ALDOT’s Tunnels for the National Tunnel Inventory
National Tunnel Inspection Standards (NTIS)

- July 14, 2015 – NTIS Publication
  - Publication of TOMIE, SNTI, NHI Course, etc.
- August 13, 2015 – Effective Date
- August – December 2015 – FHWA Sponsored Training Sessions
- December 11, 2015 – Preliminary NTI Submittals Due
National Tunnel Inspection Standards (NTIS)

- **August 13, 2017** – Qualified Program Manager
- **August 13, 2017** – Initial Inspection of all tunnels Completed
  - Requires a Qualified Team Leader
  - Tunnel-Specific Inspection Procedures
- **March/April, 2018** – NTI Submittals
- **April 1, 2018** – NTIP Oversight Begins
Impetus for the NTIS
Impetus for the NTIS

Under MAP-21 Congress declared it is in the vital interest of the United States to:

• Inventory and inspect all tunnels on all public roads.

• Manage and report critical findings.
What is a tunnel?

An enclosed roadway for motor vehicle traffic with vehicle access limited to portals, regardless of type of structure or method of construction, that requires, based on the owner’s determination, special design considerations that may include lighting, ventilation, fire protection systems, and emergency egress capacity. The terms “tunnel” does not include bridges or culverts inspected under the National Bridge Inspection Standards.
Is this a tunnel?
Is this a tunnel?
Is this a tunnel?
Is this a tunnel?
National Tunnel Inspection Standards

CFR 23 Part 650 Subpart E

§650.501 Purpose
§650.503 Applicability
§650.505 Definitions
§650.507 Tunnel inspection organization responsibilities
§650.509 Qualifications of personnel
§650.511 Inspection interval
§650.513 Inspection procedures
§650.515 Inventory
§650.517 Incorporation by reference
Purpose §650.501

Sets the national minimum standards for safety inspection and evaluation of tunnels.
§650.503 - Applicability

• Applies to all structures defined as highway tunnels on all public roads, on and off Federal-aid highways, including tribally and federally owned tunnels.
§650.509 - Qualifications of Personnel

• Program Manager shall:
  – Be a registered P.E. or have 10 years of inspection experience
  – Be a **nationally certified tunnel inspector**
§650.509 - Qualifications of Personnel

• Team Leader shall:
  – Be a registered P.E. and have 6 months of inspection experience, or
  – Have 5 years of inspection experience, or
  – Have a bachelor’s degree, pass the FE exam, and have 2 years of inspection experience, or
  – Have an associate’s degree and have 4 years of inspection experience
§650.509 - Qualifications of Personnel

• Team Leader shall also:
  – Be a nationally certified tunnel inspector
  – Provide documentation supporting education and experience to each Program Manager

• In some cases a Team Leader must be a P.E. and have 6 months of inspection experience when determined by the Program Manager
§650.509 - Qualifications of Personnel

• Load ratings shall be performed by, or under the supervision of, a registered P.E.

• Each entity shall determine qualifications for damage, cursory, and special inspections
§650.511 - Inspection Interval

• Routine inspection
  – Establish a routine inspection date for each tunnel
    • Inspect at 24 month intervals
    • Determine based on a risk analysis when tunnels need more frequent inspections
    • Certain tunnels may be inspected at up to 48 month intervals after written request to FHWA
  – Inspect at established interval within 2 months of inspection date
§650.513 - Inspection procedures

- Inspect structural elements and functional systems per the TOMIE
- Provide a Team Leader at all times during the initial, routine, and in-depth inspections
§650.513 - Inspection procedures

- Establish requirements for functional system testing
- Identify specialized inspection procedures and additional training and experience for complex tunnels. Inspect accordingly.
- Conduct inspections with qualified staff
§650.513 - Inspection procedures

• Rate *vehicular* load carrying capacity of each tunnel per the AASHTO MBE
  – Load rating should be completed within 3 months of the completion of the inspection, if needed
  – Post or restrict the highway within 30 days, when legal loads or routine permit loads exceed the operating ratings
  – Maintain load rating documentation
  – At-grade roadways in tunnels do not need to be load rated
§650.513 - Inspection procedures

- Use QC and QA procedures to maintain accuracy and consistency in the inspection program
  - Periodic review of inspection teams, data quality checks, independent reviews

- Establish procedures to ensure critical findings are addressed
  - Notify FHWA within 24 hours
National Tunnel Inventory

- SNTI
  - Introduction
  - Inventory Items
  - Elements
  - Index of Inventory Items and Elements
  - Tunnel Coding Example
  - References
National Tunnel Inventory

• Inventory Items
  – Identification
  – Age and Service
  – Classification
  – Inspection
  – Load Rating and Posting
  – Navigation
  – Structure Type and Material

• Elements
  – Structural
  – Civil
  – Mechanical Systems
  – Electrical and Lighting Systems
  – Fire/Life Safety/Security Systems
  – Signs
Alabama’s Tunnels

• First review of NBI data showed 11 possible tunnels

• An expanded search lead to 16 possible tunnels

• After reviewing the possible tunnels with FHWA, 4 classified as tunnels and 12 classified as bridges
Questions?