

HOA – POA TDOT Liaison Committee 2016 Year End Review

This report summarizes the work of the HOA – POA TDOT Liaison Committee and highlights the work performed by the Tennessee Department of Transportation in 2016 along Highway 444.

The Appendix contains information about the Liaison Committee and an annotated photo gallery

Highway 444 Safety Project



Highway 321 Bridge Construction Monitoring Project



HOA TDOT Liaison Committee is Engaged in Two Projects Critical to the Village:

- Highway 444 Safety Project
 - The Liaison Committee and the POA developed recommendations for safety improvements
 - The Committee met quarterly with the TDOT Region 1 Director of Operations and key staff
- Highway 321 Bridge Construction Monitoring Project
 - The Liaison Committee meets periodically with the TDOT project managers for reports on construction progress

Highway 444 Safety Project

- With input from many HOA members the Liaison Committee identified and focused on the following problems and concerns regarding H444:
 - Dangerous left turn lanes at in the intersection of Highways 444 and 321
 - Inadequate signage and road markings
 - Dangerous passing zones
 - High traffic volumes especially during commuting times
 - Congestion due to slow moving vehicles
 - High speed traffic
 - Incidences of deer strikes
 - Deteriorating road and shoulder conditions including pavement at bridges
 - Drainage seeps in the road near the Community Church

TDOT Work in 2016 on Highway 444

- The professional working relationship between TDOT and the Liaison Committee has resulted in TDOT resolving most of the concerns in 2016.
- TDOT will address the remaining issues when H444 is scheduled for resurfacing in 2018 (contingent on funding).
- Work accomplished
 - Opened the new ramp from Lenoir City to Southbound H444 from H321. This eliminated the left turns at this intersection
 - New sign on H444 pointing to Maryville at the entrance ramp to H321
 - Crash studies show that H444 is safer than the average road in the state. This means there is less justification and funding for highway modifications. The 50 MPH speed limit meets TDOT specifications and will not change.
 - Capacity analysis shows that traffic is well below the design capacity and should remain so even with projected growth for the foreseeable future
 - TDOT has agreed to review passing zones and consider recommendations by the Liaison Committee to eliminate the most dangerous zone(s)

TDOT Work in 2016 on Highway 444

- Work accomplished (continued)

- Highway 444 Signage added:

- + Signs with street names at intersections where vehicle crashes have occurred
 - + Deer crossing warning signs in areas where strikes have occurred
 - + Mile marker signs
 - + Replaced existing road signs and added traffic safety notification

- Completed road striping using highly reflective paint for center and shoulder lines and added 40 intersection turn arrows
 - Shoulder drop offs were filled with gravel near intersections

- Work remaining for 2017

- Temporary repairs to bridge transitions will be made before resurfacing
 - TDOT and Liaison Committee will develop a long range vegetation removal and maintenance plan to improve lines of sight
 - Repair drainage seeps on H444 near Community Church
 - Repair and replace guardrails as needed



Liaison Committee Recommendations for 2017 and 2018

- In mid-year 2017 TDOT will begin developing a conceptual plan for resurfacing Highway 444. TDOT will seek input from the Liaison Committee
- The Liaison Committee will recommend:
 - Add left turn lanes at high volume intersections and boat ramps if roadway conditions at specific intersections allow
 - Add right turn lanes and acceleration lanes at intersections with limited sight lines and high volume
 - Add acceleration lane at the end of the H321 ramp from Lenoir City to Tellico Village
 - TDOT has agreed to review passing zones and make safety adjustments as needed
- Resurfacing scheduled for 2018, contingent on funding, would take about two weeks and would require temporary changes to traffic patterns. Most work will be scheduled for periods of low traffic volumes

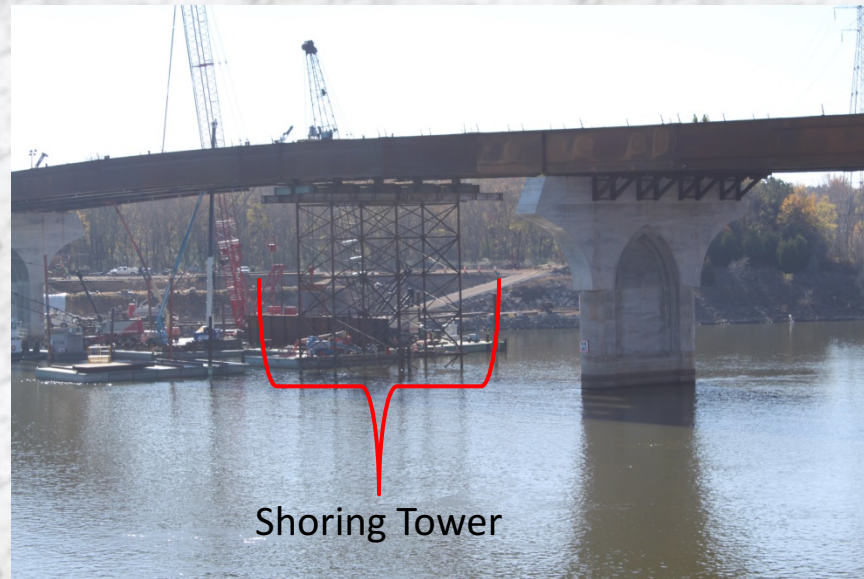
Highway 321 Bridge Construction Monitoring Project

- The construction of the bridge over the Tennessee River is on schedule for opening to traffic in the late Spring of 2017.
- Orientation photo shows new alignment of Highway 321



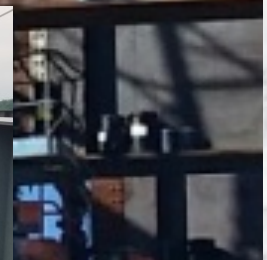
Status of Highway 321 Bridge Construction as of December 2016

- All steel beams have been set
- The bracing between the beams is complete
- Engineers have added a sidewalk to the design of the bridge
- The beams have been “profiled” meaning that the position and elevation has been measured to confirm that they are in the correct position



Next Steps for Bridge Construction

- Now that the beams have been set all of the bolts must be tightened to the proper torque. There are about 100,000 bolts
- About 10% of the bolts will be torque tested to confirm they meet specifications
- Once the bolts are tightened the shoring tower that supported the beams while they were being set will be moved
- The decking will be installed. The photo below shows the decking that was used on the bridge over the Tellico Canal between the lakes



Next Steps for Bridge Construction (Continued)

- Over hang jacks will be installed. Those are used to support the concrete that is cantilevered out from both sides of the bridge. This also supports the concrete guardrail
- The rebar mat will be laid starting in February and even before the entire mat is laid the concrete pouring will begin in March



Next Steps for Rebuilding H321 and H444 Entrance and Exit Ramps

- By early spring the TDOT contractor will begin realigning the ramps entering and exiting Highway 321 one ramp at a time
- While one ramp is closed the other ramp will be used for two way traffic entering and leaving Highway 321
- During this work left turns will be necessary which will increase travel time and risk
- When completed the entrance ramps will be merge lanes, instead of the current Yield lanes, going to Lenoir City and to Maryville
- The next figure shows the new intersection of Highways 321 and 444

Intersection of Highways 321 and 444

Existing Hwy 321 Bridge

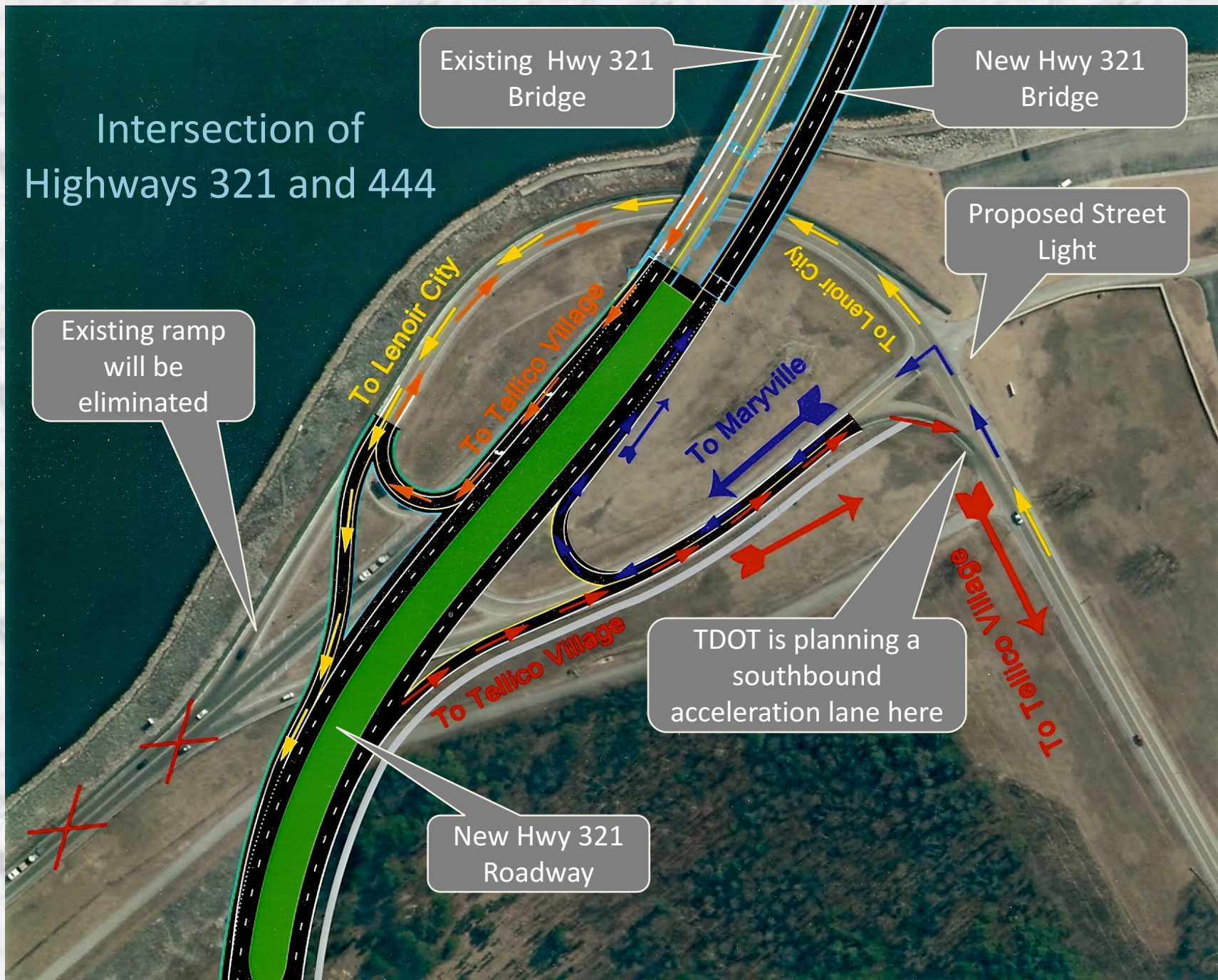
New Hwy 321 Bridge

Proposed Street Light

Existing ramp will be eliminated

TDOT is planning a southbound acceleration lane here

New Hwy 321 Roadway



Why is the Bridge Construction Taking So Long?

- The project was delayed for over 500 days due the federal permitting process and unforeseen foundation problems at Pier 2
 - Permitting
 - + The TDOT Contractor determined, based on changes to the schedule for steel production and delivery and the bridge construction plan that additional worksite space was needed to store the steel beams
 - + The Contractor was required to go through the federal permitting process to gain access to the addition acreage
 - + That permitting delay then lead to further delay in working along the shoreline because of work restrictions during a critical period in the life cycle of the Snail Darter (a small fish).
 - Foundation Problem
 - + When blasting bedrock for the foundation of Pier 2 the Contractor discovered large voids in the rock. This required extra surveys and blasting to determine the extent of the voids.
 - + Those voids were filled with substantially more concrete to insure a solid foundation



Dismantling the Carmichael Greer Bridge over the Fort Loudon Dam

- Efforts to preserve the existing bridge over the dam were unsuccessful.
- TVA wants the bridge removed because they are concerned about safety, security, liability and the cost of continuing to maintain the bridge, even for foot traffic.
- The bridge often hampers access by TVA when they perform maintenance on the dam.
- The estimated cost of the contract to dismantle the 52-year-old bridge is roughly \$1 million and is scheduled to be completed by August 2017



Appendix

HOA – POA TDOT Liaison Committee

- The Committee was established in 2015 (see [Liaison Committee Charter](#)) and reauthorized for 2016. The HOA Board intends to reauthorize the Committee for 2017
- Committee Members
 - **Rich Comiso** – Civil Engineer, Retired US Army Corps of Engineers, highway construction
 - **Jeff Gagley** – TV POA Director of Public Works
 - **Lew Goidell** – Environmental Management / Waste Management / Transportation Safety (resigned)
 - **Ken Holland** – BS Construction Management, POA Liaison
 - **Dick Sawinski** – BS in Civil Engineering, MS in Environmental Engineering, Project Management
 - **Dennis Stanczuk** (Chairman) – BS & MS Geology, Project Management, Risk Assessment, contract negotiation
- The Committee would like to give special thanks to Lew Goidell for his valuable contributions to the work of the Committee. Lew and his wife are moving to Oklahoma to be near family. We wish him all the best.

Photo Gallery – Earth Work



Photo Gallery



Tellico Canal Bridge



Shoring Tower



Tellico Canal Bridge



Photo Gallery – Concrete Work



Bridge abutment on
Lenoir City side

Photo Gallery – Beam Delivery



Photo Gallery – Setting Steel Beams



Photo Gallery – Setting Steel Beams



Photo Gallery – Setting Steel Beams

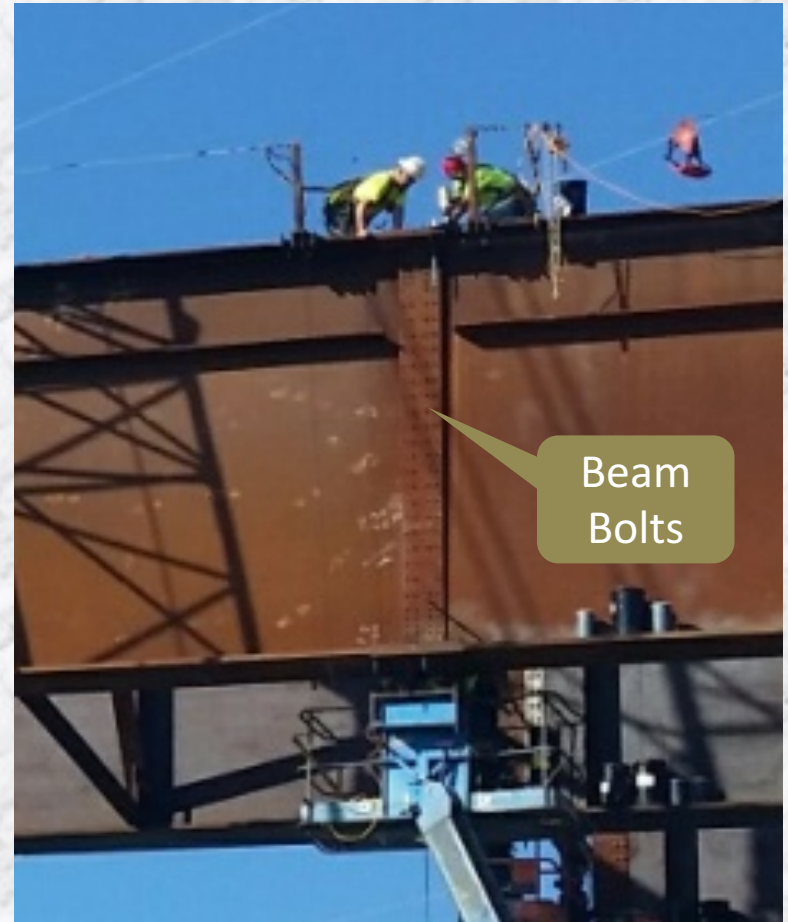


Photo Gallery – Bridge Abutments



Fun Facts

- Here is an interesting fact on the techniques and equipment used to build the Highway 321 bridge
- The end of each beam is pre-drilled to receive the bolts that hold beams together
- The photo on the right shows two workmen on a beam just above rows of bolts
- QUESTION – How do they get all of those little holes to align when they lift the beams into position?
- CONSIDER
 - Steel expands and contracts with temperature
 - When setting the last beam in the center the holes at each end must align with the beams already set, the beam can't be too short or too long...or can they?



Fun Facts

- In fact, when the first middle beam was raised into position on the Highway 321 bridge it was four inches too short! Now what?
- No problem, see those yellow pads in the photo below? They are lubricated skid plates that allow the steel beams to move when they expand and contract.
- During construction the beams that have already been set can be pushed toward the center along those pads to close that four inch gap.
- The beams are pushed with powerful hydraulic jacks that can be precisely controlled.
- If the holes in the beams are misaligned in the vertical dimension jacks are used to lift the beams into the proper position.
- **NOW YOU KNOW.**

