Design Public Hearing for the Existing and Proposed Bridge Crossings on Aden Road (Rte 646) over the Norfolk Southern RR, Nokesville, Virginia

September 18, 2013

Nicholas J. Roper, P.E.
District Bridge Engineer, Northern Virginia
(703)259-1953
nicholas.roper@vdot.virginia.gov

Agenda

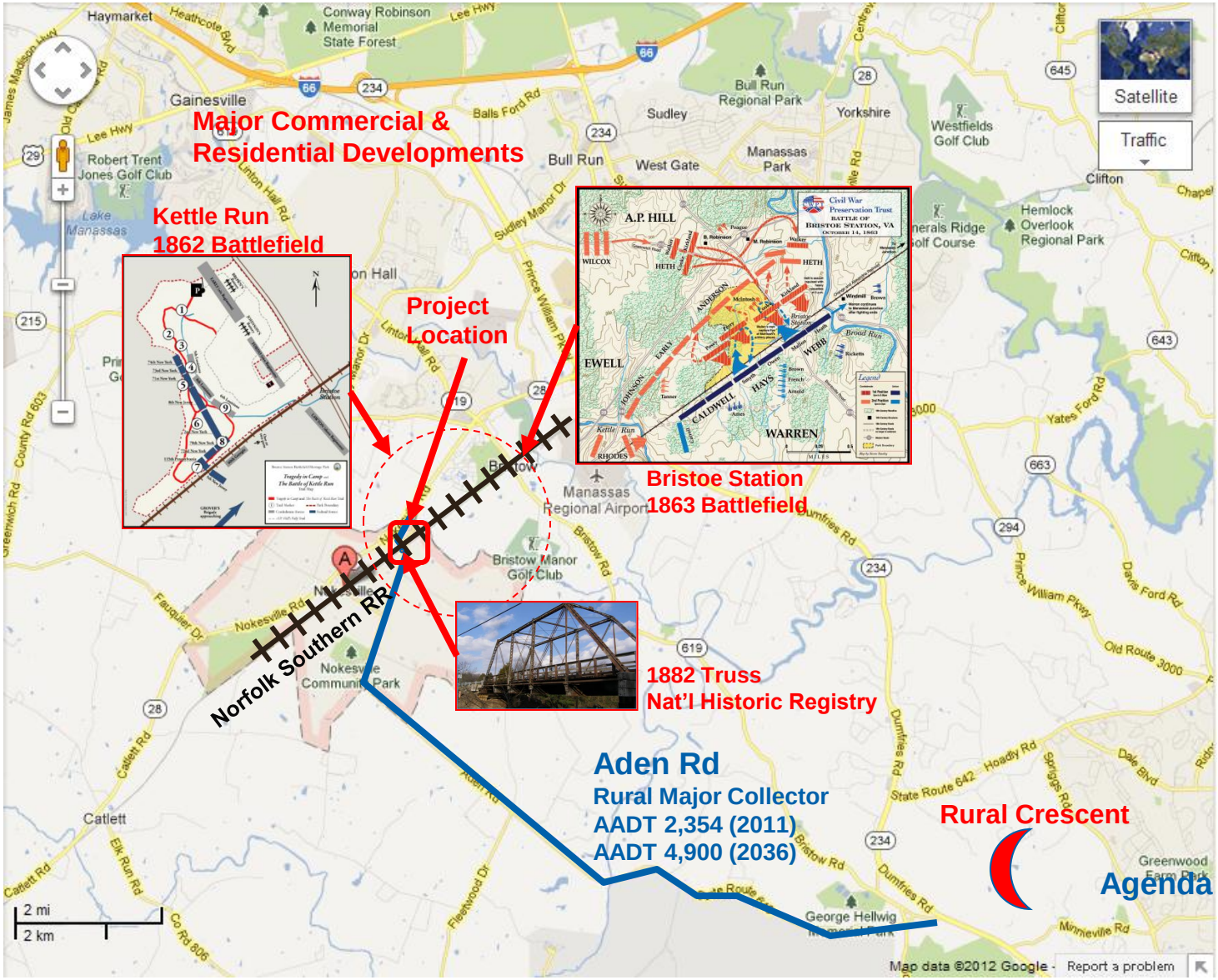
- Project Location & Key Features
- Project Objectives
- Preliminary Design
- Cost Estimate & Schedule

Questions/Comments

Nicholas J. Roper, P.E.
(703)259-1953
nicholas.roper@vdot.virginia.gov

Comments may be mailed to Claudia Llana, P.E at the address 4975 Alliance Drive Fairfax, VA 22030 or emailed to meeting_comments@vdot.virginia.gov. Please include "Route 646 over NSRR" in the email subject line.

Project Location & Key Features



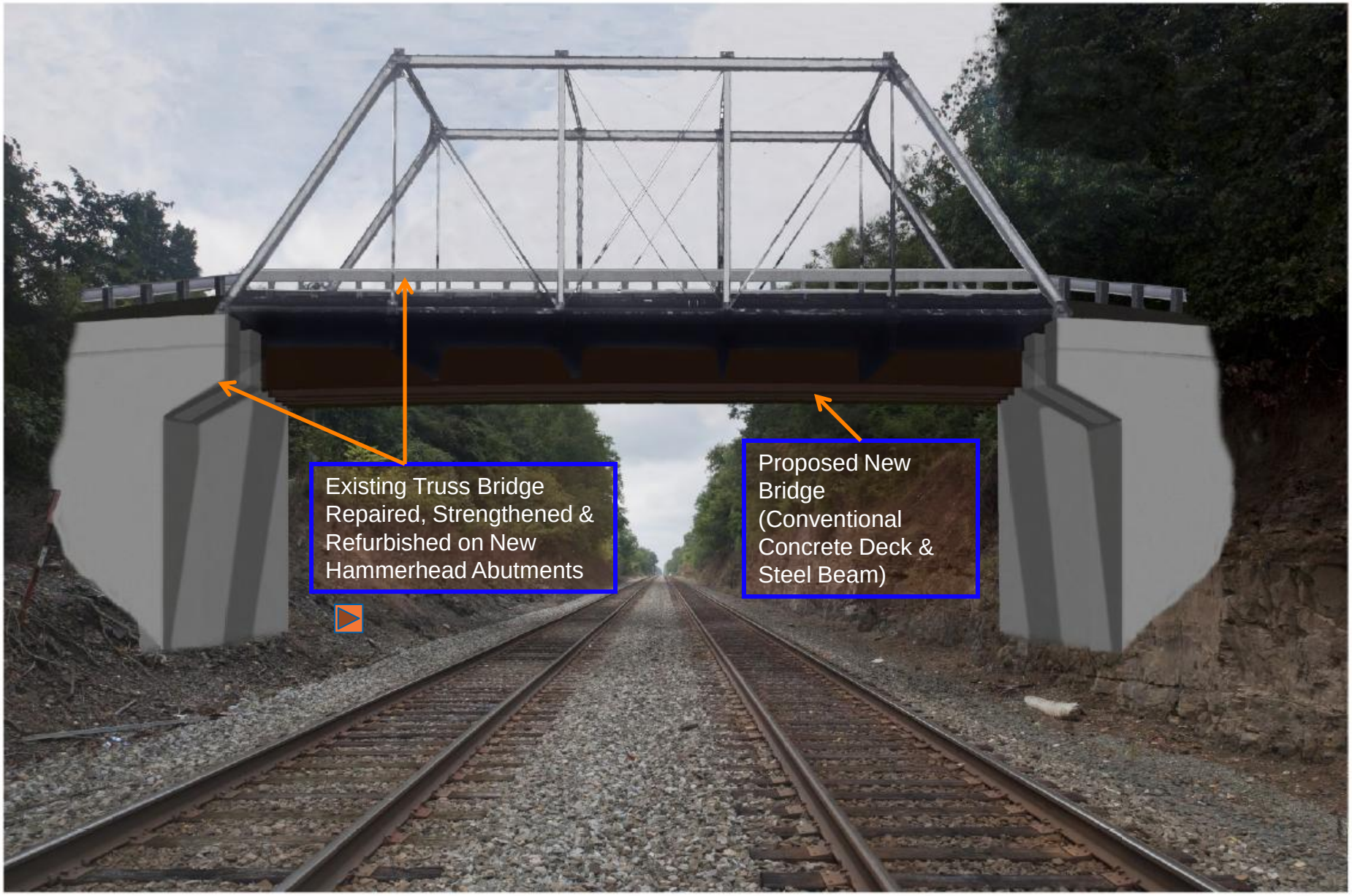
Project Objectives

- Permanently repair or rehabilitate the historic 1-lane existing truss that is chronically structurally deficient and has low weight-carrying capacity
- Increase the number of lanes on Aden Road over the Norfolk Southern RR to increase capacity for future traffic and reduce accidents
- Meet Norfolk Southern design requirements for vertical & lateral clearance for future conditions
- Minimize the adverse affect of new road and bridge construction on nearby historic properties
  - Civil War battlefield of Kettle Run (1862)
  - Civil War battlefield of Bristoe Station (1863)
  - 1883 Wrought Iron Truss

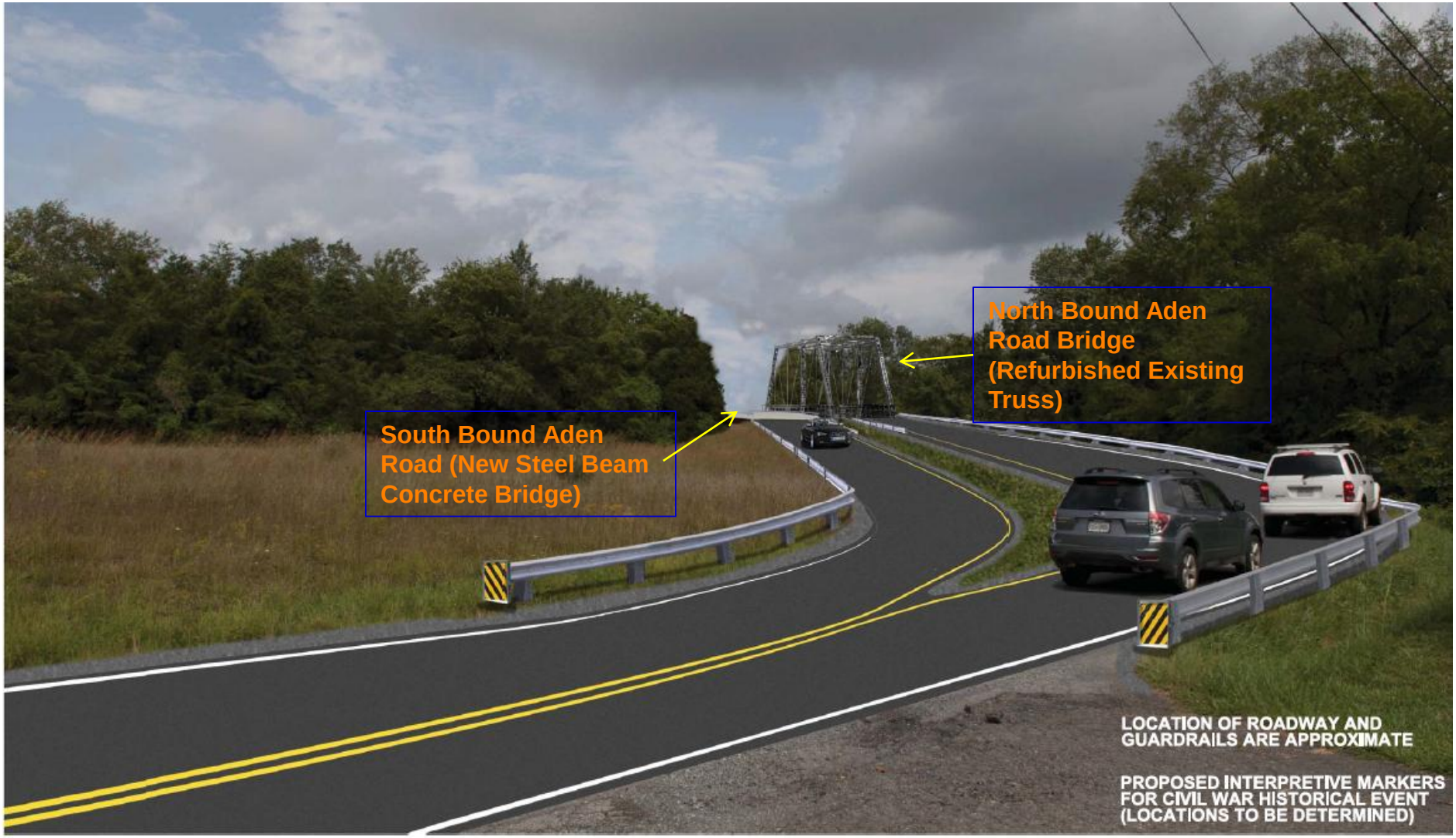
Agenda

Plan View

11415 ADEN ROAD, LLC
001
CHARLES W. RECTOR, TRUSTEE
DB 1124 PG 558
14.3952 AC.
GPIN# 7494-91-5220
002
11411 ADEN ROAD, L.L.C.
DB 2960 PG 1152
0.700 AC.
GPIN# 7594-01-0438
003
11407 ADEN ROAD, LLC
0.5026 AC.
GPIN# 7594-01-0852
004
ESTATE OF CHARLES W. RECTOR
WB 683 PG 734
GPIN# 7594-01-8476
122.8168 AC.
005
GREGORY S. COLAS, JACKLYN M. COLAS
& EVELYN B. MARTIN
DB 2663 PG 149
4.9999 AC.
GPIN# 7594-01-3594
006
NORFOLK SOUTHERN CORP.
007
EDWARD H. SCHNEEMAN &
CARMEN M. SCHEEMEN
DB 631 PG 494
2.0 AC.
GPIN# 7494-91-5891
JOSHUA TOLLIE WYANT &
RACHAEL CYNTHIA WYANT
2.8635 AC.
GPIN# 7494-92-2509
BETTY J. THOMAS ESTATE
2.30 AC.
GPIN# 7494-92-4030
JERRY A. WHITE &
JOANITA L. WHITE
DB 2292 PG 655
1.15 AC.
GPIN# 7494-92-5732
LAWRENCE R. ROSS &
TAMMY A. ROSS
DB 2547 PG 1349
2.30 AC.
GPIN# 7494-92-6491
DB 1063 PG 532
3 AC.
GPIN# 7594-02-1440
IRMA S. BREEDEN LEACH
DB 825 PG 201
2.123 AC.
GPIN# 7494-92-8358
STOP
35
Proposed Steel Beam Bridge
Refurbished Existing Bridge on Hammerhead Abutment

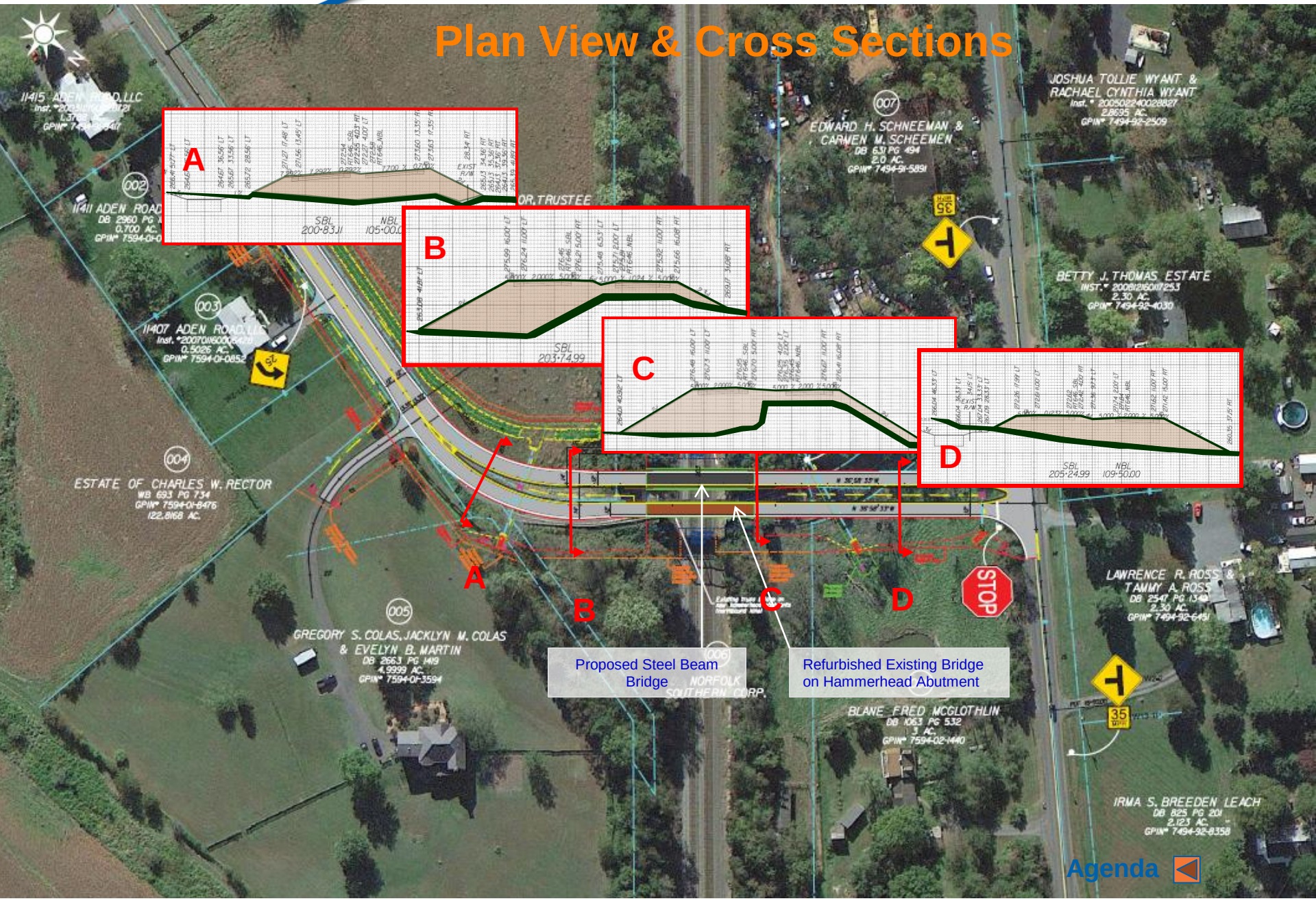


View from East: Refurbished Existing Bridge on Hammerhead Abutments



Concept Rendering of Proposed New Steel Beam Bridge (Southbound Lane) & Existing Truss Bridge on New Hammerhead Abutments (Northbound Lane) with Approach Roadway

Plan View & Cross Sections



Agenda

Project Cost Estimate & Schedule

Project Cost Estimate

- Engineering – 0.7 Million
- Right of Way Acquisition & Utility Relocation – 0.4 Million
- Construction - $3.0 Million
- Total - $4.1 Million

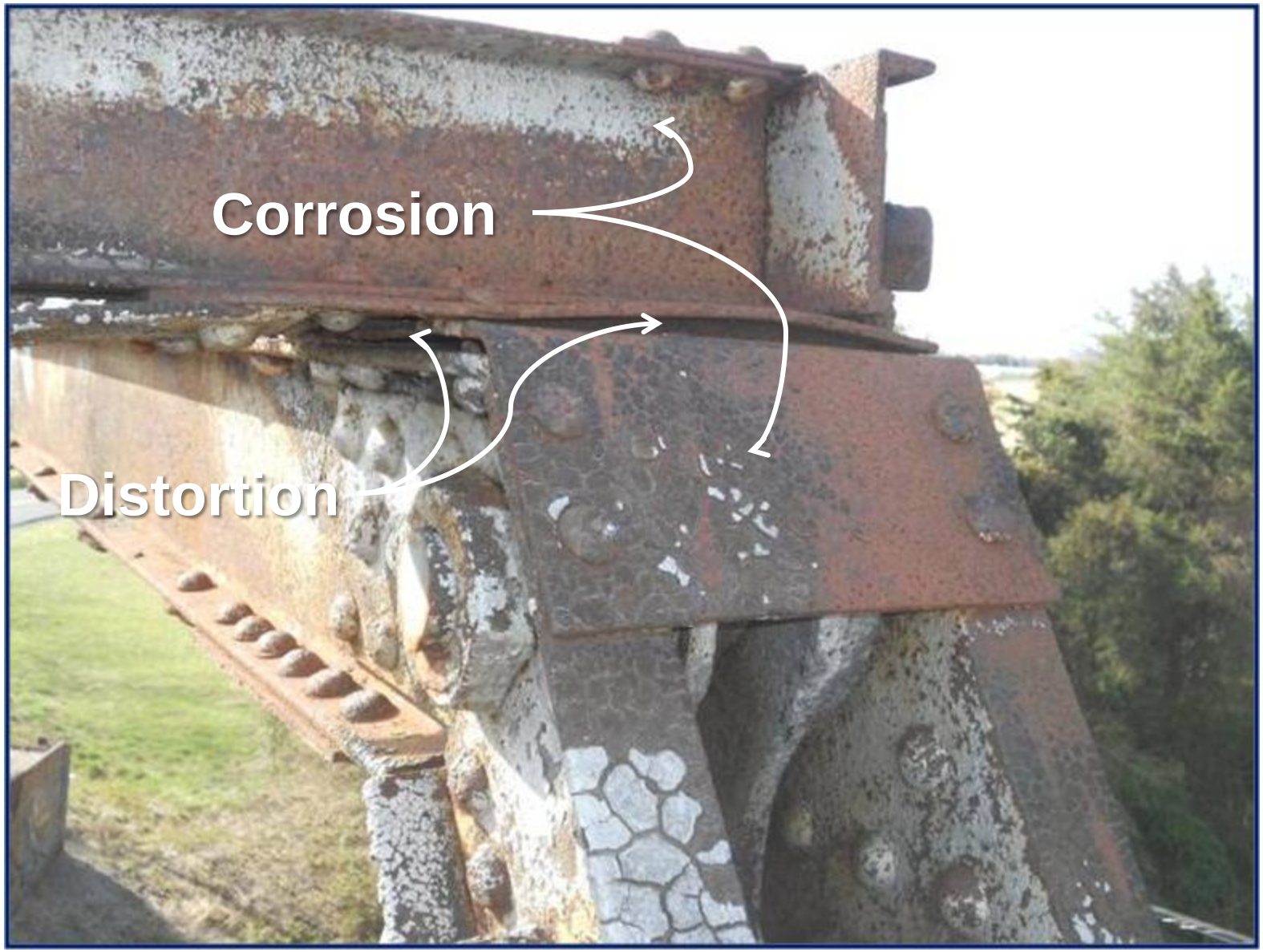
Project Schedule

- Pubic Hearing – September 18, 2013 (Today)
- Public Hearing Comment period ends – October 3, 2013
- Advertise project for Construction Winter –2014-2015
- Construction Begin – Early 2015

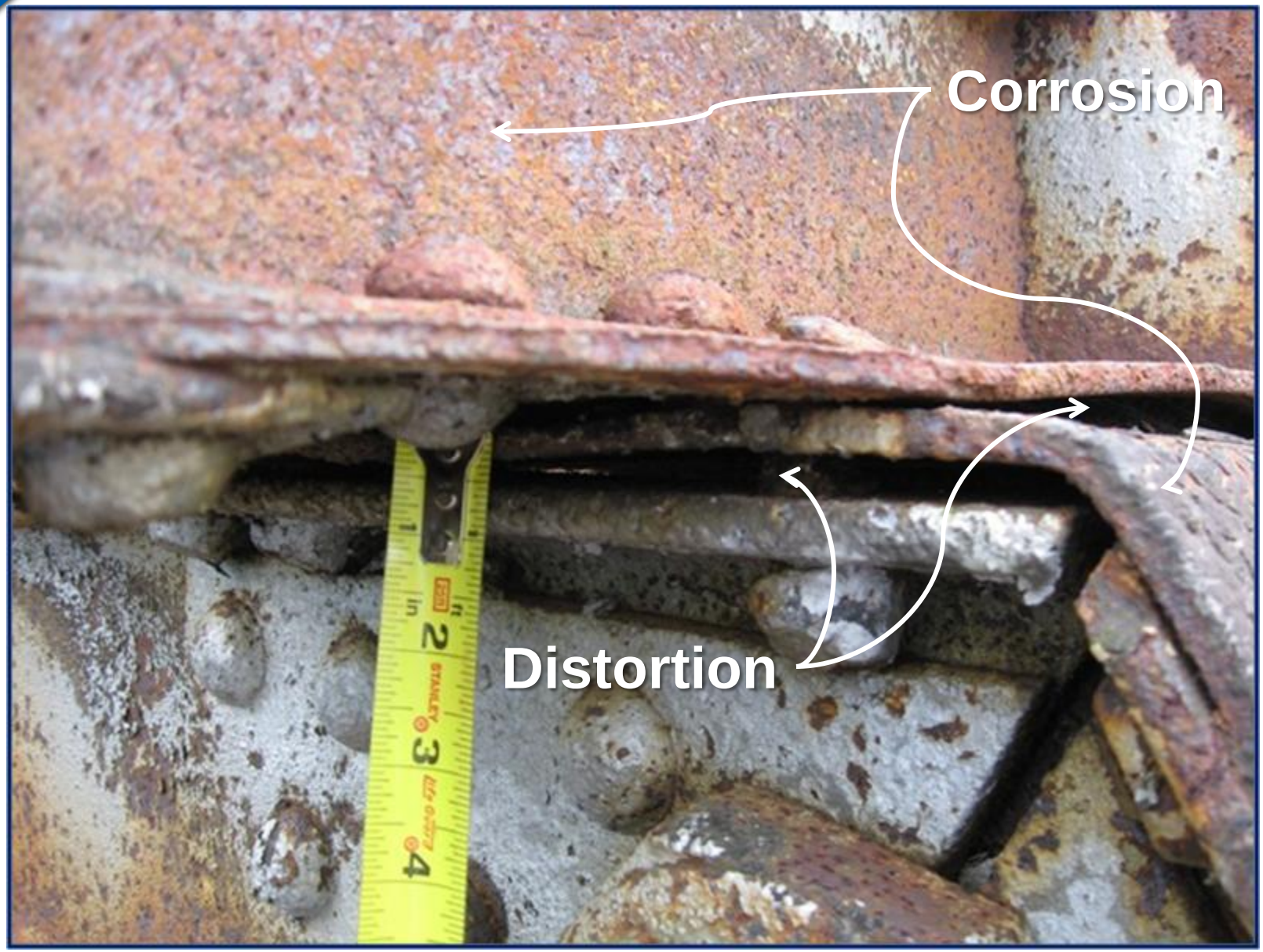
General History for the Wrought Iron Truss

- Bridge is a wrought iron truss built in 1882 by Keystone Bridge Company for the Virginia Midland Railway to carry a single track railway
- Relocated to its current location sometime between 1904 and 1928 by Southern RR
- Placed on the National Historic Registry in 1977
- Owned and maintained by Norfolk Southern Railroad (Will be state owned & maintained after construction)
- VDOT inspects and monitors the bridge
  - Presently classified as Structurally Deficient & posted for a 6 ton weight limit
  - Health Index rating is 47 out of 100 and Sufficiency Rating is 24.3 out of 100

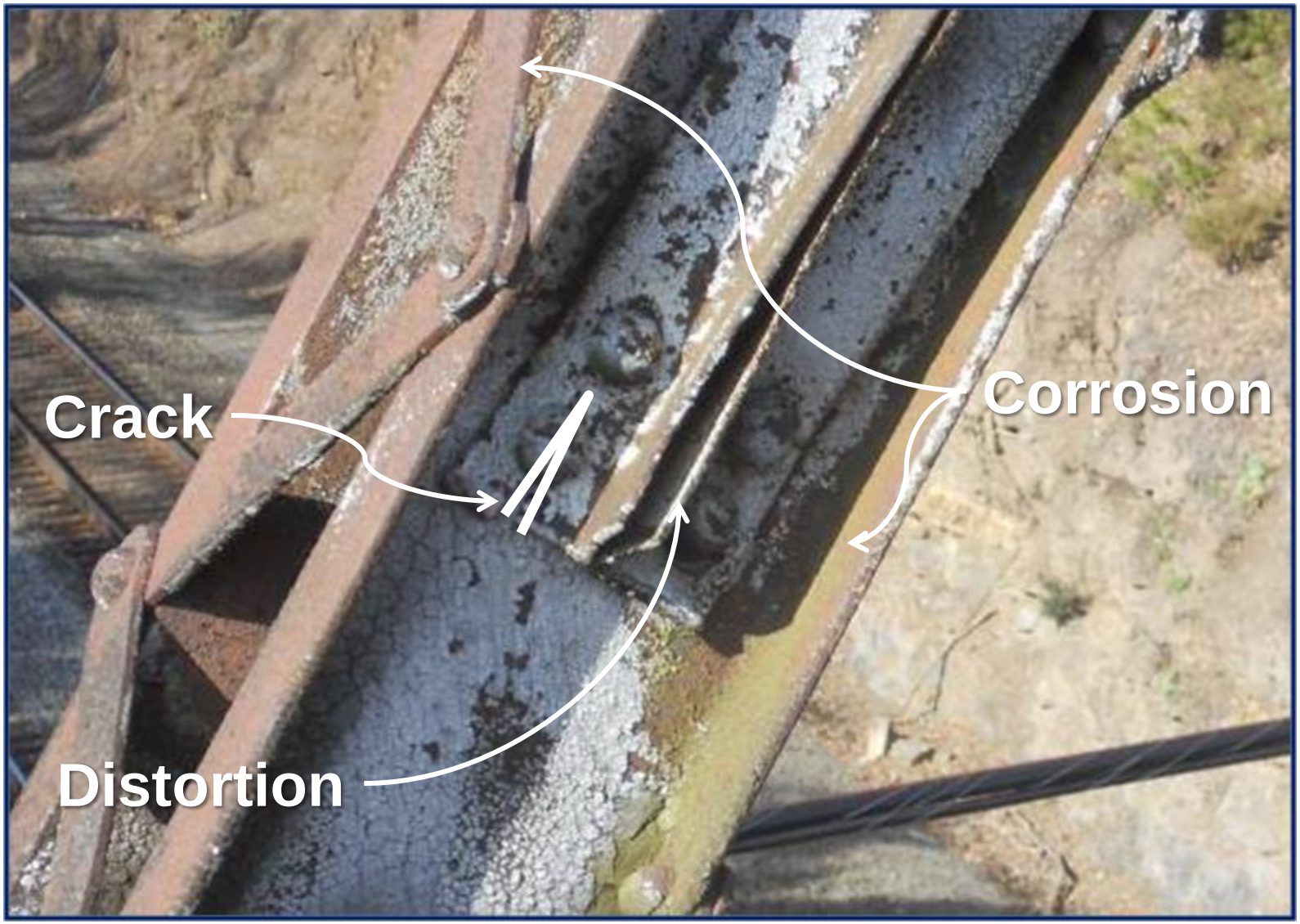
Top Chord



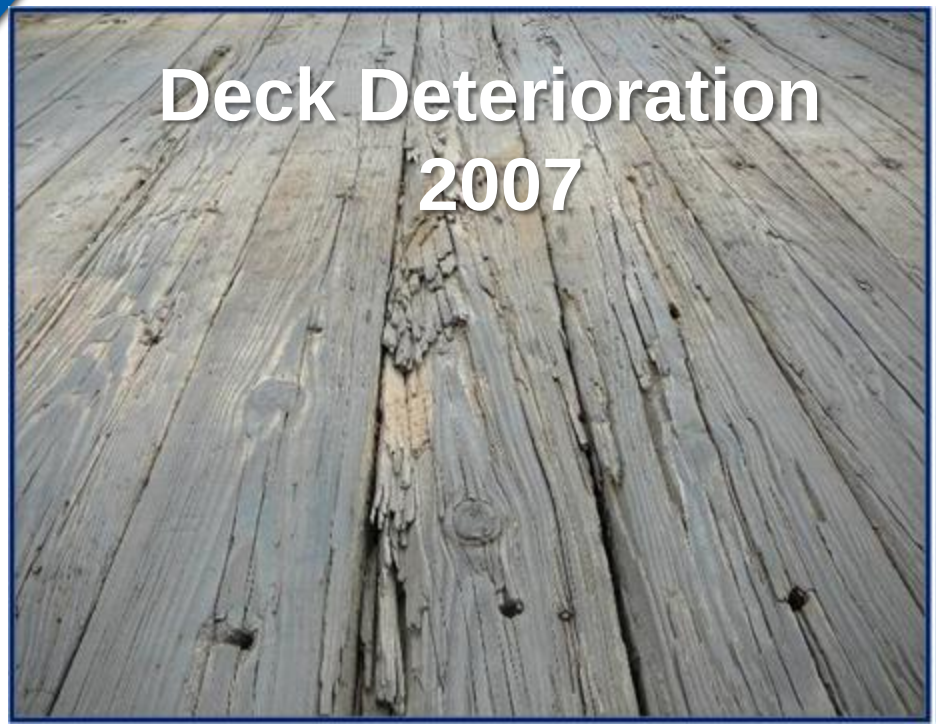
Top Chord



Diagonals



Timber Deck


Deck Deterioration
2007

Deck Deterioration
2011
(2nd Repair since 2007)

Abutments

Quotes from Facebook August 2007

- “I crossed that bridge the night before they closed it... It was getting pretty rickety. I'll miss it though.”
- “I would hold my breath whenever our bus would crossover the bridge, starting in first grade and that was 45 years ago. But, I kept driving over it!”
- “I am going to miss the clattering that came from crossing the bridge.”
- “i used to be scared one of thoose old crazy nails would pop my tire”
- “This isn't news. Everyone knew it was dangerous”
- “Am I the only one who has never worried about the bridge? I just kind of took it as is and never thoguht of it as unsafe.”

Objectives

Average Daily Traffic and Accident History

- **Prince William County's transportation model indicates that the Average Daily Traffic is expected to increase from 2,800 to 4,900 by 2036**

- **19 accidents between 2000-2012 w/ 8 injuries, no fatalities**

Location	Crash Date	Crash Time	Day	Injury Count	Collision Type
west end of bridge	3/21/2000	15:00	Tue	1	Head On
east of bridge	5/18/2000	2:00	Thu	0	Fixed Object - Off Road
on bridge	2/13/2001	6:00	Tue	0	Head On
west end of bridge	3/17/2002	14:00	Sun	0	Fixed Object - Off Road
east end of bridge	2/11/2003	7:00	Tue	0	Sideswipe - Opposite Direction
west end of bridge	3/30/2003	16:00	Sun	0	Head On
on bridge	9/2/2003	7:00	Tue	2	Head On
on bridge	12/16/2003	15:00	Tue	0	Head On
east of bridge	5/15/2004	1:26	Sat	0	Fixed Object - Off Road
east of bridge	11/5/2006	0:00	Sun	1	Fixed Object - Off Road
west end of bridge	1/5/2007	14:05	Fri	0	Sideswipe - Same Direction
east of bridge	6/1/2008	14:45	Sun	1	Fixed Object - Off Road
east of bridge	4/15/2009	14:43	Wed	0	Rear End
east of bridge	4/28/2009	14:27	Tue	0	Rear End
700 ft north of Colvin	4/28/2009	14:10	Tue	0	Rear End
250 ft north of Colvin	10/15/2009	14:15	Thu	1	Rear End
west end of bridge	11/15/2009	2:38	Sun	1	Fixed Object - Off Road
north end of the Bridge	4/30/2010	17:30	Fri	0	Rear End
west end of bridge	8/2/2010	21:25	Mon	1	Fixed Object - Off Road

Objectives

Section 106 of the National Historic Preservation Act

- Requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings.

- The standard review process involves five basic steps specified in the U.S. Code of Federal Regulations at 36 CFR Part 800.

Section 106 Review Process

1 Identify & Evaluate Historic Properties

- Review background information
- Consult with the State Historic Preservation Officer (SHPO)
- Conduct additional studies
- If properties are located, assess eligibility for the National Register of Historic Places

2 Assess Effects on Eligible Properties

Adverse Effect ⇨ the undertaking will harm one or more historic properties

No Adverse Effect ⇨ the undertaking will affect one or more historic properties, but the effect will not be harmful

No Effect ⇨ the undertaking will not affect historic properties

Adverse Effect

3 Consultation

- The agency consults with the SHPO & others to find ways to make the undertaking less harmful.
- Designed to result in a Memorandum of Agreement (MOA), which outlines measures the agency will take to reduce, avoid, or mitigate the adverse effect.

4 Council Comment

The Council may participate in consultation and signing the MOA, or the agency submits the MOA for review and acceptance.

No Adverse or No Effect

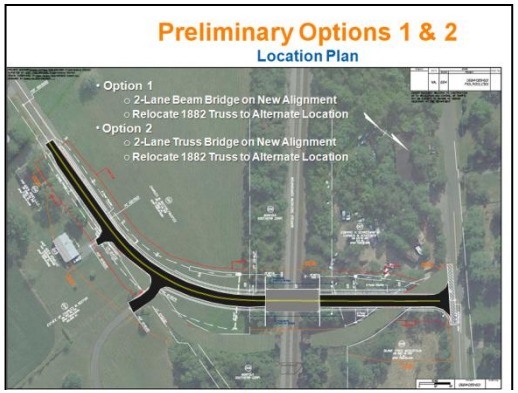
5 Proceed

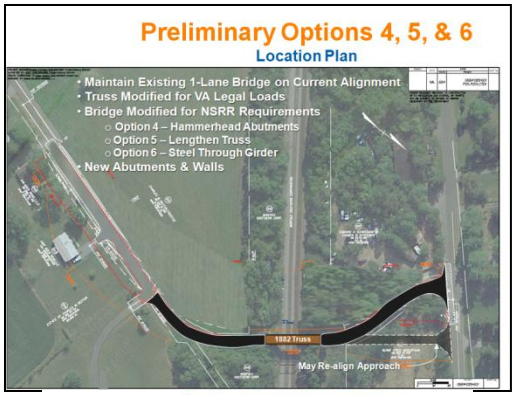
The agency proceeds with its undertaking

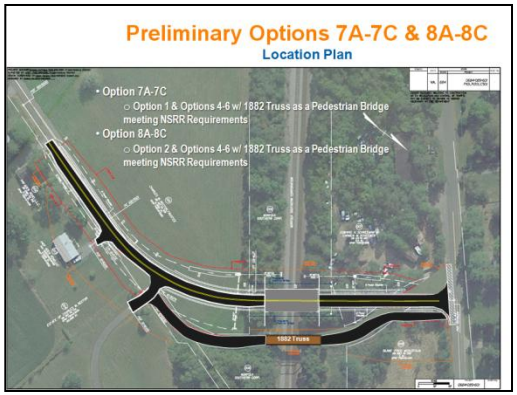
NHPA Section 106 Discussions

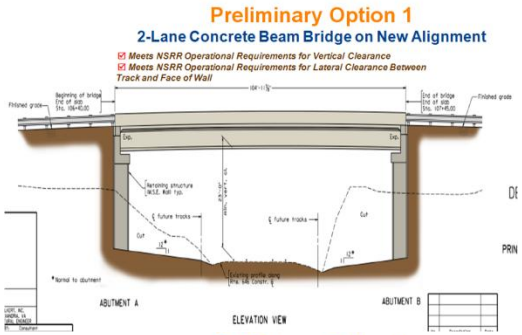
- **Consulting Parties**
  - Prince William County Parks, Archeology, Historical Commission
  - Nokesville
  - Virginia Department of Historic Resources
  - National Park Service
  - Virginia Department of Transportation
  - Federal Highway Administration
  - Historic Bridges.Org
- **Comments**
  - **DHR will need VDOT to demonstrate other alternatives explored to avoid the adverse effect and reason(s) why such options were not viable.**
  - If the new bridge and its approaches will be constructed on substantial fill this will cause a marked change in the historic battlefield landscapes; assess effects to the battlefields and think about ways to minimize such impacts.
  - The majority of people want the bridge to remain in place but altered to meet the railroad's height and width requirements.

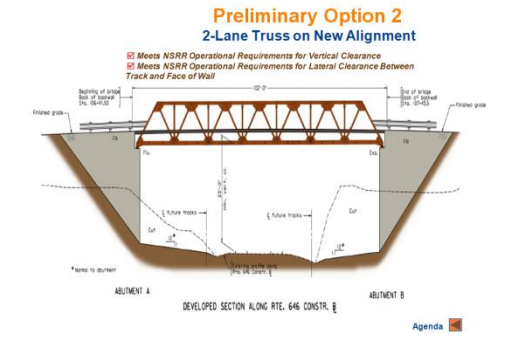
Alternatives Considered

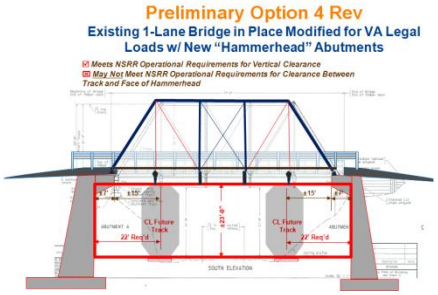


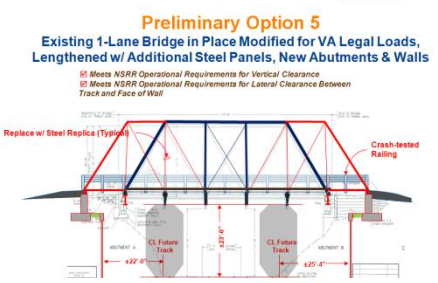


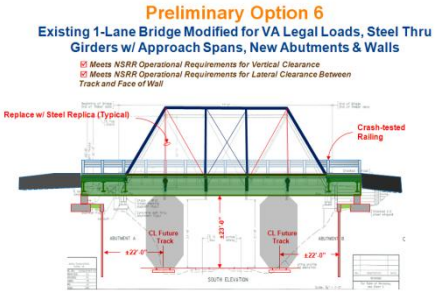




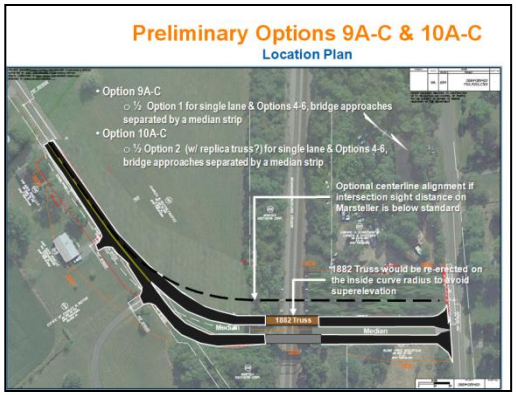








Options 1 or 2 w/ Options 4, 5, or 6 as Bike/Ped Bridge



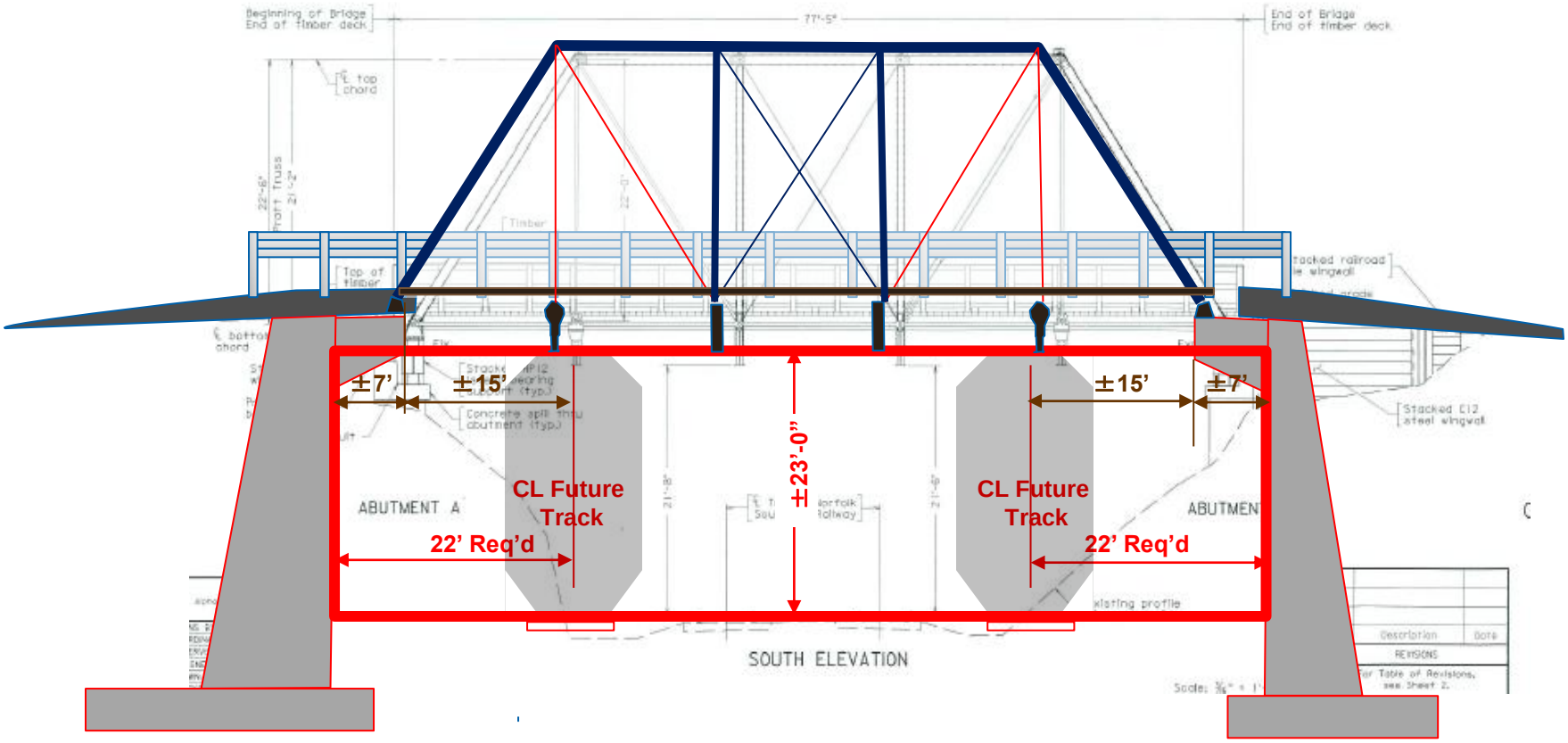
Options 1 or 2 – Single w/ Options 4, 5, or 6 – Single Lane

Preferred Option for Historic Truss

Existing 1-Lane Bridge in Place Modified for VA Legal Loads w/ New "Hammerhead" Abutments

☑ *Meets NSRR Requirements for Vertical Clearance*

☑ *Approved by NSRR as Acceptable for Clearance Between Track and Face of Hammerhead*



Section 106 Compliance

Memorandum of Agreement (MOA)

The stipulations in the Memorandum of Agreement for mitigation of the project's negative effects on historic properties include:

1. **Rehabilitation of the Existing Nokesville Truss Bridge**
2. **Minimization of New Parallel Roadway Prism and Bridge**
3. **Preparation of Heritage Tourism Poster for the Nokesville Truss Bridge**
4. **National Register Nomination Update for the Nokesville Truss Bridge**
5. **Public Summary and Interpretation of the Bristoe Station and Kettle Run Battlefields**
6. **Interpretive Markers for the Bristoe Station and Kettle Run Battlefields**

Objectives

Before and After – Goshen Bridge

Existing and New Bottom Chord Member

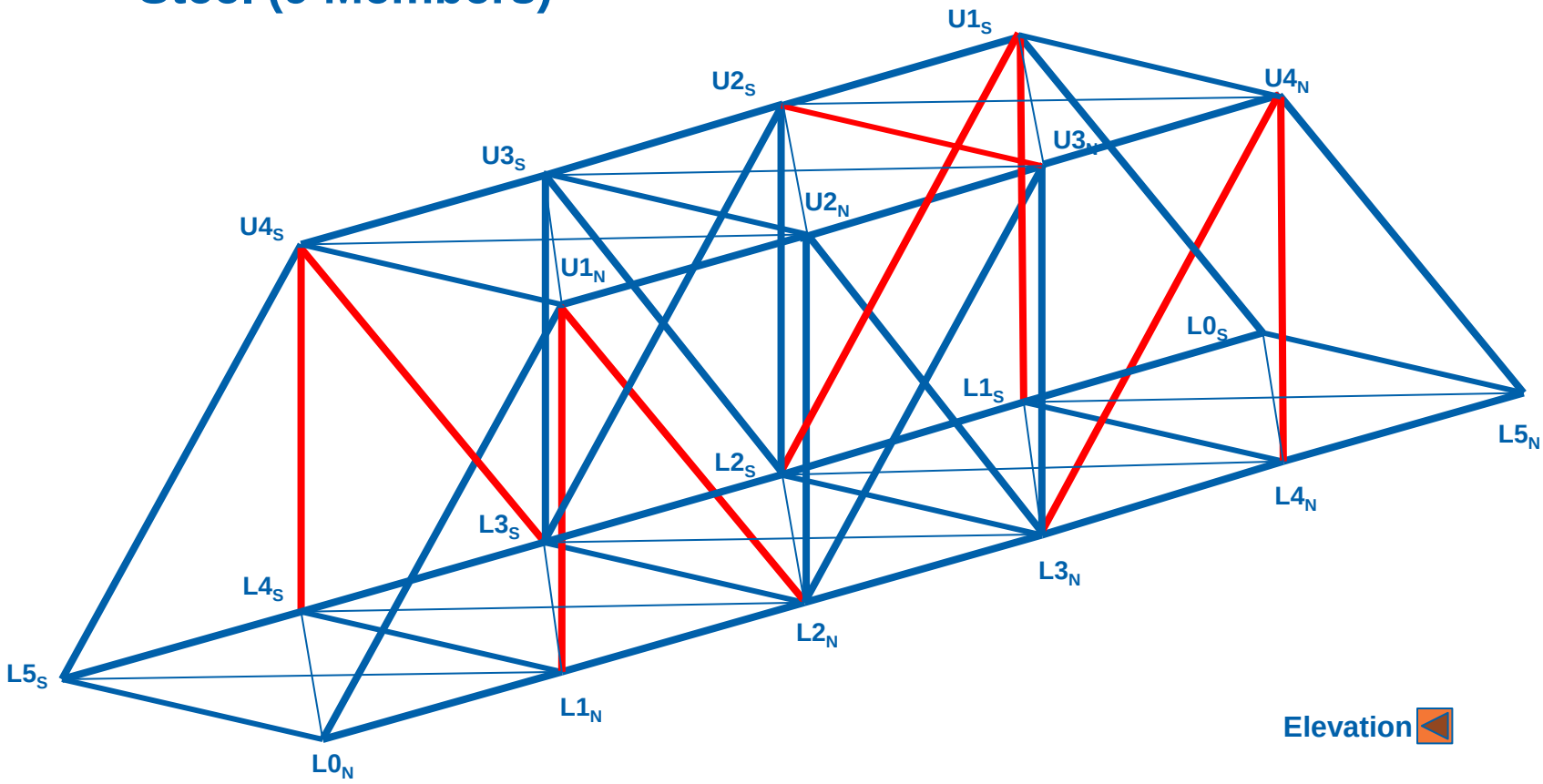
Existing Verticals After Galvanizing

New Truss Members

Railing Completed

Existing Truss Modified for Virginia Legal Loads

Wrought Iron (53 Members)
Steel (9 Members)



Elevation