10-Ton Load Capacity
- ~ 1.2 million ESAL's

Reduce Rehabilitation Cost

- Fixed Level of Funding with Increasing Needs

Reduce Reflective Cracking

- Lower Future Maintenance Costs

REHABILITATION OBJECTIVES – MSA Roads

FDR with Emulsified Base

- Pregrind to depth of 8+/-", remove excess material, reshape, 3% +/- MC target
- Emulsify to 6" depth Reshape, Vibratory and Pneumatic Roller
- Overlay – 2.0" – 4.0" Wear (SPWEB340C)
- Saw/Seal @ 40 ft. o.c.

Issues of Concern that were Addressed

Rehabilitation Under Traffic

- Roads were only closed during the day of reclaiming

Dealing with Cast Iron in Roadway

- Castings and valves were dealt with similarly to bituminous pavement mill and overlay

Issues of Concern that were Addressed

Full Depth Reclamation adjacent to curb and gutter

- Required some hand work
- Need to keep reclaimer away from curb

Cul-de-Sacs

- Pregrind and injection require extra work to move around in tight areas

Pregrind



Injection



Injection



Compaction



Final Product Ready to Pave



Paving



Paving – Cast Iron in Roadway



Cost Information

2011

- 4.8" Asphalt over 7" Base
- Mill 3"
- Stabilize 6"
- Overlay 3.5"
- Cost \$25/Sq Yd

Cost Information

2013

- MSA – Mill 2”, 6” SFDR, 2” Overlay
- Cost \$21/Sq Yd
- Local – 7” pregrind, remove 2”, 5” SFDR, 2” Overlay
- Cost \$20/Sq Yd

2007 Project Current Condition



No Cracking

2007 Project Current Condition



Questions?