

**Transportation Plan Amendments: Attachment 1**

February 27, 2020

Shannon Cox, AICP  
Long Range Planning Manager  
Town of Apex  
919-249-3505  
Shannon.Cox@apexnc.org

**Subject:** Comprehensive Transportation Plan Amendment – Depot 499  
Apex, North Carolina

Dear Ms. Cox:

At the request of staff and in connection with the rezoning case #20CZ01, this letter presents proposed amendments to the Town of Apex (Town) Comprehensive Transportation Plan (CTP) as proposed by the Depot 499 development (the “Project”). Ramey Kemp & Associates (RKA) has coordinated with the Town, NCDOT, and the project team to discuss these proposed modifications and their impacts on the proposed development. As part of this request, the development team is proposing elimination of the grade separation of S. Salem Street north of NC-540, elimination of the Holland Road extension over NC-540, elimination of the S. Salem Street realignment south of Apex Barbecue Road, and elimination of the roundabout at the intersection of S. Salem Street and Apex Barbecue Road. A summary of the amendments being proposed and additional information pertaining to each request is below:

1. Elimination of the grade separation of S. Salem Street, north of NC-540
  - a. This grade separation was proposed in the Southwest Area Study, a recent planning document initiated by the North Carolina Capital Area Metropolitan Planning Organization (CAMPO). Per review of the daily traffic volumes produced by the Project in the transportation model, this grade separation is anticipated to have a daily traffic volume of 5,100 vehicles per day (vpd) by 2045. Due to this low volume of traffic, this connection is assumed to have been recommended to provide additional connectivity and not to provide additional capacity
  - b. RKA prepared the attached conceptual design of this grade separation utilizing topography available via LIDAR. With this grade separation, 80 feet in height will be needed from the Project site to provide sufficient clearance above the existing rail line. The grade associated with this design would require a significant amount of property within the Project, with significant fill in order to reach the required heights. The road would sever the site and create further connectivity issues with developable land next to the interchange. These created connectivity issues are counterproductive to and further exacerbate the connectivity issues this grade separation was intended to improve. Thus, when applied to actual topographical data and clearance requirements, this conceptual connection is not practical, and undermines the intent of the existing CTP.
  - c. Further, this requirement does not appear to be proportional in cost or burden to the impact of the Project, and is instead an improvement that if required, should be completed and funded by the Town after just compensation. We estimate the cost of the connection to be over \$20 million. This is exclusive of the land

required to be taken from the Hunter property, which we estimate to be approximately 4-5 acres. Neither amount or burden appear to be proportional to a relatively low amount of vehicular trips generated by the Project.

2. Elimination of the Holland Road extension over NC-540
  - a. Per review of the daily traffic volumes produced in the Project's transportation model, as part of the Southwest Area Study, this roadway extension is anticipated to have a daily traffic volume of 2,600 vpd by 2045. Due to this low volume of traffic, this connection is assumed to have been recommended to provide additional connectivity over NC-540 and not to provide additional capacity. Excerpts from the Southwest Area Study are included in the attachments.
  - b. Based on the existing location of Holland Road, this extension would cross NC-540 in the approximate location of the toll gantries and overhead variable message signage along NC-540. Per discussions with the North Carolina Department of Transportation (NCDOT) District office and North Carolina Turnpike authority (NCTA), this crossing location is concerning to both agencies. It would require an offset of the roadway to avoid the gantries and special consideration to avoid vibration of the tolling system during construction. The location and need for the crossing was set in previous planning documents, before the toll road was designed and gantries constructed. Thus, with the reality of the actual improvements now in place, this connection and location is no longer appropriate.
  - c. The topography at the location of this crossing necessitates significant fill between NC-540 and existing Holland Road. This has the potential to cause significant environmental impacts and costs related to the necessary creek crossing.
  - d. Due to the relatively close proximity of the Apex Barbecue Road and S. Salem Street crossings of NC-540 (1 mile) this additional grade separation is expected to create excessive redundancies for traffic in the area that will not provide a significant benefit.
  - e. The Southwest Area Study requires 30% of the site to be non-residential. To ensure the Project's viability, the commercial uses must have sufficient access and visibility from local roads, which requires the commercial to be located along S. Salem St. and not buried within or in the rear of the site. This in turn requires placing the bulk of the residential uses away from S. Salem Street toward NC-540, in the location where the CTP designates the bridge to land on the site. At the same time, planning policies within the Southwest Area Study promote walkability, preservation of green space, and human scale pedestrian connections - each of which conflict with the provision of a bridge or major connecting street across NC-540 and bisecting the residential uses. In order to more fully realize these planning objectives, this bridge should be removed.
3. Elimination of the S. Salem Street realignment north of NC-540
  - a. Due to the existing railroad line, east of S. Salem Street, all widening of S. Salem Street in this area would be required on the west side with some located within the Depot 499 development. This realignment would occupy land within the Project and create a relatively isolated island of land between the railroad and a 4-lane divided road. Staff has indicated that this realignment was connected to a future train station that has since been decided to be relocated. As such, the purpose of the realignment and its practical application indicate realignment is no longer needed.

4. Elimination of the roundabout at the intersection of S. Salem Street and Apex Barbecue Road
  - a. Per the CTP, S. Salem Street is planned as a four-lane median divided roadway. Multi lane roundabouts are typically discouraged by NCDOT. Additionally, the Project's outlined intersection / signal improvements at this intersection that would be needed to mitigate future traffic volumes at this intersection.
  - b. We understand this change was planned to be suggested by staff independent of this project and were asked to include this element.
  - c. A roundabout is expected to also require a significant amount of additional right-of-way due to the proximity of the rail line and large cross-section of S. Salem Street in future conditions.

Due to the reasons outlined above, the Project is requesting elimination of the grade separation of S. Salem Street north of NC-540, elimination of the Holland Road extension over NC-540, elimination of the S. Salem Street realignment south of Apex Barbecue Road, and elimination of the roundabout at the intersection of S. Salem Street and Apex Barbecue Road from the Town's CTP. The traffic impact analysis for the Project did not include any of these CTP improvements. The CTP improvements discussed in this letter are expected to have a negligible impact on the area traffic capacity.

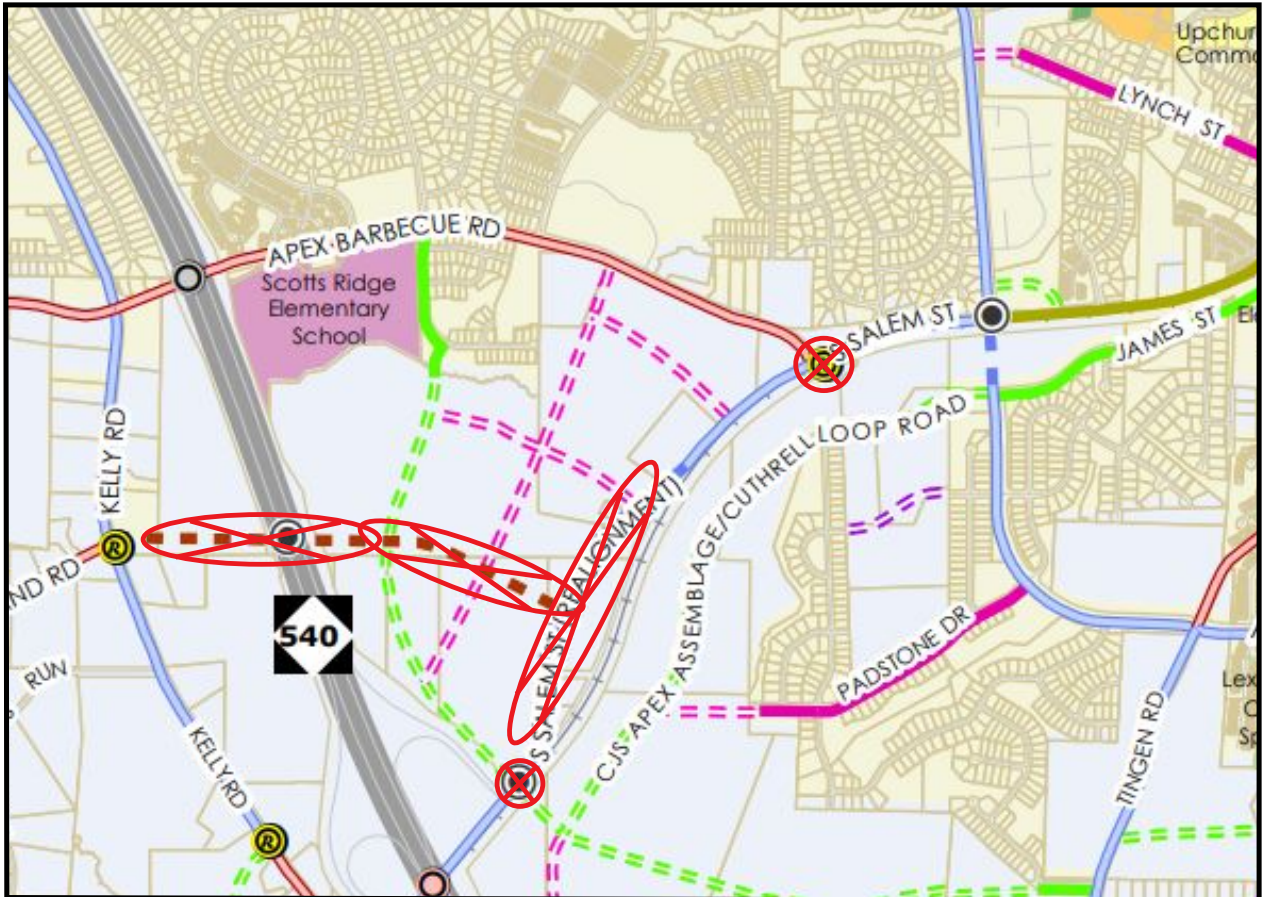
If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

**Ramey Kemp & Associates, Inc.**



Rynal Stephenson, PE  
Director of North Carolina



Thoroughfares	Collector Streets	Local Connections	Intersection Treatments	Land Use
Existing 2-lanes	Existing Major Collector	Future Local Connection	Future Grade Separation	Hotels
Future 2-lanes	Future Major Collector		Future Interchange	Multi-Family
Existing 3-lanes	Existing Minor Collector		Future Realignment	Industrial
Future 3-lanes	Future Minor Collector		Future Roundabout	Office
Widening 3-lanes			Existing Grade Separation	Commerical
Existing 4-lanes with median			Existing Interchange	Schools/Library
Future 4-lanes with median			Freight Route	Lakes
Widening 4-lanes with median				Parks/Open Space
Existing 5-lanes				Town of Apex Extraterritorial Jurisdiction (ETJ)
Widening 5-lanes				Town of Apex Corporate Limits
Future 6-lane Freeway				Other Towns
Future 6-lane Superstreet				County Boundary
				Planning Area
				Town Campus
				Railroads

ADOPTED: February 5, 2019



**LEGEND**

Proposed Elimination

Moving forward.

**RKA**  
RAMEY KEMP ASSOCIATES

Depot 499  
Apex, NC

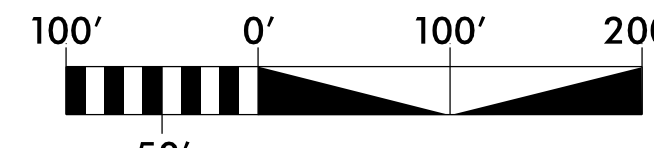
Proposed CTP  
Amendments

Scale: Not to Scale

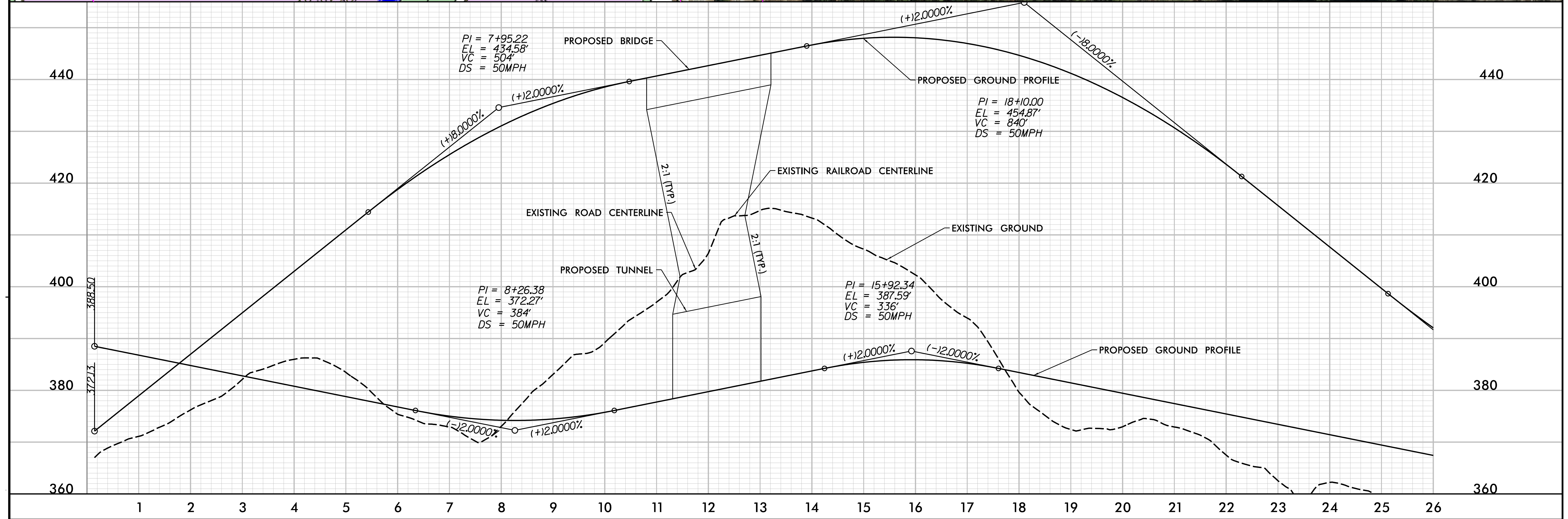
PROJECT REFERENCE NO. <b>19399</b>	SHEET NO. CPT1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
 <b>RAMEY KEMP &amp; ASSOCIATES, INC.</b> Transportation Engineers 8908 Faringdon Place, Suite 100 Raleigh, North Carolina 27609 Phone: 919-872-5115 www.rameykemp.com NC License No. C-0910	



**S. SALEM STREET  
CROSSING CONCEPT  
APEX, NC**



(ENGLISH)



























### Excerpts From Southwest Area Plan

Assumptions		2045 VPD
Future NC 540 – complete the unbuilt segments between		
Model Run	Holland Road Extension to South Salem Street and a new road in same vicinity that connects Apex Barbeque Road with Tingen Road	2,000
Model Run	Holland Road Extension to South Salem Street and a new road in same vicinity that connects Apex Barbeque Road with Tingen Road	3,200
Model Run	Perry Road interchange with US 1	23,200

Model Run	2045 Volume (VPD)
Holland Road Extension	
4	2,000
5	3,200
<b>AVERAGE</b>	<b>2,600</b>
S. Salem Street Grade Separation	
2	4,600
3	5,000
4	5,700
5	5,100
<b>AVERAGE</b>	<b>5,100</b>

Model Run	New Collector Street at South Salem Street (Old US 1) and CSX Railroad, connecting Veridea with Apex Barbeque Road	4,600
Model Run	New Collector Street at South Salem Street (Old US 1) and CSX Railroad, connecting Veridea with Apex Barbeque Road	5,000
Model Run	New Collector Street at South Salem Street (Old US 1) and CSX Railroad, connecting Veridea with Apex Barbeque Road	5,700
Model Run	New Collector Street at South Salem Street (Old US 1) and CSX Railroad, connecting Veridea with Apex Barbeque Road	5,100

## Excerpts From Southwest Area Plan

<b>SWAS 3</b>	Add to MTP as 3 lanes	not in MTP	0	Holland Rd Extension	Kelly Rd	S. Salem St.	not in TRM model	2,000	Agree - add	Advance Apex: 80' ROW, 3-In, sidewalk both sides	Apex
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## Excerpts From Southwest Area Plan

### PI-7: HOLLAND ROAD AT NC 540 GRADE SEPARATION

#### VICINITY MAP



#### DESCRIPTION

<b>PROJECT TYPE</b>	Intersection
<b>STREET</b>	Holland Road
<b>X-STREET</b>	NC 540
<b>CONTEXT AREA</b>	Suburban/Transit-Oriented Development
<b>TIMEFRAME</b>	Mid-Term
<b>COST</b>	\$12,400,000

#### INTERSECTION DETAILS

##### IMPROVEMENT TYPE

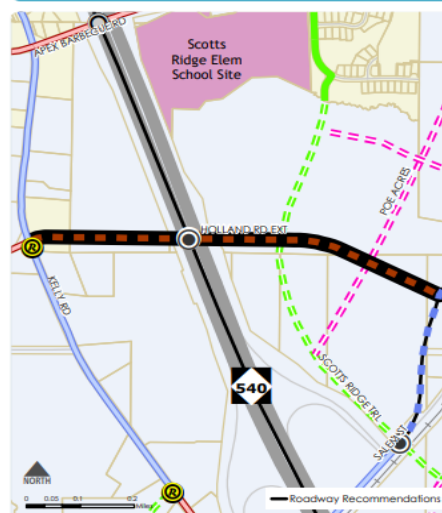
- Intersection Realignment
- Roundabout
- Grade Separation
- Interchange (new)
- Interchange (improved)

#### GUIDING PRINCIPLES

Integrated Growth, Safety, Mobility and Connectivity

### PC-14: HOLLAND ROAD EXTENSION NEW LOCATION

#### VICINITY MAP



#### DESCRIPTION

<b>PROJECT TYPE</b>	New Location
<b>LENGTH</b>	0.71 miles
<b>FROM</b>	Kelly Road
<b>TO</b>	S Salem Street
<b>CONTEXT AREA</b>	Suburban/Transit-Oriented Development
<b>TIMEFRAME</b>	Mid-Term
<b>COST</b>	\$15,000,000

#### MULTIMODAL FACILITIES

##### EXISTING

- Sidewalk
- Side Path
- Transit Route
- On-street Bike
- Freight Route

##### PLANNED

- Sidewalk
- Side Path
- Transit Route
- On-street Bike
- Freight Route

#### CHARACTERISTICS

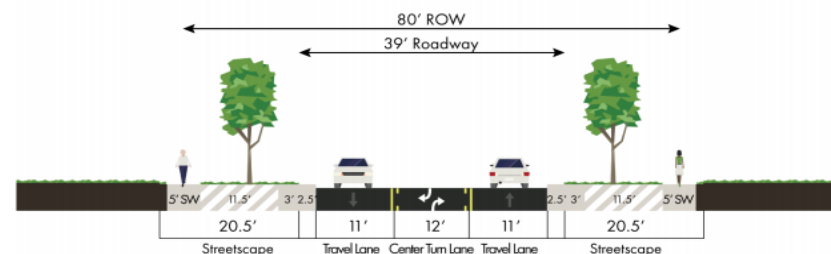
##### EXISTING

Lanes: N/A	Lanes: 3
V/C Ratio: N/A	V/C Ratio: 0.35
Volume: N/A	Volume: 1,961

##### PLANNED

#### GUIDING PRINCIPLES

Integrated Growth, Mobility and Connectivity



## Excerpts From Southwest Area Plan

### PC-1: APEX BARBECUE ROAD WIDENING

#### VICINITY MAP



#### GUIDING PRINCIPLES

Integrated Growth, Quality of Life, Safety, Mobility and Connectivity

#### DESCRIPTION

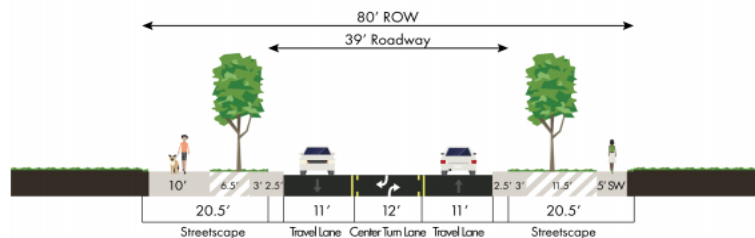
<b>PROJECT TYPE</b>	Widening
<b>LENGTH</b>	1.32 miles
<b>FROM</b>	Olive Chapel Road
<b>TO</b>	Old US 1
<b>CONTEXT AREA</b>	Suburban/Transit-Oriented Development
<b>TIMEFRAME</b>	Mid-term
<b>COST</b>	\$8,700,000

#### MULTIMODAL FACILITIES

EXISTING	PLANNED
<input type="checkbox"/> Sidewalk	<input checked="" type="checkbox"/> Sidewalk
<input type="checkbox"/> Side Path	<input checked="" type="checkbox"/> Side Path
<input type="checkbox"/> Transit Route	<input checked="" type="checkbox"/> Transit Route
<input type="checkbox"/> On-street Bike	<input type="checkbox"/> On-street Bike
<input type="checkbox"/> Freight Route	<input type="checkbox"/> Freight Route

#### CHARACTERISTICS

EXISTING	PLANNED
Lanes: 2	Lanes: 3
V/C Ratio: 0.39	V/C Ratio: 0.34
Volume: 6,203	Volume: 5,344



## Excerpts From Southwest Area Plan

### CSX Rail Corridor

Strategically important crossings of the CSX corridor were evaluated in this study. A grade separation of a road over the railroad is strongly preferred by CSX because they can maintain unaltered rail service during construction and long-term maintenance and ownership is not their responsibility. Grade separations can be costly and result in impacts to adjacent property due to a change in or loss of access, visual obstruction, and construction-related impacts. Railroad companies and the NCDOT prefer grade separations because of the safety benefits of avoiding cars and trucks traveling across active train tracks. The following locations were evaluated and grade separations are recommended:

- Laura Duncan Road** – proposed in this study to go under CSX and North Salem Street. Topography at this location lends itself to going under so that connections can be maintained to Laurel Park Elementary School on the south side and to the existing street network on both sides of the tracks. A temporary track could be built between the existing track and North Salem Street so that rail traffic can be maintained during construction.
- Tingen Road Extension** – The southern end of Tingen Road would be extended to the northwest on new location with a grade separation over CSX and Old US 1, continuing north to Woodall Crest Drive and then to Apex Barbeque Road.



	Total train movements: 6	
<b>New Collector Street</b>	<b>Crossing Geometry:</b> n/a	Apex requested CAMPO assistance in planning for a grade separation at a new location 1.5 miles south of the existing crossing (measured along the CSX track). The recommended grade separation would bridge over CSX and Old US 1 with a 310 foot long bridge. No interchange is proposed with Old US 1. The corridor width is estimated to be 100 feet wide. The southern tie-in would occur at Tingen Road / Widger Lane. The northern tie-in would be in the Woodall subdivision currently under construction; at a stub-out street named Woodall Crest Drive near its intersection with Aspen River Lane. Apex Barbeque Road is located 1,000 feet north of this tie-in.
	<b>Speed:</b>	
	Roadway: n/a	
	Rail: n/a	
	<b>Lanes / Tracks:</b>	
	Traffic lanes crossing: n/a	
	Number of tracks: 2	
<b>Signal Control:</b> n/a		
<b>Volume:</b>		
Street: n/a		
Total train movements: n/a		