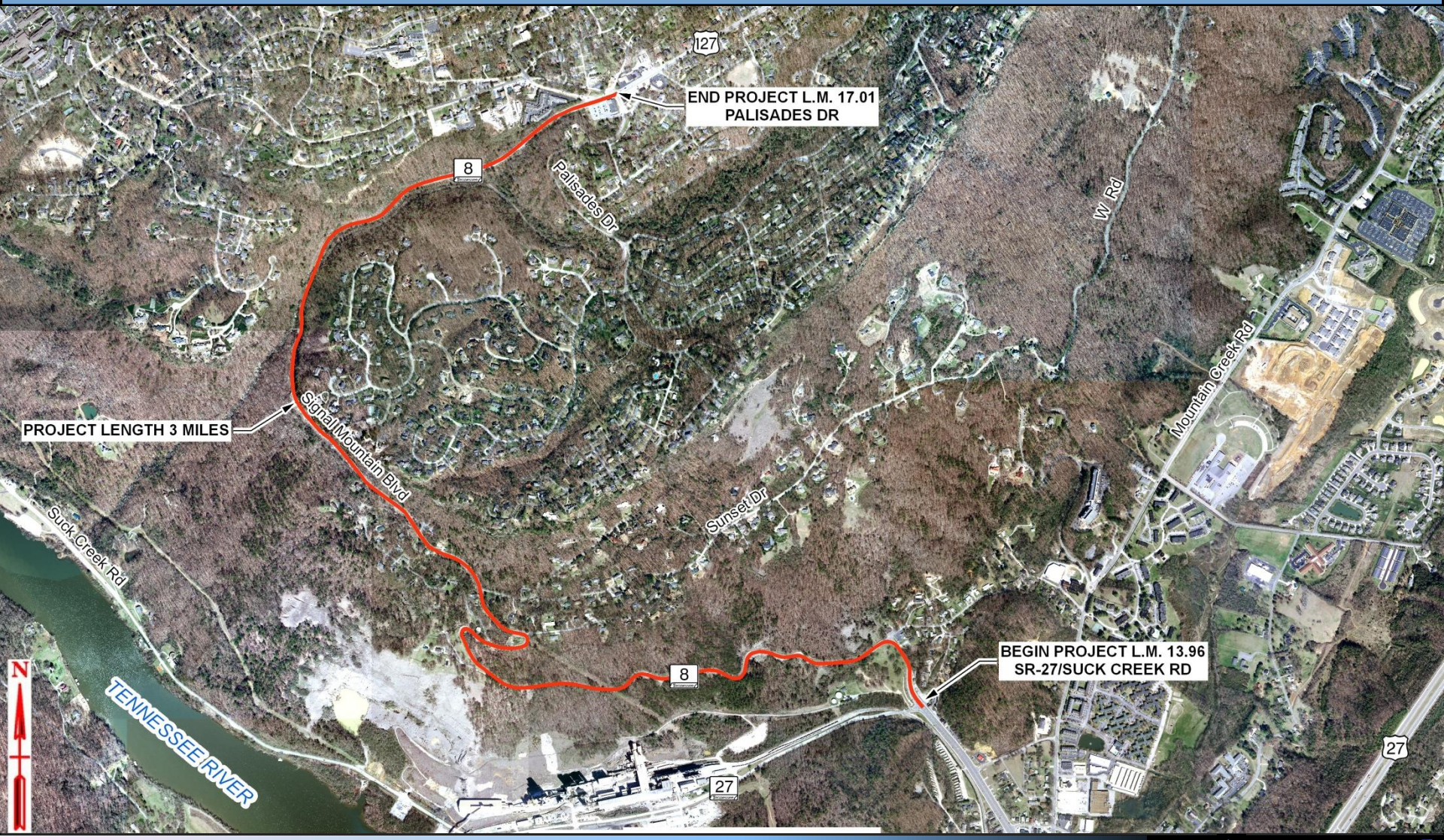
Chattanooga TPO TCC

Chattanooga, TN
November 13, 2012

Technical Report

SR-8 Signal Mountain Blvd

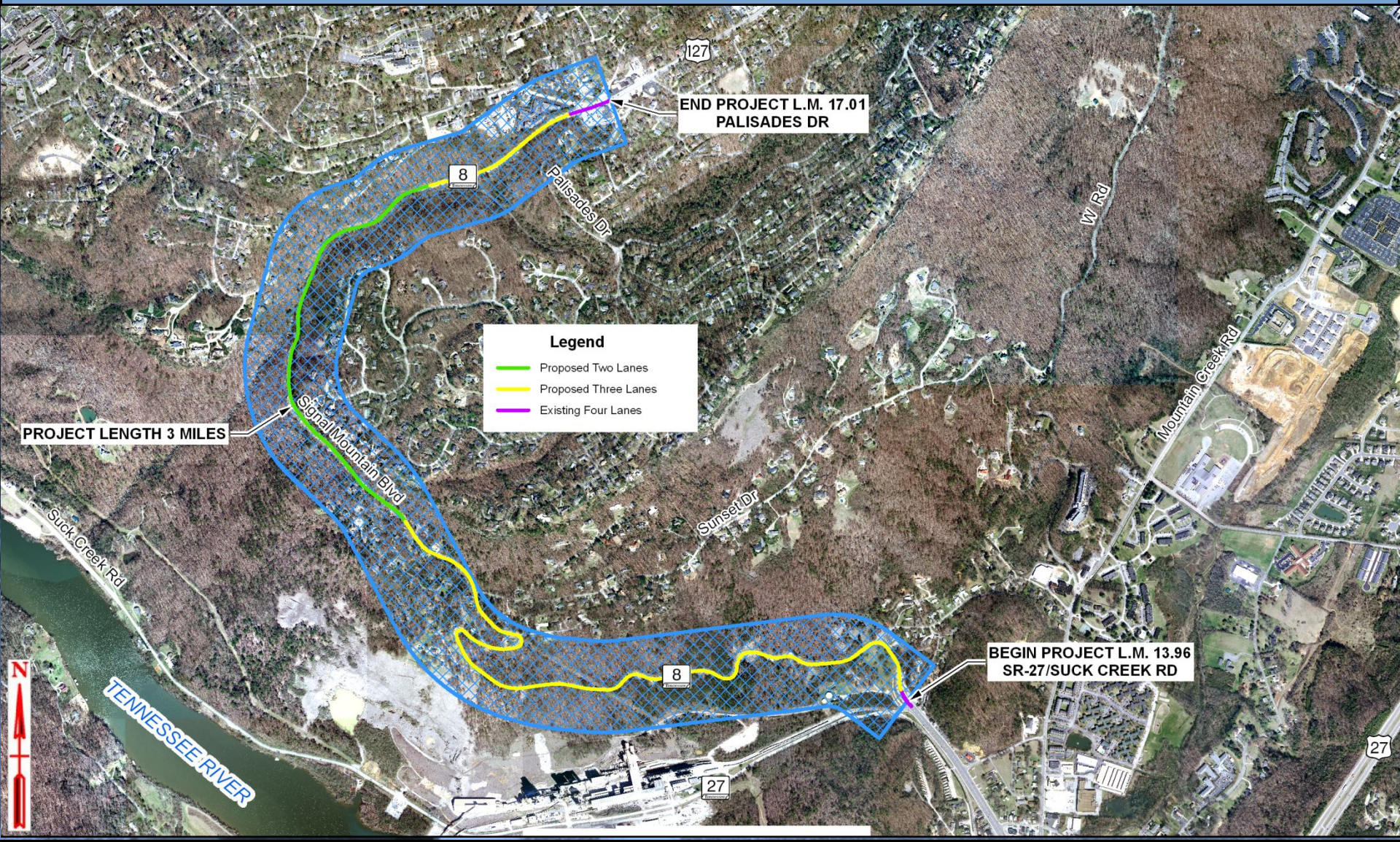
Study Area


I27
END PROJECT L.M. 17.01
PALISADES DR
8
Palisades Dr
W Rd
Mountain Creek Rd
PROJECT LENGTH 3 MILES
Signal Mountain Blvd
Suck Creek Rd
Sunset Dr
BEGIN PROJECT L.M. 13.96
SR-27/SUCK CREEK RD
8
27
27
TENNESSEE RIVER
N

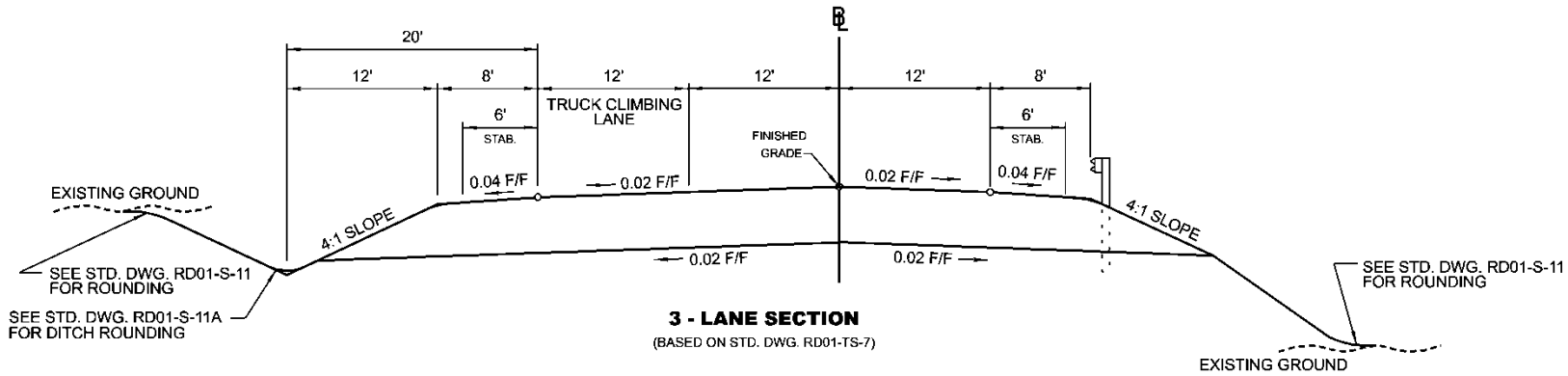
Route Data

- 2011 AADT 11,980
- 2031 Projected AADT 12,460
- 2011 and 2031LOS D
- Statewide Average Crash Rate 2.419
- Calculated Crash Rate 2.166

Reconstructing SR-8

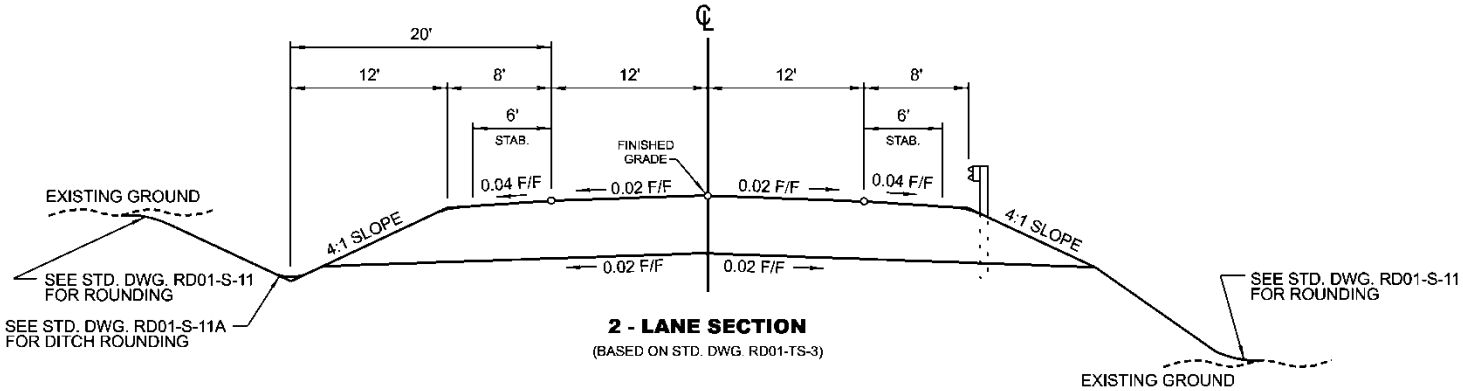


Reconstruction Typical Sections



3 - LANE SECTION

(BASED ON STD. DWG. RD01-TS-7)



2 - LANE SECTION

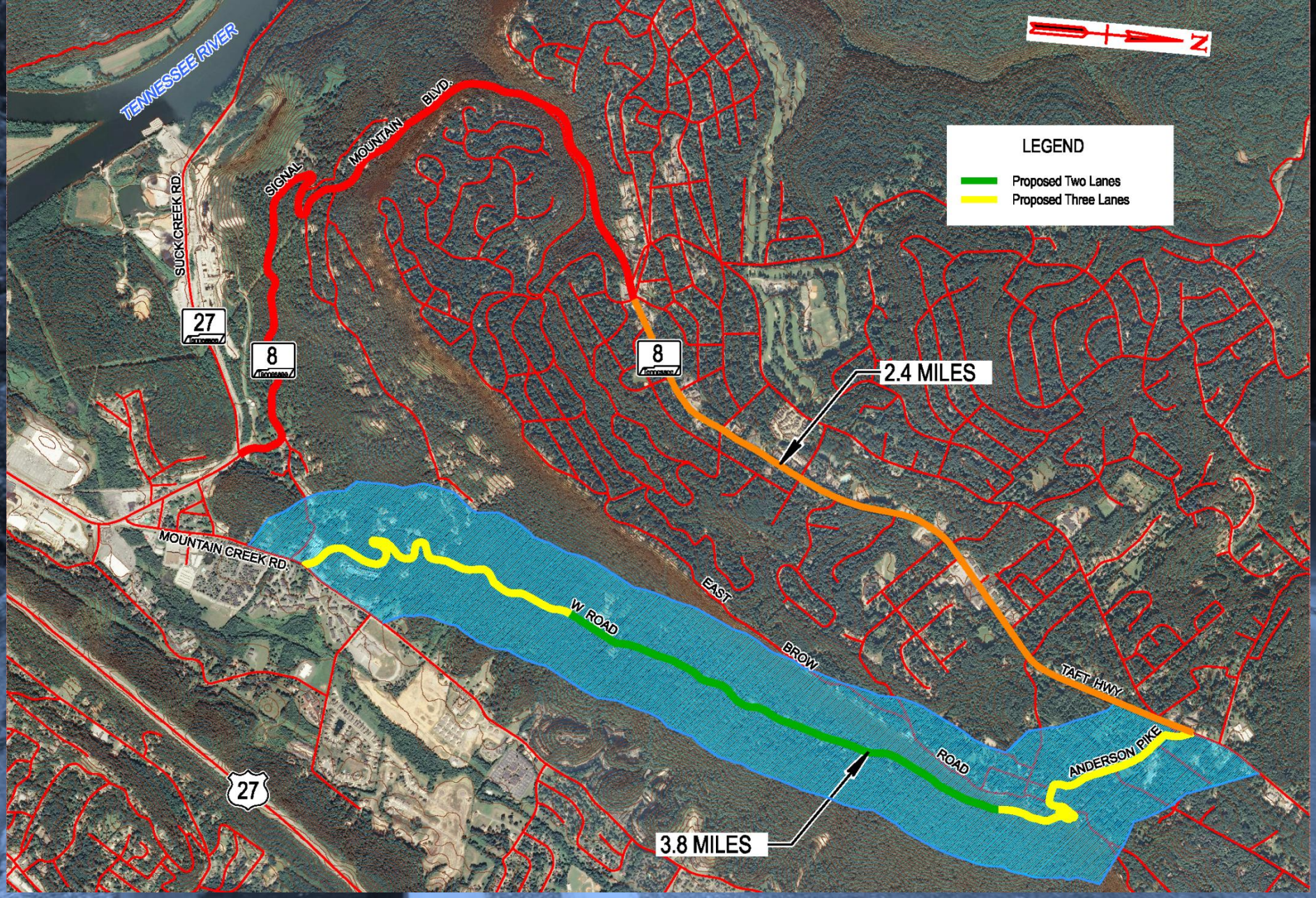
(BASED ON STD. DWG. RD01-TS-3)

Positive Impacts of Reconstruction

- ✓ Provides 12’ lanes and adequate shoulders
- ✓ Improves reliability
- ✓ Improves safety
- ✓ Decreases travel time

Negative Impacts of Reconstruction

- 2.5 Year Construction Project
  - 2 Year Road Closure (W Road Detour)
  - 0.5 Year Partial Road Closures
- Considerable Impacts to adjacent property owners
- Significant Visual Impacts
- Cost
  - Estimated cost $75 million
  - Cost/mile $25 million


TENNESSEE RIVER
SIGNAL MOUNTAIN BLVD.
SUCK CREEK RD.
27
8
8
2.4 MILES
MOUNTAIN CREEK RD.
W ROAD
EAST BROW ROAD
TAFT HWY.
ANDERSON PIKE
27
3.8 MILES
LEGEND
Proposed Two Lanes
Proposed Three Lanes
N

Positive Impacts of New Route

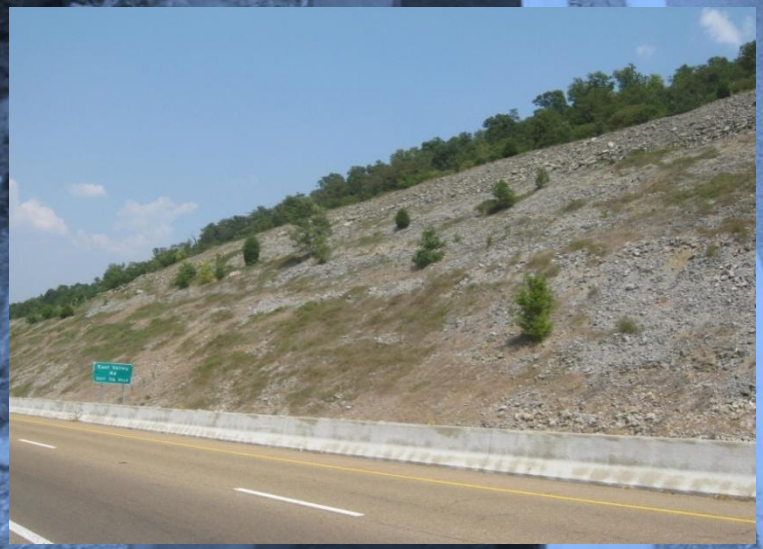
- ✓ Improves traffic flow
- ✓ Improves reliability
- ✓ Minimal construction delays (SR 8 would remain open)
- ✓ Should reduce crash rates

Negative Impacts of New Route

- Increases Route Length
  - SR 8 - 3.0 miles
  - New Route - 6.2 miles
- Significant impacts to adjacent property owners
- Substantial Visual Impacts
- Estimated cost $114 million
  - Cost/mile $30 million

Typical Reconstruction Photos

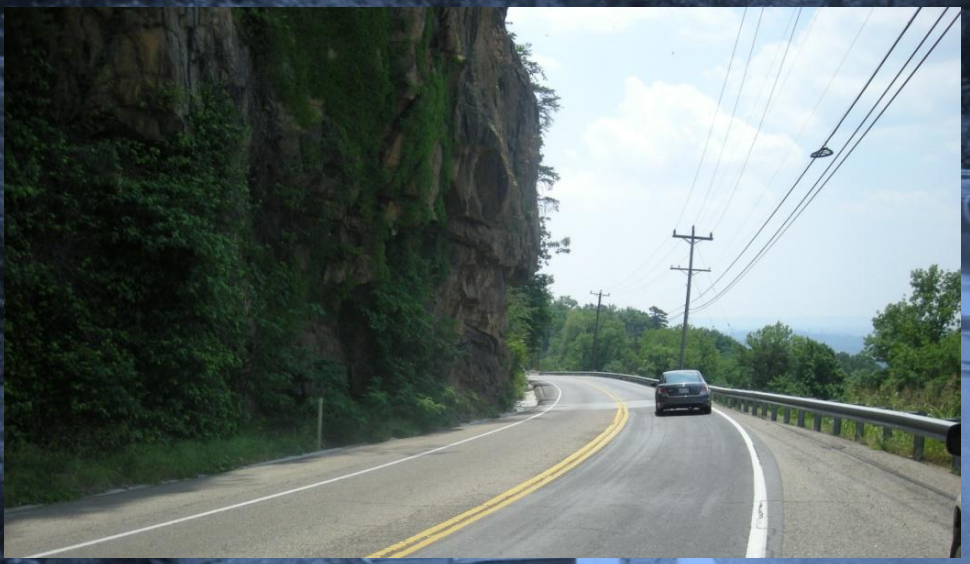
SR 28
US 127
Fentress
County

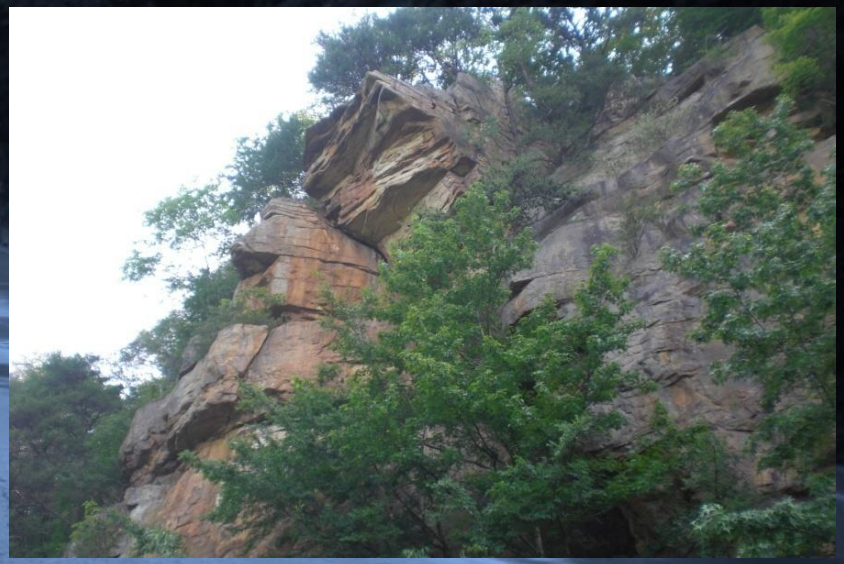


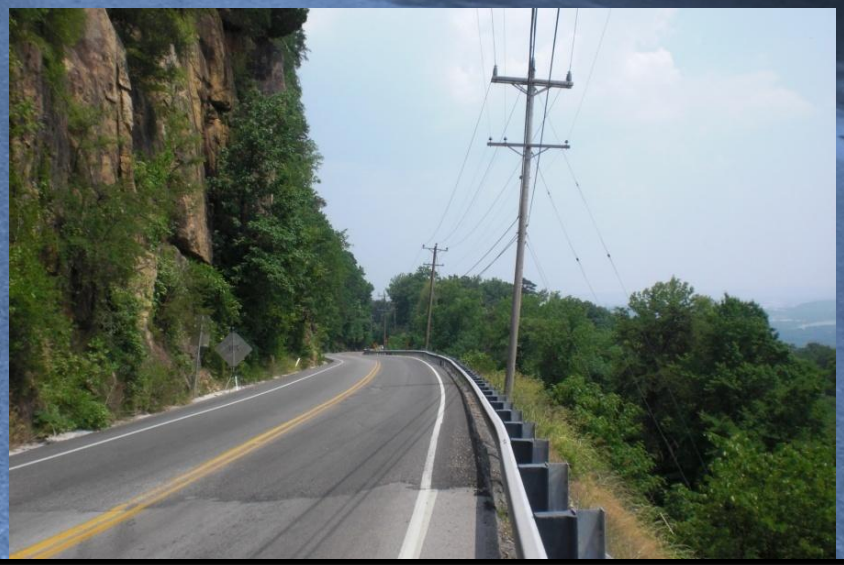
SR 111
Hamilton
County

Potential Rock Fall Area

Typical Areas of Geologic Stability Concern





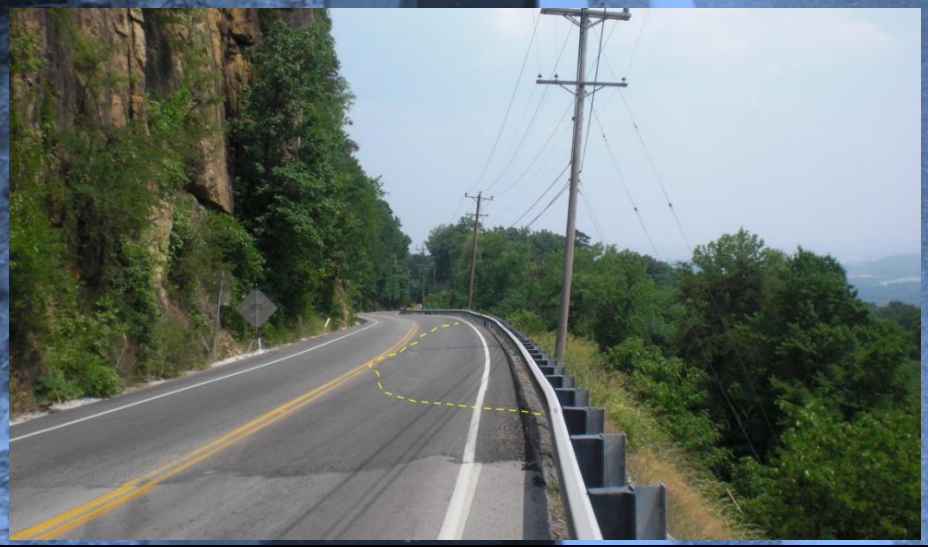


Options for Abating Rock Falls

- Remove vegetation
- Remove loose rock and debris
- Install rock bolts and shotcrete
- Install rock fall barriers and catch fences
- Modify rock slopes

Roadway Stability Concern Areas

Typical Areas of Roadway Stability Concern

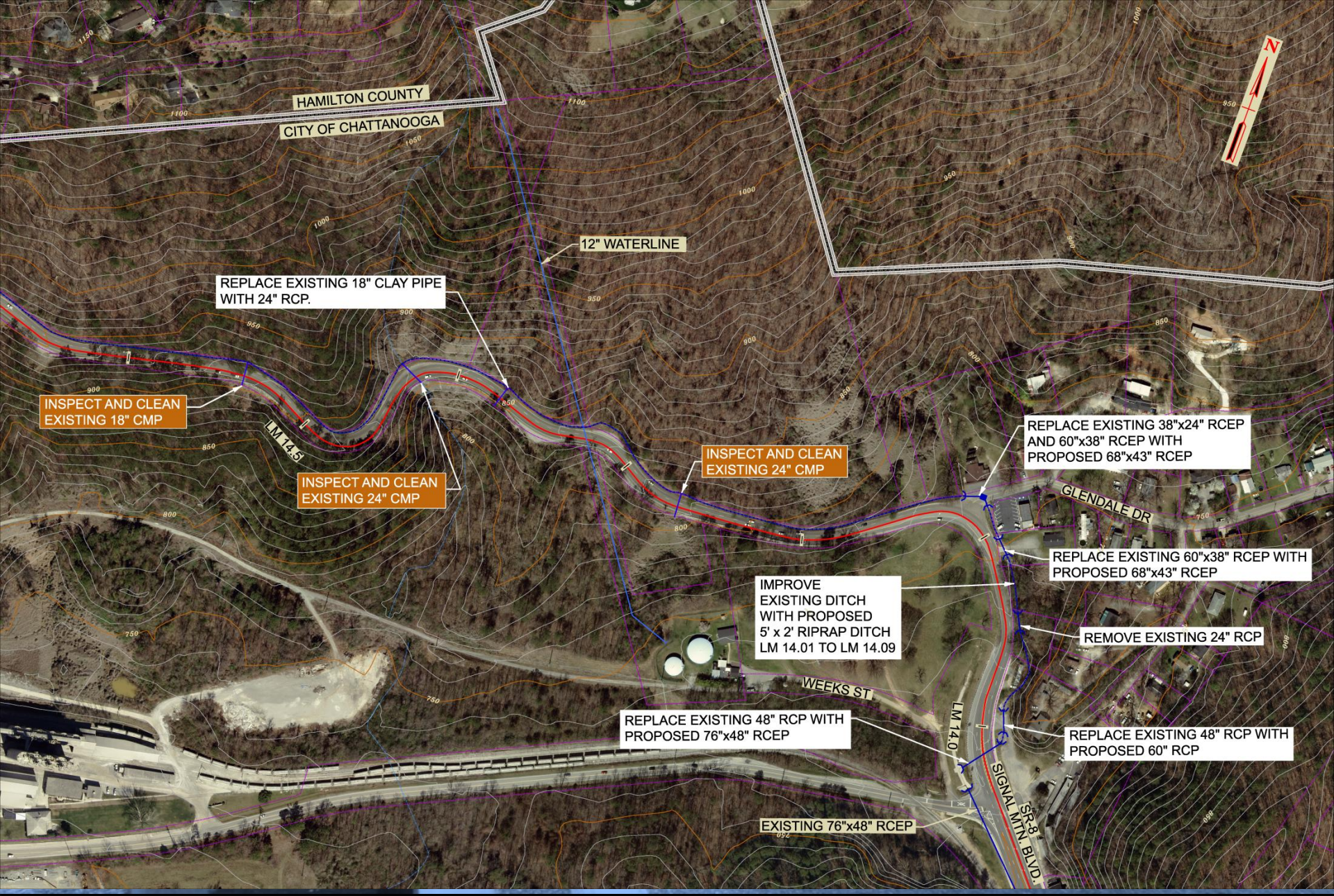


2009 Rock Slide

Options for Roadway Stabilization

- Improve drainage
- Drill and install soil nails and rock anchors
- Drill and install drains in slope
- Replace and add retaining walls

Typical Drainage Concerns


HAMILTON COUNTY
CITY OF CHATTANOOGA
12" WATERLINE
REPLACE EXISTING 18" CLAY PIPE WITH 24" RCP.
INSPECT AND CLEAN EXISTING 18" CMP
LM 14.5
INSPECT AND CLEAN EXISTING 24" CMP
INSPECT AND CLEAN EXISTING 24" CMP
REPLACE EXISTING 38"x24" RCEP AND 60"x38" RCEP WITH PROPOSED 68"x43" RCEP
GLENDALE DR
REPLACE EXISTING 60"x38" RCEP WITH PROPOSED 68"x43" RCEP
IMPROVE EXISTING DITCH WITH PROPOSED 5' x 2' RIPRAP DITCH LM 14.01 TO LM 14.09
REMOVE EXISTING 24" RCP
WEEKS ST
LM 14.0
REPLACE EXISTING 48" RCP WITH PROPOSED 76"x48" RCEP
REPLACE EXISTING 48" RCP WITH PROPOSED 60" RCP
SR 8
SIGNAL MTN. BLVD.
EXISTING 76"x48" RCEP
N

INSPECT AND CLEAN
EXISTING 18" CMP
LM 15.5
1.5" T0 3" WATERLINE
TOWN OF SIGNAL MOUNTAIN
HAMILTON COUNTY
N
IMPROVE
EXISTING DITCH
WITH PROPOSED
4' x 2' CONC. DITCH
LM 15.30 TO LM 15.66
INSPECT AND CLEAN
EXISTING 18" CMP
SUNSET DR
INSPECT AND CLEAN
EXISTING 18" CMP
PALISADES RD
INSPECT AND CLEAN
EXISTING 18" x 11" EL CMP
1.5" T0 3" WATERLINE
BALMORAL DR
INSPECT AND CLEAN
EXISTING GRATE INLET
INSPECT AND CLEAN
EXISTING 18" CMP
LM 15.0
INSPECT AND CLEAN
EXISTING GRATE INLET
IMPROVE
EXISTING DITCH
WITH PROPOSED
4' x 2' CONC. DITCH
LM 14.12 TO LM 15.10
HAMILTON COUNTY
CITY OF CHATTANOOGA
INSPECT AND CLEAN
EXISTING 24" CMP
INSPECT AND CLEAN
EXISTING 24" CMP
INSPECT AND CLEAN
EXISTING 18" CMP

LM 16.0
12" CIP
SANITARY
SEWER
TOWN OF SIGNAL MOUNTAIN
CITY OF CHATTANOOGA
PROPOSED
DROP INLET
AND 30" RCP
PROPOSED
DROP INLET
AND 2-30" RCP
IMPROVE EXISTING
5' x 2' DITCH
WITH PROPOSED
5.5' x 3.5' CONC. DITCH
LM 15.66 TO LM 15.80
REPLACE EXISTING DROP INLET,
36" RCP AND 18" RCP
WITH PROPOSED
DROP INLET AND 3-30" RCP
INSPECT AND CLEAN
EXISTING 18" CMP
INSPECT AND CLEAN
EXISTING 18" CMP
1.5" T0 3" WATERLINE
LM 15.5
TOWN OF SIGNAL MOUNTAIN
HAMILTON COUNTY
N

EXISTING 18" RCP
LM 16.5
SHOAL CREEK RD
PROPOSED
24" RCP
EXISTING10' x 7.5' RCB
12" CIP
SANITARY
SEWER
10" DIP
SANITARY
SEWER
IMPROVE EXISTING
4.5' x 1.5' DITCH
WITH PROPOSED
4.5' x 2.5' CONC. DITCH
LM 15.80 TO LM 16.26
PROPOSED
DROP INLET
AND 30" RCP
WATER FALL
PROPOSED
DROP INLET
AND 30" RCP
LM 16.0
12" CIP
SANITARY
SEWER
N

Drainage Improvements

- System Maintenance Plan
  - Periodic Inspection
  - Inspection following significant rainfall events
- Install additional culverts
- Replace undersized culverts
- Upgrade/improve ditches

Positive Impacts of Spot Improvements

- ✓ Improves safety
- ✓ Improves stability and reliability
- ✓ Cost

Estimated Cost of Spot Improvements

Rock Fall Mitigation Options

- **Vegetation removal and scaling - $325,000**
- Vegetation removal, scaling, shotcrete and rock bolting - $700,000
- Vegetation removal, scaling and nail and net - $900,000
- Cut 1:1 Slopes - $10,000,000

Roadway Stabilization Options

- **Rebuild roadway stability concern areas - $890,000**
- **Drill and install soil nails, anchors and drains - $1,600,000**
- Retaining walls - $3,400,000

Drainage Improvements

- **Culvert replacement/installation – $950,000**
- **Upgrade and/or improve ditches – $6,500,000**

Spot Improvement Scenario

Total Estimated Cost

- $10.2 million
- Cost/mile $3.4 million

Negative Impacts of Spot Improvements

- Road closures during construction
- Continued need for maintenance
- Considerable visual impacts

Environmental Scan

- Possible Threatened & Endangered Species
  - Indiana or Gray bat
  - White Fringeless Orchid
- Shoal Creek is on the TDEC 303(d) list of impaired waters and on the TDEC Known Exceptional Tennessee Waters List
- Hazardous Materials
  - Pyritic Rock
- No Historic Property impacts anticipated
- No Wetland or Floodplain impacts anticipated
- No Superfund Sites are anticipated

Questions??