

**STIP U-5603**  
**Proposed Improvements to NC 105**  
**from US 321 (Blowing Rock Road) to NC 105 Bypass (SR 1107)**  
**Boone, Watauga County**

**DRAFT PURPOSE AND NEED**

**Purpose of Project:**

- Alleviate existing congestion along NC 105 from US 321 to NC 105 Bypass
- Improve travel conditions along NC 105 from US 321 to NC 105 Bypass
- Improve access management along NC 105 from US 321 to NC 105 Bypass
- Enhance bicycle and pedestrian accommodations along NC 105 from US 321 to NC 105 Bypass

**Need for Project:**

Traffic congestion and existing crash patterns indicate a need for increasing capacity and improving travel and safety enhancements along NC 105 from US 321 to the NC 105 Bypass. These needs are demonstrated by the following conditions:

- Current and future (2040) traffic volumes on portions of NC 105 operate near or over the roadway's traffic carrying capacity (i.e., level of service [LOS] E). LOS E represents conditions at or near the roadway's capacity.
  - *Capacity analysis is in progress.*
- Lack of access management along NC 105 in the project study area reduces mobility and creates conflict points.
- There were 425 reported crashes, including one fatality, along NC 105 from Faculty Street to the NC 105 Bypass between February 2011 and January 2016, a distance of approximately two miles. The two main patterns of crashes along this corridor were driveway related and congestion related. The four-lane undivided cross section has a number of rear-end crashes, specifically vehicles getting hit in the rear while stopped in the through lane to make a left-turn into a driveway. This pattern is typical of congested conditions on roadways with little or no control of access. Rear-end crashes are common in stop-and-go conditions.
- The total crash rate along the five-lane section of NC 105 (Dogwood Road to NC 105 Bypass) exceeds the Critical Crash Rate. The total crash rate along the four-lane section from Faculty Street to Dogwood Road does not exceed the Critical Crash Rate and while this undivided four-lane section performs a little better than the average of those sections, the crash rates are still very high along this section of NC 105.

- Local plans, such as the Boone 2030 Land Use Plan, Town of Boone Pedestrian and Bicycle Transportation Plan, High Country Bike Plan, and the 2013 Watauga County Comprehensive Transportation Plan, recommend pedestrian and bicycle improvements for the project area. The project corridor is predominantly a mix of commercial/retail development and student housing and is heavily used by transit riders and pedestrians, as well as automobiles and trucks. NC 105 provides access into Boone, specifically to students that live along NC 105 and attend Appalachian State University (ASU), located less than a half mile from the project.
- Currently, there are pedestrian facilities along both sides of NC 105 from US 321 to High School Drive and a short section of sidewalk along the southbound lane between Poplar Grove Road and Ambling Way. The remainder of the NC 105 project corridor lacks sidewalks although there are worn walking trails adjacent to the road. There are no bicycle facilities along NC 105 within the project corridor.