All property owners and neighborhood associations within 300 feet of this rezoning have been notified per UDO Sec. 2.2.11 *Public Notification*.

BACKGROUND INFORMATION:

Location: 0, 2500, & 2600 Olive Chapel Road
Applicant/Agent: Brendie Vega, WithersRavenel
Owners: Charles & Judy Hackney and Edwin Goodwin

PROJECT DESCRIPTION:

Acreage: ±73.64 acres
PINs: 0721492629, 0722406699, & 0722411102
Current Zoning: Rural Residential (RR) & R-80W
Proposed Zoning: Planned Unit Development-Conditional Zoning (PUD-CZ)
2045 Land Use Map Designation: Medium Density Residential
Town Limits: ETJ and Outside (annexation of portion in Wake County is required with rezoning)

Adjacent Zoning & Land Uses:

	Zoning	Land Use
North:	Planned Unit Development-Conditional Zoning(PUD-CZ #17CZ21& #16CZ26)	Single Family Residential (Sweetwater and Linden subdivisions)
South:	Rural Residential (RR); Medium Density Residential-Conditional Zoning (MD-CZ #13CZ26 & #13CZ08); Wake Co. R-80W	Olive Chapel Road; Single Family Residential (Riley's Pond and large lot single-family)
East:	Rural Residential (RR); Planned Unit Development-Conditional Zoning (PUD-CZ #16CZ26)	Single Family Residential (Linden subdivision and large lot single-family)
West:	Planned Unit Development-Conditional Zoning (PUD-CZ #15CZ32) & Medium Density Residential-Conditional Zoning (MD-CZ #16CZ10)	Single Family Residential (Smith Farm and Haley Farm subdivisions)

EXISTING CONDITIONS:
The site consist of three (3) parcels on the north side of Olive Chapel Road totaling ±73.64 acres. The site has one single family residence, several sheds/barns, and two existing ponds. Along the north boundary there is a 100' stream buffer from Reedy Branch.

NEIGHBORHOOD MEETING:
The applicant conducted a neighborhood meeting on October 29, 2020. The neighborhood meeting report is attached.

WCPSS Coordination:
A Letter of Impact from Wake County Public School System (WCPSS) was received for this rezoning and is included in the staff report packet. WCPSS indicates that elementary and high schools within the current assignment area for this rezoning/development are anticipated to have insufficient capacity for future students; transportation to schools outside of the current assignment area should be anticipated. School expansion or construction within the next five years may address concerns at the high school level. Possible long-term solutions may include capping students out to schools with available seats (not very proximate), reassignments, or calendar changes.

2045 LAND USE MAP:
The 2045 Land Use Map designates the properties as Medium Density Residential. The proposed PUD is consistent with the Land Use Map designation.

PLANNED UNIT DEVELOPMENT PLAN:

The applicant is proposing a Planned Unit Development Plan with uses and development standards as follows:

Permitted Uses:

The Rezoned Lands may be used for, and only for, the uses listed immediately below. The permitted uses are subject to the limitations and regulations stated in the UDO and any additional limitations or regulations stated below. For convenience, some relevant sections of the UDO may be referenced; such references do not imply that other sections of the UDO do not apply.

Residential:

- Single Family
- Accessory Dwelling Unit
- Townhouse

Non-Residential:

- Utility, minor
- Greenway
- Park, active
- Park, passive

Proposed Design Controls:

Maximum Density: 3.5 units per acre*
*The residential density will be a maximum of 3.5 dwelling units per acre this is a change from 4 units per acre.

Maximum Building Height: 50 feet

Maximum Built-Upon Area: 70%

Setbacks

		Proposed PUD-CZ minimum setbacks	MD zoning district minimum setbacks
Single-family	Front	5' from façade 20' from garage to back of sidewalk	25'
	Side	5'	6' min/16' total
	Rear	10'	20'
	Corner side	8'	15'
			HDSF zoning district minimum setbacks
Townhouse, front loaded	Front	10' from façade 20' from garage to back of sidewalk	15'
	Side	5'	0' (8' between buildings)
	Rear	10'	15'
	Corner side	10'	15'
			HDSF zoning district minimum setbacks
Townhouse, alley loaded	Front	10' from front facade	15'
	Side	5'	0' (8' between buildings)
	Rear	5'	15'
	Corner side	10'	15'

Buffers

The proposed PUD meets or exceeds the buffers required by the UDO.

Perimeter Buffers:	UDO Required	Proposed
Northern property boundary	15' Type A	200' stream buffer**
Eastern property boundary	20' Type B	20' Type A
Western property boundary	15' Type A	20' Type A
Olive Chapel Road	30' Type B	30' Type E*

*A 30' Type B buffer shall be provided if homes along Olive Chapel Road are not alley-loaded.
** In addition to the 100' riparian buffer to the north, an additional 100' buffer will be established. This additional 100' may include utilities, trails and other active or passive recreation.

Architectural Standards

The proposed development offers the following architectural controls to ensure a consistency of character throughout the development, while allowing for enough variety to create interest and avoid monotony. Changes to the exterior materials, roof, windows, doors, process, trim, etc. are

allowable with administrative approval at the staff level. Further details shall be provided at the time of Residential Master Subdivision Plan submittal. The following conditions shall apply:

1. Vinyl siding is not permitted; however, vinyl windows, decorative elements and trim are permitted.
2. The roofline cannot be a single mass; it must be broken up horizontally and vertically between every unit.
3. Garage doors must have windows, decorative details or carriage-style adornments on them.
4. The rear and side elevations of the units that can be seen from the right-of-way shall have trim around the windows.
5. The visible side of a townhome on a corner lot facing the public street shall contain at least 2 decorative elements such as, but not limited to, the following elements:
   - Windows
   - Bay window
   - Recessed window
   - Decorative window
   - Trim around the windows
   - Wrap-around porch or side porch
   - Two or more building materials
   - Column
   - Portico
   - Balcony
   - Dormer
   - Decorative brick/stone
   - Decorative trim
   - Decorative shake
   - Decorative air vents on gable
   - Decorative gable
   - Decorative cornice
6. The garage cannot protrude more than 1-foot from either the front façade or porch.

Resource Conservation Area
The Hackney PUD is south and west of NC 540 and is therefore required to provide 30% of the gross site as RCA. If the single-family portion of the PUD is mass graded, that portion of the project will be required to provide an additional 5% RCA. They propose to meet these requirements.

Tree Replanting
Existing deciduous trees greater than 18" in diameter (DBH), as identified in the tree survey, that are removed by site development shall be replaced by planting a 1.5" caliper native tree from the *Town of Apex Design and Development Manual* as a street tree or as other required landscaping. Excess required tree replacement will occur in common open space areas.

Clean Energy
Residential dwelling units will be provided with solar conduit to accommodate the future installation of solar panels.

Water Quality
1. Signs will be installed near SCMs in order to:
   - Reduce pet water near SCM drainage areas
   - Reduce fertilizer near SCM drainage areas
2. Installation of Pet Waste Stations in common areas will occur within the neighborhood

Planting and Landscaping

1. Install Warm Season grasses (Bermuda, Zoysia, etc) in lawn areas to reduce the need for irrigation and chemicals.
2. Install required Street Trees, Buffer, and Re-Vegetation plantings that consist of a variety of native plant materials recognized by the New Hope Audubon Society or the NCSU manual for Landscaping for Wildlife with Native Plants as being bird and pollinator friendly; as allowed by the Town of Apex Deign & Development Manual or approved by Apex staff.
3. Specify pocket park plantings that are recognized by the NC Wildlife Federation as being Native Pollinator Plants as part of the Statewide Butterfly Highway initiative.
4. Include at least 4 hardwood tree varieties in the proposed plantings, as allowed by the Apex Design and Development Manual.

Environmental Resources

Parking

Parking and loading will comply with all applicable requirements of UDO Sec. 8.3 *Parking and Loading*. Per UDO Section 8.3.4 of the UDO, guest parking shall be designated within common areas and be distributed throughout the project. Striped on-street parking may be counted toward guest parking requirements. For townhouses, guest parking shall be distributed so that there is at least one parking space within 200' of each townhouse lot.

Public Facilities

The project's construction will consist of the extension of public facilities to serve the site. All public facilities and infrastructure shall comply with the Town of Apex Sewer and Water Master Plans and the Town of Apex Standards and Specifications. Public facilities include:

Water/Sanitary Sewer:
All lines will be designed according to Town of Apex Standards and Specifications.

Other Utilities:
Electric service shall be provided by the Town of Apex. Gas, telephone, and cable shall be provided by the builder as coordinated with the appropriate utility companies.

Stormwater Management

Two ponds exist on the parcels and drain to Reedy Branch Creek, eventually feeding into Jordan Lake. The proposed development plan will require stormwater management measures in accordance with Sections 6.1 and 7.5.7 in the Town of Apex Unified Development Ordinance. Stormwater captured on the site will be conveyed to proposed Stormwater Control Measures, which will be identified on plans during the major subdivision or site plan approval stage. Post-development peak runoff shall not exceed pre-development peak runoff for the 24-hour, 1-year and 10-year storm events in accordance with the Unified Development Ordinance. Treatment for the first 1-inch of runoff will be provided such that the removal of 85% Total Suspended Solids is achieved. All stormwater devices will meet the design requirements of NCDENR and the Town of Apex.

APEX TRANSPORTATION PLAN/ACCESS and CIRCULATION:

The Site will require an internal public roadway network and parking spaces. The onsite transportation circulation system shall be consistent with the Town of Apex Transportation Plan and the Town of Apex Standard Specifications and Standard Details. The following conditions shall apply:

1. Hasse Avenue will be constructed between Olive Chapel Road and its current terminus north of the project.
2. Olive Chapel Road will be widened to include construction of a 100-foot eastbound left-turn lane with appropriate deceleration length and taper and a 100-foot westbound right-turn lane with appropriate deceleration length and taper on Olive Chapel Road, subject to NCDOT review and approval.
3. The Olive Chapel Road turn lane widening will be completed prior to platting Hasse Avenue access to Olive Chapel Road and the connection to Hasse Avenue north of the project will be completed prior to the last plat in the subdivision.
4. A 6-foot bike lane and 5-foot paved shoulder will be located on the north side of Olive Chapel Road per the Bicycle and Pedestrian System Plan Map.
5. Alleys may be proposed to vary from Town standards in order to accommodate water and sewer utilities, provided they maintain the same or greater width of pavement and right of way, subject to staff review and approval at the time of subdivision and construction plans.
6. There will be no private driveways permitted along Olive Chapel Road.

Pedestrian Facilities

1. The development plan will incorporate sidewalk infrastructure along Olive Chapel Road as well as the internal street network.
2. A trail will serve as a connection from the western portion of the community to the Reedy Branch Greenway.
3. Sidewalks will be provided on both sides of all streets for single-family detached homes.
4. There will be a 10-foot side path provided along minor collector road as shown on the Bicycle and Pedestrian Systems Plan Map.
5. Prior platting the 75th lot in the neighborhood, the Developer will extend a 5’ sidewalk approximately 860 feet along the north side of Olive Chapel to western limits of the Linden Subdivision. Developer will attempt to obtain the required right-of-way and/or easements for construction of this sidewalk from the adjacent property owners. If the required right-of-way and/or easements cannot be obtained by that time, a Fee-in-Lieu in the amount of 125% of the estimated cost of construction plus fair market value of the property to be acquired, shall be assessed. Any performance guarantee provided for this section of sidewalk shall be released upon acceptance of said fee-in-lieu by the Town.

Affordable Housing

If the Town of Apex has a fund or other mechanism in place to receive donations to construct, subsidize, or participate in the development of affordable housing units (the “Fund”), the developer will contribute $215 per lot to this Fund prior to the first residential Certificate of Occupancy. In the event the Fund has not been established by the Town of Apex, the money will be conveyed to a local non-profit working on affordable housing initiatives. The developer will work with the Town of Apex to identify a mutually acceptable local non-profit organization to receive these funds.

ENVIRONMENTAL ADVISORY BOARD:
This rezoning was submitted before the Environmental Advisory Board began holding pre-application meetings on rezonings.

PARKS, RECREATION, AND CULTURAL RESOURCES ADVISORY COMMISSION:
The Parks, Recreation, and Cultural Resources Advisory Commission reviewed this item at their December 9, 2020 meeting and unanimously recommended a fee-in-lieu of dedication with credit for construction of greenway which connects side path along Hasse Ave to the west connecting to the Reedy Branch Greenway in Smith Farm. The fee rate will be set at the time of Town Council approval and the credit of construction will be calculated prior to construction plan approval. Per UDO Article 14, the greenway must be completed and accepted prior to 25% of the building permits for the project being issued.

PLANNING BOARD RECOMMENDATION:
The Planning Board held a Public Hearing on March 8, 2021 and voted to recommend approval, with the conditions as offered by the applicant, by a vote of 6-0.

PLANNING STAFF RECOMMENDATION:
Planning staff recommends approval of rezoning #20CZ14 Hackney PUD with the conditions as proposed by the applicant.

ANALYSIS STATEMENT OF THE REASONABLENESS OF THE PROPOSED REZONING:
This Statement will address consistency with the Town's comprehensive and other applicable plans, reasonableness, and effect on public interest:

The 2045 Land Use Map designates the site as Medium Density Residential. The proposed PUD is consistent with that land use classification.

Approval of the rezoning is reasonable and in the public interest because the site will act a transition between higher and lower residential densities. The proposed rezoning also provides for increased stream buffers, higher planting standards, and a contribution to affordable housing.

The proposed rezoning is also reasonable and in the public interest because it will allow this property to develop in a way that is consistent with the surrounding areas and will build side path along the minor collector that will be constructed through the site to Olive Chapel Road.

PLANNED UNIT DEVELOPMENT DISTRICT AND CONDITIONAL ZONING STANDARDS:
Standards
In return for greater flexibility in site design requirements, Planned Development (PD) Districts are expected to deliver exceptional quality community designs that preserve critical environmental resources; provide high quality community amenities; incorporate creative design in the layout of buildings, Resource Conservation Area and circulation; ensure compatibility with surrounding land uses and neighborhood character; provide high quality architecture; and provide greater efficiency in the layout and provision of roads, utilities, and other infrastructure. The Planned Development (PD) Districts shall not be used as a means of circumventing the Town's adopted land development regulations for routine developments.

1) *Planned Unit Development (PUD-CZ) District*
In approving a Planned Development (PD) Zoning District designation for a PUD-CZ, the Town Council shall find the PUD-CZ district designation and PD Plan for PUD-CZ demonstrates compliance with the following standards:

a) *Development parameters*

(i) The uses proposed to be developed in the PD Plan for PUD-CZ are those uses permitted in Sec. 4.2.2 *Use Table.*

(ii) The uses proposed in the PD Plan for PUD-CZ can be entirely residential, entirely non-residential, or a mix of residential and non-residential uses, provided a minimum percentage of non-residential land area is included in certain mixed use areas as specified on the 2030 Land Use Map. The location of uses proposed by the PUD-CZ must be shown in the PD Plan with a maximum density for each type of residential use and a maximum square footage for each type of non-residential use.

(iii) The dimensional standards in Sec. 5.1.3 *Table of Intensity and Dimensional Standards, Planned Development Districts* may be varied in the PD Plan for PUD-CZ. The PUD-CZ shall demonstrate compliance with all other dimensional standards of the UDO, North Carolina Building Code, and North Carolina Fire Code.

(iv) The development proposed in the PD Plan for PUD-CZ encourages cluster and compact development to the greatest extent possible that is interrelated and linked by pedestrian ways, bikeways and other transportation systems. At a minimum, the PD Plan must show sidewalk improvements as required by the Apex Transportation Plan and the *Town of Apex Standard Specifications and Standard Details*, and greenway improvements as required by the Town of Apex Parks, Recreation, Greenways, and Open Space Plan and the Apex Transportation Plan. In addition, sidewalks shall be provided on both sides of all streets for single-family detached homes.

v) The design of development in the PD Plan for PUD-CZ results in land use patterns that promote and expand opportunities for walkability, connectivity, public transportation, and an efficient compact network of streets. Cul-de-sacs shall be avoided unless the design of the subdivision and the existing or proposed street system in the surrounding area indicate that a through street is not essential in the location of the proposed cul-de-sac, or where sensitive environmental areas such as streams, floodplains, and wetlands would be substantially disturbed by making road connections.

(vi) The development proposed in the PD Plan for PUD-CZ is compatible with the character of surrounding land uses and maintains and enhances the value of surrounding properties.

(vii) The development proposed in the PD Plan for PUD-CZ has architectural and design standards that are exceptional and provide higher quality than routine developments. All residential uses proposed in a PD Plan for PUD-CZ shall provide architectural elevations representative of the residential structures to be built to ensure the Standards of this Section are met.

b) *Off-street parking and loading*. The PD Plan for PUD-CZ shall demonstrate compliance with the standards of Sec. 8.3 *Off-Street Parking and Loading*, except that variations from these standards may be permitted if a comprehensive parking and loading plan for the PUD-CZ is submitted as part of the PD Plan that is determined to be suitable for the PUD-CZ, and generally consistent with the intent and purpose of the off-street parking and loading standards.

c) *RCA.* The PD Plan for PUD-CZ shall demonstrate compliance with Sec. 8.1.2 Resource Conservation Area, except that the percentage of RCA required under Sec. 8.1.2 may be reduced by the Town Council by no more than ten percent (10%) provided that the PD Plan for PUD-CZ includes one or more of the following:

(i) A non-residential component; or

(ii) An overall density of 7 residential units per acre or more; or

(iii) Environmental measures including but not limited to the following:
(a) The installation of a solar photovoltaic (PV) system on a certain number or percentage of single-family or townhouse lots or on a certain number or percentage of multifamily, mixed-use, or nonresidential buildings. All required solar installation shall be completed or under construction prior to 90% of the building permits being issued for the approved number of lots or buildings. For single-family or townhouse installations, the lots on which these homes are located shall be identified on the Master Subdivision Plat, which may be amended;

(b) The installation of a geothermal system for a certain number or percentage of units within the development; or

(c) Energy efficiency standards that exceed minimum Building Code requirements (i.e. SEER rating for HVAC).

d) *Landscaping*. The PD Plan for PUD-CZ shall demonstrate compliance with the standards of Sec. 8.2 *Landscaping, Buffering and Screening*, except that variations from these standards may be permitted where it is demonstrated that the proposed landscaping sufficiently buffers uses from each other, ensures compatibility with land uses on surrounding properties, creates attractive streetscapes and parking areas and is consistent with the character of the area. In no case shall a buffer be less than one half of the width required by Sec. 8.2 or 10 feet in width, whichever is greater.

e) *Signs.* Signage in the PD Plan for PUD-CZ shall demonstrate compliance with Sec. 8.7 *Signs*, except that the standards can be varied if a master signage plan is submitted for review and approval concurrent with the PD plan and is determined by the Town Council to be suitable for the PUD-CZ and generally consistent with the intent and purpose of the sign standards of the UDO. The master signage plan shall have design standards that are exceptional and provide for higher quality signs than those in routine developments and shall comply with Sec. 8.7.2 *Prohibited Signs*.

f) *Public facilities.* The improvements standards and guarantees applicable to the public facilities that will serve the site shall comply with Article 7: *Subdivision and* Article 14: *Parks, Recreation, Greenways, and Open Space*.

(i) The PD Plan for PUD-CZ demonstrates a safe and adequate on-site transportation circulation system. The on-site transportation circulation system shall be integrated with the off-site transportation circulation system of the Town. The PD Plan for PUD-CZ shall be consistent with the Apex Transportation Plan and the *Town of Apex Standard Specifications and Standard Details* and show required right-of-way widths and road sections. A Traffic Impact Analysis (TIA) shall be required per Sec. 13.19.

(ii) The PD Plan for PUD-CZ demonstrates a safe and adequate on-site system of potable water and wastewater lines that can accommodate the proposed development, and are efficiently integrated into off-site potable water and wastewater public improvement plans. The PD Plan shall include a proposed water and wastewater plan.

(iii) Adequate off-site facilities for potable water supply, sewage disposal, solid waste disposal, electrical supply, fire protection and roads shall be planned and programmed for the development proposed in the PD Plan for PUD-CZ, and the development is conveniently located in relation to schools and police protection services.

(iv) The PD Plan shall demonstrate compliance with the parks and recreation requirements of Sec. Article 14: *Parks, Recreation, Greenways, and Open Space* and Sec. 7.3.1 *Privately-owned Play Lawns* if there is a residential component in the PUD-CZ.

g) *Natural resource and environmental protection.* The PD Plan for PUD-CZ demonstrates compliance with the current regulatory standards of this Ordinance related to natural resource and environmental protection in Sec. 6.1 *Watershed Protection Overlay District*, Sec. 6.2 *Flood Damage Prevention Overlay District*, and Sec. 8.1 *Resource Conservation*.

h) *Storm water management.* The PD Plan shall demonstrate that the post-development rate of on-site storm water discharge from the entire site shall not exceed pre-development levels in accordance with Sec. 6.1.7 of the UDO.

i) *Phasing.* The PD Plan for PUD-CZ shall include a phasing plan for the development. If development of the PUD-CZ is proposed to occur in more than one phase, then guarantees shall be provided that project improvements and amenities that are necessary and desirable for residents of the project, or that are of benefit to the Town, are constructed with the first phase of the project, or, if this is not possible, then as early in the project as is technically feasible.

j) *Consistency with 2045 Land Use Map.* The PD Plan for PUD-CZ demonstrates consistency with the goals and policies established in the Town's 2030 Land Use.

k) *Complies with the UDO.* The PD Plan for PUD-CZ demonstrates compliance with all other relevant portions of the UDO.

Legislative Considerations

The Town Council shall find the PUD-CZ designation demonstrates compliance with the following standards. Sec. 2.3.3.F:

The applicant shall propose site-specific standards and conditions that take into account the following considerations, which are considerations that are relevant to the legislative determination of whether or not the proposed conditional zoning district rezoning request is in the public interest. These considerations do not exclude the legislative consideration of any other factor that is relevant to the public interest.

1) *Consistency with 2030 Land Use Map.* The proposed Conditional Zoning (CZ) District use's appropriateness for its proposed location and consistency with the purposes, goals, objectives, and policies of the 2030 Land Use Map.

2) *Compatibility.* The proposed Conditional Zoning (CZ) District use's appropriateness for its proposed location and compatibility with the character of surrounding land uses.

3) *Zoning district supplemental standards.* The proposed Conditional Zoning (CZ) District use's compliance with Sec. 4.4 *Supplemental Standards,* if applicable.

4) *Design minimizes adverse impact.* The design of the proposed Conditional Zoning (CZ) District use's minimization of adverse effects, including visual impact of the proposed use on adjacent lands; and avoidance of significant adverse impacts on surrounding lands regarding trash, traffic, service delivery, parking and loading, odors, noise, glare, and vibration and not create a nuisance.

5) *Design minimizes environmental impact.* The proposed Conditional Zoning District use's minimization of environmental impacts and protection from significant deterioration of water and air resources, wildlife habitat, scenic resources, and other natural resources.

6) *Impact on public facilities.* The proposed Conditional Zoning (CZ) District use's avoidance of having adverse impacts on public facilities and services, including roads, potable water and wastewater facilities, parks, schools, police, fire and EMS facilities.

7) *Health, safety, and welfare.* The proposed Conditional Zoning (CZ) District use's effect on the health, safety, or welfare of the residents of the Town or its ETJ.

8) *Detrimental to adjacent properties.* Whether the proposed Conditional Zoning (CZ) District use is substantially detrimental to adjacent properties.

9) *Not constitute nuisance or hazard.* Whether the proposed Conditional Zoning (CZ) District use constitutes a nuisance or hazard due to traffic impact or noise, or because of the number of persons who will be using the Conditional Zoning (CZ) District use.

10) *Other relevant standards of this Ordinance.* Whether the proposed Conditional Zoning (CZ) District use complies with all standards imposed on it by all other applicable provisions of this Ordinance for use, layout, and general development characteristics.

January 25, 2021

Baohong Wan, Phd, P.E.
VHB Engineering NC
Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
919-829-0328

Subject: **Staff summary and comments for the Hackney Tract Subdivision TIA, 12/22/2020**

Dr. Wan:

Please review the following summary of my comments and recommendations. You may schedule a meeting with me and your client to discuss at your convenience.

Study Area

The TIA studied access to the proposed subdivision development at the following intersection:

- Access #1/Hasse Avenue Extension and Olive Chapel Road

The following four intersections were also studied in the TIA:

- Olive Chapel Road and Richardson Road
- Olive Chapel Road and Apex Barbecue Road
- Richardson Road and Hasse Avenue/Little Gem Lane
- US Highway 64 East at Richardson Road
- US Highway 64 West at U-turn east of Richardson Road

Trip Generation

The proposed development is expected to consist of up to 100 single-family homes and 133 multi-family homes. It's projected to generate approximately 33 new trips entering and 106 new trips exiting the site during the weekday A.M. peak hour and 112 new trips entering and 66 new trips exiting the site during the weekday P.M. peak hour. The development is projected to add an additional 2,005 daily trips onto the adjacent roadway network.

Background traffic

Background traffic consists of 3% annual background traffic growth compounded to build out year 2024, and the following approved developments:

- Saddlebrook - 25% traffic (75% build out)
- Buckhorn Preserve – 50% traffic (50% build out)
- Stillwater -15% traffic (85% build out)
- Westford – 20% traffic (80% build out)
- Smith Farm Residential– 25% traffic (75% build out)
- Linden – 85% traffic (15% build out)
- Sweetwater residential - 20% traffic (80% build out)
- Sweetwater commercial

Trip Distribution and Assignment

The trip distributions to and from the development site are as follows:

- 50% to/from the east via US Highway 64
- 10% to/from the west via US Highway 64
- 25% to/from the east via Olive Chapel Road
- 5% to/from the west via Olive Chapel Road
- 8% to/from the south via Richardson Road
- 2% to/from the south via Apex Barbecue Road

Traffic Capacity Analysis and Recommendations

Level of Service (LOS) is a grade of A through F assigned to an intersection, approach, or movement to describe how well or how poorly it operates. LOS A through D is considered acceptable for peak hour operation. LOS E or F describes potentially unacceptable operation and developers may be required to mitigate their anticipated traffic impact to improve LOS based on the Apex Unified Development Ordinance (UDO).

Tables 1 through 8 describe the levels of service (LOS) for the scenarios analyzed in the TIA. "*NA"* is shown when the scenario does not apply. The scenarios are as follows:

- **Existing 2020** - Existing year 2020 traffic.
- **No Build 2024** – Projected year (2024) with background growth, approved development traffic from others, and committed transportation improvements by others where applicable.
- **Build 2024 –** Projected year (2024) with background traffic, background improvements, and site build-out including recommended improvements where applicable.

Access #1/Hasse Avenue Extension and Olive Chapel Road (Unsignalized)

Table 1. A.M. / P.M. Unsignalized Peak Hour Levels of Service Access #1/Hasse Avenue Extension and Olive Chapel Road	
	Build 2024
Overall	NA
Eastbound (Olive Chapel Road)	*A / A*[2]
Westbound (Olive Chapel Road)	*NA*
Southbound (Access #1/Hasse Avenue Extension)	*C / D*[1]

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements on free-flowing approaches.

TIA recommendations:

- The TIA recommends construction of Future Access #1/Hasse Avenue to consist of one inbound lane and one outbound lane. The TIA also recommends construction of a dedicated left-turn lane on eastbound Olive Chapel Road with 100 feet of storage length and appropriate taper, and a dedicated right-turn lane on westbound Olive Chapel Road with 100 feet of storage length and appropriate taper.

Apex staff recommendations:

- Apex staff concur with the recommendations. The stop-controlled southbound approach is projected to operate at LOS D or better with delays of 16 and 25 seconds per vehicle in the AM and PM peak hours. The turn lanes proposed on Olive Chapel Road are projected to provide enough capacity to store queues into the development during both peak hours.

Olive Chapel Road and Richardson Road

Table 2. A.M. / P.M. Peak Hour Levels of Service Olive Chapel Road and Richardson Road			
	Unsignalized	**Signalized**	
	Existing 2020	**No Build 2024**	**Build 2024**
Overall	NA	A / A	A / A
Eastbound (Olive Chapel Road)	*B / B*[2]	*A / B*	*A / B*
Westbound (Olive Chapel Road)	*B / B*[2]	*B / B*	*B / B*
Northbound (Richardson Road)	*B / B*[1]	*B / B*	*B / B*
Southbound (Richardson Road)	*B / C*[1]	*A / B*	*A / B*

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements on free-flowing approaches.

TIA recommendations:

- The TIA recommends no improvements at this intersection.

Apex staff recommendations:

- Apex staff concur with the recommendations in the TIA. When signalized, this intersection is projected to operate at LOS A in both peak hours in the Build 2024 scenario. A traffic signal has been approved by NCDOT at this intersection, and is committed by adjacent development for installation prior to the build out of this development.

Olive Chapel Road and Apex Barbecue Road (Unsignalized)

Table 3. A.M. / P.M. Unsignalized Peak Hour Levels of Service Olive Chapel Road and Apex Barbecue Road			
	Existing 2020	**No Build 2024**	**Build 2024**
Overall	NA	NA	NA
Eastbound (Olive Chapel Road)	*NA*	*NA*	*NA*
Westbound (Olive Chapel Road)	*A / A*[2]	*A / B*[2]	*A / B*[2]
Northbound (Apex Barbecue Road)	*B / C*[1]	*C / F*[1]	*C / F*[1]

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements on free-flowing approaches.

TIA recommendations:

- The TIA recommends no improvements at this intersection.

Apex staff recommendations:

- Apex staff concur with the recommendations in the TIA. The stop-controlled northbound approach is projected to operate at LOS F in the PM peak hour with delays of 135 seconds per vehicle and 95th percentile queues of 250 feet. However the development is not anticipated to add more than 3% to the overall intersection traffic volume, therefore no improvements are recommended per the UDO. This intersection is identified for future realignment in the Town's Transportation Plan, but no funded project is identified at this time and both roadways are state-maintained.

Richardson Road and Hasse Avenue/Little Gem Lane (Unsignalized)

Table 4. A.M. / P.M. Unsignalized Peak Hour Levels of Service Richardson Road and Hasse Avenue/Little Gem Lane			
	Existing 2020	**No Build 2024**	**Build 2024**
Overall	NA	NA	NA
Eastbound (Little Gem Lane)	*A / B*[1]	*C / C*[1]	*C / D*[1]
Westbound (Hasse Avenue)	*A / A*[1]	*C / C*[1]	*C / C*[1]
Northbound (Richardson Road)	*A / A*[2]	*A / A*[2]	*A / A*[2]
Southbound (Richardson Road)	*A / A*[2]	*A / A*[2]	*A / B*[2]

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements on free-flowing approaches.

TIA recommendations:

- The TIA recommends no improvements at this intersection.

Apex staff recommendations:

- Apex staff concur with the recommendations in the TIA. The minor street approaches are projected to operate at LOS D or better during both peak hours of operation, with 95th percentile queues not exceeding 50 feet on any approach.

US Highway 64 East at Richardson Road

Table 5. A.M. / P.M. Peak Hour Levels of Service US Highway 64 East at Richardson Road			
	Unsignalized	**Signalized**	
	Existing 2020	**No Build 2024**	**Build 2024**
Overall	NA	C / D	C / D
Eastbound (US Hwy 64)	*NA*	*C / D*	*C / E*
Westbound Left (US Hwy 64)	*F / F*[2]	*B / B*	*A / B*
Northbound Right (Richardson Road)	*C / C*[1]	*C / D*	*C / D*

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements on free-flowing approaches.

TIA recommendations:

- The TIA recommends no improvements at this intersection.

Apex staff recommendations:

- Apex staff concur with the recommendations in the TIA. When signalized with dual westbound left and dual northbound right turn lanes, this intersection is projected to operate at LOS C and D in the AM and PM peak hours of operation with average intersection delays of 22 seconds and 44.5 seconds per vehicle. The eastbound approach is projected to operate at LOS E in the PM peak hour. However, the development is not anticipated to add more than 4% to the overall intersection traffic volume, therefore no improvements are recommended per the UDO. A traffic signal has been approved by NCDOT at this intersection, and is committed by adjacent development along with the additional turn lanes for installation prior to the build out of this development.

US Highway 64 West at U-turn east of Richardson Road

Table 6. A.M. / P.M. Peak Hour Levels of Service US Highway 64 West at U-turn east of Richardson Road			
	Unsignalized	**Signalized**	
	Existing 2020	**No Build 2024**	**Build 2024**
Overall	NA	B / C	B / C
Eastbound U-turn (US Hwy 64)	*B / C*[2]	*C / E*	*C / E*
Westbound (US Hwy 64)	*NA*	*A / C*	*B / C*

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn or U-turn movements on free-flowing approaches.

TIA recommendations:

- The TIA recommends no improvements at this intersection.

Apex staff recommendations:

- Apex staff concur with the recommendations in the TIA. When signalized with dual eastbound U-turn lanes, this intersection is projected to operate at overall LOS C or better in both peak hours in the Build 2024 scenario. A traffic signal has been approved by NCDOT at this intersection, and is committed by adjacent development along with the additional U-turn lane for installation prior to the build out of this development.

Please coordinate with the NCDOT District Engineer's Office concerning recommended improvements. Town staff will be available for meetings with NCDOT staff to discuss improvements on state maintained roadways as needed. All recommendations are subject to review by Town Council prior to approval.

Sincerely,

Serge Grebenschikov
Traffic Engineer
919-372-7448


Rezoning #20CZ14
Smith Farm Ph 3
Smith Farm Ph 2
Smith Farm, Phase 1
Haley Farms
Linden
Woodridge
Homestead Park
Lucas Farms
Hollands Crossing
Saddlebrook
Arcadia West
Riley's Pond
Soaring Silo Way
Herb Garden Way
Early Planting Ave
Richardson Rd
Barn Cat Way
Wishing Well Wynd
Grindall Aly
Hasse Ave
Angelica Rose Way
Gordonia Way
Shopton Dr
Cregler Dr
Winecott Dr
Moretz Ct
Jehon Ct
Starita Ct
Linden Grove Ln
Olive Chapel Rd
Bergen Ave
Piney Woods Ln
Grassy Point Rd
Barn Door Dr
Everbloom Aly
Hayride Aly
Livestock Aly
Farmhouse Dr
Kythira Dr
Bicknor Dr
Rileys Pond Dr
November, 2020
September, 2020 Aerial Photography
Prepared by: Town of Apex Planning Department
0
500
1,000
Feet

PLANNED UNIT DEVELOPMENT-CONDITIONAL ZONING DISTRICT PETITION
2045 LAND USE MAP AMENDMENT PROCESS INFORMATION

PD PLAN/PUD-CZ PETITION SUBMISSION: Applications are due by 12:00 pm on the first business day of each month. See the PUD Plan Schedule on the website for more details.

PD PLAN/PUD-CZ PETITION FEES:
PUD-CZ Request: $1,500.00 + $10 an acre
PD Plan Amendment not requiring full TRC Review: $500.00
2045 Land Use Map Amendment: $700.00

PRE-APPLICATION MEETING: A pre-application meeting with members of the Technical Review Committee is required to be scheduled prior to the submittal of a PD Plan for PUD-CZ. Pre-application meetings are typically scheduled on the 1st, 2nd and 5th Thursdays of the month.

To schedule a meeting, applicants must e-mail a pdf map, drawing, model, site or sketch plan to Planner Lauren Staudenmaier (lauren.staudenmaier@apexnc.org) no later than five (5) working days prior to the desired meeting day.

PURPOSE OF A PUD-CZ (UDO Section 3.3.3(C)): The purpose of the PUD-CZ is to permit variations in order to allow flexibility for landowners to creatively plan for a site specific, higher quality overall development of their land in a way that is not possible through the strict application of the minimum standards of this Ordinance. This is done through the application of performance standards that: integrate and mix uses where a mix of uses is proposed, possess interconnectivity, reflect the small-town character of Apex, expand opportunities for public transportation, preserve of natural features, integrate resource conservation area into plan for development, and that public facilities are available.

NEIGHBORHOOD MEETING: Neighborhood meetings are required per UDO Section 2.2.7 prior to application submission. The applicant is required to notify property owners and any neighborhood association that represents citizens within that area within 300 feet of the subject property via first class mail a minimum of 10 days in advance of the neighborhood meeting. The applicant shall use their own return address on the envelopes as the meeting is a private meeting between the developer and the neighbors. The applicant shall submit the "Certified List of Property Owners" and "Neighborhood Meeting Packet" forms included in this application packet with their initial submittal. The Neighborhood Meeting Packet is located at the very end of this document.

ANNEXATION REQUIREMENTS: If a property or portion thereof subject to the PUD is outside the corporate limits and ETJ, an annexation petition is **REQUIRED** to be submitted on the same day as this application.

Electronic Submittal Requirements (submit in IDT): Click here to access IDT Plans Website

- PUD-CZ Application
- PD Plan Text (pdf & Word versions)
- Colored Rendering of Building Elevations – 11"x17"
- Transportation Impact Analysis

Site Plan Set
- 24" x 36" size
- Scale not less than: 1" = 50' horizontal, 1" = 5' vertical
- Saved as pdf – no scanned plans

Hard Copy Submittal Requirements: Submit to Planning Department

- PUD-CZ Petition Application
- Petition Fee
- One (1) hardcopy PD Plan Text
- Three (3) bound Site Plan Sets – 24" x 36" size
- Colored Rendering of Building Elevations
- Legal Description (metes and bounds)
- Certified List of Property Owners within 300 feet of subject property
- Development Name Approval Application
- Town of Apex Utilities Offer & Agreement
- Agent Authorization Form
- WCPSS Residential Development Notice
- Neighborhood Meeting Packet
- If applicable: Annexation Petition, map, legal description and $200.00 fee
- Two (2) bound copies of the Transportation Impact Analysis and 1 copy of the TIA & traffic analysis files on disk or FTP site at first submittal (if applicable)
- One (1) set of envelopes addressed to Certified List of Property Owners within 300 feet of subject property and all the HOAs of those properties within 300' of the subject property. Planning staff may require an additional set of envelopes based on the timing of the Planning Board and Town Council meetings.
- Addresses must be from a current list obtained from the Wake County GIS Map Services. A buffer report service is offered for $1 per page. Please contact them at 919-856-6360 or http://www.wakegov.com/tax/Pages/default.aspx
- Affixed with first class stamps & the following return address:
  Town of Apex Planning Department
  P.O. Box 250
  Apex, NC 27502

PETITION PROCESS INFORMATION

NEIGHBORHOOD MEETING: Neighborhood meetings are required per UDO Section 2.2.7 prior to application submission. The applicant is required to notify property owners and any neighborhood association that represents citizens within that area within 300 feet of the subject property via first class mail a minimum of 10 days in advance of the neighborhood meeting. The applicant shall use their own return address on the envelopes as the meeting is a private meeting between the developer and the neighbors. The applicant shall submit the "Certified List of Property Owners" and "Neighborhood Meeting Packet" forms included in this application packet with their initial submittal. The Neighborhood Meeting Packet is located at the very end of this document.

REVIEW FOR SUFFICIENCY: Incomplete plans will be returned to the applicant and sufficiently complete applications are forwarded to the planning staff for review.

REVIEW BY STAFF: Planning staff reviews the application to determine compliance with the Unified Development Ordinance (UDO). If the application is determined not to be compliant with the UDO, comments will be sent to the applicant. The applicant must address all staff comments before any public hearings are scheduled.

PUBLIC HEARING NOTIFICATION: Notification of the public hearing will take place by three different methods. A written notice will be sent to nearby property owners not more than 25 days nor less than 14 days prior to the public hearings, as required by the UDO. The Planning Department will prepare these written notifications for all property owners of the land subject to the application and all property owners within 300 feet of the land subject to the application. A notice will be published on the Town of Apex website (www.apexnc.org) no less than 10 days, but not more than 25 days, prior to the public hearings, and a notice will be posted at the land subject to the application at least 14 days prior to the public hearings.

1ST PUBLIC HEARING/PLANNING BOARD MEETING: The Planning Board will consider the application, relevant support materials, the Staff Report and public testimony given at the public hearing. After the public hearing the Planning Board will make a recommendation to the Town Council. The Planning Board may recommend approval, approval with conditions or disapproval. The application is then forwarded to the Town Council. The Planning Board meets at 4:30 p.m. in the Town Hall Council Chambers on the date indicated on the Rezoning Schedule.

2ND PUBLIC HEARING/TOWN COUNCIL MEETING: The Town Council will consider the application, relevant support materials, the Staff Report, the Planning Board recommendation and public testimony given at the public hearing. After the public hearing the Town Council will vote to approve, approve with conditions or disapprove the rezoning. The Town Council meets at 6:00 p.m. in the Town Council Chambers on the date indicated on the Rezoning Schedule.

PLANNED UNIT DEVELOPMENT APPLICATION

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Application #: #20CZ14 Submittal Date: 11-2-21

Fee Paid $ 2,300 Check # credit card

PETITION TO AMEND THE OFFICIAL ZONING DISTRICT MAP

Project Name: Hackney Tracts

Address(es): 2600 Olive Chapel Road, 2500 Olive Chapel Road, & 0 Olive Chapel Road

PIN(s) 0721492629, 0722406699, & 0722411102

Acreage: 73.64 ac.

Current Zoning: RR & R-80W Proposed Zoning: PUD-CZ

Current 2045 LUM Designation: Med. Density Residential

Requested 2045 LUM Designation: Med. Density Residential

See next page for LUM amendment

If any portion of the project is shown as mixed use (3 or more stripes on the 2045 Land Use Map) provide the following:

Area classified as mixed use: Acreage: 0 ac.

Area proposed as non-residential development: Acreage: 0 ac.

Percent of mixed use area proposed as non-residential: Percent: 0%

Applicant Information

Name: WithersRavenel

Address: 137 S. Wilmington Street, Suite 200

City: Raleigh State: NC Zip: 27601

Phone: 919.469.3340 E-mail: bvega@withersravenel.com

Owner Information

PIN: 0721492629 Owner: GOODWIN, EDWIN A Address: Judy Hackney. 2505 Olive Chapel Rd., Apex, NC 27502	PIN: 0722406699 Owner: HACKNEY, CHARLES LEON HACKNEY, JUDY G Address: 2505 Olive Chapel Rd., Apex, NC 27502	PIN: 0722411102 Owner: HACKNEY, JUDY G Address: 2505 Olive Chapel Rd., Apex, NC 27502

Agent Information

Name: Brendie Vega, WithersRavenel

Address: 137 S. Wilmington Street, Suite 200

City: Raleigh State: NC Zip: 27601

Phone: 919.469.3340 E-mail: bvega@withersravenel.com

Other contacts: Glenda Toppe

PLANNED UNIT DEVELOPMENT APPLICATION

Application #: #20CZ14 Submittal Date: 11-2-21

2045 LAND USE MAP AMENDMENT (if applicable)

The applicant does hereby respectfully request the Town Council amend the 2045 Land Use Map. In support of this request, the following facts are shown:

The area sought to be amended on the 2045 Land Use Map is located at:

Not applicable. No proposed change in classification.

Current 2045 Land Use Classification: Med. Density Residential

Proposed 2045 Land Use Classification: Med. Density Residential

What conditions justify the passage of the amendment to the 2045 Land Use Map? Discuss the existing use classifications of the subject area in addition to the adjacent land use classifications.

Not applicable. No proposed change in classification.

Legal description for Tract 1 Hackney Property

Beginning at an Existing Iron Pipe located at the Southwest corner of Lot 1, “William E. Gerringer Subdivision”, Recorded at Map Book 1982, Page 24, Wake County Registry. Said Existing Iron Pipe having North Carolina Geodetic Coordinates (NAD 83, 2011) N: 719,823.90’, E: 2,025,316.49’ Said point is also located on the Northern Margin of Olive Chapel Road, Thence, following the Northern Margin of Olive Chapel Road; South 70°32'42" West, 65.39 feet to a point, said point being the **True Point of Beginning.** Thence, following the Northern Margin of Olive Chapel Road, South 70°31'17" West, 649.92 feet to a point, Thence, Leaving Said Road, North 34°12'20" West, 445.67 feet to a point; Thence, North 00°58'41" West, 436.43 feet to a point; Thence, North 85°35'51" West, 339.02 feet to an Existing Iron Pipe; Thence, South 02°31'45" West, 382.15 feet to an Existing Iron Pipe; Thence, North 87°46'36" West, 443.92 feet to an Existing Iron Pipe; Thence, North 01°42'56" East, 1,191.60 feet to an Existing Iron Pipe; Thence, North 01°42'19" East, 635.94 feet to a point located in the centerline of a creek, Said point being located South 01°42’19” West, 8.02 feet from an Existing Iron Pipe found on the North bank of the creek; Thence, along the centerline of the creek the following seventy-eight (78) calls:
North 62°12'20" East, 26.95 feet to a point; Thence, North 85°25'51" East, 12.16 feet to a point; Thence, South 89°25'18" East, 9.95 feet to a point; Thence, North 72°42'15" East, 16.28 feet to a point; Thence, North 35°12'38" East, 17.29 feet to a point; Thence, North 04°12'00" East, 12.96 feet to a point; Thence, North 21°34'14" West, 18.72 feet to a point; Thence, North 09°03'47" West, 8.16 feet to a point, Thence, North 41°28'27" East, 26.53 feet to a point, Thence, South 84°15'14" East, 11.15 feet to a point, Thence, South 44°43'11" East, 19.83 feet to a point, Thence, South 71°15'05" East, 13.95 feet to a point, Thence, South 74°11'34" East, 15.85 feet to a point, Thence, South 74°44'51" East, 12.72 feet to a point, Thence, South 83°49'13" East, 3.99 feet to a point, Thence, North 64°08'10" East, 16.34 feet to a point, Thence, North 47°07'30" East, 15.60 feet to a point, Thence, South 78°20'55" East, 15.26 feet to a point, Thence, South 56°02'16" East, 5.33 feet to a point, Thence, South 19°19'09" East, 6.90 feet to a point, Thence, South 56°44'29" East, 12.49 feet to a point, Thence, South 83°31'01" East, 16.05 feet to a point, Thence, North 59°49'27" East, 15.58 feet to a point, Thence, North 16°43'28" East, 6.92 feet to a point, Thence, North 01°57'42" West, 8.52 feet to a point, Thence, North 19°34'33" West, 8.53 feet to a point, Thence, North 22°27'53" West, 25.52 feet to a point, Thence, North 08°13'00" West, 17.60 feet to a point, Thence, North 13°08'01" West, 25.39 feet to a point, Thence, North 19°34'33" West, 12.83 feet to a point, Thence, North 00°51'00" East, 8.68 feet to a point, Thence, North 37°09'53" East, 11.70 feet to a point, Thence, North 49°22'35" East, 26.46 feet to a point, Thence, North 62°21'20" East, 30.37 feet to a point, Thence, North 67°46'29" East, 19.95 feet to a point, Thence, North 02°19'02" West, 8.02 feet to a point, Thence, North 48°37'20" West, 9.79 feet to a point, Thence, North 51°28'51" West, 14.82 feet to a point, Thence, North 10°18'42" West, 10.15 feet to a point, Thence, North 29°53'30" East, 7.06 feet to a point, Thence, North 67°41'49" East, 9.59 feet to a point, Thence, South 56°14'07" East, 5.77 feet to a point, Thence, South 63°24'14" East, 9.29 feet to a point, Thence, South 76°41'34" East, 9.25 feet to a point, Thence, North 77°10'45" East, 14.30 feet to a point, Thence, North 49°00'07" East, 13.34 feet to a point, Thence, North 10°50'19" West, 12.26 feet to a point, Thence, North 64°58'17" West, 15.90 feet to a point, Thence, North 31°59'29" West, 7.02 feet to a point, Thence, North 01°03'18" West, 7.87 feet to a point, Thence, North 17°34'16" East, 24.60 feet to a point, Thence, North 26°59'18" East, 8.17 feet to a point, Thence, South 81°51'44" East, 16.60 feet to a point, Thence, South 33°48'00" East, 15.96 feet to a point, Thence, South 49°25'00" East, 16.68 feet to a point, Thence, North 78°59'30" East, 12.42 feet to a point, Thence, North 50°28'53" East, 20.42 feet to a point, Thence, North 70°44'43" East, 46.11 feet to a point, Thence, South 89°01'57" East, 16.84 feet to a point, Thence, South 73°56'31" East, 11.76 feet to a point, Thence, North 66°33'30" East, 13.41 feet to a point, Thence, North 10°20'58" East, 8.36 feet to a point, Thence, North 17°44'49" West, 19.09 feet to a point, Thence, North 07°53'24" East, 12.39 feet to a point, Thence, North 59°58'19" East, 13.53 feet to a point, Thence, South 42°16'28" East, 13.69 feet to

a point, Thence, South 04°17'52" West, 12.70 feet to a point, Thence, South 10°35'03" West, 9.31 feet to a point, Thence, South 32°25'41" East, 5.70 feet to a point, Thence, South 46°46'35" East, 17.73 feet to a point, Thence, South 60°06'25" East, 16.74 feet to a point, Thence, North 86°29'56" East, 19.64 feet to a point, Thence, North 81°25'49" East, 16.54 feet to a point, Thence, South 80°06'27" East, 29.38 feet to a point, Thence, South 84°39'29" East, 22.26 feet to a point, Thence, North 58°33'23" East, 13.24 feet to a point, Thence, North 74°43'49" East, 8.91 feet to a point, Thence, leaving the centerline of said creek, South 20°58'05" East, 22.05 feet to a point, Thence, South 20°45'12" East, 790.03 feet to an Existing Iron Pipe, Thence, South 56°33'25" East, 611.03 feet to an Existing Iron Pipe, Thence, South 78°41'14" West, 615.50 feet to a point, Thence, South 11°18'46" East, 791.04 feet to a point, Thence, North 78°41'14" East, 566.96 feet to a point, Thence, South 09°38'52" East, 536.92 feet to a point, being the **True Point of Beginning**, and having an area of 51.280 Acres, more or less.

Together with the following area located within the public right of way of Olive Chapel Road

Beginning at an Existing Iron Pipe located at the Southwest corner of Lot 1, “William E. Gerringer Subdivision”, Recorded at Map Book 1982, Page 24, Wake County Registry. Said Existing Iron Pipe having North Carolina Geodetic Coordinates (NAD 83, 2011) N: 719,823.90’, E: 2,025,316.49’ Said point is also located on the Northern Margin of Olive Chapel Road, Thence, following the Northern Margin of Olive Chapel Road; South 70°32'42" West, 65.39 feet to a point, said point being the **True Point of Beginning.** Thence, South 70°29'55" West, 636.77 feet to a point; Thence, North 34°12'20" West, 31.27 feet to a point; Thence, North 70°31'17" East, 649.92 feet to a point; Thence, South 09°38'52" East, 30.43 feet to a point; being the **True Point of Beginning**, and having an area of 0.445 Acres (19,375 sf), more or less.

Legal description for Tract 2 Hackney Property

Beginning at an Existing Iron Pipe located at the Southwest corner of Lot 1, “William E. Gerringer Subdivision”, Recorded at Map Book 1982, Page 24, Wake County Registry. Said Existing Iron Pipe having North Carolina Geodetic Coordinates (NAD 83, 2011) N: 719,823.90’, E: 2,025,316.49’ Said point is also located on the Northern Margin of Olive Chapel Road, Thence, following the Northern Margin of Olive Chapel Road; South 70°32'42" West, 65.39 feet to a point; Thence, South 70°31’17” West, 649.92 feet to a point, said point being the **True Point of Beginning.**
Thence, following the Northern Margin of Olive Chapel Road, South 70°19'56" West, 682.58 feet to a New Iron Pipe, Thence, Leaving Said Right of Way, Thence, North 02°31'13" East, 5.41 feet to an Existing Iron Pipe; Thence, North 02°31'13" East, 674.17 feet to an Existing Iron Pipe; Thence, North 02°31'45" East, 382.15 feet to an Existing Iron Pipe; Thence, South 85°35'51" East, 339.02 feet to a point, Thence, South 00°58'41" East, 436.43 feet to a point; Thence, South 34°12'20" East, 445.67 feet to a point, being the **True Point of Beginning**, and having an area of 9.526 Acres, more or less.

Together with the following area located within the public right of way of Olive Chapel Road

Beginning at an Existing Iron Pipe located at the Southwest corner of Lot 1, “William E. Gerringer Subdivision”, Recorded at Map Book 1982, Page 24, Wake County Registry. Said Existing Iron Pipe having North Carolina Geodetic Coordinates (NAD 83, 2011) N: 719,823.90’, E: 2,025,316.49’ Said point is also located on the Northern Margin of Olive Chapel Road, Thence, following the Northern Margin of Olive Chapel Road; South 70°32'42" West, 65.39 feet to a point; Thence, South 70°31’17” West, 649.92 feet to a point, said point being the **True Point of Beginning.**
Thence, South 34°12'20" East, 31.27 feet to a point; Thence, South 70°19'56" West, 702.77 feet to a point; Thence, North 02°31'13" East, 32.69 feet to a New Iron Pipe; Thence, North 70°19'56" East, 682.58 feet to a point; being the **True Point of Beginning**, and having an area of 0.481 Acres (20,967 sf), more or less.

Legal description for Tract 3 Hackney Property

Beginning at an Existing Iron Pipe located at the Southwest corner of Lot 1, “William E. Gerringer Subdivision”, Recorded at Map Book 1982, Page 24, Wake County Registry. Said Existing Iron Pipe having North Carolina Geodetic Coordinates (NAD 83, 2011) N: 719,823.90’, E: 2,025,316.49’ Said point is also located on the Northern Margin of Olive Chapel Road, Thence, following the Northern Margin of Olive Chapel Road; South 70°32'42" West, 65.39 feet to a point; Thence, Leaving said Right of Way, North 09°38'52" West, 536.92 feet to a point; Thence, South 78°41'14" West, 566.96 feet to a point; Thence, North 11°18'46" West, 791.04 feet to a point; Thence, North 78°41'14" East, 615.50 feet to an Existing Iron Pipe; Thence, South 11°18'46" East, 500.58 feet to an Existing Iron Pipe; Thence, South 11°21'53" East, 392.29 feet to an Existing Iron Pipe; Thence, South 11°20'41" East, 425.59 feet to an Existing Iron Pipe, being the Point of **Beginning**, and having an area of 11.871 Acres, more or less.

Together with the following area located within the public right of way of Olive Chapel Road

Beginning at an Existing Iron Pipe located at the Southwest corner of Lot 1, “William E. Gerringer Subdivision”, Recorded at Map Book 1982, Page 24, Wake County Registry. Said Existing Iron Pipe having North Carolina Geodetic Coordinates (NAD 83, 2011) N: 719,823.90’, E: 2,025,316.49’ Said point is also located on the Northern Margin of Olive Chapel Road; Thence, South 11°20'41" East, 30.29 feet to a point; Thence, South 70°32'42" West, 66.30 feet to a point; Thence, North 09°38'52" West, 30.43 feet to a point; Thence, North 70°32'42" East, 65.39 feet to an Existing Iron Pipe, being the Point of Beginning, and having an area of 0.045 acres (1,975 sf), more or less.

AGENT AUTHORIZATION FORM

Application #: 20CZ14 Submittal Date: 11-2-20

Hackney, Judy G is the owner* of the property for which the attached application is being submitted:

- ☐ Land Use Amendment
- ☑ Rezoning: For Conditional Zoning and Planned Development rezoning applications, this authorization includes express consent to zoning conditions that are agreed to by the Agent which will apply if the application is approved.
- ☐ Site Plan
- ☑ Subdivision
- ☐ Variance
- ☐ Other:

The property address is: 0 Olive Chapel Road (PIN 0722411102)

The agent for this project is: WithersRavenel

☐ I am the owner of the property and will be acting as my own agent

Agent Name: Brendie Vega

Address: 137 S. Wilmington Street, Suite 200

Telephone Number: 919.535.5212

E-Mail Address: bvega@withersravenel.com

Signature(s) of Owner(s)*

Judy G. Hackney

Judy G. Hackney — Type or print name

Oct 27, 2020 — Date

Type or print name

Date

Attach additional sheets if there are additional owners.

*Owner of record as shown on the latest equalized assessment rolls of Wake County. An option to purchase does not constitute ownership. If ownership has been recently transferred, a copy of the deed must accompany this authorization.

Pursuant to Article 40 of Chapter 66 of the North Carolina General Statutes (the Uniform Electronic Transactions Act) this application and all documents related hereto containing an electronic or digitized signature are legally binding in the same manner as are hard copy documents executed by hand signature. The parties hereby consent to use electronic or digitized signatures in accordance with the Town's Electronic Signature Policy and intend to be bound by the application and any related documents. If electronic signatures are used the application shall be delivered in an electronic record capable of retention by the recipient at the time of receipt.

AGENT AUTHORIZATION FORM

Application #: 20CZ14 Submittal Date: 11-2-20

Hackney, Charles Leon Hackney, Judy G is the owner* of the property for which the attached application is being submitted:

- ☐ Land Use Amendment
- ☑ Rezoning: For Conditional Zoning and Planned Development rezoning applications, this authorization includes express consent to zoning conditions that are agreed to by the Agent which will apply if the application is approved.
- ☐ Site Plan
- ☑ Subdivision
- ☐ Variance
- ☐ Other:

The property address is: 2500 Olive Chapel Road (PIN 0722406699)

The agent for this project is: WithersRavenel

☐ I am the owner of the property and will be acting as my own agent

Agent Name: Brendie Vega

Address: 137 S. Wilmington Street, Suite 200

Telephone Number: 919.535.5212

E-Mail Address: bvega@withersravenel.com

Signature(s) of Owner(s)*

v Charles Leon Hackney, Sr

Charles Leon Hackney — Type or print name — Oct 27, 2020 — Date

v Judy G. Hackney

Judy G. Hackney — Type or print name — Oct 27, 2020 — Date

Attach additional sheets if there are additional owners.

*Owner of record as shown on the latest equalized assessment rolls of Wake County. An option to purchase does not constitute ownership. If ownership has been recently transferred, a copy of the deed must accompany this authorization.

Pursuant to Article 40 of Chapter 66 of the North Carolina General Statutes (the Uniform Electronic Transactions Act) this application and all documents related hereto containing an electronic or digitized signature are legally binding in the same manner as are hard copy documents executed by hand signature. The parties hereby consent to use electronic or digitized signatures in accordance with the Town's Electronic Signature Policy and intend to be bound by the application and any related documents. If electronic signatures are used the application shall be delivered in an electronic record capable of retention by the recipient at the time of receipt.

AGENT AUTHORIZATION FORM

Application #: 20CZ14 Submittal Date: 11-2-20

Goodwin, Edwin A is the owner* of the property for which the attached application is being submitted:

- ☐ Land Use Amendment
- ☑ Rezoning: For Conditional Zoning and Planned Development rezoning applications, this authorization includes express consent to zoning conditions that are agreed to by the Agent which will apply if the application is approved.
- ☐ Site Plan
- ☑ Subdivision
- ☐ Variance
- ☐ Other:

The property address is: 2600 Olive Chapel Road (PIN 0721492629)

The agent for this project is: WithersRavenel

☐ I am the owner of the property and will be acting as my own agent

Agent Name: Brendie Vega

Address: 137 S. Wilmington Street, Suite 200

Telephone Number: 919.535.5212

E-Mail Address: bvega@withersravenel.com

Signature(s) of Owner(s)*

✓ Judy G. Hackney, Trustee

Judy G. Hackney, Trustee of the Edwin A. Goodwin Testamentary Trust — Type or print name — Date

Charles Leon Hackney, Sr.

✓ Charles Leon Hackney, Sr. — Type or print name — Oct 27, 2020 — Date

Attach additional sheets if there are additional owners.

*Owner of record as shown on the latest equalized assessment rolls of Wake County. An option to purchase does not constitute ownership. If ownership has been recently transferred, a copy of the deed must accompany this authorization.

Pursuant to Article 40 of Chapter 66 of the North Carolina General Statutes (the Uniform Electronic Transactions Act) this application and all documents related hereto containing an electronic or digitized signature are legally binding in the same manner as are hard copy documents executed by hand signature. The parties hereby consent to use electronic or digitized signatures in accordance with the Town's Electronic Signature Policy and intend to be bound by the application and any related documents. If electronic signatures are used the application shall be delivered in an electronic record capable of retention by the recipient at the time of receipt.

AFFIDAVIT OF OWNERSHIP

Application #: 20CZ14 Submittal Date: 11-2-20

The undersigned, Judy G. Hackney (the "Affiant") first being duly sworn, hereby swears or affirms as follows:

1. Affiant is over eighteen (18) years of age and authorized to make this Affidavit. The Affiant is the sole owner, or is the authorized agent of all owners, of the property located at _____ and legally described in **Exhibit "A"** attached hereto and incorporated herein (the "Property").

2. This Affidavit of Ownership is made for the purpose of filing an application for development approval with the Town of Apex.

3. If Affiant is the owner of the Property, Affiant acquired ownership by deed, dated _____, and recorded in the Wake County Register of Deeds Office on _____, in Book _____ Page _____.

4. If Affiant is the authorized agent of the owner(s) of the Property, Affiant possesses documentation indicating the agency relationship granting the Affiant the authority to apply for development approval on behalf of the owner(s).

5. If Affiant is the owner of the Property, from the time Affiant was deeded the Property on _____, Affiant has claimed sole ownership of the Property. Affiant or Affiant's predecessors in interest have been in sole and undisturbed possession and use of the property during the period of ownership. Since taking possession of the Property on _____, no one has questioned Affiant's ownership or right to possession nor demanded any rents or profits. To Affiant's knowledge, no claim or action has been brought against Affiant (if Affiant is the owner), or against owner(s) (if Affiant is acting as an authorized agent for owner(s)), which questions title or right to possession of the property, nor is any claim or action pending against Affiant or owner(s) in court regarding possession of the Property.

This the 27 day of October, 2020.

Judy G. Hackney (seal)

Judy G. Hackney individually and as Trustee

Type or print name

Charles Leon Hackney, Sr.

STATE OF NORTH CAROLINA
COUNTY OF Wake

I, the undersigned, a Notary Public in and for the County of Wake, hereby certify that Judy G. Hackney and Charles Leon Hackney Sr. Affiant, personally known to me or known to me by said Affiant's presentation of said Affiant's N/A personally appeared before me this day and acknowledged the due and voluntary execution of the foregoing Affidavit.

PAUL STANLEY NOTARY PUBLIC WAKE COUNTY, NC My Commission Expires 05-08-2024

[NOTARY SEAL]

Notary Public
State of North Carolina
My Commission Expires: May 8, 2024

TOWN OF APEX UTILITIES OFFER AND AGREEMENT

Application #: 20CZ14 Submittal Date: 11-2-20

Town of Apex
73 Hunter Street
P.O. Box 250 Apex, NC 27502
919-249-3400

WAKE COUNTY, NORTH CAROLINA CUSTOMER SELECTION AGREEMENT

Wake County PINs: 0721492629, 0722411102, 0722406699

0, 2500, 2600 Olive Chapel Road

(the "Premises")

The Town of Apex offers to provide you with electric utilities on the terms described in this Offer & Agreement. If you accept the Town's offer, please fill in the blanks on this form and sign and we will have an Agreement once signed by the Town.

Hackney, Judy et al, the undersigned customer ("Customer") hereby irrevocably chooses and selects the Town of Apex (the "Town") as the permanent electric supplier for the Premises. Permanent service to the Premises will be preceded by temporary service if needed.

The sale, delivery, and use of electric power by Customer at the Premises shall be subject to, and in accordance with, all the terms and conditions of the Town's service regulations, policies, procedures and the Code of Ordinances of the Town.

Customer understands that the Town, based upon this Agreement, will take action and expend funds to provide the requested service. By signing this Agreement the undersigned signifies that he or she has the authority to select the electric service provider, for both permanent and temporary power, for the Premises identified above.

Any additional terms and conditions to this Agreement are attached as Appendix 1. If no appendix is attached this Agreement constitutes the entire agreement of the parties.

Acceptance of this Agreement by the Town constitutes a binding contract to purchase and sell electric power.

Please note that under North Carolina General Statute §160A-332, you may be entitled to choose another electric supplier for the Premises.

Upon acceptance of this Agreement, the Town of Apex Electric Utilities Division will be pleased to provide electric service to the Premises and looks forward to working with you and the owner(s).

ACCEPTED:

CUSTOMER: Hackney, Judy, et. al

BY: Brendie Vega (Brendie Vega)
Authorized Agent

DATE: 11/2/2020

TOWN OF APEX

BY: _____
Authorized Agent

DATE: _____

DEVELOPMENT NAME APPROVAL APPLICATION

Application #: 20CZ14 Submittal Date: 11-2-20

Fee for Initial Submittal: No Charge Fee for Name Change after Approval: $500*

Purpose

To provide a consistent and clearly stated procedure for the naming of subdivisions and/or developments and entrance roadways (in conjunction with *Town of Apex Address Policy*) so as to allow developers to define and associate the theme or aesthetics of their project(s) while maintaining the Town's commitment to preserving the quality of life and safety for all residents of Apex proper and extraterritorial jurisdiction.

Guidelines

- ✓ The subdivision/development name shall not duplicate, resemble, or present confusion with an existing subdivision/development within Apex corporate limits or extraterritorial jurisdiction except for the extension of an existing subdivision/development of similar or same name that shares a continuous roadway.
- ✓ The subdivision/development name shall not resemble an existing street name within Apex corporate limits or extraterritorial jurisdiction unless the roadway is a part of the subdivision/development or provides access to the main entrance.
- ✓ The entrance roadway of a proposed subdivision/development shall contain the name of the subdivision/development where this name does not conflict with the Town of Apex *Road Name Approval Application* and *Town of Apex Address Policy* guidelines.
- ✓ The name "Apex" shall be excluded from any new subdivision/development name.
- ✓ Descriptive words that are commonly used by existing developments will be scrutinized more seriously in order to limit confusion and encourage distinctiveness. A list of commonly used descriptive words in Apex's jurisdiction is found below.
- ✓ The proposed subdivision/development name must be requested, reviewed and approved during preliminary review by the Town.
- ✓ A $500.00 fee will be assessed to the developer if a subdivision/development name change is requested after official submittal of the project to the Town.*

*The imposed fee offsets the cost of administrative changes required to alleviate any confusion for the applicant, Planning staff, other Town departments, decision-making bodies, concerned utility companies and other interested parties. There is no charge for the initial name submittal.

Existing Development Titles, Recurring

	Residential	Non-Residential
10 or more	Creek, Farm(s), Village(s),	Center/Centre
6 to 9	Crossing(s), Park, Ridge, Wood(s)	Commons, Park
3 to 5	Acres, Estates, Glen(s), Green•, Hills	Crossing(s), Plaza, Station, Village(s)

•excludes names with Green Level

CERTIFIED LIST OF NEIGHBORING PROPERTY OWNERS

Application #: _____ Submittal Date: 11-2-20

Provide a certified list of property owners subject to this application and all property owners within 300' of the subject property and HOA Contacts.

	Owner's Name	PIN
1.	See Attachment.	
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

I, Brendie Vega, certify that this is an accurate listing of all property owners and property owners within 300' of the subject property.

Date: 11/2/2020 By: Brendie Vega

COUNTY OF WAKE STATE OF NORTH CAROLINA

Sworn and subscribed before me, Jeri Chastain Pederson, a Notary Public for the above State and County, on this the 2 day of November, 2020.

Jeri Chastain Pederson
Notary Public

Jeri Chastain Pederson
Print Name

SEAL

JERI CHASTAIN PEDERSON
Notary Public
Wake County, North Carolina
My Commission Expires
March 10, 2024

My Commission Expires: 03/10/2024

Certified List of Neighboring Property Owners		
#	OWNER	PIN
1	GARWOOD, MARGARET GARWOOD, JOHN J	721396377
2	CENIS, NATHAN T CENIS, EMILY ANNE	721396585
3	HURLEY, SONIA R HURLEY, ROBERT	721397152
4	HORNEY, DIANNA HORNEY, JOEY MICHAEL	721397339
5	SMITH FARM OF APEX HOMEOWNERS ASSOCIATION, INC.	721397362
6	RILEY, JAMES EDWARD JR DODSON, JILLIAN SMITH	721397491
7	KOSHY, SIBY VARKEY KOSHY, THARU SARA	721397536
8	ZHOU, QUAN LIU, SHUZHANG	721397599
9	LABRU, VINEET UCHIL, SHRUTI KARUNAKAR	721398442
10	KONAKATI, VIKRAM BHIMAVARAPU, PRATHYUSHA	721399015
11	SAMPATH, PRABHU PRABHU, DEEPA	721399121
12	MATTHEWS, JOHN HENRY III	721399127
13	ARCADIA RIDGE HOMEOWNERS ASSOCIATION, INC.	721399233
14	LACOSTE, FABRICE SANROMAN, STEPHANIE	721399404
15	DE SOUSA, ALDO SILVIO CARNEIRO	721399466
16	LEDESMA, FELIPE ATENCIO, IBELISE MARIA	721399630
17	MARKS, REBECCA R MARKS, JONATHAN A	721399646
18	RUBIN, BEVERLY L	721482119
19	AUSTVOLD, SHAWN AUSTVOLD, JENNIFER	721491084
20	RILEY'S POND HOMEOWNERS ASSOCIATION INC	721491103
21	CAVERO, CLAUDIA MARIANA BENAVIDES	721491270
22	RILEY'S POND HOMEOWNERS ASSOCIATION INC	721491342
23	LEWIS, ANGEL SPENCE LEWIS, COURTNEY DEVON	721492100
24	RILEY'S POND HOMEOWNERS ASSOCIATION INC	721492366
25	WEBB, XAVIER JOHAN	721492372
26	JOYCE, JOHN D JOYCE, ROSEMARY	721493109
27	ALJADER, MAYSAM ALJADER, LORI	721493206
28	LEARY, BRAD LEARY, BRENDA	721494283
29	BAKER, SCOTT J BAKER, MARLO L H	721495137
30	SMITH FARM OF APEX HOMEOWNERS ASSOCIATION, INC.	721396648
31	RAJAN, SUNIL KUMAR OLIPARAMBIL PREMRAJ, RITHU	721396847
32	GANJI, BHAGYA LATHA RAMPA, IMMANUEL	721396870
33	GARABEDIAN, MATTHEW KANG, EY JUNG	721396975
34	BALAPURE, LAXMIKANT MALVI, VISHAKHA	721397746
35	ESBJORN, ROBERT ESBJORN, AUDREY	721397948
36	CHEN, DANDAN WANG, YANG	721398717
37	MCCALL, NATHAN RF GIULIANI, TRACY J	721398917
38	SIDDIQUI, ALI SIDDIQUI, TARANNUM	721399742
39	PANDEY, ROSHAN RAJ	721399757
40	WILSON, BENJAMIN THOMAS THOMAS, JULIE ELIZABETH	721399853
41	PANDEY, NAMIT JOSHI, TARA	721399859
42	BRUMFIELD, RYAN MATTHEW BRUMFIELD, AMANDA PLOCH	721399954
43	MOCK, CHRISTOPHER RICHARD MOCK, ELENA BARRIO	721399969
44	BOLJESIC, JONATHON ELLIS BOLJESIC, VINCA PURI	721494337
45	MARTIN, JOANNE H	721494350

Certified List of Neighboring Property Owners		
#	OWNER	PIN
46	RILEY'S POND HOMEOWNERS ASSOCIATION INC	721494411
47	DONALDSON, MARK R DONALDSON, HEATHER M	721495361
48	GOTUR, RAGHAVENDER THAMMISETTY, RADHIKA	721495379
49	KENT, THOMAS L. KENT, LEIGH R.	721496224
50	CHOI, KENNY JUNG, JIN	721496464
51	SINGH, SUNIL SINGH, PANCHALI	721497298
52	LEDESMA, ROBERTO LEDESMA, CARMEN	721497385
53	RILEY'S POND HOMEOWNERS ASSOCIATION INC	721497414
54	KUMAR VARMA, CHITRA DILEEP ADUKKATH, BISHAK	721497452
55	KNAPP, GEARY W KNAPP, SUSAN	721499346
56	LENNAR CAROLINAS, LLC	722219077
57	LENNAR CAROLINAS, LLC	722229350
58	LENNAR CAROLINAS, LLC	722303175
59	SMITH FARM OF APEX HOMEOWNERS ASSC INC	722303478
60	BAITER, STEVE MICHAEL BAITER, REAGAN	722303663
61	JOSEPH, BIKKU B VALIYAVEETIL, SAJIN J	722303770
62	BROCK, SIMON PAUL BROCK, ELISA SAYURI JISAK	722303779
63	NICOLAU, DANIEL NICOLAU, MARIA SIMONA	722303837
64	SANDBERG, GEOFFREY ERIK SANDBERG, RACHEL ANN	722304905
65	PITMAN, WESLEY SZYDLOWSKI, JESSICA	722305447
66	DYK, SHAUN M BIGELOW DYK, MELINDA M	722305656
67	SMITH FARM OF APEX HOMEOWNERS ASSOCIATION, INC.	722309093
68	PIKULIK, KENNETH CHARLES GUARD-PIKULIK, MEGAN THAYER	722313076
69	KLEIN, CAROLINE KLEIN, STEVEN	722327144
70	FEDERICO, MICHELLE EDERY, ARIEL	722327201
71	SWEETWATER PROPERTY OWNERS ASSOCIATION, INC	722327341
72	RUTIGLIANO, JOHN P RUTIGLIANO, KAREN E	722327354
73	PAYNE, DEAN ALAN PAYNE, LISA O'HARA	722327358
74	CLEARY, MICHAEL CLEARY, MAUREEN	722327452
75	FERGUSON, MICHAEL R FERGUSON, JESSICA J	722327455
76	FAIRHURST, JOSHUA FAIRHURST, AMANDA L	722327459
77	DUFFMAN, MARY WEBB	722329579
78	BENNETT, JESSICA SOPHIA BENNETT, RYAN CLARK	722416567
79	SMITH, SCOTT ROBERT SMITH, KIMBERLY DAWN	722416644
80	CRESCENT APEX LLC	722416751
81	CRESCENT APEX LLC	722416778
82	CRESCENT APEX LLC	722416847
83	VLADIMIROVA, ANNA V HOBBS, MERLIN E	722417467
84	DUDDUKURI, VENKATA SANDEEP KUMAR ALLU, SOWMYA	722417511
85	CRESCENT APEX LLC	722418579
86	CRESCENT APEX LLC	722418624
87	CRESCENT APEX LLC	722419526
88	CRESCENT APEX LLC	722419572
89	CRESCENT APEX LLC	722419696

Certified List of Neighboring Property Owners		
#	OWNER	PIN
90	LAHRMAN, GREGORY E TRUSTEE GREGORY E. LAHRMAN REVOCABLE LIVING TRUST	722420650
91	SWEETWATER PROPERTY OWNERS ASSOCIATION, INC	722421400
92	FUNNA, KUCHI FUNNA, KUCHI M	722421612
93	CRESCENT APEX LLC	722424038
94	CRESCENT APEX LLC	722429361
95	PILLA, ANTHONY MICHAEL PILLA, ANGELA	722510428
96	ASPNES, DAVID E BALL, CYNTHIA J	721487120
97	GOODWIN, EDWIN A	721492629
98	FOSTER FARM LLC	721585231
99	MICHALSKI, TIMOTHY MICHALSKI, RHIANNON	721590573
100	FOSTER FARM LLC	721592562
101	FOSTER, FRANK A COPELAND, REBECCA	721595134
102	HACKNEY, CHARLES LEON HACKNEY, JUDY G	722406699
103	HACKNEY, JUDY G	722411102
104	CRESCENT APEX LLC	722418369
105	PALANIAPPAN, RAMANATHAN VIJAYAKUMAR, HARIPRABHA	722418413
106	CRESCENT APEX LLC	722419315
107	MULLEN, RICHARD ANDREW MULLEN, ELIZABETH CATHERINE	722419361
108	PERKINS, ELIZABETH E	722503152
109	BASS, MICHAEL E BASS, SHERRIE L	722503445
110	BASS, MICHAEL E	722505167
111	DUGGAN, KIM-MARIE DUGGAN, DOMINICK	722510237
112	CRESCENT APEX LLC	722510474
113	MONGONE, MERRIDITH MONGONE, FRANK	722511203
114	CRESCENT APEX LLC	722511431
115	CRESCENT APEX LLC	722512006
116	TRUSTEES OF THE PINOT PARTNERS REVOCABLE LIVING TR	722512179
117	OGNIBENE, DOMINICK OGNIBENE, MARIE ELENA	722512201
118	CRESCENT APEX LLC	722513145
119	CRESCENT APEX LLC	722513341
120	CRESCENT APEX LLC	722514101
121	CRESCENT APEX LLC	722528250

DEVELOPMENT NAME APPROVAL APPLICATION

Application #: 20CZ14 Submittal Date: 11-2-20

Proposed Subdivision/Development Information

Description of location: 2600, 2500, & 0 Olive Chapel Road

Nearest intersecting roads: Olive Chapel Road / Kythira Drive

Wake County PIN(s): 0721492629, 0722406699, & 0722411102

Township: Apex

Contact Information (as appropriate)

Contact person: Brendie Vega

Phone number: 919.535.5212 Fax number:

Address: 137 S. Wilmington Street, Suite 200

E-mail address: bvega@withersravenel.com

Owner:

Phone number: Fax number:

Address:

E-mail address:

Proposed Subdivision/Development Name

1st Choice: TBD at time of Subdivision

2nd Choice *(Optional)*:

Town of Apex Staff Approval:

Town of Apex Planning Department Staff Date

NOTICE OF ELECTRONIC NEIGHBORHOOD MEETING

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

10/16/2020
Date

Dear Neighbor:
You are invited to an electronic neighborhood meeting to review and discuss the development proposal at

2600, 2500, and 0 Olive Chapel Road — Address(es)

0721492629, 0722406699, & 0722411102 — PIN(s)

in accordance with the Town of Apex Electronic Neighborhood Meeting procedures. This meeting is intended to be a way for the applicant to discuss the project and review the proposed plans with adjacent neighbors and neighborhood organizations before the submittal of an application to the Town. This provides neighbors an opportunity to raise questions and discuss any concerns about the impacts of the project before it is officially submitted. If you are unable to attend, you may contact the applicant before or after the meeting is held. Once an application has been submitted to the Town, it may be tracked using the Interactive Development Map or the Apex Development Report located on the Town of Apex website at www.apexnc.org. If at all feasible given emergency declarations, limits on in-person gatherings, and social distancing, an additional in-person Neighborhood Meeting may be scheduled and held prior to a public hearing or staff decision on the application.

An Electronic Neighborhood Meeting is required because this project includes (check all that apply):

	Application Type	Approving Authority
☒	Rezoning (including Planned Unit Development)	Town Council
☐	Major Site Plan	Town Council (QJPH*)
☐	Special Use Permit	Town Council (QJPH*)
☐	Residential Master Subdivision Plan (excludes exempt subdivisions)	Technical Review Committee (staff)

*Quasi-Judicial Public Hearing: The Town Council cannot discuss the project prior to the public hearing.

The following is a description of the proposal (also see attached map(s) and/or plan sheet(s)):

This project involves the proposed rezoning of parcels zoned RR and R-80W to be zoned to PUD-CZ.

The proposed development is intended to be a residential development with a mix of housing products.

(A concept plan will be posted on the project website the day of the meeting.)

Estimated submittal date: 11.02.2020

MEETING INFORMATION:

Property Owner(s) name(s):	Goodwin, Edwin A; Hackney, Charles Leon Hackney, Judy G; & Hackney, Judy G
Applicant(s):	WithersRavenel
Contact information (email/phone):	bvega@withersravenel.com / 919.535.5212
Electronic Meeting invitation/call in info:	Meeting Website: https://withersravenel.com/meeting/hackney-tracts-rezoning-neighborhood-meeting/ Call-In Option: 1-415-655-0001 Event number: 171 659 8744
Date of meeting**:	10.29.2020
Time of meeting**:	5:00pm - 7:00pm

MEETING AGENDA TIMES:

Welcome: 5:00pm Project Presentation: 5:10pm Question & Answer: 6:30pm

**Meetings shall occur between 5:00 p.m.-9:00 p.m. on a Monday through Thursday (excluding Town recognized holidays). If you have questions about the general process for this application, please contact the Planning Department at 919-249-3426. You may also find information about the Apex Planning Department and on-going planning efforts at http://www.apexnc.org/180/Planning.

PROJECT CONTACT INFORMATION

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Development Contacts:

Project Name: Hackney Tracts Zoning: RR & R-80W (Prop. PUD-CZ)

Location: 2600, 2500, & 0 Olive Chapel Road

Property PIN(s): 0721492629, 0722406699, & 0722411102 Acreage/Square Feet: 79.79 ac. / 3,475,652 sq. ft.

Property Owner: Goodwin, Edwin A; Hackney, Charles Leon Hackney, Judy G; & Hackney, Judy G

Address: 2505 Olive Chapel Road

City: Apex State: NC Zip: 27502

Phone: Email:

Developer: Glenda S. Toppe and Associates

Address: 4139 Gardenlake Drive

City: Raleigh State: NC Zip: 27612

Phone: Fax: Email:

Engineer: WithersRavenel

Address: 137 S. Wilmington Street, Suite 200

City: Raleigh State: NC Zip: 27601

Phone: 919.535.5212 Fax: Email: bvega@withersravenel.com

Builder (if known):

Address:

City: State: Zip:

Phone: Fax: Email:

Please note that Town staff will not have complete information about a proposed development until the application is submitted for review. If you have a question about Town development standards and how they relate to the proposed development, please contact the appropriate staff person listed below.

Town of Apex Department Contacts

Planning Department Main Number (Provide development name or location to be routed to correct planner)	(919) 249-3426
Parks, Recreation & Cultural Resources Department Angela Reincke, Parks Planner	(919) 249-7468
Public Works - Transportation Russell Dalton, Senior Transportation Engineer	(919) 249-3358
Water Resources Department Jessica Bolin, Senior Engineer (Stormwater, Sedimentation & Erosion Control) Stan Fortier, Senior Engineer (Stormwater, Sedimentation & Erosion Control) James Gregg, Utility Engineer (Water & Sewer)	 (919) 249-3537 (919) 249-1166 (919) 249-3324
Electric Utilities Division Rodney Smith, Electric Technical Services Manager	(919) 249-3342

Providing Input to Town Council:

Each Town Council meeting agenda includes a Public Forum time when anyone is permitted to speak for three (3) minutes on any topic with the exception of items listed as Public Hearings for that meeting. The Town Council meets on the 1st and 3rd Tuesdays of each month at 6:00 p.m. (except for holidays, see schedule of meetings at http://www.apexnc.org/838/Agendas-Minutes). You may also contact Town Council by e-mail at AllCouncil@apexnc.org.

Private Agreements and Easement Negotiation:

The Town of Apex cannot enforce private agreements between developers and neighbors and is not a party to the easement and right-of-way negotiation that occurs between developers and neighboring property owners for easements or rights-of-way that are necessary to build the project.

It is recommended that all private agreements be made in writing and that if a property owner feels it necessary, they should obtain private legal counsel in order to protect their interests in both private agreements and during easement negotiations. The only conditions that the Town of Apex can enforce are those conditions that are made a part of the conditional zoning of the property by agreement of the developer and the Town.

As an example, if a developer offers to build a fence for a neighbor to mitigate some impact, the Town can only enforce the construction of the fence if the fence becomes a condition of the rezoning. This would occur by the developer offering the condition as part of their conditional zoning application package or at the Town Council public hearing on the conditional zoning and the Town accepting it as a condition. Private agreements regarding a fence being constructed will not be enforced by the Town.

To request that any agreement with a developer is made a part of the conditional zoning at the time of approval, you may ask at the Town Council public hearing if the agreement is included in the conditions. If it is not, you may request that the Town Council not approve the rezoning without the agreement being included in the conditions (note that it is up to Town Council whether to approve or deny the rezoning but they cannot impose conditions that the applicant does not agree to add). The developer's proposed conditions can be viewed any time after a rezoning is submitted on the Interactive Development Map at: http://apexnc.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=fa9ba2017b784030b15ef4da27d9e795

Documentation:

Neighbors to a requested new development and/or rezoning are strongly encouraged to fully document (such as through dated photographs) the condition of their property before any work is initiated for the new development. Stormwater controls installed on developed property are not designed to and will likely not remove 100% of the soil particles transported by stormwater runoff. As a result, creeks and ponds could become cloudy for a period of time after rain events.

COMMON CONSTRUCTION ISSUES & WHO TO CALL

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Noise & Hours of Construction: **Non-Emergency Police** **919-362-8661**

Noise from tree removal, grading, excavating, paving, and building structures is a routine part of the construction process. The Town generally limits construction hours from 7:00 a.m. to 8:30 p.m. so that there are quiet times even during the construction process. Note that construction outside of these hours is allowed with special permission from the Town when it makes more sense to have the construction occur at night, often to avoid traffic issues. In addition, the Town limits hours of blasting rock to Monday through Friday from 8:00 a.m. to 5:00 p.m. Report violations of construction hours and other noise complaints to the Non-Emergency Police phone number at 919-362-8661.

Construction Traffic: **James Misciagno** **919-372-7470**

Construction truck traffic will be heavy throughout the development process, including but not limited to removal of trees from site, loads of dirt coming in and/or out of the site, construction materials such as brick and wood brought to the site, asphalt and concrete trucks come in to pave, etc. The Town requires a construction entrance that is graveled to try to prevent as much dirt from leaving the site as possible. If dirt does get into the road, the Town can require they clean the street (see "Dirt in the Road" below).

Road Damage & Traffic Control: **Water Resources – Infrastructure Inspections** **919-362-8166**

There can be issues with roadway damage, roadway improvements, and traffic control. Potholes, rutting, inadequate lanes/signing/striping, poor traffic control, blocked sidewalks/paths are all common issues that should be reported to Water Resources – Infrastructure Inspections at 919-249-3427. The Town will get NCDOT involved if needed.

Parking Violations: **Non-Emergency Police** **919-362-8661**

Unless a neighbor gives permission, there should be no construction parking in neighbors' driveways or on their property. Note that parking in the right-of-way is allowed, but Town regulations prohibit parking within 15 feet of driveways so as not to block sight triangles. Trespassing and parking complaints should be reported to the Non-Emergency Police phone number at 919-362-8661.

Dirt in the Road: **James Misciagno** **919-372-7470**

Sediment (dirt) and mud gets into the existing roads due to rain events and/or vehicle traffic. These incidents should be reported to James Misciagno. He will coordinate the cleaning of the roadways with the developer.

Dirt on Properties or in Streams: **James Misciagno** **919-372-7470**
Danny Smith **Danny.Smith@ncdenr.gov**

Sediment (dirt) can leave the site and get onto adjacent properties or into streams and stream buffers; it is typically transported off-site by rain events. These incidents should be reported to James Misciagno at 919-372-7470 so that he can coordinate the appropriate repairs with the developer. Impacts to the streams and stream buffers should also be reported to Danny Smith (danny.smith@ncdenr.gov) with the State.

Dust: **James Misciagno** **919-372-7470**

During dry weather dust often becomes a problem blowing into existing neighborhoods or roadways. These incidents should be reported to James Misciagno at 919-372-7470 so that he can coordinate the use of water trucks onsite with the grading contractor to help control the dust.

Trash: **James Misciagno** **919-372-7470**

Excessive garbage and construction debris can blow around on a site or even off of the site. These incidents should be reported to James Misciagno at 919-372-7470. He will coordinate the cleanup and trash collection with the developer/home builder.

Temporary Sediment Basins: **James Misciagno** **919-372-7470**

Temporary sediment basins during construction (prior to the conversion to the final stormwater pond) are often quite unattractive. Concerns should be reported to James Misciagno at 919-372-7470 so that he can coordinate the cleaning and/or mowing of the slopes and bottom of the pond with the developer.

Stormwater Control Measures: **Jessica Bolin** **919-249-3537**

Post-construction concerns related to Stormwater Control Measures (typically a stormwater pond) such as conversion and long-term maintenance should be reported to Mike Deaton at 919-249-3413.

Electric Utility Installation: **Rodney Smith** **919-249-3342**

Concerns with electric utility installation can be addressed by the Apex Electric Utilities Department. Contact Rodney Smith at 919-249-3342.

Vicinity Exhibit

WithersRavenel
Our People. Your Success.

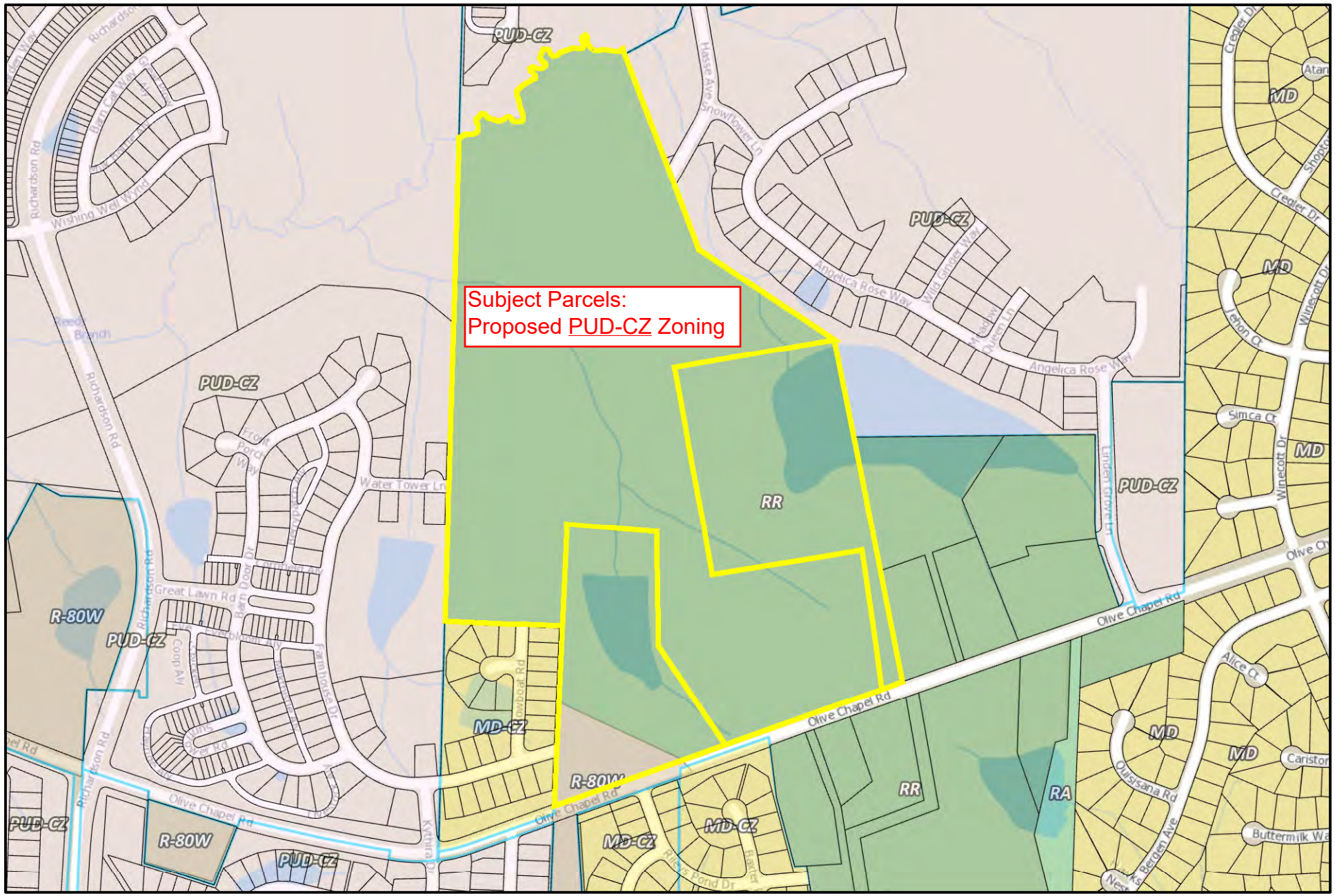
N

0 500 1,000 2,000 ft

1 inch = 1,000 feet

Disclaimer

*iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are **NOT** surveys. No warranties, expressed or implied ,are provided for the data therein, its use,or its interpretation.*



Zoning Exhibit

WithersRavenel
Our People. Your Success.

N

0 265 530 1,060 ft

1 inch = 500 feet

Disclaimer

*iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are **NOT** surveys. No warranties, expressed or implied ,are provided for the data therein, its use,or its interpretation.*

Hackney PUD Rezoning Neighborhood Meeting
Attendees

WithersRavenel
Our People. Your Success

Meeting Date: October 29th, 2020
Meeting Time: 5:00pm - 7:00pm

Attendance Count	First Name	Last Name	Affiliation	Email
1	Brendie	Vega	Project Team	[redacted]
2	Nick	Antrilli	Project Team	
3	Bryant	Inge	Project Team	
4	Glenda	Toppe	Project Team	
5	Daniel	Rauh	Project Team	
6	Jaime	Hackney	Neighbor	
7	Cynthia	Ball	Neighbor	
8	Jaime	Hackney	Neighbor	
9	Cynthia	Ball	Neighbor	
10	maysam	aljader	Neighbor	
11	Andrew	Suriano	Neighbor	
12	Randy	King	Neighbor	
13	Chris	Mock	Neighbor	
14	Melinda	Dyk	Neighbor	
15	David	Aspnes	Neighbor	
16	Ryan	Brumfield	Neighbor	
17	Thomas	Ball	Neighbor	
18	Kenny	Choi	Neighbor	
19	Beverly	Rubin	Neighbor	
20	Tracy	Giuliani	Neighbor	
21	Wes	Pitman	Neighbor	
22	Shruti	Uchil	Neighbor	
23	Maureen	Schmitt	Neighbor	
24	Fabrice	Lacoste	Neighbor	
25	Steven	McNally	Neighbor	
26	Felipe	Ledesma	Neighbor	
27	Pieter	de Ridder	Neighbor	

Hackney PUD Rezoning: Virtual Neighborhood Notification Meeting

October 29, 2020 5:00pm-7:00pm

Project Representatives:

- Brendie Vega
- Glenda Toppe
- Daniel Rauh
- Nick Antrilli
- Bryant Inge

Meeting Slides:

- Welcome
- Vicinity Map
- Jurisdiction Map
- Current Zoning
- Floodplains Map
- Future Land Use Map
- Future Transportation Maps
- Conceptual Layout
- Schedule of Project

Neighbor Questions:

Q: What does the MD-CZ zoning mean? Our house is within that so what does that mean for us?

A: Medium Density Conditional Zoning. Medium density residential zoning with specific conditions imparted on the land that are determined during the rezoning process. Your land is subject to the zoning conditions of the land.

Q: We live at 2800 Treeswing - what is happening with the piece of land behind us with the deer stand?

A: That is part of the rezoning parcels. Specific site features are not yet determined as we are early in the rezoning process.

Q: Is there any possibility the existing pond south of Hasse would be filled in?

A: It is too early to tell what features will be kept or modified on the site. There is no current intent to drain it.

Q: On the conceptual layout slide, are the lighter blue areas water retention ponds? If so, is it a city requirement that they would need to be fenced in for child safety?

A: There is no municipal requirement to fence these features.

Q: Will the 2 existing large ponds be accessible to the community?

A: It is too early to tell what the programming of the internal amenities will look like. Land will probably be turned over to the HOA.

Q: Where will the entrances be located on Olive Chapel Road? Will the road be widened?

A: The developer will be required to install ½ of the road widening as designated on the future transportation plan. The conceptual drawings show an early proposed entrance.

Q: When will a detailed road network and home layout be developed and available for review?

A: This will be up to the developers. If it happens soon, it would come out around the beginning of the year.

Q: (There were numerous questions concerning the internal connections within and throughout the site)

A: Using the Town of Apex Future Thoroughfare Map, we explained that the connections into and out of the site will be required to follow the transportation map. The conceptual layout demonstrated a conceptual internal roadway connection through the site.

Q: (There were multiple questions concerning when the project would begin.)

A: We expect the project to begin within 12 – 15 months, although this is dependent on many factors.

Q: I have a few questions. 1) is a builder planned yet. 2) We do not have a road ext sign on Water Tower Lane. We were told when we bought unless it was Lennar, other builders were not required to connect.

A: No builder planned yet. The developer generally will not have an impact on whether or not a road extension is provided. That is generally guided by the future transportation maps of the municipality.

Q: Will bordering communities have a say on the design of the community (location of Townhomes vs single family)?

A: Please reach out to us with your input and we will pass it along to the developer once one is identified.

Q: What are the construction hours in Apex.

A: 7:00am to 7:00pm during the normal work week. Weekends and holidays vary.

Q: What is going to happen to the trees in the lot?

A: There are no detailed plans for the site yet. There are certain environmental protection areas in place where trees will remain.

Q: There are some very old ok trees bordering hackney and Lennar preservation. Literally on the border. Greater than 50" diameter. Will these be preserved?

A: We are required to do a tree survey and protect trees above a certain caliper. Additionally, if the trees are located near the site border, then they should be protected.

Q: What elementary school would serve this community?

A: (Answered by another Neighbor) It's currently Olive Chapel (capped) followed by Salem (capped) and then Turner Creek.

Q: (There was a question concerning the western pond near Rowboat Road and future development.)

A: There is probably not going to be road or home development in that area, although there are no finalized plans at this time.

Q: Would perimeter buffers be maintained or would the development be opened up?

A: Buffers are required between neighborhoods.

WithersRavenel
Our People. Your Success.

Neighborhood Comments:

C: Don't fill the ponds.

C: Like to Like: Single-family should be designed adjacent to existing single-family homes.

C: Support townhomes along proposed main thoroughfare.

AFFIDAVIT OF CONDUCTING AN ELECTRONIC NEIGHBORHOOD MEETING AND ISSUES/RESPONSES SUBMITTAL

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

I, Brendie Vega, do hereby declare as follows:
Print Name

1. I have conducted an Electronic Neighborhood Meeting for the proposed Rezoning, Major Site Plan, Residential Master Subdivision Plan, or Special Use Permit in accordance with UDO Sec. 2.2.7 *Neighborhood Meeting*.

2. The meeting invitations were mailed to the Apex Planning Department, all property owners within 300 feet of the subject property and any neighborhood association that represents citizens in the area via first class mail a minimum of 10 days in advance of the Electronic Neighborhood Meeting.

3. The meeting was conducted via WebEx (indicate format of meeting) on 10/29/2020 (date) from 5 pm (start time) to 7 pm (end time).

4. I have included the mailing list, meeting invitation, attendance sheet issue/response summary, and zoning map/reduced plans with the application.

5. I have prepared these materials in good faith and to the best of my ability.

11/02/2020
Date

By: Brendie Vega

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Jeri Chastain Pederson, a Notary Public for the above State and County, on this the 2 day of November, 2020.

SEAL

JERI CHASTAIN PEDERSON
Notary Public
Wake County, North Carolina
My Commission Expires
March 10, 2024

Jeri Chastain Pederson
Notary Public

Jeri Chastain Pederson
Print Name

My Commission Expires: 03/10/2024

PD PLAN

Hackney Planned Unit Development

APEX, NORTH CAROLINA

APPLICANT

WithersRavenel
137 S Wilmington Street Suite 200
Raleigh, NC 27601

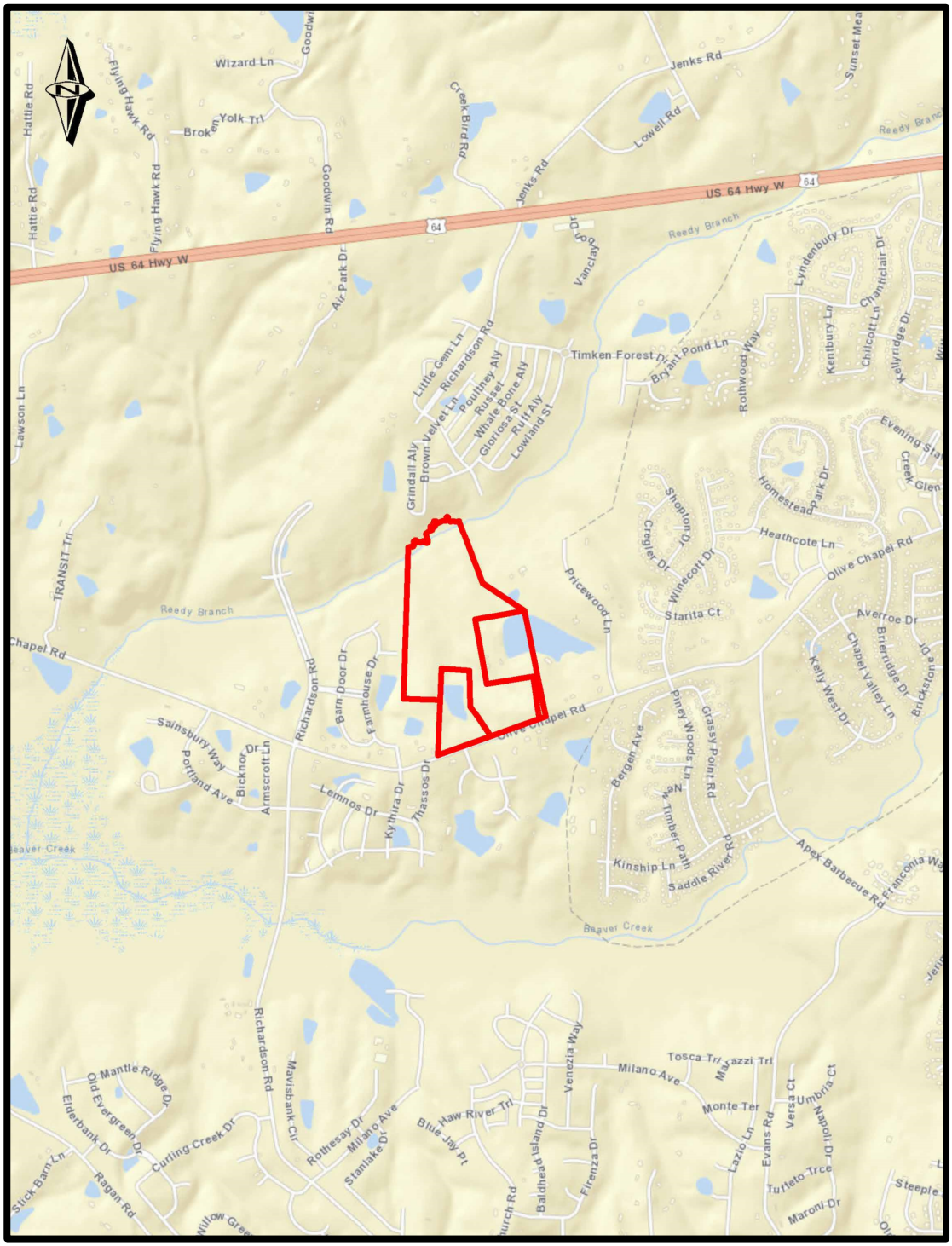
Date: March 24, 2021

WithersRavenel
Our People. Your Success.

TABLE OF CONTENTS

CONTENTS

1.0 VICINITY MAP



Project Parcels: Not to Scale

2.0 PROJECT DATA

Name of Project	Hackney Planned Unit Development	
PIN(s)	0721492629 0722406699 0722411102	
Preparer/Owner Information	Prepared by	WithersRavenel 137 S. Wilmington Street, Suite 200 Raleigh, NC 27601 Phone: 919.469.3340 Fax: 919.467.6008 Email: Brendie Vega, AICP, CNU-A bvega@withersravenel.com Bryant Inge, PE binge@withersravenel.com
	Owners	Hackney, Charles Leon Hackney, Judy G Goodwin, Edwin A 2505 Olive Chapel Rd Apex, NC 27502-6788
Current Zoning Designation	Rural Residential (RR) & Residential-80W (R-80W)	
Proposed Zoning Designation	Planned Unit Development (PUD-CZ)	
Current 2045 Land Use Map Designation	Medium Density Residential	
Proposed 2045 Land Use Map Designation	No Proposed Change (Medium Density)	
Area of Tracts (ac.)	10.01, 11.91, & 57.87 (73.64 ac. total)	

3.0 PROPOSED LIST OF USES

The Rezoned Lands may be used for, and only for, the uses listed immediately below. The permitted uses are subject to the limitations and regulations stated in the UDO and any additional limitations or regulations stated below. For convenience, some relevant sections of the UDO may be referenced; such references do not imply that other sections of the UDO do not apply.

Residential

- Single-Family
- Accessory Dwelling Unit
- Townhouse

Non-Residential

- Utility, Minor
- Greenway
- Park, Active
- Park, Passive

4.0 PURPOSE STATEMENT

The Hackney Planned Unit Development Conceptual Layout has been designed in order to help establish appropriately sized residential opportunities along Olive Chapel Road. Development is intended to reflect the neighboring residential communities in both density and product. This residential development philosophy is in line with the 2045 Apex Future Land Use Plan designation of “Medium Density Residential”. The site will provide a mixture of amenities and strategic infrastructure connections for future residents to navigate the community.

5.0 PROPOSED DESIGN AND ARCHITECTURAL CONTROLS

Maximum Densities (du/Acre)	3.5 du/acre		
Maximum Height of Buildings	50 feet		
Setbacks: Single-Family	Front: 5' from façade 20' from garage to back of sidewalk	Side: 5' Corner Side: 8'	Rear: 10'
Setbacks: Townhouse, Front loaded	Front: 10' from façade 20' from garage to back of sidewalk	Side: 5' Building to Building: 10'	Rear: 10'
Setbacks: Townhouse, Alley loaded	Front: 10' from façade	Side: 5' Building to Building: 10'	Rear: 5'
Amount and Percentage of Built Upon Area Allowed	70%		
Amount and Percentage of Proposed Built Upon Area (Max)	70%		

1. Vinyl siding is not permitted; however, vinyl windows, decorative elements and trim are permitted.
2. The roofline cannot be a single mass; it must be broken up horizontally and vertically between every unit.
3. Garage doors must have windows, decorative details or carriage-style adornments on them.
4. The rear and side elevations of the units that can be seen from the right-of-way shall have trim around the windows.

5. The visible side of a townhome on a corner lot facing the public street shall contain at least 2 decorative elements such as, but not limited to, the following elements:

- Windows
- Bay window
- Recessed window
- Decorative window
- Trim around the windows
- Wrap-around porch or side porch
- Two or more building materials
- Decorative brick/stone
- Decorative trim
- Decorative shake
- Decorative air vents on gables
- Decorative gable
- Decorative cornice
- Column
- Portico
- Balcony
- Dormer

6. The garage cannot protrude more than 1-foot from either the front façade or porch.

6.0 BUFFERS

Perimeter Buffers shall be designated as such:

North	100' Stream Buffer*
East	20' Type A Buffer
South	30' Type E Buffer**
West	20' Type A Buffer

* In addition to the 100' riparian buffer on the north, an additional 100' buffer will be established. This additional 100' may include utilities, trails and other active or passive recreation.

**A 30' Type B Buffer shall be provided if homes along Olive Chapel Road are not alley-loaded.

7.0 NATURAL RESOURCES AND ENVIRONMENT

Watershed

The Hackney Planned Unit Development is located within the Primary Watershed Protection Overlay District and is therefore subject to the requirements outlined in Section 6.1 of the Town of Apex Unified Development Ordinance.

Floodplain

The parcels that make up the Site do contain a small portion of FEMA designated 100-year floodplains near the site s northern termination according to FEMA FIRM Panel 3720072200J, effective 05/02/2006.

Resource Conservation

The Site is also subject to the Resource Conservation Area requirements outlined in the Town of Apex Unified Development Ordinance.

The PUD will meet the requirements of:

8.1.2.C.1 *Planned Developments.* The RCA for all planned developments shall be determined by the Town Council per Sec. 2.3.4.F.1.c and per Sec. 8.1.2.C.4, 5, 6, 7, or 10 as applicable.

8.1.2.C.4 *Development located south and west of NC 540.* All developments which do not meet the criteria of subsections 8.1.2.C.3 or 10 and which are located south and west of NC 540 shall provide buffers and RCA equal to or greater than 30% of the gross site acreage for single-family and townhome uses and 25% of the gross site acreage for multi-family, mixed-use, and non-residential uses.

Per UDO Section 7.2.5.B.8, if any mass grading is proposed in the single-family sections of the PUD, the following provision will apply to lot coverage area for single-family: An additional five percent (5%) Resource Conservation Area (RCA) shall be set aside. This requirement is added to the standard RCA percentage requirement found in Sec. 8.1.2.C Size of the RCA.

Tree Replanting

Existing deciduous trees greater than 18" in diameter (DBH), as identified in the tree survey, that are removed by site development shall be replaced by planting a 1.5" caliper native tree from the Town of Apex Design and Development Manual as a street tree or as other required landscaping. Excess required tree replacement will occur in common open space areas.

Clean Energy

Residential dwelling units will be provided with solar conduit to accommodate the future installation of solar panels.

If permitted by the electric company, the developer will install photo-voltaic solar panels on the pool house roof for connection to the electrical grid. The photo-voltaic system will be designed to produce 5 kilowatts. The system may be either owned or leased and will be turned over to the HOA.

Water Quality

Signs will be installed near SCMs in order to:

1. Reduce pet waste near SCM drainage areas.
2. Reduce fertilizer near SCM drainage areas.

Installation of Pet Waste Stations in common areas will occur within the neighborhood.

Planting and Landscaping

Install Warm Season grasses (Bermuda, Zoysia, etc) in lawn areas to reduce the need for irrigation and chemicals.

Install required Street Trees, Buffer and Re-Vegetation plantings that consist of a variety of native plant materials recognized by the New Hope Audubon Society or the NCSU manual for Landscaping for Wildlife with Native Plants as being bird and pollinator friendly; as allowed by the Town of Apex Design & Development Manual or approved by Apex Staff.

Specify pocket park plantings that are recognized by the NC Wildlife Federation as being Native Pollinator Plants as part of the Statewide Butterfly Highway initiative.

Include at least 4 native hardwood tree varieties in the proposed plantings, as allowed by the Apex Design and Development Manual.

Environmental Resources

The site will provide the following:

1. Purchase 20 bird houses from the New Hope Audubon Society (or other non-profit) and install in natural areas within the site.
2. Retain the 2 existing ponds if engineering studies confirm that the existing dams are structurally sound and meet regulatory requirements.

Historic Preservation

According to the North Carolina Historic Preservation Office s HPOWEB 2.0 Mapping application, there are no historic structures contained on the Site.

8.0 STORMWATER MANAGEMENT REQUIREMENTS

The parcels on which the development is proposed upon currently consist of a few existing structures, some cleared lands, and wooded lands. Two ponds exist on the parcels and drain to Reedy Branch Creek, eventually feeding into Jordan Lake. The proposed development plan will require stormwater management measures in accordance with Sections 6.1 and 7.5.7 in the Town of Apex Unified Development Ordinance. Stormwater captured on the site will be conveyed to proposed Stormwater Control Measures, which will be identified on plans during the major subdivision or site plan approval stage. Post-development peak runoff shall not exceed pre-development peak runoff for the 24-hour, 1-year and 10-year storm events in accordance with the Unified Development Ordinance. Treatment for the first 1-inch of runoff will be provided such that the removal of 85% Total Suspended Solids is achieved. All stormwater devices will meet the design requirements of NCDENR and the Town of Apex.

9.0 PARKS, RECREATION AND CULTURAL RESOURCES

The Apex Parks, Recreation and Cultural Resources Advisory Commission met on December 9, 2020 and unanimously recommended a fee-in-lieu of dedication with credit for construction of greenway which connects Sidepath along Hasse Ave to the west connecting to the Reedy Branch Greenway in Smith Farm. The fee rate will be set at the time of Town Council Review/ Approval and the credit for construction will be calculated prior to construction plan approval. Per the UDO Art 14, the greenway must be completed and accepted prior to 25% of the building permits for the project being issued.

10.0 PARKING AND LOADING

All parking provided on the Site will comply with the requirements outlined in Section 8.3 of the Town of Apex Unified Development Ordinance. Per 8.3.4(C) of the UDO, guest parking shall be designated within common areas and be distributed throughout residential projects. Striped on-street parking may be counted toward guest parking requirements. For Townhouse, guest parking shall be distributed so that there is at least one parking space within 200' of each townhouse lot.

11.0 SIGNAGE

All signage on the Site will comply with the requirements outlined in Section 8.7 of the Town of Apex Unified Development Ordinance.

12.0 PUBLIC FACILITIES REQUIREMENTS

All utilities shall meet the Town of Apex Master Utility Maps.

Sanitary Sewer Service

All on-site sanitary sewer lines will be extended to the property lines to allow future interconnectivity of properties. The design of the sanitary sewer will be according to the Town of Apex Engineering Standards and Specifications while accounting for downstream capacity and future upstream development. Sanitary Sewer easements will be established for public sewer outside of the Public R/W.

Gas

The Public Service Company of North Carolina (PSNC) will require a revenue analysis based on the proposed development in order to determine the applicable costs to the developer for installation of infrastructure.

Electric Service

The Site is in the service area of both the Town of Apex Electric Utilities and Progress Energy and the applicant will select the Town of Apex to serve as the electric provider.

Roadways

The Site will require an internal public roadway network and parking spaces. The onsite transportation circulation system shall be consistent with the Town of Apex Transportation Plan and the Town of Apex Standard Specifications and Standard Details and show required right-of-way widths and road sections.

Hasse Avenue will be constructed between Olive Chapel Road and its current terminus north of the project. Olive Chapel Road will be widened to include construction of a 100-foot eastbound left-turn lane with appropriate deceleration length and taper and a 100-foot westbound right-turn lane with appropriate deceleration length and taper subject to NCDOT review and approval. The Olive Chapel Road turn lane widening will be completed prior to platting Hasse Avenue access to Olive Chapel Road and the connection to Hasse Avenue north of the project will be completed prior to the last plat in the subdivision.

A 6-foot bike lane and 5-foot paved shoulder will be located on the north side of Olive Chapel Road per the bike/ped systems map.

Per the Long-Range Transportation Map, the following roadway sections apply to this development:

- Olive Chapel Road = 4-Lane with median, widening, 110' ROW, must provide 55' from centerline
- N/S = Future Major Collector, 60' ROW
- E/W = Future Local Connection, 50' ROW

There will be no private driveways permitted along Olive Chapel Road.

Alleys

Alleys may be proposed to vary from Town standards in order to accommodate water and sewer utilities, provided they maintain the same or greater width of pavement and right of way, subject to staff review and approval at the time of subdivision and construction plans.

Water Service

All on-site water lines will be designed according to Town of Apex Engineering Standards and Specifications.

Transit

According to the Apex 2045 Transportation Plan, there are no existing or proposed transit routes designated on or adjacent to the Site.

Pedestrian Facilities

The development plan will incorporate sidewalk infrastructure along Olive Chapel Road as well as the internal street network. A trail will serve as a connection from the western portion of the community to the Reedy Branch Greenway, thus in compliance with the future land use plan.

Sidewalks will be provided on both sides of all streets for single-family detached homes. There will be a 10-foot side path provided along minor collector roads as show on the bike/ped plan.

Prior to platting the 75th lot in the neighborhood, the Developer will extend a 5' sidewalk approximately 860 feet along the north side of Olive Chapel to the western limits of the Linden Subdivision. Developer will attempt to obtain the required right-of-way and/or easements for construction of this sidewalk from the adjacent property owners. If the required right-of-way and/or easements cannot be obtained by that time, a Fee-in-Lieu in the amount of 125% of the estimated cost of construction plus fair market value of the property to be acquired, shall be assessed. Any performance guarantee provided for this section of sidewalk shall be released upon acceptance of said fee-in-lieu by the Town.

13.0 PHASING PLAN

The Hackney Planned Unit Development will be constructed in phases according to economic considerations and infrastructure requirements.

Please note the following considerations for the phasing plan:

1. Access points are preliminary in nature and subject to Town of Apex and NCDOT review and approval.
2. Limits of land disturbance within each phase shall be determined at the master subdivision plan and site plan stages.
3. Public utilities shall be provided for each phase of development.

14.0 CONSISTENCY WITH 2045 LAND USE PLAN

The Apex 2045 Future Land Use Map depicts the future land use of the three parcels as Medium Density Residential. Medium Density Residential lands are described in the Land Use Plan as consisting of single-family homes, duplexes, and townhomes with densities between three (3) and seven (7) dwelling units per acre. It is intended to act as a transition between higher and lower residential densities. The maximum density proposed for the Hackney Planned Unit Development is four (4) dwelling units per acre.

The Hackney Planned Unit Development proposes medium density residential housing options appropriate to its proximity to the Olive Chapel Road thoroughfare and are consistent with uses found in the surrounding communities. The uses proposed for the site are directly in line with the uses stated in the 2045 Future Apex Land Use Plan thus the proposed rezoning is consistent with the Town's future plans for this area.

15.0 CONSISTENCY WITH UNIFIED DEVELOPMENT ORDINANCE

The proposed development is consistent with all applicable requirements of the Town of Apex Unified Development Ordinance.

16.0 ELEVATIONS

Elevations provided are representative of architecture, materials, and housing types. Final elevations submitted at Major Subdivision Plan will meet the requirements of the Architectural Controls in 5.0 of this PD Plan.

17.0 AFFORDABLE HOUSING

If the Town of Apex has a fund or other mechanism in place to receive donations to construct, subsidize, or participate in the development of affordable housing units (the "Fund"), the developer will contribute $215 per lot to this Fund prior to the first residential Certificate of Occupancy. In the event the Fund has not been established by the Town of Apex, the money will be conveyed to a local non-profit working on affordable housing initiatives. The developer will work with the Town of Apex to identify a mutually acceptable local non-profit organization to receive these funds.

PLANNED UNIT DEVELOPMENT

HACKNEY

APEX, NORTH CAROLINA

APRIL 20, 2021

SITE DATA

2045 LAND USE PLAN DESIGNATION	CURRENT	MEDIUM DENSITY RESIDENTIAL			
	PROPOSED	NO CHANGE			
ZONING	CURRENT	RURAL RESIDENTIAL (RR) (R-80W)			
	PROPOSED	PLANNED UNIT DEVELOPMENT (PUD-CZ)			
AREA OF TRACTS IN PROPOSED PUD	0722-41-1102	51.725 ACRES			
	0721-49-2629	10.007 ACRES			
	0722-40-6699	11.916 ACRES			
	TOTAL:	73.648 ACRES			
AREA DESIGNATED AS MIXED-USE ON 2045 LAND USE MAP	0 ACRES				
AREA OF MIXED-USE PROPERTY PROPOSED AS NON-RESIDENTIAL DEVELOPMENT	N/A				
PERCENT OF MIXED-USE PROPERTY PROPOSED AS NON-RESIDENTIAL DEVELOPMENT	N/A				
REQUESTED SEWER CAPACITY	TO BE DETERMINED				
MAXIMUM RESIDENTIAL DENSITY	3.5 DU/ACRE				
MAXIMUM BUILDING HEIGHT	50'-0"				
SETBACKS: SINGLE FAMILY	FRONT: 5 FT FROM FACADE 20 FT FROM GARAGE TO BACK OF SIDEWALK		REAR: 10 FT	SIDE: 5 FT	CORNER SIDE: 8 FT
SETBACKS: TOWNHOUSE, FRONT LOADED	FRONT: 10 FT FROM FACADE 20 FT FROM GARAGE TO BACK OF SIDEWALK		REAR: 10 FT	SIDE: 5 FT	BUILDING TO BUILDING: 10 FT
SETBACKS: TOWNHOUSE, ALLEY LOADED	FRONT: 10 FT FROM FACADE		REAR: 5 FT	SIDE: 5 FT	BUILDING TO BUILDING: 10 FT
WATERSHED	JORDAN LAKE WATERSHED, PRIMARY WATERSHED PROTECTION OVERLAY				
HISTORIC STRUCTURES	N/A				
COMMUNITY AMENITIES	COMMUNITY GATHERING SPACE WITH BENCHES, TOT LOT				
SITE BUFFERS	NORTH	100' RIPARIAN BUFFER *IN ADDITION TO THE 100' RIPARIAN BUFFER ON THE NORTH, AN ADDITIONAL 100' BUFFER WILL BE ESTABLISHED. THIS ADDITIONAL 100' MAY INCLUDE UTILITIES, TRAILS, AND OTHER ACTIVE OR PASSIVE RECREATION.			
	EAST	20' TYPE A BUFFER			
	SOUTH	30' TYPE E BUFFER *A 30' TYPE B BUFFER SHALL BE PROVIDED IF HOMES ALONG OLIVE CHAPEL ROAD ARE NOT ALLEY LOADED.			
	WEST	20' TYPE A BUFFER			

ZONING CONDITIONS

1. THE APEX PARKS, RECREATION AND CULTURAL RESOURCES ADVISORY COMMISSION MET ON DECEMBER 9, 2020 AND UNANIMOUSLY RECOMMENDED A FEE-IN-LIEU OF DEDICATION WITH CREDIT FOR CONSTRUCTION OF GREENWAY WHICH CONNECTS SIDEPATH ALONG HASSE AVE TO THE WEST CONNECTING TO THE REEDY BRANCH GREENWAY IN SMITH FARM. THE FEE RATE WILL BE SET AT THE TIME OF TOWN COUNCIL REVIEW/APPROVAL AND THE CREDIT FOR CONSTRUCTION WILL BE CALCULATED PRIOR TO CONSTRUCTION PLAN APPROVAL. PER THE UDO ART 14, THE GREENWAY MUST BE COMPLETED AND ACCEPTED PRIOR TO 25% OF THE BUILDING PERMITS FOR THE PROJECT BEING ISSUED.

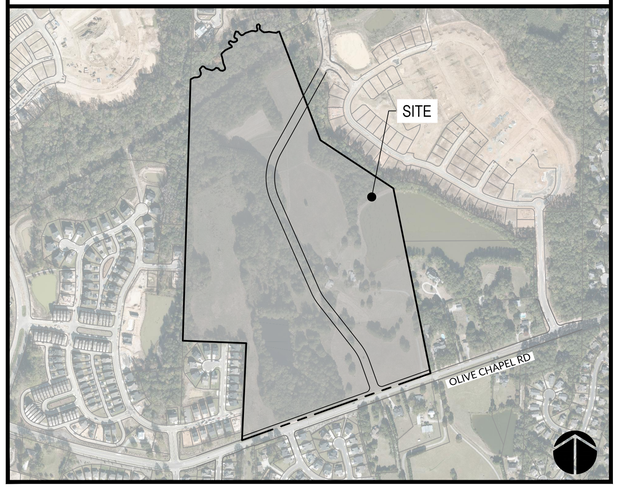
2. HASSE AVENUE WILL BE CONSTRUCTED BETWEEN OLIVE CHAPEL ROAD AND ITS CURRENT TERMINUS NORTH OF THE PROJECT. OLIVE CHAPEL ROAD WILL BE WIDENED TO INCLUDE CONSTRUCTION OF A 100-FOOT EASTBOUND LEFT-TURN LANE WITH APPROPRIATE DECELERATION LENGTH AND TAPER AND A 100-FOOT WESTBOUND RIGHT-TURN LANE WITH APPROPRIATE DECELERATION LENGTH AND TAPER SUBJECT TO NCDOT REVIEW AND APPROVAL. THE OLIVE CHAPEL ROAD TURN LANE WIDENING WILL BE COMPLETED PRIOR TO PLATTING HASSE AVENUE ACCESS TO OLIVE CHAPEL ROAD AND THE CONNECTION TO HASSE AVENUE NORTH OF THE PROJECT WILL BE COMPLETED PRIOR TO THE LAST PLAT IN THE SUBDIVISION.

3. THERE WILL BE NO PRIVATE DRIVEWAYS ALONG OLIVE CHAPEL ROAD.

4. ALLEYS MAY BE PROPOSED TO VARY FROM TOWN STANDARDS IN ORDER TO ACCOMMODATE WATER AND SEWER UTILITIES, PROVIDED THEY MAINTAIN THE SAME OR GREATER WIDTH OF PAVEMENT AND RIGHT-OF-WAY, SUBJECT TO STAFF REVIEW AND APPROVAL AT THE TIME OF SUBDIVISION AND CONSTRUCTION PLANS.

5. PRIOR TO PLATTING THE 75th LOT IN THE NEIGHBORHOOD, THE DEVELOPER WILL EXTEND A 5' SIDEWALK APPROXIMATELY 860 FEET ALONG THE NORTH SIDE OF OLIVE CHAPEL TO THE WESTERN LIMITS OF THE LINDEN SUBDIVISION. THE DEVELOPER WILL ATTEMPT TO OBTAIN THE REQUIRED RIGHT-OF-WAY AND/OR EASEMENTS FOR CONSTRUCTION OF THIS SIDEWALK FROM THE ADJACENT PROPERTY OWNERS. IF THE REQUIRED RIGHT-OF-WAY AND/OR EASEMENTS CANNOT BE OBTAINED BY THAT TIME, A FEE-IN-LIEU IN THE AMOUNT OF 125% OF THE ESTIMATED COST OF CONSTRUCTION PLUS FAIR MARKET VALUE OF THE PROPERTY TO BE ACQUIRED, SHALL BE ASSESSED. ANY PERFORMANCE GUARANTEE PROVIDED FOR THIS SECTION OF SIDEWALK SHALL BE RELEASED UPON ACCEPTANCE OF SAID FEE-IN-LIEU BY THE TOWN.

SITE MAP
1"=500'



VICINITY MAP
1"=2000'

INDEX OF SHEETS

PREPARED BY:

WithersRavenel
Engineers | Planners | Surveyors

115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

PLANNER: BRENDIE VEGA, AICP
BVEGA@WITHERSRAVENEL.COM

CIVIL ENGINEER: BRYANT INGE, PE
BINGE@WITHERSRAVENEL.COM

PRELIMINARY
NOT APPROVED FOR CONSTRUCTION


CRESCENT APEX, LLC
DB 17044, PG 924
RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006
MICHAEL BASS
SHERRIE BASS
DB 14367, PG 1240
LOT 3
"WILLIAM E. GERRINGER"
BM 1982, PG 24
PIN No. 0722503445
ELIZABETH PERKINS
DB 14268, PG 331
LOT 1
"WILLIAM E. GERRINGER"
BM 1982, PG 24
PIN No. 0722503152
HASSE AVE
60' R/W
CRESCENT APEX, LLC
DB 17044, PG 924 RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006
CRESCENT APEX, LLC
DB 17044, PG 924
RCA 6
LINDEN SUBDIVISION
BM 2020, PG 1334
PIN No. 0722424038
CRESCENT APEX, LLC
DB 17044, PG 924
RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006
EXISTING POND
50' BUFFER
GRAVEL DRIVE
TRACT 3
PIN No. 0722406699
CHARLES L. HACKNEY
JUDY G. HACKNEY
DB 3195, PG 151
BM 1982, PG 1057
11.871 ACRES (OUTSIDE R/W)
0.045 ACRES (WITHIN R/W)
11.916 (TOTAL ACRES)
SHED
SHED
ONE STORY FRAME
RESIDENCE
#2500 OLIVE CHAPEL RD
BARN
BARN
40' UTILITY AND
PIPELINE EASEMENT
DB 14343, PG 2028
EXISTING 1% ANNUAL
FLOOD ZONE
(ZONE AE)
OLIVE CHAPEL ROAD
(SR 1160)
VARIABLE WIDTH R/W
EXISTING
WETLANDS
50' BUFFER
C/L OF STREAM
TRACT 1
PIN No. 0722411102
JUDY G. HACKNEY
DB 1400, PG 236
DB 1983, PG 57
51.28 ACRES (OUTSIDE R/W)
0.445 ACRES (WITHIN R/W)
51.725 (TOTAL ACRES)
TRACT 2
PIN No. 0721492629
EDWIN A. GOODWIN
DB 3195, PG 149 BM 1983, PG 57
9.526 ACRES (OUTSIDE R/W)
0.481 ACRES (WITHIN R/W)
10.007 (TOTAL ACRES)
EXISTING POND
APPROXIMATE
100' BUFFER
LENNAR CAROLINAS, LLC
DB 16720, PG 1045
TRACT 3
"BOUNDARY SURVEY"
BM 2017, PG 379
PIN No. 0722229350
LENNAR CAROLINAS, LLC
DB 16720, PG 1045
TRACT 3
"BOUNDARY SURVEY"
BM 2017, PG 379
PIN No. 0722229350
EXISTING
WETLANDS
RILEYS
POND DRIVE
50' R/W
LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"RCA AREA"
SMITH FARM PUD, PH 1
BM 2018, PG 924
PIN No. 0722219077
PORTION OF PROPERTY
TO BE ANNEXED
TOWN OF APEX ELECTRIC
UTILITY EASEMENT
PER DB 13318, PG 1911
ROWBOAT ROAD
50' R/W
FLOODWAY (OUT)
(IN)
(IN)
FLOODWAY (OUT)
LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"RCA AREA"
SMITH FARM PUD, PH 1
BM 2018, PG 923
PIN No. 0722219077
WATER
TOWER LANE
50' R/W
FARMHOUSE DRIVE
50' R/W
SMITH FARMS OF APEX
HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 3
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0722309093
LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"FUTURE REC SITE"
SMITH FARM PUD, PH 1
BM 2018, PG 922 & 923
PIN No. 0722303175
SMITH FARMS OF APEX HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 1
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0721396648
SMITH FARMS OF APEX
HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 2
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0721397362
THASSOS DRIVE
50' R/W
GRAPHIC SCALE
100 0 50 100 200
1 inch = 100 ft.
PRELIMINARY
NOT APPROVED FOR
CONSTRUCTION

EXISTING CONDITION NOTES:

1. TOPOGRAPHIC AND UTILITY INFORMATION BASED ON AVAILABLE GIS MAPPING. PRELIMINARY BOUNDARY SURVEY PREPARED BY WITHERSRAVENEL DATED 09/25/20.
2. WETLAND/STREAM INFORMATION BASED ON EVALUATION BY S&EC DATED 09/18/20 (APEX 20-004).
3. REGULATORY FEMA MAPPED FLOODPLAINS EXIST ON SITE PER FIRM MAP #3720072200J (5/2/06).
4. THE SUBJECT PROPERTY IS LOCATED WITHIN THE TOWN OF APEX PRIMARY WATERSHED PROTECTION OVERLAY DISTRICT.
5. ALL EXISTING STRUCTURES ON THE SUBJECT PROPERTY SHALL BE REMOVED PER TOWN OF APEX STANDARDS AND REQUIREMENTS.

TREE LEGEND

- OAK
- POPLAR
- GUM
- MAPLE
- CEDAR
- PINE

EXISTING DECIDUOUS TREES TO BE REMOVED (>18" DBH)

TYPE	QUANTITY
OAK	46
POPLAR	22
GUM	17
MAPLE	5
TOTAL	90

No.	Revision	Date	By

Designer WR	Scale 1" = 100'
Drawn By WR	Date 02/26/2021
Checked By WR	Job No. 02180517.20

HACKNEY

APEX WAKE COUNTY NORTH CAROLINA

EXISTING CONDITIONS

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

Sheet No.
1.0

NOTES:

1. PLAN SHEETS ARE INTENDED FOR ILLUSTRATIVE USE ONLY.
2. PER 2.3.4(F)(1)(A)(IV) OF THE UDO, SIDEWALKS MUST BE PROVIDED ON BOTH SIDES OF ALL STREETS FOR SINGLE-FAMILY DETACHED HOMES IN PUD-CZ DEVELOPMENT DISTRICTS.
3. PER 2.3.4(F)(1)(F)(I) OF THE UDO, THE PD PLAN FOR PUD-CZ SHALL DEMONSTRATE A SAFE AND ADEQUATE ON-SITE TRANSPORTATION CIRCULATION SYSTEM. THE ON-SITE TRANSPORTATION CIRCULATION SYSTEM SHALL BE INTEGRATED WITH THE OFF-SITE TRANSPORTATION CIRCULATION SYSTEM OF THE TOWN. THE PD PLAN FOR PUD-CZ SHALL BE CONSISTENT WITH THE APEX TRANSPORTATION PLAN AND THE TOWN OF APEX STANDARD SPECIFICATIONS AND STANDARD DETAILS AND SHOW REQUIRED RIGHT-OF-WAY WIDTHS AND ROAD SECTIONS.
4. PER UDO SECTION 7.2.5.B.8, IF ANY MASS GRADING IS PROPOSED IN THE SINGLE-FAMILY SECTIONS OF THE PUD, THE FOLLOWING PROVISION WILL APPLY TO LOT COVERAGE AREA FOR SINGLE-FAMILY: AN ADDITIONAL FIVE PERCENT (5%) RESOURCE CONSERVATION AREA (RCA) SHALL BE SET ASIDE. THIS REQUIREMENT IS ADDED TO THE STANDARD RCA PERCENTAGE REQUIREMENT FOUND IN SEC. 8.1.2.C SIZE OF THE RCA.
5. COLLECTOR ROAD ALIGNMENT LOCATION WILL BE DETERMINED AT THE MAJOR SUBDIVISION PLAN STAGE.
6. EXISTING PONDS WILL BE EVALUATED BY A LICENSED ENGINEER. EVALUATION RECOMMENDATIONS MAY REQUIRE A CHANGE TO SIZE, BOUNDARY OR REMOVAL OF EXISTING PONDS.
7. A 30' TYPE B SHALL BE PROVIDED IF HOMES ALONG OLIVE CHAPEL ROAD ARE NOT ALLEY LOADED.

CRESCENT APEX, LLC
DB 17044, PG 924
RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006

MICHAEL BASS
SHERRIE BASS
DB 14367, PG 1240
LOT 3
"WILLIAM E. GERRINGER"
BM 1982, PG 24
PIN No. 0722503445

ELIZABETH PERKINS
DB 14268, PG 331
LOT 1
"WILLIAM E. GERRINGER"
BM 1982, PG 24
PIN No. 0722503152

HASSE AVE
60' R/W

CRESCENT APEX, LLC
DB 17044, PG 924
RCA 6
LINDEN SUBDIVISION
BM 2020, PG 1334
PIN No. 0722424038

CRESCENT APEX, LLC
DB 17044, PG 924 RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006

CRESCENT APEX, LLC
DB 17044, PG 924
RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006

20' TYPE A

EXISTING POND

50' BUFFER

THE PROPOSED WIDENING ON THE NORTH SIDE OF OLIVE CHAPEL ROAD WILL INCLUDE A 6' BIKE LANE AND 5' PAVED SHOULDER.

THE PROPOSED WIDENING OF OLIVE CHAPEL ROAD WILL COMPLY WITH THE TOWN OF APEX THOROUGHFARE PLAN. THE PROPOSED ROAD SECTION ON THE PROJECT SIDE OF THE CENTERLINE WILL BE A MEDIAN DIVIDED 4-LANE SECTION (110' ROW).

OLIVE CHAPEL ROAD
(SR 1160)
VARIABLE WIDTH R/W

40' UTILITY AND PIPELINE EASEMENT DB 14343, PG 2028

SCM #2

EXISTING 1% ANNUAL FLOOD ZONE (ZONE AE)

30' BUFFER SEE NOTE #7

PROVIDE TRAIL CONNECTION FOR COMMUNITY ACCESS TO REEDY BRANCH GREENWAY

THE PROPOSED COLLECTOR ROAD WILL COMPLY WITH THE TOWN OF APEX THOROUGHFARE PLAN. THE PROPOSED ROAD SECTION WILL BE 60' WIDTH RIGHT-OF-WAY AND INCLUDE A 10' WIDTH SIDE PATH ON ONE SIDE.

LANDSCAPED MEDIAN AT SITE ENTRANCE

EXISTING WETLANDS

50' BUFFER

C/L OF STREAM

SCM #3

EXISTING POND

APPROXIMATE 100' BUFFER

LENNAR CAROLINAS, LLC
DB 16720, PG 1045
TRACT 3
"BOUNDARY SURVEY"
BM 2017, PG 379
PIN No. 0722229350

CONNECTION TO GREENWAY WITHIN SMITH FARM

LENNAR CAROLINAS, LLC
DB 16720, PG 1045
TRACT 3
"BOUNDARY SURVEY"
BM 2017, PG 379
PIN No. 0722229350

EXISTING WETLANDS

30' BUFFER SEE NOTE #7

SCM #1

THE PROPOSED LOCAL CONNECTIONS WILL COMPLY WITH THE TOWN OF APEX THOROUGHFARE PLAN. THE PROPOSED ROAD SECTION WILL BE 50' WIDTH RIGHT-OF-WAY.

THE PROPOSED LOCAL CONNECTIONS WILL COMPLY WITH THE TOWN OF APEX THOROUGHFARE PLAN. THE PROPOSED ROAD SECTION WILL BE 50' WIDTH RIGHT-OF-WAY.

FLOODWAY (OUT)
(IN)

FLOODWAY (OUT)
(IN)

LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"RCA AREA"
SMITH FARM PUD, PH 1
BM 2018, PG 924
PIN No. 0722219077

20' TYPE A

LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"RCA AREA"
SMITH FARM PUD, PH 1
BM 2018, PG 923
PIN No. 0722219077

ROWBOAT ROAD
50' R/W

WATER TOWER LANE
50' R/W

LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"FUTURE REC SITE"
SMITH FARM PUD, PH 1
BM 2018, PG 922 & 923
PIN No. 0722303175

SMITH FARMS OF APEX HOMEOWNERS ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 1
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0721396648

SMITH FARMS OF APEX HOMEOWNERS ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 3
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0722309093

FARMHOUSE DRIVE
50' R/W

SMITH FARMS OF APEX HOMEOWNERS ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 2
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN NO. 0721397362

RILEYS POND DRIVE
50' R/W

THASSOS DRIVE
50' R/W

LEGEND

- RESIDENTIAL
- STREAM
- STREAM BUFFER
- PERIMETER BUFFER
- STREETSCAPE
- EXISTING POND
- S.C.M.
- WETLAND
- ROADWAY CONNECTION
- GREENWAY CONNECTION

GRAPHIC SCALE
100 0 50 100 200
1 inch = 100 ft.

PRELIMINARY
NOT APPROVED FOR CONSTRUCTION

No.	Revision	Date	By

Designer: WR	Scale: 1" = 100'
Drawn By: WR	Date: 02/26/2021
Checked By: WR	Job No.: 02180517.20

HACKNEY

APEX WAKE COUNTY NORTH CAROLINA

CONCEPTUAL LAYOUT PLAN

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

Sheet No. 2.0

K:\180\02180517.20\Hackney Tract\Apex\CAD\Drawing Set\PUD\2.0 CONCEPT LAYOUT PLAN.dwg Friday, February 26, 2021 10:31:12 AM - INGE.BRYANT

UTILITY NOTES:

1. WATER AND SANITARY SEWER WILL BE OWNED AND MAINTAINED BY THE TOWN OF APEX.
2. FIRE HYDRANTS, VALVES, SERVICES, METERS, AND APPURTENANCES SHALL BE DESIGNED PER THE TOWN OF APEX CONSTRUCTION SPECIFICATIONS AND SHALL BE SHOWN ON THE CONSTRUCTION PLANS.
3. ALL UTILITY EASEMENTS SHALL BE PROVIDED AS NECESSARY. DELINEATION WILL BE DETERMINED WITH FINAL DESIGN OF INTERNAL PUBLIC STREETS AT THE SUBDIVISION PLAN STAGE. MINIMUM UNDISTURBED BUFFER WIDTHS SHALL BE EXCLUSIVE OF UTILITY EASEMENTS UNLESS APPROVED BY THE DIRECTOR OF THE PUBLIC WORKS & UTILITIES DEPARTMENT.
4. THE DEVELOPER WILL ACTIVELY WORK WITH THE TOWN OF APEX TO PRESERVE EXISTING TREES ON SITE. THESE AREAS SHALL INCLUDE REQUIRED LANDSCAPE BUFFERS, RCA AREAS, NON-BUFFERED AND NON-RCA AREAS, AREAS OF PROPOSED UTILITY LINES, AND ADJACENT TO THE SUBJECT PROPERTY, TO THE MAXIMUM EXTENT POSSIBLE.
5. UTILITY LAYOUT FOR WATER AND SEWER IS CONCEPTUAL. FINAL DESIGN WILL BE DETERMINED AT THE SUBDIVISION PLAN STAGE.
6. IN NATURAL DRAINAGE WAYS, SEWER SHALL BE EXTENDED TO THE PROPERTY LINES TO READILY ENABLE FUTURE CONNECTIONS TO ADJOINING PROPERTY. SEWER DESIGN SHALL ACCOUNT FOR FUTURE UPSTREAM DEVELOPMENT BASED ON THE CURRENT LAND USE PLAN, AND SHALL INCLUDE EVALUATION OF EXISTING DOWNSTREAM SEWER CAPACITY.

CRESCENT APEX, LLC
DB 17044, PG 924
RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006

MICHAEL BASS
SHERRIE BASS
DB 14367, PG 1240
LOT 3
"WILLIAM E. GERRINGER"
BM 1982, PG 24
PIN No. 0722503445

ELIZABETH PERKINS
DB 14268, PG 331
LOT 1
"WILLIAM E. GERRINGER"
BM 1982, PG 24
PIN No. 0722503152

APPROXIMATE LOCATION OF
EXISTING TOWN OF APEX WATERLINE

HASSE AVE
60' R/W

CRESCENT APEX, LLC
DB 17044, PG 924 RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006

CRESCENT APEX, LLC
DB 17044, PG 924
RCA 6
LINDEN SUBDIVISION
BM 2020, PG 1334
PIN No. 0722424038

CRESCENT APEX, LLC
DB 17044, PG 924
RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006

EXISTING POND

SEE UTILITY NOTE 6

50' BUFFER

SEWER LINE

WATER LINE

40' UTILITY AND
PIPELINE EASEMENT
DB 14343, PG 2028

EXISTING 1% ANNUAL
FLOOD ZONE
(ZONE AE)

OLIVE CHAPEL ROAD
(SR 1160)
VARIABLE WIDTH R/W

APPROXIMATE LOCATION OF
EXISTING 12" TOWN OF APEX WATERLINE

EXISTING
WETLANDS

50' BUFFER

C/L OF STREAM

EXISTING POND

APPROXIMATE
100' BUFFER

LENNAR CAROLINAS, LLC
DB 16720, PG 1045
TRACT 3
"BOUNDARY SURVEY"
BM 2017, PG 379
PIN No. 0722229350

PROPOSED CONNECTION
TO EXISTING MANHOLE

LENNAR CAROLINAS, LLC
DB 16720, PG 1045
TRACT 3
"BOUNDARY SURVEY"
BM 2017, PG 379
PIN No. 0722229350

EXISTING
WETLANDS

RILEYS
POND DRIVE
50' R/W

FLOODWAY (OUT)

FLOODWAY (IN)

LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"RCA AREA"
SMITH FARM PUD, PH 1
BM 2018, PG 924
PIN No. 0722219077

TOWN OF APEX ELECTRIC
UTILITY EASEMENT
PER DB 13318, PG 1911

ROWBOAT ROAD
50' R/W

LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"RCA AREA"
SMITH FARM PUD, PH 1
BM 2018, PG 923
PIN No. 0722219077

WATER
TOWER LANE
50' R/W

LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"FUTURE REC SITE"
SMITH FARM PUD, PH 1
BM 2018, PG 922 & 923
PIN No. 0722303175

SMITH FARMS OF APEX HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 1
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0721396648

SMITH FARMS OF APEX
HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 3
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0722309093

FARMHOUSE DRIVE
50' R/W

SMITH FARMS OF APEX
HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 2
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN NO. 0721397362

THASSOS DRIVE
50' R/W

GRAPHIC SCALE
100 0 50 100 200
1 inch = 100 ft.

PRELIMINARY
NOT APPROVED FOR
CONSTRUCTION

No.	Revision	Date	By

Designer: WR	Scale: 1" = 100'
Drawn By: WR	Date: 04/20/2021
Checked By: WR	Job No.: 02180517.20

HACKNEY

APEX WAKE COUNTY NORTH CAROLINA

CONCEPTUAL UTILITY PLAN

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

Sheet No. 3.0

CRESCENT APEX, LLC
DB 17044, PG 924
RCA 1
LINDEN SUBDIVISION
BM 2019, PG 1364 & 1366
PIN No. 0722512006
MICHAEL BASS
SHERRIE BASS
DB 14367, PG 1240
LOT 3
"WILLIAM E. GERRINGER"
BM 1982, PG 24
PIN No. 0722503445
ELIZABETH PERKINS
DB 14268, PG 331
LOT 1
"WILLIAM E. GERRINGER"
BM 1982, PG 24
PIN No. 0722503152
HASSE AVE
60' R/W
EXISTING POND
50' BUFFER
CRESCENT APEX, LLC
DB 17044, PG 924
RCA 6
LINDEN SUBDIVISION
BM 2020, PG 1334
PIN No. 0722424038
40' UTILITY AND
PIPELINE EASEMENT
DB 14343, PG 2028
SCM #2
EXISTING 1% ANNUAL
FLOOD ZONE
(ZONE AE)
OLIVE CHAPEL ROAD
(SR 1160)
VARIABLE WIDTH R/W
EXISTING
WETLANDS
50' BUFFER
C/L OF STREAM
SCM #3
EXISTING POND
RILEYS
POND DRIVE
50' R/W
APPROXIMATE
100' BUFFER
LENNAR CAROLINAS, LLC
DB 16720, PG 1045
TRACT 3
"BOUNDARY SURVEY"
BM 2017, PG 379
PIN No. 0722229350
EXISTING
WETLANDS
SCM #1
FLOODWAY (OUT)
(IN)
LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"RCA AREA"
SMITH FARM PUD, PH 1
BM 2018, PG 924
PIN No. 0722219077
ROWBOAT ROAD
50' R/W
FARMHOUSE DRIVE
50' R/W
WATER
TOWER LANE
50' R/W
LENNAR CAROLINAS, LLC
DB 16720, PG 1062
"FUTURE REC SITE"
SMITH FARM PUD, PH 1
BM 2018, PG 922 & 923
PIN No. 0722303175
SMITH FARMS OF APEX HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 1
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0721396648
SMITH FARMS OF APEX
HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 3
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0722309093
SMITH FARMS OF APEX
HOMEOWNERS
ASSOCIATION, INC.
DB 17177, PG 741
COMMON AREA 2
HALEY AT SMITH FARMS
BM 2018, PG 934
PIN No. 0721397362
THASSOS DRIVE
50' R/W
GRAPHIC SCALE
1 inch = 100 ft.

STORMWATER MANAGEMENT NOTES:

1. TOPOGRAPHIC AND UTILITY INFORMATION BASED ON AVAILABLE GIS MAPPING. PRELIMINARY BOUNDARY SURVEY PREPARED BY WITHERSRAVENEL.
2. WETLAND/STREAM INFORMATION BASED ON EVALUATION BY S&EC DATED 09/18/20.
3. REGULATORY FEMA MAPPED FLOODPLAINS EXIST ON SITE PER FIRM MAP #3720072200J (5/2/06).
4. THE SUBJECT PROPERTY IS LOCATED WITHIN THE TOWN OF APEX PRIMARY WATERSHED PROTECTION OVERLAY DISTRICT.
5. STORMWATER MANAGEMENT FACILITIES SHALL BE DESIGNED PER THE TOWN OF APEX STANDARDS AND REGULATIONS FOR STORMWATER QUANTITY AND QUALITY (UDO SECTION 6.1.7 B).
6. ALL APPLICABLE LOCAL AND STATE ENVIRONMENTAL PERMITS SHALL BE OBTAINED PRIOR TO START OF CONSTRUCTION.
7. STORMWATER TREATMENT WILL BE HANDLED BY INDIVIDUAL OR REGIONAL FACILITIES WITHIN THE SUBJECT PROPERTY OR ADJACENT OFF-SITE DRAINAGE EASEMENT.
8. THE POST DEVELOPMENT PEAK FLOW RATE OF ON-SITE STORMWATER WILL NOT EXCEED THE PRE-DEVELOPMENT PEAK FLOW RATE IN ACCORDANCE WITH THE UDO.

PRELIMINARY
NOT APPROVED FOR CONSTRUCTION

No.	Revision	Date	By

Designer: WR	Scale: 1" = 100'
Drawn By: WR	Date: 02/26/2021
Checked By: WR	Job No.: 02180517.20

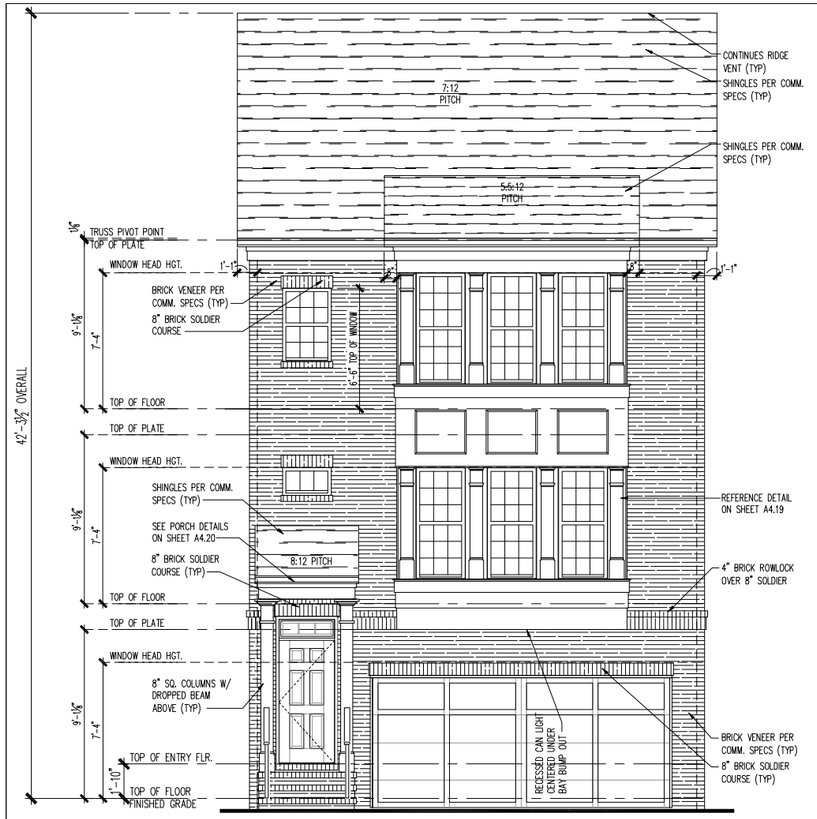
HACKNEY

APEX — WAKE COUNTY — NORTH CAROLINA

CONCEPTUAL STORMWATER MANAGEMENT PLAN

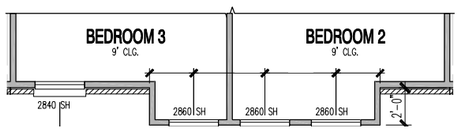
WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

Sheet No. 4.0



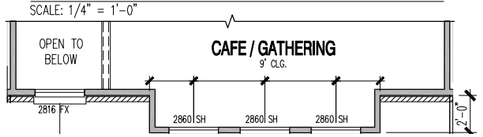
ELEVATION 64

SCALE: 1/4" = 1'-0"



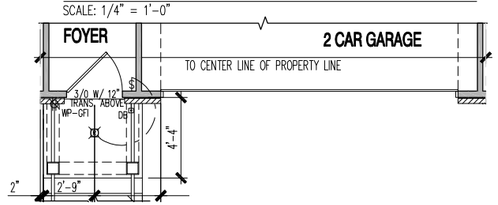
THIRD FLOOR PLAN

SCALE: 1/4" = 1'-0"



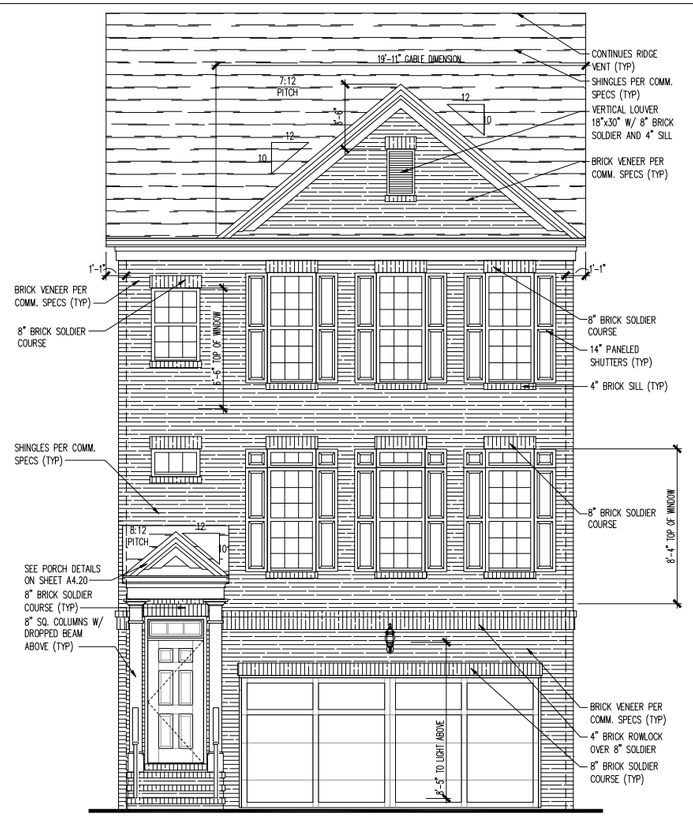
SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"



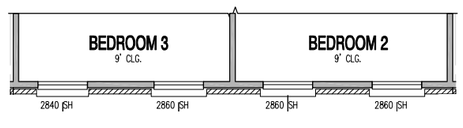
FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"



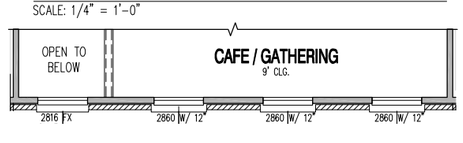
ELEVATION 65

SCALE: 1/4" = 1'-0"



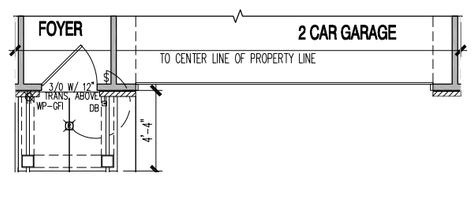
THIRD FLOOR PLAN

SCALE: 1/4" = 1'-0"



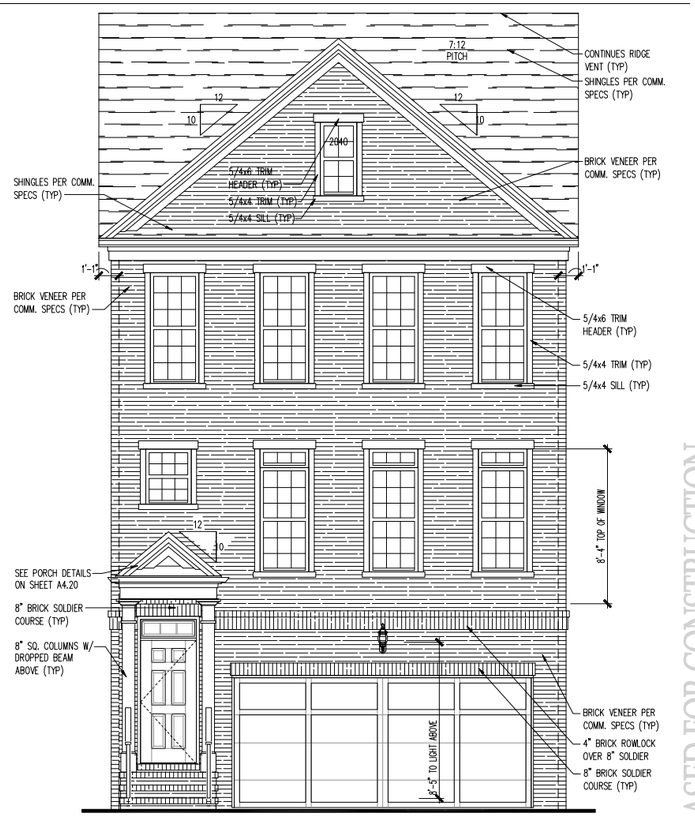
SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"



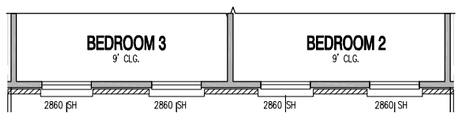
FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"



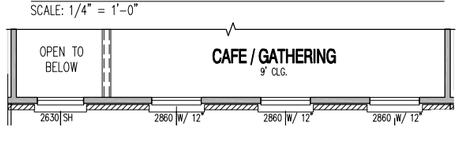
ELEVATION 66

SCALE: 1/4" = 1'-0"



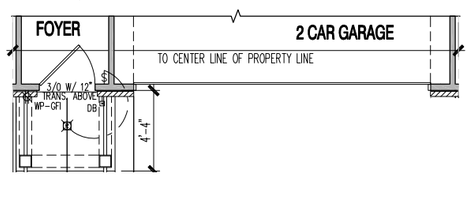
THIRD FLOOR PLAN

SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy. Suite 600
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

RELEASED FOR CONSTRUCTION

Building Elevations & Floor Plan Partials
Units 64, 65 & 66

PRODUCTION MANAGER
Dan Kostka
INITIAL RELEASE DATE:
12-08-2015
CURRENT RELEASE DATE:
12-08-2015

REV #	DATE / DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

GARAGE HANDING
FL-GE-ME-KC-KR

PLAN NAME
Summerford & Hutton

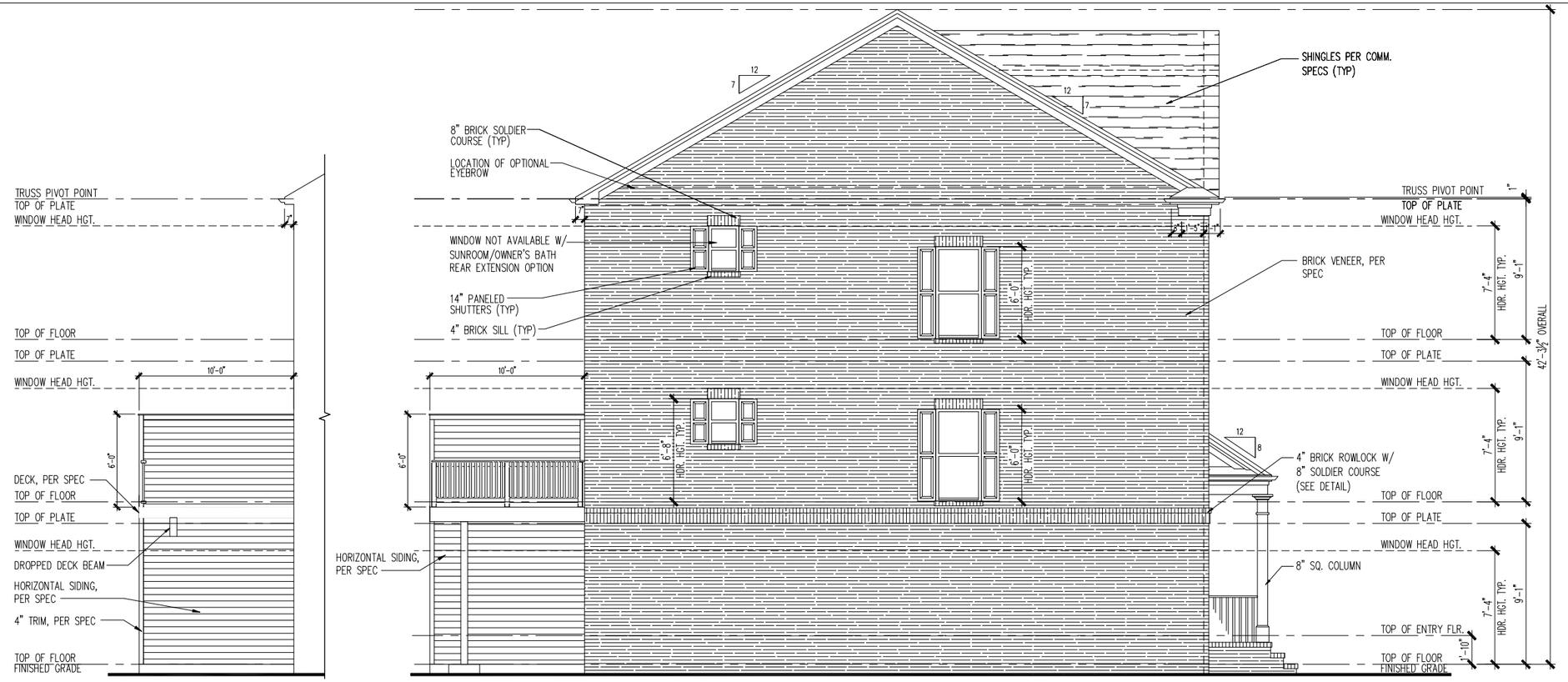
NPC PLAN NUMBER
2468.928 - 2468.929

LAWSON PLAN ID

SHEET
A.3.27

NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: April 17, 2017 / Samantha Powell / 24-FL-ELEVS.DWG

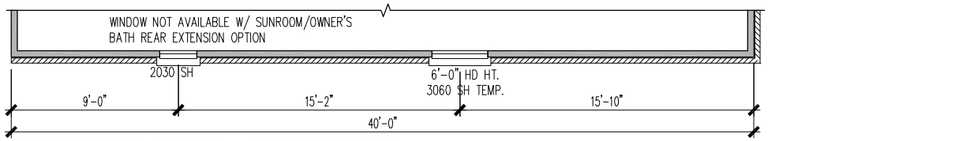


LEFT ELEVATION - DECK 3 OPTION - MIDDLE CONDITION

SCALE: 3/16" = 1'-0" SEE BUILDING CONTROL PLANS FOR MORE INFORMATION

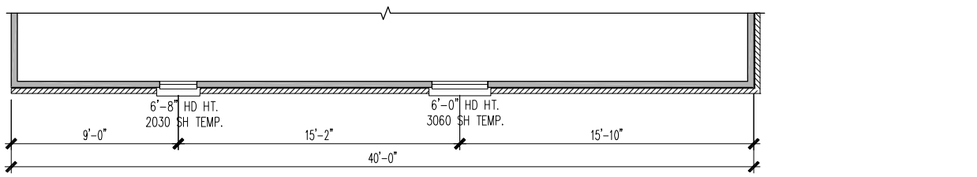
LEFT ELEVATION "61- 70"

SCALE: 3/16" = 1'-0"



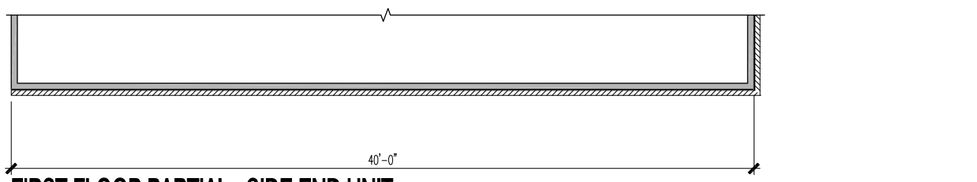
THIRD FLOOR PARTIAL - SIDE END UNIT

SCALE: 3/16" = 1'-0"



SECOND FLOOR PARTIAL - SIDE END UNIT

SCALE: 3/16" = 1'-0"



FIRST FLOOR PARTIAL - SIDE END UNIT

SCALE: 3/16" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy. Suite 600
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

RELEASED FOR CONSTRUCTION

Left Elevations 61-70 & Floor Plan Partials

PRODUCTION MANAGER
Dan Kostka
INITIAL RELEASE DATE:
12-08-2015
CURRENT RELEASE DATE:
12-08-2015

REV # | DATE / DESCRIPTION

GARAGE HANDING
FL-GF-ME-KC-KR

PLAN NAME
Summerford & Hutton

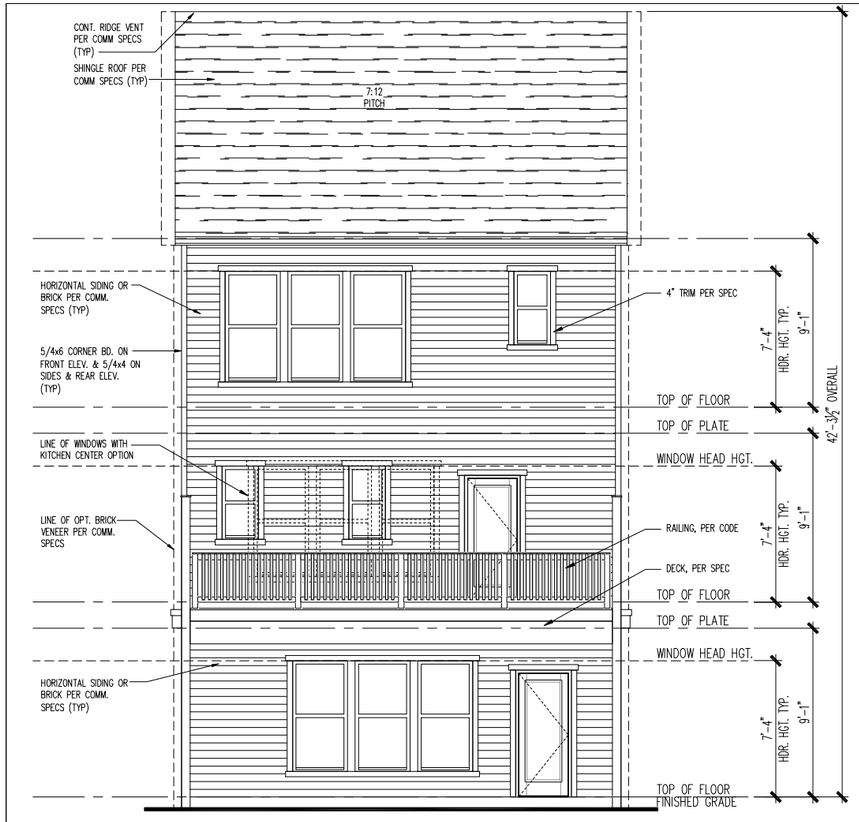
NPC PLAN NUMBER
2468.928 - 2468.929

LAWSON PLAN ID

SHEET
A.3.30S

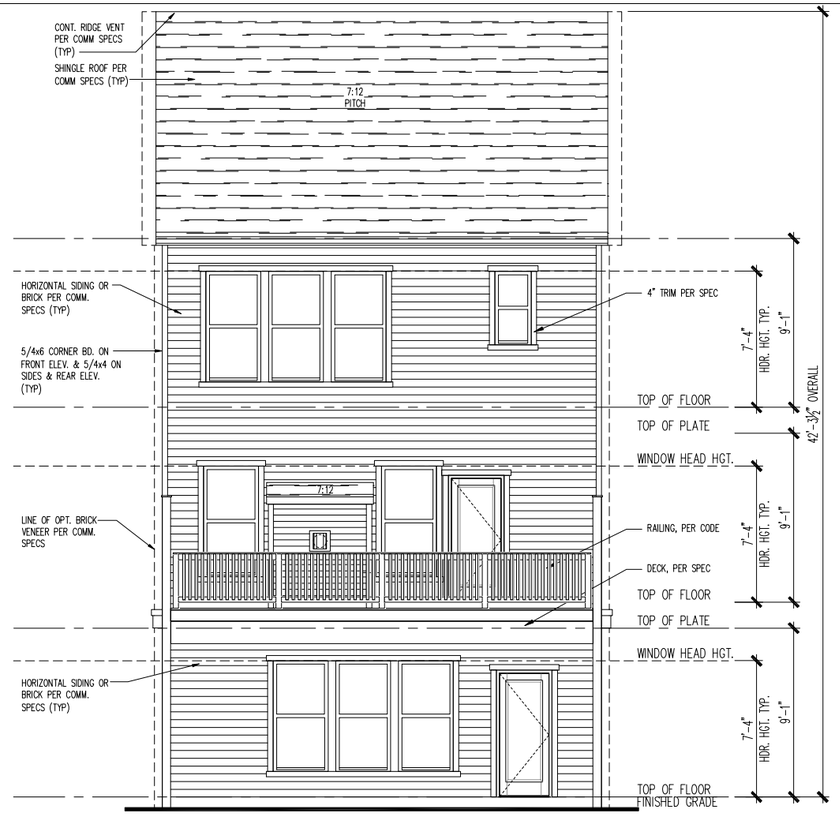
NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: April 17, 2017 / Samantha Powell / 24-FL-ELEVS.DWG



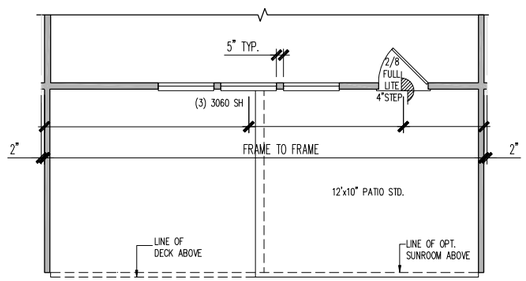
REAR ELEVATION

SCALE: 1/4" = 1'-0"



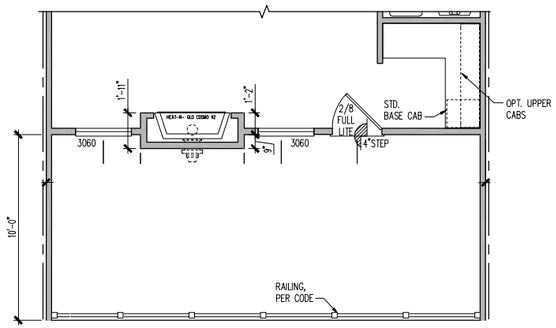
REAR ELEVATION - FIREPLACE OPTION w/ DECK 3

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"



FIREPLACE OPTION AT GATHERING ROOM w/ DECK 3

SCALE: 1/4" = 1'-0"

SEE BASE PLANS FOR INFORMATION NOT SHOWN

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy. Suite 600
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

RELEASED FOR CONSTRUCTION

Rear Elevations

PRODUCTION MANAGER
Dan Kostka
INITIAL RELEASE DATE:
12-08-2015
CURRENT RELEASE DATE:
12-08-2015

REV #	DATE / DESCRIPTION
△	
△	
△	
△	
△	
△	
△	
△	
△	

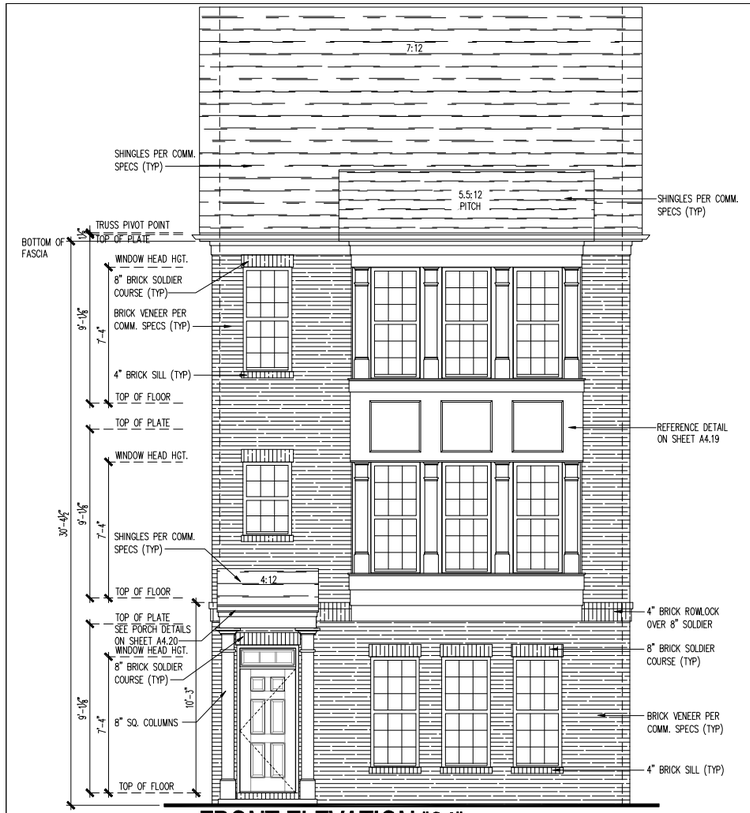
GARAGE HANDING
FL-GE-ME-KC-KR

PLAN NAME
Summerford & Hutton
NPC PLAN NUMBER
2468.928 - 2468.929
LAWSON PLAN ID

SHEET
A.3.60

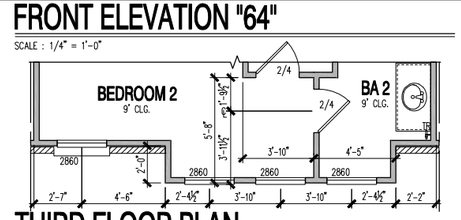
NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: April 17, 2017 / Samantha Powell / 24-FL-ELEVS.DWG



FRONT ELEVATION "64"

SCALE : 1/4" = 1'-0"



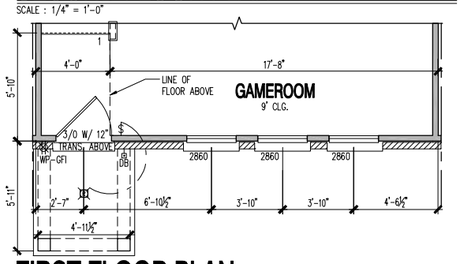
THIRD FLOOR PLAN

SCALE : 1/4" = 1'-0"

*NOTE NEW BATH 2 DOOR LOCATION WITH THIS ELEVATION

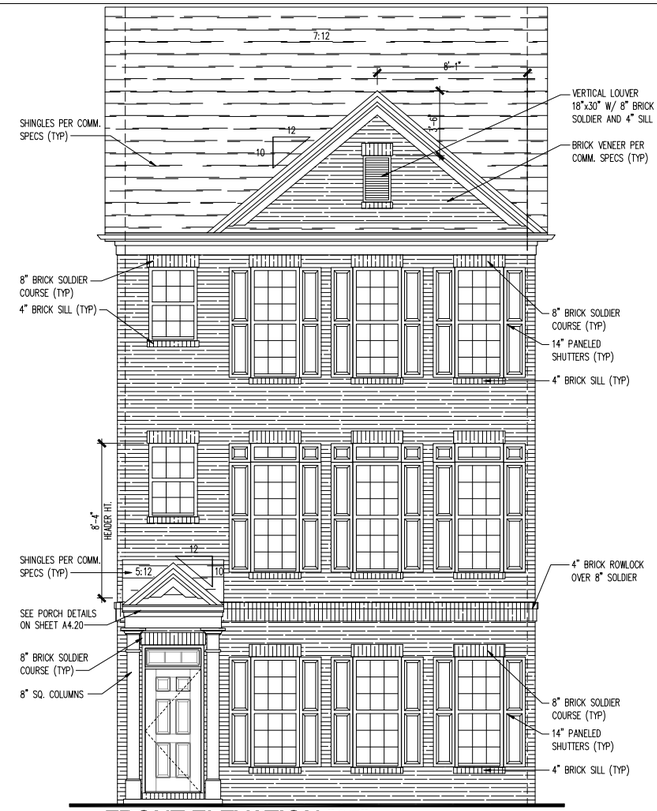
SECOND FLOOR PLAN

SCALE : 1/4" = 1'-0"



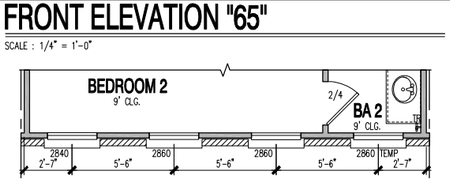
FIRST FLOOR PLAN

SCALE : 1/4" = 1'-0"



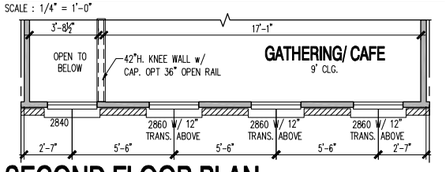
FRONT ELEVATION "65"

SCALE : 1/4" = 1'-0"



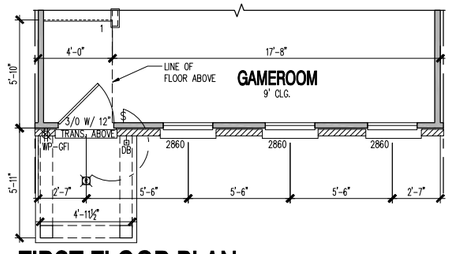
THIRD FLOOR PLAN

SCALE : 1/4" = 1'-0"



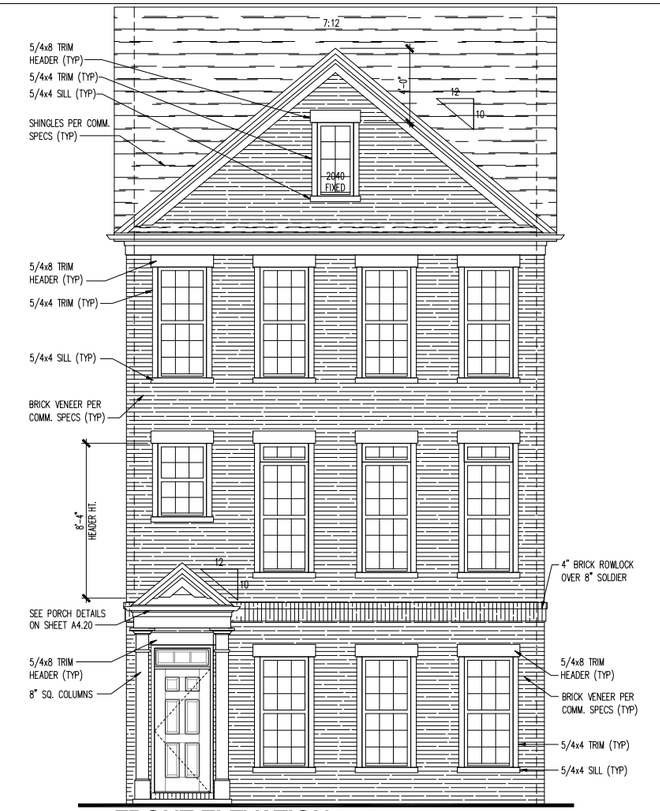
SECOND FLOOR PLAN

SCALE : 1/4" = 1'-0"



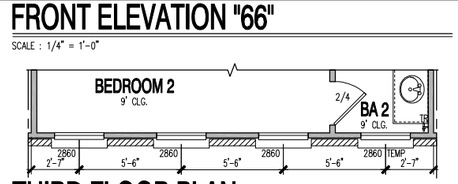
FIRST FLOOR PLAN

SCALE : 1/4" = 1'-0"



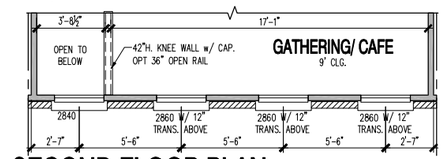
FRONT ELEVATION "66"

SCALE : 1/4" = 1'-0"



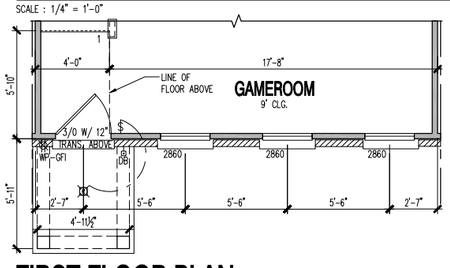
THIRD FLOOR PLAN

SCALE : 1/4" = 1'-0"



SECOND FLOOR PLAN

SCALE : 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE : 1/4" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy. Suite 600
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

Building Elevations 64 - 66
& Floor Plan Partials

PRODUCTION MANAGER
Dan Kostka
INITIAL RELEASE DATE:
12-08-2015
CURRENT RELEASE DATE:
1-29-2016

REV # | DATE / DESCRIPTION

GARAGE HANDING
RL-ME-KC-KR

PLAN NAME
Hayward / Briarcliff

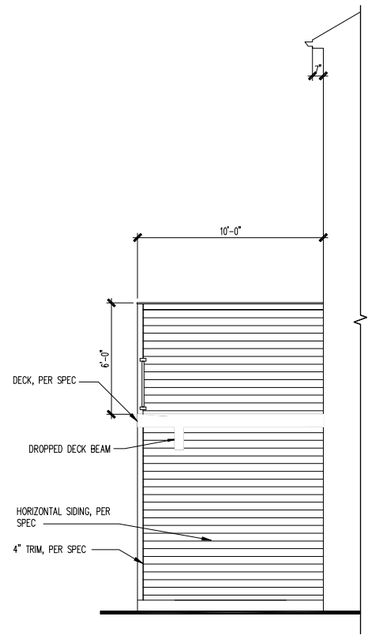
NPC PLAN NUMBER
2466.237 - 2466.238

LAWSON PLAN ID

SHEET
A.3.15

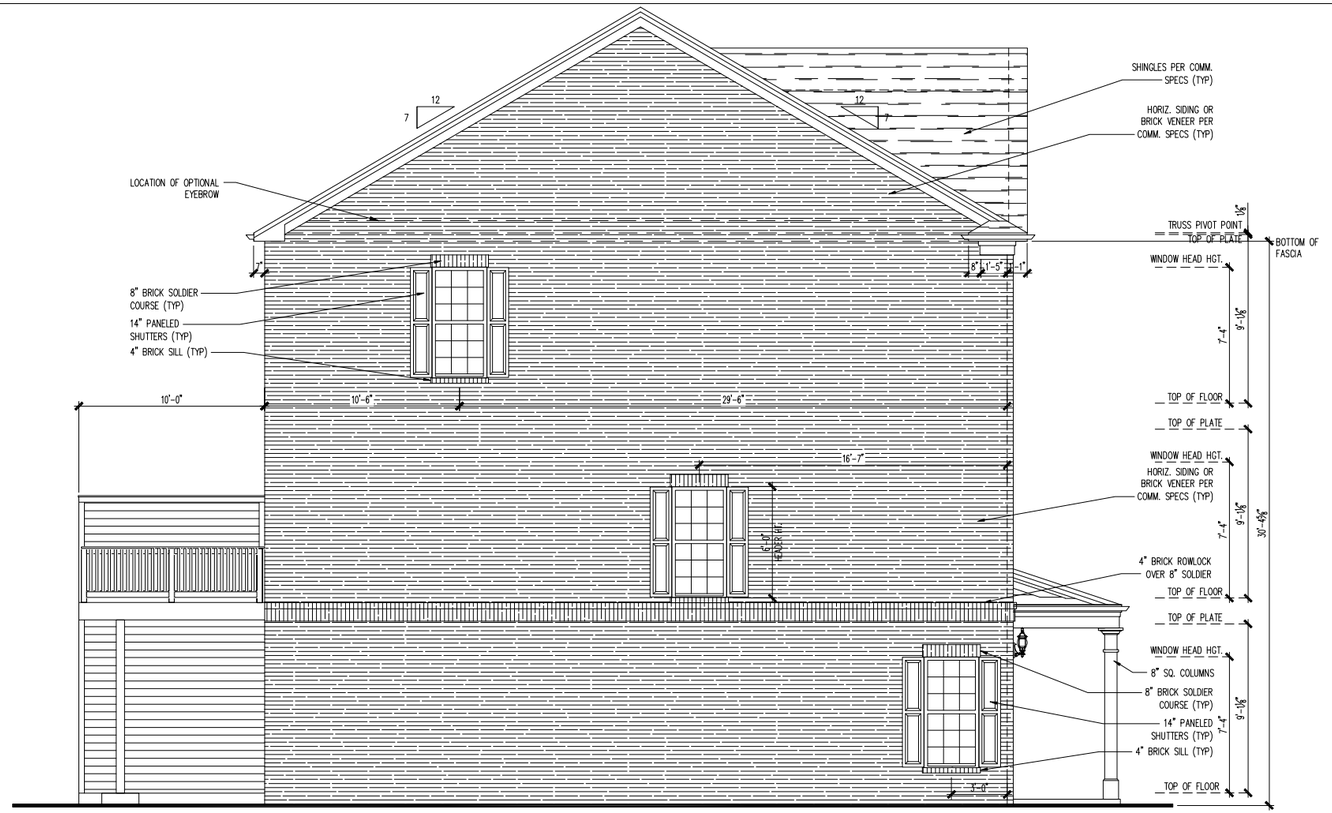
NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: February 24, 2017 / Samantha Powell / 22-RL-ELEVS_TRADITIONAL.DWG



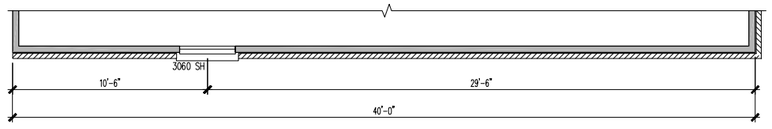
REAR DECK MIDDLE CONDITION

SCALE : 1/4" = 1'-0"



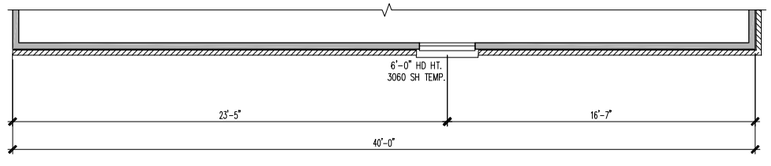
LEFT ELEVATION "61-70"

SCALE : 1/4" = 1'-0"



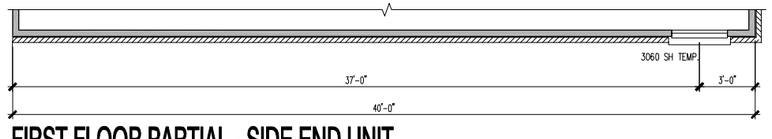
THIRD FLOOR PARTIAL - SIDE END UNIT

SCALE: 1/4" = 1'-0"



SECOND FLOOR PARTIAL - SIDE END UNIT

SCALE: 1/4" = 1'-0"



FIRST FLOOR PARTIAL - SIDE END UNIT

SCALE: 1/4" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy. Suite 600
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

Left Elevations 61-70

PRODUCTION MANAGER
Dan Kostka
INITIAL RELEASE DATE:
12-08-2015
CURRENT RELEASE DATE:
1-29-2016

REV #	DATE / DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

GARAGE HANDING
RL-ME-KC-KR

PLAN NAME
Hayward / Briarcliff

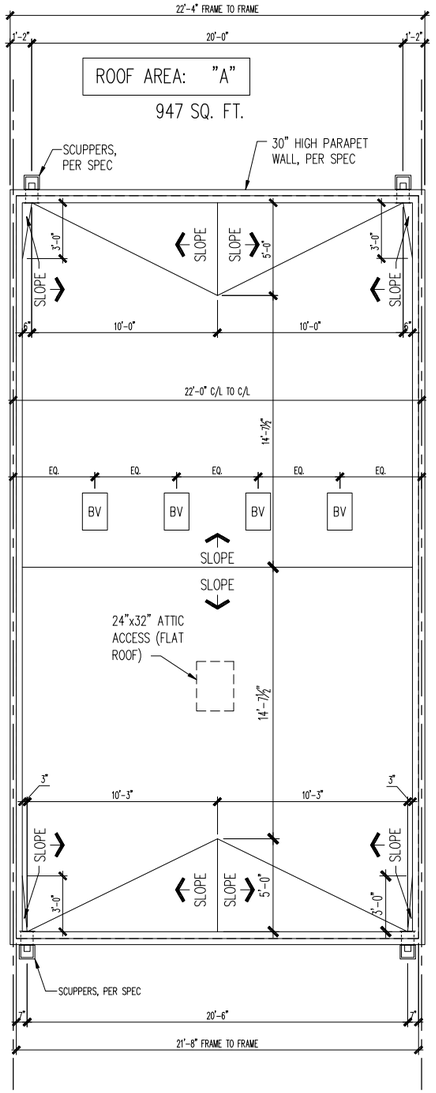
MPC PLAN NUMBER
2466.237 - 2466.238

LAWSON PLAN ID

SHEET
A.3.19

NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: February 24, 2017 / Samantha Powell / 22-RL-ELEVS_TRADITIONAL.DWG



ROOF PLAN

SCALE: 1/4" = 1'-0"

ATTIC VENTILATION : (300 SQ FT ATTIC SPACE / 1 SQ FT VENTILATION)
W/ 40%-50% REQ. VENTS GREATER THAN OR EQUAL TO 3' ABOVE EAVE / CORNICE VENTS PER IRC R806.2

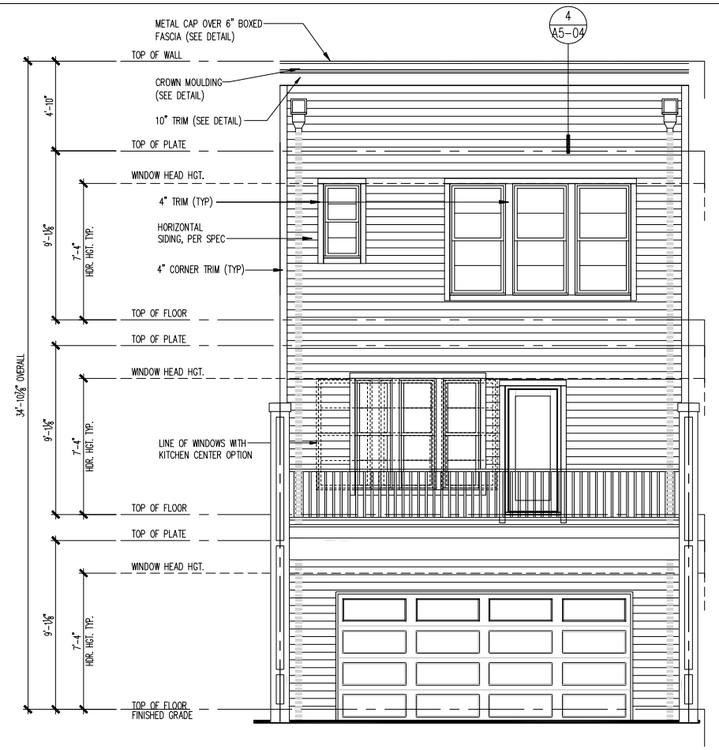
ELEVATION "2" 866 SQ FT UNDER ROOF ATTIC /
300 SQ FT / 1 SQ FT = 2.89 SQ FT VENTILATION

RIDGE VENT 18 SQ IN = (.125 SQ FT)
BOX VENT 50 SQ IN = (.3472 SQ FT)
SOFFIT VENT 9 SQ IN = (.0625 SQ FT)

2.89 SQ FT x 50 % = 1.443SQ FT RIDGE, 2.89 SQ FT x 50 % = 1.443 SQ FT SOFFIT

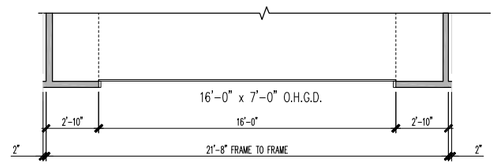
RIDGE VENT	OR W/ HIP, BOX VENT
1.443 SQ FT = 11.5 FEET OF RIDGE VENT	1.443 SQ FT = 4.2 BOX VENT(S)
0.125 SQ FT	0.3472SQ FT
SOFFIT VENT	
1.443 SQ FT = 23.1 FEET OF SOFFIT VENT	
0.0625SQ FT	

*CALCULATIONS REFLECT 50 % RIDGE AND 50 % SOFFIT VENTS ALLOWABLE PER SECTION IRC R806.2



REAR ELEVATION

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

Southeast Zone
2475 Northwinds Pkwy. Suite 600
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

Rear Elevation 21-25 & Roof Plan

PRODUCTION MANAGER
Dan Kostka
INITIAL RELEASE DATE:
12-08-2015
CURRENT RELEASE DATE:
1-29-2016

REV #	DATE / DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	

GARAGE HANDING
RL-MB-KC-KR

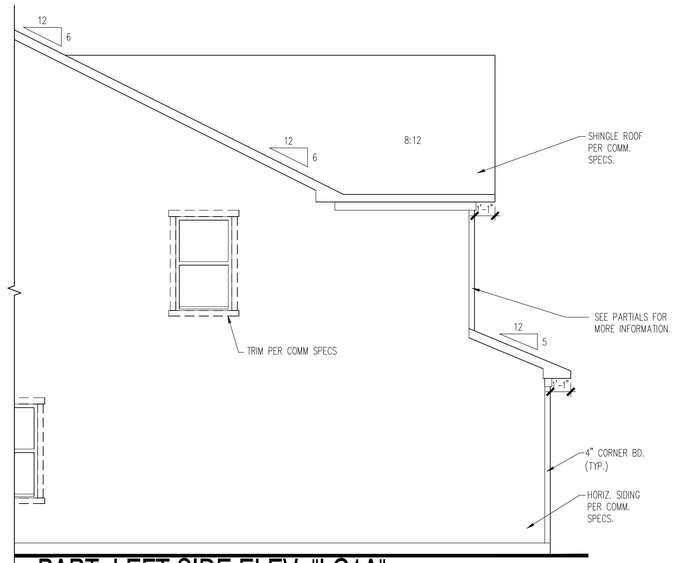
PLAN NAME
Hayward/ Briarcliff
NPC PLAN NUMBER
2466.237 - 2466.238
LAWSON PLAN ID

SHEET
A.3.20

NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS -- 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: February 24, 2017 / Samantha Powell / 22-RL-ELEVS_URBANJOWG

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

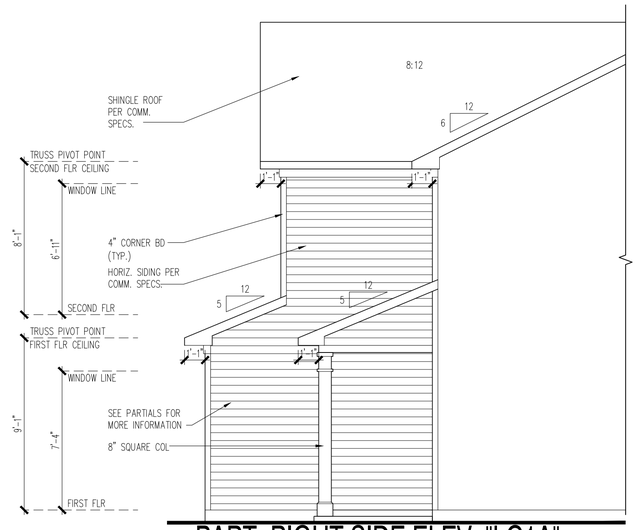


PART. LEFT SIDE ELEV. "LC1A"

SCALE : 1/4" = 1'-0"

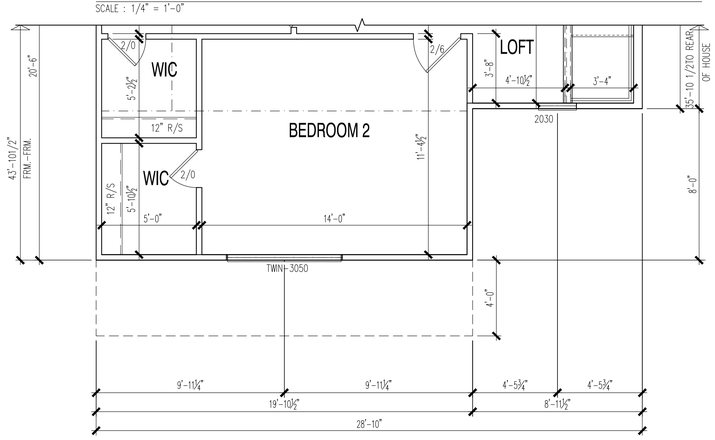
FRONT ELEVATION "LC1A" FRONT ENTRY GARAGE

SCALE : 1/4" = 1'-0"



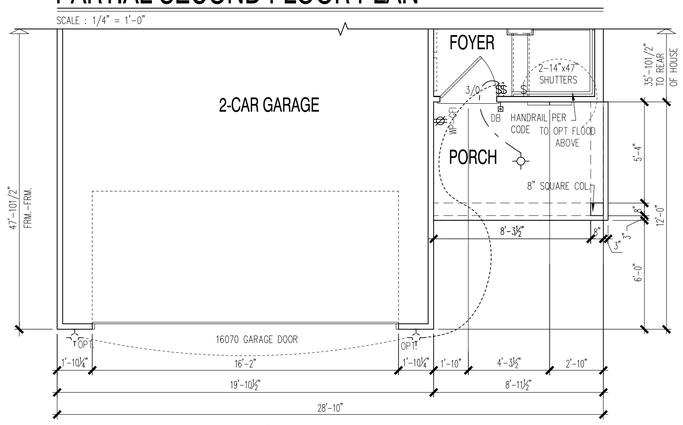
PART. RIGHT SIDE ELEV. "LC1A"

SCALE : 1/4" = 1'-0"



PARTIAL SECOND FLOOR PLAN

SCALE : 1/4" = 1'-0"



PARTIAL FIRST FLOOR PLAN

SCALE : 1/4" = 1'-0"

NOTE:
ADD 1X4 WINDBORNE DEBRIS TRIM AROUND ALL WINDOWS PER COMM SPEC

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy, Suite 600
Alpharetta, GA 30009 (770) 381-3450

PulteGroup

The HARRIS
FRONT ELEVATION "LC1A"
FRONT ENTRY GARAGE

PRODUCT MANAGER
INITIAL RELEASE
DATE: 00/00/0000

REV#	DATE/DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

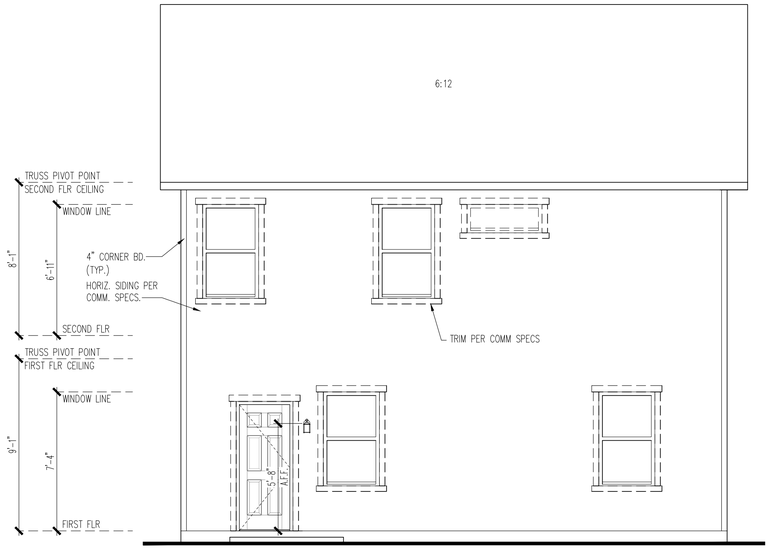
PROJECT TYPE
Single Family

SPECIFICATION LEVEL
Pulte

PLAN NAME
Harris
NPC NUMBER
8126.200

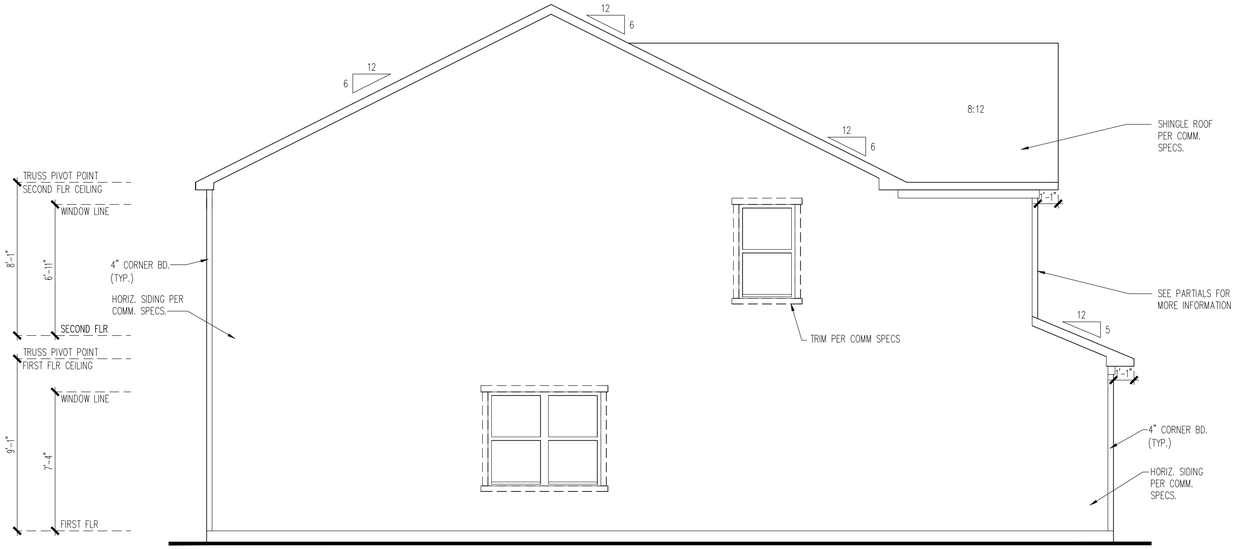
SHEET
3.10

PLOTTED: November 18, 2019 / tmcdowell / 3.10 FRONT ELEVATION LC1A.dwg



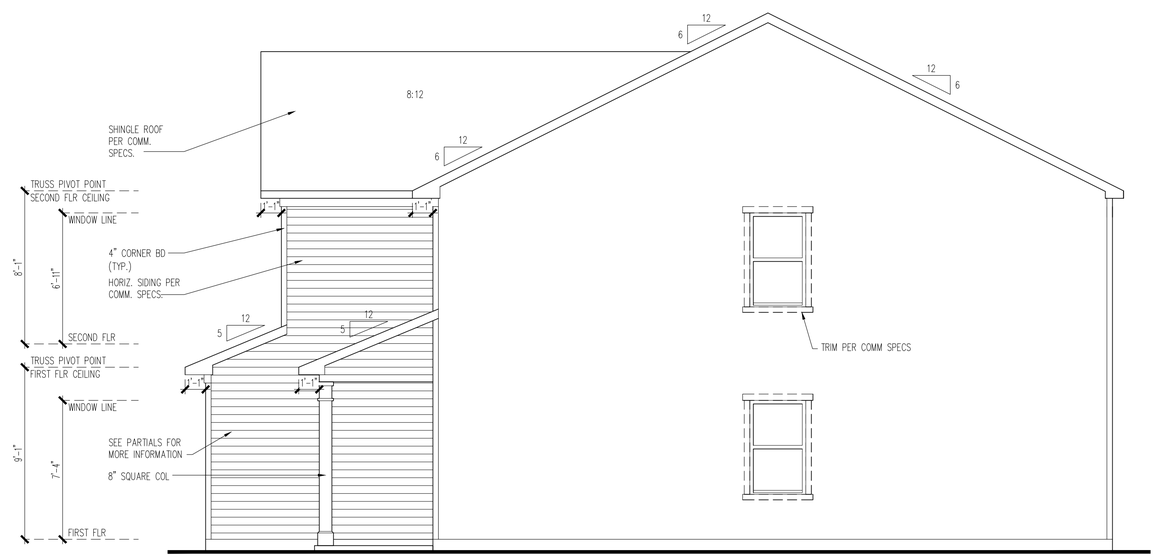
REAR ELEVATION "LC2A" FRONT ENTRY GARAGE

SCALE : 1/4" = 1'-0"



LEFT SIDE ELEVATION "LC2A" FRONT ENTRY GARAGE

SCALE : 1/4" = 1'-0"



RIGHT SIDE ELEVATION "LC2A" FRONT ENTRY GARAGE

SCALE : 1/4" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy, Suite 600
Alpharetta, GA 30009 (770) 381-3450

PulteGroup

The HARRIS
SIDE AND REAR ELEVATION "LC2A"
FRONT ENTRY GARAGE

PRODUCT MANAGER
INITIAL RELEASE
DATE: 00/00/0000

REV#	DATE/DESCRIPTION
1	----
2	----
3	----
4	----
5	----
6	----
7	----
8	----
9	----
10	----

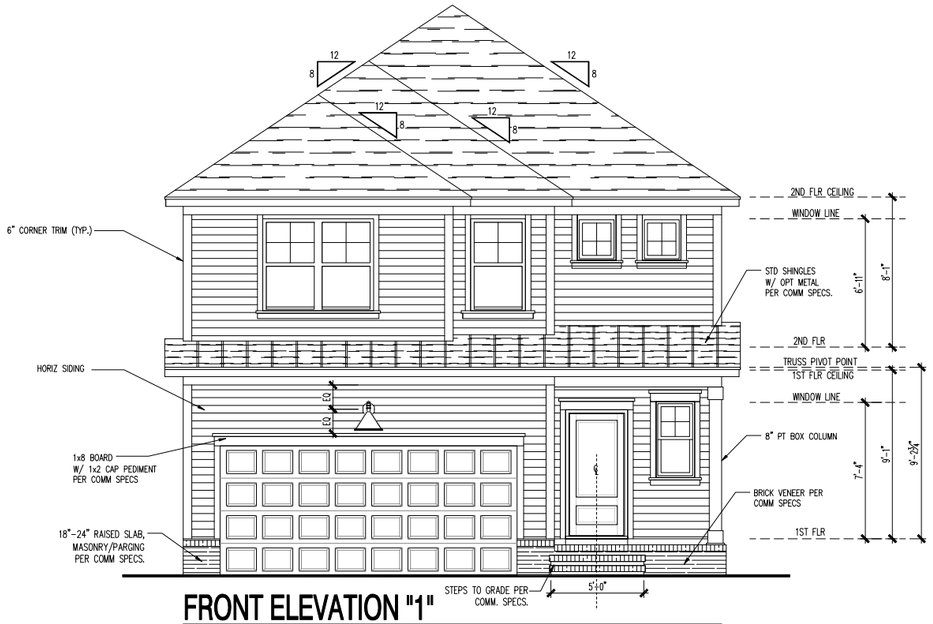
PROJECT TYPE
Single Family

SPECIFICATION LEVEL
Pulte

PLAN NAME
Harris
NPC NUMBER
8126.200

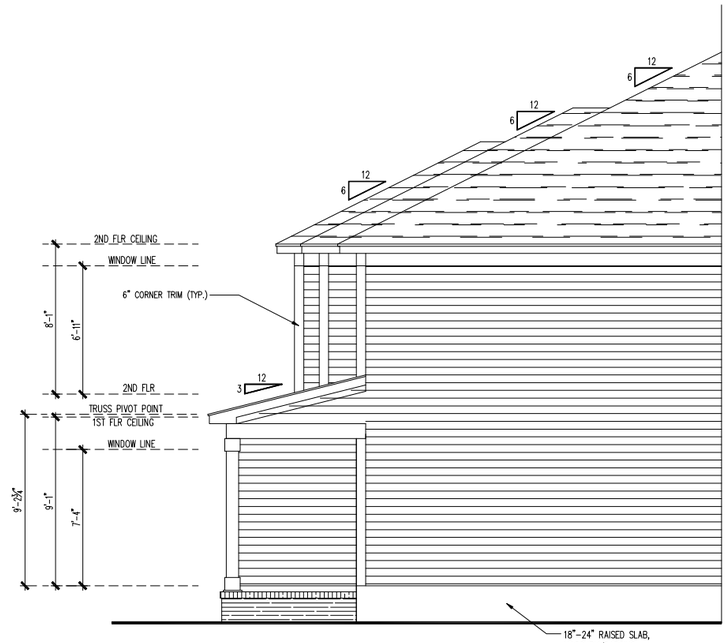
SHEET
3.SR.3

PLOTTED: November 18, 2019 / Kiki / 3.SR.3 SIDE AND REAR ELEVATIONS LC2A.dwg



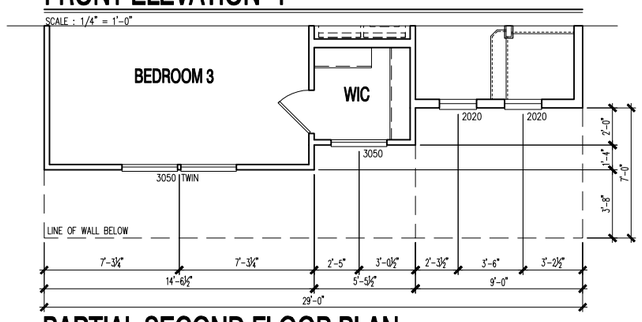
FRONT ELEVATION "1"

SCALE : 1/4" = 1'-0"



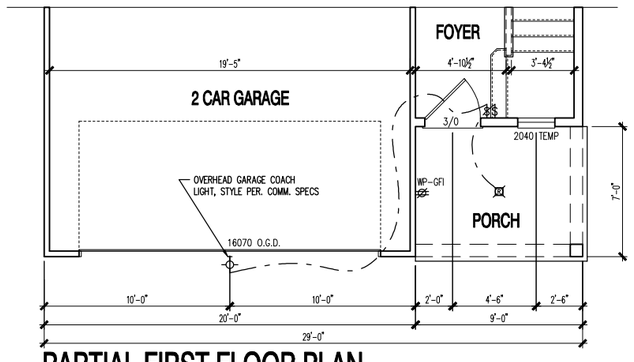
RIGHT SIDE ELEVATION

SCALE : 1/4" = 1'-0"



PARTIAL SECOND FLOOR PLAN

SCALE : 1/4" = 1'-0"



PARTIAL FIRST FLOOR PLAN

SCALE : 1/4" = 1'-0"

ATTIC VENTILATION : (300 SQ FT ATTIC SPACE / 1 SQ FT VENTILATION)
W/ 40%-50% REQ. VENTS GREATER THAN OR EQUAL TO 3' ABOVE
EAVE / CORNICE VENTS PER IRC R806.2

MORRISON ELEV 1 1095 SQ FT UNDER ROOF ATTIC /
300 SQ FT / 1 SQ FT = 3.65 SQ FT VENTILATION

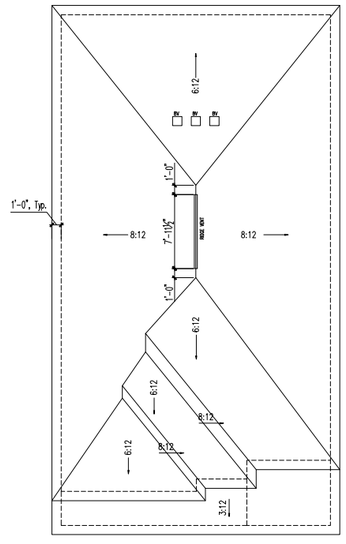
RIDGE VENT 18 SQ IN = (.125 SQ FT)
BOX VENT 50 SQ IN = (.3472 SQ FT)
SOFFIT VENT 9 SQ IN = (.0625 SQ FT)

3.65 SQ FT x 50 % = 1.825 SQ FT RIDGE, 3.65 SQ FT x 50 % = 1.825 SQ FT SOFFIT

RIDGE VENT	OR W/ HIP, BOX VENT
1.825 SQ FT = 14.6 FEET OF RIDGE VENT	1.825 SQ FT = 5.3 BOX VENT(S)
0.125 SQ FT	0.3472 SQ FT

SOFFIT VENT
1.825 SQ FT = 29.2 FEET OF SOFFIT VENT
0.06255 SQ FT

*CALCULATIONS REFLECT 50 % RIDGE AND 50 % SOFFIT VENTS ALLOWABLE PER SECTION IRC R806.2



ROOF PLAN

SCALE : 1/8" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Area
2475 Northwinds Pkwy. Suite 525
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

The MORRISON
FRONT ELEVATION "1"

PRODUCTION MANAGER
ACKLEY
CURRENT RELEASE DATE: 7-30-17

REV #	DATE / DESCRIPTION
1	6-21-18
2	1-8-19

PROJECT TYPE
SINGLE FAMILY

COMMUNITY NAME
SOUTHEAST AREA SET
LAWSON COMMUNITY ID
-

GARAGE HANDING

SPECIFICATION LEVEL
P1, P2

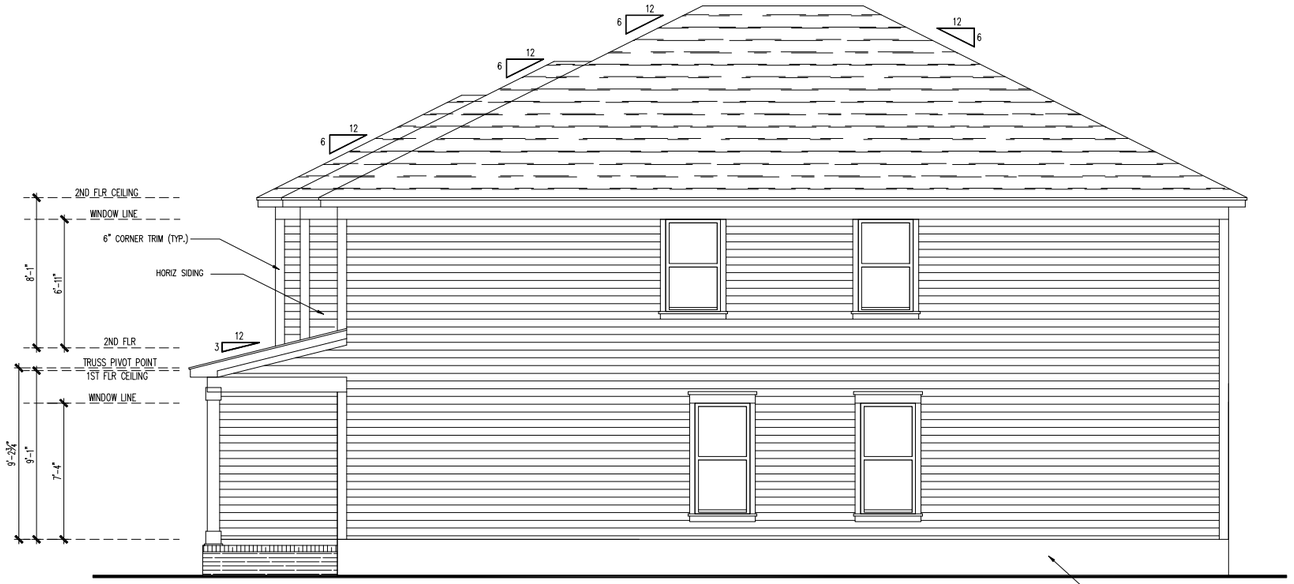
PLAN NAME
MORRISON
NPC PLAN NUMBER
-
LAWSON PLAN ID

LEGACY PLAN NUMBER / NAME
same as current

SHEET
3.1

NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: August 2, 2019 / Paul Howard / MORRISON ELEVATIONS - LEFT.DWG

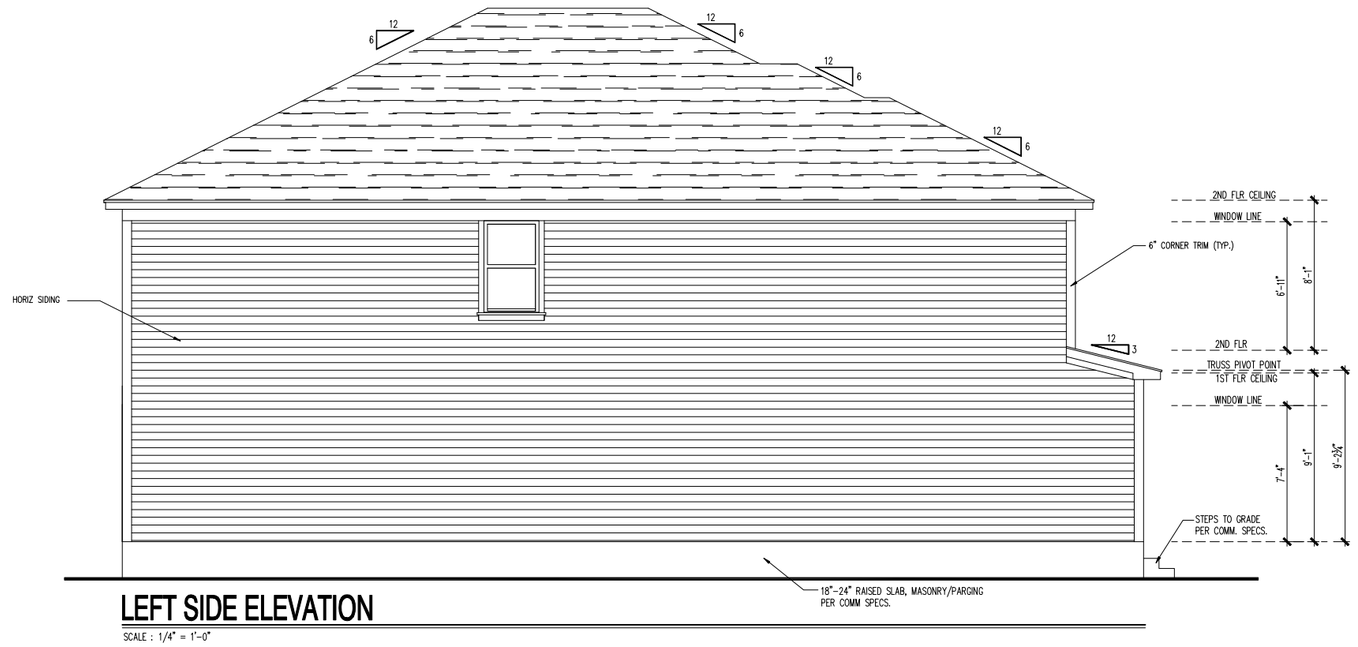


RIGHT SIDE ELEVATION

SCALE : 1/4" = 1'-0"

REAR ELEVATION

SCALE : 1/4" = 1'-0"



LEFT SIDE ELEVATION

SCALE : 1/4" = 1'-0"

Southeast Area
2475 Northwinds Pkwy. Suite 525
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

The MORRISON
SIDE / REAR ELEVATIONS

PRODUCTION MANAGER
ACKLEY
CURRENT RELEASE DATE: 7-30-17

REV #	DATE / DESCRIPTION
1	6-21-18
2	1-8-19

PROJECT TYPE
SINGLE FAMILY

COMMUNITY NAME
SOUTHEAST AREA SET
LAWSON COMMUNITY ID
--

GARAGE HANDING

SPECIFICATION LEVEL
P1, P2

PLAN NAME
MORRISON
NPC PLAN NUMBER
--
LAWSON PLAN ID

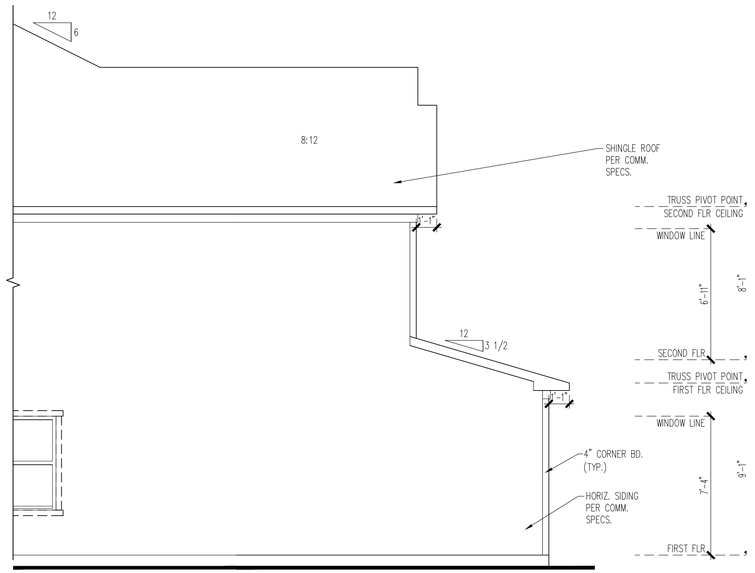
LEGACY PLAN NUMBER / NAME
same as current

SHEET
3.SR

NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

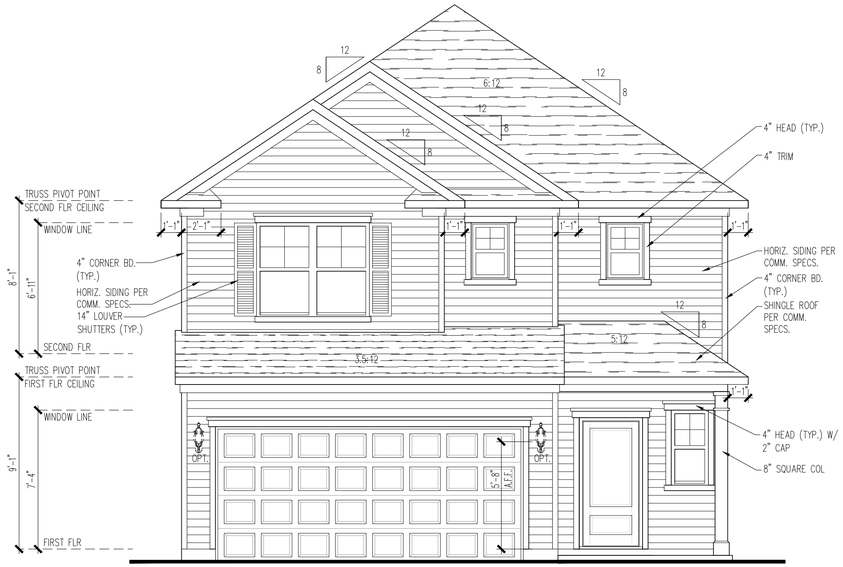
PLOTTED: February 5, 2019 / Paul Howard / MORRISON ELEVATIONS - LEFT.DWG

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.



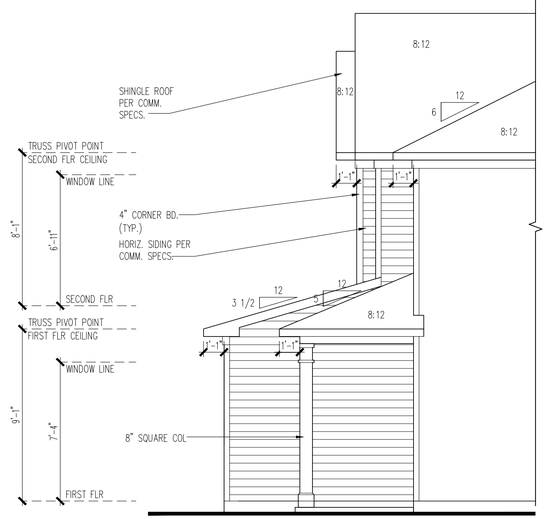
PARTIAL LEFT SIDE ELEVATION - "LC2A"

SCALE : 1/4" = 1'-0"



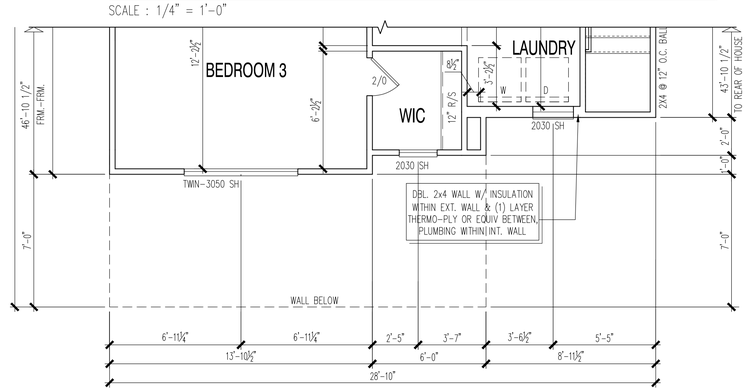
FRONT ELEVATION - "LC2A" - FRONT ENTRY GARAGE

SCALE : 1/4" = 1'-0"



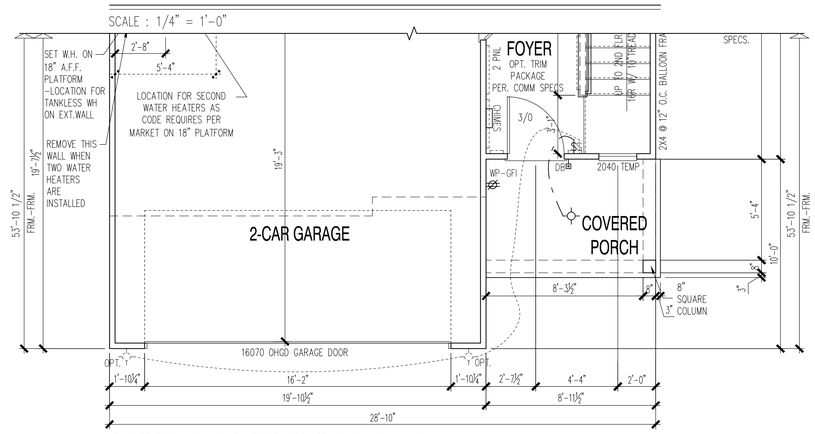
PARTIAL RIGHT SIDE ELEVATION - "LC2A"

SCALE : 1/4" = 1'-0"



PARTIAL SECOND FLOOR PLAN

SCALE : 1/4" = 1'-0"



PARTIAL FIRST FLOOR PLAN

SCALE : 1/4" = 1'-0"

NOTE:
ADD 1X4 WINDBORNE DEBRIS TRIM AROUND ALL WINDOWS PER COMM SPEC

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy, Suite 600
Alpharetta, GA 30009 (770) 381-3450

PulteGroup

The Murray
FRONT ELEVATION "LC2A"
FRONT ENTRY GARAGE

PRODUCT MANAGER

INITIAL RELEASE
DATE: 00/00/0000

REV#	DATE/DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

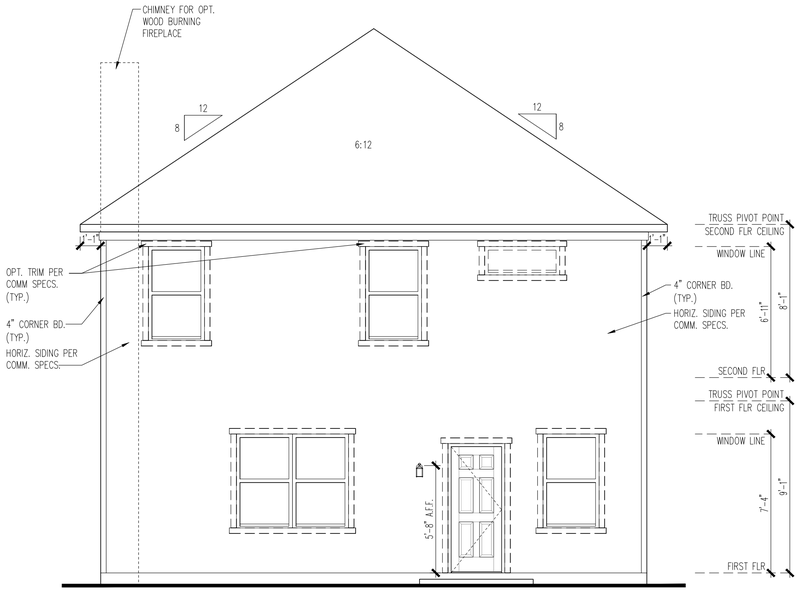
PROJECT TYPE
Single Family

SPECIFICATION LEVEL
Pulte

PLAN NAME
Murray
NPC NUMBER
8128.200

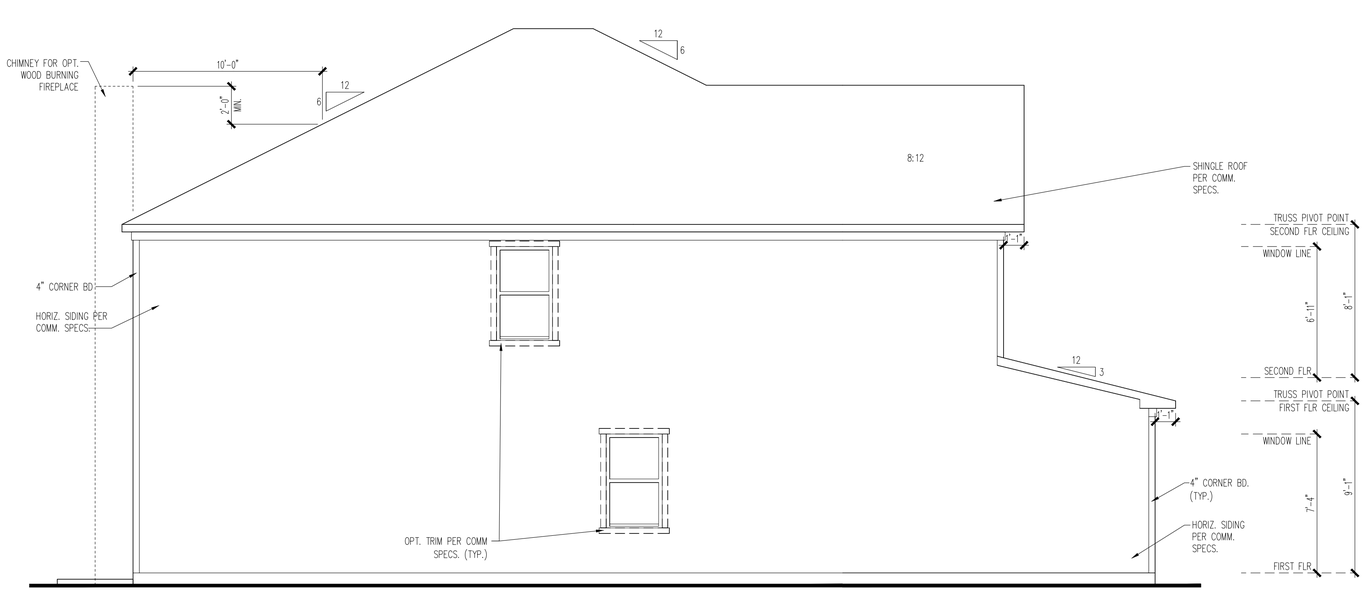
SHEET
3.11.0

PLOTTED: November 20, 2019 / tmcdowell / 3.11.0 FRONT ELEVATION LC2A.dwg



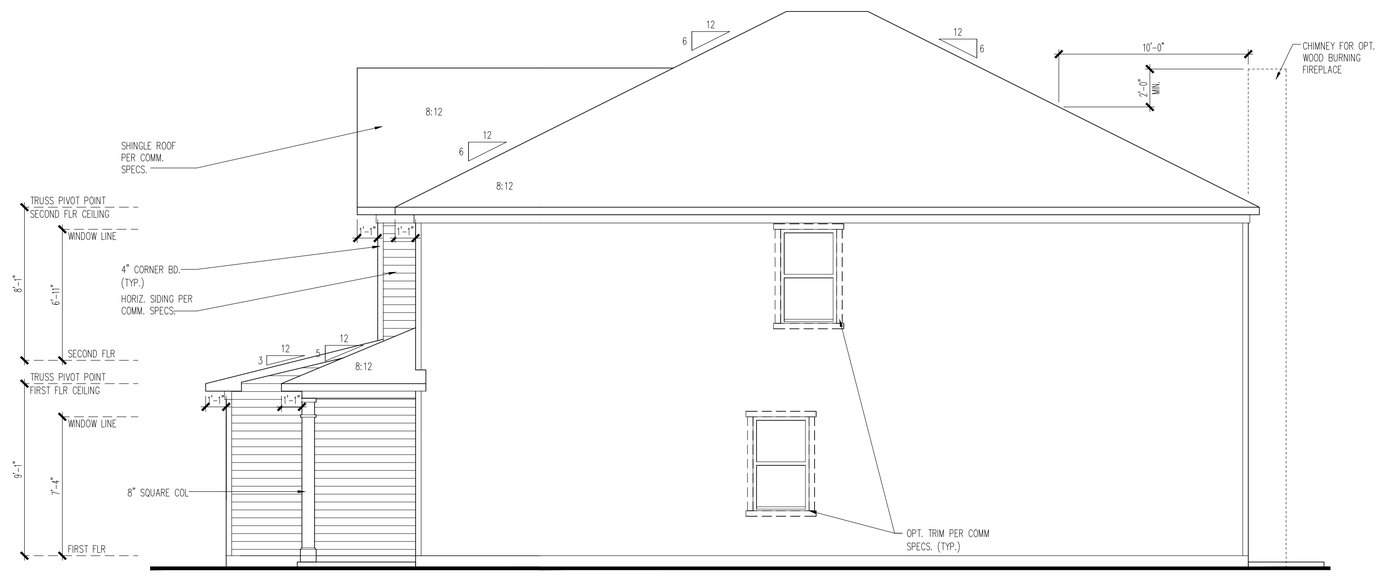
REAR ELEVATION - "LC1A" - FRONT ENTRY GARAGE

SCALE : 1/4" = 1'-0"



LEFT SIDE ELEVATION - "LC1A" - FRONT ENTRY GARAGE

SCALE : 1/4" = 1'-0"



RIGHT SIDE ELEVATION - "LC1A" - FRONT ENTRY GARAGE

SCALE : 1/4" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Zone
2475 Northwinds Pkwy, Suite 600
Alpharetta, GA 30009 (770) 381-3450

PulteGroup

The Murray
SIDE AND REAR ELEVATIONS "LC1A"
FRONT ENTRY GARAGE

PRODUCT MANAGER

INITIAL RELEASE
DATE: 00/00/0000

REV#	DATE/DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

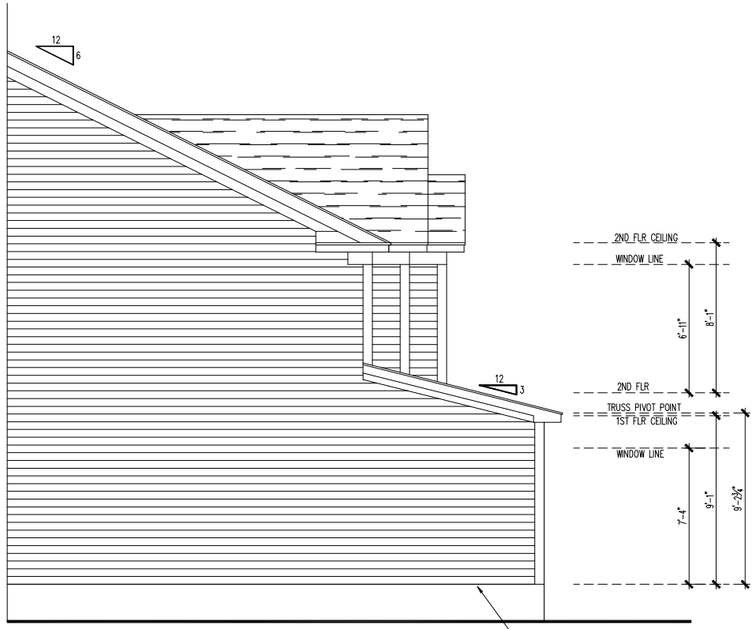
PROJECT TYPE
Single Family

SPECIFICATION LEVEL
Pulte

PLAN NAME
Murray
NPC NUMBER
8128.200

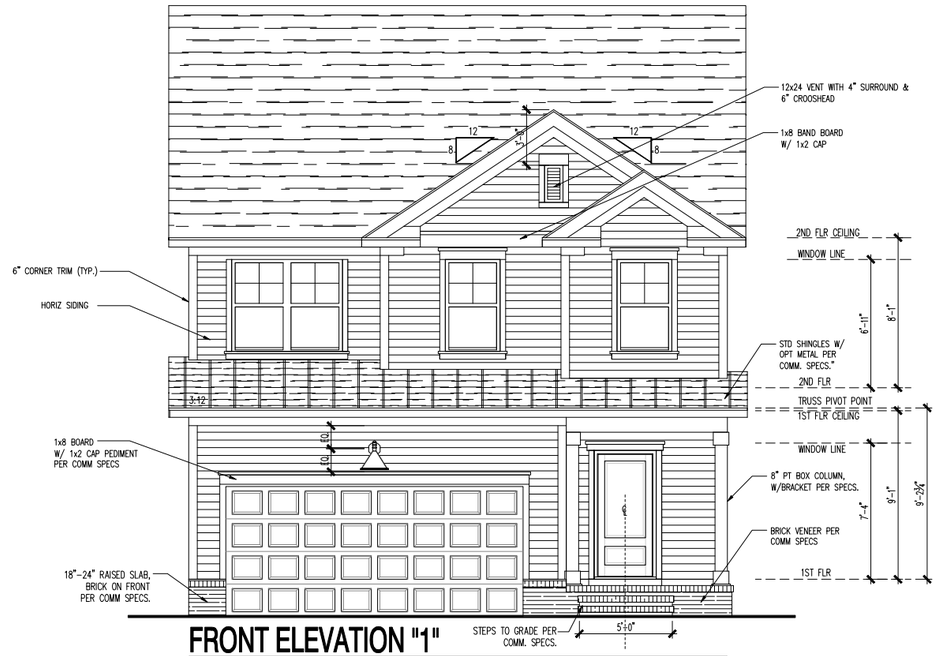
SHEET
3.SR.3

PLOTTED: November 20, 2019 / astbutler / J:\SR.3 SIDE AND REAR ELEVATIONS LC1A.dwg



LEFT SIDE ELEVATION

SCALE : 1/4" = 1'-0"



FRONT ELEVATION "1"

SCALE : 1/4" = 1'-0"

ATTIC VENTILATION : (300 SQ FT ATTIC SPACE / 1 SQ FT VENTILATION) W/ 50%-80% REQ. VENTS GREATER THAN OR EQUAL TO 3' ABOVE EAVE / CORNICE VENTS PER IRC R806.2

ELEVATIONS "ALL" 1180 SQ FT UNDER ROOF ATTIC / 300 SQ FT / 1 SQ FT = 3.93 SQ FT VENTILATION

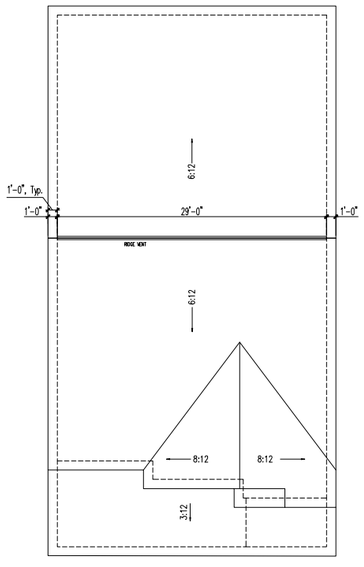
RIDGE VENT 18 SQ IN = (.125 SQ FT)
SOFFIT VENT 9 SQ IN = (.0625 SQ FT)

3.93 SQ FT x 50 % = 1.967SQ FT RIDGE, 3.93 SQ FT x 50 % = 1.967 SQ FT SOFFIT

RIDGE VENT
1.967 SQ FT = 15.7 FEET OF RIDGE VENT
0.125 SQ FT

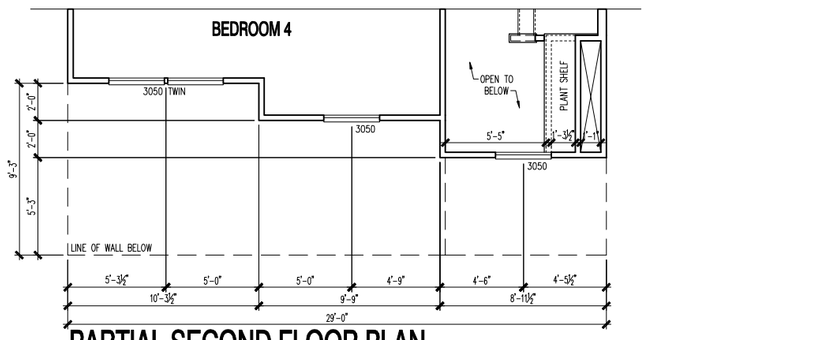
SOFFIT VENT
1.967 SQ FT = 31.5 FEET OF SOFFIT VENT
0.0625SQ FT

*CALCULATIONS REFLECT 50 % RIDGE AND 50 % SOFFIT VENTS ALLOWABLE PER SECTION IRC R806.2



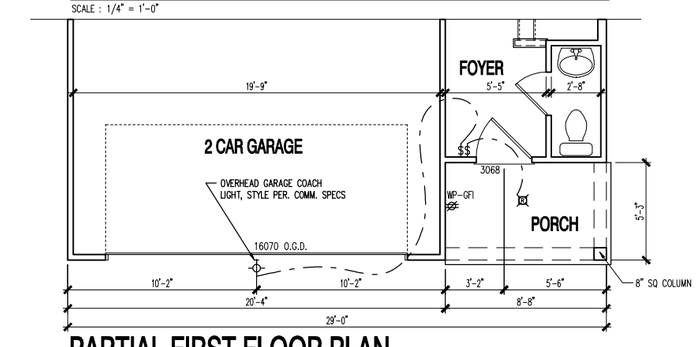
ROOF PLAN

SCALE : 1/8" = 1'-0"



PARTIAL SECOND FLOOR PLAN

SCALE : 1/4" = 1'-0"



PARTIAL FIRST FLOOR PLAN

SCALE : 1/4" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Area
2475 Northwinds Pkwy. Suite 525
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

The PRESTON
FRONT ELEVATION "1"

PRODUCTION MANAGER
ACKLEY
CURRENT RELEASE DATE: 7-30-17

REV #	DATE / DESCRIPTION
1	6-21-18
2	1-8-19

PROJECT TYPE
SINGLE FAMILY

COMMUNITY NAME
SOUTHEAST AREA SET
LAWSON COMMUNITY ID
--

GARAGE HANDING

SPECIFICATION LEVEL
P1, P2

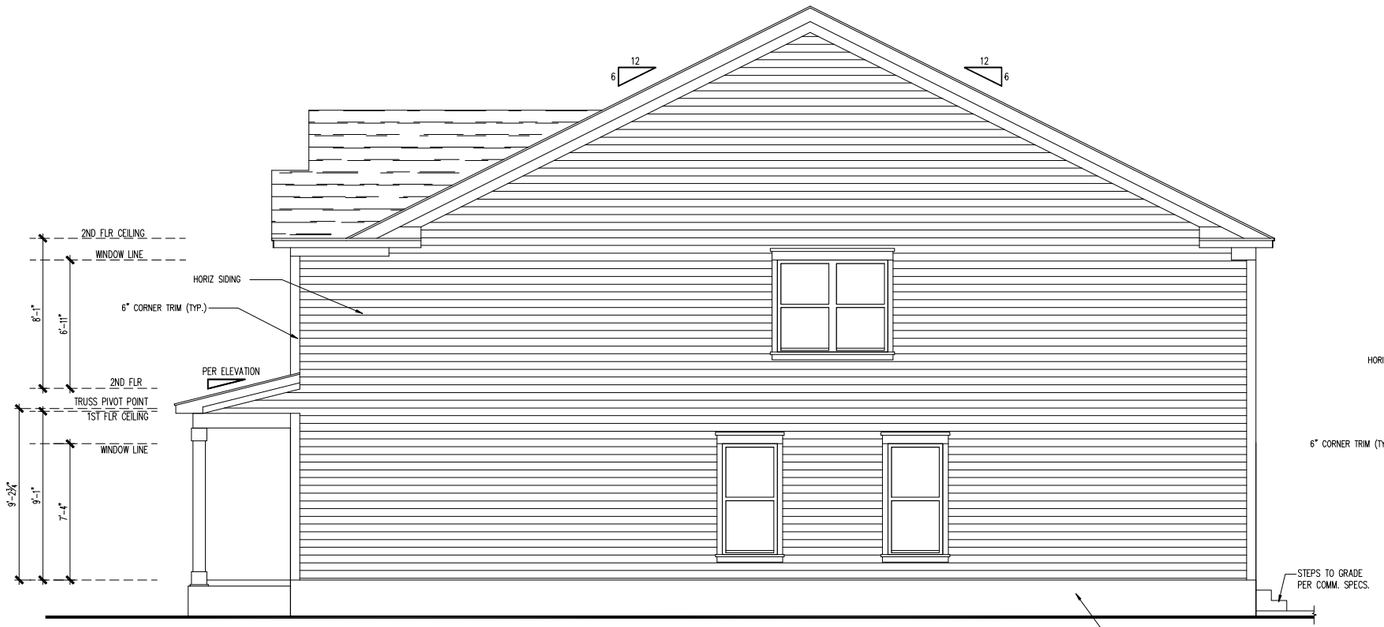
PLAN NAME
PRESTON
NPC PLAN NUMBER
--
LAWSON PLAN ID

LEGACY PLAN NUMBER / NAME
same as current

SHEET
3.1

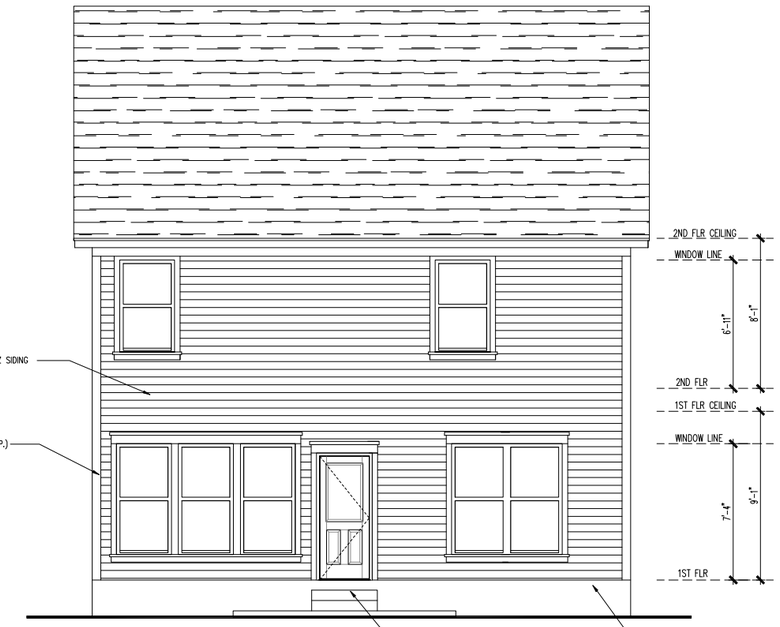
NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: August 2, 2019 / Paul Howard / PRESTON ELEVATIONS - LEFT.DWG



RIGHT SIDE ELEVATION

SCALE : 1/4" = 1'-0"



REAR ELEVATION

SCALE : 1/4" = 1'-0"

LEFT SIDE ELEVATION

SCALE : 1/4" = 1'-0"

Elevations are for illustrative purposes only; elevations submitted at MSP will be consistent with the architectural standards included in the PUD.

Southeast Area
2475 Northwinds Pkwy. Suite 525
Alpharetta, GA 30009 (770) 381-3450

Pulte Homes

The PRESTON
SIDE / REAR ELEVATIONS

PRODUCTION MANAGER
ACKLEY
CURRENT RELEASE DATE: 7-30-17

REV #	DATE / DESCRIPTION
1	6-21-18
2	1-8-19

PROJECT TYPE
SINGLE FAMILY

COMMUNITY NAME
SOUTHEAST AREA SET
LAWSON COMMUNITY ID
-

GARAGE HANDING

SPECIFICATION LEVEL
P1, P2

PLAN NAME
PRESTON
NPC PLAN NUMBER
-
LAWSON PLAN ID

LEGACY PLAN NUMBER / NAME
same as current

SHEET
3.SR

NOTE: SCALES NOTED ON DRAWINGS RELATE TO FULL SIZE PLOTS ON 22x34 SHEETS - 11x17 SHEETS REPRESENT 1/2 SCALE PLOTS

PLOTTED: August 2, 2019 / Paul Howard / PRESTON ELEVATIONS - LEFT.DWG

TRAFFIC IMPACT ANALYSIS

Hackney Tract Subdivision

Apex, NC

PREPARED FOR

WithersRavenel
c/o Nick Antrilli, PE
115 MacKenan Drive
Cary, NC 27511

PREPARED BY

VHB Engineering NC, P.C. (C-3705)
Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606-5217
919.829.0328

December 22, 2020

Executive Summary

Project Background

There are plans to construct the proposed Hackney Tract Subdivision on the north side of Olive Chapel Road, east of the newly completed Richardson Road, in Apex, NC (Figure 1). The proposed Hackney Tract Subdivision is planned to consist of up to 100 single-family and 133 multi-family townhomes with full build-out expected in 2024. A traffic impact analysis is required by the Town of Apex and North Carolina Department of Transportation (NCDOT) to analyze the potential traffic impacts of the proposed the Hackney Tract Subdivision and to identify any necessary roadway improvements.

As shown on the conceptual site plan (Figure 2), the development will be accessed through one full movement access along Olive Chapel Road:

- Access #1: full movement access on Olive Chapel Road, approximately 2,500 feet east of Richardson Road

In addition, access will be provided via Hasse Avenue extension to the north to Richardson Road, and cross-connections will be provided via local street extensions to the west to Smith Farm.

Based on the agreement with the Town of Apex and NCDOT (Appendix A), the following existing and future intersections were included in the study and analyzed under the AM and PM peak hour conditions:

- SR 1160 (Olive Chapel Road) and SR 1145 (Richardson Road) (unsignalized/future signalized)
- SR 1160 (Olive Chapel Road) and SR 1162 (Apex Barbecue Road) (unsignalized)
- Richardson Road and Hasse Avenue (unsignalized)
- US Highway 64 East at Richardson Road (unsignalized/future signalized)
- US Highway 64 West at U-turn east of Richardson Road (unsignalized/future signalized)
- SR 1160 (Olive Chapel Road) and Future Access #1/Hasse Avenue Extension (full movement access)

The analysis for the Hackney Tract Subdivision was performed under three (3) scenarios: Existing (2020), No-Build (2024) and Build (2024) conditions. The Existing

(2020) scenario includes AM and PM peak hour analysis based on turning movement count data collected in November 2020. The No-Build (2024) scenario includes existing traffic, a three percent (3%) annual growth rate, and site trips generated by seven planned developments within or adjacent to the study area. The Build (2024) scenario includes No-Build (2024) volumes with the addition of site trips generated by the proposed Hackney Tract Subdivision.

Existing (2020) Conditions

Existing analyses were conducted based on current roadway geometrics and intersection turning movement counts.

As reported in the Summary Level of Service (LOS) table on page v, all of the stop- and yield-controlled approaches in the study area are operating at acceptable levels of service (i.e., LOS D or better) during both the AM and PM peak hours under the Existing (2020) conditions, with an exception that the southbound approach of Richardson Road (westbound left-turn of US 64) at US 64 Eastbound operates at LOS F during both peak hours.

No-Build (2024) Conditions

Based on the requirements by the Town of Apex and NCDOT, an annual growth rate of three percent (3%) was applied to the existing traffic to account for ambient growth between the base year (2020) and the future analysis year (2024). In addition, site trips generated by seven (7) planned developments in the study area were aggregated and included in the No-Build (2024) volumes. It should be noted that although significant traffic increases were expected with the inclusion of background developments, an undiscounted annual growth rate was applied to offset the impacts on traffic data collected in 2020 with COVID-19 pandemic restrictions in place.

As for transportation improvements, mitigation requirements associated with Sweetwater are expected to include two new signals and additional turn lanes along US 64 at the Richardson Road and U-turn east of Richardson Road intersections; in addition, a new signal is expected to be installed by Smith Farm at the Olive Chapel Road and Richardson Road intersection once it is warranted.

Based on the No-Build (2024) analysis, the study area is projected to experience traffic and delay increases, but the impacts will be substantially mitigated by the background transportation improvements. As a result, all of the signalized intersections and stop-controlled approaches in the study area are projected to operate at acceptable levels of service except that the stop-controlled northbound approach of Apex Barbecue Road at Olive Chapel Road is projected to decline to operate at LOS F in the PM peak hour.

Trip Generation and Assignment

Trip generation was conducted based on the most appropriate corresponding trip generation codes included in the *ITE Trip Generation Manual, 10th Edition* and the suggested method of calculation in the NCDOT's *"Rate vs. Equation" Spreadsheet*. To provide a conservative analysis, no transit, walking, or bicycling reductions will be applied.

Land Use Code	Land Use	Unit	ADT	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
210	Single-Family Detached Housing	100 du	1,040	19	57	76	64	38	102
220	Multi-Family Housing (Low-Rise)	133 du	965	14	49	63	48	28	76
Development Total			*2,005*	*33*	*106*	*139*	*112*	*66*	*178*

In total, the proposed Hackney Tract Subdivision is projected to generate 2,005 daily trips with 139 trips (33 entering, 106 exiting) occurring in the AM peak hour and 178 trips (112 entering, 66 exiting) occurring the PM peak hour. The resulting site trips were distributed in accordance with the existing traffic patterns and anticipated land uses.

Build (2024) Conditions

The Build (2024) conditions account for both the No-Build (2024) traffic and site traffic generated by the proposed Hackney Tract Subdivision.

As shown in the Summary LOS table on page v, the stop-controlled northbound approach of Apex Barbeque Road at Olive Chapel Road is projected to continue to operate at failing levels of services in the PM peak hour with delay increases. The rest of the intersections included in the study area are projected to continue operating at acceptable levels of service during both peak hours. The planned stop-controlled Future Access #1 is projected to operate at LOS C in the AM peak hour and LOS D in the PM peak hour.

Roadway Improvement Recommendations

As indicated in the traffic operations analyses, the proposed Hackney Tract Subdivision is projected to have minimum impacts on traffic operations of the surrounding roadway network and intersections. Nevertheless, the following roadway improvements are recommended to improve traffic operations and safety:

SR 1160 (Olive Chapel Road) and Future Access #1/Hasse Avenue Extension (unsignalized, full movement)

Future Access #1 is projected to operate at acceptable levels of service during the AM and PM peak hour with a two-lane cross-section. Although traffic volumes are not projected to automatically warrant turn lanes on Olive Chapel Road, dedicated turn lanes should be provided with the required frontage widening to meet the Town of Apex Comprehensive Transportation Plan standards. Therefore, the following site access configuration and transportation improvements are recommended at this intersection:

- Construct Future Access #1 to consist of one inbound lane and one outbound lane.
- Provide a dedicated left-turn lane on eastbound Olive Chapel Road with 100 feet of storage length and appropriate taper.
- Provide a dedicated right-turn lane on westbound Olive Chapel Road with 100 feet of storage length and appropriate taper.

SR 1160 (Olive Chapel Road) and SR 1162 (Apex Barbecue Road) (unsignalized)

Traffic analysis indicated that the northbound approach of Apex Barbecue Road is projected to operate at LOS F in the PM peak hour under the No-Build and Build conditions. The intersection is not anticipated to meet warrants for installing a new traffic signal, while options for adding new turn lanes are limited due to the skewed angle of intersection on a curve of Olive Chapel Road and potential right-of-way/drainage restrictions. As shown on the Apex Comprehensive Transportation Plan, this intersection is identified for future intersection realignment. Since site trips are anticipated to contribute less than 4% traffic increases in the AM and 3% in the PM at this intersection (increases of only 1 VPH in the AM peak hour and 2 VPH in the PM peak on the stop-controlled approach), improvement should not be required by this development based on the Town of Apex UDO. Nevertheless, alternative traffic control method (such as AWSC), if warranted by crash analysis, may be considered before this intersection is realigned in the future based on the Town of Apex CTP.

The rest of study area intersections are expected to operate acceptably. Therefore, no mitigation is required.

Summary Level of Service Table

Intersection and Approach	Control	Existing (2020)		No-Build (2024)		Build (2024)	
		AM	PM	AM	PM	AM	PM
Richardson Rd and Olive Chapel Rd	TWSC/ Signal	-	-	**A (9.7)**	**B (11.8)**	**A (9.8)**	**B (12.0)**
Eastbound		---	---	A-9.7	B-10.7	A-9.8	B-10.9
Westbound		---	---	B-10.3	B-12.0	B-10.5	B-12.2
Northbound		B-11.9	B-14.1	B-10.2	B-12.7	B-10.3	B-13.0
Southbound		B-11.7	C-15.5	A-8.4	B-11.5	A-8.5	B-11.6
Apex Barbecue Rd and Olive Chapel Rd	TWSC	-	-	-	-	-	-
Northbound		B-11.8	C-19.5	C-16.8	F-92.5	C-17.9	F-134.5
Richardson Rd and Little Gem Ln/Hasse Ave	TWSC	-	-	-	-	-	-
Eastbound		A-9.8	B-10.2	C-16.5	C-21.8	C-19.1	D-32.0
Westbound		A-9.7	A-9.9	C-15.1	C-19.1	C-17.0	C-21.9
Richardson Rd/WB Left-Over and US 64	TWSC/ Signal	-	-	**C (20.7)**	**D (42.0)**	**C (22.0)**	**D (44.5)**
Eastbound		---	---	C-20.7	D-51.3	C-23.7	E-56.0
Northbound		C-23.5	C-23.3	C-28.2	D-47.4	C-28.5	D-50.1
Southbound		F-66.0	F-216.7	B-10.9	B-19.6	A-9.8	B-19.5
U-Turn East of Richardson Rd and US 64	TWSC/ Signal	-	-	**B (11.8)**	**C (27.6)**	**B (12.5)**	**C (30.9)**
Westbound		---	---	A-9.6	C-20.5	B-10.5	C-24.1
Northbound		B-14.2	C-18.2	C-27.8	E-59.9	C-26.5	E-62.1
Olive Chapel Rd & Hasse Ave/Future Access #1	TWSC	-	-	-	-	-	-
Southbound		---	---	---	---	C-16.1	D-25.0

LEGEND: **X (XX)** = Overall intersection LOS (intersection delay in sec/veh);

X - XX = approach LOS – approach delay in sec/veh

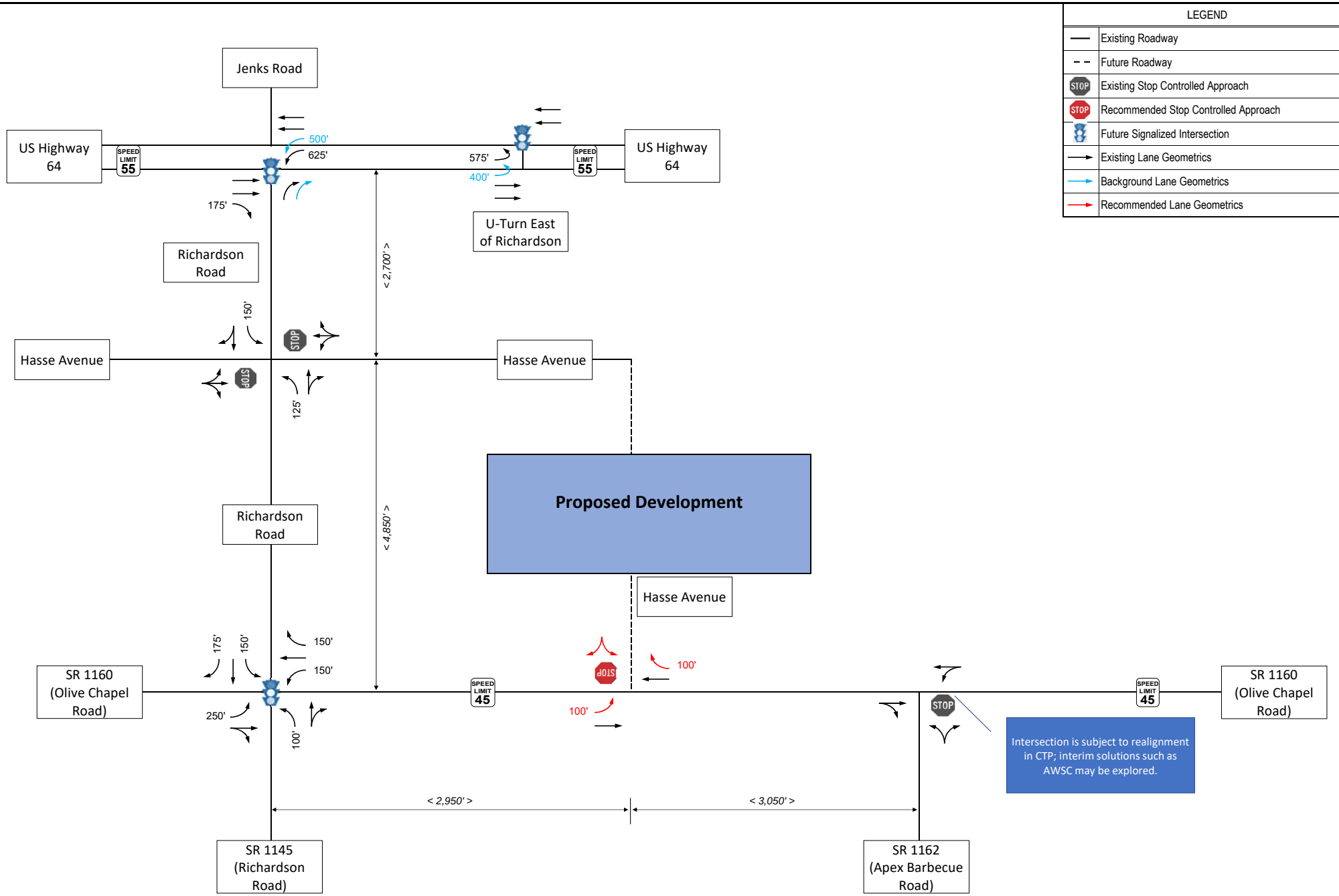


Figure ES
Future (2024) Lane Geometrics and Traffic Control

Hackney Tract Subdivision
Apex, NC

Table of Contents

Appendices

Tables

Figures

1

Introduction

There are plans to construct the proposed Hackney Tract Subdivision on the north side of Olive Chapel Road, east of the newly completed Richardson Road, in Apex, NC (Figure 1). The proposed Hackney Tract Subdivision is planned to consist of up to 100 single-family and 133 multi-family townhomes with full build-out expected in 2024.

As shown on the conceptual site plan (Figure 2), the development will be accessed through one full movement access along Olive Chapel Road:

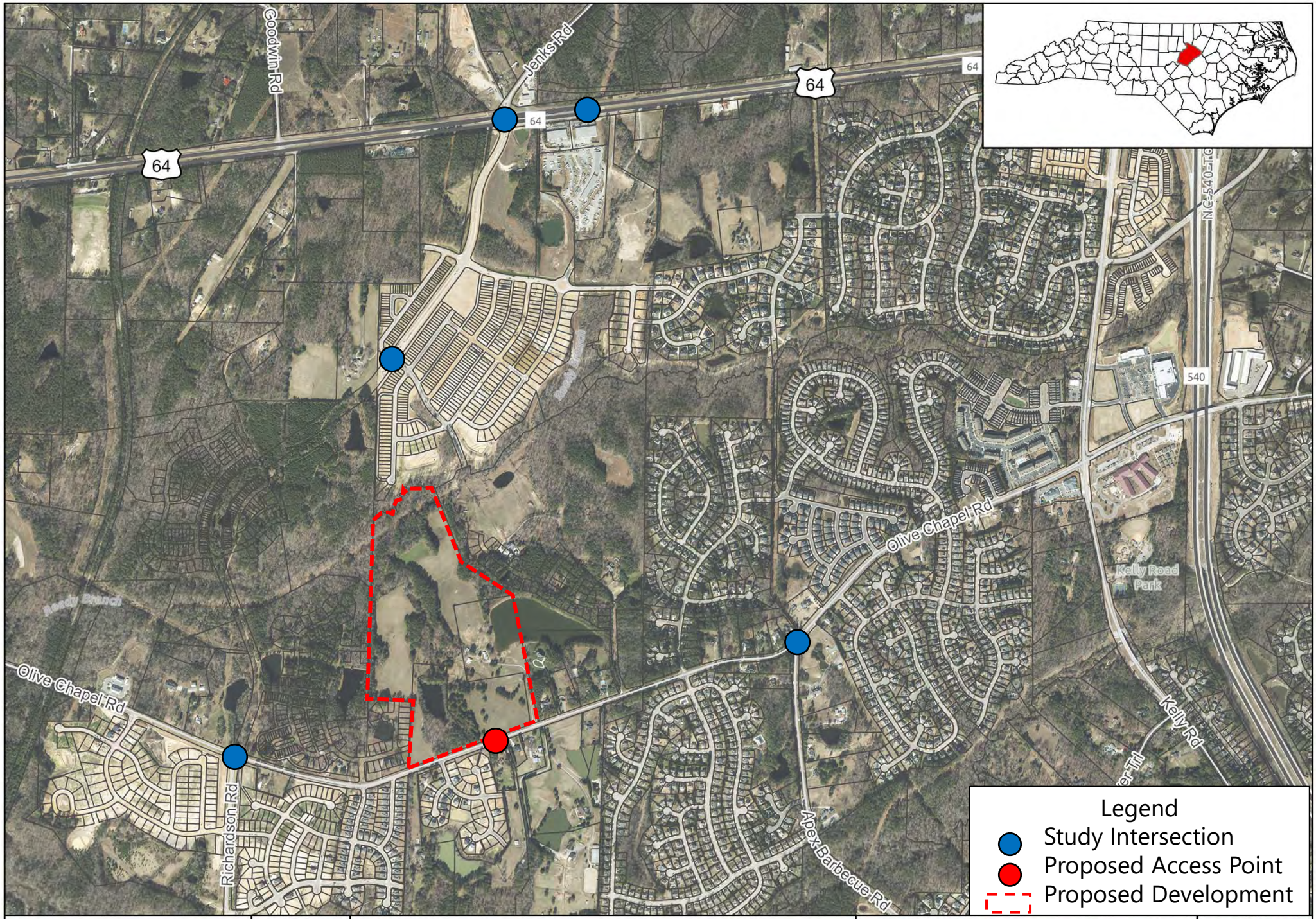
- Access #1: full movement access on Olive Chapel Road, approximately 2,500 feet east of Richardson Road

In addition, access will be provided via Hasse Avenue extension to the north to Richardson Road, and cross-connections will be provided via local street extensions to the west to Smith Farm.

Based on the agreement with the Town of Apex and NCDOT (Appendix A), the following existing and future intersections were included in the study and analyzed under the AM and PM peak hour conditions:

- SR 1160 (Olive Chapel Road) and SR 1145 (Richardson Road) (unsignalized/future signalized)
- SR 1160 (Olive Chapel Road) and SR 1162 (Apex Barbecue Road) (unsignalized)
- Richardson Road and Hasse Avenue (unsignalized)
- US Highway 64 East at Richardson Road (unsignalized/future signalized)
- US Highway 64 West at U-turn east of Richardson Road (unsignalized/future signalized)
- SR 1160 (Olive Chapel Road) and Future Access #1/Hasse Avenue Extension (full movement access)

VHB Engineering NC, P.C. (VHB) is contracted with the development team to analyze the potential traffic impacts of the proposed development and to identify any necessary roadway improvements. This Traffic Impact Analysis (TIA) summarizes trip generation, distribution, traffic assignment, and traffic analyses for the proposed development. The Memorandum of Understanding, which summarizes the assumptions for the study is included in Appendix A.

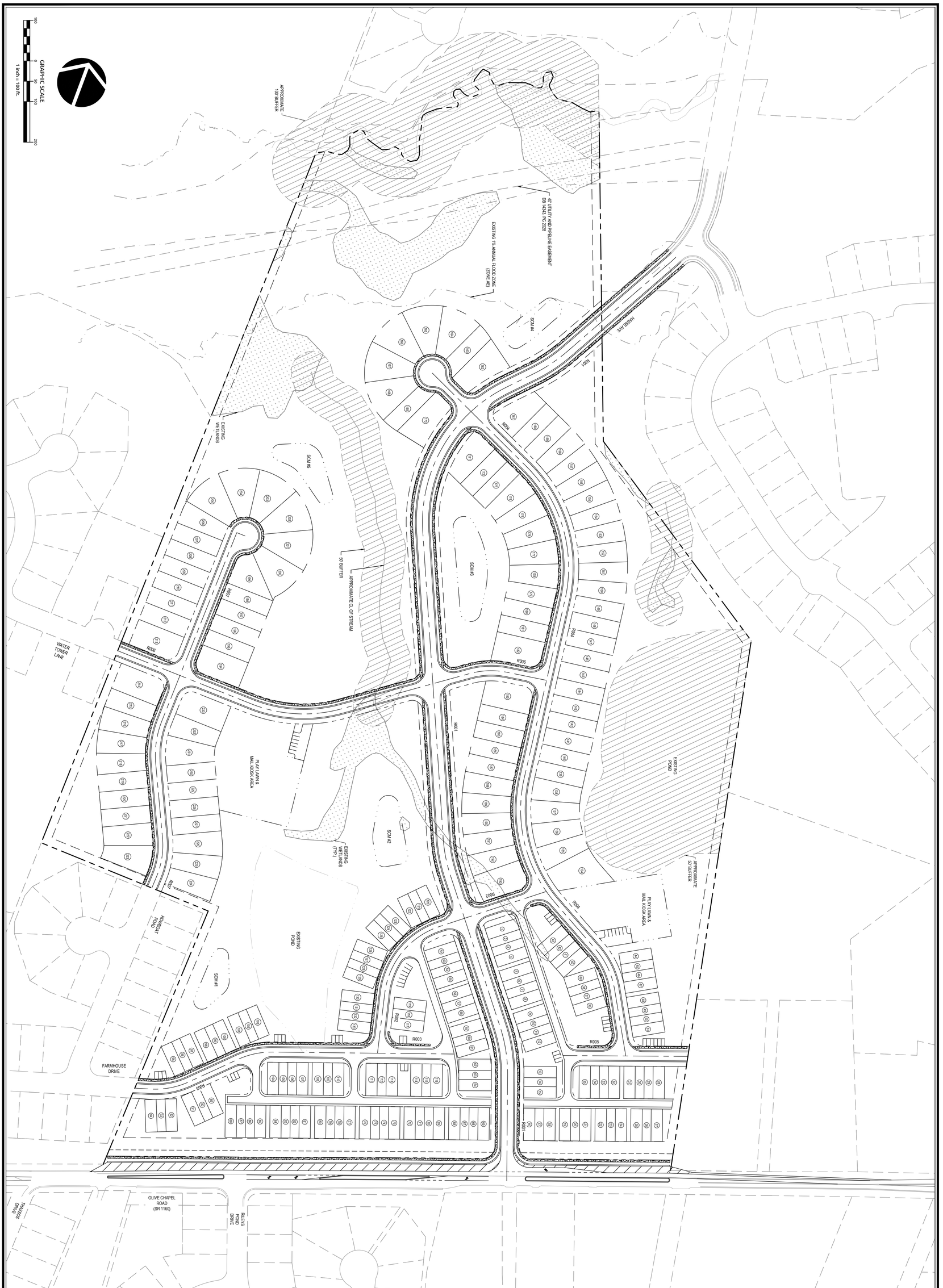


Scale
0 0.15 0.3 Miles

Figure 1: Vicinity Map

Hackney Tract Subdivision
Traffic Impact Analysis
Apex, NC

K:\18\18-0510\180517.10-Pulte-Hackney Tract\CAD\Drawing Sets\Preliminary\1.0 SUBDIVISION PLAN.dwg- Tuesday, October 20, 2020 1:12:52 PM - INGE, BRYANT



Sheet No. 1.0	Revisions	PRELIMINARY NOT APPROVED FOR CONSTRUCTION	Job No. 0218551.20 Date 10/19/20 Drawn By VR Designer VR	OVERALL SUBDIVISION PLAN	HACKNEY TRACT SUBDIVISION APEX, NORTH CAROLINA

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

2

Existing (2020) Conditions

Existing Roadway Conditions

This section describes the existing roadways in the vicinity of the proposed development. Annual Average Daily Traffic (AADT) data for the surrounding network of roadway were obtained from the North Carolina Department of Transportation (NCDOT). The most recent AADT counts from the NCDOT are for 2019 on the study area roadways.

Olive Chapel Road (SR 1160)

- Olive Chapel Road is a two-lane undivided road within the study area. The posted speed limit along this roadway is 45 miles per hour (mph).
- As shown on the Town of Apex Thoroughfare and Collector Street Plan (last amended October 2020), Olive Chapel Road is planned to be widened to a 4-lane thoroughfare with median across the study area.
- The 2019 NCDOT AADT along Olive Chapel Road was 2,500 vehicles per day (vpd) between New Hill Olive Chapel Road and Kelly Road.

Richardson Road (SR 1145)

- Richardson Road is a new two-lane median divided roadway connecting US Highway 64 and Olive Chapel Road within the study area. The posted speed limit along this roadway is 45 mph.
- As shown on the Town of Apex Thoroughfare and Collector Street Plan, Richardson Road is planned to be widened to a 4-lane thoroughfare with median across the study area.
- The 2019 AADT along Richard Road was 810 vpd south of Olive Chapel Road. No AADT information is available for Richardson Road between Olive Chapel Road and US 64.

Apex Barbecue Road (SR 1162)

- Apex Barbecue Road is a two-lane undivided roadway south of the project site within the study area. The posted speed limit along this roadway is 45 mph.
- As shown on the Town of Apex Thoroughfare and Collector Street Plan, Apex Barbeque Road is planned to be widened to a 3-lane thoroughfare with intersection realignment planned at Olive Chapel Road.
- The 2019 NCDOT AADT along Apex Barbeque Road was 4,500 vpd between Kelly Road and Olive Chapel Road.

US Highway 64 (US 64)

- US Highway 64 is a four-lane median divided highway with partial control of access within the study area. The posted speed limit along US 64 is 55 mph.
- As shown on the Town of Apex Thoroughfare and Collector Street Plan, US Highway 64 is planned to be a freeway facility with full control of access, and a future interchange is planned along US 64 with Richardson Road/Jenks Road.
- The 2019 NCDOT AADT along US 64 was 27,000 vpd between New Hill Road and Kelly Road.

Hasse Avenue

- Hasse Avenue is a two-lane undivided local road within the study area. No posted speed limit was observed along Hasse Avenue.
- As shown on the Town of Apex Thoroughfare and Collector Street Plan, Hasse Avenue is planned to be extended to a two-lane major collector street between Richardson Road and Olive Chapel Road.
- No AADT information is available for Hasse Avenue within the study area.

Figure 3 provides a schematic diagram of the roadways near the proposed development including the existing intersection geometrics.

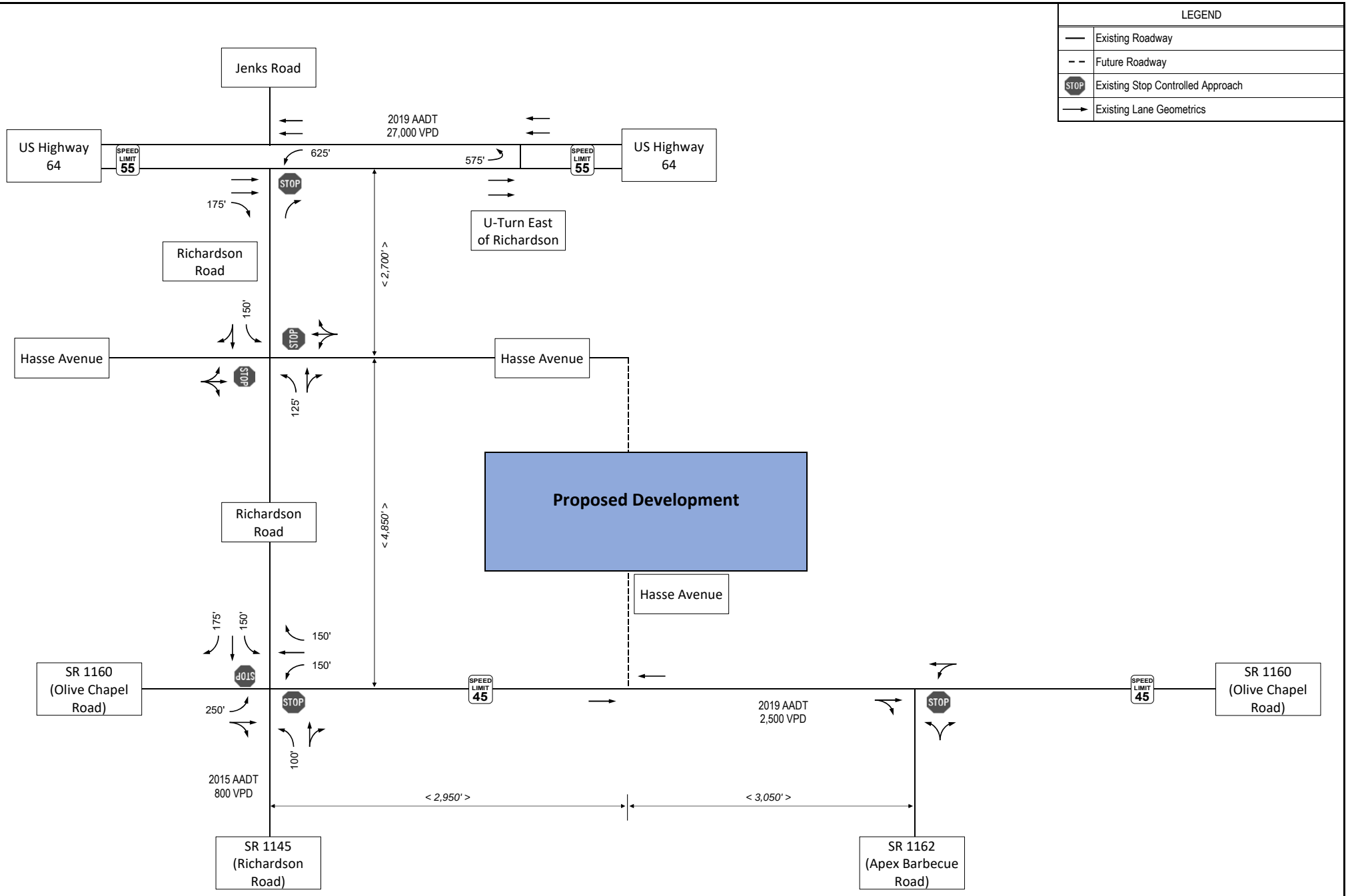


Figure 3
Existing (2020) Lane Geometrics and Traffic Control

Hackney Tract Subdivision
Apex, NC

Existing Turning Movement Data

VHB Engineering NC, P.C. collected the intersection turning movement counts analyzed in this TIA in November 2020. Traffic data were collected during typical AM (7:00 – 9:00 AM) and PM (4:00 – 6:00 PM) peak periods while schools were partially open due to the COVID-19 pandemic restrictions. Table 1 summarizes the schedule used to obtain the turning movement data. A detailed summary of the traffic counts can be found in Appendix B.

Table 1: Weekday Peak Hour Turning Movement Count Schedule

Intersection	Time Period	Data Collection Date
Olive Chapel Road and Richardson Road	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Thursday November 5, 2020
Richardson Road and Hasse Avenue/Little Gem Lane	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Thursday November 5, 2020
US Highway 64 and Richardson Road	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Thursday November 5, 2020
US Highway 64 and U-Turn East of Richardson Road	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Thursday November 5, 2020
Olive Chapel Road and Apex Barbecue Road	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Thursday November 5, 2020

The existing peak hour turning movement volumes are shown in Figure 4.

Level of Service Criteria

Peak hour level of service (LOS) measures the adequacy of the intersection geometrics and traffic controls of a particular intersection or approach for the given turning volumes. Levels of service range from A through F, based on the average control delay experienced by vehicles traveling through the intersection during the peak hour. Control delay represents the portion of total delay attributed to traffic control devices (e.g., signals or stop signs). Table 2 provides a general description of various levels of service categories and delay ranges.

Table 2: Level of Service Standard for Intersections

Level of Service	Signalized Intersection	Unsignalized Intersection
A	<= 10 sec.	<= 10 sec.
B	10-20 sec.	10-15 sec.
C	20-35 sec.	15-25 sec.
D	35-55 sec.	25-35 sec.
E	55-80 sec.	35-50 sec.
F	> 80 sec.	> 50 sec.

The engineering profession generally accepts LOS D as an acceptable operating condition for signalized intersections. Based on the Policy on Street and Driveway Access to North Carolina Highways (NCDOT Driveway Manual) and the Town of Apex Unified Development Ordinance (UDO), geometric and/or traffic control improvements should be identified at signalized intersections to prevent the traffic generated by the proposed development from causing any intersection or roadway approach to fall below LOS D. For intersections projected to operate worse than LOS D under the background conditions, improvements should be identified to minimize the increase in average overall intersection delay when site traffic accounts for at least 10% of the projected total peak hour traffic at the intersections.

At unsignalized intersections, stop-controlled minor street approaches may exceed LOS D provided the addition of development traffic is not anticipated to warrant a traffic signal upon build-out and the resulting congestion does not block traffic movements at adjacent intersections. Guidelines provided by NCDOT shall be used in the evaluation of the need for and length of exclusive right and/or left turn lanes to support development traffic; for any and all turning movements where the development is anticipated to add at least 10% to the existing peak hour traffic volume, improvements may be required to mitigate the impact of development traffic on turn lane storage requirements.

Level of Service Analysis

Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 10.* A summary of the findings for the Existing (2020) scenario LOS analysis can be found in Table 3 and the full *Synchro/HCS* output can be found in Appendix D.

As reported in Table 3, all of the stop- and yield-controlled approaches in the study area are operating at acceptable levels of service (i.e., LOS D or better) during both the AM and PM peak hours under the Existing (2020) conditions, with an exception that the southbound approach of Richardson Road (westbound left-turn of US 64) at US 64 Eastbound operates at LOS F during both peak hours.

Table 3: Existing (2020) LOS Results

Intersection and Approach	Control	Existing (2020)	
		AM	PM
Richardson Rd and Olive Chapel Rd	TWSC	-	-
Northbound		B-11.9	B-14.1
Southbound		B-11.7	C-15.5
Apex Barbecue Rd and Olive Chapel Rd	TWSC	-	-
Northbound		B-11.8	C-19.5
Richardson Rd and Little Gem Ln/Hasse Ave	TWSC	-	-
Eastbound		A-9.8	B-10.2
Westbound		A-9.7	A-9.9
Richardson Rd/WB Left-Over and US 64	TWSC	-	-
Northbound		C-23.5	C-23.3
Southbound		F-66.0	F-216.7
U-Turn East of Richardson Rd and US 64	TWSC	-	-
Northbound		B-14.2	C-18.2

LEGEND: **X (XX)** = Overall intersection LOS (intersection delay in sec/veh);

X - XX = approach LOS – approach delay in sec/veh

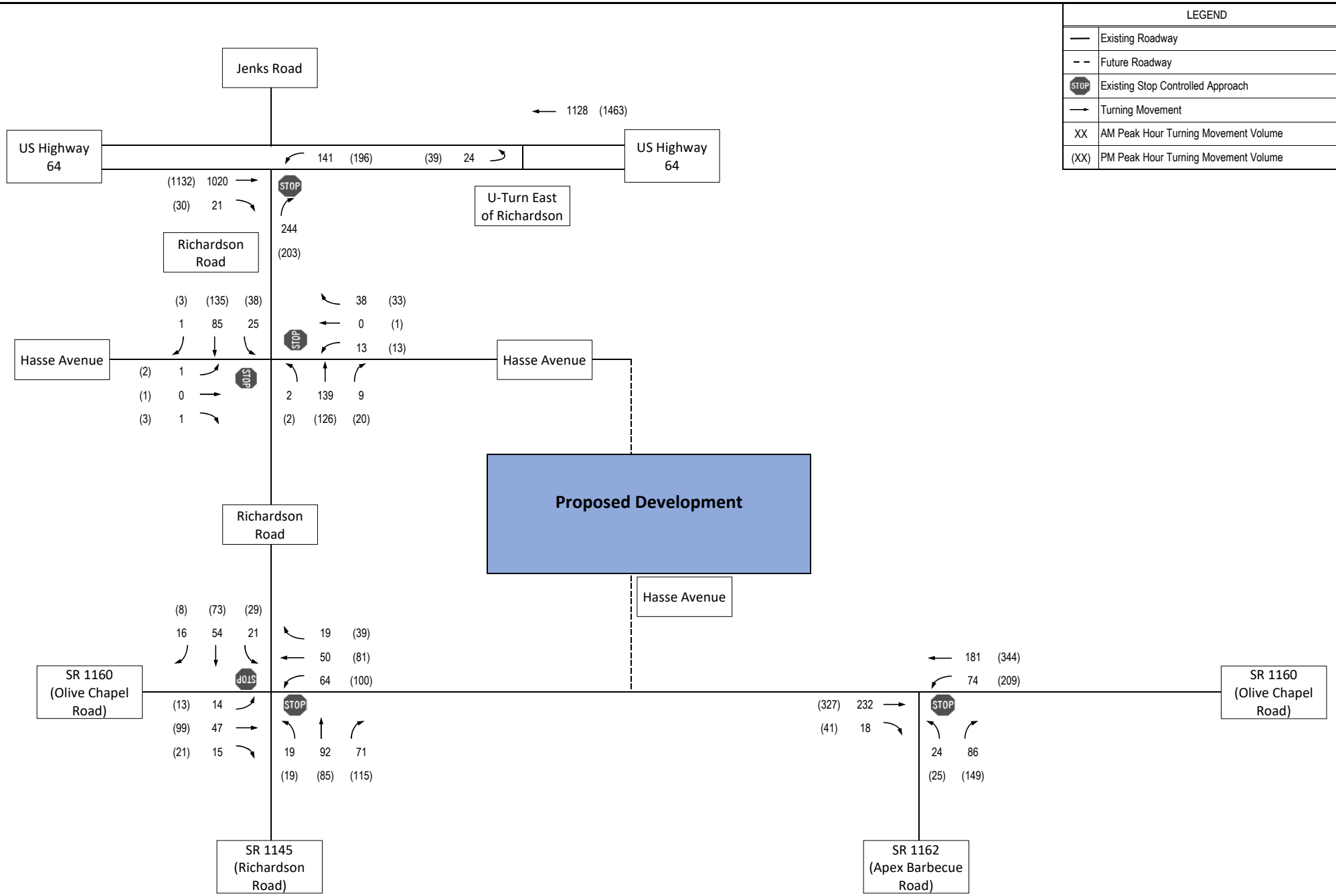


Figure 4
Existing (2020) AM and PM Peak Hour Turning Movement Volumes

Hackney Tract Subdivision
Apex, NC

3

No-Build (2024) Conditions

Background Growth and Development

Based on discussions with the Town of Apex and NCDOT, an annual growth rate of three percent (3%) was applied to the existing traffic to account for the growth between the base year (2020) and the future analysis year (2024). In addition, site trips from seven (7) adjacent developments that are expected to occur before the analysis year were incorporated into the analysis.

Saddlebrook (Lawrence Assemblage/Richardson West) – Located in the southwest corner of the Olive Chapel Road and Richardson Road intersection, this residential development is proposed to consist of 104 single-family homes and be constructed by 2017. A traffic analysis report was prepared by Ramey Kemp & Associates and submitted to the Town on November 3, 2014. As detailed in the report, the development is projected to generate 1,090 daily site trips, with 83 trips (21 entering, 62 exiting) occurring in the AM peak hour and 109 trips (69 entering, 40 exiting) occurring in the PM peak hour. These trips were distributed to the study area based on the assumed distribution patterns in the report. Field visits indicate that construction has begun but has not been completed; therefore, a percentage of traffic associated with the development was included in the No-Build (2024) analysis.

Sweetwater – Located on US 64 in Wake County, this mixed-use development is projected to consist of 375 single-family homes, 60 condominiums, 50,000 sf of office, 200,000 sf of retail, 7,000 sf of high-turnover restaurant, 3,000 sf of fast food with drive through window, and a drive-in bank with 4 lanes and be constructed by 2019. A TIA was prepared by Ramey Kemp & Associates and submitted on December 18, 2014. As detailed in the report the development is projected to generate 18,360 daily site trips, with 914 trips (457 entering, 457 exiting) occurring in the AM peak hour and 1,736 trips (865 entering, 871 exiting) occurring in the PM peak hour. These trips were distributed to the study area based on the assumed distribution patterns in the report. Field visits indicate that approximately 80% of the residential and 0% of the mixed-use phases have been constructed; therefore, a percentage of traffic associated with the development was included in the No-Build (2024) analysis.

Buckhorn Preserve (Goodwin-MacNair) – Located on the east side of Richardson Road, just north of M. Zion Church Road, this residential development is projected to consist of 347 single-family homes and be constructed by 2020. A TIA was prepared by VHB

and submitted to the Town on June 26, 2015, with an addendum submitted on August 3, 2015. As detailed in the report, the development is projected to generate 3,299 daily site trips, with 253 trips (63 entering, 190 exiting) occurring in the AM peak hour and 322 trips (203 entering, 119 exiting) occurring in the PM peak hour. These trips were distributed to the study area based on the assumed distribution patterns in the report. Field visits indicate that the development has not been fully constructed; therefore, a percentage of the traffic associated with the development was included in the No-Build (2024) analysis.

Stillwater (Womble) – Located between Ragan Road and Richardson Road north of Humie Olive Road, this residential development is projected to consist of 303 single-family homes and be constructed by 2018. A TIA was prepared by Stantec and submitted to the Town on February 27, 2014. As detailed in the report, the development is projected to generate 2,912 daily site trips, with 221 trips (55 entering, 166 exiting) occurring in the AM peak hour and 285 trips (180 entering, 105 exiting) occurring in the PM peak hour. These trips were distributed to the study area based on the assumed distribution patterns in the report. Field visits indicated that the development has not been fully constructed; therefore, a percentage of the traffic associated with the development was included in the No-Build (2024) analysis.

Westford – Located on the north side of US 64 and east of Jenks Road, this residential development is projected to consist of 300 apartment units, 225 townhomes, and 90 single-family homes and be constructed by 2019. A TIA was prepared by Kimley-Horn and submitted to the Town on December 7, 2016. As detailed in the report, the development is projected to generate 4,188 daily site trips, with 323 trips (65 entering, 258 exiting) occurring in the AM peak hour and 396 trips (257 entering, 139 exiting) occurring in the PM peak hour. These trips were distributed to the study area based on the assumed distribution patterns in the report. Field visits indicated that the development has not been fully constructed; therefore, a percentage of the traffic associated with the development was included in the No-Build (2024) analysis.

Smith Farm – Located north of Olive Chapel Road, west of Kelly Road, and south of US 64, this mixed-use development is projected to consist of 430 single-family homes, 170 townhomes, 150 apartments, 100,000 sf of office, 150,000 sf of retail, 10,000 sf of pharmacy, 16,000 sf of high-turnover sit-down restaurant, 9,000 sf of fast-food restaurant, 12,000 sf of drive-in bank, and a gas station with 8 fueling positions and be constructed by 2021. A TIA was prepared by Ramey Kemp & Associates and submitted to the Town on November 24, 2015. As detailed in the report, the development is projected to generate 27,930 daily site trips, with 1,709 trips (847 entering, 862 exiting) occurring in the AM peak hour and 2,545 trips (1,301 entering, 1,244 exiting) occurring in the PM peak hour. These trips were distributed to the study area based on the assumed distribution patterns in the report. Field visits indicated that the development has not been fully constructed; therefore, a percentage of the traffic associated with the development was included in the No-Build (2024) analysis.

Linden (Pricewood Assemblage) – Located in the northwest quadrant of the intersection of Olive Chapel Road and Pricewood Lane, this residential development is projected to consist of 211 single-family homes and be constructed by 2022. A TIA was prepared by Ramey Kemp & Associates and submitted to the Town on August 31, 2016. As detailed in the report, the development is projected to generate 2,010 daily site trips, with 158 trips (40 entering, 118 exiting) occurring in the AM peak hour and 211 trips (133 entering, 78 exiting) occurring in the PM peak hour. These trips were distributed to the study area based on the assumed distribution patterns in the report. Field visits indicated that the development has not been fully constructed; therefore, a percentage of the traffic associated with the development was included in the No-Build (2024) analysis.

As for transportation improvements, mitigation requirements associated with Sweetwater are expected to include two new signals and additional turn lanes along US 64 at the Richardson Road and U-Turn East of Richardson Road intersections, and Smith Farm is committed to installing a new signal at the Olive Chapel Road and Richardson Road intersection once it is warranted.

Note that although significant traffic increases are expected due to the inclusion of background developments, an undiscounted annual traffic growth rate of three percent (3%) was applied to offset the impacts on traffic data collected under the Existing (2020) conditions with COVID-19 pandemic restrictions in place. The No-Build (2024) AM and PM peak hour volumes are shown in Figure 5.

Level of Service Analysis

Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 10*. A summary of the findings for the No-Build (2024) scenario LOS analysis can be found in Table 4. The full *Synchro/HCS* output for the No-Build scenario can be found in Appendix D.

As reported in Table 4, the study area is projected to experience traffic and delay increases, but the impacts will be substantially mitigated by the background transportation improvements. As a result, all of the signalized intersections and stop-controlled approaches in the study area are projected to operate at acceptable levels of service except that the stop-controlled northbound approach of Apex Barbecue Road at Olive Chapel Road is projected to decline to operate at LOS F in the PM peak hour.

Table 4: No-Build (2024) LOS Results

Intersection and Approach	Control	No-Build (2024)	
		AM	PM
Richardson Rd and Olive Chapel Rd	Signal	**A (9.7)**	**B (11.8)**
Eastbound		A-9.7	B-10.7
Westbound		B-10.3	B-12.0
Northbound		B-10.2	B-12.7
Southbound		A-8.4	B-11.5
Apex Barbecue Rd and Olive Chapel Rd	TWSC	**-**	**-**
Northbound		C-16.8	F-92.5
Richardson Rd and Little Gem Ln/Hasse Ave	TWSC	**-**	**-**
Eastbound		C-16.5	C-21.8
Westbound		C-15.1	C-19.1
Richardson Rd/WB Left-Over and US 64	Signal	**C (20.7)**	**D (42.0)**
Eastbound		C-20.7	D-51.3
Northbound		C-28.2	D-47.4
Southbound		B-10.9	B-19.6
U-Turn East of Richardson Rd and US 64	Signal	**B (11.8)**	**C (27.6)**
Westbound		A-9.6	C-20.5
Northbound		C-27.8	E-59.9

LEGEND: **X (XX)** = Overall intersection LOS (intersection delay in sec/veh);

X - XX = approach LOS – approach delay in sec/veh

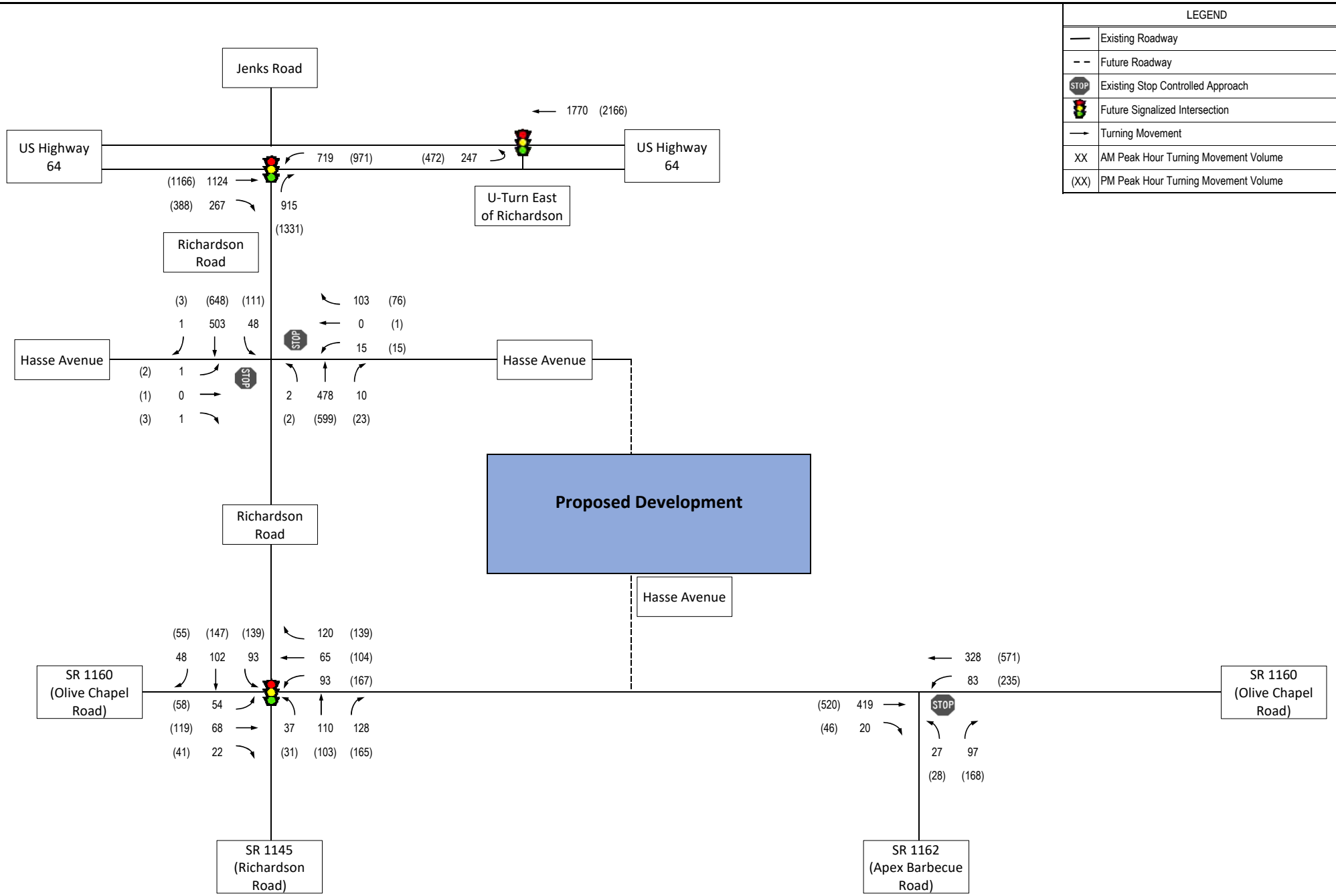


Figure 5
No-Build (2024) AM and PM Peak Hour Turning Movement Volumes

Hackney Tract Subdivision
Apex, NC

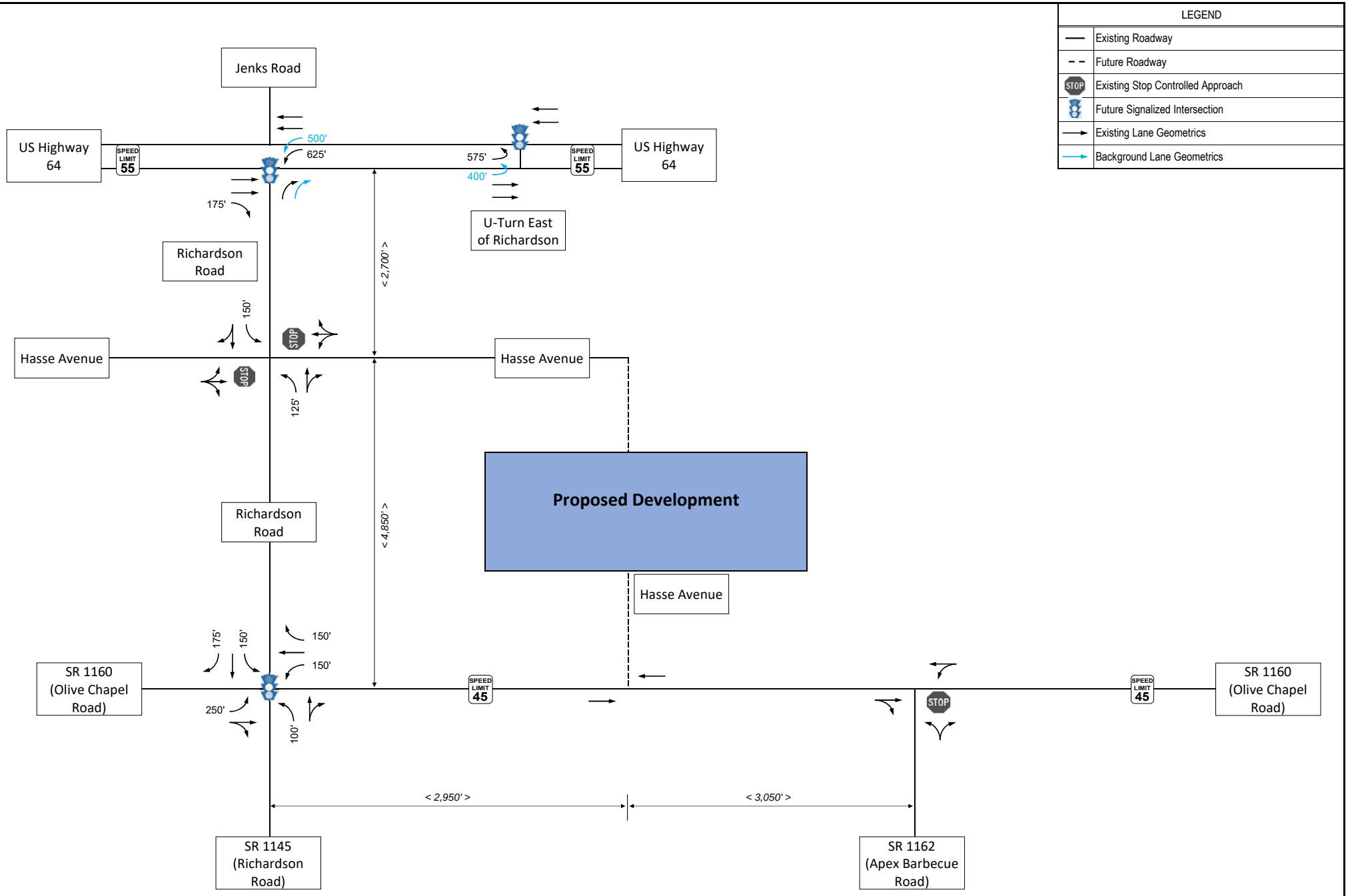


Figure 6
Background (2024) Lane Geometrics and Traffic Control

Hackney Tract Subdivision
Apex, NC

4

Build (2024) Conditions

There are plans to construct the proposed Hackney Tract Subdivision on the north side of Olive Chapel Road, east of the newly completed Richardson Road, in Apex, NC (Figure 1). The proposed Hackney Tract Subdivision is planned to consist of up to 100 single-family and 133 multi-family townhomes with full build-out expected in 2024.

Trip Generation

Trip generation was conducted based on the most appropriate corresponding trip generation codes included in the *ITE Trip Generation Manual, 10th Edition* and the suggested method of calculation in the NCDOT's *"Rate vs. Equation" Spreadsheet*. To provide a conservative analysis, no transit, walking, or bicycling reductions will be applied.

Table 5 summarizes the estimated trip generation for the proposed Hackney Tract Subdivision for weekday AM and PM peak hours.

Table 5: Trip Generation Rates

Land Use Code	Land Use	Unit	ADT	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
210	Single-Family Detached Housing	100 du	1,040	19	57	76	64	38	102
220	Multi-Family Housing (Low-Rise)	133 du	965	14	49	63	48	28	76
Development Total			*2,005*	*33*	*106*	*139*	*112*	*66*	*178*

In total, the proposed Hackney Tract Subdivision is projected to generate 2,005 daily trips with 139 trips (33 entering, 106 exiting) occurring in the AM peak hour and 178 trips (112 entering, 66 exiting) occurring the PM peak hour.

Traffic Distribution and Assignment

As shown on the conceptual site plan (Figure 2), the development will be accessed through one full movement access along Olive Chapel Road:

- Access #1: full movement access on Olive Chapel Road, approximately 2,500 feet east of Richardson Road

In addition, access will be provided via Hasse Avenue extension to the north to Richardson Road, and cross-connections will be provided via local street extensions to the west to Smith Farm. Potential traffic reductions due to cross-connections are not accounted for in this TIA to be conservative.

Based on agreements with the Town of Apex and NCDOT through the Memorandum of Understanding (Appendix A), the directional distribution percentages are as follows:

- from/to the east via US Highway 64 – 50%
- from/to the west via US Highway 64 – 10%
- from/to the east via Olive Chapel Road – 25%
- from/to the west via Olive Chapel Road – 5%
- from/to the south via Richardson Road – 8%
- from/to the south via Apex Barbecue Road – 2%

A graphic illustration of the proposed peak hour directional distribution percentages is shown in Figure 7, with the resulting site trips shown in Figure 8.

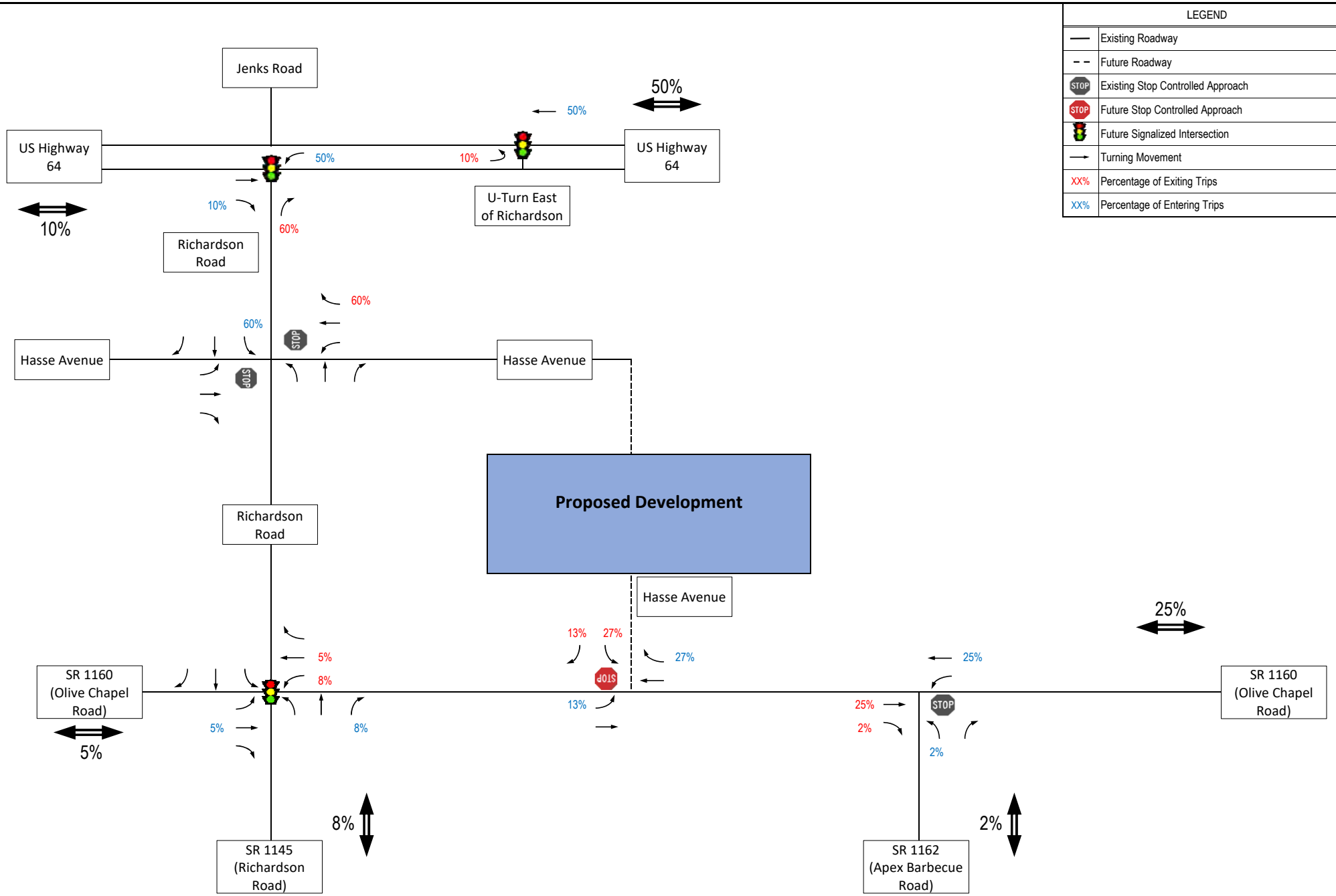


Figure 7
Peak Hour Site Trip Directional Assignment Percentages

Hackney Tract Subdivision
Apex, NC

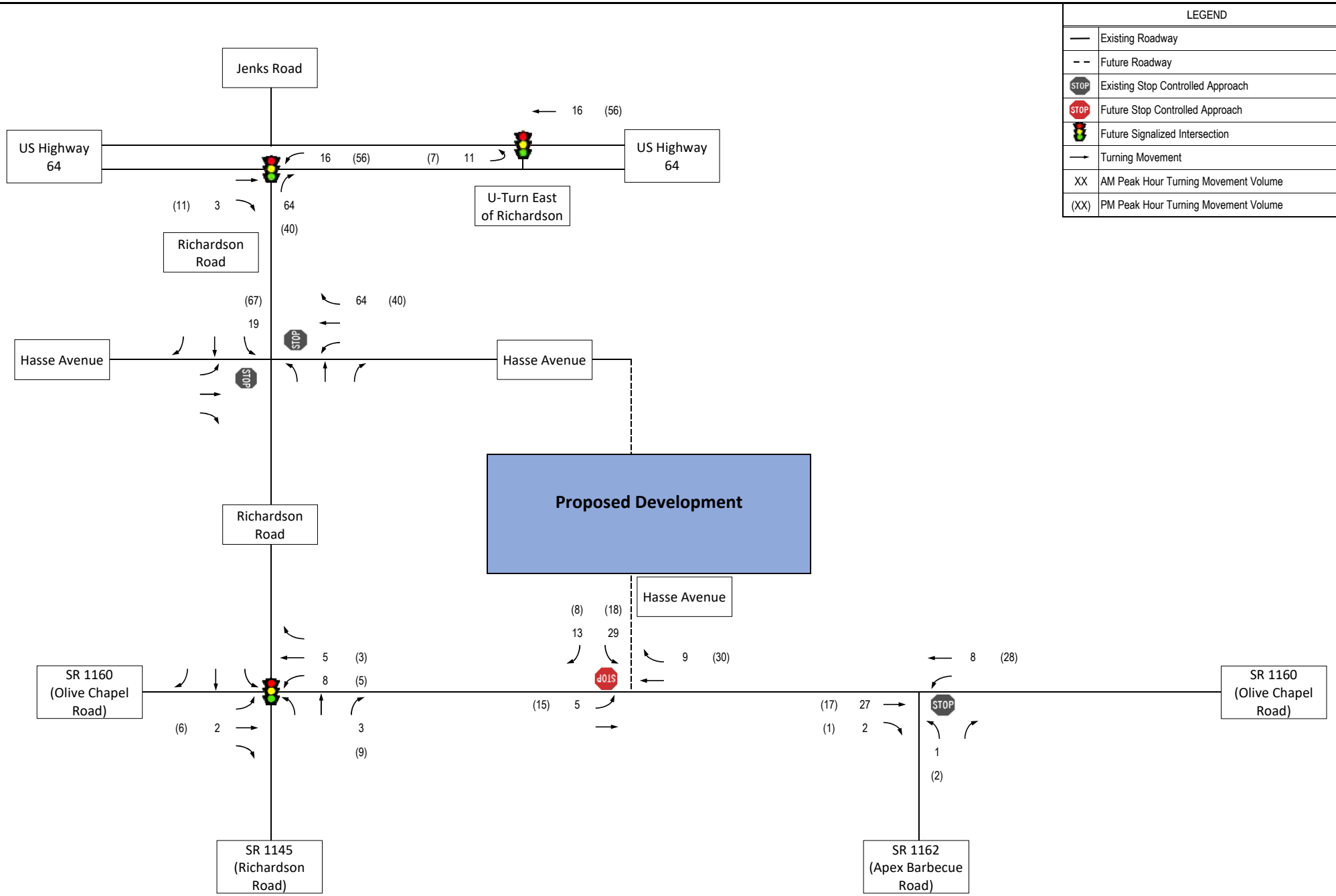


Figure 8
AM and PM Peak Hour Site Trips

Hackney Tract Subdivision
Apex, NC

Level of Service Analysis

The Build (2024) analysis scenario includes the No-Build (2024) traffic as well as site-generated trips from the proposed development. Figure 9 depicts the turning movement volumes used in the Build (2024) scenario analysis.

Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 10*. Table 6 summarizes the LOS results for the Build (2024) scenario and Appendix D contains the full *Synchro/HCS* reports of the analysis.

As reported in Table 6, the stop-controlled northbound approach of Apex Barbeque Road at Olive Chapel Road is projected to continue to operate at failing levels of services in the PM peak hour with delay increases. The rest of the intersections included in the study area are projected to continue operating at acceptable levels of service during both peak hours. The planned stop-controlled Future Access #1 is projected to operate at LOS C in the AM peak hour and LOS D in the PM peak hour.

Table 6: Build (2024) LOS Results

Intersection and Approach	Control	Build (2024)	
		AM	PM
Richardson Rd and Olive Chapel Rd	Signal	**A (9.8)**	**B (12.0)**
Eastbound		A-9.8	B-10.9
Westbound		B-10.5	B-12.2
Northbound		B-10.3	B-13.0
Southbound		A-8.5	B-11.6
Apex Barbecue Rd and Olive Chapel Rd	TWSC	-	-
Northbound		C-17.9	F-134.5
Richardson Rd and Little Gem Ln/Hasse Ave	TWSC	-	-
Eastbound		C-19.1	D-32.0
Westbound		C-17.0	C-21.9
Richardson Rd/WB Left-Over and US 64	Signal	**C (22.0)**	**D (44.5)**
Eastbound		C-23.7	E-56.0
Northbound		C-28.5	D-50.1
Southbound		A-9.8	B-19.5
U-Turn East of Richardson Rd and US 64	Signal	**B (12.5)**	**C (30.9)**
Westbound		B-10.5	C-24.1
Northbound		C-26.5	E-62.1
Olive Chapel Rd & Hasse Ave/Future Access #1	TWSC	-	-
Southbound		C-16.1	D-25.0

LEGEND: **X (XX)** = Overall intersection LOS (intersection delay in sec/veh);

X - XX = approach LOS – approach delay in sec/veh

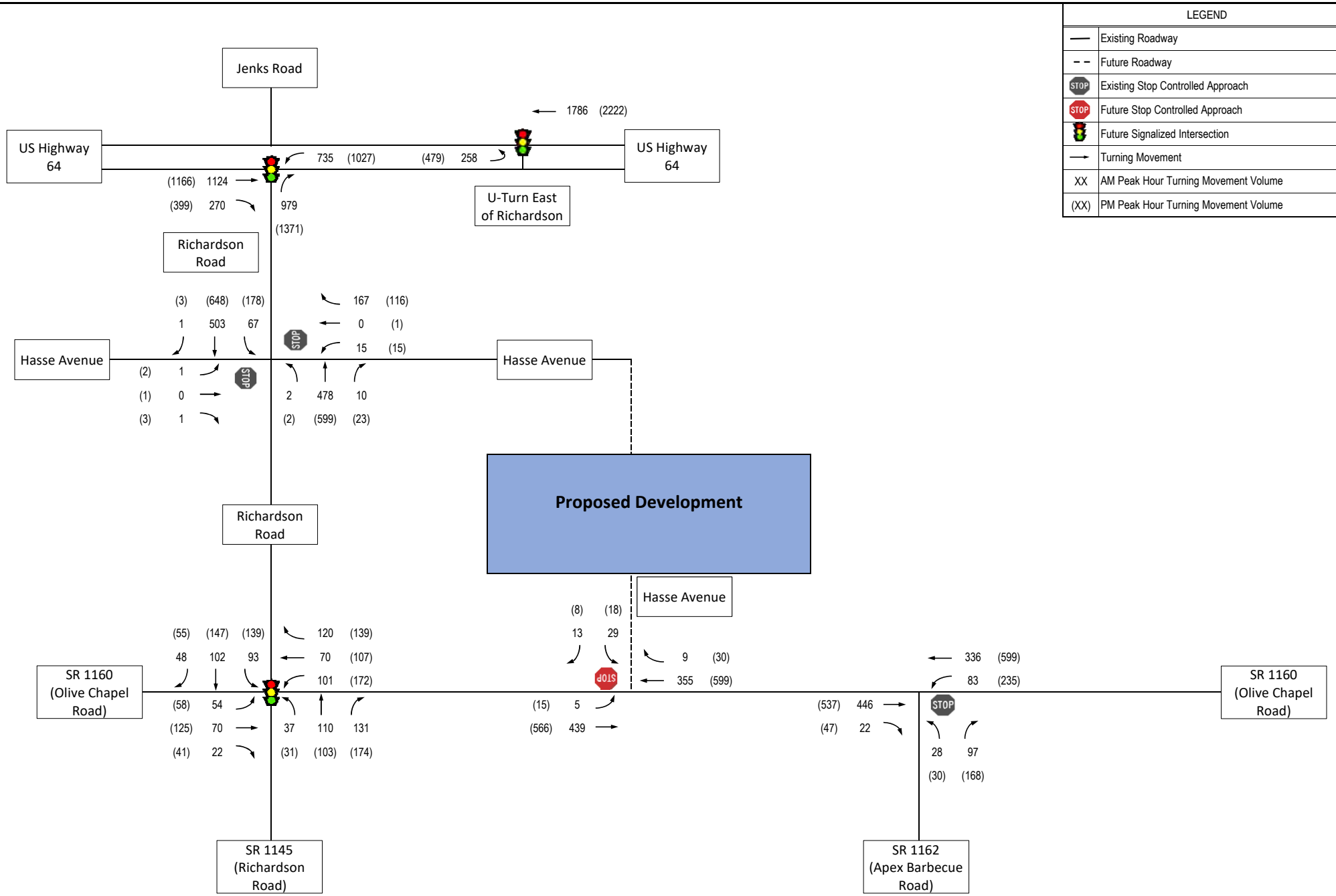


Figure 9
Build (2024) AM and PM Peak Hour Turning Movement Volumes

Hackney Tract Subdivision
Apex, NC

5

Findings and Conclusions

As indicated in the traffic operations analyses, the proposed Hackney Tract Subdivision is projected to have minimum impacts on traffic operations of the surrounding roadway network and intersections. Nevertheless, the following roadway improvements are recommended to improve traffic operations and safety:

SR 1160 (Olive Chapel Road) and Future Access #1/Hasse Avenue Extension (unsignalized, full movement)

Future Access #1 is projected to operate at acceptable levels of service during the AM and PM peak hour with a two-lane cross-section. Although traffic volumes are not projected to automatically warrant turn lanes on Olive Chapel Road, dedicated turn lanes should be provided with the required frontage widening to meet the Town of Apex Comprehensive Transportation Plan standards. Therefore, the following site access configuration and transportation improvements are recommended at this intersection:

- Construct Future Access #1 to consist of one inbound lane and one outbound lane.
- Provide a dedicated left-turn lane on eastbound Olive Chapel Road with 100 feet of storage length and appropriate taper.
- Provide a dedicated right-turn lane on westbound Olive Chapel Road with 100 feet of storage length and appropriate taper.

SR 1160 (Olive Chapel Road) and SR 1162 (Apex Barbecue Road) (unsignalized)

Traffic analysis indicated that the northbound approach of Apex Barbecue Road is projected to operate at LOS F in the PM peak hour under the No-Build and Build conditions. The intersection is not anticipated to meet warrants for installing a new traffic signal, while options for adding new turn lanes are limited due to the skewed angle of intersection on a curve of Olive Chapel Road and potential right-of-way/drainage restrictions. As shown on the Apex Comprehensive Transportation Plan, this intersection is identified for future intersection realignment. Since site trips are anticipated to contribute less than 4% traffic increases in the AM and 3% in the PM at this intersection (increases of only 1 VPH in the AM peak hour and 2 VPH in the PM peak on the stop-controlled approach), improvement should not be required by this development based on the Town of Apex UDO. Nevertheless, alternative traffic control method (such as AWSC), if warranted by crash analysis, may be considered

before this intersection is realigned in the future based on the Town of Apex CTP.

The rest of study area intersections are expected to operate acceptably. Therefore, no mitigation is required. A summary of the findings for the analysis scenarios is shown in Table 7, and the resulting future lane configurations and traffic controls in 2024 are shown in Figure 10.

Table 7: Summary LOS Table

Intersection and Approach	Control	Existing (2020)		No-Build (2024)		Build (2024)	
		AM	PM	AM	PM	AM	PM
Richardson Rd and Olive Chapel Rd	TWSC/ Signal	-	-	**A (9.7)**	**B (11.8)**	**A (9.8)**	**B (12.0)**
Eastbound		---	---	A-9.7	B-10.7	A-9.8	B-10.9
Westbound		---	---	B-10.3	B-12.0	B-10.5	B-12.2
Northbound		B-11.9	B-14.1	B-10.2	B-12.7	B-10.3	B-13.0
Southbound		B-11.7	C-15.5	A-8.4	B-11.5	A-8.5	B-11.6
Apex Barbecue Rd and Olive Chapel Rd	TWSC	-	-	-	-	-	-
Northbound		B-11.8	C-19.5	C-16.8	F-92.5	C-17.9	F-134.5
Richardson Rd and Little Gem Ln/Hasse Ave	TWSC	-	-	-	-	-	-
Eastbound		A-9.8	B-10.2	C-16.5	C-21.8	C-19.1	D-32.0
Westbound		A-9.7	A-9.9	C-15.1	C-19.1	C-17.0	C-21.9
Richardson Rd/WB Left-Over and US 64	TWSC/ Signal	-	-	**C (20.7)**	**D (42.0)**	**C (22.0)**	**D (44.5)**
Eastbound		---	---	C-20.7	D-51.3	C-23.7	E-56.0
Northbound		C-23.5	C-23.3	C-28.2	D-47.4	C-28.5	D-50.1
Southbound		F-66.0	F-216.7	B-10.9	B-19.6	A-9.8	B-19.5
U-Turn East of Richardson Rd and US 64	TWSC/ Signal	-	-	**B (11.8)**	**C (27.6)**	**B (12.5)**	**C (30.9)**
Westbound		---	---	A-9.6	C-20.5	B-10.5	C-24.1
Northbound		B-14.2	C-18.2	C-27.8	E-59.9	C-26.5	E-62.1
Olive Chapel Rd & Hasse Ave/Future Access #1	TWSC	-	-	-	-	-	-
Southbound		---	---	---	---	C-16.1	D-25.0

LEGEND: **X (XX)** = Overall intersection LOS (intersection delay in sec/veh);

X - XX = approach LOS – approach delay in sec/veh

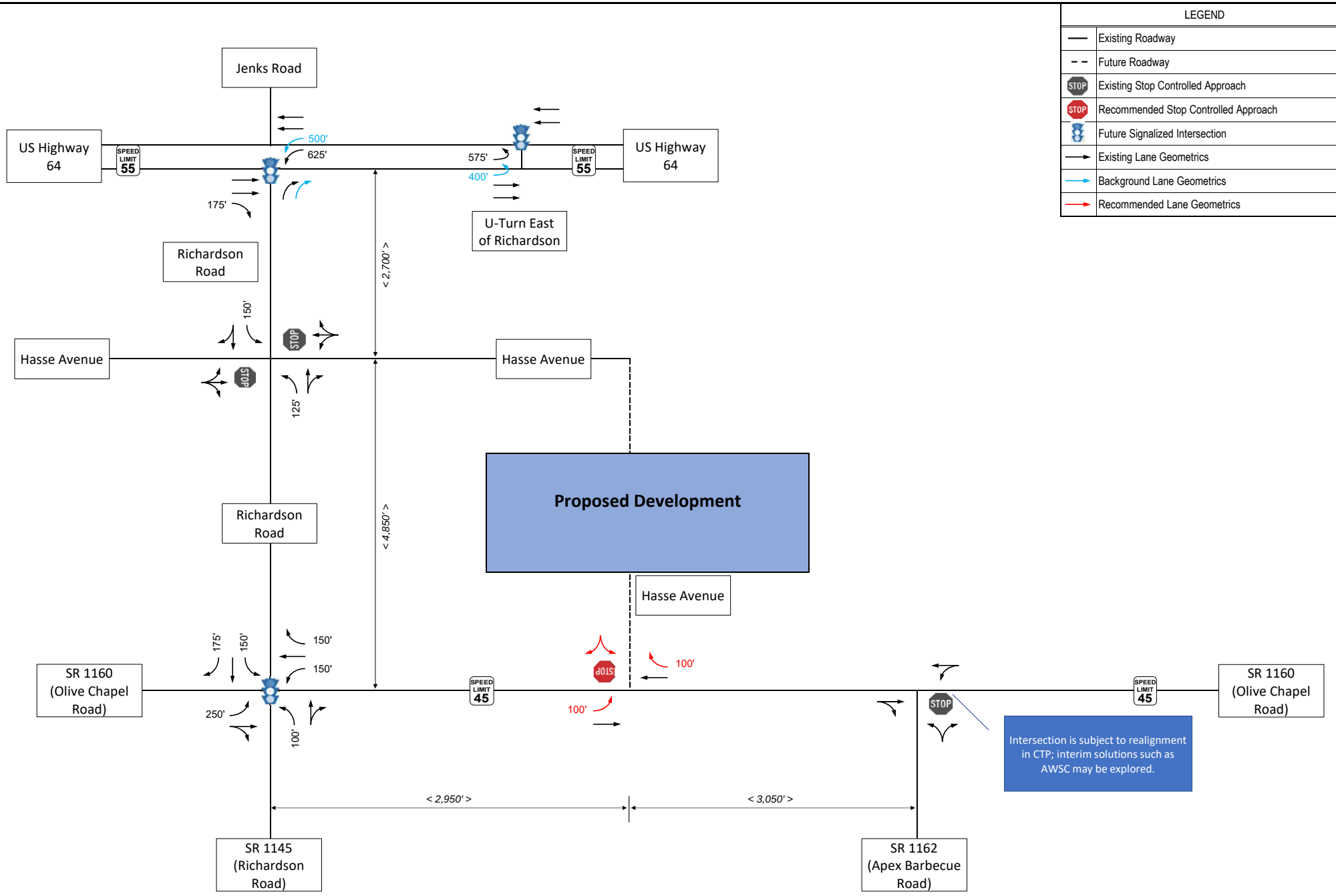


Figure 10
Future (2024) Lane Geometrics and Traffic Control

Hackney Tract Subdivision
Apex, NC

APPENDICES

APPENDIX A:

Memorandum of Understanding

Memorandum

To: Russell H. Dalton, PE
Public Works & Transportation
Town of Apex
73 Hunter Street
Apex, NC 27502

Date: November 12, 2020

Project #: 38504.25

From: Baohong Wan, PhD, PE
Senior Project Manager

Re: Hackney Tract Subdivision TIA
Memorandum of Understanding

This memorandum summarizes the assumptions for a Traffic Impact Analysis (TIA) prepared for the proposed Hackney Tract Subdivision on Olive Chapel Road, west of the newly completed Richardson Road, in Apex, NC. Based on the preliminary plan (attached), the development is to consist of a mix of single-family and multi-family townhome uses:

- 100 single family homes
- 133 townhomes

Access to the development is to be provided primarily through a collector street (Hasse Avenue Extension) planned across the property. In addition, cross-connections will be provided via several street extensions to Smith Farm.

Study Area

Based on our previous correspondence, the following existing and future study area intersections will be included for analysis under the AM and PM peak hour conditions:

- SR 1160 (Olive Chapel Road) and SR 1145 (Richardson Road) (unsignalized/future signalized)
- SR 1160 (Olive Chapel Road) and SR 1162 (Apex Barbecue Road) (unsignalized)
- Richardson Road and Hasse Avenue (unsignalized)
- US Highway 64 East at Richardson Road (unsignalized/future signalized)
- US Highway 64 West at U-turn east of Richardson Road (unsignalized/future signalized)
- SR 1160 (Olive Chapel Road) and Future Access #1/Hasse Avenue Extension (full movement access)

The signalized intersection of SR 1160 (Olive Chapel Road) and SR 1163 (Kelly Road) was initially considered, but it was excluded from the study area due to its distance from the project site and the fact that this intersection has recently been upgraded with new turn lanes and crosswalks, and traffic is expected to decrease at this intersection due to the newly completed Richardson Road connection.

Data Collection

As discussed with the Town of Apex and NCDOT, collecting new traffic data was preferred to reflect new traffic patterns with the recently completed Richard Road between Olive Chapel Road and US 64. Turning movement data at the study intersections were collected by VHB during the AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods in November 2020. Traffic counts were collected while area schools were partially open with the

VHB Engineering NC, P.C. (C-3705)
Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606-5217
P 919.829.0328

Memorandum

COVID-19 restrictions. The Existing (2020) AM and PM peak hour turning movement volumes are shown in the Figure MOU-1.

Analysis Scenarios

In accordance with the Town of Apex's Unified Development Ordinance (UDO), a build-out year of 2024 will be analyzed. Therefore, weekday AM and PM peak hour analysis for the proposed development will be performed for four (4) scenarios:

- Existing (2020) Conditions
- Background (2024) Conditions
- Build (2024) Scenario
- Build (2024) Scenario with Improvements

Background Projects and Growth

As concurred by the Town of Apex, an annual growth rate of three percent (3%) will be applied to the existing year (2020) traffic to project future conditions (2024). In addition, the following approved developments are identified as within the study area, and will be included the future year traffic analysis:

- Saddlebrook (Lawrence Assemblage/Richardson West), TIA by RKA, November 2014, 75% completed
- Sweetwater, TIA by RKA December 2014, 80% completed for residential portion, 0% for mixed use
- Buckhorn Preserve (Goodwin-MacNair), TIA by VHB, June 2015, 50% completed
- Stillwater (Womble), TIA by Stantec, February 2014, 85% completed
- Westford, TIA by KHA, December 2016, 80% completed
- Smith Farm, TIA by RKA, November 2015, 75% completed for residential portion, 0% for mixed-use
- Linden (Pricewood Assemblage) TIA by RKA, August 2016, 15% completed

Note that although a significant number of trips are expected due to the approved developments, a 3% annual traffic growth rate will still be used to offset lower-than-normal traffic counts collected under the Existing (2020) conditions. Transportation improvements due to approved developments (particularly Sweetwater and Smith Farm) will be included in the future year analysis based on the transportation zoning conditions.

Trip Generation

Trip Generation will be conducted based on the most appropriate corresponding trip generation codes included in the *ITE Trip Generation Manual, 10th Edition*. Trip generation calculations will be based on the suggested method in the NCDOT's *"Rate vs. Equation"* spreadsheet. To provide a conservative analysis, no transit, walking, or bicycling reductions will be applied.

As shown in the preliminary trip generation results (attached), the proposed development is projected to generate 2,005 trips on a typical weekday with 139 trips occurring during the AM peak hour and 178 trips in the PM peak hour.

VHB Engineering NC, P.C. (C-3705)
Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606-5217
P 919.829.0328

Memorandum

Land Use Code[1]	Land Use	Unit	ADT	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
210	Single-Family Detached Housing	100 du	1,040	19	57	76	64	38	102
220	Multi-Family Housing (Low-Rise)	133 du	965	14	49	63	48	28	76
Development Total			*2,005*	*33*	*106*	*139*	*112*	*66*	*178*

Notes:

1. Land Use Code and trip generation rates are based on *ITE Trip Generation, 10th Edition*
2. Trips are determined based on the suggested method in the NCDOT Rate Vs Equation Spreadsheet.

Trip Distribution and Assignment

The site trips will be distributed in accordance with the existing traffic patterns and planned land uses in the vicinity of the study area. Based on the traffic data, the site trips will be distributed as follows:

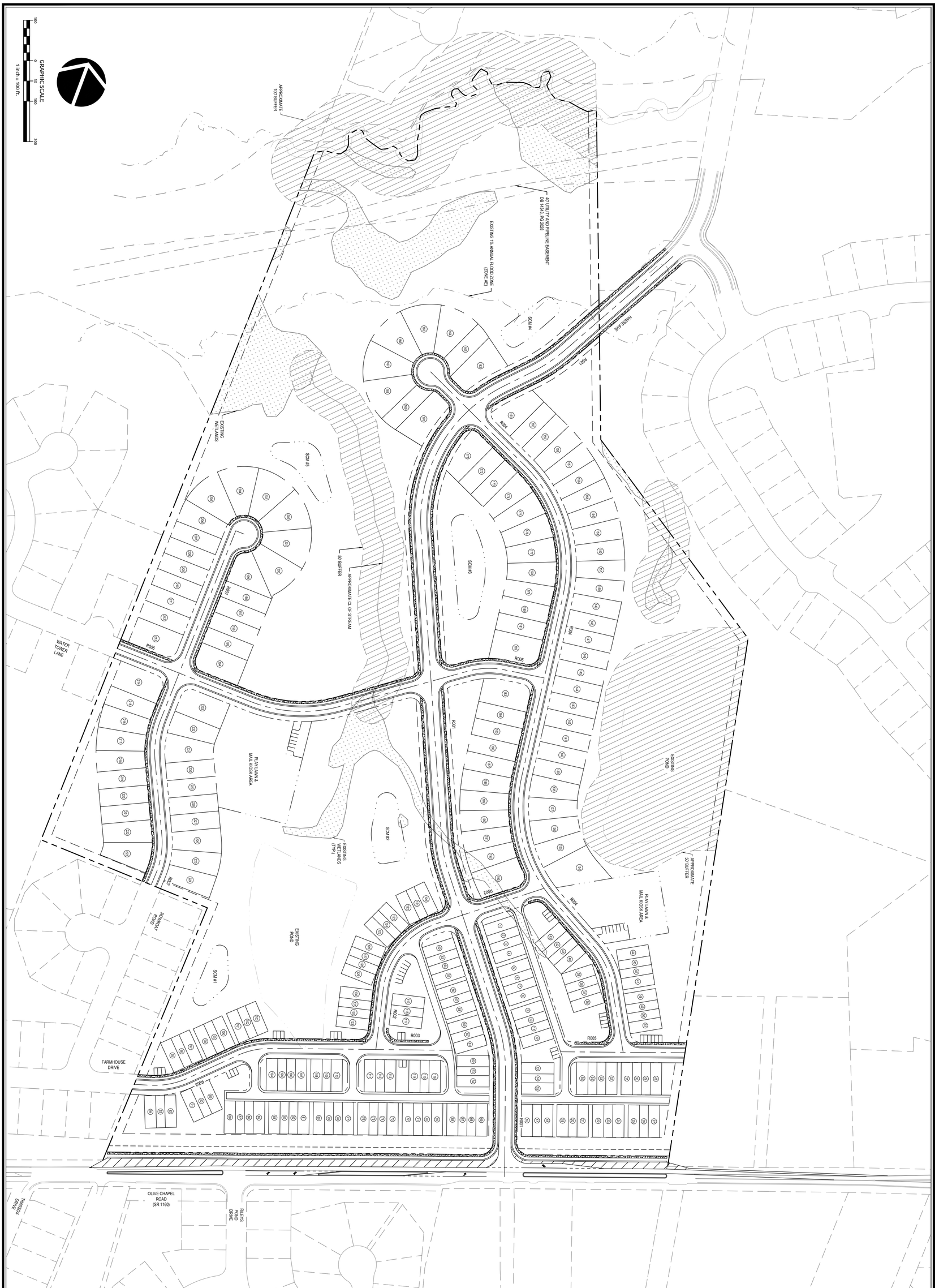
- from/to the east via US Highway 64 – 50%
- from/to the west via US Highway 64 – 10%
- from/to the east via Olive Chapel Road – 25%
- from/to the west via Olive Chapel Road – 5%
- from/to the south via Richardson Road – 8%
- from/to the south via Apex Barbecue Road – 2%

A graphic illustration of the proposed peak hour directional distribution percentages is shown in the attached Figure MOU-2, and the resulting AM and PM peak hour trips at each study intersection are shown in Figure MOU-3.

CC: Amy N. Neidringhaus, PE, NCDOT Highway Division 5 District 1

VHB Engineering NC, P.C. (C-3705)
Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606-5217
P 919.829.0328

K:\18\18-0510\180517.10-Pulte-Hackney Tract\CAD\Drawing Sets\Preliminary\1.0 SUBDIVISION PLAN.dwg- Tuesday, October 20, 2020 1:12:52 PM - INGE, BRYANT



Sheet No. 1.0	Revisions	PRELIMINARY NOT APPROVED FOR CONSTRUCTION	Job No. 021855.12.20 Date 10/19/20 Designer VR Drawn By VR	OVERALL SUBDIVISION PLAN	HACKNEY TRACT SUBDIVISION APEX, NORTH CAROLINA

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

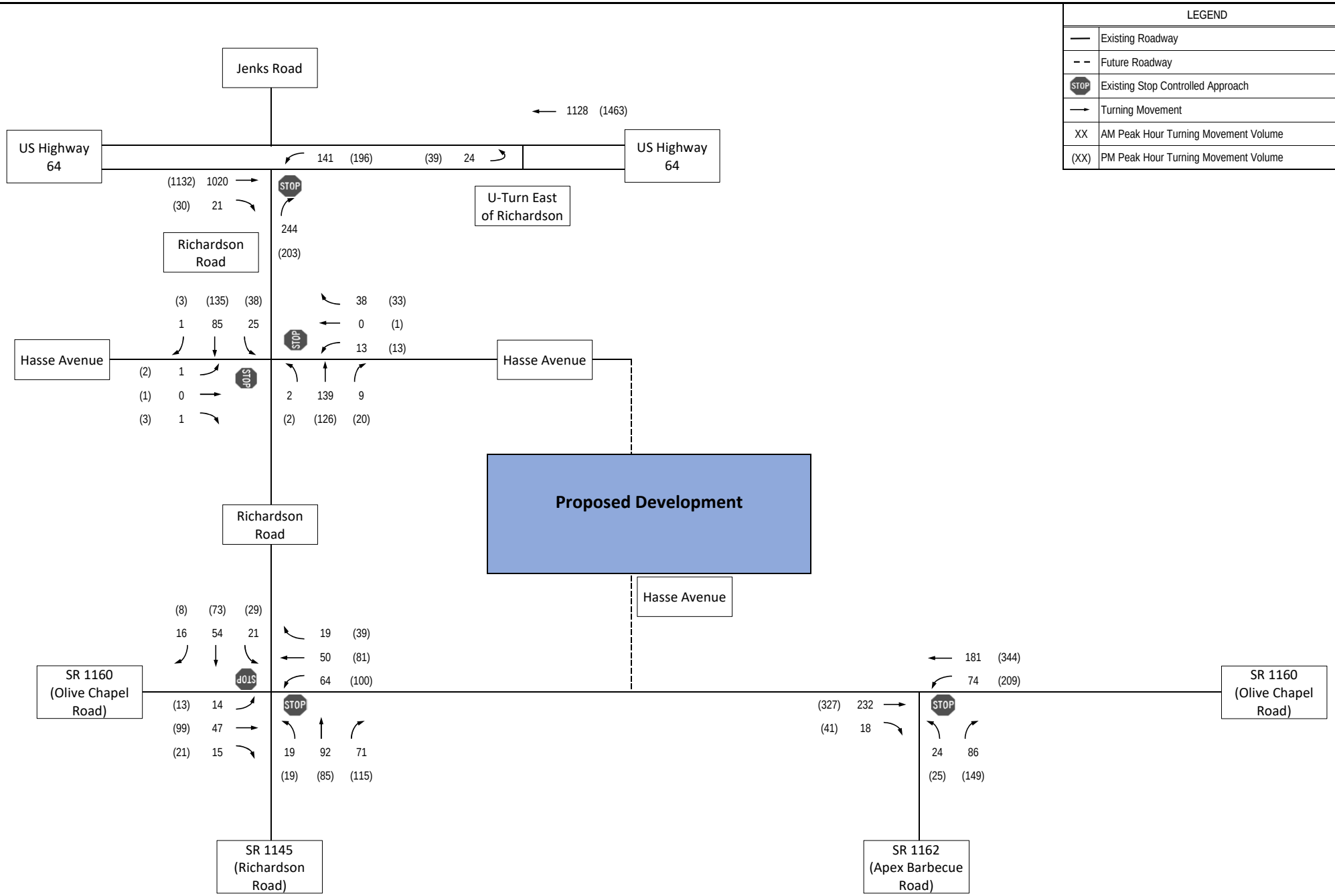


Figure MOU-1
Existing (2020) AM and PM Peak Hour Turning Movement Volumes

Hackney Tract Subdivision
Apex, NC

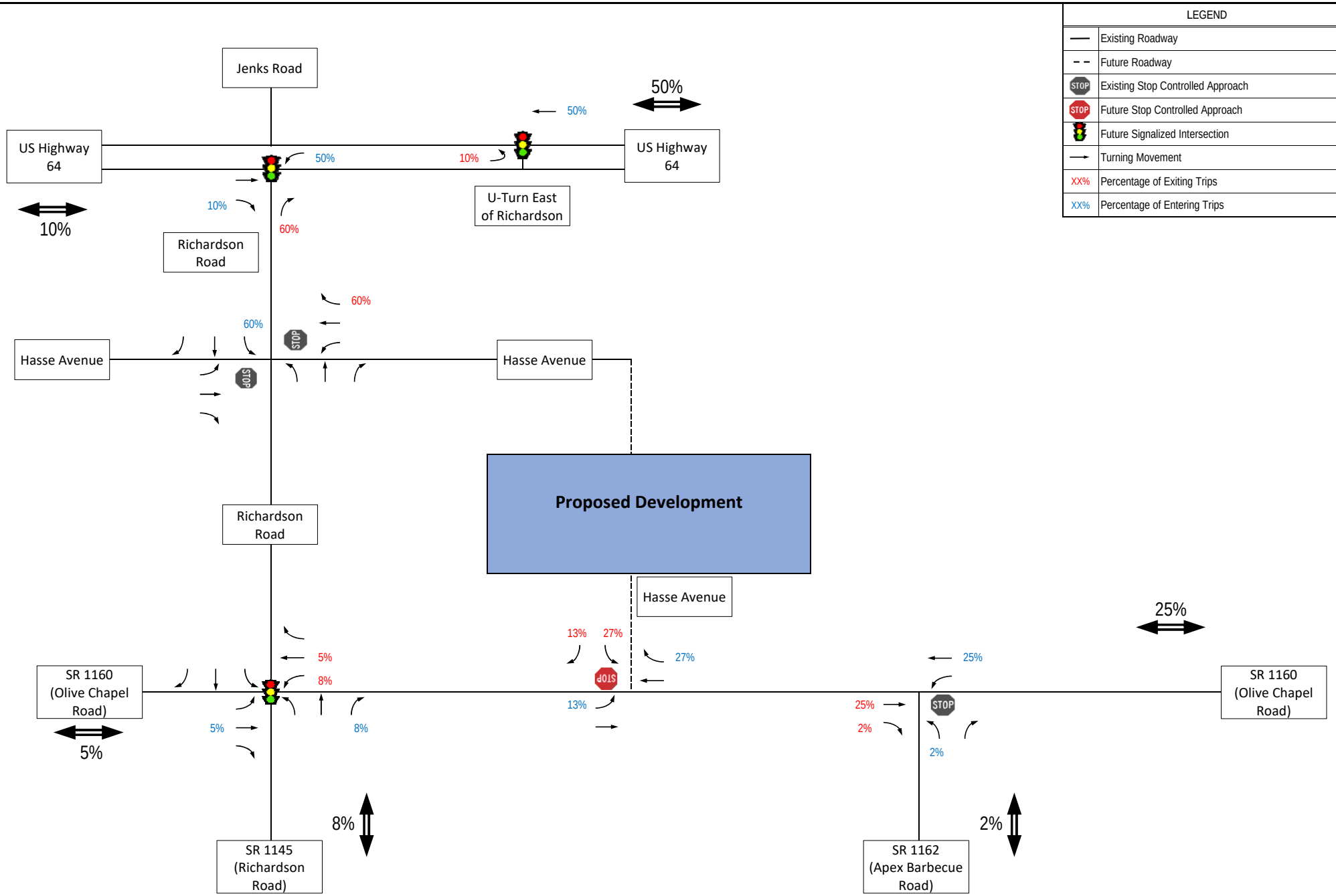


Figure MOU-2
Peak Hour Site Trip Directional Assignment Percentages

Hackney Tract Subdivision
Apex, NC

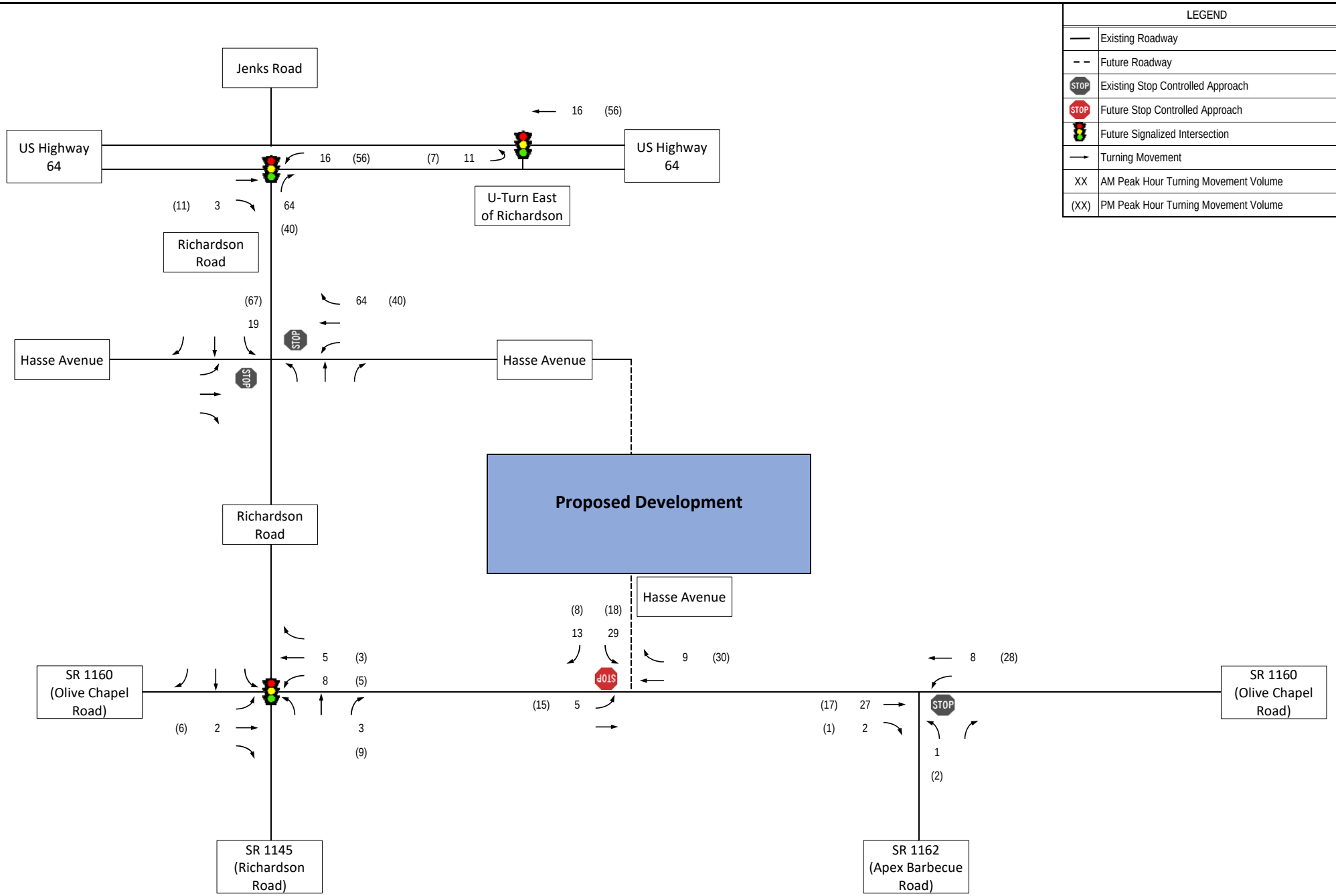


Figure MOU-3
AM and PM Peak Hour Site Trips

Hackney Tract Subdivision
Apex, NC

APPENDIX B:

Turning Movement Counts

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : OliveChapel@ApexBarbecue
Site Code :
Start Date : 11/5/2020
Page No : 1

Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

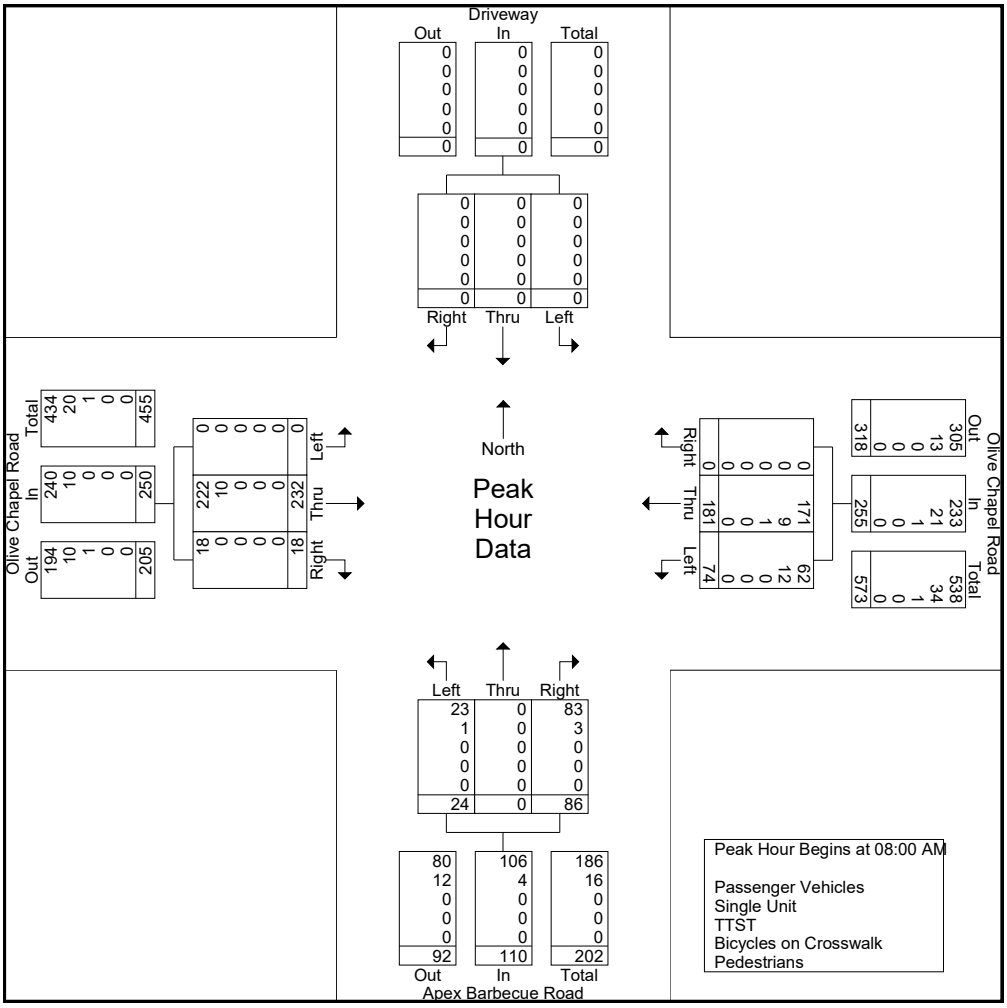
	Driveway Southbound				Olive Chapel Road Westbound				Apex Barbecue Road Northbound				Olive Chapel Road Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	9	18	0	0	2	0	21	1	0	35	3	0	1	88	89
07:15 AM	0	0	0	0	9	20	0	0	4	0	19	1	0	44	5	0	1	101	102
07:30 AM	0	0	0	0	13	24	0	0	4	0	29	3	0	46	5	0	3	121	124
07:45 AM	0	0	0	0	21	45	0	0	6	0	30	4	0	57	10	0	4	169	173
Total	0	0	0	0	52	107	0	0	16	0	99	9	0	182	23	0	9	479	488
08:00 AM	0	0	0	0	13	43	0	0	7	0	19	5	0	52	2	0	5	136	141
08:15 AM	0	0	0	0	14	51	0	0	7	0	23	0	0	58	5	0	0	158	158
08:30 AM	0	0	0	0	16	36	0	0	6	0	27	2	0	54	4	0	2	143	145
08:45 AM	0	0	0	0	31	51	0	0	4	0	17	0	0	68	7	0	0	178	178
Total	0	0	0	0	74	181	0	0	24	0	86	7	0	232	18	0	7	615	622
*** BREAK ***																			
04:00 PM	0	1	0	0	47	72	0	0	6	0	27	1	0	64	8	0	1	225	226
04:15 PM	0	0	0	0	39	87	1	0	12	0	30	0	0	52	10	0	0	231	231
04:30 PM	0	0	0	0	43	72	0	0	4	0	32	6	0	74	6	0	6	231	237
04:45 PM	0	0	0	0	32	76	0	0	7	0	30	5	0	70	9	0	5	224	229
Total	0	1	0	0	161	307	1	0	29	0	119	12	0	260	33	0	12	911	923
05:00 PM	0	0	1	0	49	94	0	0	8	0	32	4	0	83	8	0	4	275	279
05:15 PM	0	0	0	0	59	81	0	0	9	0	42	8	0	91	8	0	8	290	298
05:30 PM	0	0	0	0	50	85	0	0	6	0	32	9	0	83	8	0	9	264	273
05:45 PM	0	0	0	0	51	84	0	0	2	0	43	4	0	70	17	0	4	267	271
Total	0	0	1	0	209	344	0	0	25	0	149	25	0	327	41	0	25	1096	1121
Grand Total	0	1	1	0	496	939	1	0	94	0	453	53	0	1001	115	0	53	3101	3154
Apprch %	0	50	50		34.5	65.4	0.1		17.2	0	82.8		0	89.7	10.3				
Total %	0	0	0		16	30.3	0		3	0	14.6		0	32.3	3.7		1.7	98.3	
Passenger Vehicles	0	1	1		476	916	1		93	0	446		0	981	115		0	0	3030
% Passenger Vehicles	0	100	100	0	96	97.6	100	0	98.9	0	98.5	0	0	98	100	0	0	0	96.1
Single Unit	0	0	0		20	20	0		1	0	7		0	19	0		0	0	67
% Single Unit	0	0	0	0	4	2.1	0	0	1.1	0	1.5	0	0	1.9	0	0	0	0	2.1
TTST	0	0	0		0	3	0		0	0	0		0	1	0		0	0	4
% TTST	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0.1	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	4
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	7.5	0	0	0	0	0	0	0.1
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	49
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	92.5	0	0	0	0	0	0	1.6

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : OliveChapel@ApexBarbecue
Site Code :
Start Date : 11/5/2020

	Driveway Southbound				Olive Chapel Road Westbound				Apex Barbecue Road Northbound				Olive Chapel Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	13	43	0	56	7	0	19	26	0	52	2	54	136
08:15 AM	0	0	0	0	14	51	0	65	7	0	23	30	0	58	5	63	158
08:30 AM	0	0	0	0	16	36	0	52	6	0	27	33	0	54	4	58	143
08:45 AM	0	0	0	0	31	51	0	82	4	0	17	21	0	68	7	75	178
Total Volume	0	0	0	0	74	181	0	255	24	0	86	110	0	232	18	250	615
% App. Total	0	0	0		29	71	0		21.8	0	78.2		0	92.8	7.2		
PHF	.000	.000	.000	.000	.597	.887	.000	.777	.857	.000	.796	.833	.000	.853	.643	.833	.864
Passenger Vehicles	0	0	0	0	62	171	0	233	23	0	83	106	0	222	18	240	579
% Passenger Vehicles	0	0	0	0	83.8	94.5	0	91.4	95.8	0	96.5	96.4	0	95.7	100	96.0	94.1
Single Unit	0	0	0	0	12	9	0	21	1	0	3	4	0	10	0	10	35
% Single Unit	0	0	0	0	16.2	5.0	0	8.2	4.2	0	3.5	3.6	0	4.3	0	4.0	5.7
TTST	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% TTST	0	0	0	0	0	0.6	0	0.4	0	0	0	0	0	0	0	0	0.2
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

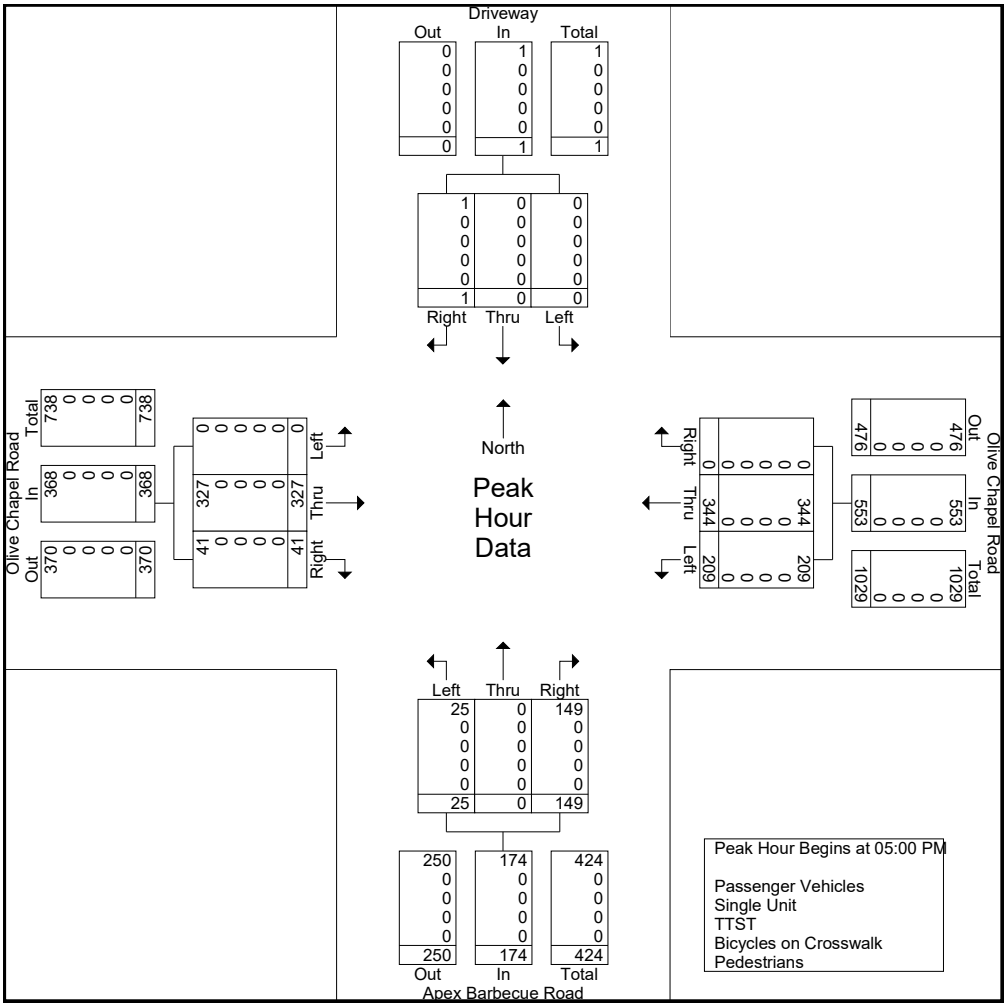


VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : OliveChapel@ApexBarbecue
Site Code :
Start Date : 11/5/2020
Page No : 3

	Driveway Southbound				Olive Chapel Road Westbound				Apex Barbecue Road Northbound				Olive Chapel Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	1	1	49	94	0	143	8	0	32	40	0	83	8	91	275
05:15 PM	0	0	0	0	59	81	0	140	9	0	42	51	0	91	8	99	290
05:30 PM	0	0	0	0	50	85	0	135	6	0	32	38	0	83	8	91	264
05:45 PM	0	0	0	0	51	84	0	135	2	0	43	45	0	70	17	87	267
Total Volume	0	0	1	1	209	344	0	553	25	0	149	174	0	327	41	368	1096
% App. Total	0	0	100		37.8	62.2	0		14.4	0	85.6		0	88.9	11.1		
PHF	.000	.000	.250	.250	.886	.915	.000	.967	.694	.000	.866	.853	.000	.898	.603	.929	.945
Passenger Vehicles	0	0	1	1	209	344	0	553	25	0	149	174	0	327	41	368	1096
% Passenger Vehicles	0	0	100	100	100	100	0	100	100	0	100	100	0	100	100	100	100
Single Unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single Unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : OliveChapel@Richardson
Site Code :
Start Date : 11/5/2020
Page No : 1

Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

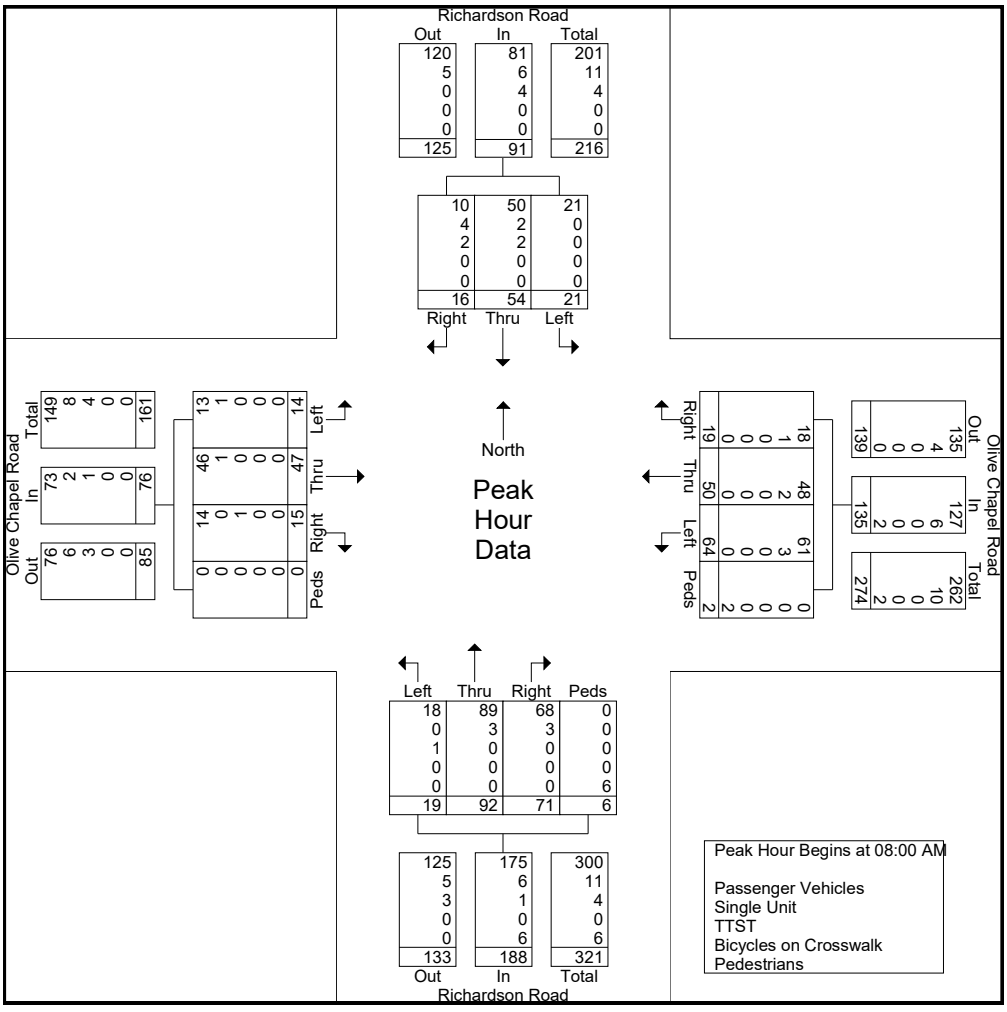
	Richardson Road Southbound				Olive Chapel Road Westbound				Richardson Road Northbound				Olive Chapel Road Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	14	1	0	9	8	1	1	6	14	5	0	1	8	4	0	0	75	75
07:15 AM	2	8	7	0	4	14	3	0	6	23	11	0	4	9	4	0	0	95	95
07:30 AM	0	15	2	0	8	9	7	1	6	24	10	2	8	23	3	1	0	119	119
07:45 AM	5	14	4	0	13	16	4	0	5	15	11	0	0	11	2	0	0	100	100
Total	10	51	14	0	34	47	15	2	23	76	37	2	13	51	13	1	0	389	389
08:00 AM	3	11	3	0	14	17	5	1	4	23	14	4	3	8	2	0	0	112	112
08:15 AM	3	18	4	0	15	9	5	1	4	30	17	2	2	14	3	0	0	127	127
08:30 AM	4	13	3	2	15	14	6	0	6	16	18	0	5	12	4	0	2	116	118
08:45 AM	11	12	6	1	20	10	3	0	5	23	22	0	4	13	6	0	1	135	136
Total	21	54	16	3	64	50	19	2	19	92	71	6	14	47	15	0	3	490	493
*** BREAK ***																			
04:00 PM	6	19	2	0	27	18	7	0	6	14	13	1	4	26	1	0	0	144	144
04:15 PM	4	13	7	0	22	30	9	4	3	16	13	0	1	18	2	3	0	145	145
04:30 PM	12	23	0	2	16	20	8	2	7	12	23	0	5	21	3	0	2	152	154
04:45 PM	5	23	9	1	21	18	12	0	3	15	18	0	1	21	3	0	1	149	150
Total	27	78	18	3	86	86	36	6	19	57	67	1	11	86	9	3	3	590	593
05:00 PM	6	23	2	1	28	23	7	0	4	21	39	1	3	18	4	0	1	179	180
05:15 PM	8	17	2	0	29	30	9	1	4	26	29	0	3	21	3	0	0	182	182
05:30 PM	4	18	4	1	19	12	16	0	9	23	26	0	2	28	6	0	1	167	168
05:45 PM	11	15	0	1	24	16	7	0	2	15	21	0	5	32	8	0	1	156	157
Total	29	73	8	3	100	81	39	1	19	85	115	1	13	99	21	0	3	684	687
Grand Total	87	256	56	9	284	264	109	11	80	310	290	10	51	283	58	4	9	2153	2162
Apprch %	21.8	64.2	14		42.5	39.5	16.3	1.6	11.6	44.9	42	1.4	12.9	71.5	14.6	1			
Total %	4	11.9	2.6		13.2	12.3	5.1	0.5	3.7	14.4	13.5	0.5	2.4	13.1	2.7	0.2	0.4	99.6	
Passenger Vehicles	86	247	45		276	257	107	0	79	298	283	0	47	280	56	0	0	0	2061
% Passenger Vehicles	98.9	96.5	80.4	0	97.2	97.3	98.2	0	98.8	96.1	97.6	0	92.2	98.9	96.6	0	0	0	95.3
Single Unit	1	7	9		8	6	2	0	0	8	7	0	4	3	1	0	0	0	56
% Single Unit	1.1	2.7	16.1	0	2.8	2.3	1.8	0	0	2.6	2.4	0	7.8	1.1	1.7	0	0	0	2.6
TTST	0	2	2		0	1	0	0	1	4	0	0	0	0	1	0	0	0	11
% TTST	0	0.8	3.6	0	0	0.4	0	0	1.2	1.3	0	0	0	0	1.7	0	0	0	0.5
Bicycles on Crosswalk	0	0	0		0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0.1
Pedestrians	0	0	0		0	0	0	11	0	0	0	8	0	0	0	4	0	0	32
% Pedestrians	0	0	0	100	0	0	0	100	0	0	0	80	0	0	0	100	0	0	1.5

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : OliveChapel@Richardson
Site Code :
Start Date : 11/5/2020
Page No : 2

	Richardson Road Southbound				Olive Chapel Road Westbound					Richardson Road Northbound					Olive Chapel Road Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 08:00 AM																				
08:00 AM	3	11	3	17	14	17	5	1	37	4	23	14	4	45	3	8	2	0	13	112
08:15 AM	3	18	4	25	15	9	5	1	30	4	30	17	2	53	2	14	3	0	19	127
08:30 AM	4	13	3	20	15	14	6	0	35	6	16	18	0	40	5	12	4	0	21	116
08:45 AM	11	12	6	29	20	10	3	0	33	5	23	22	0	50	4	13	6	0	23	135
Total Volume	21	54	16	91	64	50	19	2	135	19	92	71	6	188	14	47	15	0	76	490
% App. Total	23.1	59.3	17.6		47.4	37	14.1	1.5		10.1	48.9	37.8	3.2		18.4	61.8	19.7	0		
PHF	.477	.750	.667	.784	.800	.735	.792	.500	.912	.792	.767	.807	.375	.887	.700	.839	.625	.000	.826	.907
Passenger Vehicles	21	50	10	81	61	48	18	0	127	18	89	68	0	175	13	46	14	0	73	456
% Passenger Vehicles																				
Single Unit	0	2	4	6	3	2	1	0	6	0	3	3	0	6	1	1	0	0	2	20
% Single Unit	0	3.7	25.0	6.6	4.7	4.0	5.3	0	4.4	0	3.3	4.2	0	3.2	7.1	2.1	0	0	2.6	4.1
TTST	0	2	2	4	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	6
% TTST	0	3.7	12.5	4.4	0	0	0	0	0	5.3	0	0	0	0.5	0	0	6.7	0	1.3	1.2
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	2	2	0	0	0	6	6	0	0	0	0	0	8
% Pedestrians	0	0	0	0	0	0	0	100	1.5	0	0	0	100	3.2	0	0	0	0	0	1.6

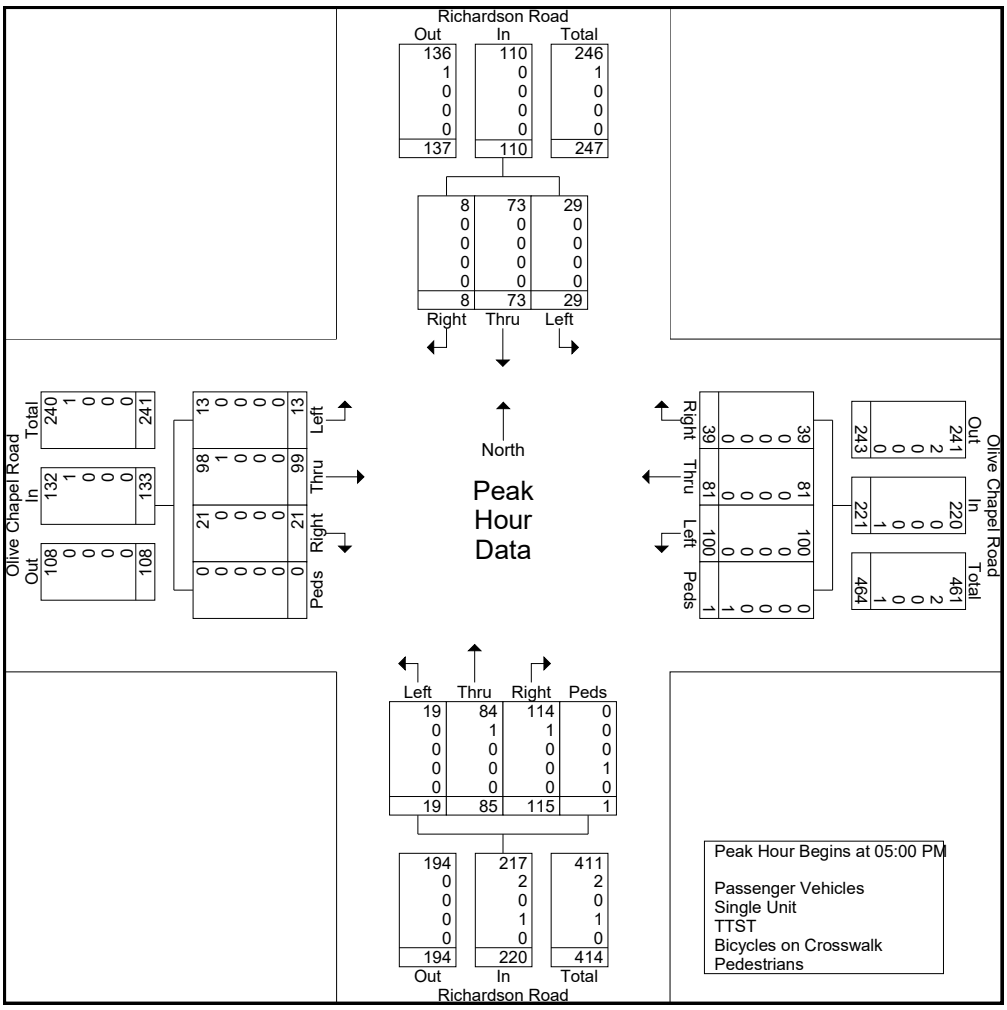


VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : OliveChapel@Richardson
Site Code :
Start Date : 11/5/2020
Page No : 3

	Richardson Road Southbound				Olive Chapel Road Westbound					Richardson Road Northbound					Olive Chapel Road Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 05:00 PM																				
05:00 PM	6	23	2	31	28	23	7	0	58	4	21	39	1	65	3	18	4	0	25	179
05:15 PM	8	17	2	27	29	30	9	1	69	4	26	29	0	59	3	21	3	0	27	182
05:30 PM	4	18	4	26	19	12	16	0	47	9	23	26	0	58	2	28	6	0	36	167
05:45 PM	11	15	0	26	24	16	7	0	47	2	15	21	0	38	5	32	8	0	45	156
Total Volume	29	73	8	110	100	81	39	1	221	19	85	115	1	220	13	99	21	0	133	684
% App. Total	26.4	66.4	7.3		45.2	36.7	17.6	0.5		8.6	38.6	52.3	0.5		9.8	74.4	15.8	0		
PHF	.659	.793	.500	.887	.862	.675	.609	.250	.801	.528	.817	.737	.250	.846	.650	.773	.656	.000	.739	.940
Passenger Vehicles	29	73	8	110	100	81	39	0	220	19	84	114	0	217	13	98	21	0	132	679
% Passenger Vehicles																				
Single Unit	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	3
% Single Unit	0	0	0	0	0	0	0	0	0	0	1.2	0.9	0	0.9	0	1.0	0	0	0.8	0.4
TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	100	0.5	0	0	0	0	0	0.1
Pedestrians	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
% Pedestrians	0	0	0	0	0	0	0	100	0.5	0	0	0	0	0	0	0	0	0	0	0.1



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : Richardson@Hasse
Site Code :
Start Date : 11/5/2020
Page No : 1

Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

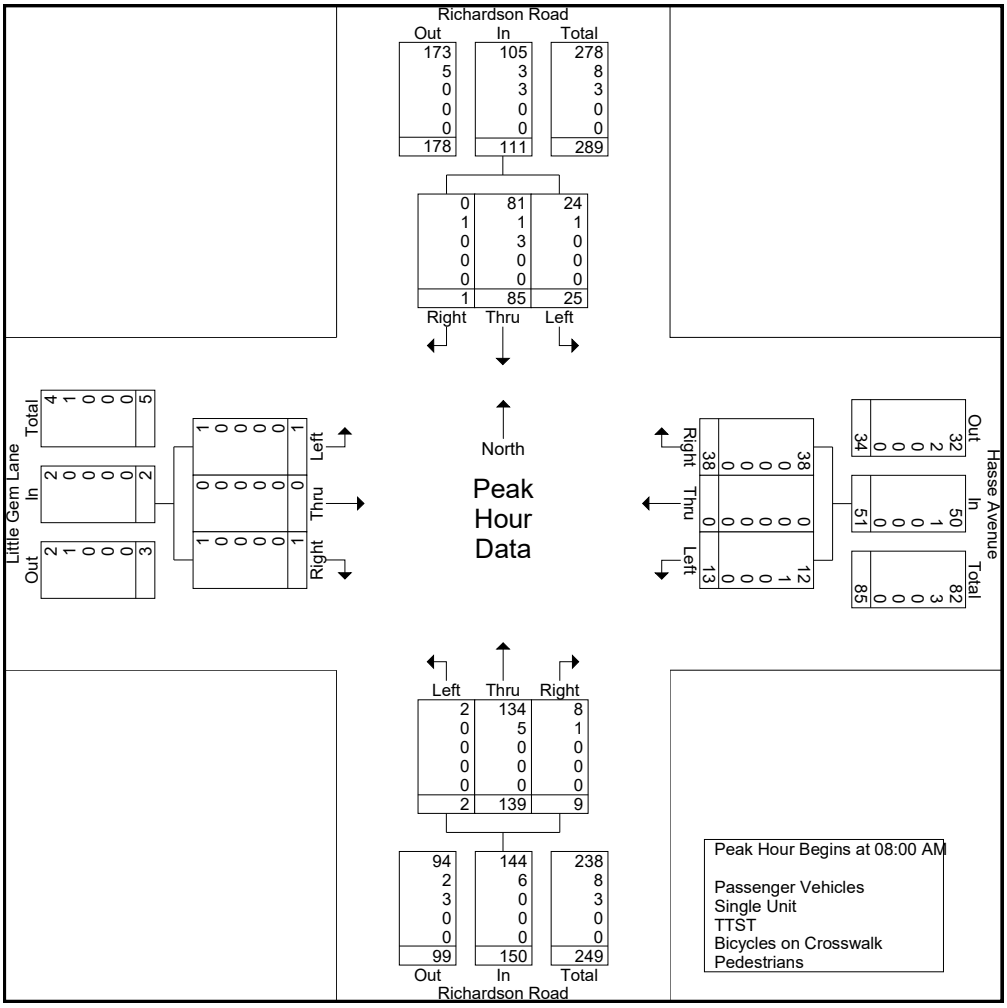
	Richardson Road Southbound				Hasse Avenue Westbound				Richardson Road Northbound				Little Gem Lane Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	16	0	0	2	0	6	2	0	22	0	0	0	0	0	0	2	49	51
07:15 AM	6	16	0	2	1	0	8	1	0	36	1	0	0	0	0	0	3	68	71
07:30 AM	2	17	0	0	1	0	14	0	2	36	3	1	3	1	0	1	2	79	81
07:45 AM	5	23	0	0	3	0	13	1	0	26	2	0	1	0	1	1	2	74	76
Total	16	72	0	2	7	0	41	4	2	120	6	1	4	1	1	2	9	270	279
08:00 AM	9	17	0	0	2	0	11	0	1	35	3	0	0	0	0	1	1	78	79
08:15 AM	4	27	1	0	4	0	9	1	0	29	4	0	0	0	0	1	2	78	80
08:30 AM	6	22	0	0	3	0	9	1	0	36	1	0	1	0	0	1	2	78	80
08:45 AM	6	19	0	0	4	0	9	0	1	39	1	1	0	0	1	1	2	80	82
Total	25	85	1	0	13	0	38	2	2	139	9	1	1	0	1	4	7	314	321
*** BREAK ***																			
04:00 PM	2	24	0	3	0	1	8	1	0	17	5	0	1	0	0	1	5	58	63
04:15 PM	7	19	3	1	7	0	6	4	0	28	2	1	1	0	0	0	6	73	79
04:30 PM	5	22	0	2	1	0	8	2	0	26	3	1	0	0	0	2	7	65	72
04:45 PM	11	36	0	2	3	0	10	0	0	21	6	0	1	1	0	0	2	89	91
Total	25	101	3	8	11	1	32	7	0	92	16	2	3	1	0	3	20	285	305
05:00 PM	10	33	0	2	2	0	7	0	0	33	6	0	1	0	1	0	2	93	95
05:15 PM	8	24	0	2	5	1	7	2	0	40	3	1	0	0	2	1	6	90	96
05:30 PM	9	42	3	0	3	0	9	0	2	32	5	0	0	0	0	1	1	105	106
05:45 PM	7	21	0	0	2	0	3	0	2	27	5	0	0	0	1	0	0	68	68
Total	34	120	3	4	12	1	26	2	4	132	19	1	1	0	4	2	9	356	365
Grand Total	100	378	7	14	43	2	137	15	8	483	50	5	9	2	6	11	45	1225	1270
Apprch %	20.6	77.9	1.4		23.6	1.1	75.3		1.5	89.3	9.2		52.9	11.8	35.3				
Total %	8.2	30.9	0.6		3.5	0.2	11.2		0.7	39.4	4.1		0.7	0.2	0.5		3.5	96.5	
Passenger Vehicles	98	365	6		41	2	136		8	467	49		8	0	6		0	0	1186
% Passenger Vehicles	98	96.6	85.7	0	95.3	100	99.3	0	100	96.7	98	0	88.9	0	100	0	0	0	93.4
Single Unit	2	6	1		2	0	1		0	10	1		1	1	0		0	0	25
% Single Unit	2	1.6	14.3	0	4.7	0	0.7	0	0	2.1	2	0	11.1	50	0	0	0	0	2
TTST	0	7	0		0	0	0		0	6	0		0	1	0		0	0	14
% TTST	0	1.9	0	0	0	0	0	0	0	1.2	0	0	0	50	0	0	0	0	1.1
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	2
% Bicycles on Crosswalk	0	0	0	7.1	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0.2
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	43
% Pedestrians	0	0	0	92.9	0	0	0	100	0	0	0	80	0	0	0	100	0	0	3.4

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : Richardson@Hasse
Site Code :
Start Date : 11/5/2020
Page No : 2

	Richardson Road Southbound				Hasse Avenue Westbound				Richardson Road Northbound				Little Gem Lane Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	9	17	0	26	2	0	11	13	1	35	3	39	0	0	0	0	78
08:15 AM	4	27	1	32	4	0	9	13	0	29	4	33	0	0	0	0	78
08:30 AM	6	22	0	28	3	0	9	12	0	36	1	37	1	0	0	1	78
08:45 AM	6	19	0	25	4	0	9	13	1	39	1	41	0	0	1	1	80
Total Volume	25	85	1	111	13	0	38	51	2	139	9	150	1	0	1	2	314
% App. Total	22.5	76.6	0.9		25.5	0	74.5		1.3	92.7	6		50	0	50		
PHF	.694	.787	.250	.867	.813	.000	.864	.981	.500	.891	.563	.915	.250	.000	.250	.500	.981
Passenger Vehicles	24	81	0	105	12	0	38	50	2	134	8	144	1	0	1	2	301
% Passenger Vehicles	96.0	95.3	0	94.6	92.3	0	100	98.0	100	96.4	88.9	96.0	100	0	100	100	95.9
Single Unit	1	1	1	3	1	0	0	1	0	5	1	6	0	0	0	0	10
% Single Unit	4.0	1.2	100	2.7	7.7	0	0	2.0	0	3.6	11.1	4.0	0	0	0	0	3.2
TTST	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
% TTST	0	3.5	0	2.7	0	0	0	0	0	0	0	0	0	0	0	0	1.0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

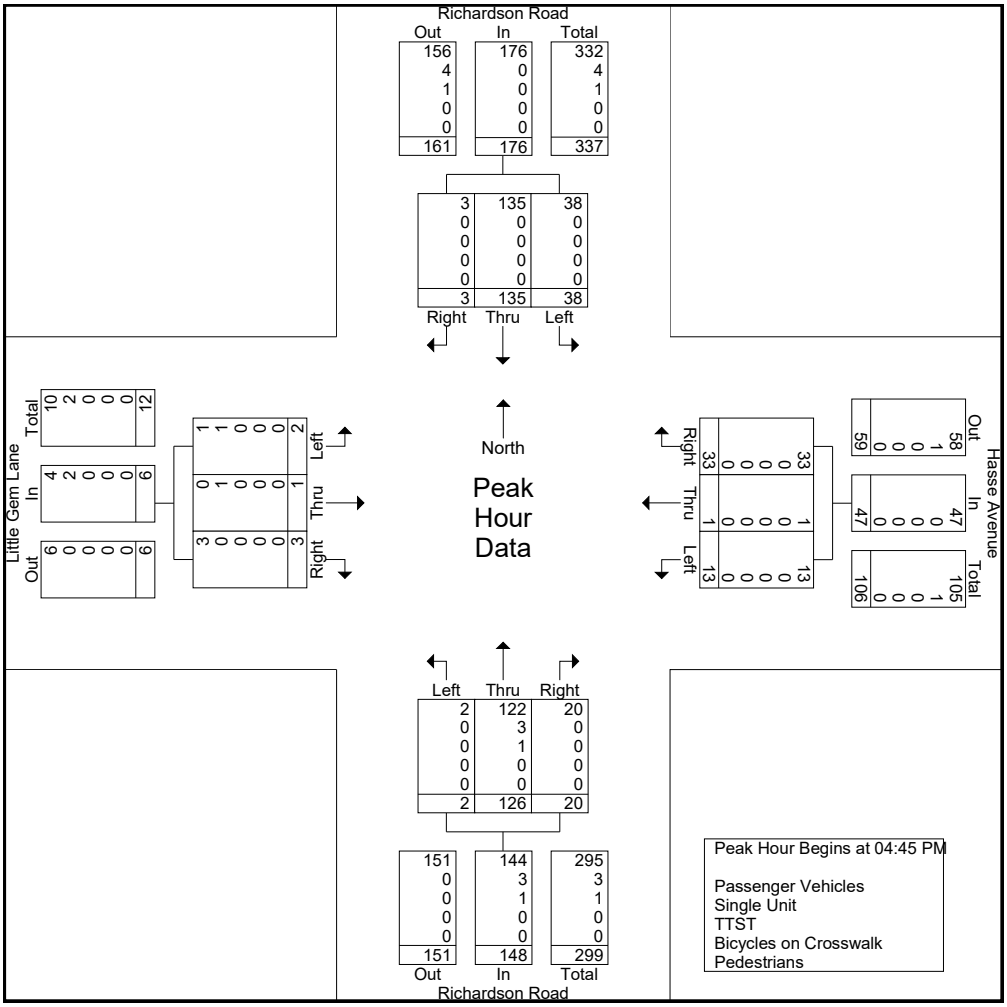


VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : Richardson@Hasse
Site Code :
Start Date : 11/5/2020
Page No : 3

	Richardson Road Southbound				Hasse Avenue Westbound				Richardson Road Northbound				Little Gem Lane Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	11	36	0	47	3	0	10	13	0	21	6	27	1	1	0	2	89
05:00 PM	10	33	0	43	2	0	7	9	0	33	6	39	1	0	1	2	93
05:15 PM	8	24	0	32	5	1	7	13	0	40	3	43	0	0	2	2	90
05:30 PM	9	42	3	54	3	0	9	12	2	32	5	39	0	0	0	0	105
Total Volume	38	135	3	176	13	1	33	47	2	126	20	148	2	1	3	6	377
% App. Total	21.6	76.7	1.7		27.7	2.1	70.2		1.4	85.1	13.5		33.3	16.7	50		
PHF	.864	.804	.250	.815	.650	.250	.825	.904	.250	.788	.833	.860	.500	.250	.375	.750	.898
Passenger Vehicles	38	135	3	176	13	1	33	47	2	122	20	144	1	0	3	4	371
% Passenger Vehicles	100	100	100	100	100	100	100	100	100	96.8	100	97.3	50.0	0	100	66.7	98.4
Single Unit	0	0	0	0	0	0	0	0	0	3	0	3	1	1	0	2	5
% Single Unit	0	0	0	0	0	0	0	0	0	2.4	0	2.0	50.0	100	0	33.3	1.3
TTST	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% TTST	0	0	0	0	0	0	0	0	0	0.8	0	0.7	0	0	0	0	0.3
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : US64@Richardson
Site Code :
Start Date : 11/5/2020
Page No : 1

Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

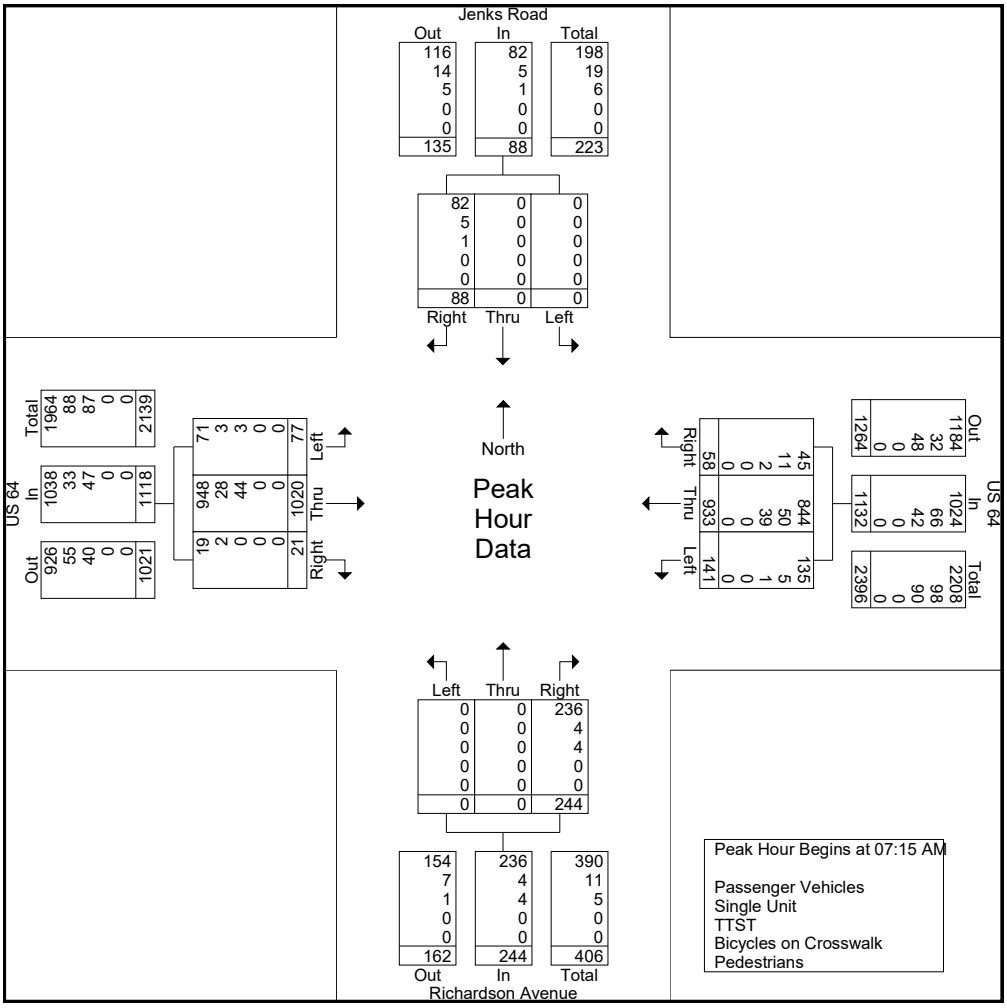
	Jenks Road Southbound				US 64 Westbound				Richardson Avenue Northbound				US 64 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	19	0	22	174	18	0	0	0	31	0	17	228	1	0	0	510	510
07:15 AM	0	0	29	0	38	222	10	0	0	0	55	0	31	239	4	0	0	628	628
07:30 AM	0	0	13	0	22	244	16	0	0	0	67	0	19	275	5	0	0	661	661
07:45 AM	0	0	21	0	41	257	17	0	0	0	55	0	15	257	6	0	0	669	669
Total	0	0	82	0	123	897	61	0	0	0	208	0	82	999	16	0	0	2468	2468
08:00 AM	0	0	25	0	40	210	15	0	0	0	67	0	12	249	6	0	0	624	624
08:15 AM	0	0	25	0	39	230	25	0	0	0	43	0	17	226	6	0	0	611	611
08:30 AM	0	0	22	0	31	242	21	0	0	0	55	0	14	209	4	0	0	598	598
08:45 AM	0	0	18	0	24	185	17	0	0	0	59	0	17	192	5	0	0	517	517
Total	0	0	90	0	134	867	78	0	0	0	224	0	60	876	21	0	0	2350	2350
*** BREAK ***																			
04:00 PM	0	0	29	0	29	280	11	0	0	0	39	0	14	223	6	0	0	631	631
04:15 PM	0	0	30	0	41	295	11	0	0	0	43	0	21	226	6	0	0	673	673
04:30 PM	0	0	26	0	35	271	11	0	0	0	53	0	14	268	4	0	0	682	682
04:45 PM	0	0	25	0	59	255	21	0	0	0	45	0	16	238	6	0	0	665	665
Total	0	0	110	0	164	1101	54	0	0	0	180	0	65	955	22	0	0	2651	2651
05:00 PM	0	0	41	0	52	313	17	0	0	0	51	0	17	291	6	0	0	788	788
05:15 PM	0	0	42	0	42	330	24	0	0	0	50	0	16	297	7	0	0	808	808
05:30 PM	0	0	40	0	60	281	16	0	0	0	60	0	24	262	12	0	0	755	755
05:45 PM	0	0	37	0	42	265	13	0	0	0	42	0	17	282	5	0	0	703	703
Total	0	0	160	0	196	1189	70	0	0	0	203	0	74	1132	30	0	0	3054	3054
Grand Total	0	0	442	0	617	4054	263	0	0	0	815	0	281	3962	89	0	0	10523	10523
Apprch %	0	0	100		12.5	82.2	5.3		0	0	100		6.5	91.5	2.1				
Total %	0	0	4.2		5.9	38.5	2.5		0	0	7.7		2.7	37.7	0.8		0	100	
Passenger Vehicles	0	0	417		599	3775	234		0	0	788		265	3716	82		0	0	9876
% Passenger Vehicles	0	0	94.3	0	97.1	93.1	89	0	0	0	96.7	0	94.3	93.8	92.1	0	0	0	93.9
Single Unit	0	0	22		13	163	23		0	0	23		11	105	7		0	0	367
% Single Unit	0	0	5	0	2.1	4	8.7	0	0	0	2.8	0	3.9	2.7	7.9	0	0	0	3.5
TTST	0	0	3		5	116	6		0	0	4		5	141	0		0	0	280
% TTST	0	0	0.7	0	0.8	2.9	2.3	0	0	0	0.5	0	1.8	3.6	0	0	0	0	2.7
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : US64@Richardson
Site Code :
Start Date : 11/5/2020
Page No : 2

	Jenks Road Southbound				US 64 Westbound				Richardson Avenue Northbound				US 64 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	29	29	38	222	10	270	0	0	55	55	31	239	4	274	628
07:30 AM	0	0	13	13	22	244	16	282	0	0	67	67	19	275	5	299	661
07:45 AM	0	0	21	21	41	257	17	315	0	0	55	55	15	257	6	278	669
08:00 AM	0	0	25	25	40	210	15	265	0	0	67	67	12	249	6	267	624
Total Volume	0	0	88	88	141	933	58	1132	0	0	244	244	77	1020	21	1118	2582
% App. Total	0	0	100		12.5	82.4	5.1		0	0	100		6.9	91.2	1.9		
PHF	.000	.000	.759	.759	.860	.908	.853	.898	.000	.000	.910	.910	.621	.927	.875	.935	.965
Passenger Vehicles	0	0	82	82	135	844	45	1024	0	0	236	236	71	948	19	1038	2380
% Passenger Vehicles	0	0	93.2	93.2	95.7	90.5	77.6	90.5	0	0	96.7	96.7	92.2	92.9	90.5	92.8	92.2
Single Unit	0	0	5	5	5	50	11	66	0	0	4	4	3	28	2	33	108
% Single Unit	0	0	5.7	5.7	3.5	5.4	19.0	5.8	0	0	1.6	1.6	3.9	2.7	9.5	3.0	4.2
TTST	0	0	1	1	1	39	2	42	0	0	4	4	3	44	0	47	94
% TTST	0	0	1.1	1.1	0.7	4.2	3.4	3.7	0	0	1.6	1.6	3.9	4.3	0	4.2	3.6
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

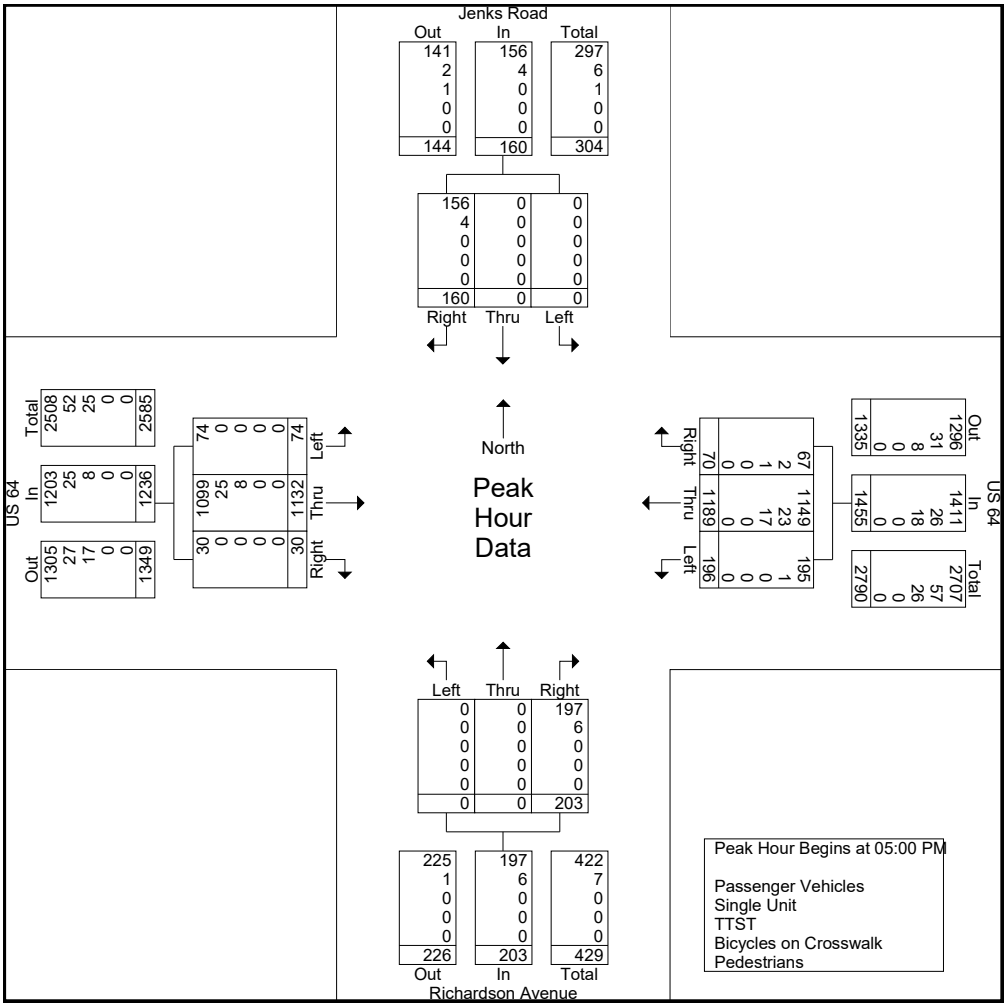


VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : US64@Richardson
Site Code :
Start Date : 11/5/2020
Page No : 3

	Jenks Road Southbound				US 64 Westbound				Richardson Avenue Northbound				US 64 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	41	41	52	313	17	382	0	0	51	51	17	291	6	314	788
05:15 PM	0	0	42	42	42	330	24	396	0	0	50	50	16	297	7	320	808
05:30 PM	0	0	40	40	60	281	16	357	0	0	60	60	24	262	12	298	755
05:45 PM	0	0	37	37	42	265	13	320	0	0	42	42	17	282	5	304	703
Total Volume	0	0	160	160	196	1189	70	1455	0	0	203	203	74	1132	30	1236	3054
% App. Total	0	0	100		13.5	81.7	4.8		0	0	100		6	91.6	2.4		
PHF	.000	.000	.952	.952	.817	.901	.729	.919	.000	.000	.846	.846	.771	.953	.625	.966	.945
Passenger Vehicles	0	0	156	156	195	1149	67	1411	0	0	197	197	74	1099	30	1203	2967
% Passenger Vehicles	0	0	97.5	97.5	99.5	96.6	95.7	97.0	0	0	97.0	97.0	100	97.1	100	97.3	97.2
Single Unit	0	0	4	4	1	23	2	26	0	0	6	6	0	25	0	25	61
% Single Unit	0	0	2.5	2.5	0.5	1.9	2.9	1.8	0	0	3.0	3.0	0	2.2	0	2.0	2.0
TTST	0	0	0	0	0	17	1	18	0	0	0	0	0	8	0	8	26
% TTST	0	0	0	0	0	1.4	1.4	1.2	0	0	0	0	0	0.7	0	0.6	0.9
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : US64@U-turn_E_Richardson
Site Code :
Start Date : 11/5/2020
Page No : 1

Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

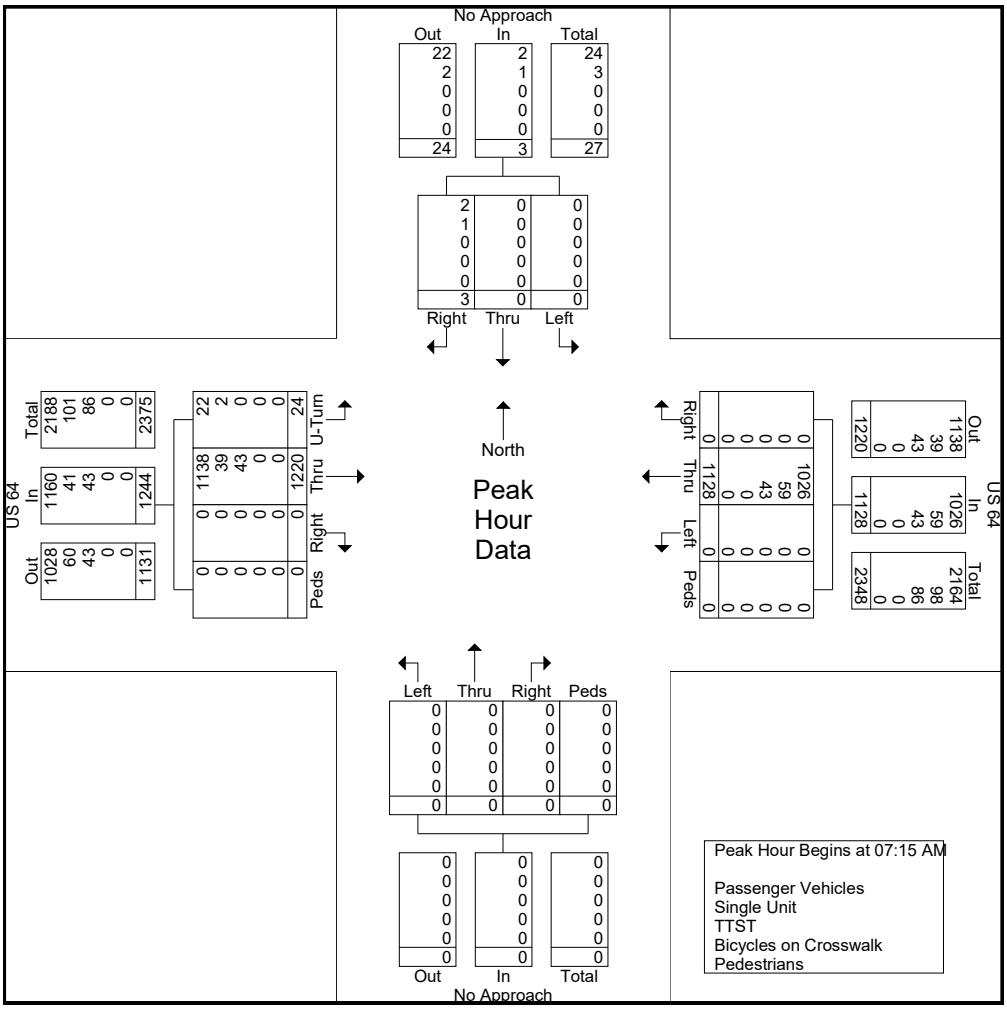
	No Approach Southbound				US 64 Westbound				No Approach Northbound				US 64 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	U-Turn	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	1	0	0	218	0	0	0	0	0	0	2	247	0	0	0	468	468
07:15 AM	0	0	0	0	0	268	0	0	0	0	0	0	5	302	0	0	0	575	575
07:30 AM	0	0	3	0	0	278	0	0	0	0	0	0	8	315	0	0	0	604	604
07:45 AM	0	0	0	0	0	309	0	0	0	0	0	0	4	272	0	0	0	585	585
Total	0	0	4	0	0	1073	0	0	0	0	0	0	19	1136	0	0	0	2232	2232
08:00 AM	0	0	0	0	0	273	0	0	0	0	0	0	7	331	0	0	0	611	611
08:15 AM	0	0	0	0	0	283	0	0	0	0	0	0	8	264	0	0	0	555	555
08:30 AM	0	0	0	0	0	305	0	0	0	0	0	0	6	261	0	0	0	572	572
08:45 AM	0	0	0	0	0	203	0	0	0	0	0	0	7	239	0	0	0	449	449
Total	0	0	0	0	0	1064	0	0	0	0	0	0	28	1095	0	0	0	2187	2187
*** BREAK ***																			
04:00 PM	0	0	0	0	0	324	0	0	0	0	0	0	6	263	0	0	0	593	593
04:15 PM	0	0	0	0	0	349	0	0	0	0	0	0	5	266	0	0	0	620	620
04:30 PM	0	0	0	0	0	303	0	0	0	0	0	0	9	311	0	0	0	623	623
04:45 PM	0	0	0	0	0	330	0	0	0	0	0	0	7	277	0	0	0	614	614
Total	0	0	0	0	0	1306	0	0	0	0	0	0	27	1117	0	0	0	2450	2450
05:00 PM	0	0	3	0	0	376	0	0	0	0	0	0	10	341	0	0	0	730	730
05:15 PM	0	0	1	0	0	394	0	0	0	0	0	0	10	334	0	0	0	739	739
05:30 PM	0	0	2	0	0	363	0	0	0	0	0	0	12	294	0	0	0	671	671
05:45 PM	0	0	2	0	0	301	0	0	0	0	0	0	9	294	0	0	0	606	606
Total	0	0	8	0	0	1434	0	0	0	0	0	0	41	1263	0	0	0	2746	2746
Grand Total	0	0	12	0	0	4877	0	0	0	0	0	0	115	4611	0	0	0	9615	9615
Apprch %	0	0	100		0	100	0	0	0	0	0	0	2.4	97.6	0	0			
Total %	0	0	0.1		0	50.7	0	0	0	0	0	0	1.2	48	0	0	0	100	
Passenger Vehicles	0	0	8		0	4597	0	0	0	0	0	0	103	4370	0	0	0	0	9078
% Passenger Vehicles	0	0	66.7	0	0	94.3	0	0	0	0	0	0	89.6	94.8	0	0	0	0	94.4
Single Unit	0	0	3		0	157	0	0	0	0	0	0	11	125	0	0	0	0	296
% Single Unit	0	0	25	0	0	3.2	0	0	0	0	0	0	9.6	2.7	0	0	0	0	3.1
TTST	0	0	1		0	123	0	0	0	0	0	0	1	116	0	0	0	0	241
% TTST	0	0	8.3	0	0	2.5	0	0	0	0	0	0	0.9	2.5	0	0	0	0	2.5
Bicycles on Crosswalk	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : US64@U-turn_E_Richardson
Site Code :
Start Date : 11/5/2020
Page No : 2

	No Approach Southbound				US 64 Westbound					No Approach Northbound					US 64 Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:15 AM																				
07:15 AM	0	0	0	0	0	268	0	0	268	0	0	0	0	0	5	302	0	0	307	575
07:30 AM	0	0	3	3	0	278	0	0	278	0	0	0	0	0	8	315	0	0	323	604
07:45 AM	0	0	0	0	0	309	0	0	309	0	0	0	0	0	4	272	0	0	276	585
08:00 AM	0	0	0	0	0	273	0	0	273	0	0	0	0	0	7	331	0	0	338	611
Total Volume	0	0	3	3	0	1128	0	0	1128	0	0	0	0	0	24	1220	0	0	1244	2375
% App. Total	0	0	100		0	100	0	0		0	0	0	0		1.9	98.1	0	0		
PHF	.000	.000	.250	.250	.000	.913	.000	.000	.913	.000	.000	.000	.000	.000	.750	.921	.000	.000	.920	.972
Passenger Vehicles	0	0	2	2	0	1026	0	0	1026	0	0	0	0	0	22	1138	0	0	1160	2188
% Passenger Vehicles																				
Single Unit	0	0	1	1	0	59	0	0	59	0	0	0	0	0	2	39	0	0	41	101
% Single Unit	0	0	33.3	33.3	0	5.2	0	0	5.2	0	0	0	0	0	8.3	3.2	0	0	3.3	4.3
TTST	0	0	0	0	0	43	0	0	43	0	0	0	0	0	0	43	0	0	43	86
% TTST	0	0	0	0	0	3.8	0	0	3.8	0	0	0	0	0	0	3.5	0	0	3.5	3.6
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

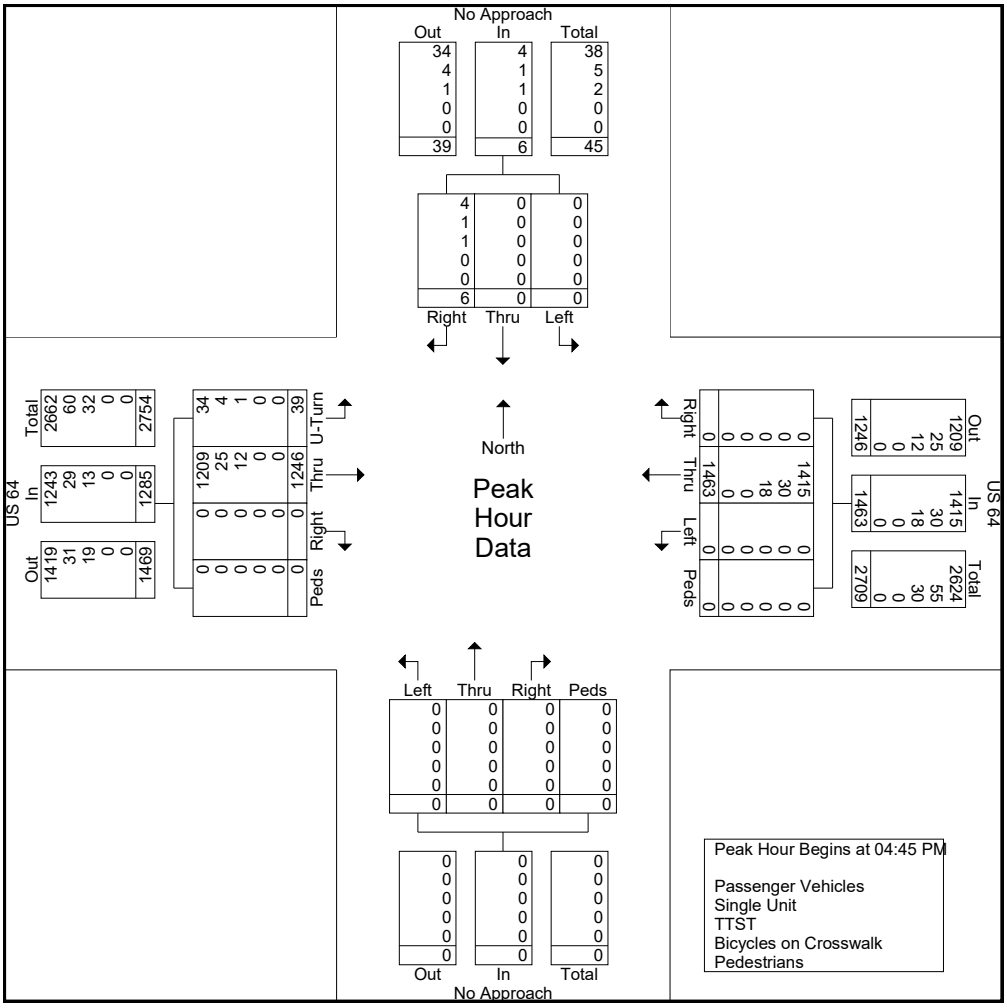


VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : US64@U-turn_E_Richardson
Site Code :
Start Date : 11/5/2020
Page No : 3

	No Approach Southbound				US 64 Westbound					No Approach Northbound					US 64 Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 04:45 PM																				
04:45 PM	0	0	0	0	0	330	0	0	330	0	0	0	0	0	7	277	0	0	284	614
05:00 PM	0	0	3	3	0	376	0	0	376	0	0	0	0	0	10	341	0	0	351	730
05:15 PM	0	0	1	1	0	394	0	0	394	0	0	0	0	0	10	334	0	0	344	739
05:30 PM	0	0	2	2	0	363	0	0	363	0	0	0	0	0	12	294	0	0	306	671
Total Volume	0	0	6	6	0	1463	0	0	1463	0	0	0	0	0	39	1246	0	0	1285	2754
% App. Total	0	0	100		0	100	0	0		0	0	0	0		3	97	0	0		
PHF	.000	.000	.500	.500	.000	.928	.000	.000	.928	.000	.000	.000	.000	.000	.813	.913	.000	.000	.915	.932
Passenger Vehicles	0	0	4	4	0	1415	0	0	1415	0	0	0	0	0	34	1209	0	0	1243	2662
% Passenger Vehicles																				
Single Unit	0	0	1	1	0	30	0	0	30	0	0	0	0	0	4	25	0	0	29	60
% Single Unit	0	0	16.7	16.7	0	2.1	0	0	2.1	0	0	0	0	0	10.3	2.0	0	0	2.3	2.2
TTST	0	0	1	1	0	18	0	0	18	0	0	0	0	0	1	12	0	0	13	32
% TTST	0	0	16.7	16.7	0	1.2	0	0	1.2	0	0	0	0	0	2.6	1.0	0	0	1.0	1.2
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



APPENDIX C:

Background Projects

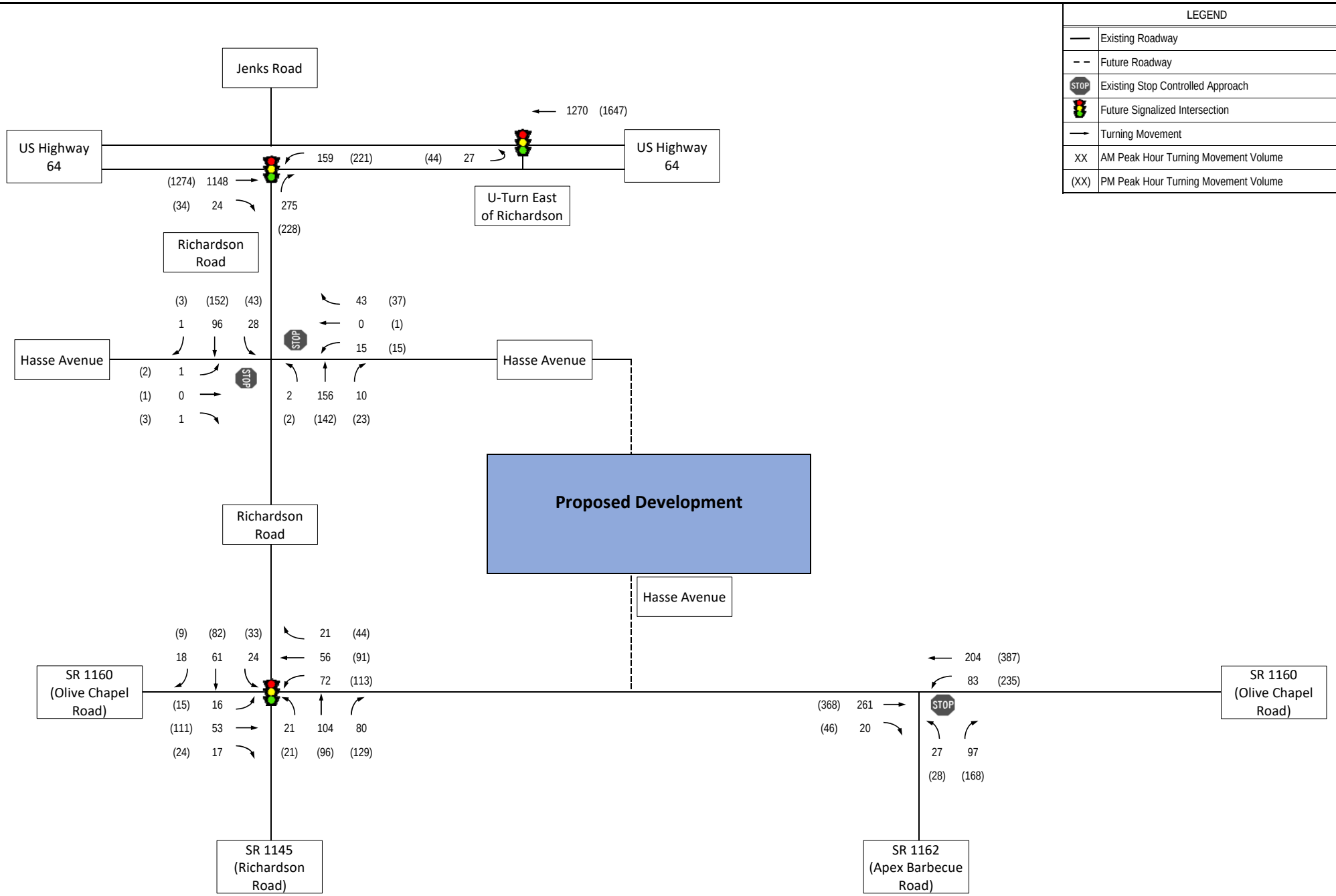


Figure C-1
Background (2020) AM and PM Peak Hour Turning Movement Volumes

Hackney Tract Subdivision
Apex, NC

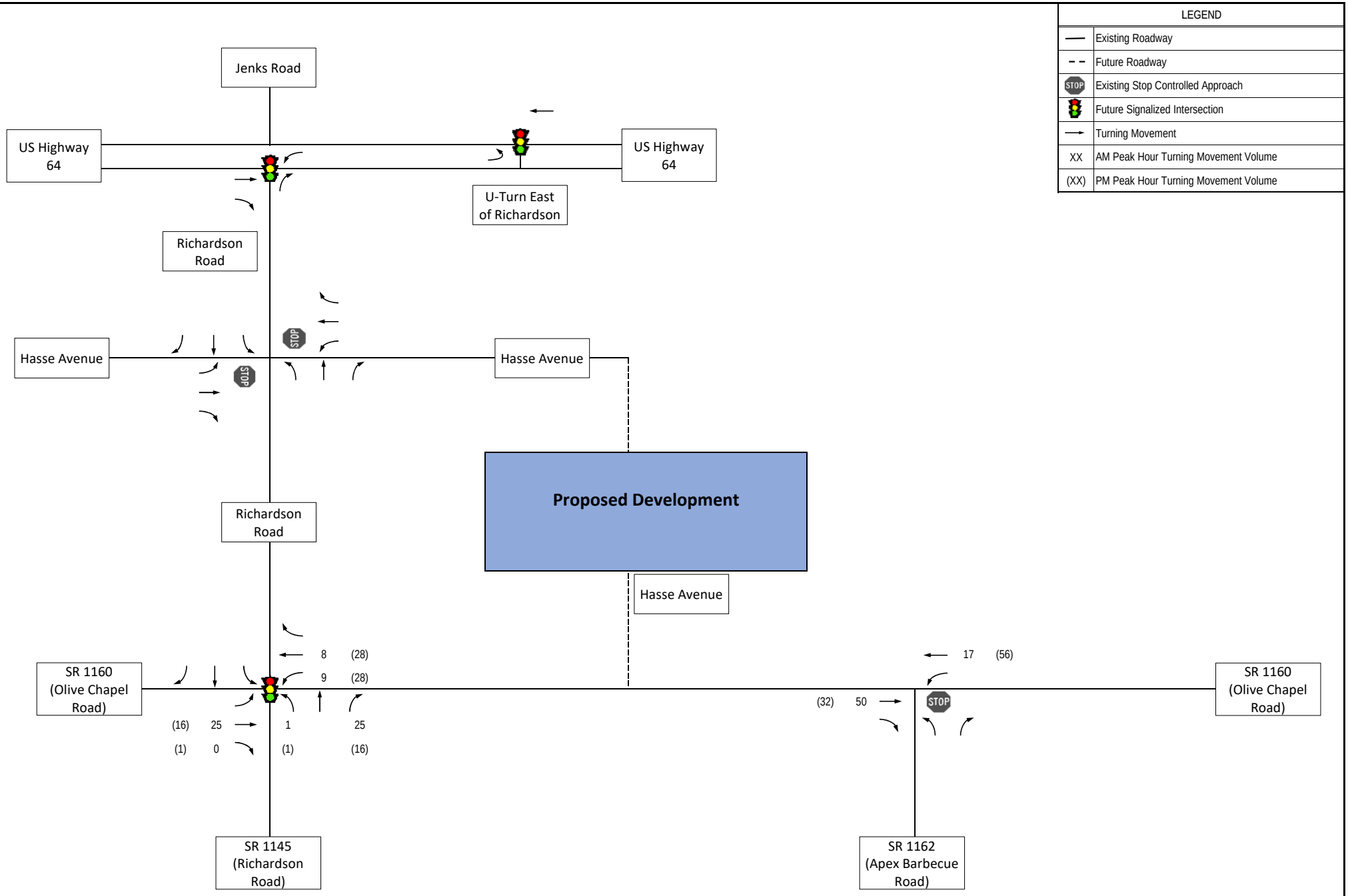


Figure C-2
Total Site Trips Due to Saddlebrook (Lawrence Assemblage)

Hackney Tract Subdivision
Apex, NC

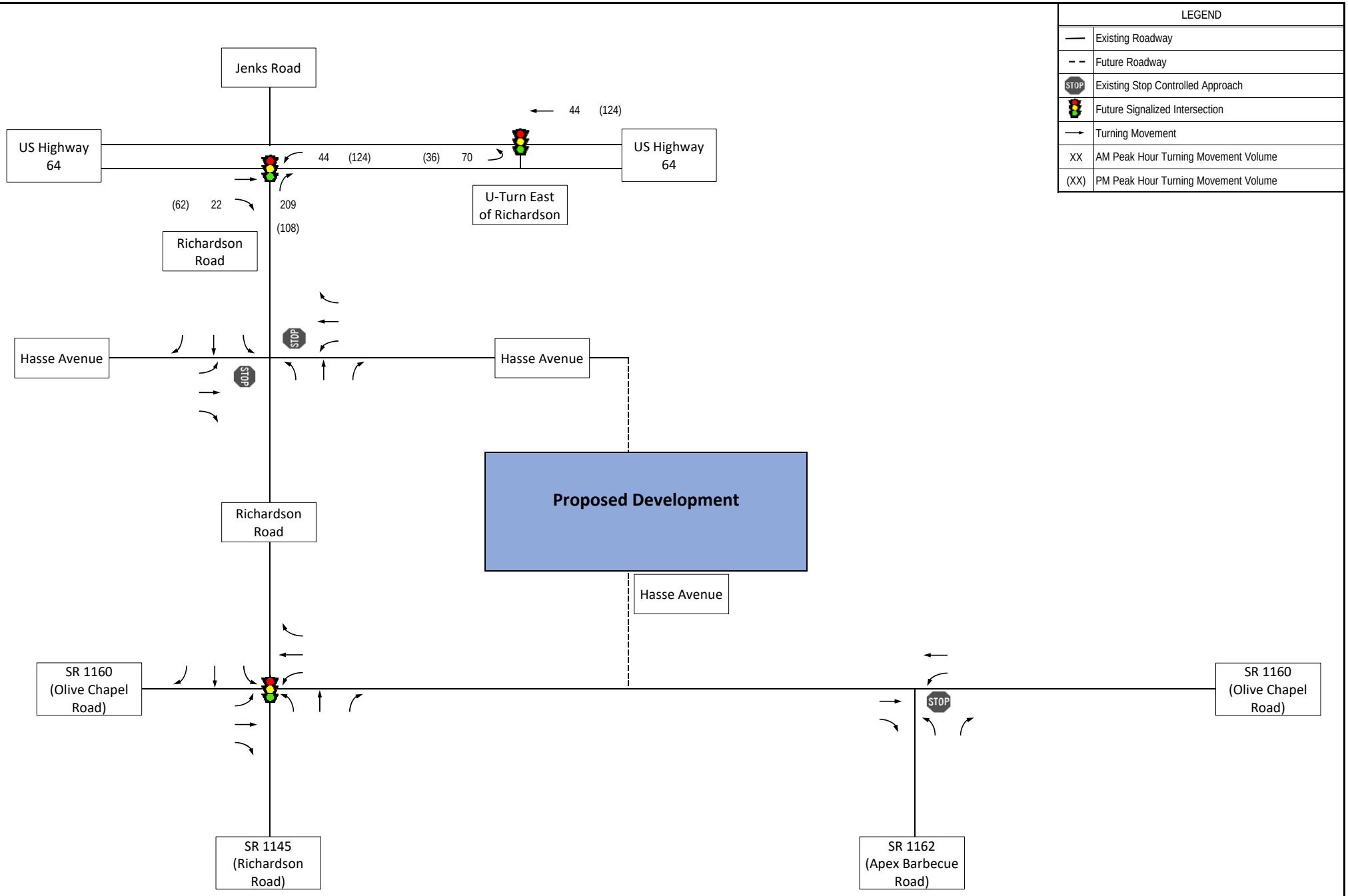


Figure C-3
Residential Site Trips Due to Sweetwater

Hackney Tract Subdivision
Apex, NC

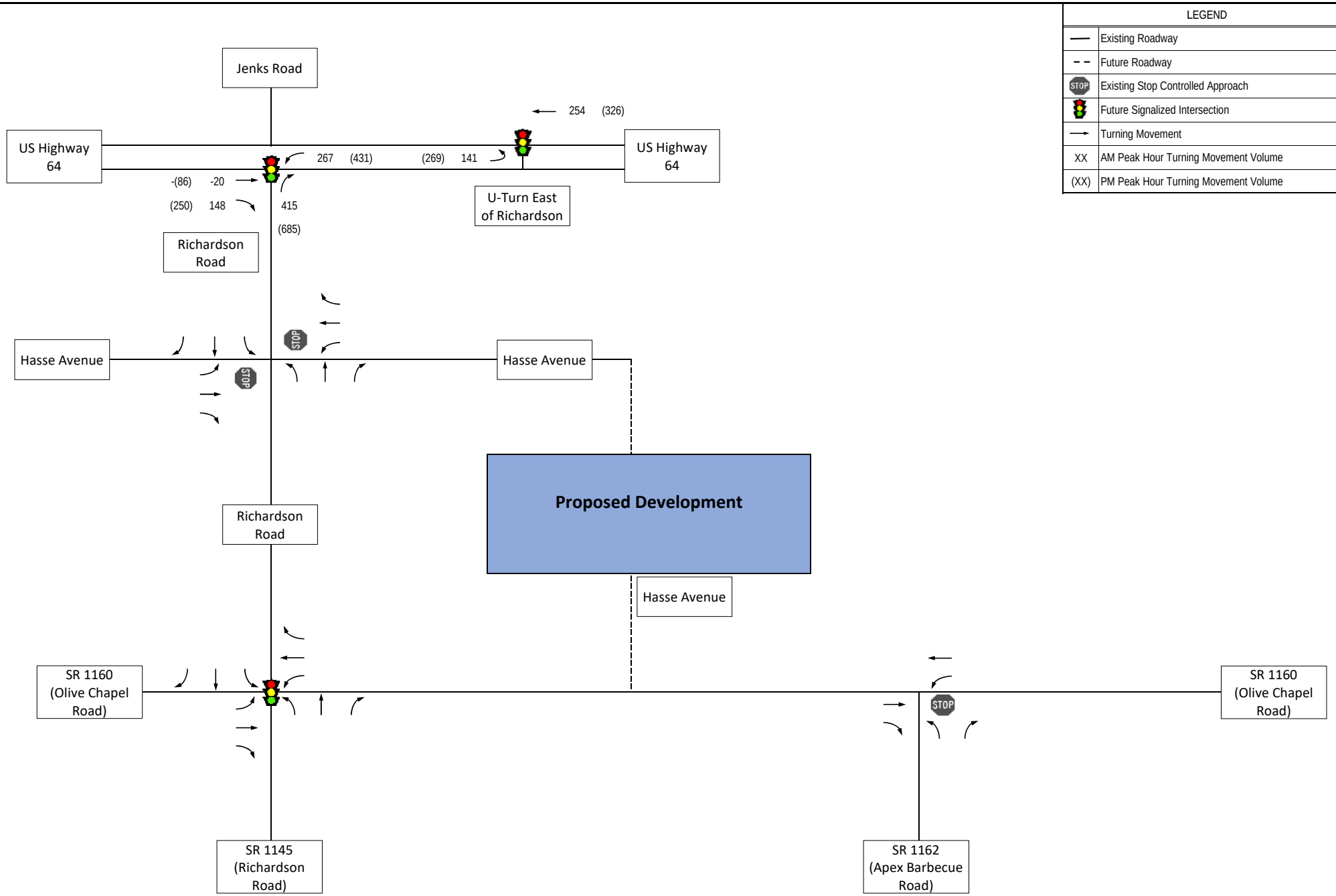


Figure C-4A
Total Site Trips Due to Sweetwater

Hackney Tract Subdivision
Apex, NC

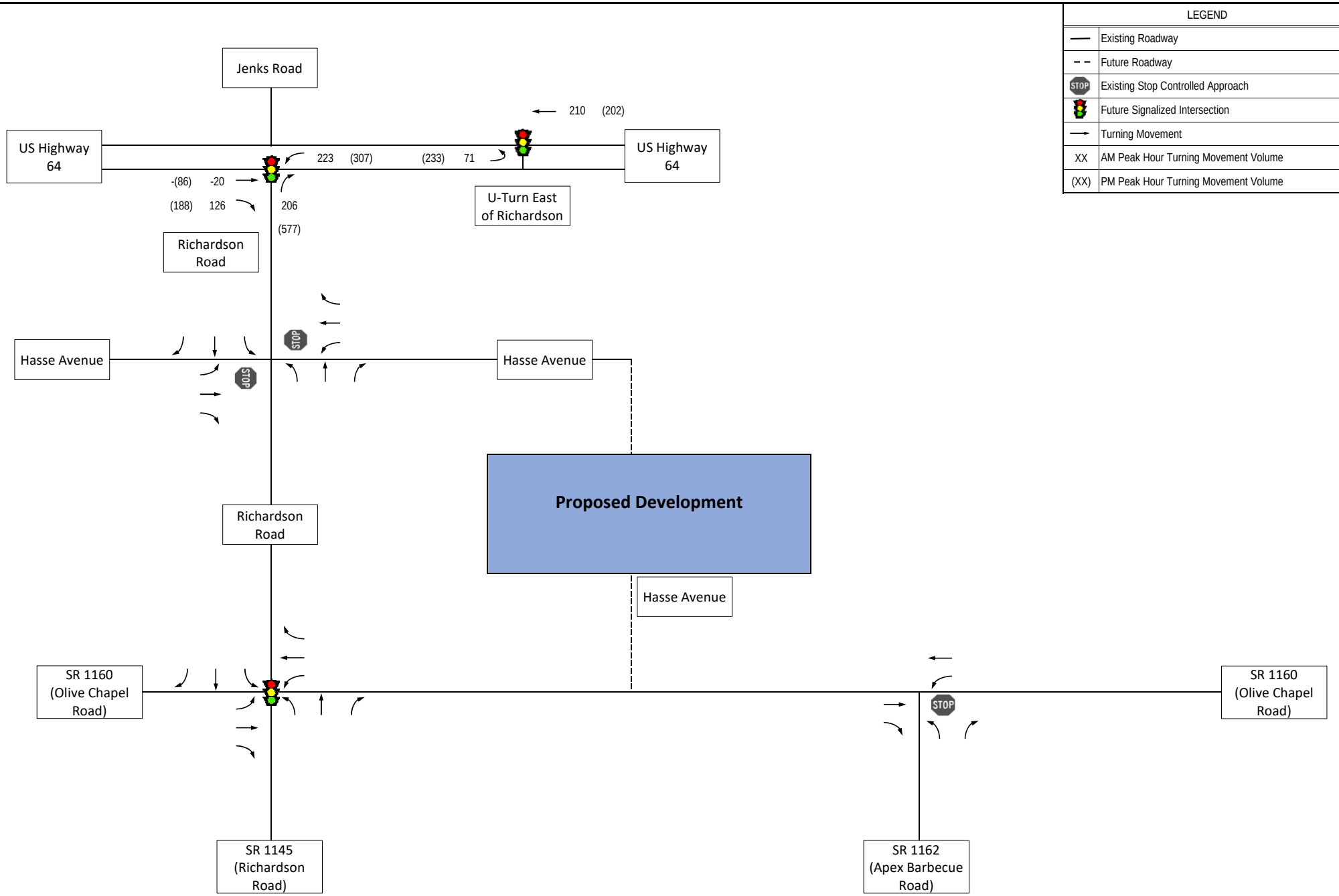


Figure C-4B
Mixed-Use Site Trips Due to Sweetwater

Hackney Tract Subdivision
Apex, NC

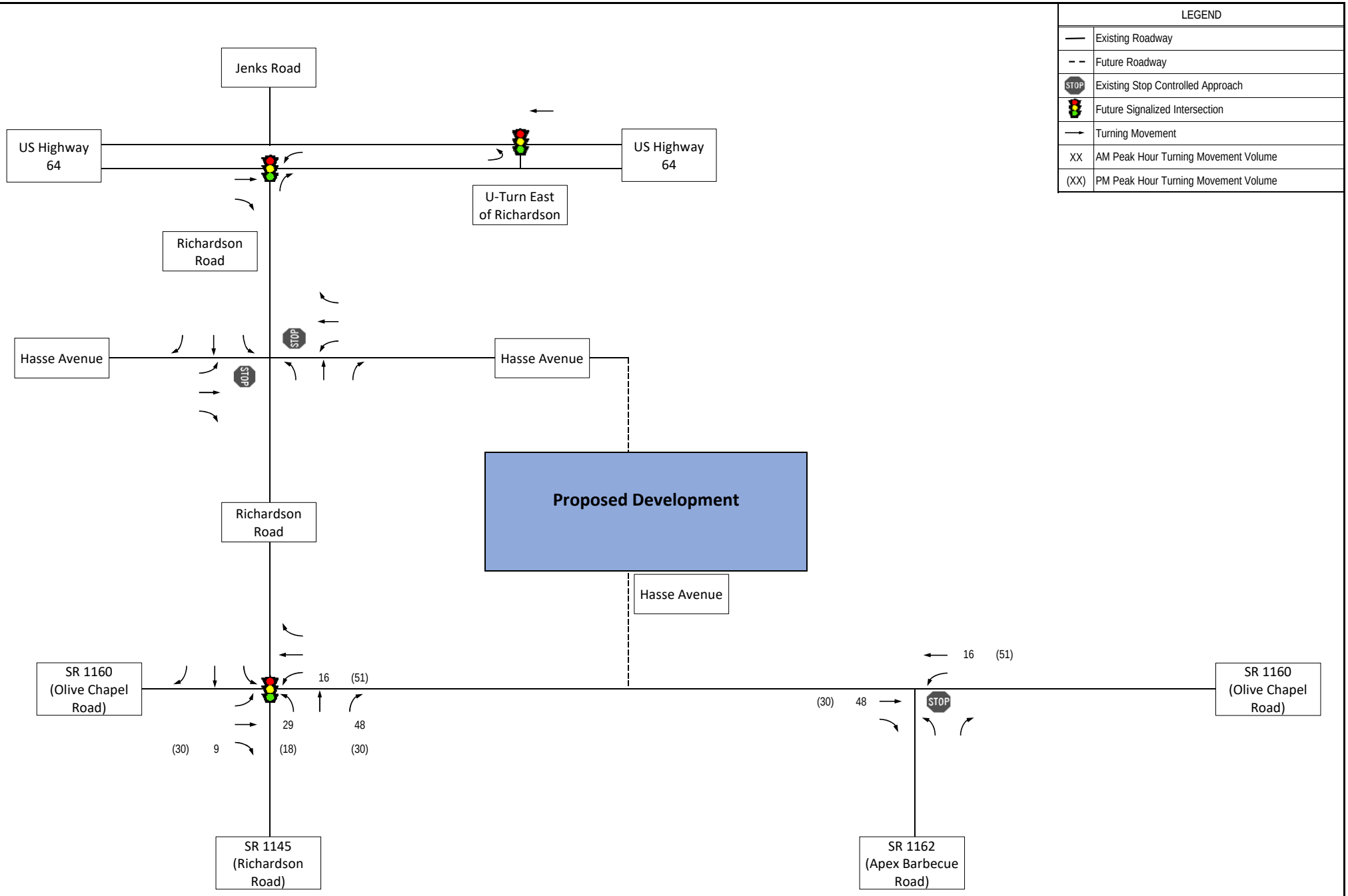


Figure C-5
Site Trips Due to Buckhorn Preserve (Goodwin-MacNair)

Hackney Tract Subdivision
Apex, NC

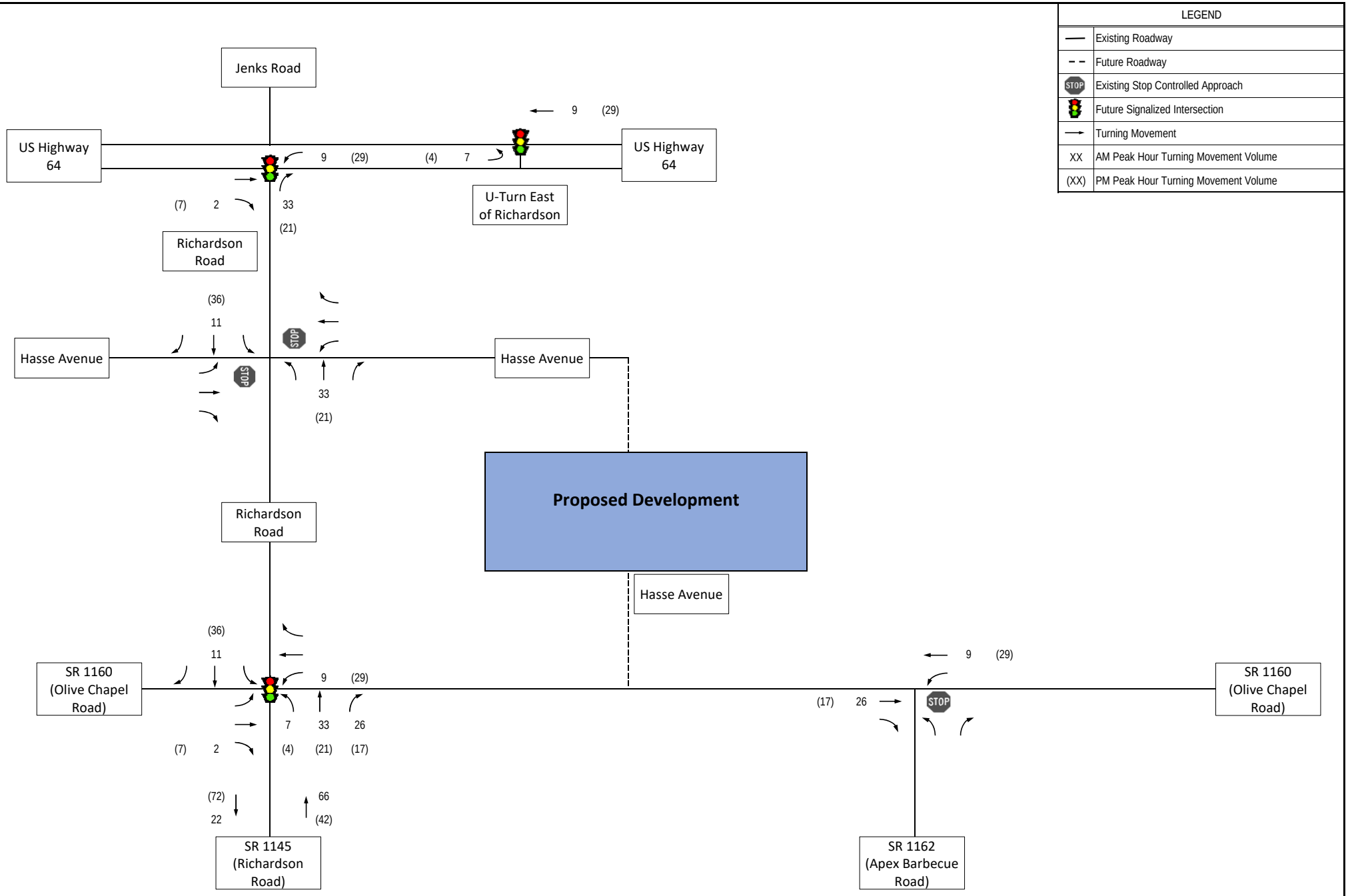


Figure C-6
Site Trips Due to Stillwater (Womble)

Hackney Tract Subdivision
Apex, NC

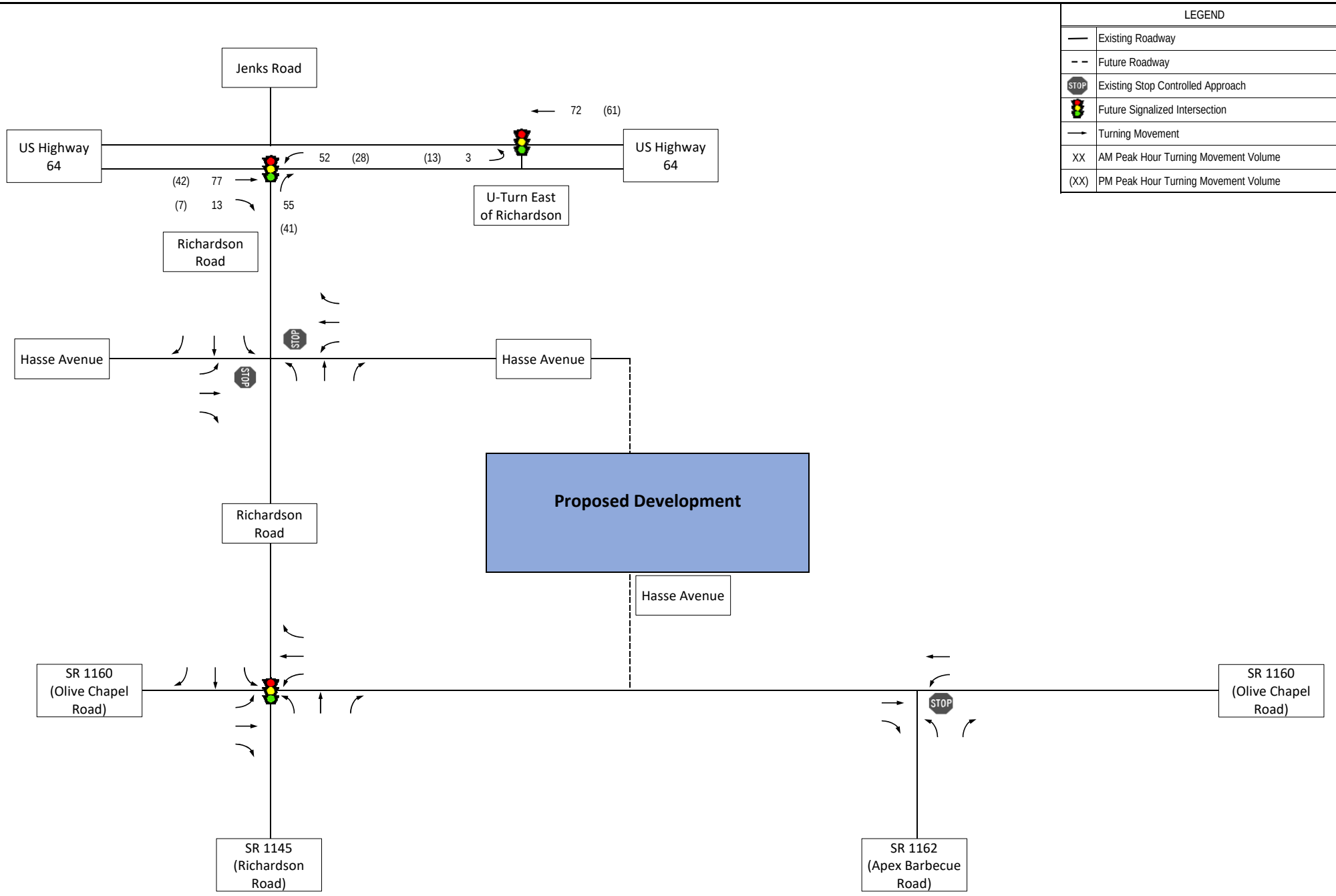


Figure C-7
Site Trips Due to Westford

Hackney Tract Subdivision
Apex, NC

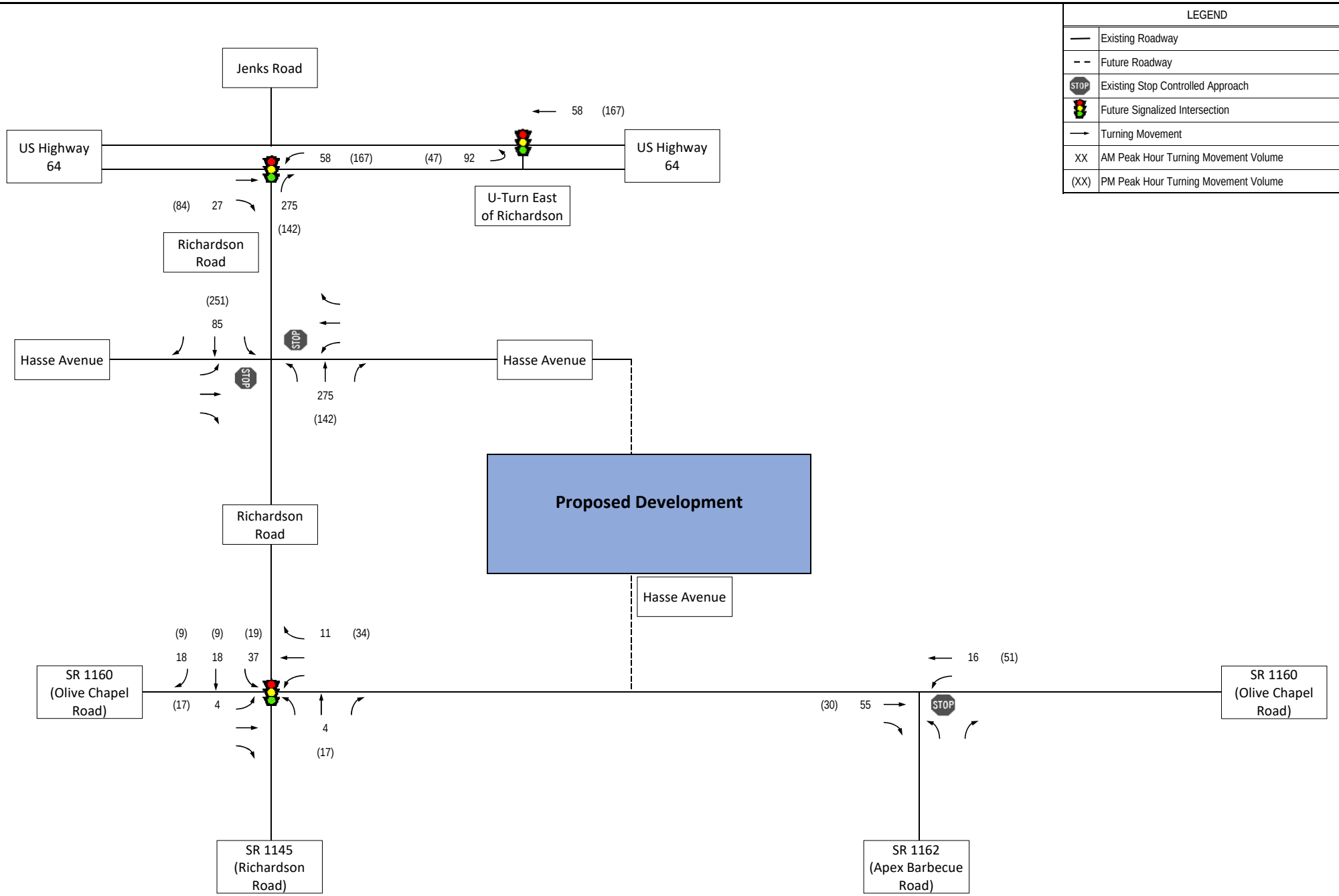


Figure C-8
Residential Site Trips Due to Smith Farm

Hackney Tract Subdivision
Apex, NC

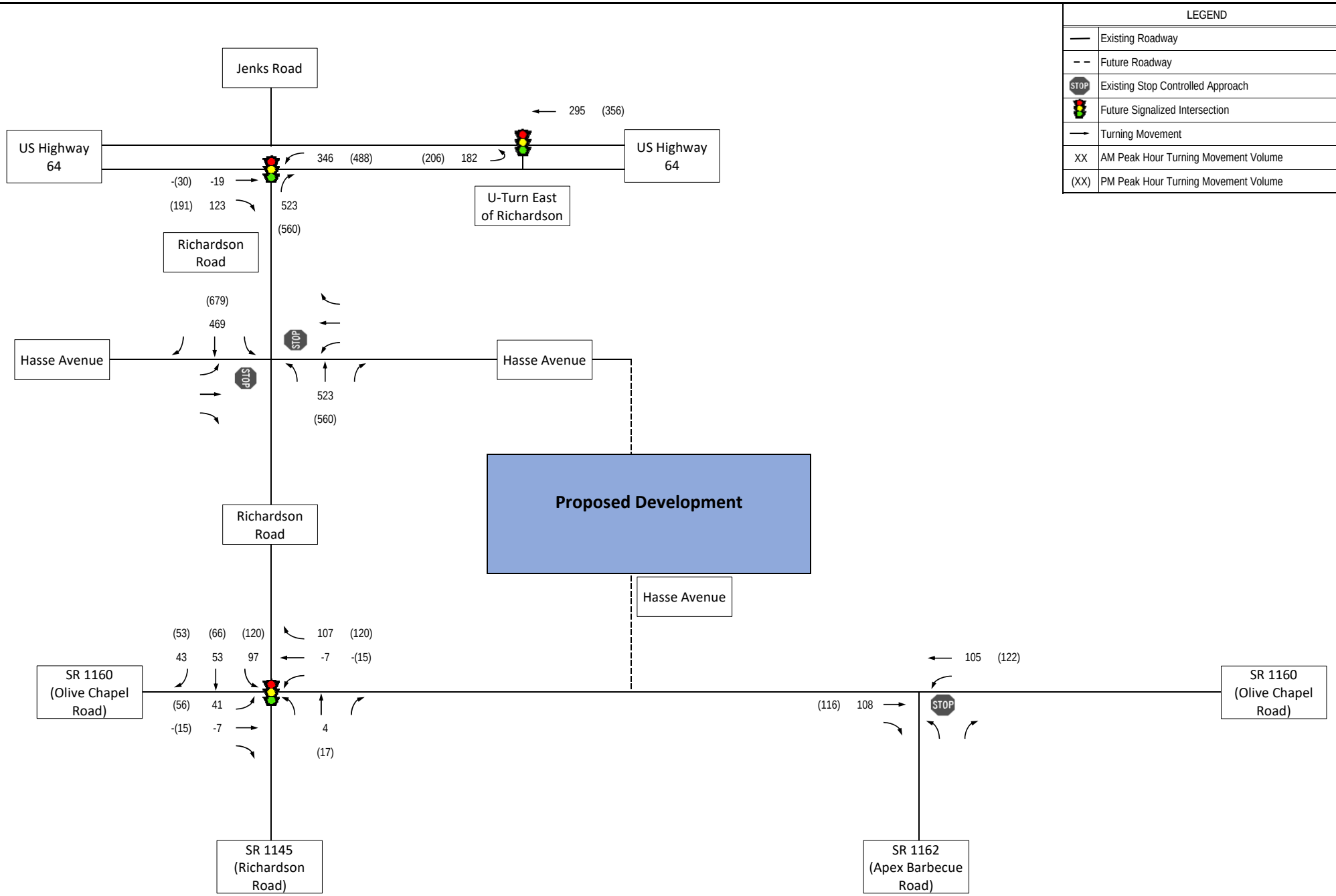


Figure C-9A
Total Site Trips Due to Smith Farm

Hackney Tract Subdivision
Apex, NC

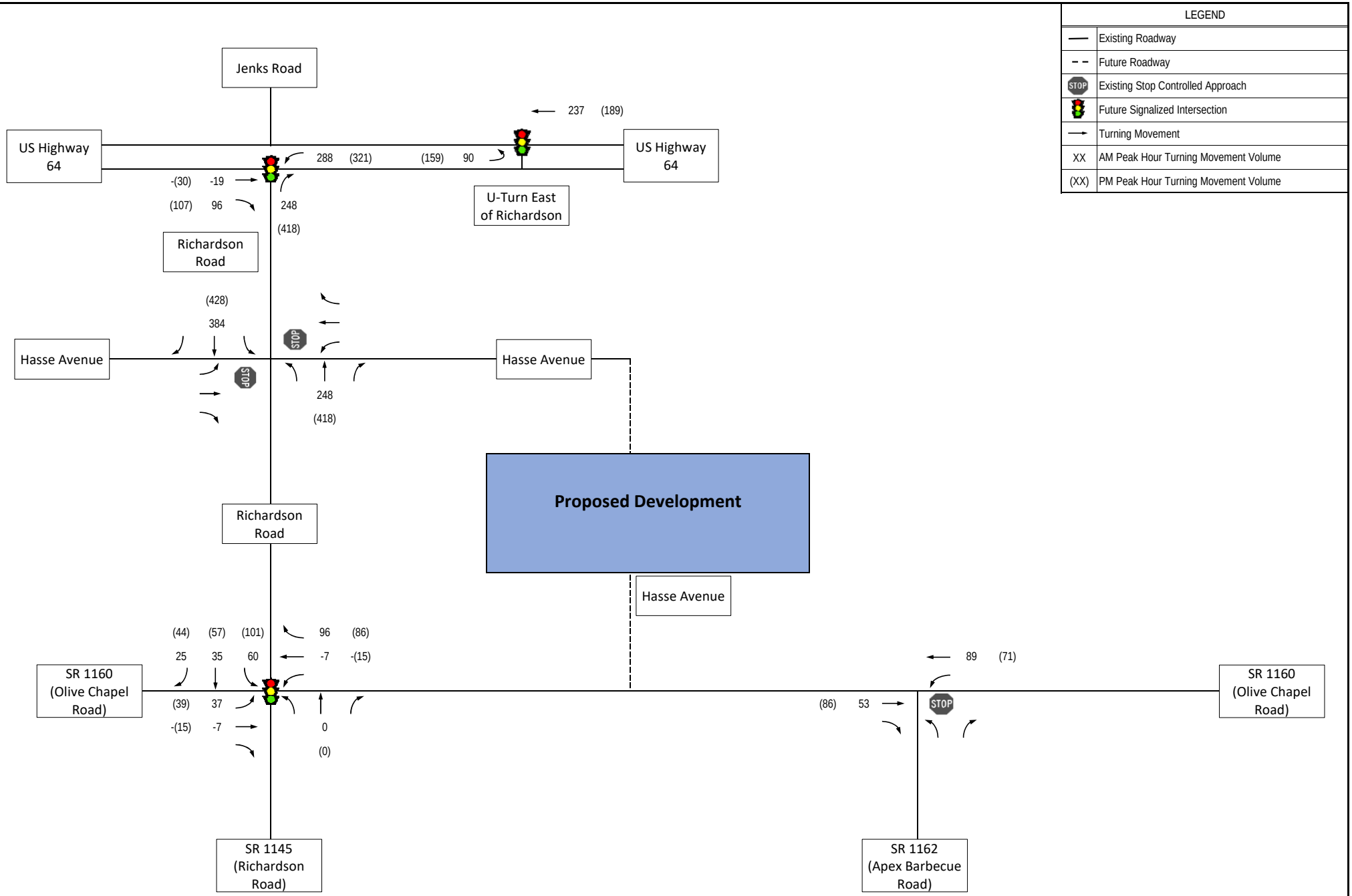


Figure C-9B
Mixed-Use Site Trips Due to Smith Farm

Hackney Tract Subdivision
Apex, NC

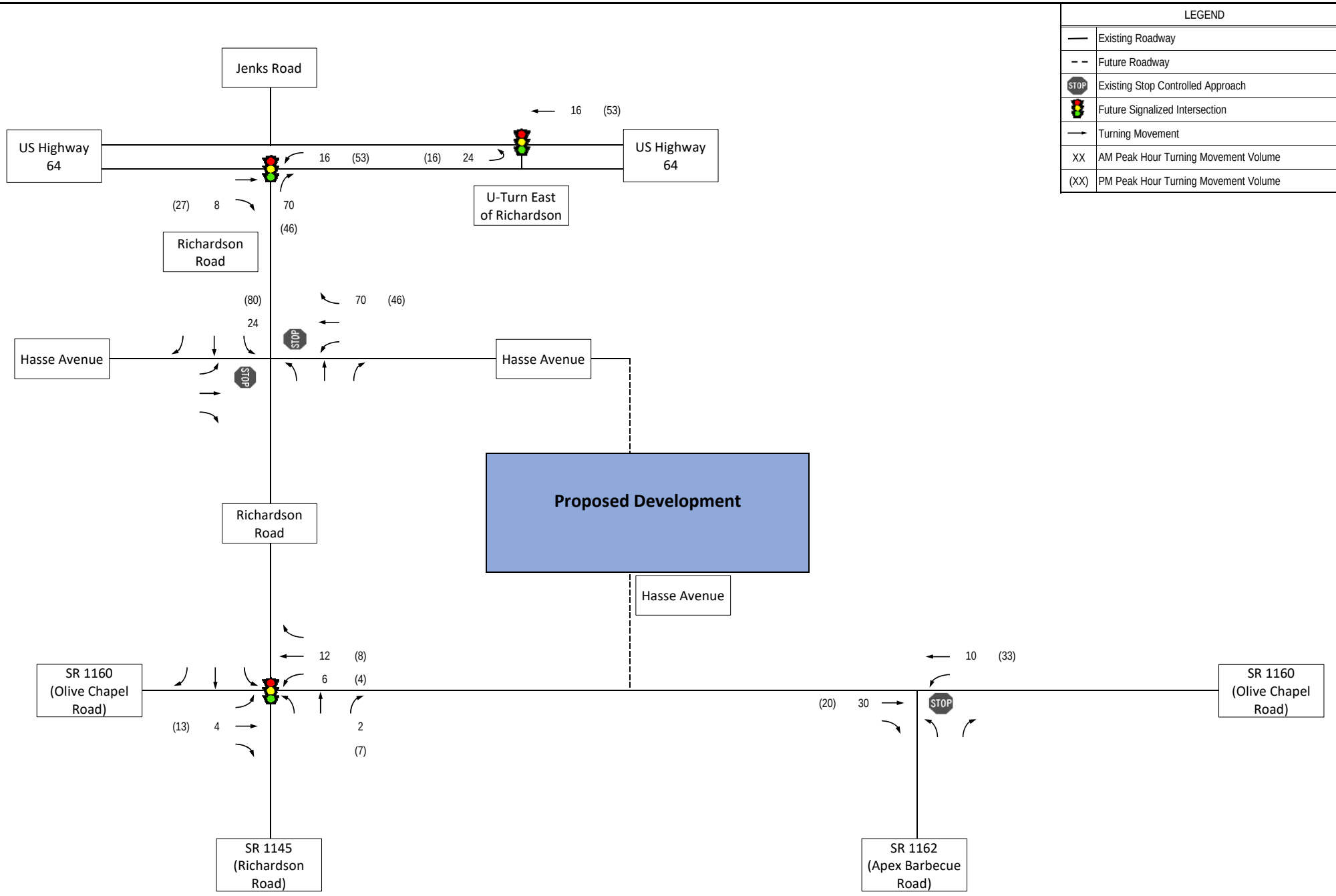


Figure C-10
Site Trips Due to Linden (Pricewood Assemblage)

Hackney Tract Subdivision
Apex, NC

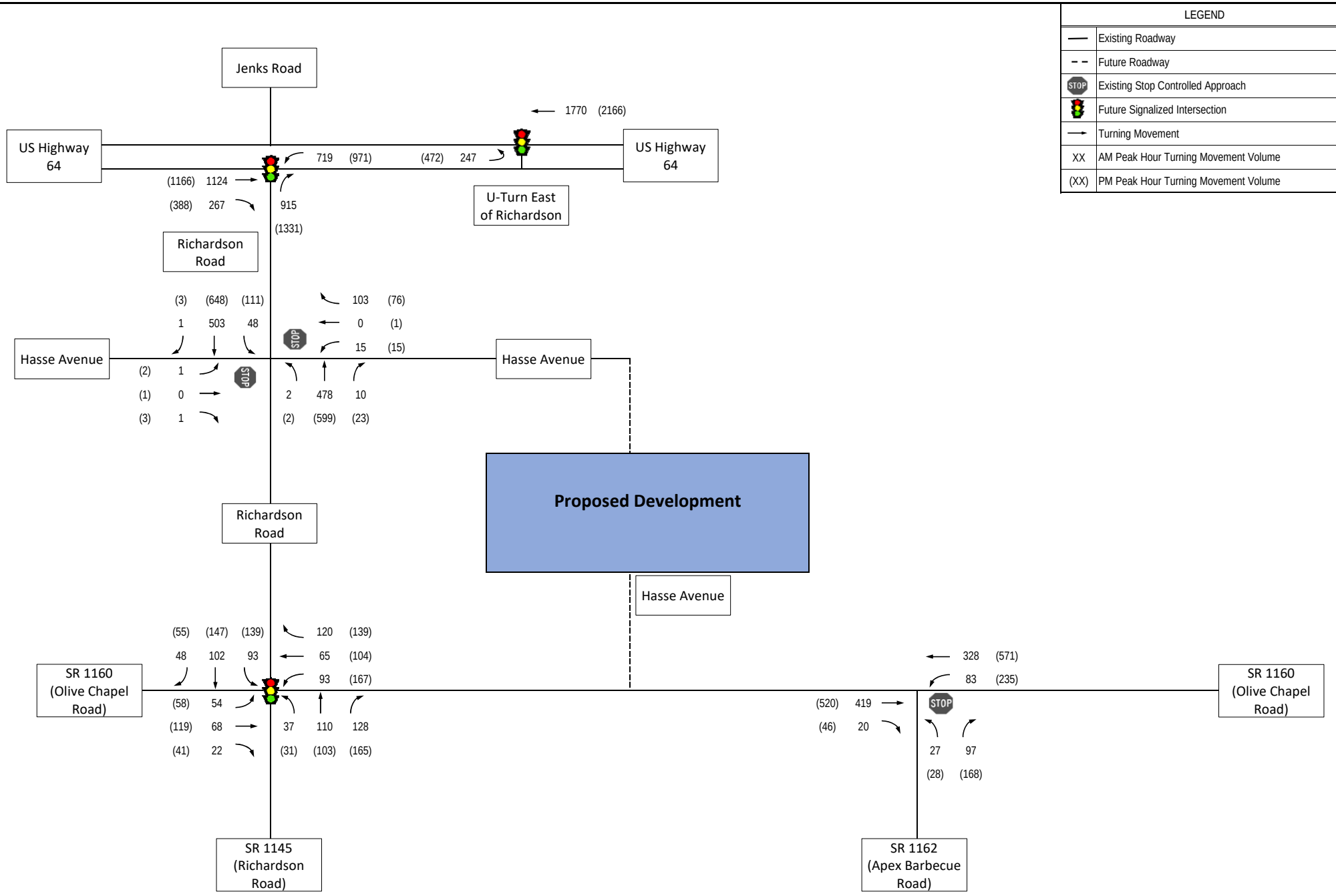


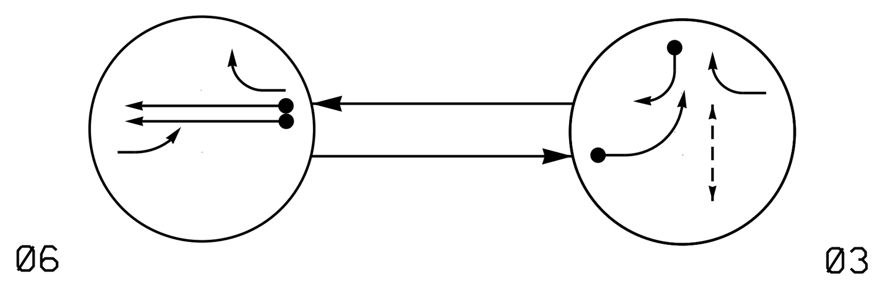
Figure C-11
Total Site Trips Due to Background Growth and Approved Developments

Hackney Tract Subdivision
Apex, NC

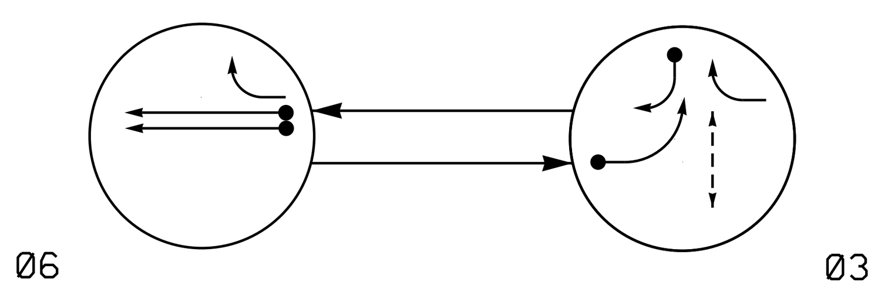
DocuSign Envelope ID: CA81BC5D-527A-44E9-991D-E92A2C8933FE

PROJECT REFERENCE NO.	SHEET NO.
36249.4164	Sig-2.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION

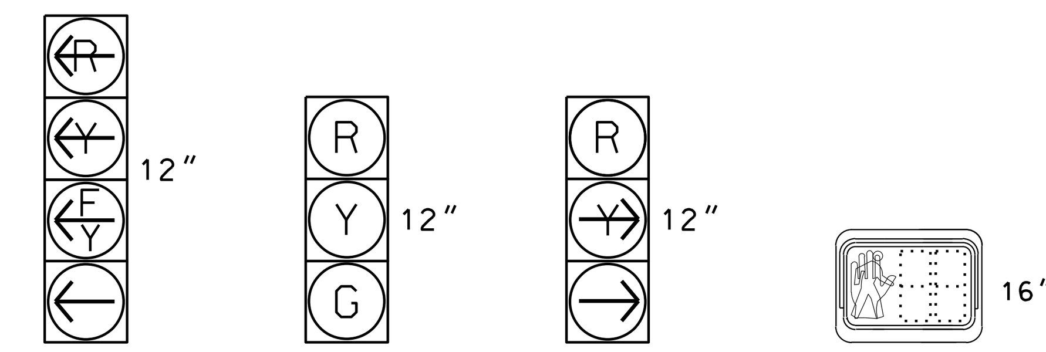
SIGNAL FACE	PHASE Ø3	PHASE Ø6	FLASH
31	←	← F/Y	← Y
32,33	→	R	R
61,62	R	G	Y
P31,P32	W	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø3	PHASE Ø6	FLASH
31	←	← R	← Y
32,33	→	R	R
61,62	R	G	Y
P31,P32	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

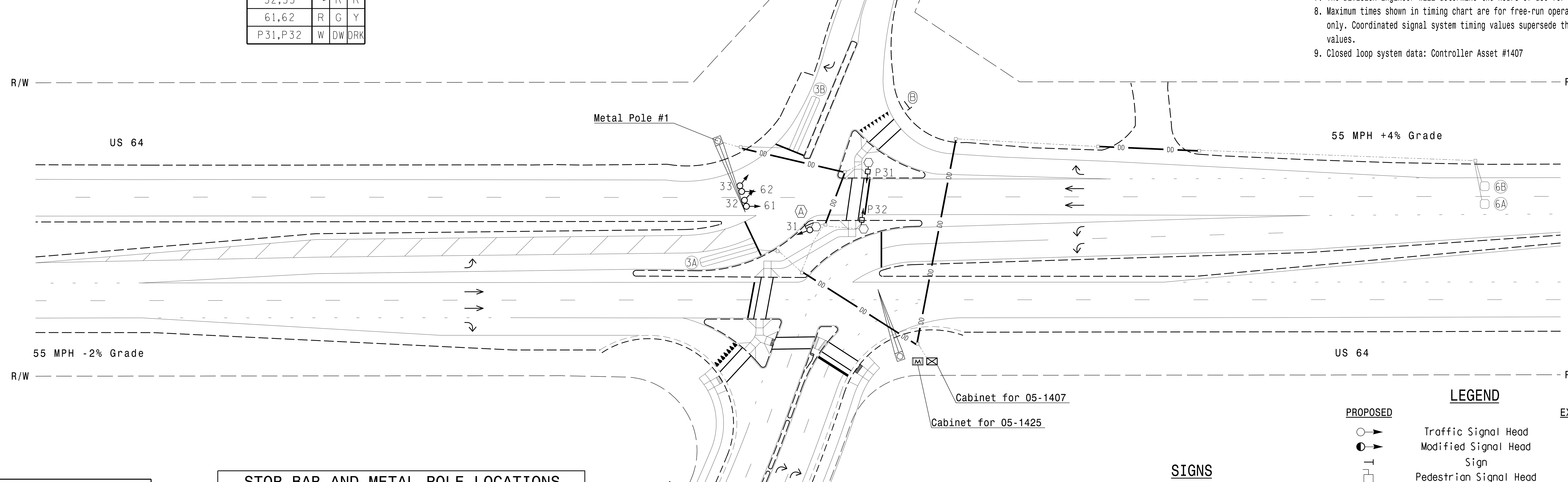
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	15*	-	Y
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	15	-	Y
6A	6X6	420	6	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	420	6	Y	6	Y	Y	-	-	-	-	Y

* Disable delay during Alternate Phasing operation.

2 Phase
Fully Actuated
(US 64 & Jenks/Richardson Road
Closed Loop System)
Signal System: 10534

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "DON'T WALK" time only.
7. The Division Engineer will determine the hours of use for each phasing plan.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data: Controller Asset #1407



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Master Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	
	Metal Pole with Mastarm	
	Directional Drill	N/A

SIGNS

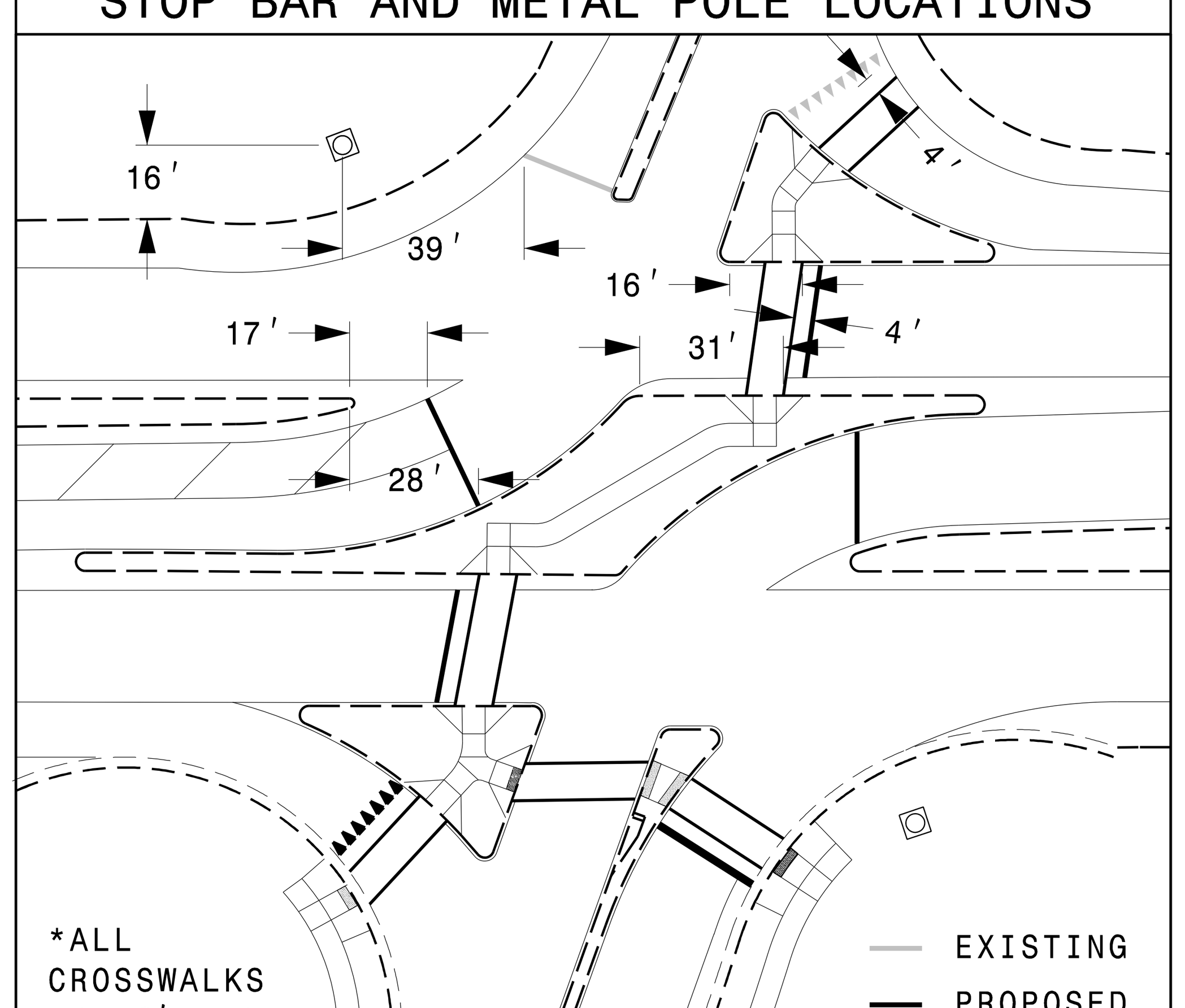
PROPOSED		EXISTING
A	No U-Turn Sign (R3-4)	A
B	"YIELD" Sign (R1-2)	B

OASIS 2070 TIMING CHART

FEATURE	PHASE 3	PHASE 6
Min Green 1 *	7	14
Extension 1 *	2.0	6.0
Max Green 1 *	20	90
Yellow Clearance	3.0	4.8
Red Clearance	2.6	1.4
Walk 1 *	7	-
Don't Walk 1	7	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	46
Time Before Reduction *	-	15
Time To Reduce *	-	45
Minimum Gap	-	3.4
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BAR AND METAL POLE LOCATIONS



*ALL CROSSWALKS ARE 8' WIDE

EXISTING
PROPOSED

NC Dept of Transportation
Division of Highways
Final Drawing Date: 8/28/2020
DocuSigned by: Changseok Baek
ITS & Signals Unit

New Installation

RAMEY KEMP ASSOCIATES
8210 University Executive Park Drive Suite 220 Charlotte, North Carolina 28262 Phone: 704-549-4260 | www.rameykemp.com | NC License No. C-0910

Prepared For: Transportation Mobility and Safety Division, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64 WB
at
Jenks Road

Division 5	Wake County	Apex
PLAN DATE: August 2020	REVIEWED BY: WJ Hamilton	
PREPARED BY: ZM Esposito	RKA PROJ. NO: 19331 (040)	
REVISIONS	INIT.	DATE

SCALE 0 40
1"=40'

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER W. J. HAMILTON
DocuSigned by: William J. Hamilton
SIGNATURE 8/24/2020 DATE

SIG. INVENTORY NO. 05-1407

PROJECT REFERENCE NO.	SHEET NO.
36249.4164	Sig-1.0

2 Phase
Fully Actuated
(US 64 & Jenks/Richardson Road
Closed Loop System)
Signal System: 10534

PHASING DIAGRAM

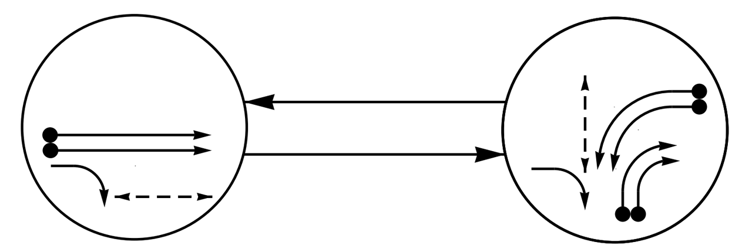
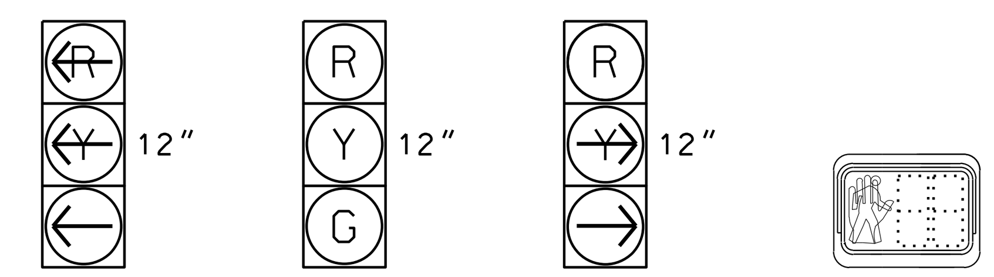


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2	PHASE Ø7	FLASH
21,22	G	R	Y
71,72	←R (flashing)	←	←R (flashing)
73,74	R	→	R
P21,P22	W	DW	DRK
P71,P72	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.

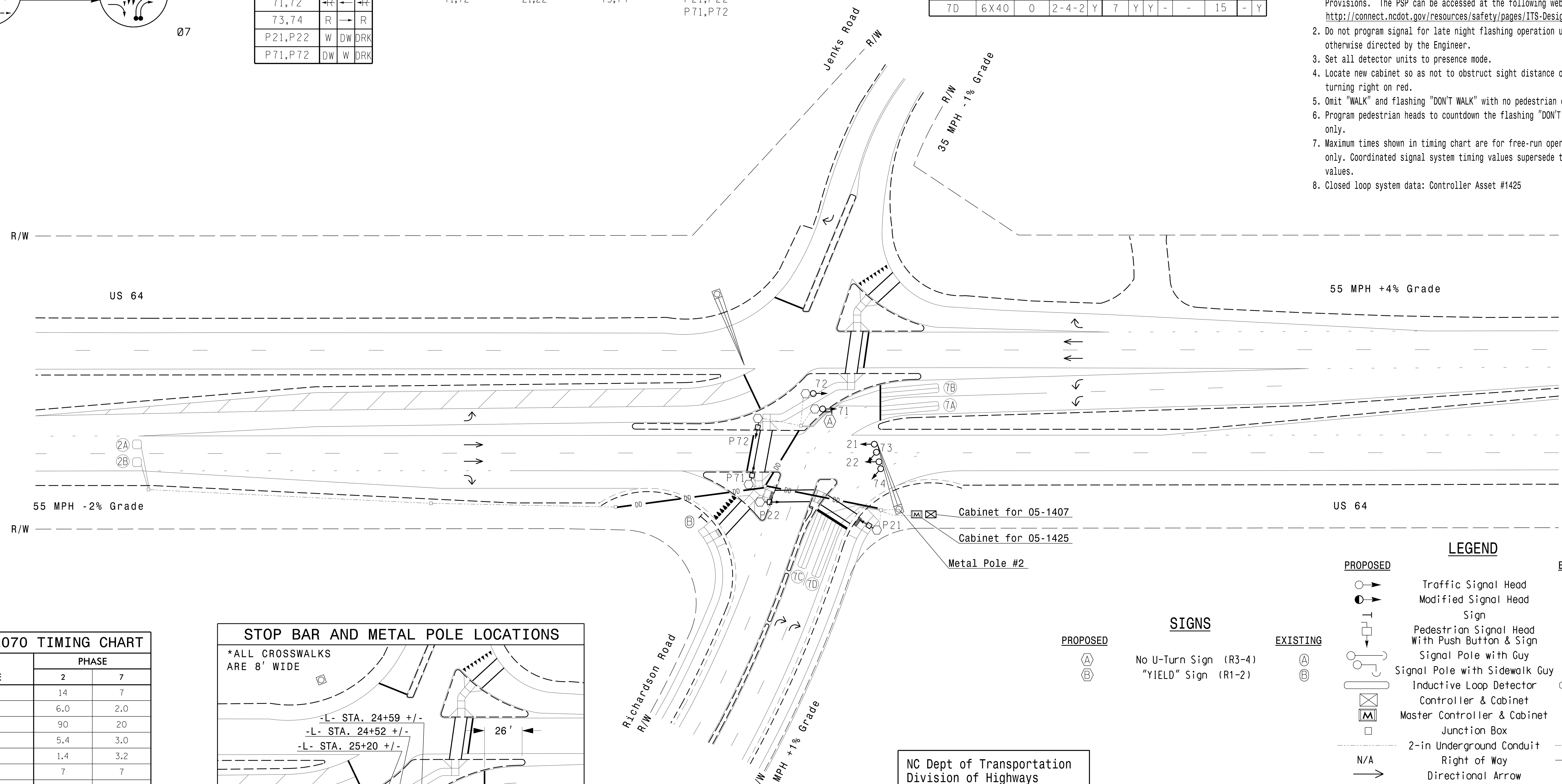


OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
7B	6X40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
7C	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	Y
7D	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	Y

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "DON'T WALK" time only.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed loop system data: Controller Asset #1425

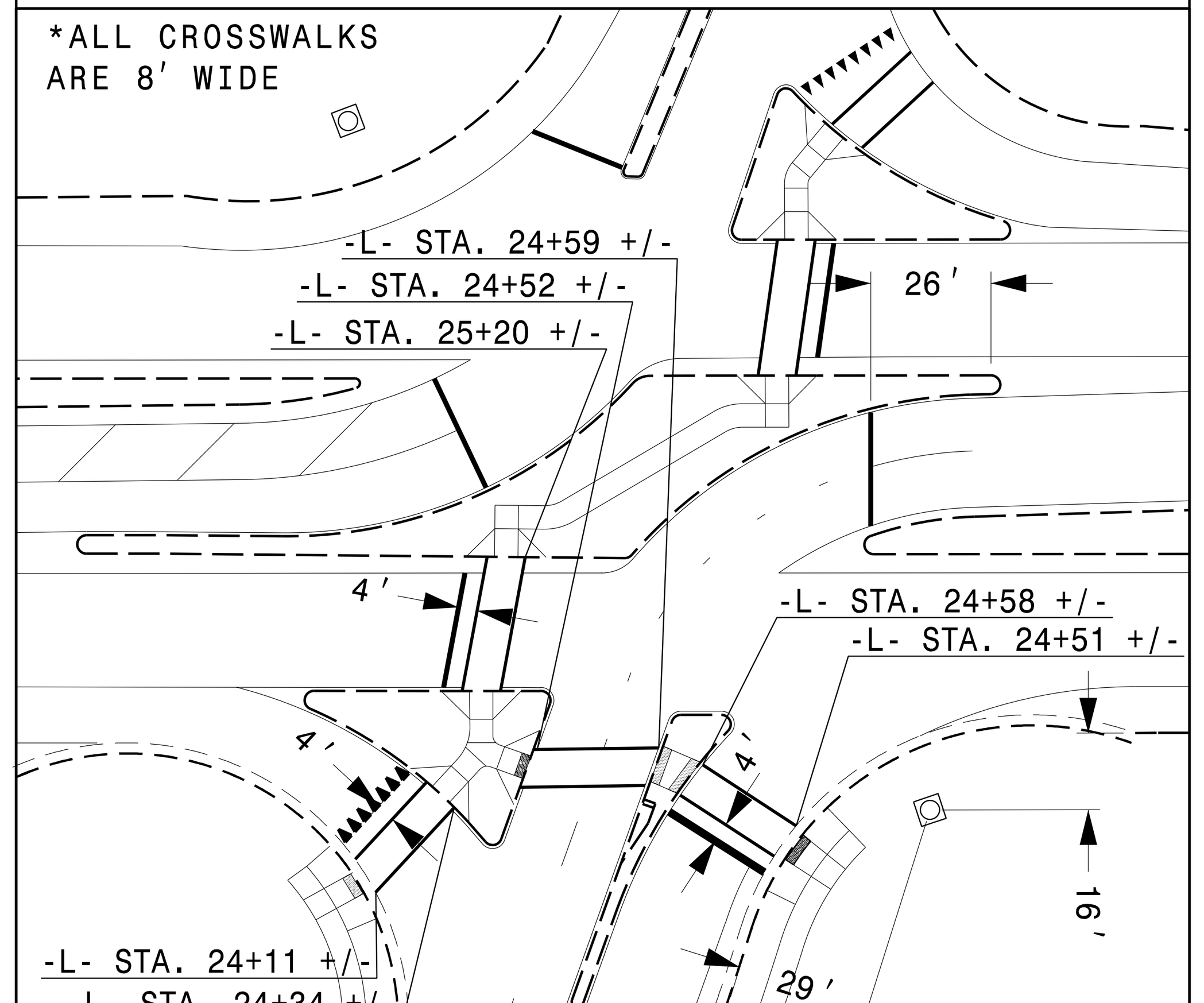


OASIS 2070 TIMING CHART

FEATURE	PHASE 2	PHASE 7
Min Green 1 *	14	7
Extension 1 *	6.0	2.0
Max Green 1 *	90	20
Yellow Clearance	5.4	3.0
Red Clearance	1.4	3.2
Walk 1 *	7	7
Don't Walk 1	12	6
Seconds Per Actuation *	1.5	-
Max Variable Initial *	46	-
Time Before Reduction *	15	-
Time To Reduce *	45	-
Minimum Gap	3.4	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 2 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BAR AND METAL POLE LOCATIONS



SIGNS

PROPOSED		EXISTING
(A)	No U-Turn Sign (R3-4)	(A)
(B)	"YIELD" Sign (R1-2)	(B)

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Master Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	
	Metal Pole with Mastarm	
	Directional Drill	N/A

NC Dept of Transportation
Division of Highways
Final Drawing Date: 8/28/2020
Changed Back
ITS & Signals Unit

RKA
RAMEY KEMP ASSOCIATES
8210 University Executive Park Drive Suite 220 Charlotte, North Carolina 28262
Phone: 704-549-4260 | www.rameykemp.com | NC License No. C-0910

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared For:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64 EB at Richardson Road

Division 5 Wake County Apex

PLAN DATE:	August 2020	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO:	19331 (040)

SCALE 0 40 1"=40'

REVISIONS | INIT. | DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 32396 WILLIAM J. HAMILTON

William J. Hamilton 8/24/2020
SIGNATURE DATE

SIG. INVENTORY NO. 05-1425

PROJECT REFERENCE NO.	SHEET NO.
36249.4164	Sig-3.0

PHASING DIAGRAM

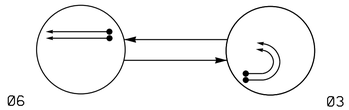
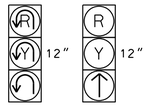


TABLE OF OPERATION			
SIGNAL FACE	PHASE Ø3	PHASE Ø6	FLASH
31, 32	↶	R	R
61, 62	R	↑	Y

SIGNAL FACE I.D.

All Heads L.E.D.

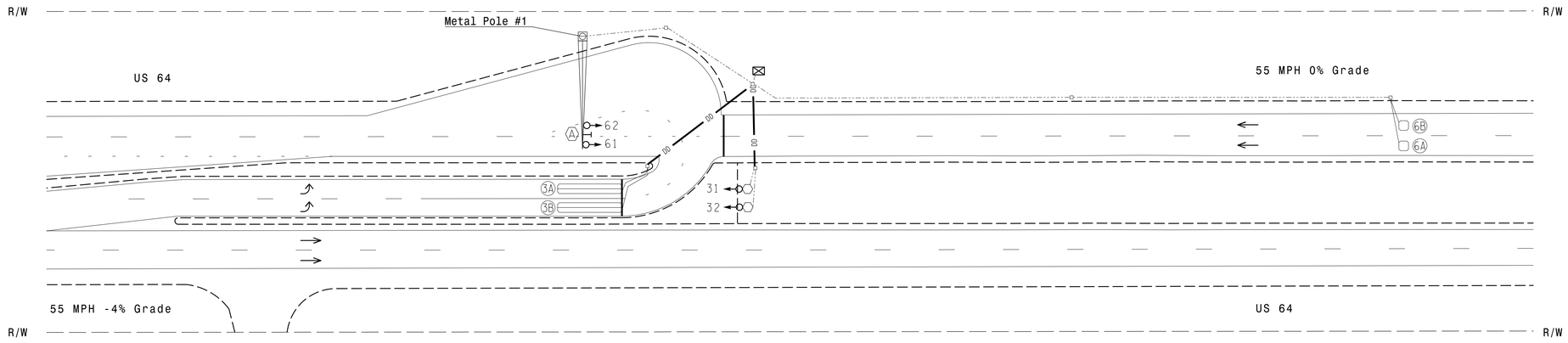


OASIS 2070 LOOP & DETECTOR INSTALLATION CHART											
INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
6A	6X6	420	6	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	420	6	Y	6	Y	Y	-	-	-	-	Y

2 Phase
Fully Actuated
(US 64 & Jenks/Richardson Road
Closed Loop System)
Signal System: 10534

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede thes values.
6. Closed loop system data: Controller Asset #1426

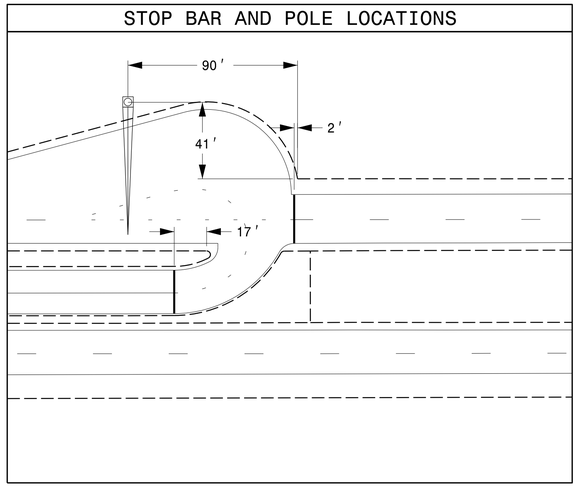


OASIS 2070 TIMING CHART

FEATURE	PHASE 3	PHASE 6
Min Green 1 *	7	14
Extension 1 *	2.0	6.0
Max Green 1 *	20	90
Yellow Clearance	3.0	5.2
Red Clearance	3.3	1.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	46
Time Before Reduction *	-	15
Time To Reduce *	-	45
Minimum Gap	-	3.4
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BAR AND POLE LOCATIONS



NC Dept of Transportation
Division of Highways
Final Drawing Date: 8/28/2020
DocuSigned by: Changsek Baik
ITS & Signals Unit

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head With Push Button & Sign	■
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·····	2-in Underground Conduit	·····
N/A	Right of Way	— — —
→	Directional Arrow	→
DD	Directional Drill	N/A
Ⓐ	No Left Turn Sign (R3-2)	Ⓐ
⊠	Metal Pole with Mastarm	⊠
⬡	Type II Signal Pedestal	⬢

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared For: Transportation Mobility and Safety Division, Signal Design Section

RAMEY KEMP ASSOCIATES
5808 Farrington Place Raleigh, North Carolina 27609
Phone: 919-872-5115 | www.rameykemp.com | NC License No. C-0910

750 N.Greenfield Pkwy.Garner,NC 27529

SCALE 0 40 1"=40'

US 64 WB
at
U-Turn East of Richardson Road

Division 5 Wake County Apex

PLAN DATE: August 2020 REVIEWED BY: WJ Hamilton
PREPARED BY: ZM Esposito RKA PROJ. NO: 19331 (040)

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON
DocuSigned by: William J. Hamilton
SIGNATURE 8/24/2020 DATE

SIG. INVENTORY NO. 05-1426

APPENDIX D:

Intersection Capacity Analysis

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	47	15	64	50	19	19	92	71	21	54	16
Future Vol, veh/h	14	47	15	64	50	19	19	92	71	21	54	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	-	150	-	150	100	-	-	150	-	175
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	52	17	71	56	21	21	102	79	23	60	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	77	0	0	69	0	0	341	312	61	381	299	56
Stage 1	-	-	-	-	-	-	93	93	-	198	198	-
Stage 2	-	-	-	-	-	-	248	219	-	183	101	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1522	-	-	1532	-	-	613	603	1004	577	613	1011
Stage 1	-	-	-	-	-	-	914	818	-	804	737	-
Stage 2	-	-	-	-	-	-	756	722	-	819	811	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1522	-	-	1532	-	-	531	569	1004	439	579	1011
Mov Cap-2 Maneuver	-	-	-	-	-	-	531	569	-	439	579	-
Stage 1	-	-	-	-	-	-	904	809	-	795	703	-
Stage 2	-	-	-	-	-	-	648	689	-	652	802	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	3.6	11.9	11.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	531	701	1522	-	-	1532	-	-	439	579	1011
HCM Lane V/C Ratio	0.04	0.258	0.01	-	-	0.046	-	-	0.053	0.104	0.018
HCM Control Delay (s)	12.1	11.9	7.4	-	-	7.5	-	-	13.7	11.9	8.6
HCM Lane LOS	B	B	A	-	-	A	-	-	B	B	A
HCM 95th %tile Q(veh)	0.1	1	0	-	-	0.1	-	-	0.2	0.3	0.1

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	232	18	74	181	24	86
Future Vol, veh/h	232	18	74	181	24	86
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	258	20	82	201	27	96

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	278	0	633	268
Stage 1	-	-	-	-	268	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1285	-	444	771
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	702	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1285	-	412	771
Mov Cap-2 Maneuver	-	-	-	-	412	-
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	651	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	648	-	-	1285	-
HCM Lane V/C Ratio	0.189	-	-	0.064	-
HCM Control Delay (s)	11.8	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.2	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	1	0	1	13	0	38	2	139	9	25	85	1
Future Vol, veh/h	1	0	1	13	0	38	2	139	9	25	85	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	-	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	14	0	42	2	154	10	28	94	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	335	319	95	314	314	159	95	0	0	164	0	0
Stage 1	151	151	-	163	163	-	-	-	-	-	-	-
Stage 2	184	168	-	151	151	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	619	598	962	639	601	886	1499	-	-	1414	-	-
Stage 1	851	772	-	839	763	-	-	-	-	-	-	-
Stage 2	818	759	-	851	772	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	580	585	962	628	588	886	1499	-	-	1414	-	-
Mov Cap-2 Maneuver	625	606	-	667	615	-	-	-	-	-	-	-
Stage 1	850	757	-	838	762	-	-	-	-	-	-	-
Stage 2	778	758	-	833	757	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	9.7	0.1	1.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1499	-	-	758	818	1414	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.069	0.02	-	-
HCM Control Delay (s)	7.4	-	-	9.8	9.7	7.6	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱						↱		↰	
Traffic Vol, veh/h	0	1020	21	0	0	0	0	0	244	0	141	0
Future Vol, veh/h	0	1020	21	0	0	0	0	0	244	0	141	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	175	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16983	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1133	23	0	0	0	0	0	271	0	157	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	567	567	1133	-
Stage 1	-	-	-	-	-	-	0	0	-
Stage 2	-	-	-	-	-	-	567	1133	-
Critical Hdwy	-	-	-	-	-	7.04	7.54	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	3.52	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	459	406	202	0
Stage 1	0	-	-	0	0	-	-	-	0
Stage 2	0	-	-	0	0	-	476	276	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	459	166	202	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	166	202	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	195	276	-

Approach	EB	NB	SB
HCM Control Delay, s	0	23.5	66
HCM LOS		C	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	459	-	-	202
HCM Lane V/C Ratio	0.591	-	-	0.776
HCM Control Delay (s)	23.5	-	-	66
HCM Lane LOS	C	-	-	F
HCM 95th %tile Q(veh)	3.7	-	-	5.3

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	1128	24	0
Future Vol, veh/h	0	0	0	1128	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	1253	27	0

Major/Minor	Major2		Minor1	
Conflicting Flow All	-	-	627	-
Stage 1	-	-	0	-
Stage 2	-	-	627	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	416	0
Stage 1	0	-	-	0
Stage 2	0	-	495	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	416	-
Mov Cap-2 Maneuver	-	-	416	-
Stage 1	-	-	-	-
Stage 2	-	-	495	-

Approach	WB	NB
HCM Control Delay, s	0	14.2
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	416	-
HCM Lane V/C Ratio	0.064	-
HCM Control Delay (s)	14.2	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.2	-

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	99	21	100	81	39	19	85	115	29	73	8
Future Vol, veh/h	13	99	21	100	81	39	19	85	115	29	73	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	-	150	-	150	100	-	-	150	-	175
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	110	23	111	90	43	21	94	128	32	81	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	133	0	0	529	505	122	573	473	90
Stage 1	-	-	-	-	-	-	150	150	-	312	312	-
Stage 2	-	-	-	-	-	-	379	355	-	261	161	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1452	-	-	460	470	929	430	490	968
Stage 1	-	-	-	-	-	-	853	773	-	699	658	-
Stage 2	-	-	-	-	-	-	643	630	-	744	765	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1452	-	-	368	430	929	289	448	968
Mov Cap-2 Maneuver	-	-	-	-	-	-	368	430	-	289	448	-
Stage 1	-	-	-	-	-	-	844	765	-	692	608	-
Stage 2	-	-	-	-	-	-	510	582	-	557	757	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	3.5	14.1	15.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	368	622	1452	-	-	1452	-	-	289	448	968
HCM Lane V/C Ratio	0.057	0.357	0.01	-	-	0.077	-	-	0.111	0.181	0.009
HCM Control Delay (s)	15.4	14	7.5	-	-	7.7	-	-	19	14.8	8.8
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B	A
HCM 95th %tile Q(veh)	0.2	1.6	0	-	-	0.2	-	-	0.4	0.7	0

Intersection	
Int Delay, s/veh	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	327	41	209	344	25	149
Future Vol, veh/h	327	41	209	344	25	149
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	363	46	232	382	28	166

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	409	0	1232	386
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	846	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1150	-	196	662
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	421	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1150	-	146	662
Mov Cap-2 Maneuver	-	-	-	-	146	-
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	313	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	19.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	439	-	-	1150	-
HCM Lane V/C Ratio	0.44	-	-	0.202	-
HCM Control Delay (s)	19.5	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.8	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	2	1	3	13	1	33	2	126	20	38	135	3
Future Vol, veh/h	2	1	3	13	1	33	2	126	20	38	135	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	-	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	3	14	1	37	2	140	22	42	150	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	410	402	152	393	392	151	153	0	0	162	0	0
Stage 1	236	236	-	155	155	-	-	-	-	-	-	-
Stage 2	174	166	-	238	237	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	552	537	894	566	544	895	1428	-	-	1417	-	-
Stage 1	767	710	-	847	769	-	-	-	-	-	-	-
Stage 2	828	761	-	765	709	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	516	520	894	550	527	895	1428	-	-	1417	-	-
Mov Cap-2 Maneuver	581	558	-	606	568	-	-	-	-	-	-	-
Stage 1	766	689	-	846	768	-	-	-	-	-	-	-
Stage 2	792	760	-	738	688	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	9.9	0.1	1.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1428	-	-	698	782	1417	-	-
HCM Lane V/C Ratio	0.002	-	-	0.01	0.067	0.03	-	-
HCM Control Delay (s)	7.5	-	-	10.2	9.9	7.6	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	30.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱						↱		↰	
Traffic Vol, veh/h	0	1132	30	0	0	0	0	0	203	0	196	0
Future Vol, veh/h	0	1132	30	0	0	0	0	0	203	0	196	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	175	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16983	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1258	33	0	0	0	0	0	226	0	218	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	629	629	1258	-
Stage 1	-	-	-	-	-	-	0	0	-
Stage 2	-	-	-	-	-	-	629	1258	-
Critical Hdwy	-	-	-	-	-	7.04	7.54	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	3.52	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	418	367	~ 170	0
Stage 1	0	-	-	0	0	-	-	-	0
Stage 2	0	-	-	0	0	-	437	241	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	418	169	~ 170	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	169	~ 170	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	201	241	-

Approach	EB	NB	SB
HCM Control Delay, s	0	23.3	216.7
HCM LOS		C	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	418	-	-	170
HCM Lane V/C Ratio	0.54	-	-	1.281
HCM Control Delay (s)	23.3	-	-	216.7
HCM Lane LOS	C	-	-	F
HCM 95th %tile Q(veh)	3.1	-	-	12.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

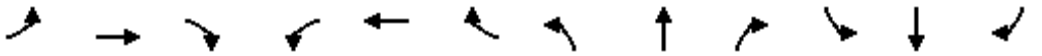
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↰	
Traffic Vol, veh/h	0	0	0	1463	39	0
Future Vol, veh/h	0	0	0	1463	39	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	1626	43	0

Major/Minor	Major2		Minor1	
Conflicting Flow All	-	-	813	-
Stage 1	-	-	0	-
Stage 2	-	-	813	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	316	0
Stage 1	0	-	-	0
Stage 2	0	-	396	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	316	-
Mov Cap-2 Maneuver	-	-	316	-
Stage 1	-	-	-	-
Stage 2	-	-	396	-

Approach	WB	NB
HCM Control Delay, s	0	18.2
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	316	-
HCM Lane V/C Ratio	0.137	-
HCM Control Delay (s)	18.2	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	0.5	-

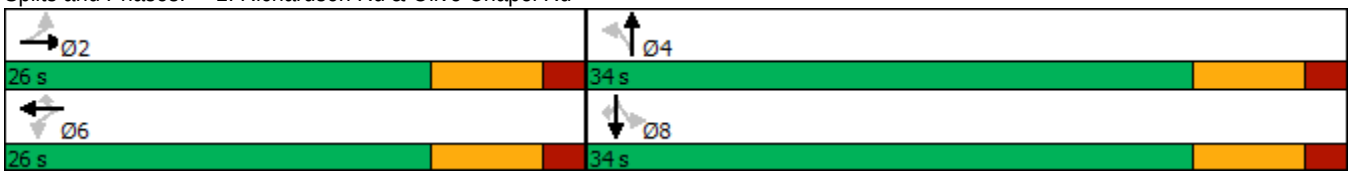


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	68	22	93	65	120	37	110	128	93	102	48
Future Volume (vph)	54	68	22	93	65	120	37	110	128	93	102	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	150		150	100		0	150		175
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964				0.850		0.919				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1796	0	1770	1863	1583	1770	1712	0	1770	1863	1583
Flt Permitted	0.710			0.692			0.684			0.596		
Satd. Flow (perm)	1323	1796	0	1289	1863	1583	1274	1712	0	1110	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1889			1311			1771			2925	
Travel Time (s)		28.6			19.9			26.8			44.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	76	24	103	72	133	41	122	142	103	113	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	100	0	103	72	133	41	264	0	103	113	53
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	2	2		6	6	6	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	26.0	26.0		26.0	26.0	26.0	34.0	34.0		34.0	34.0	34.0
Total Split (%)	43.3%	43.3%		43.3%	43.3%	43.3%	56.7%	56.7%		56.7%	56.7%	56.7%
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	27.0	27.0		27.0	27.0	27.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	12.1	12.1		12.1	12.1	12.1	12.7	12.7		12.7	12.7	12.7
Actuated g/C Ratio	0.35	0.35		0.35	0.35	0.35	0.36	0.36		0.36	0.36	0.36
v/c Ratio	0.13	0.16		0.23	0.11	0.24	0.09	0.43		0.26	0.17	0.09
Control Delay	9.8	9.7		10.8	9.3	10.6	7.7	10.6		9.4	7.9	7.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	9.8	9.7		10.8	9.3	10.6	7.7	10.6		9.4	7.9	7.5
LOS	A	A		B	A	B	A	B		A	A	A
Approach Delay		9.7			10.3			10.2			8.4	
Approach LOS		A			B			B			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	7	12		13	8	16	4	31		11	12	5
Queue Length 95th (ft)	27	39		42	30	51	18	82		38	37	21
Internal Link Dist (ft)		1809			1231			1691			2845	
Turn Bay Length (ft)	250			150		150	100			150		175
Base Capacity (vph)	805	1093		785	1134	964	1071	1440		933	1567	1331
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.07	0.09		0.13	0.06	0.14	0.04	0.18		0.11	0.07	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 35			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 9.7		Intersection LOS: A	
Intersection Capacity Utilization 43.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Richardson Rd & Olive Chapel Rd



Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	419	20	83	328	27	97
Future Vol, veh/h	419	20	83	328	27	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	466	22	92	364	30	108

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	488	0	1025	477
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	548	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1075	-	260	588
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	579	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1075	-	232	588
Mov Cap-2 Maneuver	-	-	-	-	232	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	517	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	441	-	-	1075	-
HCM Lane V/C Ratio	0.312	-	-	0.086	-
HCM Control Delay (s)	16.8	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.3	-

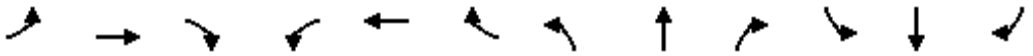
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	15	0	103	2	478	10	48	503	1
Future Vol, veh/h	1	0	1	15	0	103	2	478	10	48	503	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	-	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	17	0	114	2	531	11	53	559	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1264	1212	560	1207	1207	537	560	0	0	542	0	0
Stage 1	666	666	-	541	541	-	-	-	-	-	-	-
Stage 2	598	546	-	666	666	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	146	182	528	160	183	544	1011	-	-	1027	-	-
Stage 1	449	457	-	525	521	-	-	-	-	-	-	-
Stage 2	489	518	-	449	457	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	111	172	528	153	173	544	1011	-	-	1027	-	-
Mov Cap-2 Maneuver	223	283	-	282	293	-	-	-	-	-	-	-
Stage 1	448	433	-	524	520	-	-	-	-	-	-	-
Stage 2	385	517	-	425	433	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.5	15.1	0	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1011	-	-	314	487	1027	-	-
HCM Lane V/C Ratio	0.002	-	-	0.007	0.269	0.052	-	-
HCM Control Delay (s)	8.6	-	-	16.5	15.1	8.7	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	1.1	0.2	-	-

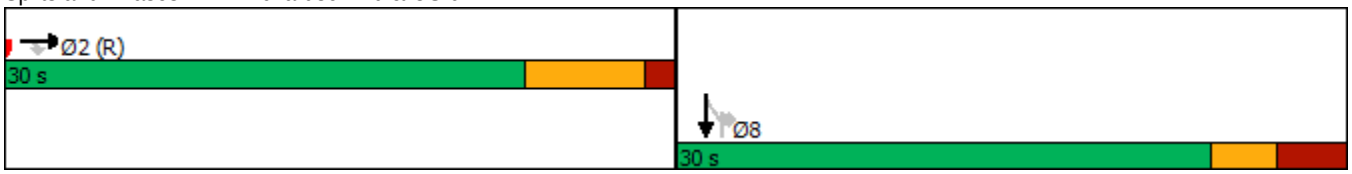


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1124	267	0	0	0	0	0	915	0	719	0
Future Volume (vph)	0	1124	267	0	0	0	0	0	915	0	719	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			1%			0%	
Storage Length (ft)	0		175	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		2	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.95	0.95	1.00
Frt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3575	1599	0	0	0	0	0	2773	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	3575	1599	0	0	0	0	0	2773	0	3539	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		3066			489			978			454	
Travel Time (s)		38.0			6.1			14.8			8.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1249	297	0	0	0	0	0	1017	0	799	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1249	297	0	0	0	0	0	1017	0	799	0
Turn Type		NA	Perm						Perm		NA	
Protected Phases		2									8	
Permitted Phases			2						8	8		
Detector Phase		2	2						8	8	8	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0	7.0	7.0	
Minimum Split (s)		20.8	20.8						13.2	13.2	13.2	
Total Split (s)		30.0	30.0						30.0	30.0	30.0	
Total Split (%)		50.0%	50.0%						50.0%	50.0%	50.0%	
Maximum Green (s)		23.2	23.2						23.8	23.8	23.8	
Yellow Time (s)		5.4	5.4						3.0	3.0	3.0	
All-Red Time (s)		1.4	1.4						3.2	3.2	3.2	
Lost Time Adjust (s)		-1.8	-1.8						-1.2		-1.2	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		6.0	6.0						2.0	2.0	2.0	
Minimum Gap (s)		3.4	3.4						0.2	0.2	0.2	
Time Before Reduce (s)		15.0	15.0						0.0	0.0	0.0	
Time To Reduce (s)		45.0	45.0						0.0	0.0	0.0	
Recall Mode		C-Min	C-Min						None	None	None	
Act Effct Green (s)		25.2	25.2						24.8		24.8	
Actuated g/C Ratio		0.42	0.42						0.41		0.41	
v/c Ratio		0.83	0.44						0.89		0.55	
Control Delay		22.1	15.1						28.2		10.9	
Queue Delay		0.0	0.0						0.0		0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		22.1	15.1						28.2		10.9	
LOS		C	B						C		B	
Approach Delay		20.7						28.2			10.9	
Approach LOS		C						C			B	
Queue Length 50th (ft)		203	74						183		106	
Queue Length 95th (ft)		#296	132						#311		m120	
Internal Link Dist (ft)		2986			409			898			374	
Turn Bay Length (ft)			175									
Base Capacity (vph)		1502	672						1155		1474	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.83	0.44						0.88		0.54	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Richardson Rd & US 64 EB

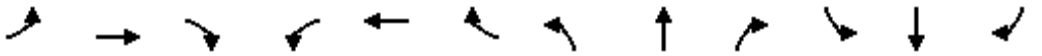


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1770	247	0
Future Volume (vph)	0	0	0	1770	247	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	3433	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	459			2512	426	
Travel Time (s)	5.7			31.1	11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1967	274	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1967	274	0
Turn Type				NA	Prot	
Protected Phases				6	8	
Permitted Phases						
Detector Phase				6	8	
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				20.2	13.3	
Total Split (s)				46.7	13.3	
Total Split (%)				77.8%	22.2%	
Maximum Green (s)				40.5	7.0	
Yellow Time (s)				5.2	3.0	
All-Red Time (s)				1.0	3.3	
Lost Time Adjust (s)				-1.2	-1.3	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				6.0	2.0	
Minimum Gap (s)				3.4	0.2	
Time Before Reduce (s)				15.0	0.0	
Time To Reduce (s)				45.0	0.0	
Recall Mode				C-Min	None	
Act Effct Green (s)				41.7	8.3	
Actuated g/C Ratio				0.70	0.14	
v/c Ratio				0.80	0.58	
Control Delay				9.6	27.8	
Queue Delay				0.0	0.0	
Total Delay				9.6	27.8	
LOS				A	C	
Approach Delay				9.6	27.8	
Approach LOS				A	C	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)				199	50	
Queue Length 95th (ft)				288	m60	
Internal Link Dist (ft)	379			2432	346	
Turn Bay Length (ft)						
Base Capacity (vph)				2459	474	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.80	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 11.8		Intersection LOS: B	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: U-Turn East & US 64 WB

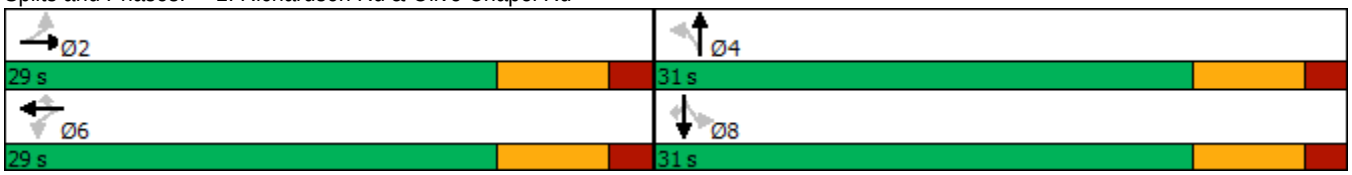


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	119	41	167	104	139	31	103	165	139	147	55
Future Volume (vph)	58	119	41	167	104	139	31	103	165	139	147	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	150		150	100		0	150		175
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961				0.850		0.908				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1790	0	1770	1863	1583	1770	1691	0	1770	1863	1583
Flt Permitted	0.682			0.645			0.654			0.579		
Satd. Flow (perm)	1270	1790	0	1201	1863	1583	1218	1691	0	1079	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1889			1311			1771			2925	
Travel Time (s)		28.6			19.9			26.8			44.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	64	132	46	186	116	154	34	114	183	154	163	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	178	0	186	116	154	34	297	0	154	163	61
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	2	2		6	6	6	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	29.0	29.0		29.0	29.0	29.0	31.0	31.0		31.0	31.0	31.0
Total Split (%)	48.3%	48.3%		48.3%	48.3%	48.3%	51.7%	51.7%		51.7%	51.7%	51.7%
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	24.0	24.0		24.0	24.0	24.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	14.2	14.2		14.2	14.2	14.2	14.6	14.6		14.6	14.6	14.6
Actuated g/C Ratio	0.36	0.36		0.36	0.36	0.36	0.37	0.37		0.37	0.37	0.37
v/c Ratio	0.14	0.28		0.43	0.17	0.27	0.08	0.47		0.39	0.24	0.10
Control Delay	10.2	10.9		13.9	10.0	11.1	9.6	13.1		13.4	10.4	9.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	10.2	10.9		13.9	10.0	11.1	9.6	13.1		13.4	10.4	9.6
LOS	B	B		B	B	B	A	B		B	B	A
Approach Delay		10.7			12.0			12.7			11.5	
Approach LOS		B			B			B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	8	24		27	15	21	4	43		21	21	8
Queue Length 95th (ft)	33	73		86	50	66	21	124		73	67	31
Internal Link Dist (ft)		1809			1231			1691			2845	
Turn Bay Length (ft)	250			150		150	100			150		175
Base Capacity (vph)	817	1152		773	1199	1018	849	1179		752	1299	1103
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.08	0.15		0.24	0.10	0.15	0.04	0.25		0.20	0.13	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 39.4			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 11.8		Intersection LOS: B	
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Richardson Rd & Olive Chapel Rd



Intersection	
Int Delay, s/veh	13.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	520	46	235	571	28	168
Future Vol, veh/h	520	46	235	571	28	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	578	51	261	634	31	187

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	629	0	1760	604
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	1156	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	953	-	93	498
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	300	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	953	-	54	498
Mov Cap-2 Maneuver	-	-	-	-	54	-
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	173	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	92.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	229	-	-	953	-
HCM Lane V/C Ratio	0.951	-	-	0.274	-
HCM Control Delay (s)	92.5	-	-	10.2	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	8.4	-	-	1.1	-

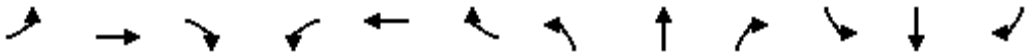
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1	3	15	1	76	2	599	23	111	648	3
Future Vol, veh/h	2	1	3	15	1	76	2	599	23	111	648	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	-	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	3	17	1	84	2	666	26	123	720	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1694	1664	722	1653	1652	679	723	0	0	692	0	0
Stage 1	968	968	-	683	683	-	-	-	-	-	-	-
Stage 2	726	696	-	970	969	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	73	97	427	78	98	452	879	-	-	903	-	-
Stage 1	305	332	-	439	449	-	-	-	-	-	-	-
Stage 2	416	443	-	304	332	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	53	84	427	69	84	452	879	-	-	903	-	-
Mov Cap-2 Maneuver	138	176	-	177	195	-	-	-	-	-	-	-
Stage 1	304	287	-	438	448	-	-	-	-	-	-	-
Stage 2	337	442	-	260	287	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.8	19.1	0	1.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	879	-	-	221	357	903	-	-
HCM Lane V/C Ratio	0.003	-	-	0.03	0.286	0.137	-	-
HCM Control Delay (s)	9.1	-	-	21.8	19.1	9.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.2	0.5	-	-

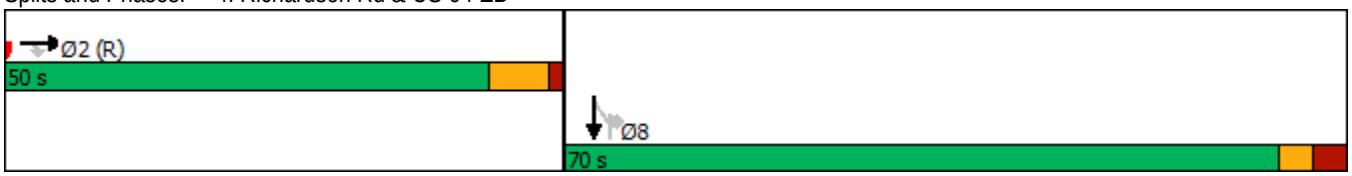


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1166	388	0	0	0	0	0	1331	0	971	0
Future Volume (vph)	0	1166	388	0	0	0	0	0	1331	0	971	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			1%			0%	
Storage Length (ft)	0		175	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		2	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.95	0.95	1.00
Frt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3575	1599	0	0	0	0	0	2773	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	3575	1599	0	0	0	0	0	2773	0	3539	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		3066			489			978			454	
Travel Time (s)		38.0			6.1			14.8			8.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1296	431	0	0	0	0	0	1479	0	1079	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1296	431	0	0	0	0	0	1479	0	1079	0
Turn Type		NA	Perm						Perm		NA	
Protected Phases		2									8	
Permitted Phases			2						8	8		
Detector Phase		2	2						8	8	8	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0	7.0	7.0	
Minimum Split (s)		20.8	20.8						13.2	13.2	13.2	
Total Split (s)		50.0	50.0						70.0	70.0	70.0	
Total Split (%)		41.7%	41.7%						58.3%	58.3%	58.3%	
Maximum Green (s)		43.2	43.2						63.8	63.8	63.8	
Yellow Time (s)		5.4	5.4						3.0	3.0	3.0	
All-Red Time (s)		1.4	1.4						3.2	3.2	3.2	
Lost Time Adjust (s)		-1.8	-1.8						-1.2		-1.2	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		6.0	6.0						2.0	2.0	2.0	
Minimum Gap (s)		3.4	3.4						0.2	0.2	0.2	
Time Before Reduce (s)		15.0	15.0						0.0	0.0	0.0	
Time To Reduce (s)		45.0	45.0						0.0	0.0	0.0	
Recall Mode		C-Min	C-Min						None	None	None	
Act Effct Green (s)		45.0	45.0						65.0		65.0	
Actuated g/C Ratio		0.38	0.38						0.54		0.54	
v/c Ratio		0.97	0.72						0.98		0.56	
Control Delay		55.0	40.2						47.4		19.6	
Queue Delay		0.0	0.0						0.0		0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		55.0	40.2						47.4		19.6	
LOS		E	D						D		B	
Approach Delay		51.3						47.4			19.6	
Approach LOS		D						D			B	
Queue Length 50th (ft)		512	283						613		278	
Queue Length 95th (ft)		#668	408						#817		341	
Internal Link Dist (ft)		2986			409			898			374	
Turn Bay Length (ft)			175									
Base Capacity (vph)		1340	599						1502		1916	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.97	0.72						0.98		0.56	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 42.0		Intersection LOS: D	
Intersection Capacity Utilization 129.6%		ICU Level of Service H	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Richardson Rd & US 64 EB



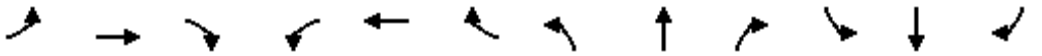
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2166	472	0
Future Volume (vph)	0	0	0	2166	472	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	3433	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	459			2512	426	
Travel Time (s)	5.7			31.1	11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	2407	524	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2407	524	0
Turn Type				NA	Prot	
Protected Phases				6	8	
Permitted Phases						
Detector Phase				6	8	
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				20.2	13.3	
Total Split (s)				70.0	20.0	
Total Split (%)				77.8%	22.2%	
Maximum Green (s)				63.8	13.7	
Yellow Time (s)				5.2	3.0	
All-Red Time (s)				1.0	3.3	
Lost Time Adjust (s)				-1.2	-1.3	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				6.0	2.0	
Minimum Gap (s)				3.4	0.2	
Time Before Reduce (s)				15.0	0.0	
Time To Reduce (s)				45.0	0.0	
Recall Mode				C-Min	None	
Act Effct Green (s)				65.0	15.0	
Actuated g/C Ratio				0.72	0.17	
v/c Ratio				0.94	0.92	
Control Delay				20.5	59.9	
Queue Delay				0.0	0.0	
Total Delay				20.5	59.9	
LOS				C	E	
Approach Delay				20.5	59.9	
Approach LOS				C	E	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)				523	152	
Queue Length 95th (ft)				#847	#246	
Internal Link Dist (ft)	379			2432	346	
Turn Bay Length (ft)						
Base Capacity (vph)				2555	572	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.94	0.92	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 27.6		Intersection LOS: C	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: U-Turn East & US 64 WB

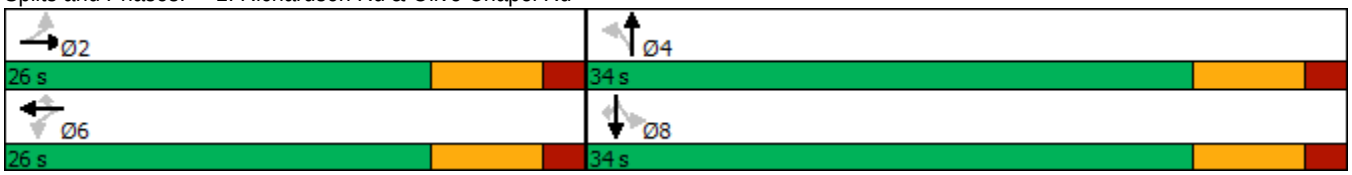


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	70	22	101	70	120	37	110	131	93	102	48
Future Volume (vph)	54	70	22	101	70	120	37	110	131	93	102	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	150		150	100		0	150		175
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965				0.850		0.918				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1798	0	1770	1863	1583	1770	1710	0	1770	1863	1583
Flt Permitted	0.706			0.691			0.684			0.594		
Satd. Flow (perm)	1315	1798	0	1287	1863	1583	1274	1710	0	1106	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1889			1311			1771			2925	
Travel Time (s)		28.6			19.9			26.8			44.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	78	24	112	78	133	41	122	146	103	113	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	102	0	112	78	133	41	268	0	103	113	53
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	2	2		6	6	6	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	26.0	26.0		26.0	26.0	26.0	34.0	34.0		34.0	34.0	34.0
Total Split (%)	43.3%	43.3%		43.3%	43.3%	43.3%	56.7%	56.7%		56.7%	56.7%	56.7%
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	27.0	27.0		27.0	27.0	27.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	12.2	12.2		12.2	12.2	12.2	12.8	12.8		12.8	12.8	12.8
Actuated g/C Ratio	0.35	0.35		0.35	0.35	0.35	0.36	0.36		0.36	0.36	0.36
v/c Ratio	0.13	0.16		0.25	0.12	0.24	0.09	0.43		0.26	0.17	0.09
Control Delay	9.9	9.8		11.1	9.5	10.6	7.8	10.7		9.5	8.0	7.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	9.9	9.8		11.1	9.5	10.6	7.8	10.7		9.5	8.0	7.6
LOS	A	A		B	A	B	A	B		A	A	A
Approach Delay		9.8			10.5			10.3			8.5	
Approach LOS		A			B			B			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	7	12		14	9	17	4	31		11	12	5
Queue Length 95th (ft)	28	40		46	32	52	18	85		39	38	22
Internal Link Dist (ft)		1809			1231			1691			2845	
Turn Bay Length (ft)	250			150		150	100			150		175
Base Capacity (vph)	796	1088		779	1128	958	1065	1430		924	1558	1323
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.08	0.09		0.14	0.07	0.14	0.04	0.19		0.11	0.07	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 35.2			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 44.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Richardson Rd & Olive Chapel Rd



Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	446	22	83	336	28	97
Future Vol, veh/h	446	22	83	336	28	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	496	24	92	373	31	108

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	520	0	1065	508
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	557	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1046	-	246	565
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1046	-	219	565
Mov Cap-2 Maneuver	-	-	-	-	219	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	510	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	417	-	-	1046	-
HCM Lane V/C Ratio	0.333	-	-	0.088	-
HCM Control Delay (s)	17.9	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.3	-

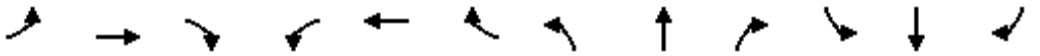
Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑		↰	↑	
Traffic Vol, veh/h	1	0	1	15	0	167	2	478	10	67	503	1
Future Vol, veh/h	1	0	1	15	0	167	2	478	10	67	503	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	-	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	17	0	186	2	531	11	74	559	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1342	1254	560	1249	1249	537	560	0	0	542	0	0
Stage 1	708	708	-	541	541	-	-	-	-	-	-	-
Stage 2	634	546	-	708	708	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	129	172	528	150	173	544	1011	-	-	1027	-	-
Stage 1	426	438	-	525	521	-	-	-	-	-	-	-
Stage 2	467	518	-	426	438	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	80	159	528	141	160	544	1011	-	-	1027	-	-
Mov Cap-2 Maneuver	170	266	-	267	279	-	-	-	-	-	-	-
Stage 1	425	406	-	524	520	-	-	-	-	-	-	-
Stage 2	307	517	-	394	406	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.1	17	0	1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1011	-	-	257	501	1027	-	-
HCM Lane V/C Ratio	0.002	-	-	0.009	0.404	0.072	-	-
HCM Control Delay (s)	8.6	-	-	19.1	17	8.8	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	1.9	0.2	-	-

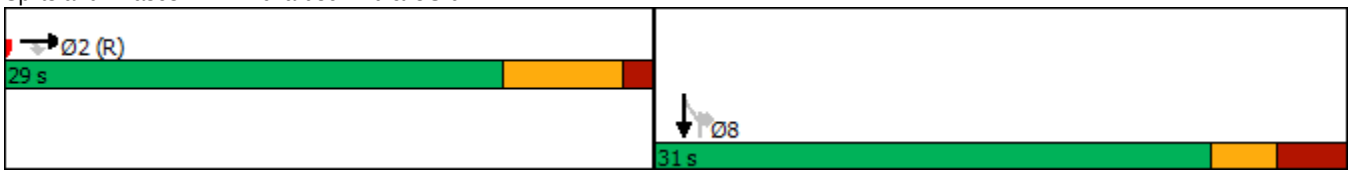


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1124	270	0	0	0	0	0	979	0	735	0
Future Volume (vph)	0	1124	270	0	0	0	0	0	979	0	735	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			1%			0%	
Storage Length (ft)	0		175	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		2	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.95	0.95	1.00
Frt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3575	1599	0	0	0	0	0	2773	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	3575	1599	0	0	0	0	0	2773	0	3539	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		3066			489			978			454	
Travel Time (s)		38.0			6.1			14.8			8.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1249	300	0	0	0	0	0	1088	0	817	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1249	300	0	0	0	0	0	1088	0	817	0
Turn Type		NA	Perm						Perm		NA	
Protected Phases		2									8	
Permitted Phases			2						8	8		
Detector Phase		2	2						8	8	8	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0	7.0	7.0	
Minimum Split (s)		20.8	20.8						13.2	13.2	13.2	
Total Split (s)		29.0	29.0						31.0	31.0	31.0	
Total Split (%)		48.3%	48.3%						51.7%	51.7%	51.7%	
Maximum Green (s)		22.2	22.2						24.8	24.8	24.8	
Yellow Time (s)		5.4	5.4						3.0	3.0	3.0	
All-Red Time (s)		1.4	1.4						3.2	3.2	3.2	
Lost Time Adjust (s)		-1.8	-1.8						-1.3		-1.2	
Total Lost Time (s)		5.0	5.0						4.9		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		6.0	6.0						2.0	2.0	2.0	
Minimum Gap (s)		3.4	3.4						0.2	0.2	0.2	
Time Before Reduce (s)		15.0	15.0						0.0	0.0	0.0	
Time To Reduce (s)		45.0	45.0						0.0	0.0	0.0	
Recall Mode		C-Min	C-Min						None	None	None	
Act Effct Green (s)		24.0	24.0						26.1		26.0	
Actuated g/C Ratio		0.40	0.40						0.44		0.43	
v/c Ratio		0.87	0.47						0.90		0.53	
Control Delay		25.5	16.3						28.5		9.8	
Queue Delay		0.0	0.0						0.0		0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		25.5	16.3						28.5		9.8	
LOS		C	B						C		A	
Approach Delay		23.7						28.5			9.8	
Approach LOS		C						C			A	
Queue Length 50th (ft)		210	77						197		99	
Queue Length 95th (ft)		#333	138						#333		m110	
Internal Link Dist (ft)		2986			409			898			374	
Turn Bay Length (ft)			175									
Base Capacity (vph)		1430	639						1206		1533	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.87	0.47						0.90		0.53	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 103.0%		ICU Level of Service G	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Richardson Rd & US 64 EB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1786	258	0
Future Volume (vph)	0	0	0	1786	258	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	3433	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	459			2512	426	
Travel Time (s)	5.7			31.1	11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1984	287	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1984	287	0
Turn Type				NA	Prot	
Protected Phases				6	8	
Permitted Phases						
Detector Phase				6	8	
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				21.2	14.0	
Total Split (s)				46.0	14.0	
Total Split (%)				76.7%	23.3%	
Maximum Green (s)				39.8	7.7	
Yellow Time (s)				5.2	3.0	
All-Red Time (s)				1.0	3.3	
Lost Time Adjust (s)				-1.2	-1.3	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				6.0	2.0	
Minimum Gap (s)				3.4	0.2	
Time Before Reduce (s)				15.0	0.0	
Time To Reduce (s)				45.0	0.0	
Recall Mode				C-Min	None	
Act Effct Green (s)				41.1	8.9	
Actuated g/C Ratio				0.68	0.15	
v/c Ratio				0.82	0.57	
Control Delay				10.5	26.5	
Queue Delay				0.0	0.0	
Total Delay				10.5	26.5	
LOS				B	C	
Approach Delay				10.5	26.5	
Approach LOS				B	C	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)				215	51	
Queue Length 95th (ft)				312	m59	
Internal Link Dist (ft)	379			2432	346	
Turn Bay Length (ft)						
Base Capacity (vph)				2426	514	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.82	0.56	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: U-Turn East & US 64 WB

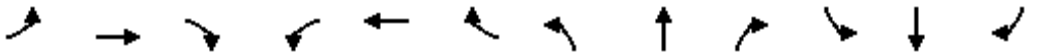
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	439	355	9	29	13
Future Vol, veh/h	5	439	355	9	29	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	488	394	10	32	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	404	0	-	0	894	394
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	500	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1155	-	-	-	312	655
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	609	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1155	-	-	-	310	655
Mov Cap-2 Maneuver	-	-	-	-	310	-
Stage 1	-	-	-	-	678	-
Stage 2	-	-	-	-	609	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1155	-	-	-	370
HCM Lane V/C Ratio	0.005	-	-	-	0.126
HCM Control Delay (s)	8.1	-	-	-	16.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4

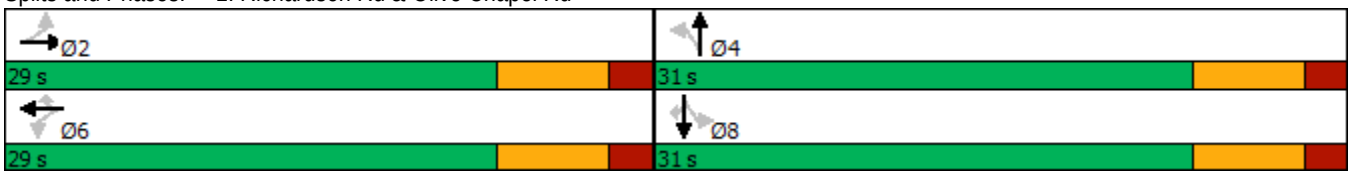


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	125	41	172	107	139	31	103	174	139	147	55
Future Volume (vph)	58	125	41	172	107	139	31	103	174	139	147	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	150		150	100		0	150		175
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963				0.850		0.906				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1794	0	1770	1863	1583	1770	1688	0	1770	1863	1583
Flt Permitted	0.681			0.641			0.654			0.573		
Satd. Flow (perm)	1269	1794	0	1194	1863	1583	1218	1688	0	1067	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1889			1311			1771			2925	
Travel Time (s)		28.6			19.9			26.8			44.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	64	139	46	191	119	154	34	114	193	154	163	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	185	0	191	119	154	34	307	0	154	163	61
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	2	2		6	6	6	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	29.0	29.0		29.0	29.0	29.0	31.0	31.0		31.0	31.0	31.0
Total Split (%)	48.3%	48.3%		48.3%	48.3%	48.3%	51.7%	51.7%		51.7%	51.7%	51.7%
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	24.0	24.0		24.0	24.0	24.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	14.5	14.5		14.5	14.5	14.5	15.0	15.0		15.0	15.0	15.0
Actuated g/C Ratio	0.36	0.36		0.36	0.36	0.36	0.37	0.37		0.37	0.37	0.37
v/c Ratio	0.14	0.29		0.44	0.18	0.27	0.07	0.49		0.39	0.23	0.10
Control Delay	10.3	11.1		14.2	10.2	11.2	9.8	13.4		13.6	10.5	9.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	10.3	11.1		14.2	10.2	11.2	9.8	13.4		13.6	10.5	9.7
LOS	B	B		B	B	B	A	B		B	B	A
Approach Delay		10.9			12.2			13.0			11.6	
Approach LOS		B			B			B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	9	26		29	16	22	4	45		22	21	8
Queue Length 95th (ft)	33	77		89	52	67	21	131		75	69	31
Internal Link Dist (ft)		1809			1231			1691			2845	
Turn Bay Length (ft)	250			150		150	100			150		175
Base Capacity (vph)	804	1137		757	1181	1004	836	1159		733	1280	1088
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.08	0.16		0.25	0.10	0.15	0.04	0.26		0.21	0.13	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 40.2			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 59.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Richardson Rd & Olive Chapel Rd



Intersection	
Int Delay, s/veh	18

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	537	47	235	599	30	168
Future Vol, veh/h	537	47	235	599	30	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	597	52	261	666	33	187

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	649	0	1811	623
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	1188	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	937	-	86	486
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	289	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	937	-	48	486
Mov Cap-2 Maneuver	-	-	-	-	48	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	161	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	134.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	204	-	-	937	-
HCM Lane V/C Ratio	1.078	-	-	0.279	-
HCM Control Delay (s)	134.5	-	-	10.3	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	10.1	-	-	1.1	-

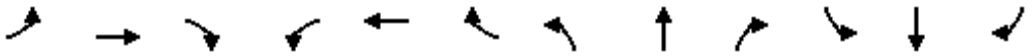
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑		↰	↑	
Traffic Vol, veh/h	2	1	3	15	1	116	2	599	23	178	648	3
Future Vol, veh/h	2	1	3	15	1	116	2	599	23	178	648	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	-	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	3	17	1	129	2	666	26	198	720	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1866	1814	722	1803	1802	679	723	0	0	692	0	0
Stage 1	1118	1118	-	683	683	-	-	-	-	-	-	-
Stage 2	748	696	-	1120	1119	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	56	78	427	62	80	452	879	-	-	903	-	-
Stage 1	251	282	-	439	449	-	-	-	-	-	-	-
Stage 2	404	443	-	251	282	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	33	61	427	51	62	452	879	-	-	903	-	-
Mov Cap-2 Maneuver	71	133	-	140	158	-	-	-	-	-	-	-
Stage 1	250	220	-	438	448	-	-	-	-	-	-	-
Stage 2	287	442	-	193	220	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	32	21.9	0	2.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	879	-	-	140	357	903	-	-
HCM Lane V/C Ratio	0.003	-	-	0.048	0.411	0.219	-	-
HCM Control Delay (s)	9.1	-	-	32	21.9	10.1	-	-
HCM Lane LOS	A	-	-	D	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.9	0.8	-	-

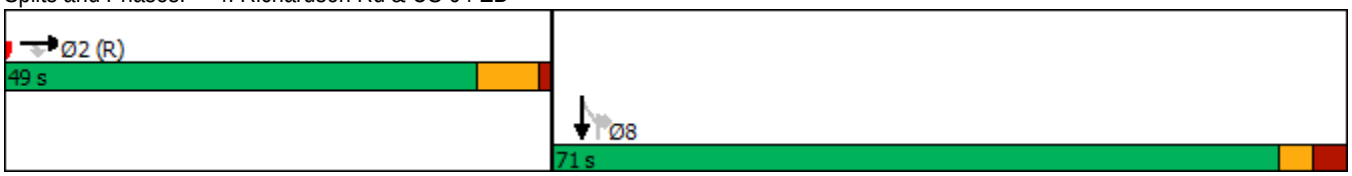


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1166	399	0	0	0	0	0	1371	0	1027	0
Future Volume (vph)	0	1166	399	0	0	0	0	0	1371	0	1027	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			1%			0%	
Storage Length (ft)	0		175	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		2	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.95	0.95	1.00
Frt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3575	1599	0	0	0	0	0	2773	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	3575	1599	0	0	0	0	0	2773	0	3539	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		3066			489			978			454	
Travel Time (s)		38.0			6.1			14.8			8.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1296	443	0	0	0	0	0	1523	0	1141	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1296	443	0	0	0	0	0	1523	0	1141	0
Turn Type		NA	Perm						Perm		NA	
Protected Phases		2									8	
Permitted Phases			2						8	8		
Detector Phase		2	2						8	8	8	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0	7.0	7.0	
Minimum Split (s)		20.8	20.8						13.2	13.2	13.2	
Total Split (s)		49.0	49.0						71.0	71.0	71.0	
Total Split (%)		40.8%	40.8%						59.2%	59.2%	59.2%	
Maximum Green (s)		42.2	42.2						64.8	64.8	64.8	
Yellow Time (s)		5.4	5.4						3.0	3.0	3.0	
All-Red Time (s)		1.4	1.4						3.2	3.2	3.2	
Lost Time Adjust (s)		-1.8	-1.8						-1.2		-1.2	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		6.0	6.0						2.0	2.0	2.0	
Minimum Gap (s)		3.4	3.4						0.2	0.2	0.2	
Time Before Reduce (s)		15.0	15.0						0.0	0.0	0.0	
Time To Reduce (s)		45.0	45.0						0.0	0.0	0.0	
Recall Mode		C-Min	C-Min						None	None	None	
Act Effct Green (s)		44.0	44.0						66.0		66.0	
Actuated g/C Ratio		0.37	0.37						0.55		0.55	
v/c Ratio		0.99	0.76						1.00		0.59	
Control Delay		60.5	43.0						50.1		19.5	
Queue Delay		0.0	0.0						0.0		0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		60.5	43.0						50.1		19.5	
LOS		E	D						D		B	
Approach Delay		56.0						50.1			19.5	
Approach LOS		E						D			B	
Queue Length 50th (ft)		520	298						640		295	
Queue Length 95th (ft)		#681	430						#847		361	
Internal Link Dist (ft)		2986			409			898			374	
Turn Bay Length (ft)			175									
Base Capacity (vph)		1310	586						1525		1946	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.99	0.76						1.00		0.59	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 44.5		Intersection LOS: D	
Intersection Capacity Utilization 134.1%		ICU Level of Service H	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Richardson Rd & US 64 EB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2222	479	0
Future Volume (vph)	0	0	0	2222	479	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	3433	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	459			2512	426	
Travel Time (s)	5.7			31.1	11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	2469	532	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2469	532	0
Turn Type				NA	Prot	
Protected Phases				6	8	
Permitted Phases						
Detector Phase				6	8	
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				20.2	13.3	
Total Split (s)				70.0	20.0	
Total Split (%)				77.8%	22.2%	
Maximum Green (s)				63.8	13.7	
Yellow Time (s)				5.2	3.0	
All-Red Time (s)				1.0	3.3	
Lost Time Adjust (s)				-1.2	-1.3	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				6.0	2.0	
Minimum Gap (s)				3.4	0.2	
Time Before Reduce (s)				15.0	0.0	
Time To Reduce (s)				45.0	0.0	
Recall Mode				C-Min	None	
Act Effct Green (s)				65.0	15.0	
Actuated g/C Ratio				0.72	0.17	
v/c Ratio				0.97	0.93	
Control Delay				24.1	62.1	
Queue Delay				0.0	0.0	
Total Delay				24.1	62.1	
LOS				C	E	
Approach Delay				24.1	62.1	
Approach LOS				C	E	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)				567	155	
Queue Length 95th (ft)				#886	#252	
Internal Link Dist (ft)	379			2432	346	
Turn Bay Length (ft)						
Base Capacity (vph)				2555	572	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.97	0.93	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 30.9		Intersection LOS: C	
Intersection Capacity Utilization 83.4%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: U-Turn East & US 64 WB

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	566	599	30	18	8
Future Vol, veh/h	15	566	599	30	18	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	629	666	33	20	9

Major/Minor	Major1			Major2		
Conflicting Flow All	699	0	-	0	1329	666
Stage 1	-	-	-	-	666	-
Stage 2	-	-	-	-	663	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	898	-	-	-	171	459
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	512	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	898	-	-	-	168	459
Mov Cap-2 Maneuver	-	-	-	-	168	-
Stage 1	-	-	-	-	501	-
Stage 2	-	-	-	-	512	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	25
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	898	-	-	-	209
HCM Lane V/C Ratio	0.019	-	-	-	0.138
HCM Control Delay (s)	9.1	-	-	-	25
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

www.vhb.com

PLANNING BOARD REPORT TO TOWN COUNCIL

Rezoning Case: 20CZ14 Hackney PUD

Planning Board Meeting Date: March 8, 2021

Report Requirements:

Per NCGS §160D-604(b), all proposed amendments to the zoning ordinance or zoning map shall be submitted to the Planning Board for review and comment. If no written report is received from the Planning Board within 30 days of referral of the amendment to the Planning Board, the Town Council may act on the amendment without the Planning Board report. The Town Council is not bound by the recommendations, if any, of the Planning Board.

Per NCGS §160D-604(d), the Planning Board shall advise and comment on whether the proposed action is consistent with all applicable officially adopted plans, and provide a written recommendation to the Town Council that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with the officially adopted plans shall not preclude consideration or approval of the proposed amendment by the Town Council.

PROJECT DESCRIPTION:

Acreage: ±79.79 acres

PIN(s): 0721492629, 0722406699, & 0722411102

Current Zoning: Rural Residential (RR) & R-80W

Proposed Zoning: Planned Unit Development-Conditional Zoning (PUD-CZ)

2045 Land Use Map: Medium Density Residential

Town Limits: ETJ and Outside (annexation of portion in Wake County is required with rezoning)

Applicable Officially Adopted Plans:

The Board must state whether the project is consistent or inconsistent with the following officially adopted plans, if applicable. Applicable plans have a check mark next to them.

☑ 2045 Land Use Map
☑ Consistent ☐ Inconsistent Reason: _____

☑ Apex Transportation Plan
☑ Consistent ☐ Inconsistent Reason: _____

☑ Parks, Recreation, Open Space, and Greenways Plan
☑ Consistent ☐ Inconsistent Reason: _____

Legislative Considerations:

The applicant shall propose site-specific standards and conditions that take into account the following considerations, which are considerations that are relevant to the legislative determination of whether or not the proposed conditional zoning district rezoning request is in the public interest. These considerations do not exclude the legislative consideration of any other factor that is relevant to the public interest.

1. *Consistency with 2045 Land Use Plan*. The proposed Conditional Zoning (CZ) District use's appropriateness for its proposed location and consistency with the purposes, goals, objectives, and policies of the 2045 Land Use Plan.
   ☑ Consistent ☐ Inconsistent Reason: _____

2. *Compatibility.* The proposed Conditional Zoning (CZ) District use's appropriateness for its proposed location and compatibility with the character of surrounding land uses.
   ☑ Consistent ☐ Inconsistent Reason: _____

3. *Zoning district supplemental standards*. The proposed Conditional Zoning (CZ) District use's compliance with Sec. 4.4 *Supplemental Standards*, if applicable.
   ☑ Consistent ☐ Inconsistent Reason: _____

4. *Design minimizes adverse impact.* The design of the proposed Conditional Zoning (CZ) District use's minimization of adverse effects, including visual impact of the proposed use on adjacent lands; and avoidance of significant adverse impacts on surrounding lands regarding trash, traffic, service delivery, parking and loading, odors, noise, glare, and vibration and not create a nuisance.
   ☑ Consistent ☐ Inconsistent Reason: _____

5. *Design minimizes environmental impact.* The proposed Conditional Zoning District use's minimization of environmental impacts and protection from significant deterioration of water and air resources, wildlife habitat, scenic resources, and other natural resources.
   ☑ Consistent ☐ Inconsistent Reason: _____

6. *Impact on public facilities.* The proposed Conditional Zoning (CZ) District use's avoidance of having adverse impacts on public facilities and services, including roads, potable water and wastewater facilities, parks, schools, police, fire and EMS facilities.
   ☑ Consistent ☐ Inconsistent Reason: _____

7. *Health, safety, and welfare.* The proposed Conditional Zoning (CZ) District use's effect on the health, safety, or welfare of the residents of the Town or its ETJ.
   ☑ Consistent ☐ Inconsistent Reason: _____

8. *Detrimental to adjacent properties.* Whether the proposed Conditional Zoning (CZ) District use is substantially detrimental to adjacent properties.
   ☑ Consistent ☐ Inconsistent Reason: _____

9. *Not constitute nuisance or hazard.* Whether the proposed Conditional Zoning (CZ) District use constitutes a nuisance or hazard due to traffic impact or noise, or because of the number of persons who will be using the Conditional Zoning (CZ) District use.
   ☑ Consistent ☐ Inconsistent Reason: _____

10. *Other relevant standards of this Ordinance.* Whether the proposed Conditional Zoning (CZ) District use complies with all standards imposed on it by all other applicable provisions of this Ordinance for use, layout, and general development characteristics.
    ☑ Consistent ☐ Inconsistent Reason: _____

Planning Board Recommendation:

Motion: To recommend approval as presented.

Introduced by Planning Board member: Keith Braswell

Seconded by Planning Board member: Mark Steele

☐ *Approval*: the project is consistent with all applicable officially adopted plans and the applicable legislative considerations listed above.

☑ *Approval with conditions*: the project is not consistent with all applicable officially adopted plans and/or the applicable legislative considerations as noted above, so the following conditions are recommended to be included in the project in order to make it fully consistent:

Conditions proposed by the applicant.

☐ *Denial*: the project is not consistent with all applicable officially adopted plans and/or the applicable legislative considerations as noted above.

With 6 Planning Board Member(s) voting "aye"

With 0 Planning Board Member(s) voting "no"

Reasons for dissenting votes:

This report reflects the recommendation of the Planning Board, this the 8th day of March 2021.

Attest:

Michael Marks Digitally signed by Michael Marks Date: 2021.03.09 14:50:15 -05'00'

Michael Marks, Planning Board Chair

Dianne Khin Digitally signed by Dianne Khin Date: 2021.03.08 17:59:54 -05'00'

Dianne Khin, Director of Planning and Community Development

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION
OF PUBLIC HEARINGS
CONDITIONAL ZONING #20CZ14
Hackney PUD

Pursuant to the provisions of North Carolina General Statutes §160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Planning Board of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: WithersRavenel
Authorized Agent: Brendie Vega, WithersRavenel
Property Addresses: 0, 2500, & 2600 Olive Chapel Road
Acreage: ±79.79 acres
Property Identification Numbers (PINs): 0721492629, 0722406699, & 0722411102
2045 Land Use Map Designation: Medium Density Residential
Existing Zoning of Properties: Rural Residential (RR) & R-80W
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chambers, 2nd Floor
73 Hunter Street, Apex, North Carolina

Planning Board Public Hearing Date and Time: March 8, 2021 4:30 PM

If you would like to speak during the public hearing, you may sign-in ahead of time by emailing your name and address to bonnie.brock@apexnc.org. You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov.

If you are unable to attend, you may provide comments no later than noon on Friday, March 5, 2021 by email (public.hearing@apexnc.org, 350-word limit) or voicemail (919-362-7300, 3-minute limit) according to the Remote Participation Policy at: http://www.apexnc.org/DocumentCenter/View/31397/. You must provide your name and address for the record. These comments will be read during the Planning Board meeting.

A separate notice of the Town Council public hearing on this project will be mailed and posted in order to comply with State public notice requirements.

Vicinity Map:

Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/33875.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published D

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION
OF PUBLIC HEARINGS
CONDITIONAL ZONING #20CZ14
Hackney PUD

Pursuant to the provisions of North Carolina General Statutes §160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: WithersRavenel
Authorized Agent: Brendie Vega, WithersRavenel
Property Addresses: 0, 2500, & 2600 Olive Chapel Road
Acreage: ±79.79 acres
Property Identification Numbers (PINs): 0721492629, 0722406699, & 0722411102
2045 Land Use Map Designation: Medium Density Residential
Existing Zoning of Properties: Rural Residential (RR) & R-80W
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chambers, 2nd Floor
73 Hunter Street, Apex, North Carolina

Comments received prior to or during the Planning Board public hearing will not be read during the Town Council public hearing. Separate comments must be provided for the two public hearings in the time frames specified below.

Town Council Public Hearing Date and Time: March 23, 2021 6:00 PM

You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov.

If you are unable to attend, you may provide comments no sooner than Friday, March 5, 2021 at noon but no later than noon on Monday, March 22, 2021 by email (public.hearing@apexnc.org, 350-word limit) or voicemail (919-362-7300, 3-minute limit) according to the Remote Participation Policy at: http://www.apexnc.org/DocumentCenter/View/31397/. You must provide your name and address for the record. These comments will be read during the Town Council meeting.

If the Council meeting is held with at least one member attending virtually, the vote on the subject of this public hearing will be delayed per State law to allow for comments to be submitted between publication of any required notice and 24 hours after the public hearing. Comments must be provided according to the means specified above. This item will be then be scheduled for the next Town Council meeting. Please note that at this subsequent meeting, Town Council may choose to vote on the item, table the discussion to a later date, or take other action which would delay Council action to another time.

Vicinity Map:

Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/view/33875.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: February 26-March 23, 2021

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

REVISED PUBLIC NOTIFICATION OF PUBLIC HEARINGS
CONDITIONAL ZONING #20CZ14
Hackney PUD

Pursuant to the provisions of North Carolina General Statutes §160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: WithersRavenel
Authorized Agent: Brendie Vega, WithersRavenel
Property Addresses: 0, 2500, & 2600 Olive Chapel Road
Acreage: ±79.79 acres
Property Identification Numbers (PINs): 0721492629, 0722406699, & 0722411102
2045 Land Use Map Designation: Medium Density Residential
Existing Zoning of Properties: Rural Residential (RR) & R-80W
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: ~~Apex Town Hall~~
~~Council Chambers, 2nd Floor~~
~~73 Hunter Street, Apex, North Carolina~~

Comments received prior to or during the Planning Board public hearing will not be read during the Town Council public hearing. Separate comments must be provided for the two public hearings in the time frames specified below.

Town Council Remote Public Hearing Date and Time: March 23, 2021 6:00 PM

You may ~~attend the meeting in person~~ or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov.

~~If you are unable to attend,~~ You may provide comments no sooner than Friday, March 5, 2021 at noon but no later than noon on Monday, March 22, 2021 by email (public.hearing@apexnc.org, 350-word limit) or voicemail (919-362-7300, 3-minute limit) according to the Remote Participation Policy at: http://www.apexnc.org/DocumentCenter/View/31397/. You must provide your name and address for the record. These comments will be read during the Town Council meeting.

~~If the Council meeting is held with at least one member attending virtually,~~ The vote on the subject of this public hearing will be delayed per State law to allow for comments to be submitted between publication of any required notice and 24 hours after the public hearing. Comments must be provided according to the means specified above. This item will then be scheduled for the next Town Council meeting on Thursday, March 25, 2021 at 9:00 am. Please note that at this subsequent meeting, Town Council may choose to vote on the item, table the discussion to a later date, or take other action which would delay Council action to another time.

Vicinity Map:

Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/33875.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: ~~February 26~~ March 16~~March~~ 23, 2021

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

REVISED PUBLIC NOTIFICATION OF PUBLIC HEARINGS
CONDITIONAL ZONING #20CZ14
Hackney PUD
CONTINUED

Pursuant to the provisions of North Carolina General Statutes §160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: WithersRavenel
Authorized Agent: Brendie Vega, WithersRavenel
Property Addresses: 0, 2500, & 2600 Olive Chapel Road
Acreage: ±79.79 acres
Property Identification Numbers (PINs): 0721492629, 0722406699, & 0722411102
2045 Land Use Map Designation: Medium Density Residential
Existing Zoning of Properties: Rural Residential (RR) & R-80W
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chambers, 2nd Floor
73 Hunter Street, Apex, North Carolina

Comments received prior to or during the Planning Board public hearing will not be read during the Town Council public hearing. Separate comments must be provided for the two public hearings in the time frames specified below.

Town Council ~~Remote~~ Public Hearing Date and Time: ~~March 23, 2021~~ continued to April 27, 2021 **6:00 PM**
You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov.

~~if you are unable to attend, you may provide comments no sooner than Friday, March 5, 2021 at noon but no later than noon on Monday, March 22, 2021 by email (public.hearing@apexnc.org, 350 word limit) or voicemail (919-362-7300, 3-minute limit) according to the Remote Participation Policy at: http://www.apexnc.org/DocumentCenter/View/31397/. You must provide your name and address for the record. These comments will be read during the Town Council meeting.~~
The Public Hearing was closed at the March 23, 2021 Town Council meeting.

If the Council meeting is held with at least one member attending virtually, the vote on the subject of this public hearing will be delayed per State law to allow for comments to be submitted between publication of any required notice and 24 hours after the public hearing. Comments must be provided according to the means specified above. This item will then be scheduled for the next Town Council meeting ~~on Thursday, March 25, 2021 at 9:00 am~~. Please note that at this subsequent meeting, Town Council may choose to vote on the item, table the discussion to a later date, or take other action which would delay Council action to another time.

Vicinity Map:

Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www

Published Da

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION OF PUBLIC HEARINGS

CONDITIONAL ZONING #20CZ14
Hackney PUD

Pursuant to the provisions of North Carolina General Statutes §160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: WithersRavenel
Authorized Agent: Brendie Vega, WithersRavenel
Property Addresses: 0, 2500, & 2600 Olive Chapel Road
Acreage: ±79.79 acres
Property Identification Numbers (PINs): 0721492629, 0722406699, & 0722411102
2045 Land Use Map Designation: Medium Density Residential
Existing Zoning of Properties: Rural Residential (RR) & R-80W
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chambers, 2nd Floor
73 Hunter Street, Apex, North Carolina

Comments received prior to or during the Planning Board public hearing will not be read during the Town Council public hearing. Separate comments must be provided for the two public hearings in the time frames specified below.

Town Council Public Hearing Date and Time: March 23, 2021 6:00 PM

You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov.

If you are unable to attend, you may provide comments no sooner than Friday, March 5, 2021 at noon but no later than noon on Monday, March 22, 2021 by email (public.hearing@apexnc.org, 350-word limit) or voicemail (919-362-7300, 3-minute limit) according to the Remote Participation Policy at: http://www.apexnc.org/DocumentCenter/View/31397/. You must provide your name and address for the record. These comments will be read during the Town Council meeting.

If the Council meeting is held with at least one member attending virtually, the vote on the subject of this public hearing will be delayed per State law to allow for comments to be submitted between publication of any required notice and 24 hours after the public hearing. Comments must be provided according to the means specified above. This item will be then be scheduled for the next Town Council meeting. Please note that at this subsequent meeting, Town Council may choose to vote on the item, table the discussion to a later date, or take other action which would delay Council action to another time.

Vicinity Map:

Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/33875.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: February 26-March 23, 2021

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION OF PUBLIC HEARINGS

CONDITIONAL ZONING #20CZ14
Hackney PUD

Pursuant to the provisions of North Carolina General Statutes §160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Planning Board of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: WithersRavenel
Authorized Agent: Brendie Vega, WithersRavenel
Property Addresses: 0, 2500, & 2600 Olive Chapel Road
Acreage: ±79.79 acres
Property Identification Numbers (PINs): 0721492629, 0722406699, & 0722411102
2045 Land Use Map Designation: Medium Density Residential
Existing Zoning of Properties: Rural Residential (RR) & R-80W
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chambers, 2nd Floor
73 Hunter Street, Apex, North Carolina

Planning Board Public Hearing Date and Time: March 8, 2021 4:30 PM

If you would like to speak during the public hearing, you may sign-in ahead of time by emailing your name and address to bonnie.brock@apexnc.org. You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov.

If you are unable to attend, you may provide comments no later than noon on Friday, March 5, 2021 by email (public.hearing@apexnc.org, 350-word limit) or voicemail (919-362-7300, 3-minute limit) according to the Remote Participation Policy at: http://www.apexnc.org/DocumentCenter/View/31397/. You must provide your name and address for the record. These comments will be read during the Planning Board meeting.

A separate notice of the Town Council public hearing on this project will be mailed and posted in order to comply with State public notice requirements.

Vicinity Map:

Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/33875.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: February 23-March 8, 2021

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

REVISED PUBLIC NOTIFICATION OF PUBLIC HEARINGS

CONDITIONAL ZONING #20CZ14
Hackney PUD

Pursuant to the provisions of North Carolina General Statutes §160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: WithersRavenel
Authorized Agent: Brendie Vega, WithersRavenel
Property Addresses: 0, 2500, & 2600 Olive Chapel Road
Acreage: ±79.79 acres
Property Identification Numbers (PINs): 0721492629, 0722406699, & 0722411102
2045 Land Use Map Designation: Medium Density Residential
Existing Zoning of Properties: Rural Residential (RR) & R-80W
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: ~~Apex Town Hall~~
~~Council Chambers, 2nd Floor~~
~~73 Hunter Street, Apex, North Carolina~~

Comments received prior to or during the Planning Board public hearing will not be read during the Town Council public hearing. Separate comments must be provided for the two public hearings in the time frames specified below.

Town Council Remote Public Hearing Date and Time: March 23, 2021 6:00 PM

You may ~~attend the meeting in person~~ or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov.

~~If you are unable to attend~~, ~~y~~You may provide comments no sooner than Friday, March 5, 2021 at noon but no later than noon on Monday, March 22, 2021 by email (public.hearing@apexnc.org, 350-word limit) or voicemail (919-362-7300, 3-minute limit) according to the Remote Participation Policy at: http://www.apexnc.org/DocumentCenter/View/31397/. You must provide your name and address for the record. These comments will be read during the Town Council meeting.

~~If the Council meeting is held with at least one member attending virtually~~, ~~t~~The vote on the subject of this public hearing will be delayed per State law to allow for comments to be submitted between publication of any required notice and 24 hours after the public hearing. Comments must be provided according to the means specified above. This item will then be scheduled for the next Town Council meeting on Thursday, March 25, 2021 at 9:00 am. Please note that at this subsequent meeting, Town Council may choose to vote on the item, table the discussion to a later date, or take other action which would delay Council action to another time.

Vicinity Map:

Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/33875.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: ~~February 26~~ March 16-March 23, 2021

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

REVISED PUBLIC NOTIFICATION OF PUBLIC HEARINGS

CONDITIONAL ZONING #20CZ14
Hackney PUD
CONTINUED

Pursuant to the provisions of North Carolina General Statutes §160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: WithersRavenel
Authorized Agent: Brendie Vega, WithersRavenel
Property Addresses: 0, 2500, & 2600 Olive Chapel Road
Acreage: ±79.79 acres
Property Identification Numbers (PINs): 0721492629, 0722406699, & 0722411102
2045 Land Use Map Designation: Medium Density Residential
Existing Zoning of Properties: Rural Residential (RR) & R-80W
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chambers, 2nd Floor
73 Hunter Street, Apex, North Carolina

Comments received prior to or during the Planning Board public hearing will not be read during the Town Council public hearing. Separate comments must be provided for the two public hearings in the time frames specified below.

Town Council ~~Remote~~ Public Hearing Date and Time: ~~March 23, 2021~~ continued to April 27, 2021 6:00 PM

You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov.

~~If you are unable to attend, you may provide comments no sooner than Friday, March 5, 2021 at noon but no later than noon on Monday, March 22, 2021 by email (public.hearing@apexnc.org, 350 word limit) or voicemail (919-362-7300, 3-minute limit) according to the Remote Participation Policy at: http://www.apexnc.org/DocumentCenter/View/31397/. You must provide your name and address for the record. These comments will be read during the Town Council meeting.~~
The Public Hearing was closed at the March 23, 2021 Town Council meeting.

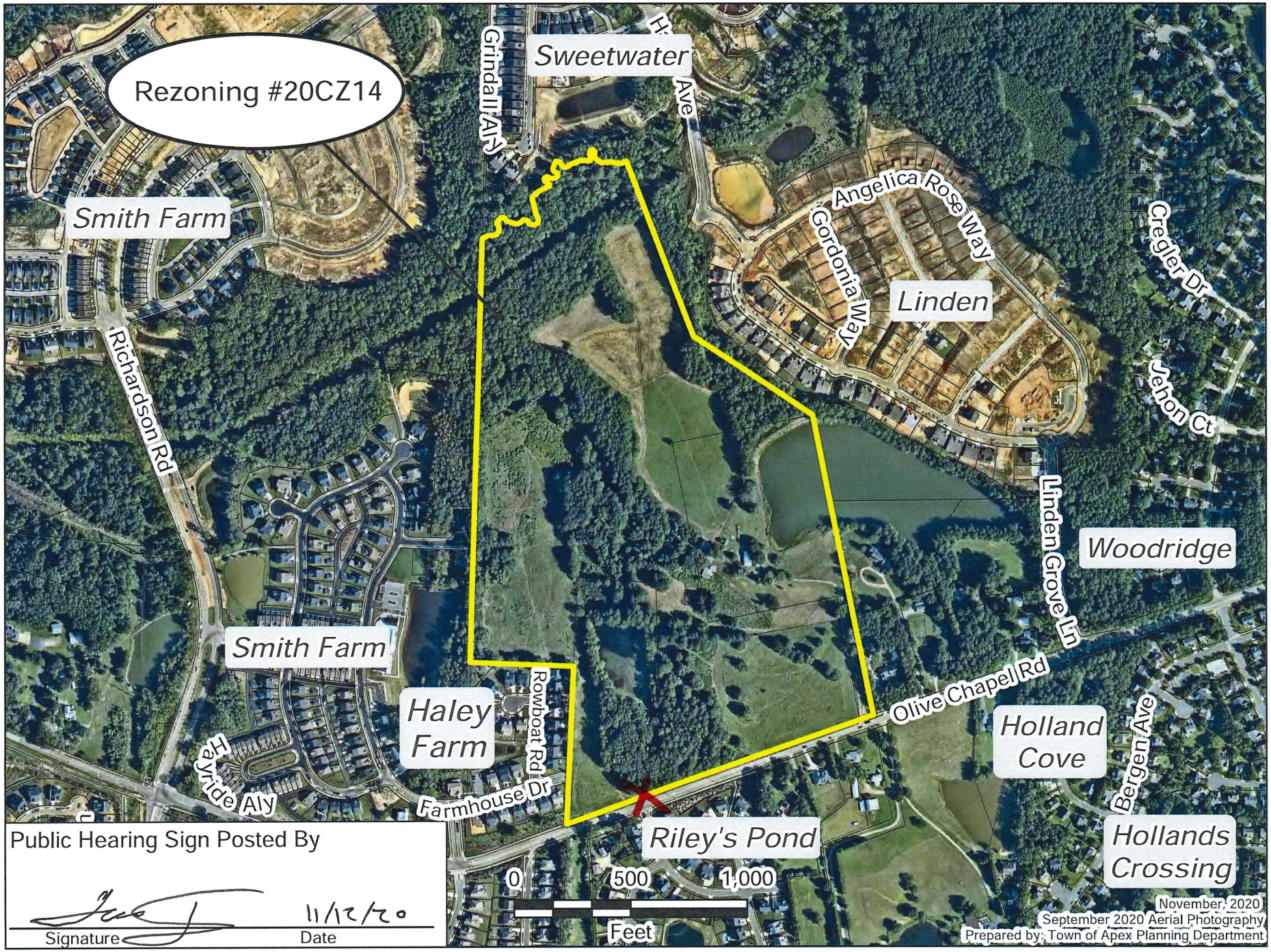
If the Council meeting is held with at least one member attending virtually, the vote on the subject of this public hearing will be delayed per State law to allow for comments to be submitted between publication of any required notice and 24 hours after the public hearing. Comments must be provided according to the means specified above. This item will then be scheduled for the next Town Council meeting ~~on Thursday, March 25, 2021 at 9:00 am~~. Please note that at this subsequent meeting, Town Council may choose to vote on the item, table the discussion to a later date, or take other action which would delay Council action to another time.

Vicinity Map:

Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/33875.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: ~~February 26~~ ~~March 16~~ March 26 - ~~March 23~~April 27, 2021



Public Hearing Sign Posted By

11/12/20

Signature Date

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

AFFIDAVIT CERTIFYING
Public Notification – Written (Mailed) Notice

Section 2.2.11
Town of Apex Unified Development Ordinance

Project Name:	Conditional Zoning #20CZ14 Hackney PUD
Project Location:	0, 2500, & 2600 Olive Chapel Road
Applicant or Authorized Agent:	Brendie Vega, WithersRavenel
Firm:	WithersRavenel

This is to certify that I, as Director of Planning and Community Development, mailed or caused to have mailed by first class postage for the above mentioned project on February 26, 2021, a notice containing the time and place, location, nature and scope of the application, where additional information may be obtained, and the opportunity for interested parties to be heard, to the property owners within 300' of the land subject to notification. I further certify that I relied on information provided to me by the above-mentioned person as to accuracy and mailing addresses of property owners within 300' of the land subject to notification.

2-26-2021
Date

Liz Loftin for Dianne Khin
Director of Planning & Community Development

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Jeri Chastain Pederson, a Notary Public for the above State and County, this the 26 day of February, 2021.

JERI CHASTAIN PEDERSON
Notary Public
Wake County, North Carolina
My Commission Expires
SEAL March 10, 2024

Jeri Chastain Pederson
Notary Public

My Commission Expires: 3/10/2024

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

AFFIDAVIT CERTIFYING
Public Notification – Written (Mailed) Notice

Section 2.2.11
Town of Apex Unified Development Ordinance

Project Name:	Conditional Zoning #20CZ14 Hackney PUD
Project Location:	0, 2500, & 2600 Olive Chapel Road
Applicant or Authorized Agent:	Brendie Vega, WithersRavenel
Firm:	WithersRavenel

This is to certify that I, as Director of Planning and Community Development, mailed or caused to have mailed by first class postage for the above mentioned project on February 23, 2021, a notice containing the time and place, location, nature and scope of the application, where additional information may be obtained, and the opportunity for interested parties to be heard, to the property owners within 300' of the land subject to notification. I further certify that I relied on information provided to me by the above-mentioned person as to accuracy and mailing addresses of property owners within 300' of the land subject to notification.

2-23-2021
Date

Liz Loftin for Dianne Khin
Director of Planning & Community Development

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Jeri Chastain Pederson, a Notary Public for the above State and County, this the 23 day of February, 2021.

JERI CHASTAIN PEDERSON
Notary Public
Wake County, North Carolina
My Commission Expires
March 10, 2024

Jeri Chastain Pederson
Notary Public

My Commission Expires: 3/10/2024

WAKE COUNTY
PUBLIC SCHOOL SYSTEM

Student Assignment
Glenn Carrozza
5625 Dillard Drive
Cary, NC 27518

tel: (919) 431-7333
fax: (919) 694-7753

February 17, 2021

Dianne Khin, AICP
Director, Department of Planning and Community Development
Town of Apex
Dianne.Khin@apexnc.org

Dear Dianne,
The Wake County Public School System (WCPSS) Office of School Assignment received information about a proposed rezoning/development within the Town of Apex planning area. We are providing this letter to share information about WCPSS's capacity related to the proposal. The following information about the proposed rezoning/development was provided through the Wake County Residential Development Notification database:

- Date of application: November 2, 2020
- Name of development: 20CZ14 Hackney Tracts PUD
- Address of rezoning/development: 0, 2500, & 2600 Olive Chapel Rd
- Total number of proposed residential units: 319
- Type(s) of residential units proposed: Single-family; townhouse; townhouse, detached; accessory apartment

Based on the information received at the time of application, the Office of School Assignment is providing the following assessment of possible impacts to the Wake County Public School System:

☐ Schools at all grade levels within the current assignment area for the proposed rezoning/development are anticipated to have sufficient capacity for future students.

☒ Schools at the following grade levels within the current assignment area for the proposed rezoning/development are anticipated to have insufficient capacity for future students; transportation to schools outside of the current assignment area should be anticipated:

☒ Elementary ☐ Middle ☒ High

The following mitigation of capacity concerns due to school construction or expansion is anticipated:

☐ Not applicable – existing school capacity is anticipated to be sufficient.

☐ School expansion or construction within the next five years is not anticipated to address concerns.

☒ School expansion or construction within the next five years may address concerns at these grade levels:

☐ Elementary ☐ Middle ☒ High

Thank you for sharing this information with the Town of Apex Planning Board and Town Council as they consider the proposed rezoning/development.

Sincerely,

Glenn Carrozza

Glenn Carrozza