



Credit: North Carolina Turnpike Authority

Complete 540 – Triangle Expressway Southeast Extension Project

North Carolina Department of Transportation and North Carolina Turnpike Authority

Wake and Johnston Counties, North Carolina

Constructing new limited-access tolled highway to reduce congestion and improve system linkage.

NOTABLE PRACTICES

☑ Meaningful Public Involvement

- During the project development process, project newsletters reached thousands of stakeholders during key decision points.
- Through outreach, unified stakeholder support for one corridor segment.

☑ Travel Forecasting and Traffic Impacts

- Utilized project-specific socioeconomic data in the travel demand model to ensure a true no action alternative was reflected in effects analyses.

☑ Environmental Analysis

- NCDOT only included tolled alternatives in the detailed study alternatives to meet the project purpose. Non-tolled alternatives were screened out because they did not meet the purpose and need.

North Carolina transportation practitioners have considered an “Outer Loop” around Raleigh since the mid-1980s. Between 1997 and 2007 NCDOT opened the first segments of the loop north of Raleigh; the Triangle Expressway extension opened in December 2012. These segments comprise approximately 60 percent of the Outer Loop project.

The two primary purposes of Complete 540 are to improve mobility and to reduce traffic congestion on the existing roadway network during peak travel periods. A secondary purpose of the project is to improve system linkage in the regional roadway network.



MEANINGFUL PUBLIC INVOLVEMENT

NCDOT and the North Carolina Turnpike Authority strived to share as much information about Complete 540 with the public as possible and provided stakeholders many different opportunities to provide input during the environmental review process. Specifically, NCDOT utilized a higher level of engagement, more tools, and consistent messaging in materials to reach stakeholders who may become customers and users of the new tolled option.

NCDOT used project newsletters to present the preliminary alternatives, announce public meetings, present the detailed study



OVERVIEW

The Complete 540 – Triangle Expressway Southeast Extension Project (Complete 540) will extend the Triangle Expressway by 28.4 miles from the N.C. 55 Bypass in Apex to U.S. 64/U.S. 264 (I-87) in Knightdale, completing the 540 Outer Loop that currently partially encircles greater Raleigh. The project will have six travel lanes with a 70-foot wide median. See Figure 1 for a map of the project.

number of roadway segments and intersections will have unacceptably low levels of service.

In 2016, CAMPO completed one of its regular updates to its regional travel demand model and the socioeconomic data inputs used in the model extended the model's horizon year from 2035 to 2040. The new model assumed the construction of Complete 540. NCDOT and NCTA revisited prior analyses to integrate the updated travel demand model findings into their project specific models.

Establishing an Environmental Baseline for Traffic Impacts Evaluation

To establish an environmental baseline for traffic impacts, NCDOT developed a set of project-specific socioeconomic data to reflect a future no-build condition that excluded the effect of the Complete 540 project on population and employment.

For the base year and future year build forecasts, NCDOT used the regional socioeconomic data developed by CAMPO as part of their regional long range planning process. Once the build and no-build model runs were complete, NCDOT could compare future conditions with and without the project at the network level, corridor level, and intersection/link level.



ENVIRONMENTAL ANALYSIS

NCTA initiated the planning and corridor study for the Complete 540 - Triangle Expressway Southeast Extension in late 2009, shortly after FHWA issued a notice of intent (NOI) to prepare an EIS for the project on November 30, 2009.

Alternatives Analysis

The EIS evaluated non-highway alternatives such as transportation demand management, transportation system management, and a mass transit/multi-modal concept, several different roadway options, and a no-build option. The no-build option assumed the transportation network in the study area will continue to develop as called for in CAMPO's Long Range Transportation Plan, but without the Complete 540 project included.

Through the NEPA process, NCDOT determined that a tolled hybrid option that included existing roadway improvements and new construction and a new tolled highway option were the only alternatives that met the purpose and need of the project. NCDOT screened out non-tolled alternatives because they did not meet the purpose and need. The State ultimately dropped the hybrid concept because it would have required numerous residential relocations and had significant wetland impacts without offering an advantage over the new highway option.

Although NCDOT identified low-income, minority, and elderly individuals in the study area using Census data, their analyses indicated that there would be no disproportionately high and adverse effects on environmental justice populations with any of the detailed study alternatives, including the preferred alternative.

FHWA issued a Final EIS in December 2017 and a Record of Decision in June 2018.



PROJECT OUTCOMES

Building Complete 540 as a tolled facility allowed NCDOT and NCTA to accelerate the timeline for construction of the project.

Construction of this remaining 540 link will benefit local commuters living south and east of Raleigh, as well as motorists making longer trips through the Triangle Region to and from points south and east. Complete 540 will provide a new travel option, resulting in more route choices, less congestion on the existing roadway network, and will ensure that the region's transportation network keeps pace with the area's rapid growth.

Per North Carolina State policy, there remains a free parallel option for individuals unable to afford the tolled facility. NCDOT also offers transponders at no cost.

In 2019, at the urging of the North Carolina General Assembly, NCDOT published a [Toll Project Development Policy Handbook](#) to identify, evaluate, and prioritize toll candidate projects.

Project Status

Complete 540 is being constructed in two Phases: Phase I (southern portion) is 17.8 miles between N.C. 55 in Apex and I-40 near the Johnston County line. Phase II (eastern portion) continues the project at I-40 and ends at U.S.

Complete 540 is being constructed in two Phases

64/U.S. 264 Bypass in Knightdale. NCDOT awarded three design-build contracts to construct Phase I, which began in November 2019. Phase I is expected to open to traffic in 2023, and right-of-way funding for Phase II is currently programmed in fiscal year 2026.



FOR MORE INFORMATION, CONTACT

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PHOTO CREDITS

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RESOURCES

Complete 540 Project
<https://www.ncdot.gov/projects/complete-540/Pages/default.aspx>