

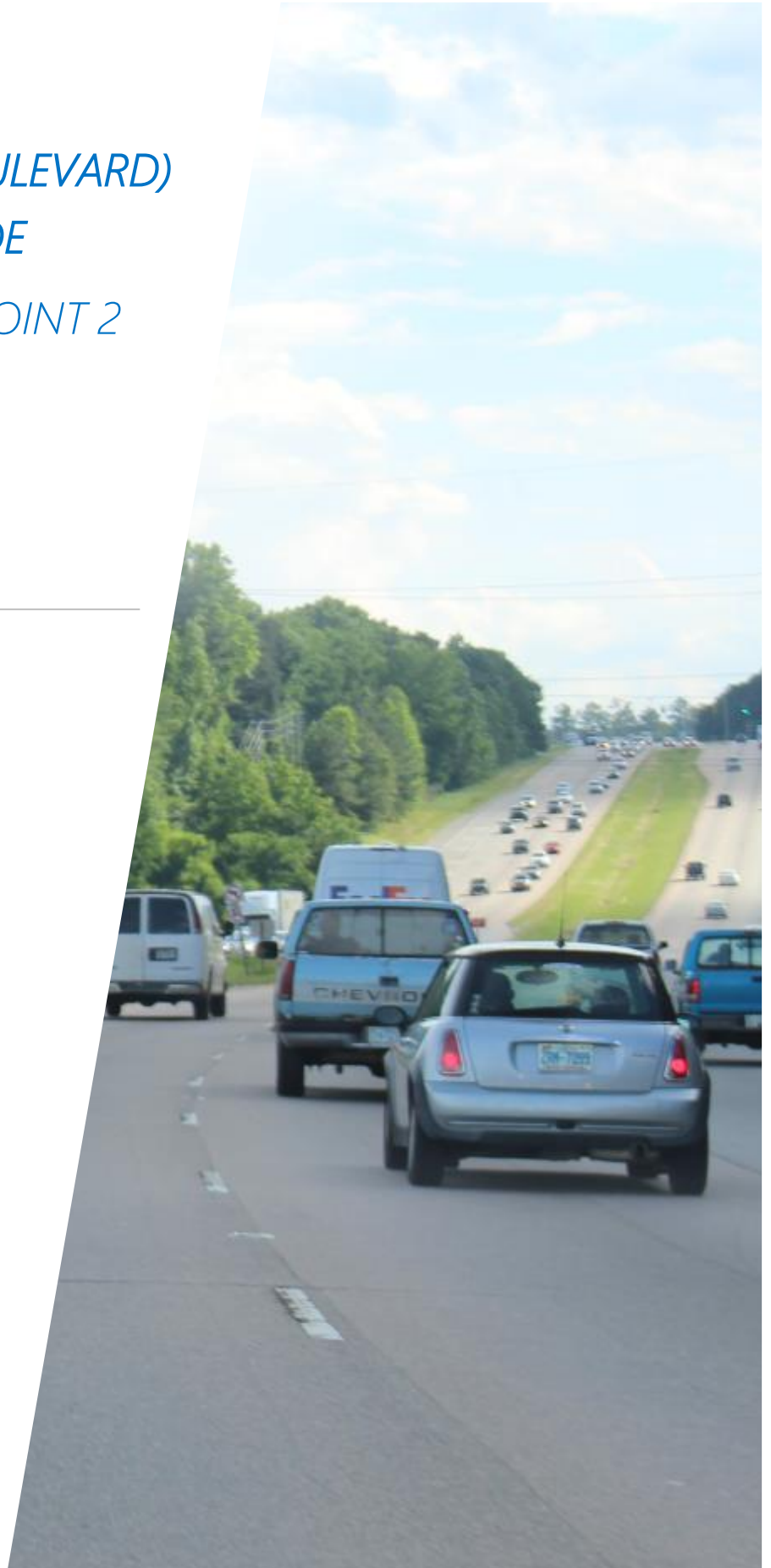
*US 1 (CAPITAL BOULEVARD)  
FREEWAY UPGRADE  
CONCURRENCE POINT 2  
REVISIONS*

*STIP PROJECT U-5307*

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March 2021  
Wake County, NC

**RS&H**





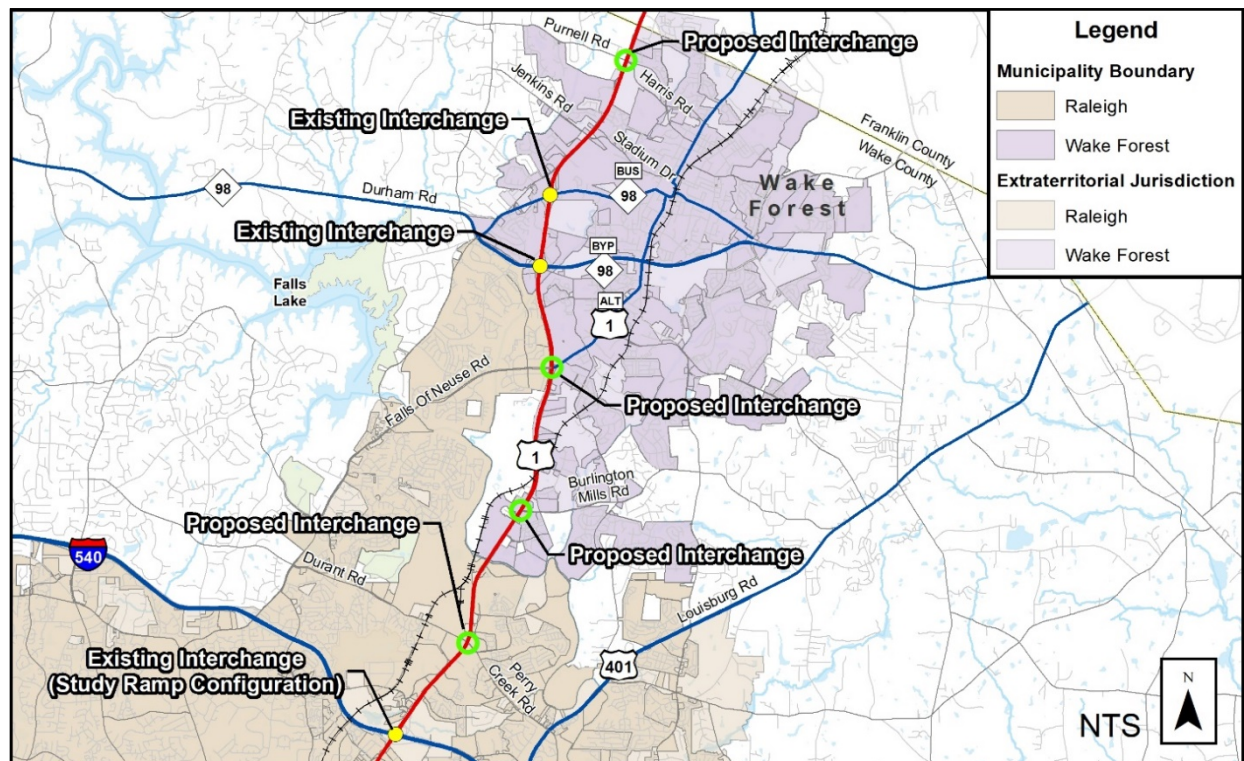
## 1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) proposes to improve US 1 (Capital Boulevard) to a controlled-access facility from I-540 to SR 1909 (Purnell Road) / SR 1931 (Harris Road) in Wake County (**Figures 1 and 2**). This project is included in NCDOT's current *State Transportation Improvement Program* (STIP) as Project U-5307 (Sections A through D). In accordance with the National Environmental Policy Act (NEPA) / Section 404 Merger Process, NCDOT reached consensus on Concurrence Point 1 in June 2018 and Concurrence Point 2 in November 2018. The project was lifted from suspension effective December 1, 2020, and current schedule dates are listed in Section 4.0.

This report provides a brief description of the Purpose and Need and Study Area and Detailed Study Alternatives Carried Forward previously concurred upon as well as a discussion of recommended revisions to the Study Area and Detailed Study Alternatives Carried Forward as a part of a revision to Concurrence Point 2.

### 1.1 Project Description

NCDOT proposes removing signals from the mainline of US 1 to create a roadway with full control of access and new interchanges at Durant Road / Perry Creek Road, Burlington Mills Road, Falls of Neuse Road / US 1A (Main Street), and Purnell Road / Harris Road. Service roads will be provided for connectivity. NCDOT also proposes the addition of a third westbound lane at I-540 / US 1 (between the Triangle Town Boulevard interchange and the US 1 southbound on-ramp at I-540), minor modifications to the existing interchanges at NC 98 Bypass, NC 98 Business (Durham Road), and I-540, and a grade separation (bridge) at Jenkins Road / Stadium Drive as part of this project.



## 1.2 Merger Process History (Concurrence Point 1)

On June 14, 2018, the NEPA / 404 Merger Team met to discuss Purpose and Need and Study Area for the referenced project – Concurrence Point 1 (CP 1). During the meeting, existing conditions, the project study area, the project's need, and the project's purpose were presented. After the presentation and discussions, the NEPA / 404 Merger Team reached a consensus and signed the formal CP 1 Agreement. Under this agreement, the purpose and need of the project were defined as follows:

### Need of Proposed Action

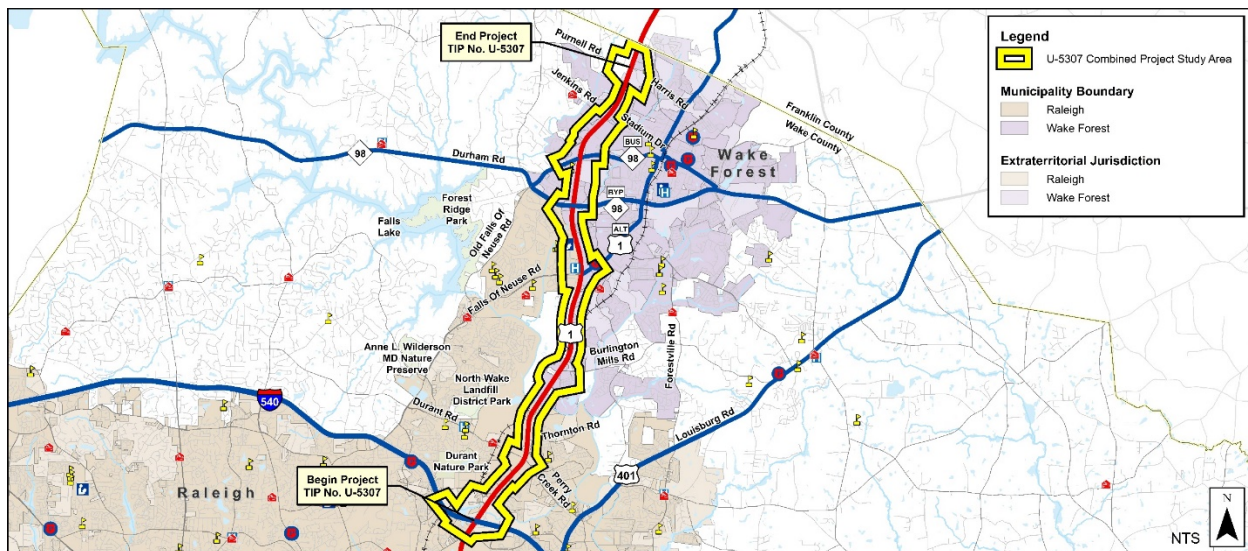
- Traffic congestion and trip time unreliability

### Purpose for Proposed Action

- Improve traffic congestion and travel times
- Maintain regional mobility and local connectivity

### Study Area Defined

- The study area agreed upon at CP 1 extends along US 1 from I-540 to Purnell Road / Harris Road in Wake County, as shown below.



## 1.3 Merger Process History (Concurrence Point 2)

On November 14, 2018, the NEPA / 404 Merger Team met to discuss Detailed Study Alternatives Carried Forward for the referenced project – Concurrence Point 2 (CP 2). During the meeting, public comments from the October 2018 public meetings, proposed build alternatives, and stream and wetland impacts were presented. Following the presentation and discussions, the NEPA / 404 Merger Team reached a consensus and signed the formal CP 2 Agreement. Under this agreement, the following alternatives along US 1 were carried forward:

- I-540
  - Flyover carrying US 1 southbound to directly connect with I-540 eastbound (without loop)





- Durant Road / Perry Creek Road
  - Diverging Diamond Interchange (US 1 over Perry Creek Road / Durant Road)
  - Diamond Interchange (US 1 over Perry Creek Road / Durant Road)
- Burlington Mills Road
  - Diamond (US 1 under Burlington Mills Road)
  - Diverging Diamond Interchange (US 1 under Burlington Mills Road)
- Falls of Neuse Road / US 1A (Main Street)
  - Diverging Diamond Interchange (US 1 over Falls of Neuse Road / US 1A)
- NC 98 Bypass
  - Ramp Modifications at the gores, keeping the existing lane configurations for the SPUI the same
- NC 98 Business (Durham Road)
  - Addition of a loop in the northeast quadrant and relocation of adjacent on-ramp
- Jenkins Road / Stadium Drive
  - Grade Separation (US 1 under Jenkins Road / Stadium Drive)
- Purnell Road / Harris Road
  - Partial Cloverleaf (US 1 under Purnell Road / Harris Road)

## 2.0 RECOMMENDED STUDY AREA REVISIONS

There are five total areas along the corridor where study area revisions are recommended to account for pavement tie-ins and potential easements. NCDOT recommends adding the teal polygon area to the overall current study area (orange polygon). Additional field surveys are in progress in these revised areas. A Natural Resources Technical Memorandum will be prepared as an addendum to the original report to document these new areas.

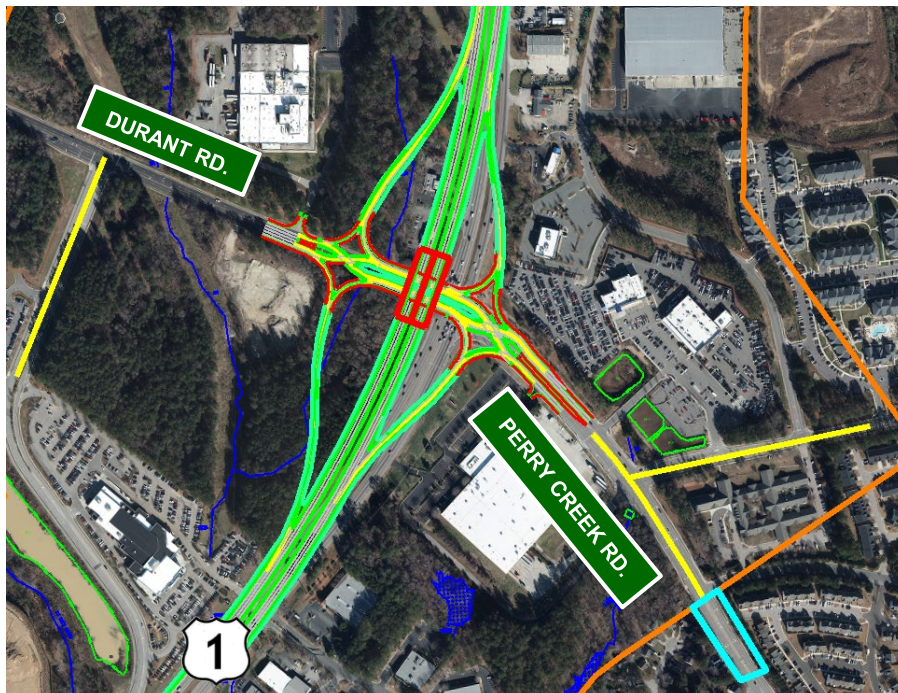
Area 1 includes roadway resurfacing work on I-540. This work is inside NCDOT right-of-way.



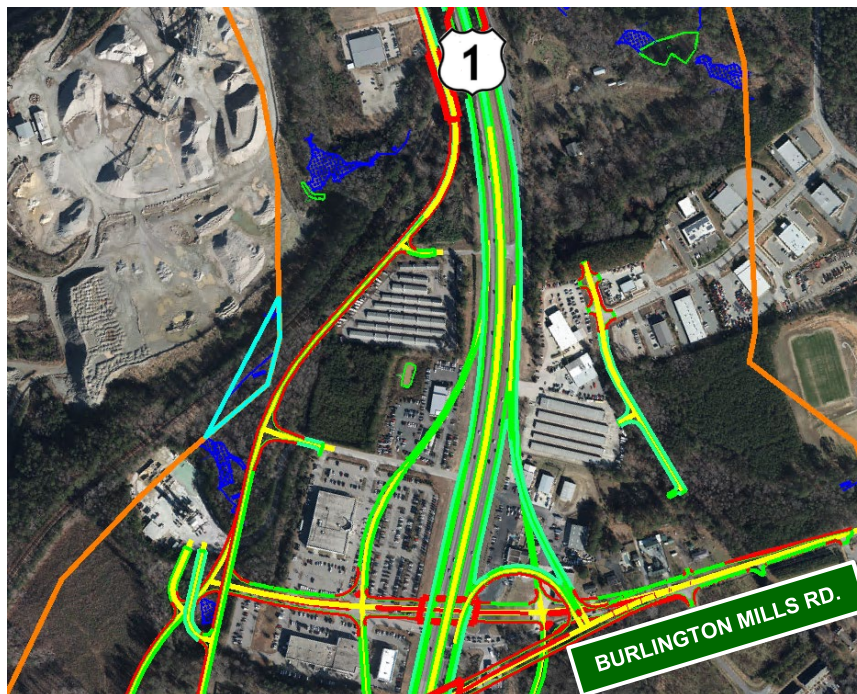


## REVISED CONCURRENCE POINT 2 DETAILED STUDY ALTERNATIVES CARRIED FORWARD

Area 2 includes mill and fill of existing pavement and the addition of a concrete island for traffic channelization on Perry Creek Road. This work is inside NCDOT / City of Raleigh right-of-way.



Area 3 includes potential easement area for a proposed service road near Burlington Mills Road. The slope stakes in this area are within five feet of the study area boundary. NCDOT recommends including this area in case any drainage / utility easements are needed.

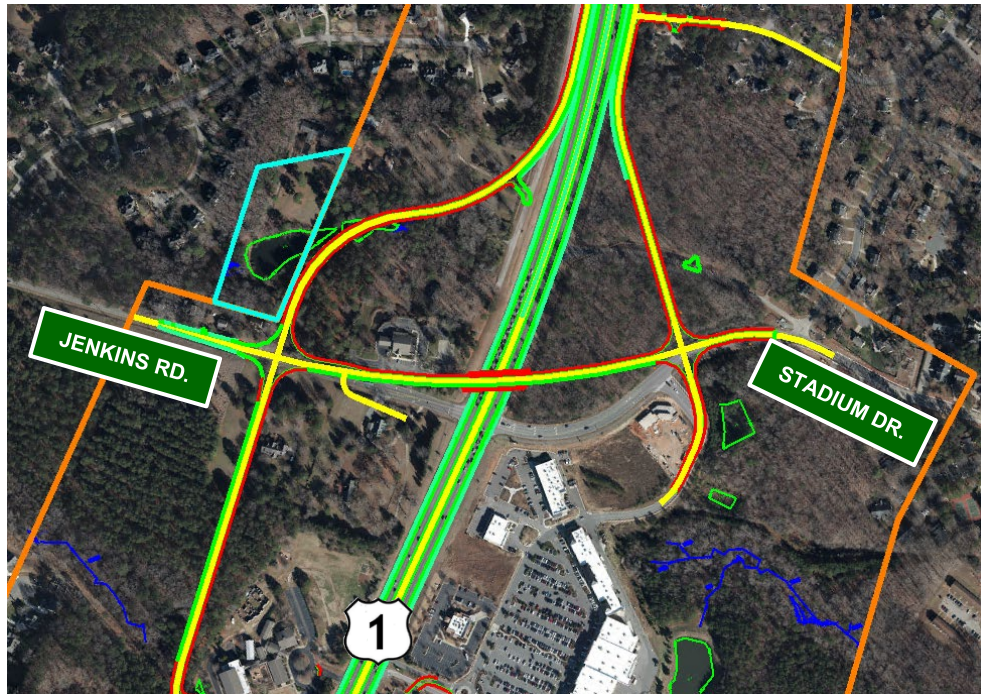




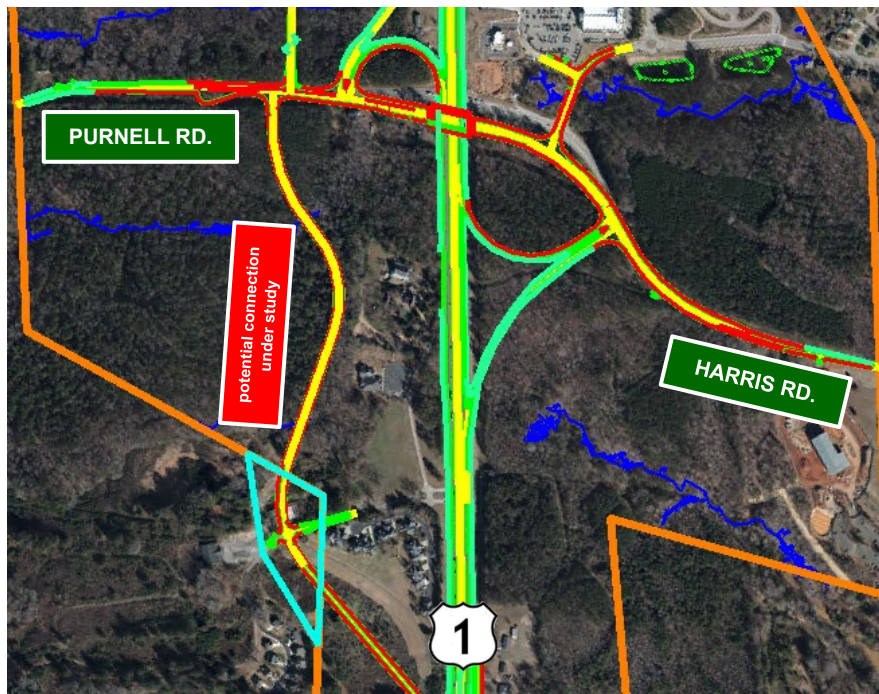


## REVISED CONCURRENCE POINT 2 DETAILED STUDY ALTERNATIVES CARRIED FORWARD

Area 4 includes work required on a proposed access road near Jenkins Road. NCDOT recommends including this area, which includes a pond on a private residential property.



Area 5 includes work required on a proposed access road near Purnell Road, relocated farther to the west than originally envisioned. NCDOT recommends including this area, which contains work that will save townhomes at this location.





### **3.0 RECOMMENDED REVISED CONCURRENCE POINT 2 STUDY ALTERNATIVES**

NCDOT recommends revising Detailed Study Alternatives Carried Forward at CP 2 at two interchange locations along US 1:

- Durant Road / Perry Creek Road
  - Eliminate diamond interchange due to excessive impacts compared with the diverging diamond interchange (DDI)
- Burlington Mills Road
  - Eliminate DDI and add skewed partial cloverleaf option to reduce impacts

#### **3.1 Durant Road / Perry Creek Road**

At US 1 and Durant Road / Perry Creek Road, a Diverging Diamond Interchange and a Diamond Interchange were agreed to be carried forward at CP 2. A minimized DDI was created in coordination with Leith Automotive to accommodate their site plan in the southwest quadrant. Construction of a new administration building is in progress.

- There are no wetland impacts anticipated with either alternative.
- There are two intermittent streams (SII and SBBB) in this quadrant:
  - The original DDI preliminary design has 900' of JD impacts to Stream SBBB measured from slope stakes + 25'.
  - The diamond interchange design would result in 855' of JD impacts to Stream SBBB measured from slope stakes + 25'.
  - The minimized DDI preliminary design has 880' of JD impacts to Stream SBBB measured from slope stakes + 25'.
- After the Traffic Operations Analysis was completed (approved December 2020), the Diamond Interchange preliminary design at this location was found to require more storage and capacity (4-5 travel lanes needed) than originally shown in the Diamond Interchange concept design (below). Because of this, the Diamond Interchange preliminary design has major right-of-way impacts in all four quadrants (including a pharmaceutical plant in the northwest quadrant, a car dealership in the northeast quadrant, Leith Automotive's new administration building in the southeast quadrant, and a major distribution facility (Eaton Corporation Shipping Center) in the southeast quadrant), and therefore is being proposed to be dropped from consideration at this time.

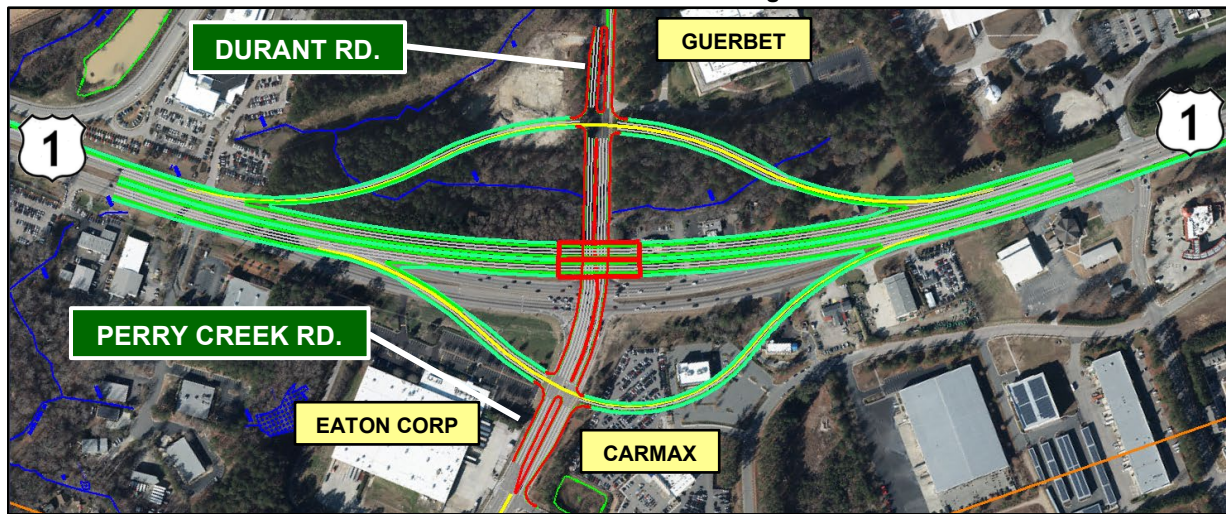
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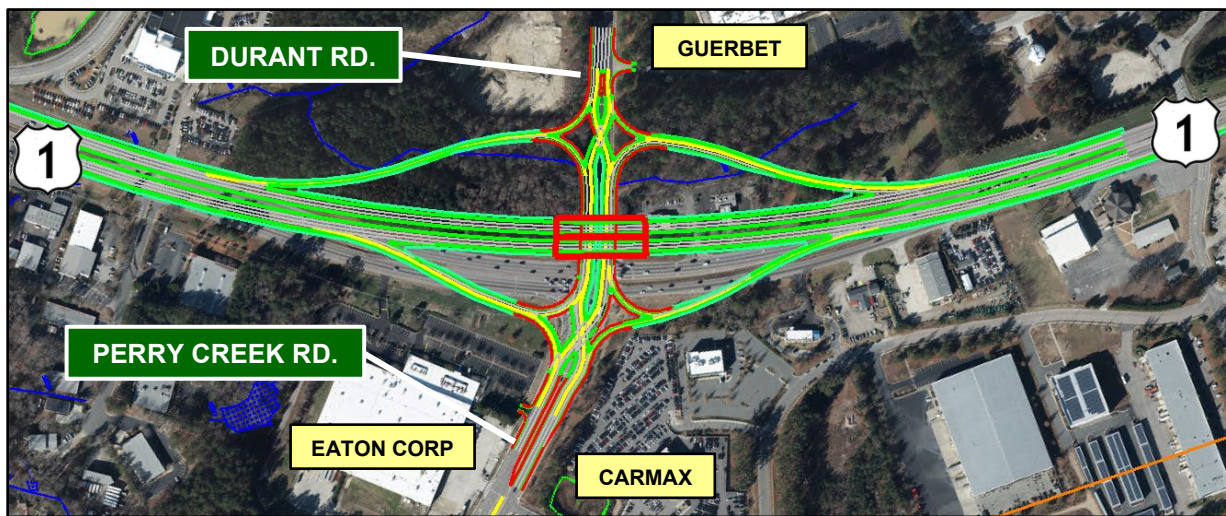
**RECOMMENDED TO BE DROPPED FROM CONSIDERATION**

US 1 at Durant Road / Perry Creek Road  
Diamond Interchange



**CONCEPTUAL (FORMER) DDI**

US 1 at Durant Road / Perry Creek Road  
Diverging Diamond Interchange

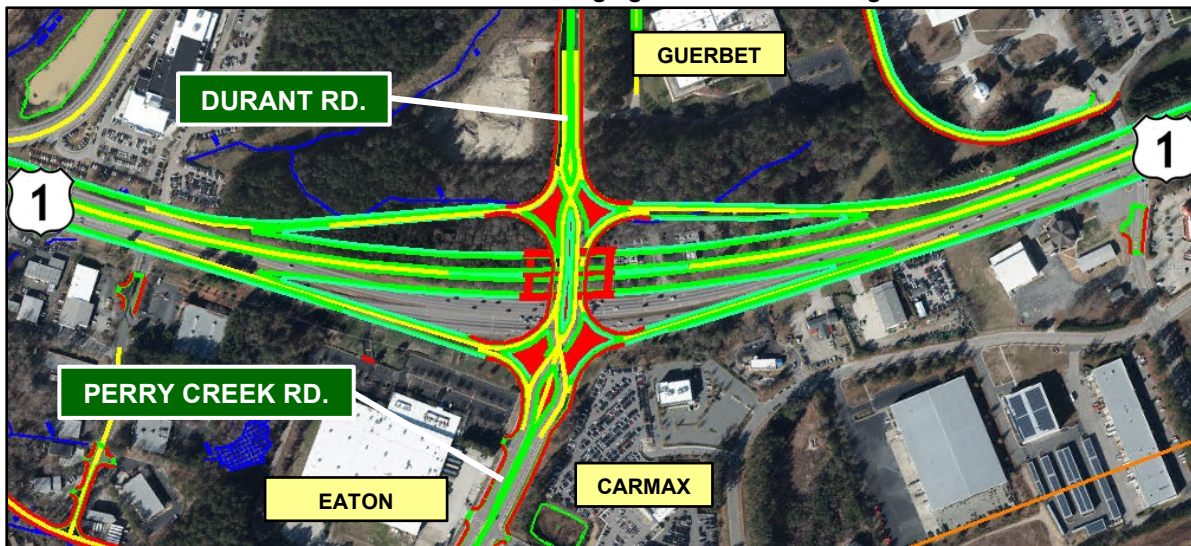


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**RECOMMENDED TO BE CARRIED FORWARD**

US 1 at Durant Road / Perry Creek Road  
Minimized Diverging Diamond Interchange



NCDOT recommends proceeding with the minimized DDI as the only Detailed Study Alternative Carried Forward at this location.

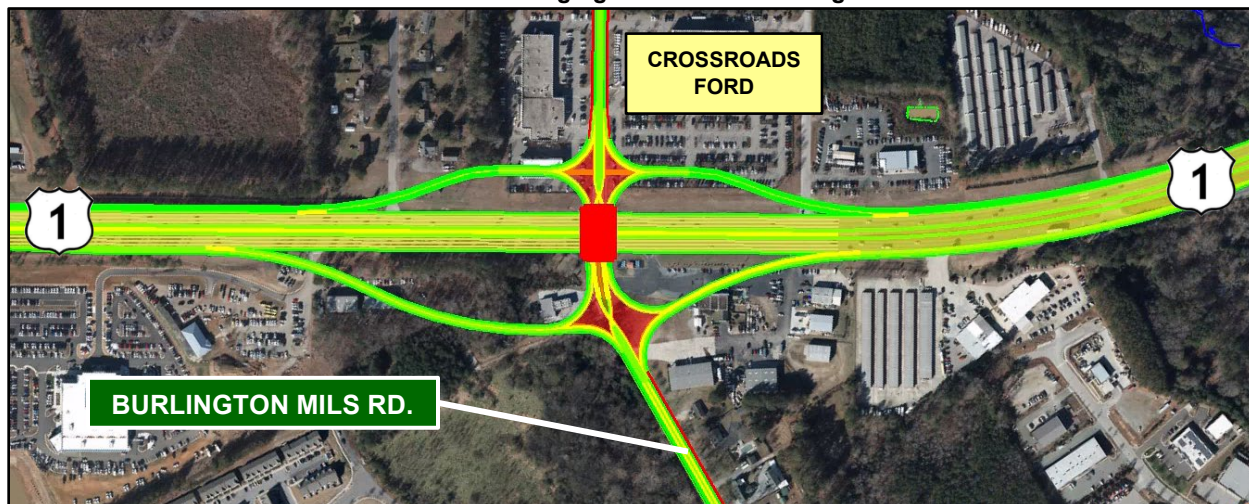
### 3.2 Burlington Mills Road

At US 1 and Burlington Mills Road, a Diverging Diamond Interchange and a Diamond Interchange were agreed to be carried forward at CP 2. NCDOT Division 5 requested an additional option at this location to minimize impacts and maintain access road connectivity. A Skewed Partial Cloverleaf Interchange concept (see next page) was created after CP 2.

- There are no wetlands or streams in the footprint of these interchange designs.
- The Diverging Diamond Interchange was found to not be warranted from a traffic operations perspective.

**RECOMMENDED TO BE DROPPED FROM CONSIDERATION**

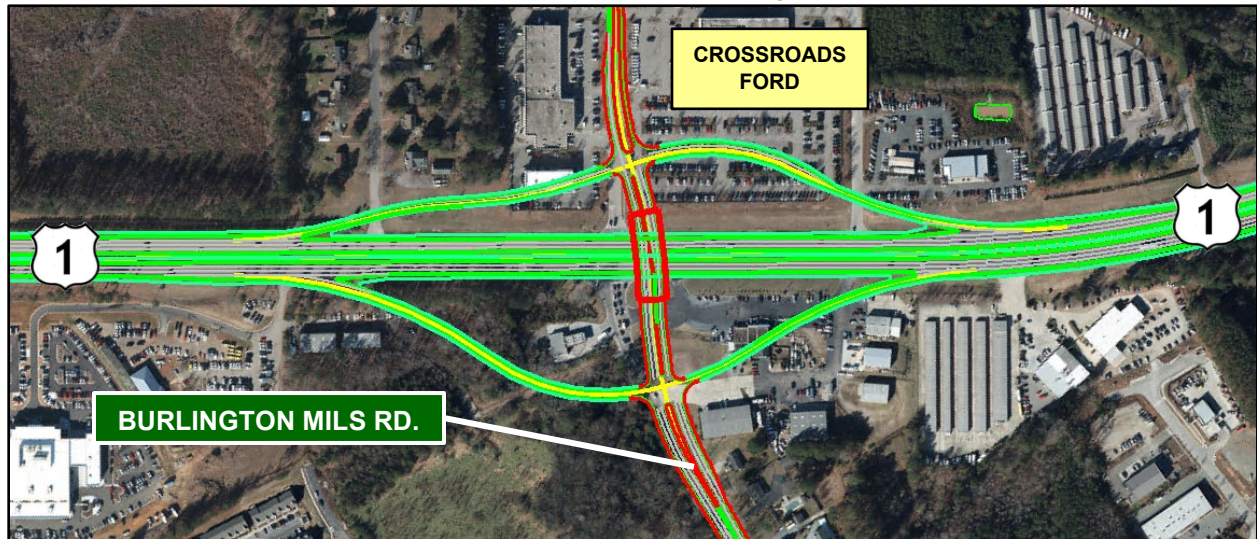
US 1 at Burlington Mills Road  
Diverging Diamond Interchange





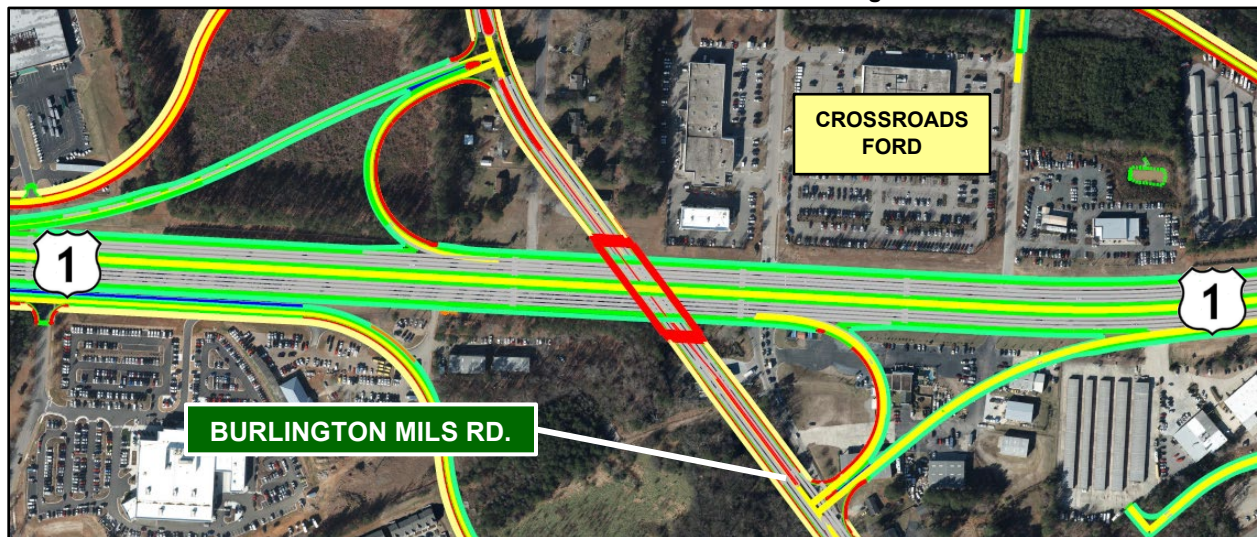
**RECOMMENDED TO CONTINUE TO BE CARRIED FORWARD**

US 1 at Burlington Mills Road  
Diamond Interchange



**RECOMMENDED TO BE CARRIED FORWARD**

US 1 at Burlington Mills Road  
Skewed Partial Cloverleaf Interchange



NCDOT recommends continuing with the previously agreed upon Diamond Interchange and proceeding with the Skewed Partial Cloverleaf Interchange as the Detailed Study Alternatives Carried Forward at this location.

### 3.3 Purnell Road / Harris Road

At US 1 and Purnell Road / Harris Road, a Partial Cloverleaf Interchange was agreed to be carried forward at CP 2. NCDOT recommends continuing to carry the Partial Cloverleaf Interchange forward but may need to modify the northbound ramps in the southeast quadrant, depending on surrounding terrain and potential development in the southeast quadrant.





### 3.4 Summary of Recommendations

Below is a summary of the recommendations for the Detailed Study Alternatives Carried Forward:

New Interchange	Approved at CP 2 (2019)	Proposed / Revised CP 2
<b>US 1 / I-540</b>	Studying a flyover carrying SB US 1 to EB I-540	(Same)
<b>US 1 / Durant / Perry Creek Rd (US 1 over)</b>	Option A: DDI  Option B: Diamond Interchange	<b>Option A: Minimized DDI</b> <b>Option B: Diamond Interchange</b> <b>(recommended to be eliminated)</b>
<b>US 1 / Burlington Mills Rd (US 1 under)</b>	Option A: DDI  Option B: Diamond Interchange	<b>Option A: DDI</b> <b>(recommended to be eliminated)</b> <b>Option B: Diamond Interchange</b> <b>Option C: Skewed Partial Cloverleaf Interchange</b> <b>(recommended to be added)</b>
<b>US 1 / Falls of Neuse / US 1A (US 1 over)</b>	DDI	(Same)
<b>NC 98 Bypass (Existing SPUI)</b>	Studying potential ramp improvements	(Same)
<b>NC 98 Business (Existing Diamond)</b>	Studying potential ramp and loop addition	(Same)
<b>US 1 / Purnell / Harris Rd (US 1 under)</b>	Partial Cloverleaf	(Same)  <i>Depending on surrounding terrain and potential development(s) in the southeast quadrant, NCDOT may need to modify ramp termini on the east side of US 1 to provide additional left-turning storage length(s) along Harris Road.</i>

The Detailed Study Alternatives that are recommended to be eliminated from further study will be recorded and added to the other options previously considered but not carried forward. It is the intention of NCDOT to make the revisions now, as opposed to waiting until the meeting(s) for Concurrence Points 2A or 3, for a more efficient use of resources and to present viable alternatives to the public. The second public meeting for this project is anticipated in late summer 2021 (schedule subject to change).



#### 4.0 PROJECT SCHEDULE

The current project preconstruction schedule is as follows and is subject to change:

- March 2021 – NCDOT approval of preliminary roadway designs
- May 2021 – Concurrence Point 2A Meeting
- August 2021 – Virtual Public Meeting
- November 2021 – Concurrence Points 3+4A Meeting
- February 2022 – Categorical Exclusion and Interchange Access Report Approval

The *NCDOT 2020-2029 Current STIP* (January 2021) includes the following funding by segment:

- U-5307A:
  - Right-of-way, utilities, and construction in Fiscal Year (FY) 2025 (Design-Build)
- U-5307B and C:
  - Right-of-way and utilities: FY 2025
  - Construction beginning in FY 2027
- U-5307D:
  - Right-of-way and utilities: FY 2029
  - Construction: Unfunded/Future Years





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## **NEPA/404 Merger Team Meeting Agreement**

Revised Concurrence Point 2: Detailed Study Alternatives Carried Forward

Project Name/Description: US 1 Upgrade to Controlled Access Highway from I-540 to Harris/Purnell Road, Wake County, NC

TIP Project No.: U-5307

Federal Aid Project No.: NHS-0001(138)

WBS No.: 47027.1.1

### **Detailed Study Alternatives Carried Forward**

#### **US 1 Mainline (*No change from CP 2 signed in 2019*)**

- Conversion to a controlled-access highway; best fit alignment for centerline with consideration for maintenance of traffic during construction

#### **Service Roads/Connecting Streets (*No change from CP 2 signed in 2019*)**

- Service roads and connecting streets are under study to maintain regional mobility and local connectivity and will be presented at Concurrence Point 2A. The Project Team is considering a combination of existing streets and new location.

#### **New Interchanges**

<b>New Interchange</b>	<b>Approved at CP 2 (2019)</b>	<b>Proposed / Revised CP 2</b>
<b>US 1 / Durant / Perry Creek Rd (US 1 over)</b>	Option A: DDI Option B: Diamond Interchange	Option A: Minimized DDI
<b>US 1 / Burlington Mills Rd (US 1 under)</b>	Option A: DDI Option B: Diamond Interchange	Option B: Diamond Interchange Option C: Skewed Partial Cloverleaf Interchange
<b>US 1 / Falls of Neuse / US 1A (US 1 over)</b>	DDI	DDI (no change)
<b>US 1 / Purnell / Harris Rd (US 1 under)</b>	Partial Cloverleaf	Partial Cloverleaf (no change)

#### **Interchange Modifications (*No change from CP 2 signed in 2019*)**

- I-540
  - o Studying a flyover carrying southbound US 1 traffic to eastbound I-540
- NC 98 Bypass (Existing single-point urban interchange)
  - o Studying potential ramp improvements
- NC 98 Business (Existing diamond interchange)
  - o Studying potential ramp and loop additions



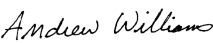






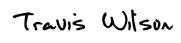

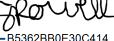
### Grade Separation at Stadium Drive / Jenkins Road (No change from CP 2 signed in 2019)

- An interchange is not proposed at this location at this time, but the Project Team is working with stakeholders not to preclude possible future improvements by others.

### I-540 Westbound Lane Addition (No change from CP 2 signed in 2019)

- Between Triangle Town Boulevard Interchange and the US 1 southbound on-ramp at I-540

The Project Team reviewed the Revised CP 2 materials via email and concurred on this date of April 7, 2021 with the Detailed Study Alternatives Carried Forward for the proposed project as stated above:

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FHWA	<small>DocuSigned by:</small>  <small>9967A500F8714F0...</small>	NCDWR	<small>DocuSigned by:</small>  <small>80ECA32C7C38490...</small>
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CAMPO	<small>DocuSigned by:</small>  <small>B5362B80E30C414</small>		