STAFF REPORT

Rezoning #22CZ07 Chapel Ridge North PUD

July 26, 2022 Town Council Meeting

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

BACKGROUND INFORMATION:	
Location:	1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd and 1512 Clark Farm Rd
Applicant:	High Street District Development, Inc.
Authorized Agent:	Joshua Dix
Owners:	Su Yueh Kao and Chi-Chang Ho; Michael P. and Catherine A. Mohan; Douglas and Carrie Cox; Ronald L. and Katherine L. Stringari; Larry L. and Kathi E. Carlson; Tigh M. and Dianne Cundieff; David D. and Ethel V. Sherry
PROJECT DESCRIPTION:	
Acreage:	+/- 20.62 acres
PINs:	0732340602, 0732347912, 0732343920, 0732354594, 0732352538, 0732249869, & 0732256180
Current Zoning:	Rural Residential (RR)
Proposed Zoning:	Planned Unit Development–Conditional Zoning (PUD-CZ)
Current 2045 Land Use Map:	Medium Density Residential
If rezoned as proposed, the 2045 Land Use Map Designation will change to:	High Density Residential
Town Limits:	Inside the ETJ

ADJACENT ZONING & LAND USES:		
	Zoning	**Land Use**
North:	Planned Unit Development-Conditional Zoning (PUD-CZ #06CU17)	Shopping Center (Beaver Creek Crossings)
South:	Rural Residential (RR)	Single-family Residential (Chapel Ridge Estates Subdivision)
East:	Rural Residential (RR); Planned Unit Development-Conditional Zoning (PUD-CZ #15CZ04)	Single-family Residential (Chapel Ridge Estates Subdivision); Townhomes (Hempstead Subdivision)
West:	Rural Residential (RR); Planned Commercial-Conditional Zoning (PC-CZ #94CU20)	Jordan Lutheran Church; Vacant

EXISTING CONDITIONS:

The site consists of seven (7) parcels totaling +/- 20.62 acres. The Chapel Ridge North PUD is in the northcentral region of Apex, north of Olive Chapel Road, south of Beaver Creek Commons Drive, and east of NC 540 Hwy. Beaver Creek Crossings shopping center is north of the site and the Chapel Ridge Estates subdivision is south of the site. The future home of Jordan Lutheran Church abuts the site to the west. The subject properties contain single-family homes with large areas of woods, yards, streams, and a pond.

NEIGHBORHOOD MEETING:

The applicant conducted a neighborhood meeting on February 16, 2022. The meeting report is attached to the staff report.

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 both the elementary and high school levels.

2045 LAND USE MAP:

The 2045 Land Use Map (LUM) designates the site as Medium Density Residential. The Medium Density Residential designation supports up to 7 dwelling units per acre and does not support apartments. Chapel Ridge North PUD proposes 370 dwelling units on 20.62 acres, or approximately 17.94 dwelling units per acre. If the properties are rezoned as proposed, the 2045 LUM will automatically be amended to High Density Residential per NCGS 160D-605(a).

While the site is located with the Suburban Context Area, it is immediately adjacent to a Transit-Oriented Development (TOD) Context Area as adopted with Advance Apex. TOD development typically dictates transit-supportive densities, which is a minimum of seven (7) units per acre for a circulator bus service and a minimum 15 units per acre for fixed route bus service.

PLANNED UNIT DEVELOPMENT PLAN:

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

Proposed 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.

- Multi-family or apartment
- Condominium
- Utility, minor
- Greenway
- Park, active
- Park, passive
- Recreation facility, private

Conditions:

1. No dumpster shall be located within 50 feet of the northern property line of Lot 12, Chapel Ridge Subdivision, as shown in Book of Maps 1986, Page 1627, Wake County Registry.
2. The project shall use full cutoff LED fixtures that have a maximum color temperature of 3500K for all exterior lighting, including, but not limited to, parking lot and building mounted fixtures.
3. The project shall be designed to meet the requirements for one of the following green building certifications: LEED, Energy Star, BREEAM, Green Globes, NGBS Green, or GreenGuard. Prior to the issuance of building permits, the developer shall hire a third-party consultant to evaluate the project and ensure the design conforms with green building certification requirements. Prior to the issuance of a certificate of occupancy for a building, the developer shall demonstrate to the Town that that building has been certified as a green building by providing a copy of the green building certification.
4. The project shall install at least three (3) pet waste stations across the development locations that are publicly accessible, such as adjacent to amenity centers, sidewalks, greenways, or side paths.
5. Affordable Housing: A minimum of three and a half percent (3.5%) of the total residential units (as shown on the first site plan submittal) shall be designated as restricted low-income affordable housing rental units (the “Affordable Units”) for a minimum affordability period of ten (10) years starting from the date of issuance of the first residential Certificate of Occupancy (the “Affordable Restriction Period”). The

Affordable Units shall be occupied by low-income households earning no more than sixty percent (60%) of the Raleigh, NC Metropolitan Statistical Area (MSA) Area Median Income (AMI), adjusted for family size, as most recently published by the U.S. Department of Housing and Urban Development (HUD). The Affordable Units shall be one-bedroom units and rented to low-income households during the Affordable Restriction Period at maximum rent limits per bedroom size, no greater than sixty percent (60%) of the Raleigh, NC MSA AMI as most recently published by the HUD and stipulated by the most recently published North Carolina Housing Finance Agency (NCHFA) Low-Income Housing Tax Credit (LIHTC) Multifamily Tax Subsidy Program (MTSP) income and rent limits for the Wake County Metropolitan Area. If the Affordable Units calculation results in a fraction between 0.00 and 0.49, the number of Affordable Units shall be rounded down to the nearest whole number. If the Affordable Units calculation results in a fraction between 0.50 and 0.99, the number of Affordable Units shall be rounded up to the nearest whole number. Prior to issuance of the first residential Certificate of Occupancy, a restrictive covenant between the Town and property owner shall be executed and recorded in the Wake County Registry to memorialize the affordable housing terms and conditions. During the Affordable Restriction Period, the property owner shall be responsible for performing all property management and administration duties to ensure compliance with this affordable housing condition and shall submit annual compliance reports to the Town verifying compliance with this affordable housing condition. Following expiration of the Affordable Restriction Period, this affordable housing condition shall expire, and the property owner shall be relieved of all obligations set forth in this affordable housing condition, and the Affordable Units may freely be marketed and leased at market-rate rents.

Architectural Conditions:

The proposed development offers the following architectural controls to ensure consistency of character throughout the development. Conceptual elevation examples are included in Section 19 of this PUD. Elevations included are limited examples of multiple style options being considered. 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 Major Site Plan submittal. In an effort to reflect the unique nature of the existing neighborhood, the architectural style of the buildings shall be classic southern traditional architecture.

Additional features used as focal points or key terminus points shall be located within or around the development (i.e. a patio seating area, water feature, pedestrian plaza with benches, planters, public art, decorative bicycle parking, or focal feature) in order to meet the Community Amenities requirement of the UDO. Other features not mentioned may be considered with administrative staff approval.

1. Vinyl siding is not permitted; however, vinyl windows, decorative elements and trim are permitted.
2. Rear and side elevations of units that have right-of-way frontage shall have trim around the windows.
3. A minimum of four of the following decorative features shall be used on each building:
   - Decorative shake
   - Board and batten
   - Decorative porch railing/posts
   - Shutters
   - Decorative/functional air vents on roof or foundation
   - Recessed windows
   - Decorative windows
   - Decorative brick/stone
   - Decorative gables
   - Decorative cornices
   - Tin/metal roof
4. Garage doors must have windows, decorative details, or carriage-style adornments on them.
5. Siding materials shall be varied in type and/or color on 30% of each façade on each building.
6. Windows must vary in size and/or type.

7. Windows that are not recessed must be trimmed.
8. Solar conduit shall be provided on all buildings to accommodate the future installation of solar panels.

Materials:
Proposed Residential Materials and Styles Proposed materials and styles will be of a similar palette to provide consistency of character along with visual interest. Exterior materials that may be incorporated into any of the building products include:

- Cementitious lap, board and batten, and/or shake and shingle siding
- Stone or synthetic stone
- Brick

Additional building materials may be included with administrative staff approval. Substitute materials shall be allowed by staff as long as they are determined by the Director of Planning and Development to be substantially similar.

Proposed Design Controls:

Maximum Residential Units:	370 apartments
Maximum Building Height:	55 ft & 5 stories*
Maximum Built-Upon Area:	70%

**Building facades facing PINs 073243658, 0732340602, and 0732348711 shall be limited to a maximum of four stories.*

Building Setbacks:	Multi-Family/ Apartments/Condominiums
Front:	10 Ft
Side:	20 Ft
Rear:	20 Ft
Corner:	20 Ft
Alley:	5 Ft
From Buffers/RCA:	
For buildings:	10 Ft

PARKING:

Parking calculations and dimensions for this PUD will comply with UDO Section 8.3 (Off-Street Parking and Loading) of the Town of Apex's Unified Development Ordinance, unless otherwise stated in this document.

Development shall provide the following minimum parking spaces per dwelling unit based on the number of bedrooms:

# of Bedrooms:	Proposed Minimum Parking Ratio:
1 & 2 Bedrooms	1.3 spaces per unit
3 bedrooms	1.8 spaces per unit

The following table is an estimate of the proposed parking vs the UDO requirement using the number of units listed in the Wake Co. Residential Development Notification sheet in the application.

Parking Space Comparison				
Estimated # of Units	Per UDO Ratio Min Required	Per UDO Total Spaces	Per PUD Ratio Min Required	Per PUD Total Spaces
1 & 2 bedrooms: 370	1.5 per unit	555	1.3 per unit	481
Total: 370		555		481
PUD difference from UDO		0		-74

Electric Vehicle Charging Spaces:

A minimum of 5% of the total parking spaces required by the UDO for the project shall be Electric Vehicle Charging spaces consistent with the standards of UDO Section 8.3.11. At least 6 bicycle parking spaces shall also be provided.

Proposed RCA, Buffers and Landscaping:

The PUD will provide a minimum of 20% of the gross project area as a Resource Conservation Area (RCA). Designated RCA areas will be consistent with the items listed in Section 8.1.2(B) of the Town's UDO. Preserved streams, wetlands, and associated riparian buffers provide the primary RCAs throughout the site. Additional RCA areas may include perimeter and streetfront buffers, stormwater management areas (as permitted by the UDO), and greenways.

Buffers:	UDO Requirement:	Proposed:
Chapel Ridge Road (Minor Collector):	10-foot Type A	10-foot Type A*
North boundary:	15-foot Type A	20-foot Type A
South boundary:	20-foot Type B	25-foot Type A
East boundary		
Adjacent to Single-family lots:	20-foot Type B	25-foot Type A
Adjacent to Townhomes:	15-foot Type A	15-foot Type A
West boundary		
Adjacent to Jordan Lutheran Church:	15-foot Type A	20-foot Type A
Adjacent to vacant PC-CZ parcel:	20-foot Type B	20-foot Type B

*Only required along the public right-of-way fronting the Property. A buffer is not required along the public access easement. Developer shall only be responsible for providing the buffer on property adjacent to the public right-of-way which is within this rezoning.

- The project shall select and install tree, shrub and perennial species with special attention to providing diverse and abundant pollinator and bird food sources, including plants that bloom in succession from spring to fall.
- The project will increase biodiversity in perimeter buffers and open space areas by providing a variety of species for the canopy, understory, and shrub levels. Native and adaptive plant species shall be provided within these areas to minimize death from disease and to provide increased habitat and food sources for insects and animals. A minimum of 70% of the species provided shall be native or a nativar of North Carolina. No invasive species shall be permitted. No single species of tree or shrub shall constitute more than 20% of the plant material of its type installed on a single development site.
- The project shall install a minimum of one sign for each Resource Conservation area. The signage shall indicate that the area is RCA and is to be preserved in perpetuity and not disturbed.

- Six-foot wide private walking trails may be located throughout the development, including RCA areas. Locations of trails are to be determined at site plan.
- Tree canopy areas in Chapel Ridge North are primarily concentrated around the wetland areas, stream features, and perimeter buffers.
- Existing trees greater than 18" in diameter 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 either onsite or at an alternative location approved by Town Planning Staff, above and beyond standard UDO requirements.

Public Facilities:

The Chapel Ridge North PUD will be served by Town of Apex water, sanitary sewer, and electrical systems. The utility design will be finalized at Master Subdivision Plan review. A conceptual Utility Plan is included in the PUD Plan for reference. The ultimate design for the utilities shall meet the current Town of Apex Master Water and Sewer Plans for approval.

This PUD shall go above the stormwater management requirements for quality and quantity treatment outlined in Section 6.1.7 of the UDO such that:

- Post development peak runoff shall not exceed pre-development peak runoff conditions for the 1 year, 10-year, 25-year, and 24-hour storm events.
- Treatment for the first 1 inch of runoff will provide 85% removal of total suspended solids.

Acceptable stormwater structures shall include detention ponds, constructed wetlands, bio-retention areas, or other approved devices consistent with the NC DEQ Stormwater Design Manual and the Town of Apex UDO.

Apex Transportation Plan/Access and Circulation:

Pedestrian Facilities:

Per the proposed Apex Bicycle and Pedestrian System Plan Map amendment, future sidepath is shown being extended along the northern and eastern side of Chapel Ridge Road. The following facilities will be provided to contribute to a walkable community within and surrounding the Chapel Ridge North development:

- Five-foot wide public sidewalk along the western side of Chapel Ridge Road public right-of-way fronting the development.
- Ten-foot wide side path along the eastern and northern side of Chapel Ridge Rd adjacent to land that's a part of this rezoning application.
- Sidewalks along entry drives and parking areas will comply with the UDO.
- Five-foot wide sidewalk along the south side of Ackerman Drive fronting the project.
- A crosswalk will be provided from the future sidewalk on the south side of Ackerman Drive to the existing sidewalk on the north side of Ackerman Drive.
- Six-foot wide private walking trails throughout the development, locations to be determined at site plan.

Transit:

The Apex Transit Plan Map shows GoApex Route 1 turning around in Olive Chapel Professional Park. The Town was only able to negotiate a 5-year lease with the owners of the Professional Park. By connecting Chapel Ridge Road to Beaver Creek Commons Drive, the development will provide a natural turnaround for the Town's first transit line and provide natural access to the residents in the proposed apartments.

The developer shall design, construct and install a bus stop along the west side of Chapel Ridge Road in a location mutually agreed to by the developer and the Traffic Engineering Manager. The bus stop shall include an 8 x 30-

foot pad, bench, and bike rack. Construction costs for the bus stop shall not exceed a maximum of $25,000 (the "Cost Limit"). In the event construction costs exceed the Cost Limit, the developer may elect to either (a) pay a fee in lieu of $25,000 for the bus stop, or (b) design and construct the bus stop despite construction costs exceeding the Cost Limit. The bus stop shall be shown on the overall site plan and designed, approved, and constructed concurrently with the project.

Road Improvements:

Per the proposed Apex Thoroughfare and Collector Street Plan map amendment, Chapel Ridge Road is designated as an existing 2-lane Minor Collector and is shown connecting to Beaver Creek Commons Drive just north of the Jordan Lutheran Church property. The developer will dedicate right-of-way along their property frontage on Chapel Ridge Road to meet the requirements shown in Advance Apex.

Roadway improvements are subject to modification and final approval by the Town of Apex and NCDOT as part of the Master Subdivision Plan review and approval process. A Traffic Impact Analysis has been performed as part of this PUD rezoning consistent with the Town's standards for the same. Based upon the Traffic Impact Analysis, the following traffic improvements are proposed for this development:

1. All proposed driveway access and improvements on state-maintained roadways are subject to both Apex and NCDOT review and approval. This includes proposed access to Chapel Ridge Road and any modifications to Chapel Ridge Road.
2. Chapel Ridge Road shall be extended north to connect to Beaver Creek Commons Drive (the "Road Extension") in the approximate location shown on the Concept Plan. The Road Extension shall be constructed to Town of Apex standards and specifications. At the site plan stage, the portion of the Road Extension shown in pink on the Concept Plan and labeled "Public ROW" shall be dedicated to the Town as public right-of-way (the "Public ROW Section"). The portion of the Public ROW Section south of the shared property line with PIN 0732366134 shall have a minimum ROW width of 60 feet and be constructed to the Minor Collector Street standard. The portion of the Public ROW Section across PIN 0732258769 shall have a minimum ROW width of 50 feet. The portion of the Road Extension shown in orange on the Concept Plan and labeled "Private drive with minimum 45' public access easement" (the "Easement Section") shall be subject to a recorded public access and maintenance agreement with a minimum easement width of 45 feet. The public access and maintenance agreement shall be approved by the Planning Director as to form.
3. The center turn lane on Beaver Creek Commons Drive shall be restriped to provide 75 feet of southbound left turn storage and 75 feet of taper at the site driveway.

ENVIROMENTAL ADVISORY BOARD:

The Apex Environmental Advisory Board (EAB) held a pre-application meeting for this rezoning on February 17, 2022. The zoning conditions suggested by the EAB are listed below along with the applicant's response to each condition.

EAB Suggested Conditions	Applicant's Response
5% of all required motor vehicle spaces shall be electric vehicle charging spaces	Added
Locate the EV charging stations such that the charging cables do not cause a trip hazard across the sidewalks.	Added
A minimum of 3 pet waste stations shall be installed (at least one per building).	Added
Exterior lighting shall be shielded in a way that focuses lighting to the ground.	Added
Increase biodiversity.	Added
Plant pollinator-friendly flora.	Added

EAB Suggested Conditions	Applicant's Response
Plant native flora (Refer to the Apex Design & Development Manual for approved native species).	Added
Implement green infrastructure.	Not added
Provide diverse and abundant pollinator and bird food sources (e.g. nectar, pollen, and berries from blooming plants) that bloom in succession from spring to fall.	Added
Add information signage or other marking at the boundary of lots when they are adjacent to a wooded or natural condition resource conservation area (RCA) indicating that the area beyond the sign is RCA and is not to be disturbed.	Added
If possible, increase the type A buffer width from 15 feet to 20 feet in order to increase the distance between site line and the adjacent church.	Added
Add 75-kW of solar PV in total over all three buildings on site.	Not added
Apply for green building certifications, such as LEED, Energy Star, BREEAM, Green Globes, NGBS Green, or GreenGuard.	Added

Parks, Recreation, and Cultural Resources Advisory Commission:

The Parks, Recreation, and Cultural Resources Advisory Commission reviewed the Chapel Ridge North Planned Unit Development at their April 17, 2022 meeting. The Advisory Commission unanimously recommended fee-in-lieu of dedication. The fee per unit will be $2,226.05.

PLANNING STAFF RECOMMENDATION:

Planning staff recommends approval of Rezoning #22CZ07 Chapel Ridge North PUD as proposed by the applicant.

PLANNING BOARD RECOMMENDATION:

Planning Board held a Public Hearing on July 11, 2022 and voted 4 to 2 to recommend approval of the rezoning with the conditions offered by the applicant. The reasons provided for the dissenting votes were a lack of cohesion, lack of communication on the Town's part, insufficient space in schools, and incompatible architectural context and scale.

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 Medium Density Residential designation permits up to 7 dwelling units per acre and does not permit apartments. Chapel Ridge North PUD proposes 370 dwelling units on 20.62 acres, or approximately 17.94 dwelling units per acre. If the properties are rezoned as proposed, the 2045 LUM will automatically be amended to High Density Residential per NCGS 160D-605(a). The proposed rezoning to Planned Unit Development–Conditional Zoning (PUD-CZ) will provide the flexibility to accommodate the growth in population, economy, and infrastructure consistent with that contemplated by the 2045 Land Use Map.
>
> The proposed rezoning is reasonable and in the public interest because it will provide for infill redevelopment that serves as a transition from the large commercial development to the north while being compatible with the scale of the townhome development to the east. The rezoning will also require more energy efficient housing, improve local transit options, and offer affordable housing units. The proximity to large shopping centers, bus stops, and greenways will encourage residents to walk, bike, or take transit to local destinations and the proximity to regional highways provides easy access to that network, thus

reducing the impacts of a similar amount of traffic on the local street network. The compact nature of the proposed development lowers the cost per capita of providing and maintaining public services and infrastructure while also ensuring the protection of open space.

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 2045 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 10% provided that the PD Plan for PUD-CZ includes one or more of the following:

(i) A non-residential component; (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 2045 Land Use Map.

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 Planned Unit Development-Conditional Zoning (PUD-CZ) designation demonstrates compliance with the following standards. 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 2045 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 2045 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.

April 7, 2022

Kevin Dean
Kimley-Horn & Associates, Inc.
300 S. Main Street, Suite 212
Holly Springs, NC 27540

Subject: **Staff summary and comments for the Chapel Ridge Apartments TIA, 3/1/2022**

Mr. Dean:

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 development via five (5) intersections:

- Beaver Creek Commons Drive and Proposed Site Access
- Chapel Ridge Road and Proposed Site Access/North Site Driveway
- Chapel Ridge Road and Central Site Driveway
- Chapel Ridge Road and South Site Driveway
- Ackerman Hill Drive and Site Driveway

Additionally, the TIA studied the following four (4) intersections within the study area:

- Kelly Road and Wendhurst Court/Beaver Creek Commons Drive
- Olive Chapel Road and Chapel Ridge Road
- Chapel Ridge Road and Ackerman Hill Drive
- Beaver Creek Commons Drive and Creekside Landing Drive

Trip Generation

The proposed development is expected to consist of 350 apartment units. The development is projected to generate approximately 30 new trips entering and 87 new trips exiting the site during the weekday A.M. peak hour and 90 new trips entering and 57 new trips exiting the site during the weekday P.M. peak hour. The development is projected to add a total of 1,906 daily trips onto the adjacent roadway network.

Background traffic

Background traffic consists of 3% annual background traffic growth compounded to build out year 2025, and a portion of the Olive Chapel Professional Park (50% of build-out traffic). It should be noted that traffic from the adjacent Chapel Ridge Townhomes development was evaluated as a supplemental analysis but not included in the background traffic as the development had not yet been rezoned by Town Council at the time this TIA was prepared. It also happened to be below the trip threshold for requiring a TIA by itself and is providing additional direct full movement access on Olive Chapel Road, which will minimize potential traffic impacts to Chapel Ridge Road from that development plan.

Trip Distribution and Assignment

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

- 40% to/from the north on Kelly Road (via Beaver Creek Commons Drive)
- 20% to/from the east on Beaver Creek Commons Drive
- 15% to/from the east on Olive Chapel Road
- 15% to/from the west on Olive Chapel Road
- 10% to/from the north on Creekside Landing Drive

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 9 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 2021** - Existing year 2021 traffic counts.
- **No Build 2025** – Projected year (2025) with background traffic growth and committed improvements by others, where applicable.
- **Build 2025 –** Projected year (2025) with background traffic, and site build-out including recommended improvements, where applicable.

Beaver Creek Commons Drive and Proposed Site Access

Table 1. A.M. / P.M. Unsignalized Peak Hour Levels of Service Beaver Creek Commons Drive and Proposed Site Access	
	Build 2025
Overall	NA
Westbound (Site Access)	*B / B[1]*
Northbound (Beaver Creek Commons Drive)	*NA*
Southbound (Beaver Creek Commons Drive)	*A / A[2]*

1. Level of service for stop-controlled minor street approaches.
2. Level of service for major street left turn.

TIA recommendations:

- The TIA recommends construction of Proposed Site Access approximately half-way between the proposed Jordan Lutheran Church (200 feet to the south) and the existing Beaver Creek Crossing mall alley (200 feet to the north). The TIA recommends the Site Access be constructed as a stop-controlled, privately maintained driveway with one lane of ingress and one lane of egress. Additionally, the TIA recommends restriping the two-way left turn lane of Beaver Creek Commons Drive to provide for a 100-foot left turn storage bay in the southbound direction of travel.

Apex staff recommendations:

- There's an existing driveway and gravel road that serves a sanitary sewer pump station, just a few feet north of the Proposed Site Access. Apex staff recommends that the Proposed Site Access driveway is constructed to serve both the apartment site and the existing pump station to reduce the number of driveways and potential turn movement conflicts through this short stretch of frontage along Beaver Creek Commons Drive. The Proposed Site Access should provide a public access easement up to its termination point with the Chapel Ridge Road extension. Apex staff also recommends the center turn lane on Beaver Creek Commons Drive be restriped to provide 75 feet of southbound left turn storage and 75 feet of taper at the Proposed Site Driveway.

- The intersection is projected to operate at LOS B or better for all movements. Additionally, Apex staff reviewed right turn warrants for this location. Based on the p.m. peak hour projected traffic volumes, a right turn taper is warranted per NCDOT guidelines. However, due to the context of this roadway facility (35 mph thoroughfare with many closely spaced commercial access points), a right turn lane is not recommended at this location.

Chapel Ridge Road and Proposed Site Access/North Site Driveway

Table 2. A.M. / P.M. Unsignalized Peak Hour Levels of Service Chapel Ridge Road and Proposed Site Access/North Site Driveway	
	Build 2025
Overall	NA
Eastbound (Proposed Site Access)	*NA*
Westbound (North Site Driveway)	*A / A*[2]
Northbound (Chapel Ridge Road)	*A / A*[1]

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

TIA recommendations:

- The TIA recommends realignment and extension of Chapel Ridge Road by approximately 550 feet to the north, from its existing terminus point at the cul-de-sac, to the Proposed Site Access. The TIA proposes that the Chapel Ridge Road extension is constructed as a two-lane, two-way, public roadway on 60 feet of right of way, with stop control at the intersection of the Proposed Site Access and North Site Driveway.

Apex staff recommendations:

- Apex staff concur with the realignment and extension of Chapel Ridge Road as a two-way, two lane road. Additionally, Apex staff recommends coordination with the Jordan Lutheran Church to connect their southern driveway to the realigned roadway, and to remove the existing asphalt driveway on their site that extends south to the existing Chapel Ridge Road cul-de-sac. The realignment of the road, as proposed, will cause an issue with the existing asphalt drive connection and should be addressed as part of this development plan.
- The proposed intersection of Chapel Ridge Road and the Proposed Site Access / North Site Driveway is projected to operate at LOS A for all intersection movements during both peak hours of the day.

Chapel Ridge Road and Central Site Driveway

Table 3. A.M. / P.M. Unsignalized Peak Hour Levels of Service Chapel Ridge Road and Central Site Driveway	
	Build 2025
Overall	NA
Eastbound (Chapel Ridge Road)	*A / A*[2]
Westbound (Chapel Ridge Road)	*A / A*[2]
Northbound (Central Site Driveway)	*A / A*[1]
Southbound (Central Site Driveway)	*A / A*[1]

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

TIA recommendations:

- The TIA recommends construction of the Central Site Driveway as a privately maintained two-lane, two-way roadway with stop-control on both minor street approaches at the intersection with Chapel Ridge Road.

Apex staff recommendations:

- Apex staff concur with the recommendation in the TIA. All movements are projected to operate at LOS A at this intersection during both peak hours of the day.

Chapel Ridge Road and South Site Driveway

Table 4. A.M. / P.M. Unsignalized Peak Hour Levels of Service Chapel Ridge Road and South Site Driveway	
	Build 2025
Overall	NA
Eastbound (Chapel Ridge Road)	*A / A*[2]
Westbound (Chapel Ridge Road)	*A / A*[2]
Northbound (South Site Driveway)	*A / A*[1]
Southbound (South Site Driveway)	*A / A*[1]

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

TIA recommendations:

- The TIA recommends construction of the South Site Driveway as a privately maintained two-lane, two-way roadway with stop-control on both minor street approaches at the intersection with Chapel Ridge Road.

Apex staff recommendations:

- Apex staff concur with the recommendation in the TIA. All movements are projected to operate at LOS A at this intersection during both peak hours of the day.

Ackerman Hill Drive and Site Driveway

Table 5. A.M. / P.M. Unsignalized Peak Hour Levels of Service Ackerman Hill Drive and Site Driveway	
	Build 2025
Overall	NA
Eastbound (Ackerman Hill Drive)	*NA*
Westbound (Ackerman Hill Drive)	*A / A*[2]
Northbound (Site Driveway)	*A / A*[1]

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

TIA recommendations:

- The TIA recommends construction of Site Driveway as a privately maintained two-lane, two-way roadway with stop-control at the intersection with Ackerman Hill Drive.

Apex staff recommendations:

- Apex staff concur with the recommendation in the TIA. All movements are projected to operate at LOS A at this intersection during both peak hours of the day.

Kelly Road and Wendhurst Court/Beaver Creek Commons Drive

Table 6. A.M. / P.M. Signalized Peak Hour Levels of Service Kelly Road and Wendhurst Court/Beaver Creek Commons Drive			
	Existing 2021	**No Build 2025**	**Build 2025**
Overall	B / C	B / C	B / C
Eastbound (Wendhurst Court)	*C / B*	*C / B*	*C / B*
Westbound (Beaver Creek Commons Drive)	*E / D*	*E / D*	*D / D*
Northbound (Kelly Road)	*A / B*	*A / B*	*A / B*
Southbound (Kelly Road)	*A / C*	*A / C*	*A / C*

TIA recommendations:

- The TIA recommends no improvements at this intersection. The TIA also notes that development traffic is projected to account for approximately 3% of total intersection traffic, and the overall level of service (LOS B and C in the AM and PM peak hours respectively), is not projected to change with or without the development.

Apex staff recommendations:

- Apex staff concur with the recommendation in the TIA. All approaches are projected to operate at LOS D or better in the build scenario. As noted in the TIA, the westbound approach improves from LOS E to D in the AM peak hour from the No Build to the Build scenario. That improvement is negligible and due to the addition of site trips to movements already operating with adequate capacity and the associated weighted-average methodology for delay calculations.

Olive Chapel Road and Chapel Ridge Road

Table 7. A.M. / P.M. Unsignalized Peak Hour Levels of Service Olive Chapel Road and Chapel Ridge Road			
	Existing 2021	**No Build 2025**	**Build 2025**
Overall	NA	NA	NA
Eastbound (Olive Chapel Road)	*A / A[2]*	*A / A[2]*	*A / A[2]*
Westbound (Olive Chapel Road)	*NA*	*NA*	*NA*
Southbound (Chapel Ridge Road)	*B / B[1]*	*B / C[1]*	*B / C[1]*

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

TIA recommendations:

- The TIA recommends no improvements at this intersection.

Apex staff recommendations:

- Apex staff concur with the recommendation in the TIA. All movements are projected to operate at LOS C or better in the build scenario during both peak hours. 95th percentile queues are not projected to exceed 25 feet on the stop-controlled southbound approach. An eastbound left turn lane on Olive Chapel Road already exist to store the major street left turn queues.

Chapel Ridge Road and Ackerman Hill Drive

Table 8. A.M. / P.M. Unsignalized Peak Hour Levels of Service Chapel Ridge Road and Ackerman Hill Drive			
	Existing 2021	**No Build 2025**	**Build 2025**
Overall	NA	NA	NA
Westbound (*Ackerman Hill Drive*)	*A / A[1]*	*A / A[1]*	*A / A[1]*
Northbound (Chapel Ridge Road)	*NA*	*NA*	*NA*
Southbound (Chapel Ridge Road)	*A / A[2]*	*A / A[2]*	*A / A[2]*

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

TIA recommendations:

- The TIA recommends no improvements at this intersection.

Apex staff recommendations:

- Apex staff concur with the recommendation in the TIA. All movements are projected to operate at LOS A in the build scenario during both peak hours.

Beaver Creek Commons Drive and Creekside Landing Drive (Roundabout)

Table 9. A.M. / P.M. Unsignalized Roundabout Peak Hour Levels of Service Beaver Creek Commons Drive and Creekside Landing Drive			
	Existing 2021	**No Build 2025**	**Build 2025**
Overall	A / A	A / A	A / B
Eastbound (Beaver Creek Commons Drive)	*A / A*	*A / A*	*A / B*
Westbound (*Beaver Creek Commons Drive*)	*A / A*	*A / A*	*A / B*
Northbound (Creekside Landing Drive)	*A / A*	*A / B*	*A / B*
Southbound (Creekside Landing Drive)	*A / A*	*A / A*	*A / A*

TIA recommendations:

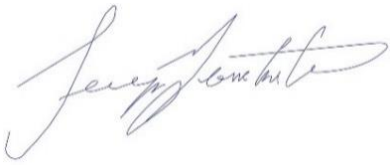
- The TIA recommends no improvements at this intersection.

Apex staff recommendations:

- Apex staff concur with the recommendation in the TIA. All approaches are projected to operate at LOS B or better in the build scenario during both peak hours. The roundabout is projected to have ample capacity to handle future traffic growth from 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 #22CZ07
Beaver Creek Crossings
Peak 502 at Beaver Creek
Chapel Ridge
Hempstead at Beaver Creek
RAMP US 64 EB to NC 540 SB
NC 540 Hwy SB
RAMP NC 540 NB to US 64 EB
NC 540 Hwy NB
Beaver Creek Commons Dr
Chattering Lory Ln
Diamond Dove Ln
Clark Farm Rd
Chapell Ridge Rd
Ackerman Hill Dr
Whitesmith Dr
Loresman Aly
Old Chapman Dr
Brownsmith Dr
Housewright Aly
Drayman Pl
Tillman Aly
Knacker Aly
540
540
0
250
500
Feet
May 2022
February 2022 Aerial Photography
Prepared by: Town of Apex Planning Department

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 #: _____ Submittal Date: March 1, 2022

Fee Paid $ _____ Check # _____

PETITION TO AMEND THE OFFICIAL ZONING DISTRICT MAP

Project Name: Chapel Ridge

Address(es): See attached Application Exhibit A

PIN(s) See attached Application Exhibit A

Acreage: 20.62 acres

Current Zoning: Rural Residential (RR) Proposed Zoning: Planned Unit Development- Conditional Zoning (PUD-CZ)

Current 2045 LUM Designation: Medium Density Residential

Is the proposed rezoning consistent with the 2045 LUM Classification(s)? Yes ☐ No ☒

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: N/A

Area proposed as non-residential development: Acreage: N/A

Percent of mixed use area proposed as non-residential: Percent: N/A

Applicant Information

Name: High Street District Development, Inc., c/o Matthew Carpenter

Address: 301 Fayetteville Street, Suite 1400

City: Raleigh State: NC Zip: 27601

Phone: (919) 835-4032 E-mail: matthewcarpenter@parkerpoe.com

Owner Information

Name: See attached Exhibit A

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ E-mail: _____

Agent Information

Name: Josh Dix, High Street District Development, Inc. a Trammell Crow Company company

Address: 555 Fayetteville Street, Suite 300

City: Raleigh State: NC Zip: 27601

Phone: (919) 835-4032 E-mail: JDix@trammellcrow.com

Other contacts: _____

Exhibit A
To Chapel Ridge PUD-CZ Application
Owner Information Addendum

Parcel 1
Site Address: 1200 Chapel Ridge Road
PIN: 0732256180
Deed Reference (book/page): 12343/2193
Acreage: 5.27
Owner: Su Yueh Kao and Chi Chang Ho
Owner Address: 1200 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 2
Site Address: 1204 Chapel Ridge Road
PIN: 0732249869
Deed Reference (book/page): 8218/1726
Acreage: 1.71
Owner: Michael P. Mohan and Catherine A. Mohan
Owner Address: 1204 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 3
Site Address: 1205 Chapel Ridge Road
PIN: 0732352538
Deed Reference (book/page): 12171/2059
Acreage: 2.48
Owner: Douglas Cox and Carrie Cox
Owner Address: 1205 Chapel Hill Road, Apex, NC 27502-8502

Parcel 4
Site Address: 1209 Chapel Ridge Road
PIN: 0732354594
Deed Reference (book/page): 6236/386
Acreage: 3.0
Owner: Ronald L. Stringari, and Katherine L. Stringari
Owner Address: 1209 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 5
Site Address: 1220 Chapel Ridge Road
PIN: 0732343920
Deed Reference (book/page): 4168/302
Acreage: 2.88
Owner: Larry L. Carlson and Kathi E. Carlson
Owner Address: 1220 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 6
Site Address: 1225 Chapel Ridge Road
PIN: 0732347912
Deed Reference (book/page): 9720/361
Acreage: 2.13
Owner: Tigh M. Dundieff and Diane Cundieff
Owner Address: 1225 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 7
Site Address: 1512 Clark Farm Road
PIN: 0732340602
Deed Reference (book/page): 5351/223
Acreage: 2.34
Owner: David D. Sherry and Ethel V. Sherry
Owner Address: 1512 Clark Farm Road, Apex, NC 27502-8500

PLANNED UNIT DEVELOPMENT APPLICATION

Application #: _____ Submittal Date: March 1, 2022

PLANNED UNIT DEVELOPMENT DISTRICT 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. The PD text and plan should demonstrate how the standards of Sec. 2.3.4.F are met be the proposed rezoning.

LEGISLATIVE CONSIDERATIONS - CONDITIONAL ZONING

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. Use additional pages as needed.

1) *Consistency with 2045 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 2045 Land Use Map.

Although the proposed development contemplates greater density than recommended by the property's Medium Density Residential Land Use Map ("LUM") designation, it is generally consistent with the purposes, goals, objectives, and policies of the Apex Comprehensive Plan (the "Comp Plan"). The proposed development will place additional housing density in close proximity to existing services, transit, restaurants, retail, and future transit; consistent with the Comp Plan goals of providing a variety of housing types, a variety of transportation options to enhance mobility, and walkable, mixed-use developments and pedestrian-oriented streets.

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

The proposed development will place housing density in an appropriate location - directly adjacent to the Beaver Creek Shopping Center, within walking distance of a future transit stop, and in close proximity to 540 and US-64. It will offer a density/land use intensity transition from higher intensity commercial uses to the north to lower intensity townhomes and single-family detached homes to the south. Appropriate buffers and Resource Conservation Areas ("RCAs") will be located to mitigate negative effects on neighboring properties.

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

The proposed PUD-CZ will comply with any applicable standards in UDO Section 4.4.

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.

Buffers and RCAs have been located to help minimize adverse effects on adjacent properties. Trash, parking and loading, and odors will be screened from adjacent uses as required by the UDO and as et forth in the PUD. The PUD text contains a condition that prevents dumpsters from being placed in close proximity to existing homes to the south. The extension of Chapel Ridge Road to the north will improve connectivity in the area and route traffic north to Beaver Creek Commons Drive rather than south past the existing single-family detached homes on Chapel Ridge. Additionally, the PUD text contains a condition that exterior lighting shall be focused towards the ground.

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.

The property is not within a designated current or future 100 year floodplain but is located within the Beaver Creek Drainage Basin. Accordingly, the property is within the Primary Watershed Protection Overlay District as shown on the Town of Apex Watershed Protection Map. This PUD will comply with all built upon area, vegetated conveyances, structural SCMs and riparian stream buffer requirements of UDO Section 6.1.7. The PUD will include a minimum 20% RCA. Further, the PUD text contains additional environmental commitments including electric vehicle charging stations and installation of pet waste stations.

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.

The proposed development will improve access to public facilities and services. The Chapel Ridge Road extension will improve traffic circulation in the area and the project will place additional housing in close proximity to a future transit stop. The project will also extend water and sewer infrastructure south along Chapel Ridge Road which may facilitate future connections to Town services.

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.

The proposed multi-family community will have a positive effect on the health, safety, and welfare of Town residents by providing additional housing types in a well-connected location.

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

The proposed multi-family community will not be detrimental to adjacent properties. RCAs and buffers - together with other conditions contained in the PUD text - will help mitigate negative effects on 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.

The proposed development will not constitute a nuisance or hazard. Traffic impacts will be mitigated by the northern extension of Chapel Ridge Road. Buffers, RCAs, and conditions on lighting will help mitigate negative effects on adjacent properties.

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.

The PUD will be governed by the regulations contained in the attached PUD Text and Concept Plan. The PUD will comply with all other regulations of the UDO to the extent they do not conflict with the PUD regulations.

DEVELOPMENT NAME APPROVAL APPLICATION

Application #: _____ Submittal Date: _____

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

DEVELOPMENT NAME APPROVAL APPLICATION

Application #: _____ Submittal Date: _____

Proposed Subdivision/Development Information

Description of location: 1200;1204;1205;1209;1220; &1225 Chapel Ridge Road and 1512 Clark Farm Road

Nearest intersecting roads: Chapel Ridge Road/Olive Chapel Road

Wake County PIN(s): See attached Application Exhibit A

Township: White Oak

Contact Information (as appropriate)

Contact person: High Street District Development, Inc., c/o Matthew Carpenter

Phone number: (919) 835-4032 Fax number: N/A

Address: 301 Fayetteville Street, Suite 1400, Raleigh, NC 27601

E-mail address: matthewcarpenter@parkerpoe.com

Owner: See attached Application Exhibit A

Phone number: _____ Fax number: _____

Address: _____

E-mail address: _____

Proposed Subdivision/Development Name

1st Choice: Chapel Ridge

2nd Choice *(Optional)*: _____

Town of Apex Staff Approval:

_____ _____

Town of Apex Planning Department Staff Date

TOWN OF APEX UTILITIES OFFER AND AGREEMENT

Application #: _____ Submittal Date: _____

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

WAKE COUNTY, NORTH CAROLINA CUSTOMER SELECTION AGREEMENT

1200;1204;1205;1209;1220; &1225 Chapel Ridge Road

and 1512 Clark Farm 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.

High Street District Development, Inc., 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:	High Street District Development, Inc.	TOWN OF APEX	
BY:	_____ Authorized Agent	BY:	_____ Authorized Agent
DATE:	3/1/2022	DATE:	_____

AFFIDAVIT OF OWNERSHIP

Application #: _____ Submittal Date: _____

The undersigned, Joshua Dix of High Street District Development, Inc. (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 authorized agent of all owners, of the property located 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. Affiant possesses documentation indicating the agency relationship granting the Affiant the authority to apply for development approval on behalf of the owner(s).

4. To Affiant's knowledge, no claim or action has been brought against the owners of the property which questions title or right to possession of the property, nor is any claim or action pending against Affiant or owenr(s) in court regarding possession of the property.

5. This the 1st day of March, 2022.

_____ (seal)
Joshua Dix

STATE OF NORTH CAROLINA
COUNTY OF Wake

I, the undersigned, a Notary Public in and for the County of Wake, hereby certify that Joshua Dix, Affiant, personally known to me or known to me by said Affiant's presentation of said Affiant's Joshua Dix, personally appeared before me this day and acknowledged the due and voluntary execution of the foregoing Affidavit.

[NOTARY SEAL]

MATTHEW JOEL CARPENTER
Notary Public
Wake
County
NORTH CAROLINA

_____
Notary Public Matthew J. Carpenter
State of North Carolina
My Commission Expires: 2/7/2024

AGENT AUTHORIZATION FORM

Application #: _____ Submittal Date: _____

Larry L. Carlson and Kathi E. Carlson 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: 1220 Chapel Ridge Road, Apex, NC 27502-8502

The agent for this project is: Josh Dix

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

Agent Name: Josh Dix

Address: 555 Fayetteville Street, Suite 300, Raleigh, NC 27601

Telephone Number: (919) 835-4032

E-Mail Address: JDix@trammellcrow.com

Signature(s) of Owner(s)*

DocuSigned by:
Larry L. Carlson
AF7F6591C7A7416...

Larry L. Carlson — March 1, 2022

Type or print name — Date

DocuSigned by:
Kathi E. Carlson
BE5DD374CDBC4E0...

Kathi E. Carlson — March 1, 2022

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 #: _____ Submittal Date: _____

Douglas Cox and Carrie Cox 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: 1205 Chapel Ridge Road, Apex, NC 27502-8502

The agent for this project is: Josh Dix

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

Agent Name: Josh Dix

Address: 555 Fayetteville Street, Suite 300, Raleigh, NC 27601

Telephone Number: (919) 835-4032

E-Mail Address: JDix@trammellcrow.com

Signature(s) of Owner(s)*

DocuSigned by:
D65B083B916F411...

Douglas Cox — Type or print name — March 1, 2022 — Date

DocuSigned by:
Carrie Cox
15AFD993F11F4FA...

Carrie Cox — Type or print name — March 1, 2022 — 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 #: _____ Submittal Date: _____

Tigh M. Cundieff and Diane Cundieff 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: 1225 Chapel Ridge Road, Apex, NC 27502-8502

The agent for this project is: Josh Dix

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

Agent Name: Josh Dix

Address: 555 Fayetteville Street, Suite 300, Raleigh, NC 27601

Telephone Number: (919) 835-4032

E-Mail Address: JDix@trammellcrow.com

Signature(s) of Owner(s)*

DocuSigned by:
Tigh M. Cundieff
F1720FC8C951423...

Tigh M. Cundieff — Type or print name — February 28, 2022 — Date

DocuSigned by:
Dianne Cundieff
F1720FC8C951423...

Diane Cundieff — Type or print name — February 28, 2022 — 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 #: _____ Submittal Date: _____

Su Yueh Kao and Chi-Chang Ho 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: 1200 Chapel Ridge Road, Apex, NC 27502-8502

The agent for this project is: Josh Dix

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

Agent Name: Josh Dix

Address: 555 Fayetteville Street, Suite 300, Raleigh, NC 27601

Telephone Number: (919) 835-4032

E-Mail Address: JDix@trammellcrow.com

Signature(s) of Owner(s)*

DocuSigned by:
Su Yueh Kao
4D247A9C058E4C6...

Su Yueh Kao — February 28, 2022

Type or print name — Date

DocuSigned by:
Chi-Chang Ho
4D247A9C058E4C6...

Chi-Chang Ho — February 28, 2022

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 #: _____ Submittal Date: _____

Michael P. Mohan and Catherine A. Mohan 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: 1204 Chapel Ridge Road, Apex, NC 27502-8502

The agent for this project is: Josh Dix

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

Agent Name: Josh Dix

Address: 555 Fayetteville Street, Suite 300, Raleigh, NC 27601

Telephone Number: (919) 835-4032

E-Mail Address: JDix@trammellcrow.com

Signature(s) of Owner(s)*

DocuSigned by:
Michael Mohan
9AE7E08C69234D1...

February 28, 2022

Type or print name — Date

DocuSigned by:
Katherine A. Mohan
B1A01942099D408...

Catherine A. Mohan — February 28, 2022

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 #: _____ Submittal Date: _____

David D. Sherry and Ethel V. Sherry 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: 1512 Clark Farm Road, Apex, NC 27502-8500

The agent for this project is: Josh Dix

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

Agent Name: Josh Dix

Address: 555 Fayetteville Street, Suite 300, Raleigh, NC 27601

Telephone Number: (919) 835-4032

E-Mail Address: JDix@trammellcrow.com

Signature(s) of Owner(s)*

DocuSigned by:
David D. Sherry
B3F25F01A74C4F4...

David D. Sherry — February 28, 2022

Type or print name — Date

DocuSigned by:
Ethel V. Sherry
B3F25F01A74C4F4...

Ethel V. Sherry — February 28, 2022

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 #: _____ Submittal Date: _____

Katherine L. Stringari 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: 1209 Chapel Ridge Road, Apex, NC 27502-8502

The agent for this project is: Josh Dix

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

Agent Name: Josh Dix

Address: 555 Fayetteville Street, Suite 300, Raleigh, NC 27601

Telephone Number: (919) 835-4032

E-Mail Address: JDix@trammellcrow.com

Signature(s) of Owner(s)*

DocuSigned by:
7AF31F0B349A412...

Katherine L. Stringari — Type or print name

March 10, 2022 — 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.

Exhibit A
to Affidavit of Ownership
Legal Description

Being all of lots 1, 2, 5, and 6 with no right-of-way taking as shown on book of maps 1987, page 556 in the Wake County Register of Deeds; all of lot 8 with no right-of-way taking as shown on book of maps 1987, page 1272 in the Wake County Register of Deeds; all of lot 10 with no right-of-way taking as shown on book of maps 1986, page 1627 in the Wake County Register of Deeds; and a portion of lot 3 as shown on book of maps 1987, page 556 with a right-of-way taking described in deed book 15527, page 772 in the Wake County Register of Deeds. Being more particularly described as follows.

Beginning at a point on the southern right-of-way line of Ackerman Hill Drive as shown on book of maps 2017, page 467, being the common corner of lands now or formally owned by MREC DT Beaver Creek LLC to the east as shown on book of maps 2006, page 1567; thence with the western line of MREC DT Beaver Creek LLC South 02°41'18" East a distance of 67.48 feet to an iron pipe, thence South 89°20'41" East a distance of 74.94 feet to an iron pipe, thence South 09°36'18" East a distance of 299.04 feet to an iron pipe, being the common corner of lands now or formally owned by MREC DT Beaver Creek LLC to the northeast and Daniel E. Corey, Et.Al. to the south as shown on book of maps 1987, page 1272; thence with the northern line of Daniel E. Corey, Et.Al. North 89°32'41" West a distance of 270.13 feet to an iron pipe, being the common corner on the eastern right-of-way line of Chapel Ridge Road as shown on book of maps 1987, page 1272; thence along the eastern right-of-way line of Chapel Ridge Road with a curve to the right a radius of 405.00 feet, an arc length of 50.19 feet, a chord bearing of South 03°10'24" East, a chord length of 50.16 feet to a point, thence North 89°32'50" West a distance of 50.00 feet to a point on the western right-of-way line of Chapel Ridge Road, being the common corner of land now or formally owned by James Patrick Serino and Melinda Busi to the south as shown on book of maps 1986, page 1627; thence leaving the right-of-way along the northern line of James Patrick Serino and Melinda Busi North 89°32'50" West a distance of 345.06 feet to an iron pipe, thence along the western line of the aforesaid land owners South 18°59'36" West a distance of 180.00 feet to a point, being the common corner of lands now or formally owned by James Patrick Serino and Melinda Busi to the northeast and Rita L. and Raymond V. Boykin Jr to the southeast as shown on book of maps 1986, page 1627; thence along the western line of Rita L. and Raymond V. Boykin Jr. South 18°59'39" West a distance of 269.66 feet to a point, being the common corner on the northern right-of-way line of Clark Farm Road as shown on book of maps 1986, page 1627; thence along the northern right-of-way line of Clark Farm Road with a curve to the left a radius of 2407.57 feet, an arc length of 172.19 feet, a chord bearing of North 71°16'12" West, a chord length of 172.15 feet to a point, thence with a curve to the right a radius of 25.00 feet, an arc length of 15.09 feet, a chord bearing of North 56°01'37" West, a chord length of 14.86 feet to a point, being the common corner of land now or formally owned by Christine and Frank A. Bria III to the west as shown on book of maps 1986, page 1627; thence leaving the northern right-of-way line with the eastern line of Christine and Frank A. Bria III North 01°00'50" West a distance of 364.22 feet to a point, thence along the northern line of the aforesaid land owners North 89°32'50" West a distance of 78.77 feet to a point, thence North 89°32'50" West a distance of 435.45 feet to a point, being the common corner of land now or formally owned by Christine and Frank A. Bria III to the south on the eastern right-of-way line of NC 540 HWY; thence along the eastern right-of-way line North 12°30'06" West a distance of 163.69 feet to a concrete monument; thence North 27°30'03" West a distance of 31.60 feet to a point, being the common corner of land now or formally owned by Shee Gopalprabhu LLC to the north, as described in deed book 18530, page 244, on the eastern right-of-way line of NC 540 HWY; thence leaving the right-of-way along the eastern line of Shee Gopalprabhu LLC

North 36°50'22" East a distance of 21.14 feet to a point, thence North 38°51'36" East a distance of 40.28 feet to a point, thence North 38°00'37" East a distance of 83.84 feet to a point, thence North 38°19'59" East a distance of 53.41 feet to a point, thence North 34°12'14" East a distance of 64.39 feet to a rebar, being the common corner of lands now or formally owned by Shee Gopalprabhu LLC to the west and Jordan Lutheran Church LLC to the northeast as shown on book of maps 1987, page 556; thence with the southern line of Jordan Lutheran Church LLC South 89°18'34" East a distance of 516.36 feet to an iron pipe, thence North 84°43'51" East a distance of 165.05 feet to an iron pipe, being the common corner on the southern right-of-way line of Chapel Ridge Road; thence along the right-of-way line with a curve to the right a radius of 50.00 feet, an arc length of 62.76 feet, a chord bearing of North 30°41'41" East, a chord length of 58.72 feet to a point, being the common corner of lands now or formally owned by Jordan Lutheran Church LLC to the west on the aforesaid right-of-way line; thence leaving the right-of-way along the eastern line of Jordan Lutheran Church LLC North 23°21'49" West a distance of 162.27 feet to an iron pipe, thence North 03°08'58" West a distance of 329.33 feet to an iron pipe, being the common corner of lands now or formally owned by Jordan Lutheran Church LLC to the southwest and CTO21 Apex LLC to the north as shown on book of maps 2021, page 1878; thence along the southern line of CTO21 Apex LLC North 88°45'08" East a distance of 388.91 feet to an iron pipe, thence North 88°45'08" East a distance of 47.28 feet to an iron pipe, thence North 88°42'10" East a distance of 177.95 feet to an iron pipe, being the common corner of lands now or formally owned by CTO21 Apex LLC to the northwest and MREC DT Beaver Creek LLC to the east; thence along the western line of MREC DT Beaver Creek LLC South 02°41'18" East a distance of 157.29 feet to a point, being the common corner of lands now or formally owned by MREC DT Beaver Creek LLC to the east and Michael J. Bishop to the south as shown on book of maps 1987, page 556; thence along the northern line of Michael J. Bishop South 51°53'36" West a distance of 297.36 feet to an iron pipe, thence along the western line of the aforesaid land owner South 25°27'10" West a distance of 274.97 feet to a point, being the common corner on the northern right-of-way line of Chapel Ridge Road; thence along the right-of-way line with a curve to the right a radius of 405.00 feet, an arc length of 118.06 feet, a chord bearing of South 56°11'36" East, a chord length of 117.64 feet to a point, thence with a curve to the right a radius of 405.00 feet, an arc length of 45.37 feet, a chord bearing of South 44°36'20" East, a chord length of 45.34 feet to a rebar, being the common corner on the southern right-of-way line of Ackerman Hill Drive and the northern right-of-way line of Chapel Ridge Road; thence leaving the Chapel Ridge Road right-of-way along the Ackerman Hill Drive right-of-way North 45°10'55" East a distance of 115.22 feet to a point, thence with a curve to the right a radius of 199.04 feet, an arc length of 145.84 feet, a chord bearing of North 66°19'50" East, a chord length of 142.60 feet to a point, thence North 87°15'57" East a distance of 28.56 feet to the point and place of beginning, containing an area of 898,352 square feet, 20.62 acres more or less.

WAKE COUNTY PUBLIC SCHOOL SYSTEM

Wake County Residential Development Notification

Please complete each section of this form and submit with your application.

Town of Apex staff will enter this information into the online WCPSS form.

Please send any questions about this form to:

studentassignment-gis-group@wcpss.net

Developer Company *Information*	
Company *Name*	High Street District Development, Inc.
Company Phone *Number*	202-295-3383
Developer Representative *Name*	Josh Dix
Developer Representative *Phone Number*	202-295-3383
Developer Representative *Email*	JDix@trammellcrow.com

New Residential Subdivision *Information*	
Date of Application for Subdivision	Unknown
City, Town or Wake County Jurisdiction	Town of Apex
Name of Subdivision	Chapel Ridge
Address of Subdivision (if unknown enter nearest cross streets)	Chapel Ridge Road
REID(s)	
PIN(s)	0732256180; 0732249869; 0732352538; 0732354594; 0732343920; 0732347912; 0732340602

Projected Dates *Information*	
Subdivision *Completion Date*	unknown
Subdivision *Projected First Occupancy Date*	Approx. 2026

Lot by Lot Development *Information*

Unit Type	Total # of Units	Senior Living	Studio	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom	Square Foot Range		Price Range		Anticipated Completion Units & Dates					
								Min	Max	Low	High	Year	# Units	Year	# Units	Year	# Units
Single Family																	
Townhomes																	
Condos																	
Apartments	370			222	148					unknown		2026	370				
Other																	

Revised 08/10/2018

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.

January 31, 2022
Date

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

See attached Exhibit A
Address(es)

See attached Exhibit A
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)):
The applicant is proposing to rezone the property to Planned Unit Development - Conditional Zoning District to facilitate the development of an amenitized multi-family community. Additional information will be provided at the meeting.

Estimated submittal date: March 1, 2022

MEETING INFORMATION:

Property Owner(s) name(s):	See attached Exhibit A
Applicant(s):	Josh Dix, Trammell Crow Company c/o Matthew Carpenter
Contact information (email/phone):	matthewcarpenter@parkerpoe.com; (919) 835-4032
Electronic Meeting invitation/call in info:	See accompanying letter with Zoom instructions
Date of meeting**:	February 16, 2022
Time of meeting**:	6:00 PM - 8:00 PM

MEETING AGENDA TIMES:
Welcome: 6:00 PM Project Presentation: between 6:00 - 8:00 PM Question & Answer: between 6:00 - 8:00 PM

**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: Chapel Ridge Zoning: Rural Residential (RR)

Location: See attached Exhibit A

Property PIN(s): See attached Exhibit A Acreage/Square Feet: 19.81 acres

Property Owner: See attached Exhibit A

Address:

City: State: Zip:

Phone: Email:

Developer: Trammell Crow Company, c/o Matthew Carpenter

Address: 301 Fayetteville Street, Suite 1400

City: Raleigh State: NC Zip: 27601

Phone: 919-835-4032 Fax: n/a Email: MatthewCarpenter@parkerpoe.com

Engineer: McAdams, attn. Kody Trowbridge

Address: One Glenwood, Suite 201

City: Raleigh State: NC Zip: 27603

Phone: 919-287-0841 Fax: n/a Email: trowbridge@mcadamsco.com

Builder (if known): n/a

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

January 31, 2022

Re: Notice of Virtual Neighborhood Meeting

Neighboring Property Owners:

You are invited to attend a neighborhood meeting on February 16, 2022 from 6–8pm. The purpose of the meeting is to discuss an upcoming application to rezone 7 parcels of land located at 1200 Chapel Ridge Road (PIN 0732256180), 1204 Chapel Ridge Road (PIN 0732249869), 1205 Chapel Ridge Road (PIN 0732352538), 1209 Chapel Ridge Road (PIN 0732354594), 1220 Chapel Ridge Road (PIN 0732343920), 1225 Chapel Ridge Road (PIN 0732347912), and 1512 Clark Farm Road (PIN 0732340602) (collectively, the "Property"). The Property is currently zoned Rural Residential (RR) and is proposed to be rezoned to Planned Unit Development-Conditional Zoning (PUD-CZ).

The applicant is proposing a rezoning to PUD-CZ to facilitate the development of an amenitized multi-family community. During the meeting, the applicant will describe the nature of this rezoning request and field any questions from the public. Enclosed are: (1) a vicinity map outlining the location of the subject parcel; (2) a zoning map of the subject area; (3) a preliminary concept plan; (4) a project contact information sheet; and (5) a common construction issues & who to call information sheet.

The meeting will be held virtually. You can participate online via Zoom or by telephone. To participate in the Zoom online meeting:

Visit:	https://zoom.us./join
Enter the following meeting ID:	893 2645 9717
Enter the following password:	329414

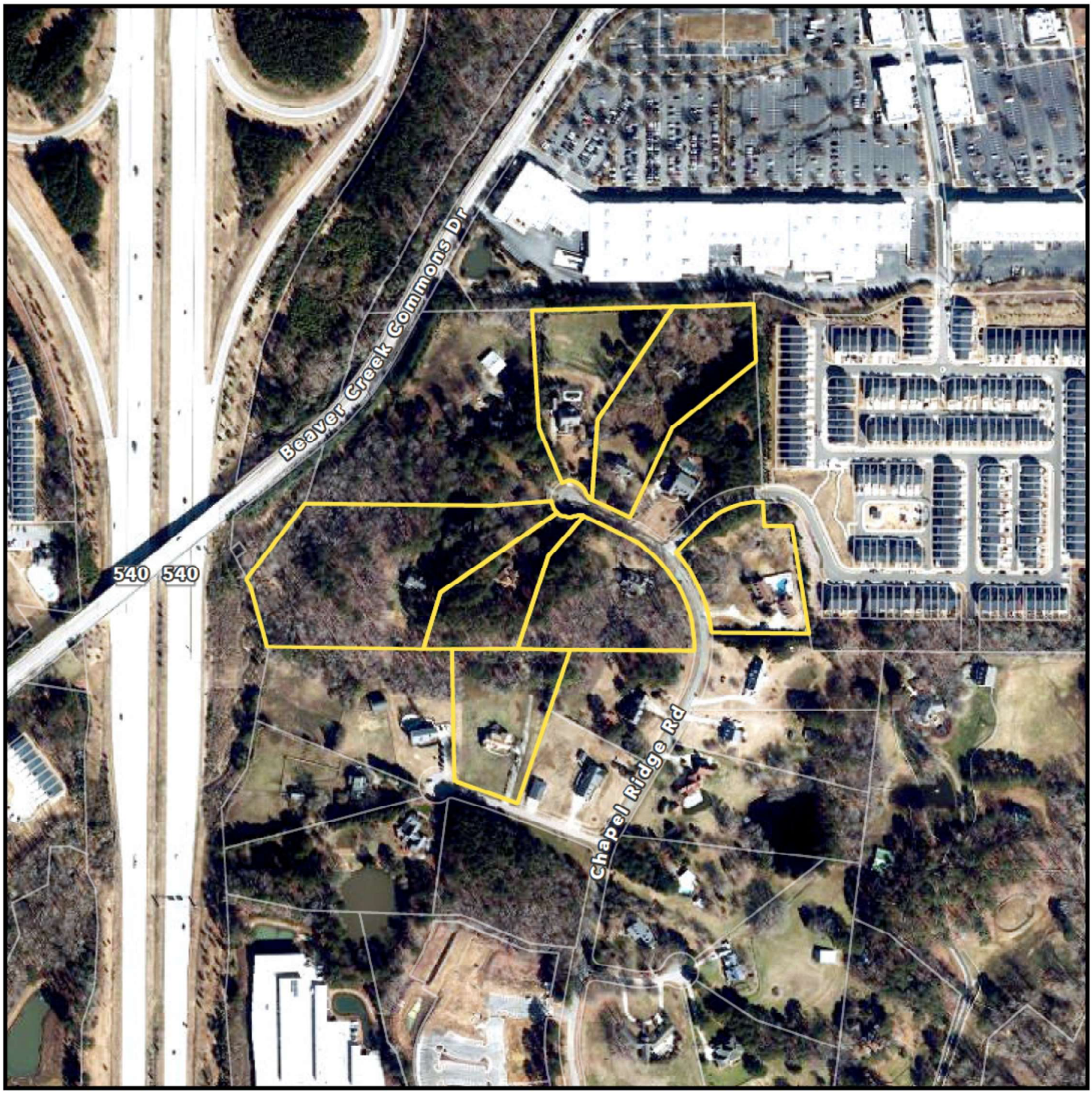
To participate by telephone:

Dial:	1 929 205 6099
Enter the following meeting ID:	893 2645 9717 #
Enter the Participant ID:	#
Enter the Meeting password:	329414 #

If you have any questions about this rezoning, please contact me at (919) 835-4032 or via email at matthewcarpenter@parkerpoe.com.

Thank you,

Matthew Carpenter



Rezoning of:

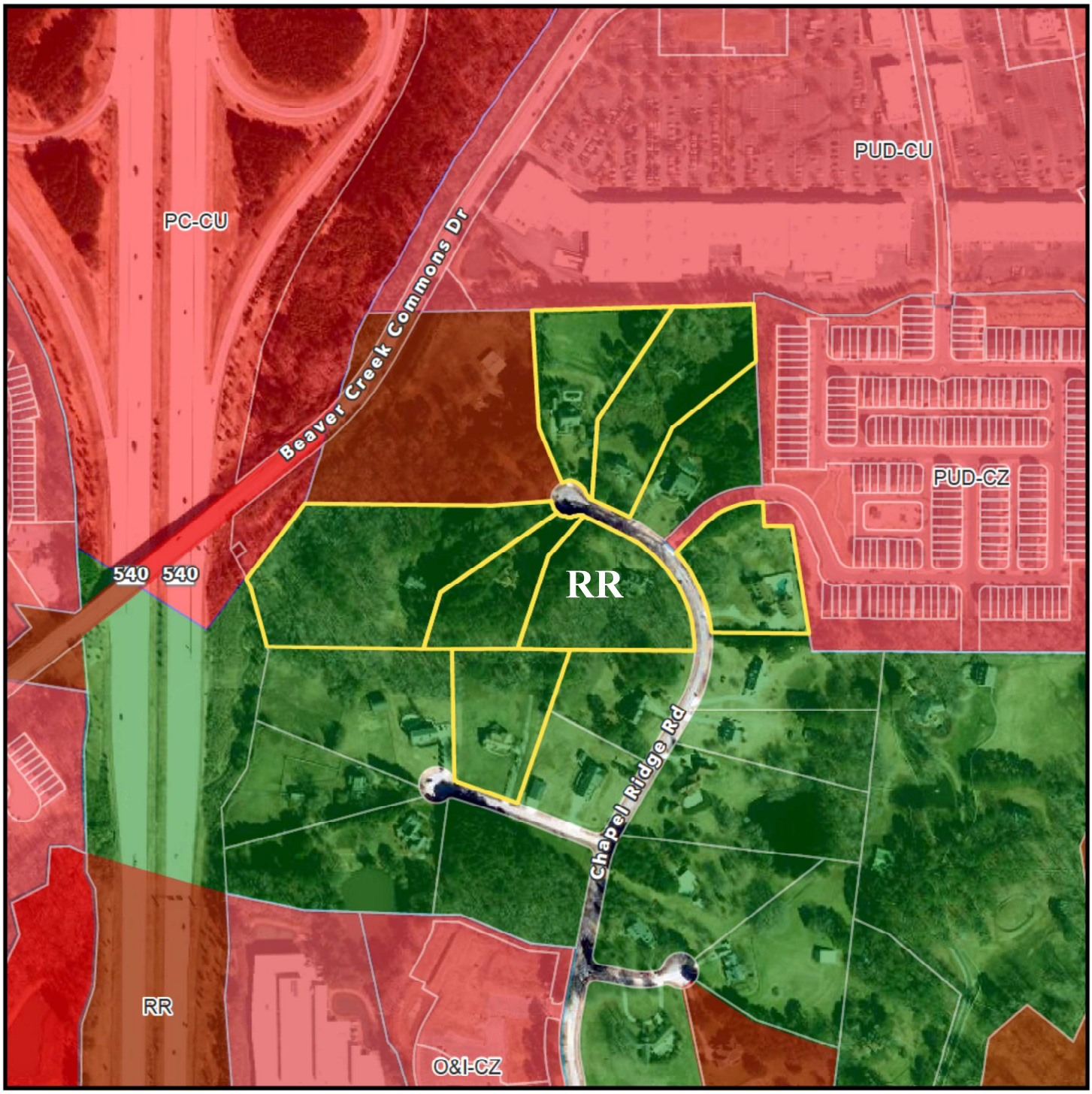
1220, 1204, 1205, 1209, 1220 and 1225 Chapel Ridge Road, & 1512 Clark Farm Road

N

0 200 400 800 ft

1 inch equals 400 feet

Vicinity Map



Rezoning of:

1200, 1204, 1205, 1209, 1220 and 1225 Chapel Ridge Road; & 1512 Clark Farm Road

N

0 200 400 800 ft

1 inch equals 400 feet

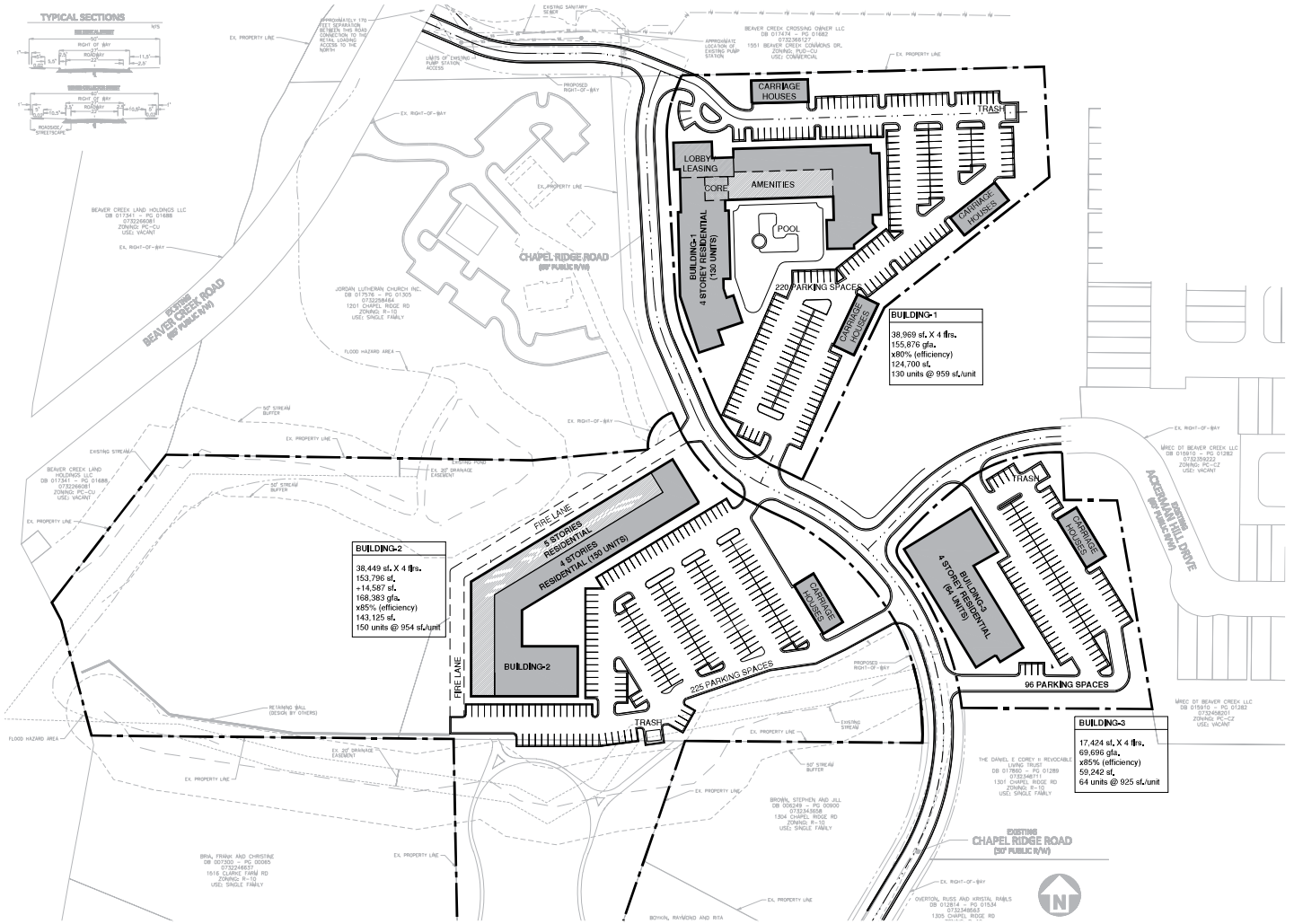
Zoning Map

Current Zoning: RR

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.*

*** Preliminary Concept Plan, subject to change**



1 **SITE PLAN**
Scale: 1/64" = 1'-0"

RULE JOY TRAMMELL | RUBIO LLC
ARCHITECTURE | INTERIOR DESIGN
300 Galleria Parkway Suite 740 Atlanta, Georgia 30339
770-661-1492 (phone) 770-661-1493 (fax)
www.rjtrdesign.com

PRINTED

DATE	ISSUE/REVISION

NOT ISSUED FOR CONSTRUCTION

SITE PLAN

CHAPEL RIDGE RESIDENTIAL

PRELIMINARY SITE PLAN
APEX, NORTH CAROLINA

COMMISSION NO: 2021-105.00

DRAWING NO:
A0-01

Exhibit A
Trammell Crow PUD-CZ
Owner Information Addendum

Parcel 1
Site Address: 1200 Chapel Ridge Road
PIN: 0732256180
Deed Reference (book/page): 12343/2193
Acreage: 5.27
Owner: Su Yueh Kao and Chi Chang Ho
Owner Address: 1200 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 2
Site Address: 1204 Chapel Ridge Road
PIN: 0732249869
Deed Reference (book/page): 8218/1726
Acreage: 1.71
Owner: Michael P. Mohan and Catherine A. Mohan
Owner Address: 1204 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 3
Site Address: 1205 Chapel Ridge Road
PIN: 0732352538
Deed Reference (book/page): 12171/2059
Acreage: 2.48
Owner: Douglas Cox and Carrie Cox
Owner Address: 1205 Chapel Hill Road, Apex, NC 27502-8502

Parcel 4
Site Address: 1209 Chapel Ridge Road
PIN: 0732354594
Deed Reference (book/page): 6236/386
Acreage: 3.0
Owner: Ronald L. Stringari, and Katherine L. Stringari
Owner Address: 1209 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 5
Site Address: 1220 Chapel Ridge Road
PIN: 0732343920
Deed Reference (book/page): 4168/302
Acreage: 2.88
Owner: Larry L. Carlson and Kathi E. Carlson
Owner Address: 1220 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 6
Site Address: 1225 Chapel Ridge Road
PIN: 0732347912
Deed Reference (book/page): 9720/361
Acreage: 2.13
Owner: Tigh M. Dundieff and Diane Cundieff
Owner Address: 1225 Chapel Ridge Road, Apex, NC 27502-8502

Parcel 7
Site Address: 1512 Clark Farm Road
PIN: 0732340602
Deed Reference (book/page): 5351/223
Acreage: 2.34
Owner: David D. Sherry and Ethel V. Sherry
Owner Address: 1512 Clark Farm Road, Apex, NC 27502-8500

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.

NEIGHBORHOOD MEETING SIGN-IN SHEET

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.

Meeting Address: Online via Zoom

Date of meeting: February 16, 2022 Time of meeting: 6:00

Property Owner(s) name(s): See exhibit A attached to neighbor notice letter

Applicant(s): Josh Dix, Trammell Crow Company

Please print your name below, state your address and/or affiliation with a neighborhood group, and provide your phone number and email address. Providing your name below does not represent support or opposition to the project; it is for documentation purposes only. For virtual meetings, applicants must include all known participants and request the information below.

	NAME/ORGANIZATION	ADDRESS	PHONE #	EMAIL	SEND PLANS & UPDATES
1.	**See attached attendance list**				
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					

Use additional sheets, if necessary.

Chapel Ridge PUD
Neighborhood Meeting Sign-In Sheet
February 16, 2022

Mike Bishop
Rita Boykin
Sara Grover
James Faulkner
Melinda Busi
Jim Serino
Nancy Corey
Prakash Patel
Mike Mohan
Michael Merker
Carrie Cox
Kathi Carlson
Jason Buehring
Scott Kipp
David Prestrud
Shree Gopalprabhu LLC
Russ Overton
Cat Mohan
Richard Biseli
Charles Pope

*Contact information was received but has been redacted for filing

SUMMARY OF DISCUSSION FROM THE 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.

Property Owner(s) name(s): See exhibit A attached to neighbor notice letter

Applicant(s): Josh Dix, Trammell Crow Company

Contact information (email/phone): _____

Meeting Address: Online via Zoom

Date of meeting: February 16, 2022 Time of meeting: 6:00

Please summarize the questions/comments and your responses from the Neighborhood Meeting or emails/phone calls received in the spaces below (attach additional sheets, if necessary). Please state if/how the project has been modified in response to any concerns. The response should not be "Noted" or "No Response". There has to be documentation of what consideration the neighbor's concern was given and justification for why no change was deemed warranted.

Question/Concern #1: How many units are planned for the project?

Applicant's Response: We expect around 357 apartment units spread across three separate buildings along Chapel Ridge Road, although the final density and acreage will be determined when we file the rezoning application and PUD documents.

Question/Concern #2: Can you look at moving the dumpster currently shown along the southern property line? As shown, the dumpster would be close to my home and I do not want to hear and see garbage trucks pulling in and out.

Applicant's Response: Final dumpster locations will be determined at the site plan stage, but we can look at adding a condition to the PUD text that there won't be a dumpster within x feet of your property line.

Question/Concern #3: Will the extension of Chapel Ridge Road be public right-of-way or a private road? If public right-of-way, will it be maintained by NCDOT or the Town of Apex?

Applicant's Response: The portion of the Chapel Ridge extension north of the existing cul-de-sac, all the way up to the shared property line with Beaver Creek will be public right-of-way. The portion across the Beaver Creek property will be a private road but will be subject to a public access easement. We have had preliminary discussions with Town transportation staff, but do not know definitively at this point whether the public right-of-way portion of Chapel Ridge will be maintained by the Town or NCDOT.

Question/Concern #4: General concerns about traffic, including cut through traffic from residents of the proposed development.

Applicant's Response: We expect the Chapel Ridge Road extension to improve traffic connectivity in the area. We are in the process of completing a Traffic Impact Analysis that examines existing and proposed traffic and will recommend any necessary road improvements. The TIA will be filed with our rezoning application.

Chapel Ridge North PUD
Summary of Neighborhood Meeting Discussion
February 16, 2022
6:00 PM via Zoom

Question 1. What is the expected density? Net and gross if you have it.

Response: We are currently planning approximately 350 units and an overall density between 17-20 units an acre depending on our final total acreage.

Question 2. Could you further explain the PUD designation? Maybe give more background? Why PUD. Obviously it's zoning adjacent to Beaver Creek. What real flexibility does that give you? Or what are Apex's from a PUD zoning as opposed to something more traditional? And a follow up, how does that fit into Apex's land use plans?

Response: Normally when you go for rezoning request, you're asking for a change from the base district, so you could be asking for a change from low density residential to high density residential. So those standards for those districts are outlined in the UDO and so what the PUD does, it allows you to draft your own ordinance for just this property and the idea is you can change certain standards like, provide larger sidewalks or reduce a setback. You can change a lot of different things to allow kind of a unique site design. So, part of the reason we went that route, was because it allows us flexibility as to where to locate buildings, driveways, RCA areas, which we will comply with, which won't be any deviation we don't think anyway. So what the Town looks for when you do a PUD, is in exchange for those separate standards, they look for a development that's higher quality. They look for things like architectural commitments, and conditions in that text that ensure that the Town and the neighbors will get a high quality development in that location. It also adds a lot of conditions and certainty at this stage that you don't see in a regular re-zoning request.

Question 3. I'm at 1213 Chapel Ridge Road, and I just want to make it clear that I don't want to be the "donut hole" in the center of the re-zoning, nor does the town want a donut hole where the property and the town knows So currently my property is for sale for current market value …..

Response: Reaching out in next week to better understand what your goals are.

Question 4: It's my understanding that the Toll brothers was denied a permit at the beginning of the neighborhood due to [not] enough resources for school and education purposes, so can you explain what you're doing to alleviate those concerns that the Town posed the Toll Brothers.

Response: We don't have a definitive answer on schools right now, but we are aware of the school capacity situation in Apex and we're in the process of doing some research as to what schools in the neighborhood are capped, what schools are under construction, are planned over the next several years, and how those future opening and districting will align with our project. We have had some early discussions as a team about that. We've reached out to Wake County Public Schools, and so it's an ongoing conversation.

Question 5: I assume as part of the traffic studies as well, for what you're proposing it may include a light at Chapel Ridge Road and Old Chapel Road but again I assume you're not quite far enough along to reach those discussion topics.

Response: We don't anticipate there will be a light required but we are in the process now of putting together the traffic impact analysis which will be finished by the time we file. So once we're done with that, we will submit it to the Town and the Town's traffic engineers… well first, when you file a TIA you meet with the Town's engineers and agree on the scoping of the study and what your development will look like which will trigger the traffic numbers in the study. So once we file the TIA the Town will review it and their traffic engineers will recommend mitigation efforts or improvements required based on the impact of the traffic impact analysis.

Question 6: Is the Church property going to connect to the proposed Northern access to your development or is it going to have a separate driveway?

Response: Right now the plan is for the church to have its own driveway. We have thought about it and have reviewed the plans. First, the Church is well ahead of our planning process and they're moving forward and the last thing we want to do is and the last thing they wanted us to do is derail their process. That became difficult. Second, as you all know there are very strict requirements for RCA areas and greenspace, and so we would struggle to fit a roadway anywhere on their site that would impact their greenspace requitement. In the end it made more sense to route the road to the North across the space that is being used as a pump station pull out drainage pond for the shopping center and that doesn't impact the church or their plans whatsoever.

Question 7: I have a couple of questions on the site plan/layout. The first Question: you have the color that runs over my property line. Could you explain a little about that?

Response: This color is actually my way of showing the steam buffer. Not a plan or anything, just trying to identify the buffers.

Question 8: have a concern about that because that site map that you're showing everybody, unless you can expand it, the site plan that was given to us, the Southwest of building 3, there is an existing stream on that property so if you develop that property what's going to happen to that stream in terms of pushing it on to people's property to the south?

Response: I can clarify a little on this one. Early on in this process we downloaded GIS data before we could get survey teams and environmental consultants out to the site. And so that line came from GIS data but we have since had natural resource consultants go out and evaluate the environmental features on this site and the stream buffer that has been determined kind of ends about in the middle of that southern parcel where that green line is going through and does not extend. So it's even further west than the ..and down of that far south parcel above that buffer and everything to the right of that has been determined non-jurisdictional. Which The town of Apex , the natural resource consultants are coordinating with them to confirm their initial determination but we do not plan to impact any stream buffers.

Question 9: that leads me into my second question. And thank you for answering that, is on the west side are you keeping that open, I think you called it a park area and all that, there is a large portion of that that is deemed wetlands, okay. I believe it's up and to the left. Are you planning on petitioning to convert any of those wetland at any point in the future. And secondly, no matter what, if you do building #3, are you planning on doing an environmental impact study?

Response: We do not plan to have any wetlands impacted by this project. I believe in the most recent determination we received they did not find any jurisdictional wetlands out in that area. And that will still go through coordination through the town and confirmation with Town staff. But the only environmental features determined on this site by our consultant are the stream along the far western property boundary kind of parallel to beaver creek road and then that portion of the southern stream up until about the middle of that southern parcel.

Follow up: ok did I hear that right? You checked and you said it wasn't wetlands?

Response: Yes, that's correct. We've had a professional environmental consultant evaluate that area.

Question 10: Russ Overton: Mike asked a question about the traffic study and the signal, but I was wondering about the, at the appropriate time, if it was possible to get a copy of the traffic study just to see what the assumptions are, how much traffic this is actually going to out on Chapel Ridge Road itself, not necessarily a question about a signal or not, just traffic in general.

Response: We will actually file that as part of our application. So it will be publicly available.

Question 11: Ok and number of units are one thing, do you have an idea of breakdown of units; if its 1 bedroom, 2 bedroom, 3 bedroom and potentially with that how many people that might end up bringing and also then how many parking spaces would then be required?

Response: Obviously Russ, it's a bit in flux as you could imagine, but we're looking at a pretty even mix, about 50/50 or 45/55 between 1's and 2-3s. that's the current plan. I just pulled it up real quick. It looks like we're 45/45/10. So 45% one bedroom, 45% 2, and 3 bedroom 10%. The average size for the units is under 1,000 square feet, 950 across the buildings. We are looking at all surface parking if you can see on this plan, nothing structured and a ratio that will be 1.5 maybe even under that. We will be refining the parking as we refine the bedroom count mix. We like to make sure generally in all developments we do that you have about one parking space per bedroom. So it works out somewhere about that 1.5 a little less.

Question 12: Are you going with the Apex standard parking or are you asking for any special reductions? Does the PUD allow for any reductions as a special condition or anything?

Response: The PUD does allow for it, but you know we went in to our initial meeting with the Town and what you see I believe meets the UDO standard, which I think is 1.5 if I remember correctly. But the Town did mention they have a lot of parking lot landscaping requirements that actually exceed what you see here, so that may reduce a couple of spaces. So we're going to be right around what's required maybe a couple spaces less, we don't know for sure yet.

Question 13: I was going to ask you about storm water. I know it's a preliminary concept plan, but is it under the parking? Have you contemplated that yet? How you might treat stormwater?

Response: We're planning on the majority of the treatment to be through surface treatment, through most likely a wet pond, essentially a bio retention area but more of your typical surface pond treatment as opposed to large underground vaults.

Question 14: There's like a curve line, it's in the middle, it's probably I'm guessing where the cul-de-sac is, yes right there, So it's a curve and it's a collector and Matthew I was asking you

it's a collector by Apex standards coming out of Hempstead, so the rest of it's a DOT road, are you contemplating some abandonment by DOT, I'm guessing that might be an abandoned right of way that you'd be taking advantage of because you're re-aligning the road and then would that become a private street, an Apex street, how are you dealing with the DOT situation with the current status of the road?

Response: We talked to the Town transportation stuff about this and they are open to all of Chapel Ridge being a Town maintained road but we haven't settled on that yet. The majority of the extension would be public Right of way, whether that's DOT or that's the Town of Apex. Right here, you can see that line, shaded in the blue area here, north of that area shaded in blue is the Beaver Creek Commons Property. So what we're going to acquire from them is an easement over this portion and so for that reason that portion of the road is most likely going to eb a private drive. What that will look like practically we think, is that will execute a public access easement to the Town so that it will function just like a public right of way, but be maintained by the property owner.

This curve continues there so you can see think pink on the screen and the property line is actually more about right here and so this is intended to have that right of way go to the Town or to NC DOT, and regardless of how it ends up working out, it would be public right of way of some sort from that pink line I'm drawing back down to the existing right of way. So that swath would be right of way. And as Matthew said this (references blue portion) is a little more complicated and we're working with the Town in terms of the best way, the intention is that it's public access no matter what. But what form legally it takes, is still TBD.

Question 15: I have a very minute question that probably pertains alone to my property, but in the building 2 schematics you have there, is there room for negotiation as far as where you have that trash dumpster? I would really like to not go out on my back porch and be smelling trash.

Response: Absolutely we can talked about where that can be. Again, I wouldn't get too hung up on a lot of this but it's a valid point and we're happy to talk about that. The Architect and Kody are taking notes. We will take a look we're that can be. The locations of things like dumpsters, will actually be determined at the site plan and so that process happens after the zoning. So locations of things like this are normally sited at site plan, but there's some specific requests like the one you just raised, that we can make sure of that before we go to site plan. We can work on a condition that would limit how close dumpsters can be placed to your property line.

Question 16: Going back to that buffer area to the West of Chapel Ridge Road and the Church property, who would be responsible for whatever would be in that buffer zone as far as planting and that kind of thing. You drew those pink lines to the West…

Response: So the intent is that this would all be sidewalks and would be landscaped and would all be done by the development team, by us, and that we would maintain those buffer zones as we would the rest of the property. Commercially landscaped, commercially mowed, things like that.

Question 17: One other question, on the south side under the property line, there's a pond that runs through the property line, what is your consideration of that pond. We can talk offline about it if you would like, but if you have an answer?

Response: We currently don't have any plans to use the pond but can discuss this further.

Question 18: My personal feeling, and I'm only speaking for myself, I have always had a hard time with it being maintained by DOT, maintenance whatever, even though it looks great right now because they just repaved it, but just to get some consistency rather than it being segmented Dot owns that then back to Apex.

Response: We don't have strong preferences who maintains it. For example, if you want to have Apex maintain all of Chapel Ridge, we can definitely include you in those discussions, might make them more likely to take over the street

Question 19: What will be discussed at EAB tomorrow night? Can you give us details? Are you asking them for anything? Proposing something? What do they look for what do they do? Can you clue us into an EAB meeting in Apex?

Response: The EAB is the Environmental Advisory Board and it's kind of like, a sub-board for the a planning commission for the environment. What they'll do, we've submitted a request to them saying you know, we've filed this zoning request, here are our initial plans, and they will provide recommendations to us that will provide a certain number of electric vehicle charging stations. They request things like signs that demarcate wetlands, or buffers, solar power. So the initial meeting is going for them to provide recommendations to us as to what they think we should include in our re-zoning application. They're a little unique, they are the only jurisdiction that has this that I know of.

Question 20: Regardless of the traffic study, we're actually living here in this subdivision and have noticed a ridiculous amount of traffic that has come from that Hempstead community, so whether you take over the whole road, or just that small portion, I'd like to strongly encourage the use of speedbumps through there. People are unfortunately using it as a cut through to get to other areas of Apex. I normally take walks, and I'm constantly wondering if I'm going to be hit because people are not driving 25 mph through there. So I would like to strongly suggest your consideration of that.

Response: We can explore traffic calming measures but Town transportation staff and NCDOT are normally pretty strict when it comes to traffic calming measures.

Question 21: I have several things, but let me start of by saying (address given) and my husband and I along with our neighbors are opposed to this, strongly. I just want to go ahead and get that out front. I think everyone else probably knows that. First, I noticed at the beginning of the introduction, you showed the overview of everything and you pointed out Beaver Creek, you pointed out Hempstead, you pointed out these neighbors that want to sell and put apartments there, and noticed, I think you may have pointed out, 540, office park and you did the 100 townhomes that are supposed to be possibly developed here. You did not mention the homeowners who are single family homes, who want to stay here. I just thought that was sort of obvious. You talk about everyone else here in the neighborhood but those of us, some of us, living here for over 30 years.

Response: There was no nefarious intent there. You all live there

Question 22: I'm sure there wasn't but you talked about everyone else…but anyway.. I'm going to continue from there, okay? You were going to out forward to the Town of Apex, requesting a rezoning from rural residential, even though the 2045 plan says medium density, to the PUD. Apparently, you are not submitting your own land use map amendment to Apex, you are requesting a PUD – CZ. All that is, is just going around and changing that property from medium to high density. That's all it is. Instead of going in and being straight forward about it and trying to see if you can get it re-zoned …anyway…you know what I'm talking about. It just doesn't seem quite right. I know that's the way things are done.

Response: We are not actually trying to get around anything, that's actually a change in the law recently. You know, before, I think it was last year, we you submitted a rezoning request that was different than the future land use map, you also submitted a future land use map amendment request. And so now, 160D, which is the new statute that governs development and municipalities, when you re-zone properties and the proposed use is different than the land use map, the land use map is automatically amended. So even if we filed a future land use map amendment, the Town wouldn't review it. You know, the Town did that in another case, and the said, you know it happens automatically now, we don't accept these with re-zonings.

Question 23: You have an area on Barnside lane and that area is approximately a little over 21 acres. And you're dealing with a little over 19. They have gone to the Town of Apex, and first of all I think they were request 116 townhomes. That did not pass by the Town council, because of schooling and I think a few other issues. You on the other hand, are looking at little over 19 acres and are proposing, now well was 344, now I think its 350 approximately on just about the same acreage. I mean that's going from 4 plus units an acre down her on the Barnside and you're proposing 17-19 units per acre. That's just the extreme. I mean what they're proposing at Chapel Ridge Townes is within the medium density, the lower part because medium density for residential is 3-7 units per acre. Why are you coming up with this many? Is it because you're having to pay that much more for the property than they have? I mean when you're talking about putting 4 story apartment buildings next to single story family homes, it's just…abhorrent. It's about the only word I can think of right now. … I can't understand why one developer is working at 100 units and you're working at 350 on pretty much the same acreage. But, okay, after that, the other thing I want to talk is let's see.. you were talking about traffic. The road coming through here. Well, if you think this is such an ideal situation to the extend Chapel Ridge Road out behind a shopping center, coming in and out at the back of the shopping center then why don't you think about putting a cul de sac right there before your apartment buildings start. And that way you'll have that one entrance and exit. They can also use Hempstead, unless, because you want to put in 350 units you have to have 3 exits, is that why?

Response: No, it's not the density. The Town really dis-favors cul de sacs, you know they haven't said this, but my experience in the past they probably wouldn't approve a cul de sac here. They like connectivity and different access points to help with traffic circulation. But that's what this plan does. We differ in that I understand.

Question 24: I understand completely and it makes sense not to put one there, but I do not see 350 units/people or more, wanting to go in an and out of that back entrance from the back of the shopping center. They're going to come in off Chapel Ridge Road. I mean Olive Chapel and it's just going to add to that I mean we have what we have we're dealing with now Hempstead is 193 townhomes I believe. They now want to put 1 00 at the entrance. And you're talking 3 50 more individuals or families I mean that traffic situation is going to be again just a poor just abhorrent.

Absolutely it's going to be a nightmare. We live here. And you don't. Ok you got all this green and it might not be wetlands, but it's wet back there which if you've had anyone traipsing back through there and we have seen surveyors going back there.

They know it's wet. That's an awful lot of land that's not cannot be used I mean you can say it's part of the RCA and you're going to use it for screen buffers and stuff like that and storm retention. That's a lot of acreage that's not being utilized and then you have a Sherry property which is right beside my property and also the Brea's and no ….. You're going to jut out between three homes I mean that's just when you look at that it just makes no sense whatsoever.

Response: The Sherry property actually you know they're right now they're no buildings or developments proposed for that lot. So the site, that property is included in the site, but there are no buildings there so it won't jut out at all by your property. It will stop along the edge of the parking lot right there.

Question 25: but what should happen in 10 years? You own the property what's to say it's not going to be developed later on?

Response: If we include it as part of our plan, and show it as open space or RCA area, then it won't be. If we cut it off and sold it, it could be re-developed. But it's a small enough lot that it would be tough to support really a separate development on just that parcel because it's not its own space.

Question 26: why even have their why even have that lot in that home in with everything else? I know part of it because I know little bit of what's been going on we have a bunch of neighbors rather than sell their houses individually, decide to get together because they thought they could get more money for their property and the Sherry's said OK let's get in and join it and it just….. I don't know anyway that's not real please pleasant either. Then there's the issue with the lighting. You've got lighting at all on these apartments lights I'm sure on the buildings lights in the parking lot next to single-family homes that's not good. We've had issues with the office park down here. It took nine months to get that straight and it still an awful lot of lights with three more buildings to. So there's a concern. I mean we're talking concern with trash cans, lighting is another concern. Lighting is right next to those people and it's just….
It's a mess I mean you look at something you're going in and putting apartments.
And I want to say 19 acres you're not even utilizing 19 acres and then they're just right next to single-family homes whether it's the Bishops whether for the Coreys it ….it just...It does not look like it's been well thought out and well planned .. um…. I'm trying to think there's anything else I wanted to ask because I've got notes here and there. It is not wanted. When you take a look at the chapel the Old Chapel Ridge land map, the original development, which was 22 lots and you look at that now and it wants to be chopped up into six different projects you might say it's not really projects, but you're talking flex 540, you're talking the office Park, you're talking a possible 100 and townhomes at the south end, you're talking about those people who have single-family homes who wish to stay here who do not wish to sell out to developers you have this, your group which wants to put 350 high-rise apartments right next to us.

Question 27: Can I follow up on her…. Rita sparked some questions and I want to get a couple of them to on the cul-de-sac issue and Matthew I know you said with Apex likes but I might would point to … I think it's the village at Westford apartments. This was brought up

previously. The developer actually built a cul de sac in that and that it's kind of stubbed my opinion from a traffic engineer prospective, which I am one they should've connected through but they didn't for some reason so it's really hard to understand when Apex says things like that why one subdivision gets something in our subdivision get something different.

Response: That's fair. What I was referencing is there's language in the PUD section in the UDO that actually says that cul-de-sacs should be avoided. I think what people do, is reference the sentence after that that says, except for some extenuating circumstances and they probably cited those.

Question 28: I'm not trying to call you out with me in particular have pointed some of these inconsistencies out to Apex and we seem to always be at the… so I get Rita's frustration and a lot of frustration in the neighborhood, because we seem to get the deal and I think I mentioned it feels like a death by 1 000 cuts sometimes… well if I can qualify something you said on the Sherry property, you said that property could be included in the CRA? I wanted to… is it included as a CRA or not.

Response: Let me be more clear on what we're evaluating there, We're trying to decide whether we're going to include that lot in our re-zoning request in this development at all. And so if we include it, I think, and Kody can correct me if I'm wrong, most of it will be RCA and if we don't include it then it would stay a single-family home and it wouldn't be part of our re-zoning request.

Question 29: The medium density thing is hard to swallow …a sub-committee of the Town Council invited us to a meeting. Some of the neighbors that wanted to sell, some that don't want to sell, it was a mixed bag from the neighborhood I guess, we all went they were asking us our opinion I guess. We all got to speak. Well, the ones that wanted to speak, because they were changing the plan at the time and ultimately they concluded through a no vote not to change the plan, so I think it's hard to understand you know where Apex is at regardless of what the law allows or doesn't allow it's like there's an open dialogue about keeping the Land use plan at medium density despite what some people may have wanted to change it and they kept it that way so I think that's that again something maybe for us talk to Apex about to get an understanding. For myself, I just want to understand what the neighborhood should or wants to become. And I'll make this my last comment; as I feel like Rita. I'm not supportive of this either.

Question 30: My wife and I are at 1313 Chapel Ridge Rd. which is next-door to Russ across the street from Rita and Melinda and I just wanted to say amen to everything to Rita said. I want it to be understood that she pretty much speaks for all of us who plan to stay here, in her concerns and her frustration with the way things have gone here in in particular what's being proposed here so just want to put that on the table thanks.

AFFIDAVIT OF CONDUCTING A NEIGHBORHOOD MEETING, SIGN-IN SHEET 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, Matthew J. Carpenter, do hereby declare as follows:
Print Name

1. I have conducted a 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 Department of Planning and Community Development, all property owners and tenants abutting and within 300 feet of the subject property and any neighborhood association that represents citizens in the notification area via first class mail a minimum of 14 days in advance of the Neighborhood Meeting.

3. The meeting was conducted at online via zoom (location/address) on February 16, 2022 (date) from 6:00 (start time) to 8:00 (end time).

4. I have included the mailing list, meeting invitation, sign-in 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.

3/1/2022
Date

By: _____

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Cindy Wieland, a Notary Public for the above State and County, on this the 1st day of March, 2022.

SEAL

CINDY WIELAND NOTARY PUBLIC WAKE COUNTY, N.C.

Cindy Wieland
Notary Public

Cindy Wieland
Print Name

My Commission Expires: 2-22-26

Notice List for Neighborhood Meeting

OWNER	MAILING ADDRESS	MAILING ADDRESS2	MAILING ADDRESS3
APEX TOWN OF	PO BOX 250	APEX NC 27502-0250	
ASHOK, VIMAL DEV DEV, SANGITA VIMAL	1015 WAYMAKER CT	APEX NC 27502-4325	
ASHRAFI, ZAHRA JOGHATAEI, MAJID	1013 WAYMAKER CT	APEX NC 27502-4325	
BEAVER CREEK CROSSINGS OWNER LLC	TYLER COVINGTON	1111 METROPOLITAN AVE STE 700	CHARLOTTE NC 28204-3424
BEAVER CREEK LAND HOLDINGS LLC	2574 CORLEY WOOD DR	RALEIGH NC 27606-4266	
BECK, PATRICK A LIU, JANET F	8412 SECRETO DR	RALEIGH NC 27606-0030	
BHATTA, HIMANSHU	1004 WAYMAKER CT	APEX NC 27502-4325	
BISHOP, MICHAEL J	1213 CHAPEL RIDGE RD	APEX NC 27502-8502	
BOYKIN, V RAYMOND JR BOYKIN, RITA L	1500 CLARK FARM RD	APEX NC 27502-8500	
BRIA, FRANK A III BRIA, CHRISTINE	1516 CLARK FARM RD	APEX NC 27502-8500	
BUNN, KENNETH G. BUNN, ERICA CHRISTINE	1408 BARNSIDE LN	APEX NC 27502-8501	
BUWALDA, NATHAN BUWALDA, SUZANNE	1028 WAYMAKER CT	APEX NC 27502-4325	
CARLSON, LARRY L CARLSON, KATHI E	1220 CHAPEL RIDGE RD	APEX NC 27502-8502	
CARSON, DARREN DWAYNE SR CARSON, REGINA	2045 ACKERMAN HILL DR	APEX NC 27502-5109	
CHAGANTIPATI, RAJ KIRAN VEMURI, JYOTSNA	4016 SYKES ST	CARY NC 27519-7301	
CHIU, CHERIE	2065 ACKERMAN HILL DR	APEX NC 27502-5109	
CNG PROPERTIES LLC	1010 GOODWORTH DR	APEX NC 27539-3869	
COOPER, DONNA L THE DONNA L COOPER TRUST	2047 OLD CHAPMAN DR	APEX NC 27502-4326	
COREY, DANIEL E II THE DANIEL E COREY II REVOCABLE LIVING TRUST	1301 CHAPEL RIDGE RD	APEX NC 27502-8503	
COX, DOUGLAS COX, CARRIE	1205 CHAPEL RIDGE RD	APEX NC 27502-8502	
CTO21 APEX LLC	1140 N WILLIAMSON BLVD STE 140	DAYTONA BEACH FL 32114-8112	
CUNDIEFF, TIGH M CUNDIEFF, DIANE	1225 CHAPEL RIDGE RD	APEX NC 27502-8502	
DAVE, GHANSHYAM	2055 ACKERMAN HILL DR	APEX NC 27502-5109	
EBENEZER, CHARLES EBENEZER, JULIANA	1018 WAYMAKER CT	APEX NC 27502-4325	
ENGLISH, AMANDA ENGLISH, CORY	2046 ACKERMAN HILL DR	APEX NC 27502-5109	
FANG, YUEHONG WANG, YU	105 BRIAR RIDGE CIR	WINSTON SALEM NC 27104-4482	
FAULKNER, JAMES V JR FAULKNER, BARBARA B	1513 CLARK FARM RD	APEX NC 27502-8500	
GADI, BIPIN PONNAPALLI, VANIPRIYA	2047 ACKERMAN HILL DR	APEX NC 27502-5109	
GROVER, SARA W PRESTRUD, DAVID G	1313 CHAPEL RIDGE RD	APEX NC 27502-8503	
HEMPSTEAD AT BEAVER CREEK HOMEOWNERS ASSOCIATION,	CHARLESTON MANAGEMENT CORP	PO BOX 97243	RALEIGH NC 27624-7243
HINSLEY, MICHAEL HINSLEY, EMILLEE	2048 ACKERMAN HILL DR	APEX NC 27502-5109	
HOECKBERG, ERIC HOECKBERG, ERIKA	2054 ACKERMAN HILL DR	APEX NC 27502-5109	
JARIWALA, AJAY H JARIWALA, DIVYABEN S	1032 WAYMAKER CT	APEX NC 27502-4325	
JORDAN LUTHERAN CHURCH INC	1031 PEMBERTON HILL RD STE 202	APEX NC 27502-4278	
KADZIK, MARY	1008 WAYMAKER CT	APEX NC 27502-4325	
KAO, SU YUEH HO, CHI CHANG	1200 CHAPEL RIDGE RD	APEX NC 27502-8502	
KARUMBAIAH, KAVERIAPPA MUDDIYADA RAMESH, NIVEDITA KAMBEYANDA	2056 ACKERMAN HILL DR	APEX NC 27502-5109	
KING, JAMES KING, JOANNE	2052 ACKERMAN HILL DR	APEX NC 27502-5109	
KOLLASSERY, GANGADHARAN SHELLY SHELLY, HEERA	329 HOLSTEN BANK WAY	CARY NC 27519-7574	
KONDATI, VIJAY NUNI, MADHU	1034 WAYMAKER CT	APEX NC 27502-4325	
LAM, CHRISTOPHER HUANG, WEI	1024 WAYMAKER CT	APEX NC 27502-4325	
LI, NAN	6708 MILLORY SPRINGS LN	CARY NC 27519-8500	
LU, LIN	647 SEALINE DR	CARY NC 27519-2572	
MANI, SURESH SURESH, NIVETHA	2049 OLD CHAPMAN DR	APEX NC 27502-4326	
MARIN, MICHAEL	1021 WAYMAKER CT	APEX NC 27502-4325	
MCGRAW, BENJAMIN IV	2043 OLD CHAPMAN DR	APEX NC 27502-4326	
MOHAN, MICHAEL P MOHAN, CATHERINE A	1204 CHAPEL RIDGE RD	APEX NC 27502-8502	
MOHANASUNDARAM, RANJITH KUMAR TRUSTEE MUTHURAMAN, RAJALAKSHMI TRUSTEE	2051 OLD CHAPMAN DR	APEX NC 27502-4326	
MONAHAN, RICHARD CHARLES TRUSTEE RICHARD C MONAHAN LIVING TRUST	4225 LOFTY RIDGE PL	MORRISVILLE NC 27560-9586	
MREC DT BEAVER CREEK LLC	STE 130	13860 BALLANTYNE CORPORATE PL	CHARLOTTE NC 28277-3167
MREC DT BEAVER CREEK LLC	11610 N COMMUNITY HOUSE RD STE 100	CHARLOTTE NC 28277-1894	
NADELLA, VIDYADHAR PATIBANDLA, ANUSHA	1014 WAYMAKER CT	APEX NC 27502-4325	
OVERTON, RUSS OVERTON, KRISTAL RAWLS	1305 CHAPEL RIDGE RD	APEX NC 27502-8503	
PAIDIPALLI, NAVEEN	1010 WAYMAKER CT	APEX NC 27502-4325	
POPE, CHARLES V POPE, IRIS ISLEY	1408 OLIVE CHAPEL RD	APEX NC 27502-8511	
PUFF, SANDRA PUFF, JOHN	1020 WAYMAKER CT	APEX NC 27502-4325	
PULIJALA, TARUN KASHYAP YELLAPRAGADA, LAVANYA	1017 WAYMAKER CT	APEX NC 27502-4325	
QIN, DANFENG JIANG, CHUANYAN	2655 BRYANT POND LN	APEX NC 27502-4318	
QUE, ROGER	623 HALCYON MEADOW DR	CARY NC 27519-7701	
ROCCOFORTE, JOHN A ROCCOFORTE, MARIE F	1517 CLARK FARM RD	APEX NC 27502-8500	
SERINO, JAMES PATRICK BUSI, MELINDA	1304 CHAPEL RIDGE RD	APEX NC 27502-8503	
SHAIK, MOHAMMED GHOUSE	2124 WHITESMITH DR	APEX NC 27502-4327	
SHAKYA, SUDEEP SHAKYA, NEENA	1023 WAYMAKER CT	APEX NC 27502-4325	
SHERRY, DAVID D SHERRY, ETHEL V	1512 CLARK FARM RD	APEX NC 27502-8500	
SHREE GOPALPRABHU LLC	3716 LINVILLE GORGE WAY	CARY NC 27519-9619	
SIMPSON, SHERIKA S	1010 WOODLANDS CREEK WAY	APEX NC 27502-5250	
SMITH, GINNY K SMITH, TIMOTHY J	1000 WAYMAKER CT	APEX NC 27502-4325	
SOTO, NOEL MANUEL JR	1025 WAYMAKER CT	APEX NC 27502-4325	
STOROZHEVA, MARIA SPIRES, JACKSON P	2041 ACKERMAN HILL DR	APEX NC 27502-5109	
STRINGARI, RONALD L STRINGARI, KATHERINE L	1209 CHAPEL RIDGE RD	APEX NC 27502-8502	
VATTIGUNTA, SRINIVASA REDDY NARU, CHAITANYA BHARATHI	1027 WAYMAKER CT	APEX NC 27502-4325	
VERMA, ANAGH VERMA, SHWETA	2061 ACKERMAN HILL DR	APEX NC 27502-5109	
VILLANUEVA, BRIAN D VILLANUEVA, ERIKA L	2126 WHITESMITH DR	APEX NC 27502-4327	
WAGNER, KEITH J II	1016 WAYMAKER CT	APEX NC 27502-4325	

WILLIAMS, SUSAN L	2053 ACKERMAN HILL DR	APEX NC 27502-5109
YANG, LONGLONG GAN, YOUXIN	1002 WAYMAKER CT	APEX NC 27502-4325
YIN, XINHE	302 MINTON VALLEY LN	CARY NC 27519-9105
ZY&L LLC	351 GARTRELL WAY	CARY NC 27519-8942
CHAPEL RIDGE ESTATES HOA	1001-105 GOODWORTH DR	APEX NC 27539
Current Tenant	1561 Beaver Creek Commons DR	APEX NC 27502
Current Tenant	1571 Beaver Creek Commons DR	APEX NC 27502
Current Tenant	1575 Beaver Creek Commons DR	APEX NC 27502
Current Tenant	1583 Creekside Landing DR	APEX NC 27502
Current Tenant	1585 Beaver Creek Commons DR	APEX NC 27502
Current Tenant	1587 Beaver Creek Commons DR	APEX NC 27502
Current Tenant	1591 Beaver Creek Commons DR	APEX NC 27502
Current Tenant	1595 Beaver Creek Commons DR	APEX NC 27502
Current Tenant	1611 Beaver Creek DR	APEX NC 27502
Current Tenant	1615 Beaver Creek Commons DR	APEX NC 27502
Current Tenant	1200 Chapel Ridge	APEX NC 27502
Current Tenant	1201 Chapel Ridge	APEX NC 27502
Current Tenant	1204 Chapel Ridge	APEX NC 27502
Current Tenant	1205 Chapel Ridge	APEX NC 27502
Current Tenant	1209 Chapel Ridge	APEX NC 27502
Current Tenant	1213 Chapel Ridge	APEX NC 27502
Current Tenant	1220 Chapel Ridge	APEX NC 27502
Current Tenant	1225 Chapel Ridge	APEX NC 27502
Current Tenant	1301 Chapel Ridge	APEX NC 27502
Current Tenant	1304 Chapel Ridge	APEX NC 27502
Current Tenant	1305 Chapel Ridge	APEX NC 27502
Current Tenant	1313 Chapel Ridge	APEX NC 27502
Current Tenant	1500 Clark Farm	APEX NC 27502
Current Tenant	1505 Clark Farm	APEX NC 27502
Current Tenant	1512 Clark Farm	APEX NC 27502
Current Tenant	1513 Clark Farm	APEX NC 27502
Current Tenant	1516 Clark Farm	APEX NC 27502
Current Tenant	1517 Clark Farm	APEX NC 27502
Current Tenant	2000 Creekside Landing DR	APEX NC 27502
Current Tenant	2001 Creekside Landing DR	APEX NC 27502
Current Tenant	2004 Creekside Landing DR	APEX NC 27502
Current Tenant	2005 Creekside Landing DR	APEX NC 27502
Current Tenant	2008 Creekside Landing DR	APEX NC 27502
Current Tenant	2009 Creekside Landing DR	APEX NC 27502
Current Tenant	2012 Creekside Landing DR	APEX NC 27502
Current Tenant	2013 Creekside Landing DR	APEX NC 27502
Current Tenant	2016 Creekside Landing DR	APEX NC 27502
Current Tenant	2017 Creekside Landing DR	APEX NC 27502
Current Tenant	2021 Creekside Landing DR	APEX NC 27502
Current Tenant	2025 Creekside Landing DR	APEX NC 27502
Current Tenant	2026 Creekside Landing DR	APEX NC 27502
Current Tenant	2033 Creekside Landing DR	APEX NC 27502
Current Tenant	2034 Creekside Landing DR	APEX NC 27502
Current Tenant	2037 Creekside Landing DR	APEX NC 27502
Current Tenant	2038 Creekside Landing DR	APEX NC 27502
Current Tenant	2042 Creekside Landing DR	APEX NC 27502
Current Tenant	2045 Creekside Landing DR	APEX NC 27502
Current Tenant	2046 Creekside Landing DR	APEX NC 27502
Current Tenant	2050 Creekside Landing DR	APEX NC 27502
Current Tenant	2053 Old Chapman DR	APEX NC 27502
Current Tenant	1006 Waymaker CT	APEX NC 27502
Current Tenant	1026 Waymaker CT	APEX NC 27502
Current Tenant	1030 Waymaker CT	APEX NC 27502
Current Tenant	2122 Whitesmith DR	APEX NC 27502
Current Tenant	2128 Whitesmith DR	APEX NC 27502

CHAPEL RIDGE NORTH
PLANNED UNIT DEVELOPMENT

1225 CHAPEL RIDGE RD
APEX, NORTH CAROLINA | PD PLAN

REZONING CASE #22CZ07

HIGHSTREET RESIDENTIAL

MCADAMS

Parker Poe
Attorneys & Counselors at Law

CHAPEL RIDGE NORTH

Planned Unit Development
Prepared for Town of Apex, North Carolina

Submittal Dates

First Submittal:	March 1, 2022
Second Submittal:	April 8, 2022
Third Submittal:	May 13, 2022
Fourth Submittal:	June 10, 2022
Fifth Submittal:	June 28, 2022
Sixth Submittal:	July 6, 2022

Developer
High Street Residential
555 Fayetteville Street, Suite 300
Raleigh, NC 27601

Planner, Engineer, Landscape Architect, Surveyor
McAdams
2905 Meridian Parkway
Durham NC 27113

Attorney
Parker Poe
301 Fayetteville St, Suite 1400
Raleigh, NC 27601

HIGH STREET RESIDENTIAL

MCADAMS

Parker Poe
Attorneys & Counselors at Law

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19. REPRESENTATIVE BUILDING ELEVATIONS

VICINITY MAP

0 400 800 1600 ft

1 inch equals 800 feet

PROJECT DATA

Name of Project:	Chapel Ridge North
Applicant/Developer:	High Street Residential 555 Fayetteville Street, Suite 300 Raleigh, NC 27601 202-337-1025
Prepared By:	McAdams 2905 Meridian Parkway Durham, NC 27713 919-361-5000
Current Zoning Designation:	RR
Proposed Zoning Designation:	PUD-CZ
Current 2045 Land Use Map Designation:	Medium Density Residential
Proposed 2045 Land Use Map Designation:	High Density Residential
Size of Project:	Approximately 20.62 acres
Property Identification Numbers:	0732352538, 0732343920, 0732249869, 0732354594, 0732347912, 0732256180, 0732340602 (the "Property")

PURPOSE STATEMENT

This document and the accompanying concept plan (the "Concept Plan") (collectively, the "PUD") are provided pursuant to the Town of Apex Unified Development Ordinance ("UDO") Planned Unit Development Provisions. Chapel Ridge North will be a fully amenitized apartment community with interior corridors, an elevator, fitness centers, walking paths, and natural areas; it will be conveniently located near future transit and existing employment centers, restaurants, and retail. The Concept Plan offers an efficient site layout, with significant open space preserved in a unified area and appropriate buffers between adjacent uses. Required Resource Conservation Areas are set aside throughout the 20.62-acre property. This PUD is consistent with the Town's goal to provide site-specific, high-quality neighborhoods that exhibit natural feature preservation and compatibility with surrounding land uses. This development will comply with the PUD Development Parameters outlined in UDO §2.3.4.F.1.a.i-vii. This PUD meets or exceeds the Development Parameters as follows:

- *The uses to be developed in the PD Plan for the PUD-CZ are those uses permitted in Section 4.2.2, Use Table.*

  - » The uses permitted within the Chapel Ridge North PUD are permitted per §4.2.2 of the Town of Apex UDO.

- *The uses proposed in the PD Plan for the PUD-CZ can be entirely residential, entirely non-residential, or a mix of residential and non-residential uses, provided a minimum percentage of the non-residential land area is included in certain mixed-use areas as specified on the 2045 Land Use Map. The location of uses proposed by the PUD-CZ must be shown on 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.*

  - » Chapel Ridge North is an entirely residential development including a maximum of 370 multi-family units.

- *The dimensional standards in §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.*

  - » Any deviations from underlying UDO standards are contained in this PUD. Otherwise, Chapel Ridge North will comply with the base standards of the UDO, North Carolina Building Code, and North Carolina Fire Code.

- *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 Details, and greenway improvements as required by the Town of Apex Parks, Recreation, 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.*

  - » Except the small northern portion of Chapel Ridge Road as shown on the Concept Plan, five-foot wide public sidewalks will be constructed along both sides of all internal streets per UDO standards. Pedestrian improvements along road frontages shall be consistent

with the Transportation and Bike Ped System Map Plan. See Walkability section for specific details of sidewalk and sidepath locations. To encourage a healthy lifestyle and establish a walkable community, pedestrian greenways will also be incorporated throughout the development connecting residential areas to open space amenities and RCA areas. In addition, the Property is located within a mile of connections to the Beaver Creek Greenway which may be accessed from the Pearson Farms neighborhood south of Chapel Ridge North.

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

  » Chapel Ridge North will create a walkable residential community connected by sidewalks, side paths, tree-lined streets, and greenways. Cul-de-sacs will be avoided to enhance the connectivity of the development. The northern extension of Chapel Ridge Road will allow residents to walk to the future transit stop on Beaver Creek Commons Drive identified in the Town of Apex Comprehensive Transportation Plan (the "Transportation Plan"). Additionally, residents will be able to walk and/or bike to existing shops, restaurants, and retail at the Beaver Creek Crossings shopping center.

- *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.*

  » The proposed development is compatible with the character of surrounding land uses and will enhance property values in the area. To the north of the Property is Beaver Creek Crossings, an existing shopping center with a mix of commercial uses. Adjacent to the east are the Hempstead Townhomes, a dense townhome community. The proposed apartment community will effectuate a transition down in intensity from the more intense commercial uses to the north to lower density single-family detached homes to the south. Appropriate buffering will be provided between Chapel Ridge North and existing single-family homes to the south.

- *The development proposed in the PD Plan for the PUD-CZ has architectural and design standards that are exceptional and provide a 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.*

  » Multi-family buildings will be of high-quality construction. Architectural controls and sample elevations illustrating the high-quality appearance of buildings are included in this PUD.

All site-specific standards and conditions of this PUD shall be consistent with all Conditional Zoning (CZ) District standards set forth in the UDO Section 2.3.3, Conditional Zoning Districts.

PERMITTED USES

The Property 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 of this PUD.

Permitted uses include:

Residential
Multi-family or apartment
Condominiums
Utilities
Utility, minor
Recreational Uses
Greenway
Park, Active
Park, Passive
Recreation Facility, private

AFFORDABLE HOUSING

A minimum of three and a half percent (3.5%) of the total residential units (as shown on the first site plan submittal) shall be designated as restricted low-income affordable housing rental units (the "Affordable Units") for a minimum affordability period of ten (10) years starting from the date of issuance of the first residential Certificate of Occupancy (the "Affordable Restriction Period"). The Affordable Units shall be occupied by low-income households earning no more than sixty percent (60%) of the Raleigh, NC Metropolitan Statistical Area (MSA) Area Median Income (AMI), adjusted for family size, as most recently published by the U.S. Department of Housing and Urban Development (HUD). The Affordable Units shall be one-bedroom units and rented to low-income households during the Affordable Restriction Period at maximum rent limits per bedroom size, no greater than sixty percent (60%) of the Raleigh, NC Area Median Income ("AMI") as most recently published by HUD and stipulated by the most recently published North Carolina Housing Finance Agency (NCHFA) Low-Income Housing Tax Credit (LIHTC) Multifamily Tax Subsidy Program (MTSP) income and rent limits for the Wake County Metropolitan Area. If the Affordable Units calculation results in a fraction between 0.00 and 0.49, the number of Affordable Units shall be rounded down to the nearest whole number. If the Affordable Units calculation results in a fraction between 0.50 and 0.99, the number of Affordable Units shall be rounded up to the nearest whole number. Prior to issuance of the first residential Certificate of Occupancy, a restrictive covenant between the Town and property owner shall be executed and recorded in the Wake County Registry to memorialize the affordable housing terms and conditions. During the Affordable Restriction Period, the property owner shall be responsible for performing all property management and administration duties to ensure compliance with this affordable housing condition and shall submit annual compliance reports to the Town verifying compliance with this affordable housing condition. Following expiration of the Affordable Restriction Period, this affordable housing condition shall expire, and the property owner shall be relieved of all obligations set forth in this affordable housing condition, and the Affordable Units may freely be marketed and leased at market-rate rents.

DESIGN CONTROLS

Total Project Area: 20.62 acres

- Maximum number of multi-family apartment units: 370

Multi-Family Design Controls

- Maximum Building Height: 55 feet (5 stories)
  - » Building facades facing PINs 073243658, 0732340602, and 0732348711 shall be limited to a minimum of four stories.
- Minimum Building Setbacks
  - » Front: 10 feet
  - » Rear: 20 feet
  - » Side: 20 feet
  - » Alley: 5 feet
  - » Corner: 20 feet
  - » From buffer or RCA: 10 feet

ARCHITECTURAL STANDARDS

The proposed development offers the following architectural controls to ensure consistency of character throughout the development. Conceptual elevation examples are included in Section 19 of this PUD. Elevations included are limited examples of multiple style options being considered. 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 Major Site Plan submittal. In an effort to reflect the unique nature of the existing neighborhood, the architectural style of the buildings shall be classic southern traditional architecture.

Additional features used as focal points or key terminus points shall be located within or around the development (i.e. a patio seating area, water feature, pedestrian plaza with benches, planters, public art, decorative bicycle parking, or focal feature) in order to meet the Community Amenities requirement of the UDO. Other features not mentioned may be considered with administrative staff approval.

Design Guidelines:

1. The project shall use full cutoff LED fixtures that have a maximum color temperature of 3500K for all exterior lighting, including, but not limited to, parking lot and building mounted fixtures.
2. The project shall be designed to meet the requirements for one of the following green building certifications: LEED, Energy Star, BREEAM, Green Globes, NGBS Green, or GreenGuard. Prior to the issuance of building permits, the developer shall hire a third-party consultant to evaluate the project and ensure the design conforms with green building certification requirements. Prior to the issuance of a certificate of occupancy for a building, the developer shall demonstrate to the Town that that building has been certified as a green building by providing a copy of the green building certification.
3. The project shall install at least three (3) pet waste stations across the development locations that are publicly accessible, such as adjacent to, but outside of public property and/or public easement(s), amenity centers, sidewalks, greenways, or side paths.

Multi-family/Apartments/Condominiums:

1. Vinyl siding is not permitted; however, vinyl windows, decorative elements and trim are permitted.
2. Rear and side elevations of units that have right-of-way frontage shall have trim around the windows.
3. A minimum of four of the following decorative features shall be used on each building:
    - Decorative shake
    - Board and batten
    - Decorative porch railing/posts
    - Shutters
    - Decorative/functional air vents on roof or foundation
    - Recessed windows
    - Decorative windows
    - Decorative brick/stone
    - Decorative gables
    - Decorative cornices
    - Tin/metal roof
4. Garage doors must have windows, decorative details, or carriage-style adornments on them.
5. Siding materials shall be varied in type and/or color on 30% of each façade on each building.
6. Windows must vary in size and/or type.
7. Windows that are not recessed must be trimmed.
8. Solar conduit shall be provided on all buildings to accommodate the future installation of solar panels.

Proposed Residential Materials and Styles

Proposed materials and styles will be of a similar palette to provide consistency of character along with visual interest. Exterior materials that may be incorporated into any of the building products include:

- Cementitious lap, board and batten, and/or shake and shingle siding
- Stone or synthetic stone
- Brick

Additional building materials may be included with administrative staff approval. Substitute materials shall be allowed by staff as long as they are determined by the Director of Planning and Development to be substantially similar.

PARKING AND LOADING

Development shall provide the following minimum parking spaces per dwelling unit based on the number of bedrooms:

Bedrooms per unit	Minimum ratio
1 or 2	1.3 spaces per dwelling unit
3	1.8 spaces per dwelling unit

A minimum of 5% of the total parking spaces required by the UDO for the project shall be Electric Vehicle Charging spaces consistent with the standards of UDO Section 8.3.11. At least 6 bicycle parking spaces shall also be provided.

SIGNAGE

All signage for this PUD shall comply with Section 8.7, *Signs*, of the Town of Apex UDO.

LANDSCAPING

Minimum perimeter and streetscape landscape buffers are as follows (see PUD Plan Sheet C2.00 for details):

- 15-ft Type A adjacent to townhomes
- 25-ft Type A adjacent to single-family lots
- 20-ft Type A adjacent to church*
- 20-ft Type A adjacent to retail
- 10-ft Type A adjacent to Chapel Ridge Road**
- 20-ft Type B adjacent to PIN 0732266081

*A fire access lane shall be permitted to encroach into the first 150 feet of the buffer as measured from Chapel Ridge Road west along the shared property line with the church.

**Only required along the public right-of-way fronting the Property. A buffer is not required along the public access easement. Developer shall only be responsible for providing the buffer on property adjacent to the public right-of-way which is within this rezoning.

The project shall select and install tree, shrub and perennial species with special attention to providing diverse and abundant pollinator and bird food sources, including plants that bloom in succession from spring to fall.

The project will increase biodiversity in perimeter buffers and open space areas by providing a variety of species for the canopy, understory, and shrub levels. Native and adaptive plant species shall be provided within these areas to minimize death from disease and to provide increased habitat and food sources for insects and animals. A minimum of 70% of the species provided shall be native or a nativar of North Carolina. No invasive species shall be permitted. No single species of tree or shrub shall constitute more than 20% of the plant material of its type installed on a single development site.

No dumpster shall be located within 50 feet of the northern property line of Lot 12, Chapel Ridge Subdivision, as shown in Book of Maps 1986, Page 1627, Wake County Registry.

NATURAL RESOURCES AND ENVIRONMENTAL DATA

River Basins and Watershed Protection Overlay Districts

This project is located within the Cape Fear River Basin. This project site is located within the Primary Watershed Protection Overlay District as shown on the Town of Apex Watershed Protection Map. Accordingly, this PUD will comply with all built upon area, vegetated conveyances, structural SCMs and riparian stream buffer requirements of Section 6.1.7.

Resource Conservation Areas (RCA) - Required and Provided

This PUD will be subject to, and meet the requirements of, Section 8.1.2 of the UDO, *Resource Conservation Area* and Section 2.3.4, *Planned Development Districts.*

The PUD will provide a minimum of 20% of the gross project area as a Resource Conservation Area (RCA). Designated RCA areas will be consistent with the items listed in Section 8.1.2(B) of the Town's UDO. Preserved streams, wetlands, and associated riparian buffers provide the primary RCAs throughout the site. Additional RCA areas may include perimeter and streetfront buffers, stormwater management areas (as permitted by the UDO), and greenways.

The project shall install a minimum of one sign for each Resource Conservation area. The signage shall indicate that the area is RCA and is to be preserved in perpetuity and not disturbed. Signage shall be installed in locations that are publicly accessible, such as adjacent to, but outside of public property and/or public easement(s), amenity centers, sidewalks, greenways, or side paths.

Six-foot wide private walking trails may be located throughout the development, including RCA areas. Locations of trails are to be determined at site plan.

Floodplain

The project site does not sit within a designated current or future 100-year floodplain as shown on the Town of Apex FEMA map and FIRM Panel 3720073200J, dated May 2, 2006.

Tree Canopy

Tree canopy areas in Chapel Ridge North are primarily concentrated around the wetland areas, stream features, and perimeter buffers.

Existing trees greater than 18" in diameter 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 either on-site or at an alternative location approved by Town Planning Staff, above and beyond standard UDO requirements.

Historic Structures

As confirmed by the North Carolina State Historic Preservation Office there are no historic structures present within the project boundary.

Environmental Commitments Summary

The applicant team met with the Apex Environmental Advisory Board on February 17, 2022. Below is a summary of the environmental commitments for the Chapel Ridge North development:

- Increased stormwater quantity and quality control measures (see Stormwater Management section for details)
- The project shall install at least three (3) pet waste stations across the development in locations that are publicly accessible, but outside of public property and/or pubic easement(s), such as adjacent to amenity centers, sidewalks, greenways, or side paths.
- The project shall use full cutoff LED fixtures that have a maximum color temperature of 3500K for all exterior lighting, including, but not limited to, parking lot and building mounted fixtures.
- A minimum of 5% of the total parking spaces that the UDO would require for the project shall be Electric Vehicle Charging spaces. Final unit mix and amount of required parking shall be determined at site plan. The EV charging stations shall comply with the standards set forth in the UDO.
- The project shall select and install tree, shrub and perennial species with special attention to providing diverse and abundant pollinator and bird food sources, including plants that bloom in succession from spring to fall.
- The project will increase biodiversity in perimeter buffers and open space areas by providing a variety of species for the canopy, understory, and shrub levels. Native and adaptive plant species shall be provided within these areas to minimize death from disease and to provide increased habitat and food sources for insects and animals. A minimum of 70% of the species provided shall be native or a nativar of North Carolina. No invasive species shall be permitted. No single species of tree or shrub shall constitute more than 20% of the plant material of its type installed on a single

development site.

- The project shall install signage adjacent to wooded or natural condition Resource Conservation area. The signage shall indicate that the area is RCA and is to be preserved in perpetuity and not disturbed. Signage shall be installed in locations that are publically accessible, such as adjacent to, but outside of public property and/or public easement(s), amenity centers, sidewalks, greenways, or side paths.
- The project shall be designed to meet the requirements for one of the following green building certifications: LEED, Energy Star, BREEAM, Green Globes, NGBS Green, or GreenGuard. A third-party consultant shall be hired to evaluate the project and certify to the Town of Apex that the project meets the standards for the certification. The applicant shall forward a copy of the certification application to the Town of Apex Planning Department to verify that the application has been submitted.
- Solar conduit shall be provided on all multi-family and/or condominium buildings to accommodate the future installation of solar panels.

STORMWATER MANAGEMENT

This PUD shall go above the stormwater management requirements for quality and quantity treatment outlined in Section 6.1.7 of the UDO such that:

- Post development peak runoff shall not exceed pre-development peak runoff conditions for the 1 year, 10-year, 25-year, and 24-hour storm events.
- Treatment for the first 1 inch of runoff will provide 85% removal of total suspended solids.

Acceptable stormwater structures shall include detention ponds, constructed wetlands, bio-retention areas, or other approved devices consistent with the NC DEQ Stormwater Design Manual and the Town of Apex UDO.

PARKS AND RECREATION

This project was reviewed by the Parks, Recreation and Cultural Resources Advisory Commission on April 27, 2022 and fee-in-lieu of dedication was recommended.

Number of Units*	Housing Type	Fee Per Unit**	Total Fees
370	Multi-Family	$2,226.05	$823,638.50
Total	-	-	**$823,638.50**

*Final unit count will be determined at the time of Master Site Plan.

**Fees are based upon approval date and runs with project with exception of the increase in total unit

PUBLIC FACILITIES

The proposed PUD shall meet all Public Facilities requirements as set forth in UDO Section 2.3.4(F)(1)(f) and be designed according to sound engineering standards. Road and utility infrastructure shall be as follows:

General Roadway Infrastructure

All proposed roadway infrastructure and right-of-way dedications will be consistent with the Town of Apex UDO and Transportation Plan, unless specifically set forth in the PUD Text.

Chapel Ridge Road shall be extended north to connect to Beaver Creek Commons Drive (the "Road Extension") in the approximate location shown on the Concept Plan. The Road Extension shall be constructed to Town of Apex standards and specifications. At the site plan stage, the portion of the Road Extension shown in pink on the Concept Plan and labeled "Public ROW" shall be dedicated to the Town as public right-of-way (the "Public ROW Section"). The portion of the Public ROW Section south of the shared property line with PIN 0732366134 shall have a minimum ROW width of 60 feet and be constructed to the Minor Collector Street standard. The portion of the Public ROW Section across PIN 0732258769 shall have a minimum ROW width of 50 feet. The portion of the Road Extension shown in orange on the Concept Plan and labeled "Private drive with minimum 45' public access easement" (the "Easement Section") shall be subject to a recorded public access and maintenance agreement with a minimum easement width of 45 feet. The public access and maintenance agreement shall be approved by the Planning Director as to form.

Water and Sanitary Sewer

Apartments within the project will be served by Town of Apex for water and sanitary sewer. The utility design will be finalized at the time of Construction Drawing and be based on available facilities adjacent to the site at that time. The design will meet the current Town of Apex master plans for water and sewer and standard specifications.

Water and sewer lines shall be extended for the length of the Property's frontage along Chapel Ridge Road, and they shall always be extended along any and all natural drainage courses/draws that are located within the property line boundaries of the proposed development. Sewer shall be extended to all adjacent upstream property lines. The portion of the Property fronting Clark Farm Road shall be served by the extension of water and sanitary sewer lines from the north, through the internal portion of the Property. At site plan, water and sewer line easements shall be dedicated to facilitate the extension.

Walkability

The following facilities will be provided to contribute to a walkable community within and surrounding the Chapel Ridge North development:

- Five-foot wide public sidewalk along the western side of Chapel Ridge Road public right-of-way fronting the development.
- Ten-foot wide side path along the eastern and northern side of Chapel Ridge Rd adjacent to land that's a part of this rezoning application (as shown on the Concept Plan).
- Five-foot wide sidewalk along the south side of Ackerman Drive fronting the project.
- A crosswalk will be provided from the future sidewalk on the south side of Ackerman Drive to the existing sidewalk on the north side of Ackerman Drive.
- Six-foot wide private walking trails throughout the development, locations to be determined at site plan.

Transit

The developer shall design, construct and install a bus stop along the west side of Chapel Ridge Road in a location mutually agreed to by the developer and the Traffic Engineering Manager. The bus stop shall include an 8 x 30-foot pad, bench, and bike rack. Construction costs for the bus stop shall not exceed a maximum of $25,000 (the "Cost Limit"). In the event construction costs exceed the Cost Limit, the developer may elect to either (a) pay a fee in lieu of $25,000 for the bus stop, or (b) design and construct the bus stop despite construction costs exceeding the Cost Limit. The bus stop shall be shown on the overall site plan and designed, approved, and constructed concurrently with the project.

Other Utilities and Facilities

Electricity will be provided by Apex Electric. Phone, cable, and gas will be provided by the developer and shall meet the Town of Apex standards as outlined in the UDO.

Streetscape features may be used to help with establishing a framework for the proposed development. These features may include street trees, benches, trash receptacles, and street and/or pedestrian lights compatible with their context.

PHASING PLAN

The development will be completed in multiple phases, which will be determined during site or subdivision plan review.

CONSISTENCY WITH LAND USE PLAN

The proposed development is consistent with Advance Apex 2045: The Apex Comprehensive Plan, adopted February 2019. The 2045 Land Use Map designates the Property as Medium Density Residential. Given the high intensity commercial uses to the north, and the existing high density townhome community to the east, higher density is appropriate in this location. Accordingly, this PUD updates the FLUM designation to High Density Residential.

COMPLIANCE WITH UDO

The development standards adopted for this PUD comply with those set forth in the current version of the Town's Unified Development Ordinance (UDO).

TRANSPORTATION IMPROVEMENTS

The following transportation improvements are proposed:

- All proposed driveway access and improvements on state-maintained roadways are subject to both Apex and NCDOT review and approval. This includes proposed access to Chapel Ridge Road and any modifications to Chapel Ridge Road.
- Chapel Ridge Road shall be extended north to connect to Beaver Creek Commons Drive (the "Road Extension") in the approximate location shown on the Concept Plan. The Road Extension shall be constructed to Town of Apex standards and specifications. At the site plan stage, the portion of the Road Extension shown in pink on the Concept Plan and labeled "Public ROW" shall be dedicated to the Town as public right-of-way (the "Public ROW Section"). The portion of the Public ROW Section south of the shared property line with PIN 0732366134 shall have a minimum ROW width of 60 feet and be constructed to the Minor Collector Street standard. The portion of the Public ROW Section across PIN 0732258769 shall have a minimum ROW width of 50 feet. The portion of the Road Extension shown in orange on the Concept Plan and labeled "Private drive with minimum 45' public access easement" (the "Easement Section") shall be subject to a recorded public access and maintenance agreement with a minimum easement width of 45 feet. The public access and maintenance agreement shall be approved by the Planning Director as to form.
- The center turn lane on Beaver Creek Commons Drive shall be restriped to provide 75 feet of southbound left turn storage and 75 feet of taper at the site driveway.

REPRESENTATIVE BUILDING ELEVATIONS

SOUTHERN TRADITIONAL CLASSIC STYLE

Elevations are conceptual in nature.

SOUTHERN / MODERN FARMHOUSE TRANSITIONAL STYLE

Elevations are conceptual in nature.

MODERN FARMHOUSE STYLE

Elevations are conceptual in nature.

CHAPEL RIDGE NORTH

CHAPEL RIDGE ROAD

APEX, NORTH CAROLINA

PLANNED UNIT DEVELOPMENT PLAN FOR PUD-CZ

PROJECT NUMBER: 2021110513

DATE: MARCH 01, 2022
REVISED: APRIL 08, 2022
REVISED: MAY 13, 2022
REVISED: JUNE 10, 2022
REVISED: JUNE 28, 2022
REVISED: JULY 06, 2022

VICINITY MAP & AERIAL IMAGE

1" = 500'

SHEET INDEX

C0.00	COVER
C1.00	EXISTING CONDITIONS
C2.00	PRELIMINARY LAYOUT PLAN

SITE DATA

PARCEL IDENTIFICATION NUMBER (PIN)	0732343920, 0732340602, 0732249869, 0732256180, 0732347912, 0732354594, 0732352538	
EXISTING ZONING	RR	
PROPOSED ZONING	PUD-CZ	
CURRENT 2045 LAND USE MAP DESIGNATION	MEDIUM DENSITY RESIDENTIAL	
PROPOSED 2045 LAND USE MAP DESIGNATION	HIGH DENSITY RESIDENTIAL	
SITE AREA	APPROX. 20.62 AC - GROSS APPROX. 0.73 - INSIDE R/W APPROX. 19.89 AC - NET	
EXISTING USE	SINGLE FAMILY LOTS	
PROPOSED USE	HIGH DENSITY RESIDENTIAL - APARTMENTS	
DENSITY	MAXIMUM	370 UNITS
BUILDING HEIGHT	MAXIMUM	55' (5 STORIES) *4 STORY MAX FACING PINS 0732343658, 0732340602 AND 0732348711
SETBACKS	FRONT	10'
	SIDE	20'
	REAR	20'
	ALLEY	5'
	CORNER	20'
SETBACKS FROM REQUIRED BUFFERS	10' (BUILDING) 5' (PARKING)	
PARKING	MINIMUM	1.3 SPACES / 1 OR 2 BEDROOM UNITS
	MINIMUM	1.8 SPACES / 3 BEDROOM UNITS
BUILT-UPON AREA (IMPERVIOUS SURFACE)	MAXIMUM PROPOSED	13.93 AC (70%) LESS THAN 13.93 AC (70%)
RESOURCE CONSERVATION AREA	MINIMUM PROPOSED	3.98 AC (20%) MORE THAN 3.98 AC (20%)
WATERSHED PROTECTION OVERLAY	PRIMARY WATERSHED PROTECTION OVERLAY DISTRICT	
FEMA FLOODPLAIN	NONE (FIRM PANEL 3720073200J, EFFECTIVE 05/02/2006)	
HISTORIC STRUCTURES	NONE	

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CLIENT

HIGH STREET DISTRICT DEVELOPMENT, INC.
555 FAYETTEVILLE STREET SUITE 300
RALEIGH, NC 27601
CONTACT: JOSH DIX

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046723 DERICK C. BLANKENSHIP NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	04. 08. 2022	PER TOWN OF APEX COMMENTS
2	05. 13. 2022	PER TOWN OF APEX COMMENTS
3	06. 10. 2022	PER TOWN OF APEX COMMENTS
4	06. 28. 2022	PER TOWN OF APEX COMMENTS
5	07. 06. 2022	PER TOWN OF APEX COMMENTS

PLANNED UNIT DEVELOPMENT PLAN FOR:

CHAPEL RIDGE APARTMENTS
APEX, NC 27502
PROJECT NUMBER: 2021110513

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

M:\Projects\TCR\2021\110513\04-Production\Engineering\Construction Drawings\PUD\Current Drawings\2021110513-CS1.dwg, 7/6/2022 8:10:41 AM, Kody Trowbridge

RIPARIAN BUFFER NOTE

1. RIPARIAN BUFFERS SHOWN ON THIS PLAN WERE DETERMINED BY NATURAL RESOURCE CONSULTANTS. COORDINATION IS ONGOING WITH THE TOWN OF APEX TO VERIFY DETERMINATIONS. TOWN PROJECT ID NUMBER AND FINAL DETERMINATIONS TO BE PROVIDED AT SITE PLAN STAGE.

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	921.12'	316.06'	N 38°54'23" E	314.52'
C2	244.04'	178.84'	S 66°29'09" W	174.86'
C3	199.04'	145.84'	S 66°19'50" W	142.60'
C4	405.00'	50.19'	N 03°10'24" W	50.16'
C5	405.00'	245.94'	N 24°03'35" W	242.18'
C6	405.00'	45.37'	N 44°36'20" W	45.34'
C7	405.00'	118.06'	N 56°11'36" W	117.64'
C8	25.00'	21.02'	S 40°26'59" E	20.41'
C9	50.00'	84.64'	N 64°51'02" W	74.89'
C10	50.00'	62.76'	N 30°41'41" E	58.72'
C11	50.00'	40.00'	S 28°10'58" E	38.94'
C12	50.00'	53.79'	S 81°55'04" E	51.23'
C13	25.00'	21.02'	N 88°38'21" W	20.41'
C14	355.00'	403.13'	N 32°04'56" W	381.81'
C15	2407.57'	172.19'	N 71°16'12" W	172.15'
C16	25.00'	15.09'	N 56°01'37" W	14.86'

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 27°30'03" W	31.60'
L2	N 36°50'22" E	21.14'
L3	N 38°51'36" E	40.28'
L4	N 38°00'37" E	83.84'
L5	N 38°19'59" E	53.41'
L6	N 34°12'14" E	64.39'
L7	N 14°05'07" E	49.58'
L8	N 19°51'56" E	68.19'
L9	N 19°14'28" E	53.93'
L10	S 87°15'57" W	28.56'
L11	S 87°15'57" W	28.56'

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

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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RALEIGH, NC 27601
CONTACT: JOSH DIX

CHAPEL RIDGE NORTH
PLANNED UNIT DVELOPMENT PLAN
APEX, NORTH CAROLINA

REVISIONS

NO.	DATE	
1	04. 08. 2022	PER TOWN OF APEX COMMENTS
2	05. 13. 2022	PER TOWN OF APEX COMMENTS
3	06. 10. 2022	PER TOWN OF APEX COMMENTS
4	06. 28. 2022	PER TOWN OF APEX COMMENTS
5	07. 06. 2022	PER TOWN OF APEX COMMENTS

PLAN INFORMATION

PROJECT NO.	2021110513
FILENAME	2021110513-PUD-XC1
CHECKED BY	DCB
DRAWN BY	KST
SCALE	1"=100'
DATE	03. 01. 2022

SHEET

EXISTING CONDITIONS PLAN
C1.00

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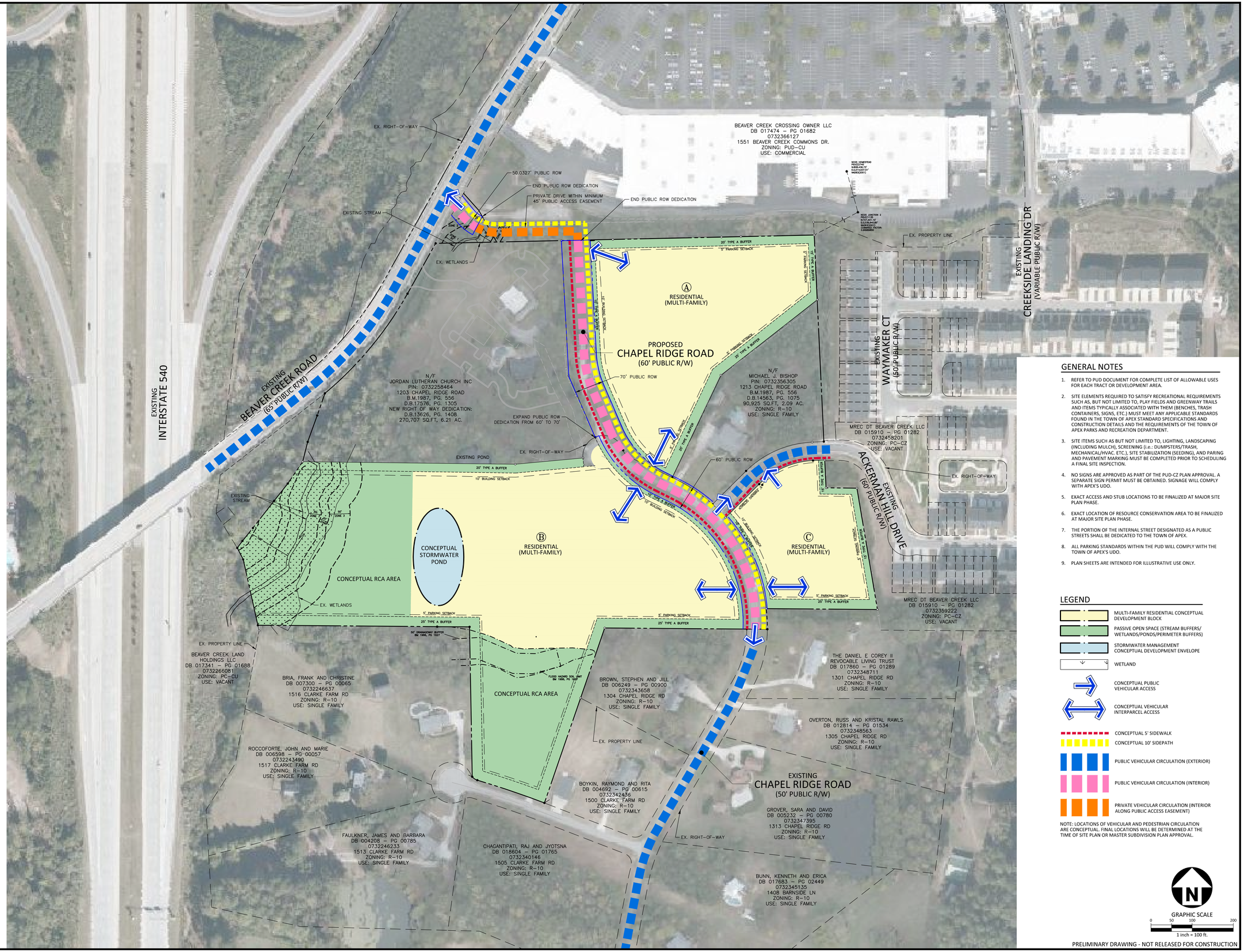

GENERAL NOTES

1. REFER TO PUD DOCUMENT FOR COMPLETE LIST OF ALLOWABLE USES FOR EACH TRACT OR DEVELOPMENT AREA.
2. SITE ELEMENTS REQUIRED TO SATISFY RECREATIONAL REQUIREMENTS SUCH AS, BUT NOT LIMITED TO, PLAY FIELDS AND GREENWAY TRAILS AND ITEMS TYPICALLY ASSOCIATED WITH THEM (BENCHES, TRASH CONTAINERS, SIGNS, ETC.) MUST MEET ANY APPLICABLE STANDARDS FOUND IN THE TOWN OF APEX STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS AND THE REQUIREMENTS OF THE TOWN OF APEX PARKS AND RECREATION DEPARTMENT.
3. SITE ITEMS SUCH AS BUT NOT LIMITED TO, LIGHTING, LANDSCAPING (INCLUDING MULCH), SCREENING (i.e.: DUMPSTERS/TRASH, MECHANICAL/HVAC. ETC.), SITE STABILIZATION (SEEDING), AND PARING AND PAVEMENT MARKING MUST BE COMPLETED PRIOR TO SCHEDULING A FINAL SITE INSPECTION.
4. NO SIGNS ARE APPROVED AS PART OF THE PUD-CZ PLAN APPROVAL. A SEPARATE SIGN PERMIT MUST BE OBTAINED. SIGNAGE WILL COMPLY WITH APEX'S UDO.
5. EXACT ACCESS AND STUB LOCATIONS TO BE FINALIZED AT MAJOR SITE PLAN PHASE.
6. EXACT LOCATION OF RESOURCE CONSERVATION AREA TO BE FINALIZED AT MAJOR SITE PLAN PHASE.
7. THE PORTION OF THE INTERNAL STREET DESIGNATED AS A PUBLIC STREETS SHALL BE DEDICATED TO THE TOWN OF APEX.
8. ALL PARKING STANDARDS WITHIN THE PUD WILL COMPLY WITH THE TOWN OF APEX'S UDO.
9. PLAN SHEETS ARE INTENDED FOR ILLUSTRATIVE USE ONLY.

LEGEND

- MULTI-FAMILY RESIDENTIAL CONCEPTUAL DEVELOPMENT BLOCK
- PASSIVE OPEN SPACE (STREAM BUFFERS/ WETLANDS/PONDS/PERIMETER BUFFERS)
- STORMWATER MANAGEMENT CONCEPTUAL DEVELOPMENT ENVELOPE
- WETLAND
- CONCEPTUAL PUBLIC VEHICULAR ACCESS
- CONCEPTUAL VEHICULAR INTERPARCEL ACCESS
- CONCEPTUAL 5' SIDEWALK
- CONCEPTUAL 10' SIDEPATH
- PUBLIC VEHICULAR CIRCULATION (EXTERIOR)
- PUBLIC VEHICULAR CIRCULATION (INTERIOR)
- PRIVATE VEHICULAR CIRCULATION (INTERIOR ALONG PUBLIC ACCESS EASEMENT)

NOTE: LOCATIONS OF VEHICULAR AND PEDESTRIAN CIRCULATION ARE CONCEPTUAL. FINAL LOCATIONS WILL BE DETERMINED AT THE TIME OF SITE PLAN OR MASTER SUBDIVISION PLAN APPROVAL.

N

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

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CHAPEL RIDGE NORTH
PLANNED UNIT DVELOPMENT PLAN
APEX, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 046723 ENGINEER DAVID C. BLANKENSHIP
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NO.	DATE	
1	04. 08. 2022	PER TOWN OF APEX COMMENTS
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PLAN INFORMATION

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FILENAME	2021110513-PUD-OAS1
CHECKED BY	DCB
DRAWN BY	KST
SCALE	1"=100'
DATE	03. 01. 2022

SHEET

PRELIMINARY LAYOUT PLAN
C2.00

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Traffic Impact Analysis

Chapel Ridge Apartments
Apex, NC

Prepared for:

Trammel Crow Company

Kimley»Horn

Traffic Impact Analysis for

Chapel Ridge Apartments

Apex, North Carolina

Prepared for:

Trammell Crow Company
Raleigh, NC

Prepared by:

Kimley-Horn and Associates, Inc.
NC License #F-0102
300 S. Main Street, Suite 212
Holly Springs, NC 27540
(919) 677-2000

February 2022

011270040

Executive Summary

Kimley-Horn has completed a Traffic Impact Analysis (TIA) for the proposed Chapel Ridge Apartments development located along Chapel Ridge Road at Ackerman Hill Drive in Apex, North Carolina. The site is currently occupied by several single-family homes and as currently envisioned will include approximately 350 apartments. Full build-out of the development was assumed in 2025 for this analysis.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. The traffic conditions studied include the existing (2021) traffic condition as well as the projected (2025) background and build-out traffic conditions.

As shown in Table ES-1, the proposed development has the potential to generate 117 new trips during the AM peak hour and 147 new trips during the PM peak hour on a typical weekday.

Table ES-1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
221	Multifamily Housing (Mid-Rise)	350	d.u.	30	87	90	57

Capacity analyses were performed using Synchro Version 10 and Sidra Intersection 9 software. Table ES-2 summarizes the operation of the study intersections for the AM and PM peak hour traffic conditions.

Table ES-2
Level-of-Service Summary

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Kelly Road at Wendhurst Court/Beaver Creek Commons Drive (Signalized)		
Existing (2021) Traffic	B (11.7)	C (24.5)
Background (2025) Traffic	B (12.3)	C (28.7)
Build-Out (2025) Traffic	B (12.3)	C (28.4)

Table ES-2 (cont.) Level-of-Service Summary		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
Olive Chapel Road at Chapel Ridge Road (Unsignalized)		
Existing (2021) Traffic	SB – B (12.7) EBL – A (8.3)	SB – B (13.6) EBL – A (8.7)
Background (2025) Traffic	SB – B (13.9) EBL – A (8.8)	SB – C (15.8) EBL – A (9.0)
Build-Out (2025) Traffic	SB – B (14.7) EBL – A (8.8)	SB – C (16.6) EBL – A (9.1)
Chapel Ridge Road at Ackerman Hill Drive (Unsignalized)		
Existing (2021) Traffic	WB – A (8.6) SBL – A (7.3)	WB – A (8.7) SBL – A (7.3)
Background (2025) Traffic	WB – A (8.7) SBL – A (7.3)	WB – A (8.7) SBL – A (7.3)
Build-Out (2025) Traffic	WB – A (8.9) SBL – A (7.3)	WB – A (9.2) SBL – A (7.4)
Beaver Creek Commons Drive at Creekside Landing Drive (Roundabout)^		
Existing (2021) Traffic	A (4.2) v/c = 0.16	A (8.5) v/c = 0.47
Background (2025) Traffic	A (4.5) v/c = 0.18	A (9.6) v/c = 0.52
Build-Out (2025) Traffic	A (4.7) v/c = 0.21	B (10.3) v/c = 0.55
Beaver Creek Commons Drive at Proposed Site Access (Unsignalized)		
Build-Out (2025) Traffic	WB – B (11.4) SBL – A (7.8)	WB – B (14.5) SBL – A (8.6)
Chapel Ridge Road at Proposed Site Access/North Site Driveway (Unsignalized)		
Build-Out (2025) Traffic	NB – A (9.2) WBL – A (7.3)	NB – A (9.3) WBL – A (7.5)
Chapel Ridge Road at Central Site Driveway (Unsignalized)		
Build-Out (2025) Traffic	NB – A (9.4) SB – A (9.4) EBL – A (7.4) WBL – A (7.3)	NB – A (9.6) SB – A (9.5) EBL – A (7.3) WBL – A (7.4)
Chapel Ridge Road at South Site Driveway (Unsignalized)		
Build-Out (2025) Traffic	EB – A (9.0) WB – A (9.1) NBL – A (7.3) SBL – A (7.3)	EB – A (9.2) WB – B (9.4) NBL – A (7.3) SBL – A (7.4)
Ackerman Hill Drive at Site Driveway (Unsignalized)		
Build-Out (2025) Traffic	NB – A (8.9) WBL – A (7.3)	NB – A (9.0) WBL – A (7.4)

^Note: Results reported from SIDRA software.

The following roadway improvements are recommended to be performed as part of this project:

Chapel Ridge Road Extension/Proposed Site Access:

- Realign and extend Chapel Ridge Road/Proposed Site Access to Beaver Creek Commons Drive as a two-lane undivided roadway

Beaver Creek Commons Drive at Proposed Site Access:

- Construct the Proposed Site Access with one ingress lane and one egress lane
- Restripe Beaver Creek Commons Drive to provide a southbound left-turn lane with 100 feet of storage

Chapel Ridge Road at Proposed Site Access/North Site Driveway:

- Construct the North Site Driveway with one ingress lane and one egress lane

Chapel Ridge Road at Central Site Driveway:

- Construct the Central Site Driveway with one ingress lane and one egress lane on both minor street approaches

Chapel Ridge Road at South Site Driveway:

- Construct the South Site Driveway with one ingress lane and one egress lane on both minor street approaches

Ackerman Hill Drive at Site Driveway:

- Construct the Site Driveway with one ingress lane and one egress lane

These recommended improvements are shown on **Figure ES-1**.

Analyses indicate that with the recommended improvements in place, all of the study intersections will operate at acceptable LOS at project build-out. Only minor increases in intersection delays are anticipated between the background and build-out conditions, and no queuing issues are anticipated in the build-out traffic condition.

NOT TO SCALE

KELLY RD.

170'

275' (TWLTL)

WENDHURST CT.

BEAVER CREEK COMMONS DR.

275'

(TWLTL) RE-STRIPE

PROPOSED SITE ACCESS

CREEKSIDE LANDING DR.

NORTH SITE DRWY.

SITE

CHAPEL RIDGE RD.

SITE

CENTRAL SITE DRWY.

SOUTH SITE DRWY.

SITE

SITE DRWY.

ACKERMAN HILL DR.

75'

OLIVE CHAPEL RD.

(TWLTL) 150'

LEGEND

- EXISTING LANE
- XX' STORAGE LENGTH
- EXISTING STOP SIGN
- EXISTING TRAFFIC SIGNAL
- EXISTING ROUNDABOUT
- RECOMMENDED LANE
- RECOMMENDED STOP SIGN

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FIGURE ES-1

RECOMMENDED ROADWAY LANEAGE

CHAPEL RIDGE APARTMENTS
APEX, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

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1.0 Introduction

Kimley-Horn has completed a Traffic Impact Analysis (TIA) for the proposed Chapel Ridge Apartments development located along Chapel Ridge Road at Ackerman Hill Drive in Apex, North Carolina. The site is currently occupied by several single-family homes and as currently envisioned will include approximately 350 apartments. Full build-out of the development was assumed in 2025 for this analysis.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. The traffic conditions studied include the existing (2021) traffic condition as well as the projected (2025) background and build-out traffic conditions.

North Carolina Department of Transportation (NCDOT) and Town of Apex staff provided background data and were consulted regarding the elements to be covered in this analysis. The approved Memorandum of Understanding is included in the Appendix of this report.

2.0 Inventory

2.1 *Study Area*

The study area for this development includes the following intersections:

- Kelly Road at Wendhurst Court/Beaver Creek Commons Drive
- Olive Chapel Road at Chapel Ridge Road
- Chapel Ridge Road at Ackerman Hill Drive
- Beaver Creek Commons Drive at Creekside Landing Drive
- Beaver Creek Commons Drive at Proposed Site Access
- Chapel Ridge Road at Proposed Site Access/North Site Driveway
- Chapel Ridge Road at Central Site Driveway
- Chapel Ridge Road at South Site Driveway
- Ackerman Hill Drive at Site Driveway

Figure 2.1 shows the site location, and **Figure 2.2** shows the preliminary layout plan.

2.2 *Existing Conditions*

The proposed Chapel Ridge Apartments development is located along Chapel Ridge Road at Ackerman Hill Drive in Apex, North Carolina. Roadways in the study area include Kelly Road, Olive Chapel Road, Beaver Creek Commons Drive, Creekside Landing Drive, Wendhurst Court, Chapel Ridge Road, and Ackerman Hill Drive. The existing roadway laneage is shown in **Figure 2.3**.

Kelly Road is generally a multi-lane undivided roadway in the vicinity of Beaver Creek Commons Drive with a posted speed limit of 45 mph. NCDOT reported a 2017 average daily traffic (ADT) volume of 14,000 vehicles per day (vpd) south of Beaver Creek Commons Drive.

Olive Chapel Road is generally a 2-lane undivided roadway with a posted speed limit of 45 mph in the vicinity of Chapel Ridge Road. NCDOT reported a 2019 average daily traffic (ADT) volume of 9,700 vehicles per day (vpd) east of Chapel Ridge Road.

Beaver Creek Commons Drive is generally a 3-lane undivided roadway with a posted speed limit of 35 mph. Based on December 2021 traffic count data, the ADT volume on Beaver Creek Commons Drive is approximately 7,000 vpd southwest of the Kohl's driveway.

Creekside Landing Drive is generally a 2-lane undivided roadway with a posted speed limit of 25 mph. Based on December 2021 traffic count data, the ADT volume is approximately 5,200 vpd north of Beaver Creek Commons Drive.

Wendhurst Court is generally a 2-lane undivided roadway with a posted speed limit of 25 mph and an estimated 2021 ADT volume of less than 1,000 vpd.

Chapel Ridge Road is generally a 2-lane undivided roadway with a posted speed limit of 25 mph. Based on December 2021 traffic count data, the ADT volume is estimated to less than 1,000 vpd.

Ackerman Hill Drive is generally a 2-lane undivided roadway with a posted speed limit of 25 mph. Based on December 2021 traffic count data, the ADT volume on Ackerman Hill Drive is less than 1,000 vpd in the vicinity of Chapel Ridge Road.

Kimley»Horn	CHAPEL RIDGE APARTMENTS APEX, NC TRAFFIC IMPACT ANALYSIS	SITE LOCATION	FIGURE 2.1

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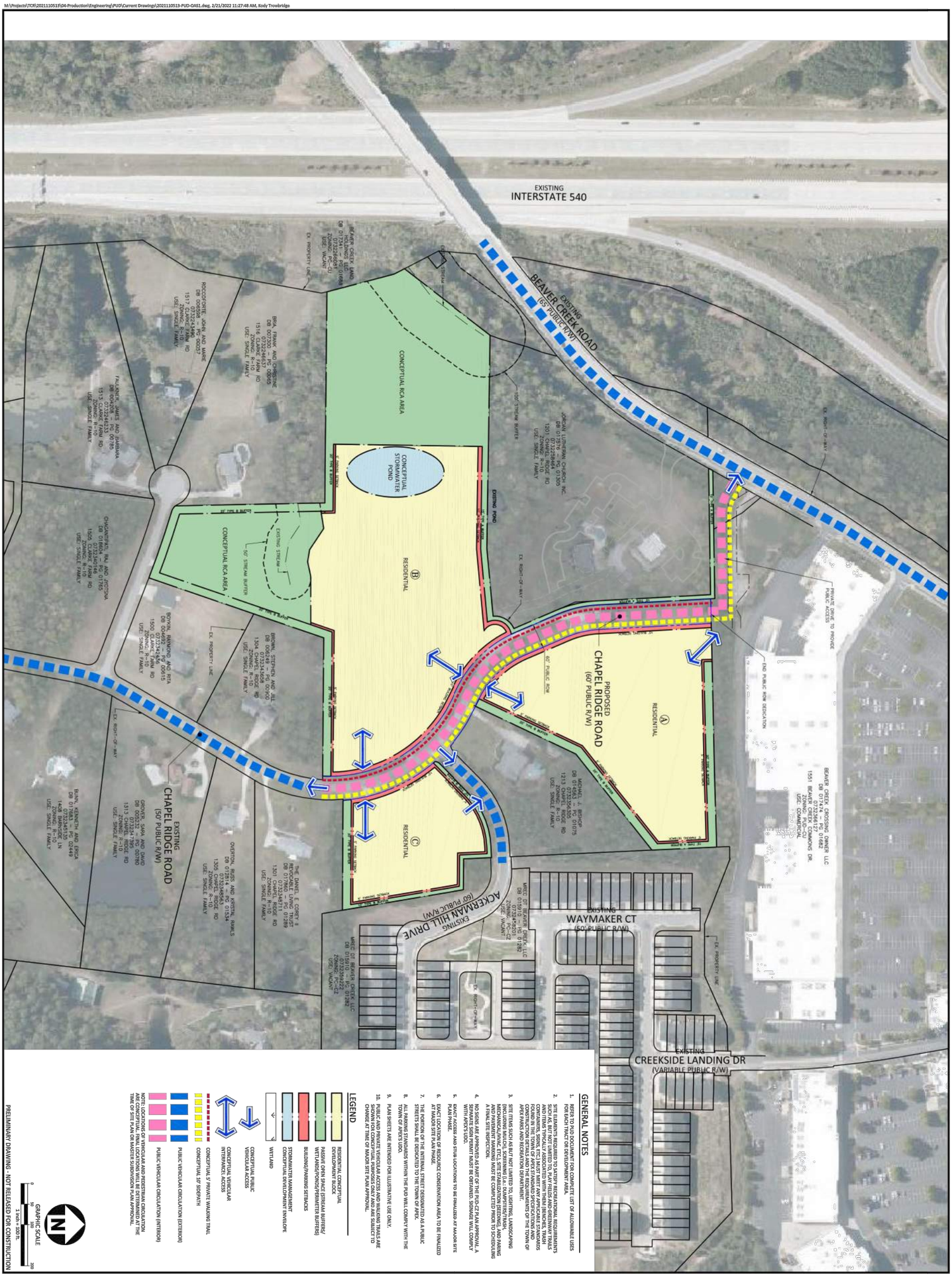

CHAPEL RIDGE APARTMENTS
PRELIMINARY SITE PLAN
APEX, NORTH CAROLINA

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2	. .

PLAN INFORMATION

PROJECT NO.	20211110513
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SCALE	1"=100'
DATE	03.01.2022

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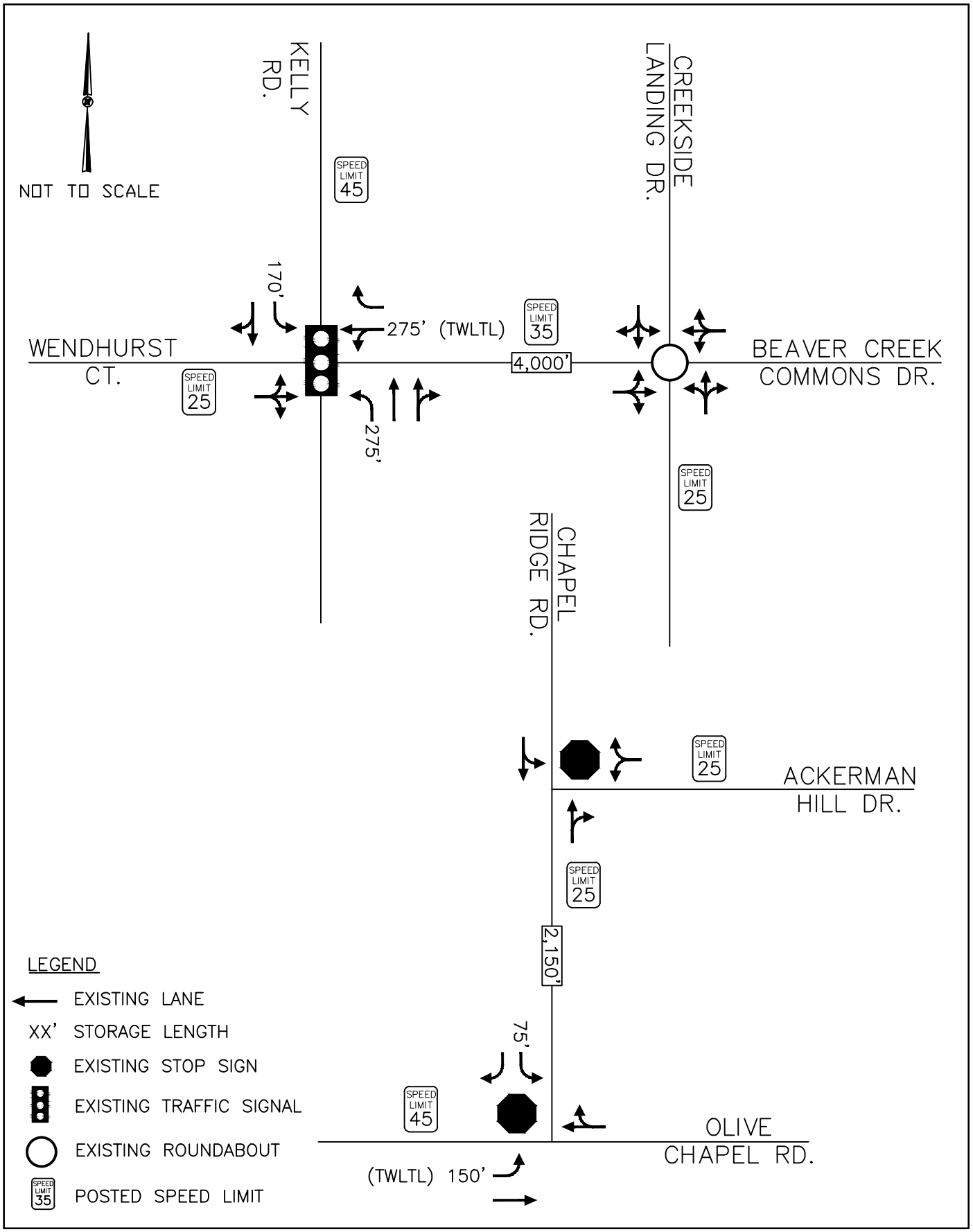
C2.00

Kimley»Horn

CHAPEL RIDGE APARTMENTS
APEX, NC
TRAFFIC IMPACT ANALYSIS

PRELIMINARY LAYOUT PLAN

FIGURE
2.2



Kimley»Horn	CHAPEL RIDGE APARTMENTS APEX, NC TRAFFIC IMPACT ANALYSIS	EXISTING LANEAGE	FIGURE 2.3

3.0 Traffic Generation

The traffic generation potential of the proposed development was determined using the traffic generation data published in *ITE Trip Generation* (Institute of Transportation Engineers, Tenth Edition, 2017). The site is currently occupied by several single-family homes and as currently envisioned will include approximately 350 apartments.

The trip generation potential of the site is shown below in Table 3.1.

Table 3.1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
221	Multifamily Housing (Mid-Rise)	350	d.u.	30	87	90	57

As shown in Table 3.1, the proposed development has the potential to generate 117 new trips during the AM peak hour and 147 new trips during the PM peak hour on a typical weekday. Detailed trip generation calculations are included in the Appendix.

4.0 Site Traffic Distribution

The proposed generated trips were assigned to the surrounding roadway network. The directional distribution and assignment are based on land uses in the area and existing travel patterns and confirmed as part of the TIA scoping discussions with the Town and NCDOT. Site trips were assigned to the network based on the following distribution:

- 40% to/from the north on Kelly Road (via Beaver Creek Commons Drive)
- 20% to/from the east on Beaver Creek Commons Drive
- 15% to/from the east on Olive Chapel Road
- 15% to/from the west on Olive Chapel Road
- 10% to/from the north on Creekside Landing Drive

The site traffic distribution and percent assignment are shown on **Figure 4.1**.

NOT TO SCALE

PROPOSED SITE ACCESS

NORTH SITE DRWY.

CENTRAL SITE DRWY.

SOUTH SITE DRWY.

SITE DRWY.

SITE

SITE

SITE

KELLY RD.

CHAPEL RIDGE RD.

CREEKSIDE LANDING DR.

WENDHURST CT.

BEAVER CREEK COMMONS DR.

OLIVE CHAPEL RD.

ACKERMAN HILL DR.

10%
10%
20%
20%
(10%)
(20%)
CREEKSIDE LANDING DR.
30%
(30%)
(40%)
(20%)
NORTH SITE DRWY.
20%
50%
40%
(50%)
CHAPEL RIDGE RD.
SITE
CENTRAL SITE DRWY.
(10%)
(5%)
10%
(20%)
5%
40%
KELLY RD.
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(40%)
WENDHURST CT.
BEAVER CREEK COMMONS DR.
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OLIVE CHAPEL RD.
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10%
ACKERMAN HILL DR.
10%
(10%)
SITE DRWY.
SITE

LEGEND

XX% INBOUND PERCENT ASSIGNMENT

(XX%) OUTBOUND PERCENT ASSIGNMENT

(XX%) OVERALL DISTRIBUTION

FIGURE 4.1

SITE TRAFFIC DISTRIBUTION AND PERCENT ASSIGNMENT

CHAPEL RIDGE APARTMENTS
APEX, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

5.0 Projected Traffic Volumes

5.1 *Existing Traffic*

AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were performed at the following intersections:

- Kelly Road at Wendhurst Court/Beaver Creek Commons Drive November 16, 2021
- Olive Chapel Road at Chapel Ridge Road November 16, 2021
- Chapel Ridge Road at Ackerman Hill Drive November 16, 2021
- Beaver Creek Commons Drive at Creekside Landing Drive November 16, 2021

Traffic counts were performed while Wake County Public Schools were in session. The existing AM and PM peak hour traffic volumes are shown on **Figures 5.1** and **5.2** respectively, and the traffic count data are included in the Appendix.

5.2 *Historic Growth Traffic*

Historic growth traffic is the increase in traffic due to non-specific growth throughout the area. Based on discussions with Town staff, an annual growth rate of 3% was applied to the intersections in the study area up to the build-out year 2025. No growth was applied to volumes onto/off of Wendhurst Court, Chapel Ridge Road, and the southern leg of Creekside Landing Drive as development along those roadways is either built-out or otherwise accounted for in approved development traffic.

5.3 *Approved Development Traffic*

Approved development traffic is generated by approved, but not yet constructed, projects in the vicinity of the proposed project. For this analysis, site trips from the Olive Chapel Professional Park development were included.

Per the *Olive Chapel Professional Park TIA* (Ramey-Kemp, October 2016), the Olive Chapel Professional Park development is anticipated to include up to approximately 80,000 square feet (SF) of general office space. This project was approximately 50% occupied at the time of this study, so only the remaining 50% of site traffic from this project was included in this analysis as background traffic.

It was also noted that while the Jordan Lutheran Church has been approved on an adjacent parcel along Beaver Creek Commons Drive, that project is expected to have a minimal impact on traffic volumes during the AM and PM peak hours on a typical weekday and as such was not included in this analysis.

5.4 *Total Background Traffic*

Total AM and PM peak hour traffic volumes, which include existing, historic growth, and approved development traffic, are shown on **Figures 5.1** and **5.2**, respectively.

5.5 *Site Traffic*

The proposed site traffic was generated and assigned to the adjacent roadway network according to the distribution discussed previously in *Section 4.0*. The site traffic volumes for the AM and PM peak hours are shown in **Figures 5.3** and **5.4**, respectively.

5.6 *Beaver Creek Commons Drive Connection Traffic Impacts*

As noted, this project will be required to construct a proposed site access that extends Chapel Ridge Road to connect with Beaver Creek Commons Drive and it is anticipated that this new connection will not be restricted to site traffic-use only.

In the existing condition, development traffic from the Hempstead at Beaver Creek Townhomes community has access to Beaver Creek Commons Drive via Creekside Landing Drive in addition to cross-access near the retail stores. However, the proposed connection to Beaver Creek Commons Drive constructed as part of this development is expected to be more direct and, while somewhat longer in terms of travel distance, may include fewer traffic calming measures than the Creekside Landing Drive route. It was conservatively estimated that 55% of traffic from the Hempstead development would use the proposed connection to Beaver Creek Commons Drive in the future, so site trips were generated and assigned to the network generally consistent with the distribution discussed in *Section 4.0*.

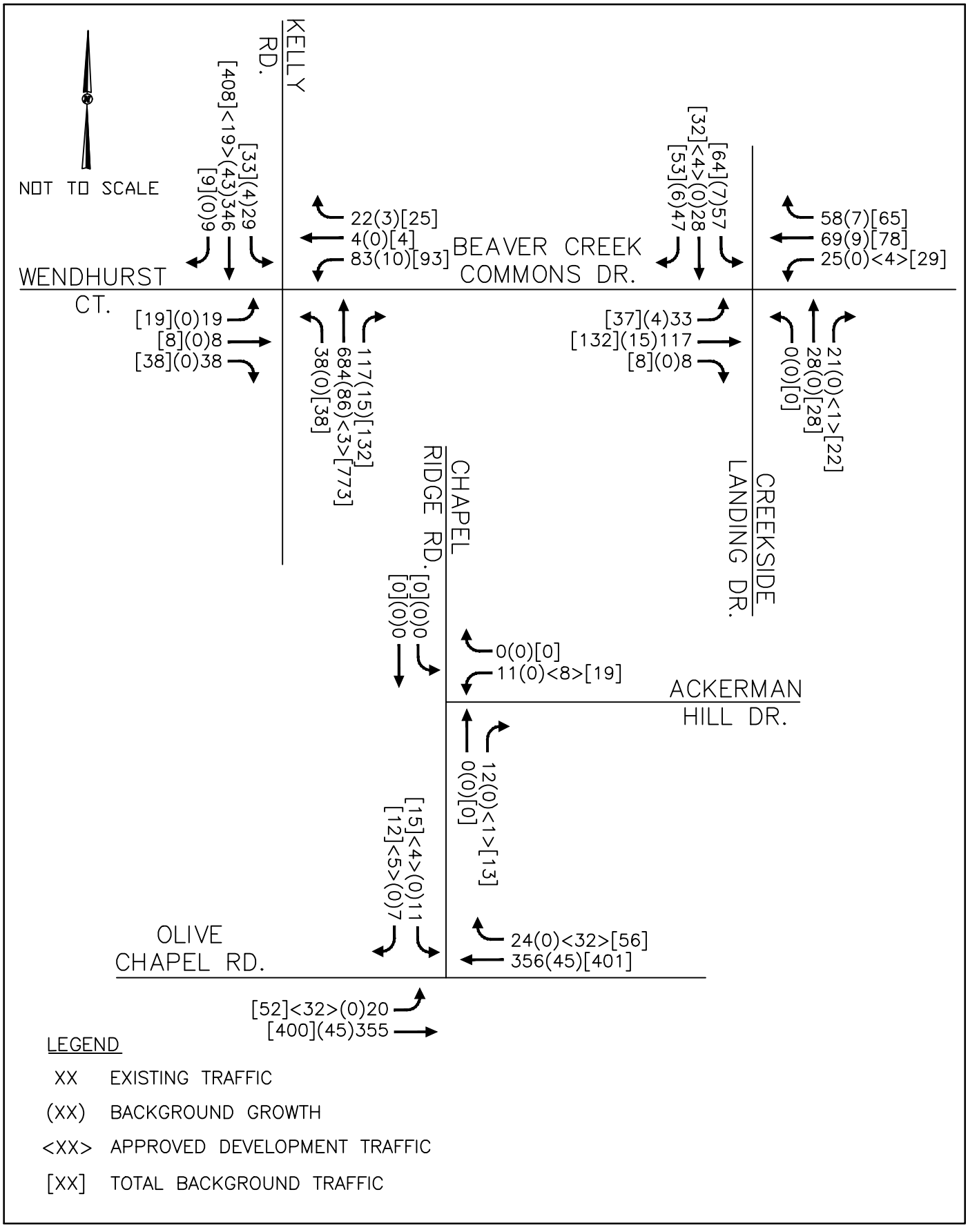
Traffic diversions were also assumed for the Olive Chapel Professional Park project, and while that project is currently 50% built-out, this analysis assumed that all of the site trips assigned to/from the north in the *Olive Chapel Professional Park TIA* would use the new connection to Beaver Creek Commons Drive as opposed to the existing travel path along Creekside Landing Drive through the Hempstead development.

The anticipated traffic diversions associated with the proposed site access construction are shown in **Figures 5.3** and **5.4** for the AM and PM peak hours, respectively.

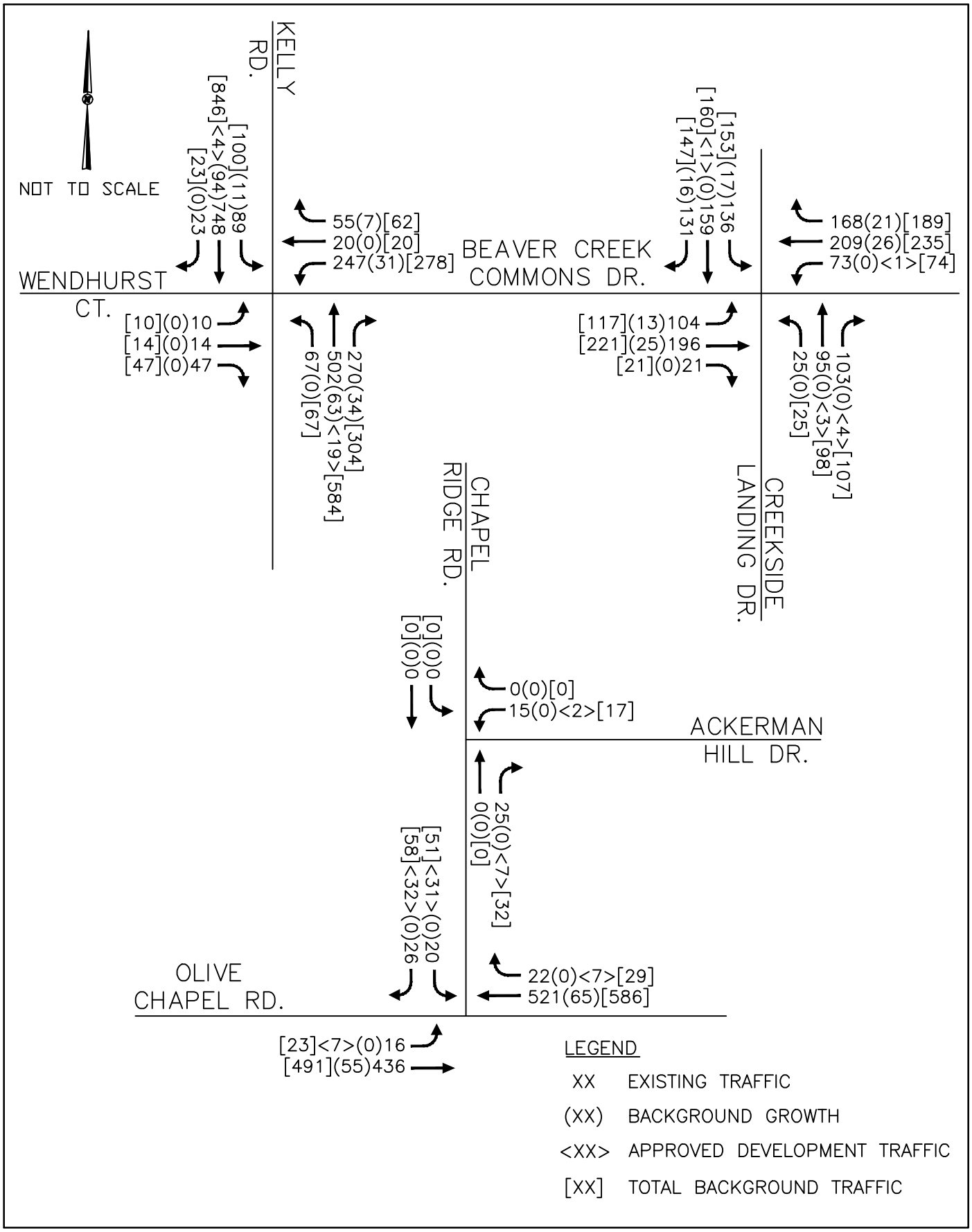
It should be noted that no trip reductions were applied to existing or approved development volumes. The diversions discussed above for the Hempstead and Olive Chapel Professional Park projects were added to projected traffic volumes, which will result in a significant volume of double-counted trips and present very conservative results.

5.7 *Build-Out Traffic*

To obtain the projected (2025) build-out traffic volumes, the projected site traffic and Beaver Creek Commons Drive connection diversion trips were added to the projected (2025) background traffic. Traffic volume calculations are detailed in intersection spreadsheets in the Appendix of this report. **Figures 5.3** and **5.4** show the projected (2025) AM and PM peak hour build-out traffic volumes, respectively.



Kimley»Horn	CHAPEL RIDGE APARTMENTS APEX, NC TRAFFIC IMPACT ANALYSIS	EXISTING AND PROJECTED (2025) BACKGROUND AM PEAK HOUR TRAFFIC VOLUMES	FIGURE 5.1



Kimley»Horn	CHAPEL RIDGE APARTMENTS APEX, NC TRAFFIC IMPACT ANALYSIS	EXISTING AND PROJECTED (2025) BACKGROUND PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 5.2

NOT TO SCALE

KELLY RD.

WENDHURST CT.

BEAVER CREEK COMMONS DR.

[28]{16}<3>(9)0
[125](0)125

PROPOSED SITE ACCESS

[64](0)64
[32](0)32
[64]{8}(3)53

65(0)[65]
78(6){8}[92]
29(0)[29]

[46](9)37
[151]{2}(17)132
[8](0)8

0(0)[0]
28(0)[28]
22(0)[22]

CREEKSIDE LANDING DR.

0(26)<11>{2}[26]
0(35)<28>[63]

0(17)[17]
0(0)[0]

NORTH SITE DRWY.

[6](6)0
[43]{16}<12>(15)0

0(0)[0]
0(44)<39>{2}{85}

RIDGE RD.

CHAPEL

[9](9)0
[0](0)0
[4](4)0

0(3)[3]
0(17)<39>{2}[58]
0(2)[2]

[2](2)0
[34]{16}<12>(6)0
[8](8)0

0(4)[4]
0(0)[0]
0(22)[22]

CENTRAL SITE DRWY.

SITE

SITE

INSET

INSET

0(9)<39>[48]
19(0)[19]

[15]<12>(3)0
[32]{16}(16)0

13(0)[13]
0(14){2}[16]

[48]{16}(13)19
[2](2)0

0(4)[4]
0(0)[0]
0(4)[4]

[4](4)0
[0](0)0
[9](9)0

13(5){2}[20]
0(3)[3]

0(2)[2]

19(0)<39>[58]
0(0)[0]

ACKERMAN HILL DR.

[25]<12>(0)13
[3](3)0

0(0)[0]
0(9)[9]

SOUTH SITE DRWY.

SITE

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[21](9)12

56(6)[62]
401(0)[401]

OLIVE CHAPEL RD.

[55](3)52
[400](0)400

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[8](0)8
[38](0)38

132(0)[132]
773(0)[773]
38(0)[38]

25(35)<28>[88]
4(0)[4]
93(0)[93]

[53]<8>(12)33
[408](0)408
[9](0)9

0(12)<8>[20]
210(0)[210]

LEGEND

XX BACKGROUND TRAFFIC
(XX) SITE TRAFFIC
<XX> HEMPSTEAD TRAFFIC DIVERSION
{XX} OLIVE CHAPEL PROFESSIONAL PARK REASSIGNMENT
[XX] TOTAL BACKGROUND TRAFFIC

FIGURE 5.3

PROJECTED (2025)
BUILD-OUT AM
PEAK HOUR TRAFFIC VOLUMES

CHAPEL RIDGE APARTMENTS
APEX, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

NOT TO SCALE

KELLY RD.

WENDHURST CT.

BEAVER CREEK COMMONS DR.

PROPOSED SITE ACCESS

CREEKSIDE LANDING DR.

CHAPEL RIDGE RD.

NORTH SITE DRWY.

CENTRAL SITE DRWY.

SOUTH SITE DRWY.

ACKERMAN HILL DR.

OLIVE CHAPEL RD.

SITE

INSET

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[846](0)846
[23](0)23
62(23)<16>[101]
20(0)[20]
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[10](0)10
[14](0)14
[47](0)47
304(0)[304]
584(0)[584]
67(0)[67]
[41]{4}<10>(27)0
[377](0)377
0(17)<6>{14}[17]
0(23)<16>[39]
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235(18){2}[255]
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[240]{8}(11)221
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98(0)[98]
25(0)[25]
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0(3)[3]
0(0)[0]
[62](11)51
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586(0)[586]
[32](9)23
[491](0)491
[47]<38>(9)0
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0(6)<22>[28]
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0(20){14}[34]
[5](5)0
[30]{4}(9)17
[5](5)0
0(3)[3]
0(0)[0]
0(3)[3]
[3](3)0
[0](0)0
[6](6)0
0(9)[9]
32(14){14}[60]
0(5)[5]
17(0)<22>[39]
0(0)[0]
[70]<38>(0)32
[9](9)0
0(0)[6]

LEGEND

XX BACKGROUND TRAFFIC

(XX) SITE TRAFFIC

<XX> HEMPSTEAD TRAFFIC DIVERSION

{XX} OLIVE CHAPEL PROFESSIONAL PARK REASSIGNMENT

[XX] TOTAL BACKGROUND TRAFFIC

FIGURE 5.4

PROJECTED (2025) BUILD-OUT PM PEAK HOUR TRAFFIC VOLUMES

CHAPEL RIDGE APARTMENTS
APEX, NC
TRAFFIC IMPACT ANALYSIS

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6.0 Capacity Analysis

Highway Capacity Manual LOS Thresholds

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time duration. Capacity is combined with Level-of-Service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection.

For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by Synchro or SimTraffic or computable using methodology published in the *Highway Capacity Manual.* It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. Table 6.0 lists the LOS control delay thresholds published in the *Highway Capacity Manual* for signalized and unsignalized intersections.

Table 6.0
Level-of-Service Control Delay Thresholds

Level-of-Service	Signalized Intersections – Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections – Average Control Delay [sec/veh] & Qualitative Operational Description	
A	≤ 10	≤ 10	Short Delays
B	> 10 – 20	> 10 – 15	
C	> 20 – 35	> 15 – 25	
D	> 35 – 55	> 25 – 35	Moderate Delays
E	> 55 – 80	> 35 – 50	
F	> 80	> 50	Long Delays

Right-turns on red were allowed as currently permitted in the field. As there is no expectation that right-turns on red would be prohibited due to the addition of background or site traffic, field conditions were maintained for consistency. Additionally, existing peak hour factors (PHF) were used at existing intersections, while a 0.90 PHF was used at new intersections. As actual PHF were confirmed from field-collected data, and since it is typical for PHF to at least be maintained or increased with study area build-out, the use of actual PHF was determined to be appropriate.

Capacity analyses were performed for the AM and PM peak hours using Synchro/SimTraffic Version 10 and Sidra Intersection 9 software to determine the operating characteristics of the adjacent road network and the impacts of the proposed project. Those analyses are included in the Appendix and are briefly summarized in the following sub-sections.

6.1 *Kelly Road at Wendhurst Court/Beaver Creek Commons Drive*

Analyses indicate that the signalized intersection of Kelly Road at Wendhurst Court/Beaver Creek Commons Drive currently operates at LOS B in the AM peak hour and LOS C in the PM peak hour. The intersection is expected to continue operating at LOS B in the AM peak hour and LOS C in the PM peak hour in the study year 2025 with or without the proposed project in place. As only minor increases in delays are anticipated with the project in place, and since site traffic is anticipated to account for less than 3% of total intersection traffic at project build-out, no improvements are recommended to be performed at this intersection to accommodate site traffic. Note that the minor decrease in delay between the background and build-out conditions in the PM peak hour is likely due to the addition of site trips to movements already operating at acceptable levels of service and the associated weighted-average methodology for delay calculations. Such decreases are negligible and are not uncommon.

Table 6.1 summarizes operations at the intersection of Kelly Road at Wendhurst Court/Beaver Creek Commons Drive for the existing (2021) and projected (2025) background and build-out traffic conditions.

Table 6.1
Level-of-Service
Kelly Road at Wendhurst Court/Beaver Creek Commons Drive (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	B (11.7)	C (24.5)
Background (2025) Traffic	B (12.3)	C (28.7)
Build-Out (2025) Traffic	B (12.3)	C (28.4)

6.2 *Olive Chapel Road at Chapel Ridge Road*

Analyses indicate that the unsignalized intersection of Olive Chapel Road at Chapel Ridge Road currently operates with short delays on the minor street approach (Chapel Ridge Road) in both peak hours. In the 2025 study year the intersection is expected to continue operating with short delays on the minor street approaches in both peak hours with or without the proposed project in place.

For reference, a signal warrant analysis was also performed at this intersection to determine if projected (2025) build-out traffic volumes met volume warrants in the Manual for Uniform Traffic Control Devices (MUTCD). Based on this analysis, projected (2025) build-out traffic volumes are not expected to meet peak, 4-hour, or 8-hour volume warrants. Traffic signal warrant data is included in the Appendix of this report.

Since only minor increases in delays and queues are anticipated with the addition of site traffic, no improvements are recommended to be performed at this intersection to accommodate site traffic.

Table 6.2 summarizes operations at the intersection of Olive Chapel Road at Chapel Ridge Road for the existing (2021) and projected (2025) background and build-out traffic conditions.

Table 6.2
Level-of-Service
Olive Chapel Road at Chapel Ridge Road (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	SB – B (12.7) EBL – A (8.3)	SB – B (13.6) EBL – A (8.7)
Background (2025) Traffic	SB – B (13.9) EBL – A (8.8)	SB – C (15.8) EBL – A (9.0)
Build-Out (2025) Traffic	SB – B (14.7) EBL – A (8.8)	SB – C (16.6) EBL – A (9.1)

6.3 *Chapel Ridge Road at Ackerman Hill Drive*

Analyses indicate that the unsignalized intersection of Chapel Ridge Road at Ackerman Hill Drive currently operates with short delays on the minor street approach (Ackerman Hill Drive) in both peak hours. In the 2025 study year, the intersection is expected to continue operating with short delays on the minor street approaches in both peak hours with or without the proposed project in place. Since only minor increases in delays and queues are anticipated with the addition of site traffic, no improvements are recommended to be performed at this intersection to accommodate site traffic.

Table 6.3 summarizes operations at the intersection of Chapel Ridge Road at Ackerman Hill Drive for the existing (2021) and projected (2025) background and build-out traffic conditions.

Table 6.3
Level-of-Service
Chapel Ridge Road at Ackerman Hill Drive (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	WB – A (8.6) SBL – A (7.3)	WB – A (8.7) SBL – A (7.3)
Background (2025) Traffic	WB – A (8.7) SBL – A (7.3)	WB – A (8.7) SBL – A (7.3)
Build-Out (2025) Traffic	WB – A (8.9) SBL – A (7.3)	WB – A (9.2) SBL – A (7.4)

6.4 *Beaver Creek Commons Drive at Creekside Landing Drive*

Analyses indicate that the roundabout intersection of Beaver Creek Commons Drive at Creekside Landing Drive currently operates at LOS A and low volume to capacity ratios in both peak hours. In the 2025 study year, the intersection is expected to continue operating at acceptable overall LOS and low volume to capacity ratios with or without the proposed project in place. No queueing issues are expected at this intersection. Therefore, no improvements are recommended to be performed to accommodate site traffic at this intersection.

Table 6.4 summarizes operations at the intersection of Beaver Creek Commons Drive at Creekside Landing Drive for the existing (2021) and projected (2025) background and build-out traffic conditions.

Table 6.4
Level-of-Service
Beaver Creek Commons Drive at Creekside Landing Drive^

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	A (4.2) v/c = 0.16	A (8.5) v/c = 0.47
Background (2025) Traffic	A (4.5) v/c = 0.18	A (9.6) v/c = 0.52
Build-Out (2025) Traffic	A (4.7) v/c = 0.21	B (10.3) v/c = 0.55

^Note: Results reported from SIDRA software.

6.5 *Beaver Creek Commons Drive at Proposed Site Access*

As required by the Town, site access is proposed along Beaver Creek Commons Drive. This connection is proposed as a full-movement site driveway approximately 1,800 feet southwest of Creekside Landing Drive, and it was assumed that Beaver Creek Commons Drive would be restriped to provide a left-turn lane into the Site Access. Analyses indicate that this intersection is expected to operate with short delays and queues on the minor street approach (Proposed Site Access) at project build-out.

Table 6.5 summarizes operations at the intersection of Beaver Creek Commons Drive at Proposed Site Access for the build-out (2025) traffic condition.

Table 6.5
Level-of-Service
Beaver Creek Commons Drive at Proposed Site Access (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2025) Traffic	WB – B (11.4) SBL – A (7.8)	WB – B (14.5) SBL – A (8.6)

6.6 *Chapel Ridge Road at Proposed Site Access/North Site Driveway*

A full-movement site driveway with one ingress lane and one egress lane is proposed to be constructed on Chapel Ridge Road approximately 350 feet east of Beaver Creek Commons Drive and align with the Site Access connection to Beaver Creek Commons Driveway. This driveway is proposed to be constructed with one ingress and one egress lane, and analyses indicate that this intersection is expected to operate with short delays and queues on the minor street approach (Chapel Ridge Road) at project build-out.

Table 6.6 summarizes operations at the intersection of Chapel Ridge Road at Proposed Site Access/North Site Driveway for the projected (2025) build-out traffic condition.

Table 6.6
Level-of-Service
Chapel Ridge Road at Proposed Site Access/North Site Driveway (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2025) Traffic	NB – A (9.2) WBL – A (7.3)	NB – A (9.3) WBL – A (7.5)

6.7 *Chapel Ridge Road at Central Site Driveway*

A full-movement site driveway with one ingress lane and one egress lane is proposed to be constructed on Chapel Ridge Road approximately 175 feet west of Ackerman Hill Drive. This intersection is proposed to be constructed with one ingress and one egress lane, and analyses indicate that this intersection is expected to operate with short delays and queues on the minor street approach (Central Site Driveway) at project build-out.

Table 6.7 summarizes operations at the intersection of Chapel Ridge Road at Central Site Driveway for the projected (2025) build-out traffic condition.

Table 6.7
Level-of-Service
Chapel Ridge Road at Central Site Driveway (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2025) Traffic	NB – A (9.4) SB – A (9.4) EBL – A (7.4) WBL – A (7.3)	NB – A (9.6) SB – A (9.5) EBL – A (7.3) WBL – A (7.4)

6.8 *Chapel Ridge Road at South Site Driveway*

A full-movement site driveway with one ingress lane and one egress lane is proposed to be constructed on Chapel Ridge Road approximately 250 feet south of Ackerman Hill Drive. Analyses indicate that this intersection is expected to operate with short delays and queues on the minor street approach (South Site Driveway) at project build-out.

Table 6.8 summarizes operations at the intersection of Chapel Ridge Road at South Site Driveway for the projected (2025) build-out traffic condition.

Table 6.8
Level-of-Service
Chapel Ridge Road at South Site Driveway (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2025) Traffic	EB – A (9.0) WB – A (9.1) NBL – A (7.3) SBL – A (7.3)	EB – A (9.2) WB – B (9.4) NBL – A (7.3) SBL – A (7.4)

6.9 *Ackerman Hill Drive at Site Driveway*

A full-movement site driveway with one ingress lane and one egress lane is proposed to be constructed on Ackerman Hill Drive approximately 175 feet east of Chapel Ridge Road. This intersection is proposed to be constructed with one ingress and one egress lane, and analyses indicate that this intersection is expected to operate with short delays and queues on the minor street approach (Site Driveway) at project build-out.

Table 6.9 summarizes operations at the intersection of Ackerman Hill Drive at Site Driveway for the projected (2025) build-out traffic condition.

Table 6.9
Level-of-Service
Ackerman Hill Drive at Site Driveway (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2025) Traffic	NB – A (8.9) WBL – A (7.3)	NB – A (9.0) WBL – A (7.4)

7.0 Supplemental Analysis – With Chapel Ridge Townes

The Chapel Ridge Townes project, which envisioned the construction of 116 townhomes, was previously proposed for construction in the northeast corner of the intersection of the Olive Chapel Road at Chapel Ridge Road. While that proposed rezoning was denied through the public hearing process and therefore would not have any impacts on the network, Town staff indicated that supplemental analyses considering the potential impact of such a project on the network would provide helpful context with this study. It should be noted that the intent of this supplemental analysis was for information purposes only and not to identify additional improvements required of the Chapel Ridge Apartments project since the additional trip impact discussed in this section is associated with a project that was not approved.

7.1 *Background Volume Development*

No changes were made to existing AM and PM peak hour traffic volumes or historic growth traffic as discussed in *Section 5*. For this supplemental analysis, the trip generation for the Chapel Ridge Townes project was obtained from the "Chapel Ridge Tracts Residential Development Trip Generation Letter" (Exult Engineering, March 2021) and is shown below in Table 7.1.

Table 7.1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
220	Multifamily Housing (Low-Rise)	116	d.u.	13	42	43	25

The proposed generated trips were assigned to the surrounding roadway network. The directional distribution and assignment are based on land uses in the area and existing travel patterns generally consistent with the Chapel Ridge Apartments project. Site trips were assigned to the network based on the following distribution:

- 50% to/from the west on Olive Chapel Road
- 40% to/from the east on Olive Chapel Road
- 5% to/from the east on Beaver Creek Commons Drive
- 5% to/from the north on Creekside Landing Drive

Total background traffic volumes for this supplemental analysis included existing traffic and historic growth traffic volumes as well as approved development traffic volumes, which included the build-out of the Olive Chapel Professional Park project as well as the Chapel Ridge Townes project. These calculations are detailed on intersection spreadsheets in the Appendix of this report.

7.2 *Beaver Creek Commons Drive Traffic Impacts*

Similar to the Olive Chapel Professional Park diversion discussed in *Section 5*, it is anticipated that the proposed connection to Beaver Creek Commons Drive would also result in traffic diversion from this previously-proposed project. Chapel Ridge Townes site trips to/from the north on Ackerman Hill Drive included as approved development trips in the background condition were diverted to the new connection in the build-out condition of this supplemental analysis.

No changes to Chapel Ridge Apartments site traffic were made for this supplemental analysis.

To obtain the projected build-out traffic volumes for this supplemental analysis, the projected site traffic and Beaver Creek Commons Drive connection diversion trips were added to the projected background traffic noted in *Section 7.1*. Traffic volume calculations are detailed in intersection spreadsheets in the Appendix of this report.

7.3 *Capacity Analysis*

Capacity analyses were performed for the AM and PM peak hours using Synchro/SimTraffic Version 10 and Sidra Intersection 9 software to determine the operating characteristics of the adjacent road network and the impacts of the proposed project. As no changes were made to the existing traffic condition analyses summarized previously in this report, only results for the supplemental background and build-out conditions are reported below in Table 7.2.

Table 7.2
Level-of-Service Summary – Supplemental Analysis

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Kelly Road at Wendhurst Court/Beaver Creek Commons Drive (Signalized)		
Background (2025) Traffic	B (12.3)	C (28.7)
Build-Out (2025) Traffic	B (12.3)	C (28.4)
Olive Chapel Road at Chapel Ridge Road (Unsignalized)		
Background (2025) Traffic	SB – B (13.9) EBL – A (8.8)	SB – C (15.8) EBL – A (9.0)
Build-Out (2025) Traffic	SB – B (14.7) EBL – A (8.8)	SB – C (16.6) EBL – A (9.1)
Chapel Ridge Road at Ackerman Hill Drive (Unsignalized)		
Background (2025) Traffic	WB – A (8.7) SBL – A (7.3)	WB – A (8.8) SBL – A (7.3)
Build-Out (2025) Traffic	WB – A (8.9) SBL – A (7.3)	WB – A (9.2) SBL – A (7.4)

Table 7.2 (cont.) Level-of-Service Summary		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
Beaver Creek Commons Drive at Creekside Landing Drive (Roundabout)		
Background (2025) Traffic	A (4.5) v/c = 0.19	A (9.7) v/c = 0.53
Build-Out (2025) Traffic	A (4.7) v/c = 0.22	B (10.3) v/c = 0.55
Beaver Creek Commons Drive at Proposed Site Access (Unsignalized)		
Build-Out (2025) Traffic	WB – B (11.4) SBL – A (7.8)	WB – B (14.5) SBL – A (8.6)
Chapel Ridge Road at Proposed Site Access/North Site Driveway (Unsignalized)		
Build-Out (2025) Traffic	NB – A (9.3) WBL – A (7.3)	NB – A (9.3) WBL – A (7.5)
Chapel Ridge Road at Central Site Driveway (Unsignalized)		
Build-Out (2025) Traffic	NB – A (9.5) SB – A (9.4) EBL – A (7.4) WBL – A (7.3)	NB – A (9.7) SB – A (9.5) EBL – A (7.3) WBL – A (7.4)
Chapel Ridge Road at South Site Driveway (Unsignalized)		
Build-Out (2025) Traffic	EB – A (9.0) WB – A (9.1) NBL – A (7.3) SBL – A (7.3)	EB – A (9.2) WB – B (9.4) NBL – A (7.3) SBL – A (7.4)
Ackerman Hill Drive at Site Driveway (Unsignalized)		
Build-Out (2025) Traffic	WB – A (8.9) SBL – A (7.3)	WB – A (9.1) SBL – A (7.4)

8.0 Recommendations

The following roadway improvements are recommended to be performed as part of this project:

Chapel Ridge Road Extension/Proposed Site Access:

- Realign and extend Chapel Ridge Road/Proposed Site Access to Beaver Creek Commons Drive as a two-lane undivided roadway

Beaver Creek Commons Drive at Proposed Site Access:

- Construct the Proposed Site Access with one ingress lane and one egress lane
- Restripe Beaver Creek Commons Drive to provide a southbound left-turn lane with 100 feet of storage

Chapel Ridge Road at Proposed Site Access/North Site Driveway:

- Construct the North Site Driveway with one ingress lane and one egress lane
- Extend Chapel Ridge Road approximately 600 feet with one ingress lane and one egress lane

Chapel Ridge Road at Central Site Driveway:

- Construct the Central Site Driveway with one ingress lane and one egress lane

Chapel Ridge Road at South Site Driveway:

- Construct the South Site Driveway with one ingress lane and one egress lane

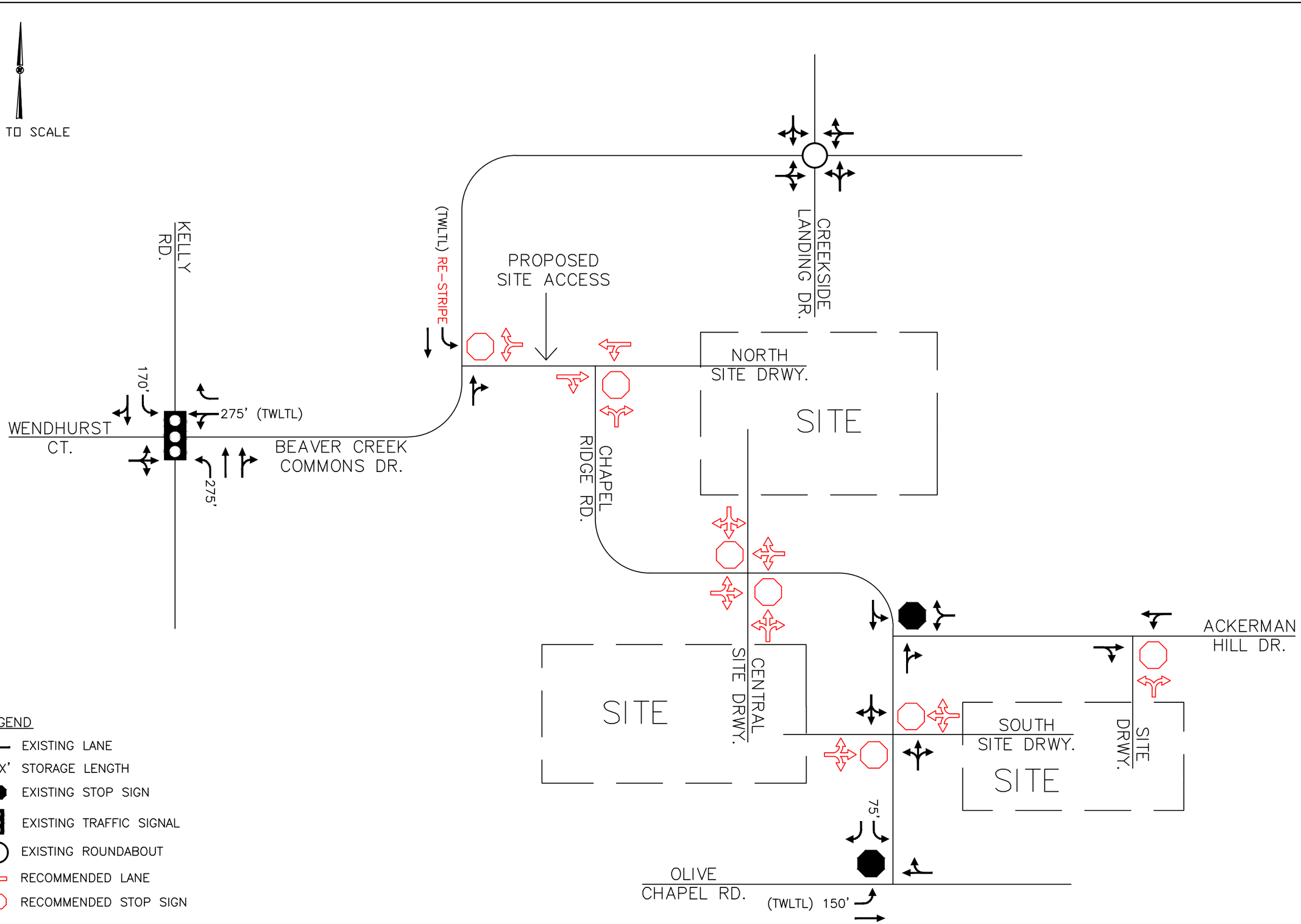
Ackerman Hill Drive at Site Driveway:

- Construct the Site Driveway with one ingress lane and one egress lane

These recommended improvements are also shown on **Figure 8.1**.

Analyses indicate that with the recommended improvements in place, all of the study intersections will operate at acceptable LOS at project build-out. Only minor increases in intersection delays are anticipated between the background and build-out conditions, and no queuing issues are anticipated in the build-out traffic condition.

NOT TO SCALE



LEGEND

- EXISTING LANE
- XX' STORAGE LENGTH
- EXISTING STOP SIGN
- EXISTING TRAFFIC SIGNAL
- EXISTING ROUNDABOUT
- RECOMMENDED LANE
- RECOMMENDED STOP SIGN

FIGURE 8.1

RECOMMENDED ROADWAY LANEAGE

CHAPEL RIDGE APARTMENTS
APEX, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

K:\DUR_LDEV\011270040 Chapel Ridge Apex\T5 - Report-Submittals\Figures\Chapel Ridge Apartments - TIA Figures.dwg

Appendix

Appendix A:
Approved TIA Assumptions Memo

Preliminary Assumptions
Chapel Ridge Apartments - Traffic Impact Analysis
Apex, North Carolina

KHA will perform an analysis for the proposed Chapel Ridge Apartments project, which is proposed to be located along Chapel Ridge Road at Ackerman Hill Drive in Apex, North Carolina. The site is currently occupied by several single-family parcels and as currently envisioned will include approximately 350 apartments. Build-out is anticipated in the year 2025. The following assumptions will be used in the analysis based on a TIA scoping meeting conducted with the Town of Apex on November 29, 2021.

Study Scenarios

The study scenarios will consist of:

- Existing (2021)
- Background (2025)
- Build-out (2025)
- Supplemental Background (2025): with Chapel Ridge Tracts Residential
- Supplemental Build-out (2025): with Chapel Ridge Tracts Residential

Study Intersections

The study area will consist of the following intersections:

- Kelly Road at Beaver Creek Commons Drive/Wendhurst Court
- Beaver Creek Commons Drive at Creekside Landing Drive
- Olive Chapel Road at Chapel Ridge Road
- Beaver Creek Commons at Proposed Site Access

Existing Volume Development

Existing traffic counts will be collected in 15-minute intervals for the AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) at each of the existing study intersections while Wake County Public Schools are in session. No volume adjustments will be applied to existing traffic counts.

Background Volume Development

A 3% annual growth rate will be applied to existing traffic volumes up to the study year 2025 except for trips onto/off of Wendhurst Court, Chapel Ridge Road, and the southern leg of Creekside Landing Drive as development along those roadways is either built-out or otherwise accounted for in approved development traffic (discussed below).

Two developments were identified for inclusion in this analysis as background.

The Olive Chapel Professional Park, located generally northwest of the Olive Chapel Road – Chapel Ridge Road intersection, is currently partially built-out. It is assumed that this project will reach full build-out by the study year 2025, so the remaining site traffic will be included in this analysis as background traffic.

Per the “Chapel Ridge Tracts Residential Development Trip Generation Letter”, that project proposed the construction of 116 townhomes generally northeast of the Olive Chapel Road – Chapel Ridge Road intersection. While that rezoning was not approved, site traffic from that project will be included in this analysis to account for potential development on that parcel. As a formal TIA was not required for that project, site trip generation will be obtained from the Trip

Generation and assigned to the Olive Chapel Road – Chapel Ridge Road intersection based on an assigned site traffic assignment.

Based on discussions with Town staff, no development or roadway projects in the area are anticipated to result in traffic diversions that would impact any of the study intersections.

Trip Generation

Trip generation for this project will be performed using data from the 10th Edition of the ITE Trip Generation Manual. Trip generation calculations are attached. To be conservative, no reduction will be applied to account for trips generated by the existing single-family residences that will be replaced as part of this project.

Site Traffic Distribution

The following distribution will be used for project site traffic as shown on the attached sketch:

- 40% to/from the north on Kelly Road (via Beaver Creek Commons Drive)
- 20% to/from the east on Beaver Creek Commons Drive
- 15% to/from the east on Olive Chapel Road
- 15% to/from the west on Olive Chapel Road
- 10% to/from the north on Creekside Landing Drive

Other Study Assumptions

- Existing peak hour factors (PHF's) will be used at existing intersections, while a PHF of 0.90 will be used at new intersections.
- Right-turns on red (RTOR) will be included in the analysis where currently permitted in the field.
- Existing signal timings will be used in the existing condition, though timings may be optimized in the future traffic conditions.
- Analyses will be performed using Synchro/SimTraffic version 10.

Chapel Ridge Apartments

Table 1 - Trip Generation

Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour		
		Total	Total	In	Out	Total	In	Out
221 Multifamily Housing (Mid-Rise)	350 d.u.	1,906	117	30	87	147	90	57
Total Net New External Trips		**1,906**	**117**	**30**	**87**	**147**	**90**	**57**

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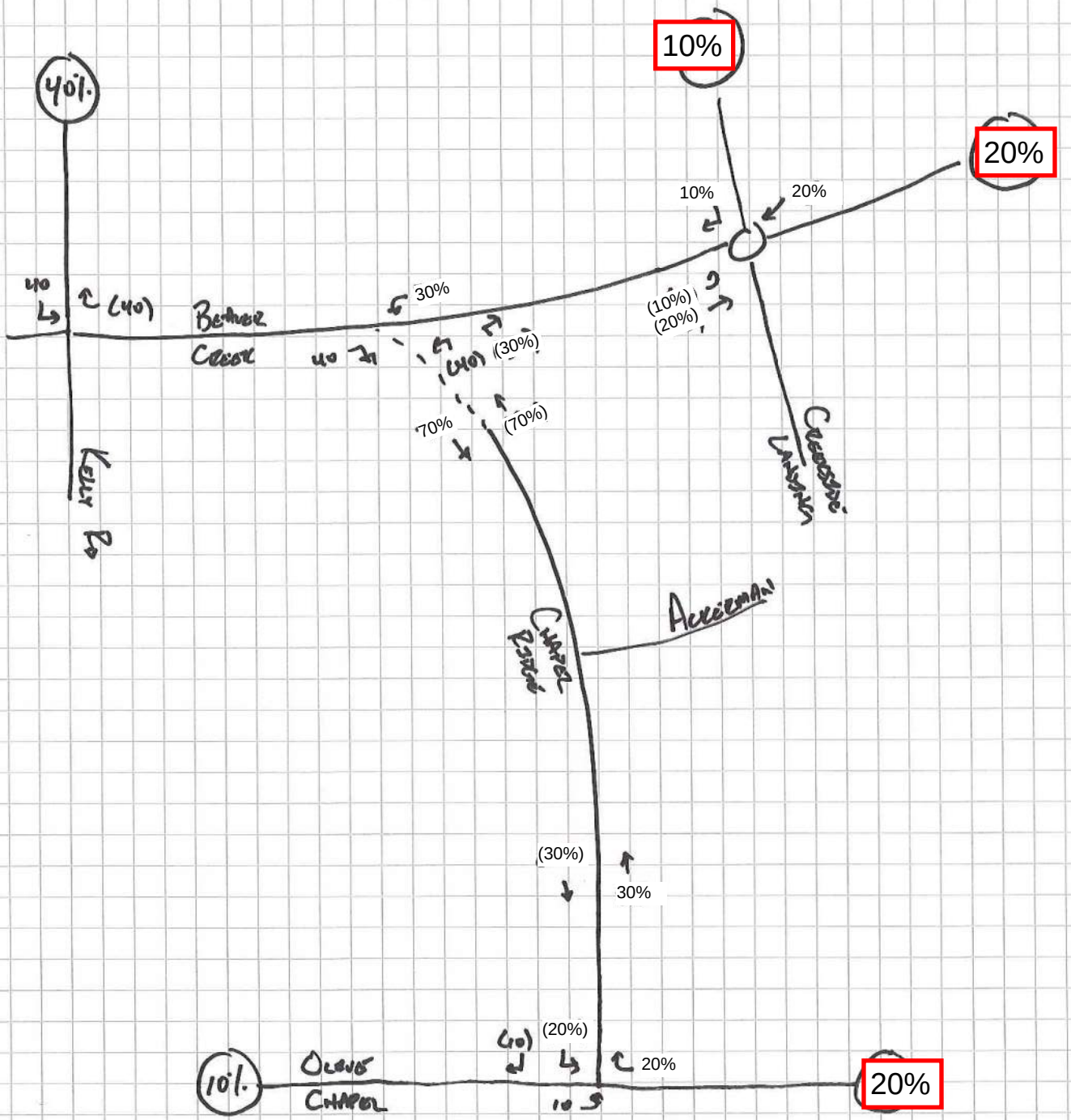
Job CHAPEL RIDGE Subject TRIP DIST.
Designed By KH Date 11/30 Checked By Date
Sheet No. of Job No.

SITE TRIP DISTRIBUTION



* ASSIGNMENT AT SITE DRWYS WILL BE DEVELOPED AS PART OF TIA BASED ON STUDY SITE PLAN.

- ASSUMES PRIVATE DRWY. CONNECTION TO BEAVER CREEK COMMONS DR. (DASHED LINE)

EXULT ENGINEERING

TECHNICAL MEMORANDUM

Date: Friday, March 26, 2021

To: Russell Dalton, P.E.
Town of Apex
Senior Transportation Engineer

From: Lisa Lundeen, P.E.
Traffic Engineer
Exult Engineering

Subject: Proposed Chapel Ridge Tracts Residential Development
Trip Generation Letter

BACKGROUND

Exult Engineering has been contracted by Toll Brothers, Inc. to perform traffic engineering services for the proposed Chapel Ridge Tracts Residential Development located in Apex, North Carolina. The proposed site is located in the northeast quadrant of Olive Chapel Road and Chapel Ridge Road and consists of 116 residential townhomes. The site is currently zoned as Rural Residential and does require PUD rezoning. The access for the proposed site consists of two full movement driveways on Chapel Ridge Road and one full movement driveway on Olive Chapel Road. The purpose of this letter, as requested by Town Engineering staff, is to discuss the trip generation, proposed access for the site, and roadway improvement requirements.

TRIP GENERATION

The proposed development is to consist of 116 residential townhomes. The trip generation was based on rates and equations published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition. NCDOT Congestion Management Rates vs. Equations spreadsheet was used for guidance. As shown in Table 1, the proposed development is expected to generate 838 daily trips, 55 AM peak hour trips (13 entering, 42 exiting), and 68 PM peak hour trips (43 entering, 25 exiting).

Table 1: Trip Generation

Land Use			Daily	AM Peak Hour			PM Peak Hour		
				Total	Enter	Exit	Total	Enter	Exit
220: Multifamily Housing (Low-Rise)	116	d.u.	838	55	13	42	68	43	25
Total			**838**	**55**	**13**	**42**	**68**	**43**	**25**

References: *Trip Generation Manual*, 10th Edition, Institute of Transportation Engineers, September 2017

According to the *NCDOT Policy on Street and Driveway Access to North Carolina Highways*, the threshold for a Traffic Impact Analysis (TIA) to be required by NCDOT is 3,000 new vehicles per day. According to the *Town of Apex Unified Development Ordinance,* the Town's threshold for a TIA is 1,000 new vehicle trips

per day or 100 peak hour trips. Based on the low trip generation and discussions with NCDOT and the Town, a TIA will not be required for the proposed Chapel Ridge Tracts Residential Development.

ACCESS AND ROADWAY REQUIREMENTS

As shown on the conceptual plan for the proposed Chapel Ridge Tracts Residential Development, the proposed access for the site consists of two full movement driveways on Chapel Ridge Road and one full movement driveway on Olive Chapel Road. The southern driveway along Chapel Ridge Road is located approximately 380 feet north of the intersection with Olive Chapel Road, and the northern driveway is located approximately 400 feet north of the southern driveway. The driveway along Olive Chapel Road aligns with Ashley Downs Drive and is located approximately 1,000 feet east of the intersection with Chapel Ridge Road.

Based on discussions with NCDOT and the Town, the requirements for this development are as follows:

- An exclusive right turn lane on Olive Chapel Road with 50 feet of storage with appropriate deceleration length and taper at the site driveway
- A requirement to reinforce the pavement structure on Chapel Ridge Road from Olive Chapel Road to the northern site driveway.
- Provide adequate sight distance at the project driveways.

Please let me know if you have any questions or comments.

Sincerely,

Lisa Lundeen, P.E.
Exult Engineering

cc: Sean Brennan, NCDOT
Jeff Westmoreland, Toll Brothers
Brendie Vega, WithersRavenel

Kimley»Horn
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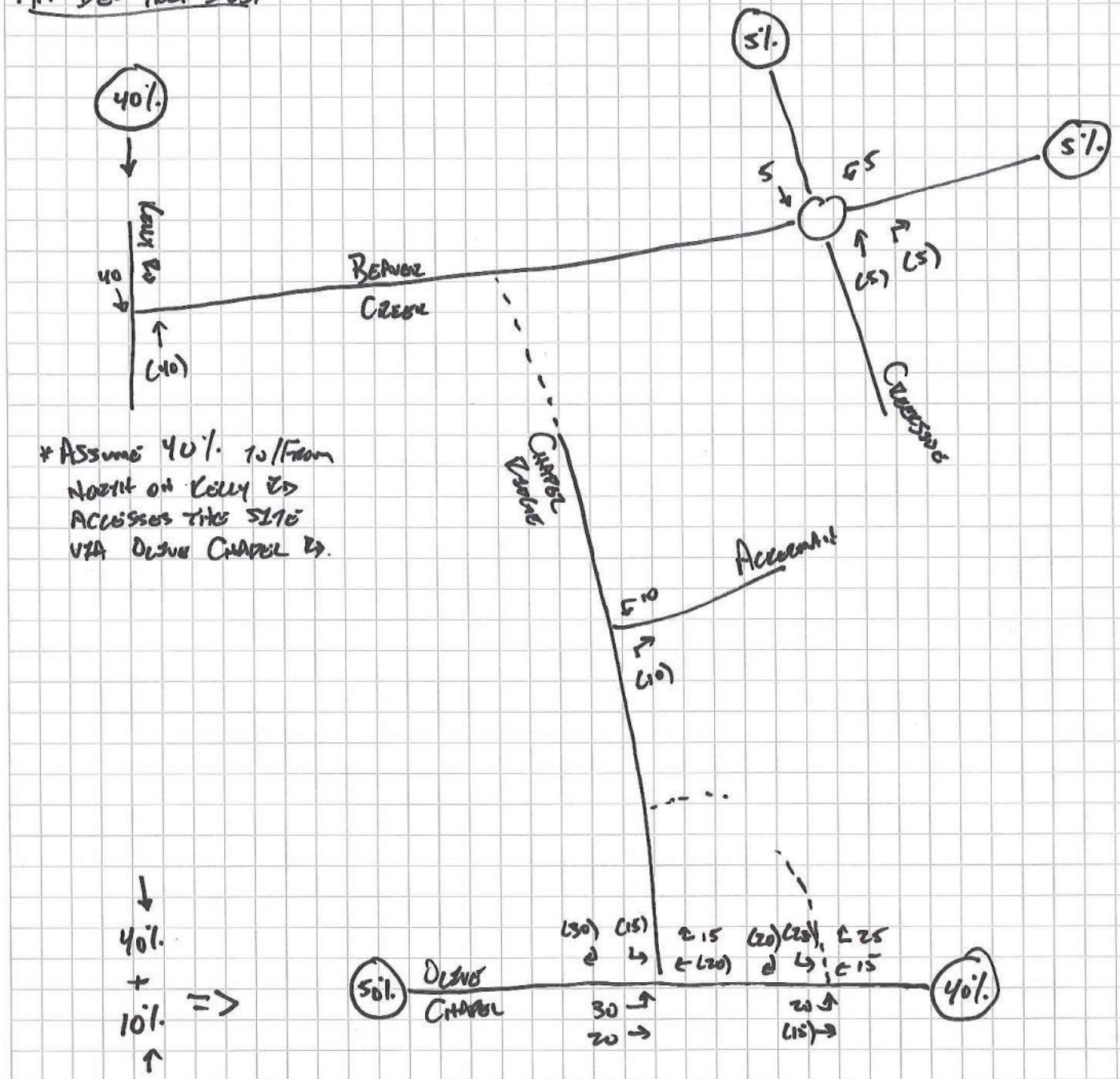
Job CHAPEL RIDGE Subject APP DEV TRIP DIST Sheet No. ____ of ____
Designed By KH Date 11/30 Checked By ____ Date ____ Job No. ____

APP DEV TRIP DIST



* ASSUMES 40% TO/FROM NORTH ON KELLY RD ACCESSES THE SITE VIA OLIVE CHAPEL RD.

* ASSUMES 1 FM DEWY ON OLIVE CHAPEL RD & 2 ON CHAPEL RIDGE CONSISTENT W/ PREVIOUS PLANS

NOTE: WHILE THIS REZONING WAS DENIED, TRIPS WILL BE ASSIGNED AS SHOWN ABOVE TO REFLECT POTENTIAL IMPACTS.

Appendix B:
Traffic Count Data

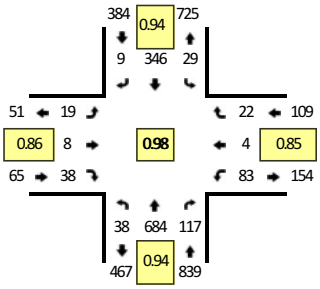
Type of peak hour being reported: Intersection Peak

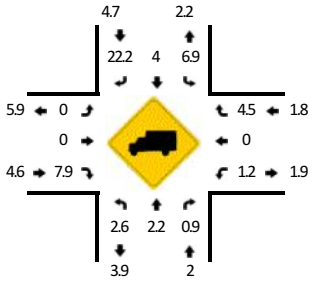
Method for determining peak hour: Total Entering Volume

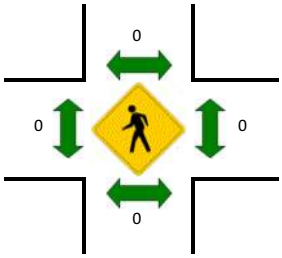
LOCATION: Kelly Rd -- Beaver Creek Commons Dr
CITY/STATE: Apex, NC

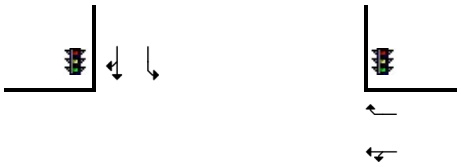
QC JOB #: 15646901
DATE: Tue, Dec 7 2021

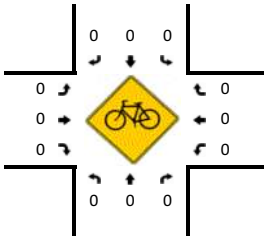
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

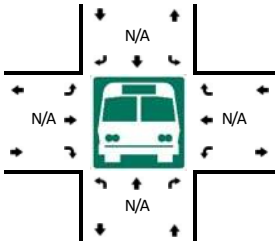


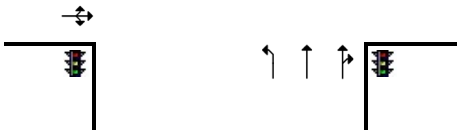


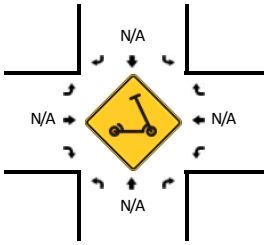












15-Min Count Period Beginning At	Kelly Rd (Northbound)				Kelly Rd (Southbound)				Beaver Creek Commons Dr (Eastbound)				Beaver Creek Commons Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	141	14	0	1	42	2	0	3	0	17	0	12	0	4	0	240	
7:15 AM	9	194	23	0	4	53	1	0	3	0	14	0	16	0	2	0	319	
7:30 AM	8	193	22	0	7	87	2	0	4	4	11	0	14	0	6	0	358	
7:45 AM	7	163	29	0	4	96	2	0	2	2	11	0	18	2	7	0	343	1260
8:00 AM	12	166	33	0	9	78	3	0	8	2	7	0	28	1	3	0	350	1370
8:15 AM	11	162	33	0	9	85	2	0	5	0	9	0	23	1	6	0	346	1397
8:30 AM	4	148	26	0	12	82	4	0	1	2	17	0	20	2	8	0	326	1365
8:45 AM	12	145	46	0	6	94	1	0	0	1	18	0	21	1	9	0	354	1376

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	772	88	0	28	348	8	0	16	16	44	0	56	0	24	0	1432
Heavy Trucks	0	16	0		4	4	4		0	0	4		4	0	4		40
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/13/2021 8:15 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Kelly Rd -- Beaver Creek Commons Dr
CITY/STATE: Apex, NC

QC JOB #: 15646902
DATE: Tue, Dec 7 2021

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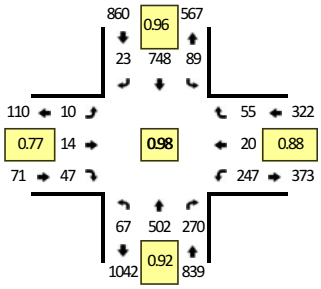
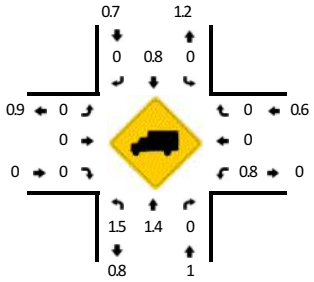
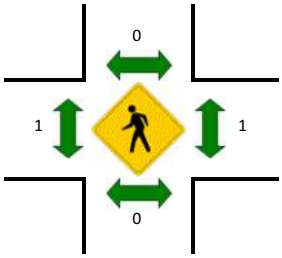
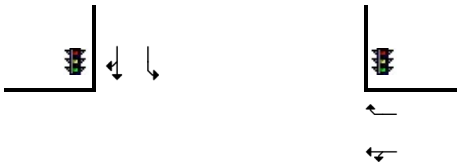
Peak 15-Min: 5:30 PM -- 5:45 PM

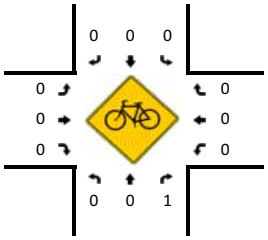


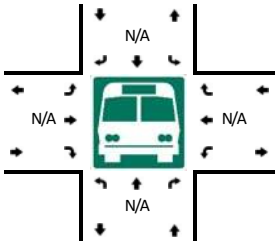


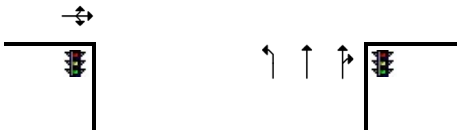
Quality Counts
DATA THAT DRIVES COMMUNITIES

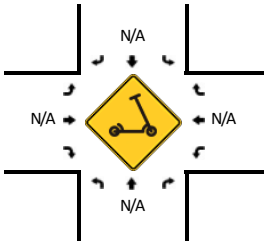












15-Min Count Period Beginning At	Kelly Rd (Northbound)				Kelly Rd (Southbound)				Beaver Creek Commons Dr (Eastbound)				Beaver Creek Commons Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	26	117	52	0	23	149	3	0	4	3	13	0	47	5	17	0	459	
4:15 PM	18	127	59	0	25	178	7	0	4	4	14	0	59	3	13	0	511	
4:30 PM	10	127	53	0	26	151	7	0	2	2	11	0	79	4	12	0	484	
4:45 PM	21	115	67	0	23	197	5	0	4	1	16	0	59	6	13	0	527	1981
5:00 PM	13	149	66	0	20	177	6	0	0	2	7	0	56	5	11	0	512	2034
5:15 PM	18	102	71	0	25	182	7	0	3	6	14	0	75	5	11	0	519	2042
5:30 PM	15	136	66	0	21	192	5	0	3	5	10	0	57	4	20	0	534	2092
5:45 PM	8	121	53	0	20	189	2	0	0	4	9	0	60	8	20	0	494	2059

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	60	544	264	0	84	768	20	0	12	20	40	0	228	16	80	0	2136
Heavy Trucks	0	16	0		0	4	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/13/2021 8:15 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Chapel Ridge Rd -- Olive Chapel Rd

CITY/STATE: Apex, NC

QC JOB #: 15646905

DATE: Tue, Dec 7 2021

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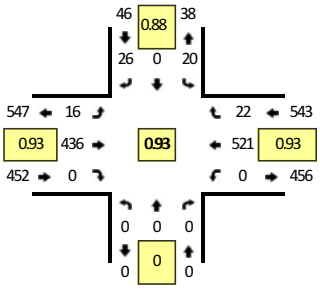
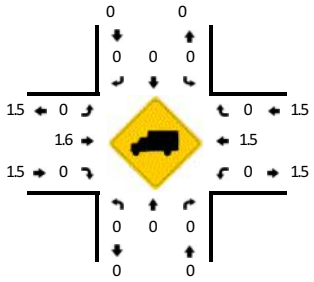
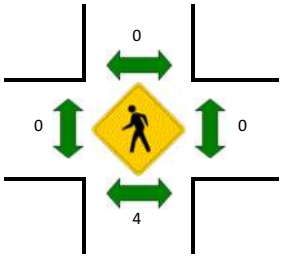
Peak 15-Min: 4:45 PM -- 5:00 PM

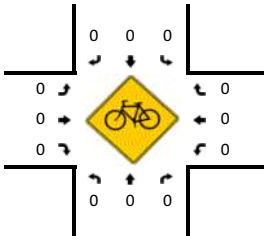


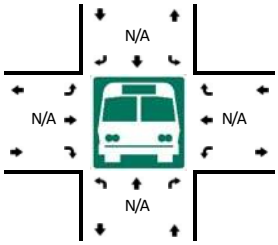


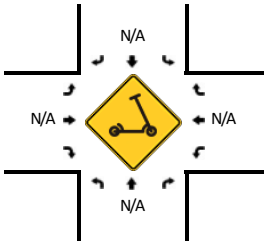
Quality Counts

DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Chapel Ridge Rd (Northbound)				Chapel Ridge Rd (Southbound)				Olive Chapel Rd (Eastbound)				Olive Chapel Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	1	0	2	0	0	12	0	0	0	8	3	0	26	
6:15 AM	0	0	0	0	0	0	0	0	0	21	0	0	0	17	0	0	38	
6:30 AM	0	0	0	0	0	0	2	0	2	20	0	0	0	42	3	0	69	
6:45 AM	0	0	0	0	2	0	7	0	5	22	0	0	0	62	2	0	100	233
7:00 AM	0	0	0	0	8	0	6	0	2	48	0	0	0	58	1	0	123	330
7:15 AM	0	0	0	0	3	0	3	0	1	92	0	0	0	68	0	0	167	459
7:30 AM	0	0	0	0	3	0	4	0	2	76	0	0	0	89	5	0	179	569
7:45 AM	0	0	0	0	4	0	4	0	5	77	0	0	0	87	6	0	183	652
8:00 AM	0	0	0	0	1	0	1	0	2	76	0	0	0	91	10	0	181	710
8:15 AM	0	0	0	0	3	0	2	0	7	76	0	0	0	89	1	0	178	721
8:30 AM	0	0	0	0	5	0	1	0	4	100	0	0	0	68	8	0	186	728
8:45 AM	0	0	0	0	2	0	3	0	7	103	0	0	0	108	5	0	228	773
9:00 AM	0	0	0	0	3	0	1	0	6	87	0	0	0	99	5	0	201	793
9:15 AM	0	0	0	0	4	0	2	0	4	77	0	0	0	71	4	0	162	777
9:30 AM	0	0	0	0	1	0	1	0	3	54	0	0	0	71	1	0	131	722
9:45 AM	0	0	0	0	3	0	7	0	6	63	0	0	0	73	6	0	158	652
10:00 AM	0	0	0	0	2	0	2	0	1	49	0	0	0	50	2	0	106	557
10:15 AM	0	0	0	0	4	0	2	0	4	62	0	0	0	62	2	0	136	531
10:30 AM	0	0	0	0	0	0	4	0	6	59	0	0	0	69	3	0	141	541
10:45 AM	0	0	0	0	3	0	7	0	4	78	0	0	0	65	3	0	160	543
11:00 AM	0	0	0	0	5	0	5	0	5	62	0	0	0	74	2	0	153	590
11:15 AM	0	0	0	0	2	0	4	0	3	62	0	0	0	81	2	0	154	608
11:30 AM	0	0	0	0	4	0	3	0	1	48	0	0	0	79	7	0	142	609
11:45 AM	0	0	0	0	3	0	9	0	6	81	0	0	0	105	7	0	211	660
12:00 PM	0	0	0	0	6	0	5	0	6	68	0	0	0	77	3	0	165	672
12:15 PM	0	0	0	0	5	0	2	0	8	93	0	0	0	115	2	0	225	743
12:30 PM	0	0	0	0	2	0	4	0	2	82	0	0	0	94	4	0	188	789
12:45 PM	0	0	0	0	4	0	6	0	10	93	0	0	0	96	3	0	212	790
1:00 PM	0	0	0	0	2	0	5	0	3	72	0	0	0	99	1	0	182	807
1:15 PM	0	0	0	0	6	0	7	0	7	61	0	0	0	89	3	0	173	755
1:30 PM	0	0	0	0	5	0	7	0	6	60	0	0	0	66	8	0	152	719
1:45 PM	0	0	0	0	6	0	3	0	7	56	0	0	0	75	5	0	152	659
2:00 PM	0	0	0	0	3	0	4	0	4	55	0	0	0	68	7	0	141	618
2:15 PM	0	0	0	0	3	0	6	0	5	60	0	0	0	71	4	0	149	594
2:30 PM	0	0	0	0	7	0	4	0	7	85	0	0	0	68	3	0	174	616
2:45 PM	0	0	0	0	5	0	11	0	5	104	0	0	0	94	6	0	225	689
3:00 PM	0	0	0	0	6	0	5	0	3	78	0	0	0	100	5	0	197	745
3:15 PM	0	0	0	0	2	0	7	0	5	82	0	0	0	112	0	0	208	804
3:30 PM	0	0	0	0	2	0	5	0	4	89	0	0	0	126	7	0	233	863

15-Min Count Period Beginning At	Chapel Ridge Rd (Northbound)				Chapel Ridge Rd (Southbound)				Olive Chapel Rd (Eastbound)				Olive Chapel Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:45 PM	0	0	0	0	1	0	4	0	7	90	0	0	0	128	3	0	233	871
4:00 PM	0	0	0	0	3	0	3	0	5	112	0	0	0	127	6	0	256	930
4:15 PM	0	0	0	0	3	0	7	0	7	95	0	0	0	126	6	0	244	966
4:30 PM	0	0	0	0	5	0	11	0	3	100	0	0	0	101	13	0	233	966
4:45 PM	0	0	0	0	4	0	8	0	1	121	0	0	0	138	8	0	280	1013
5:00 PM	0	0	0	0	6	0	6	0	6	103	0	0	0	117	4	0	242	999
5:15 PM	0	0	0	0	5	0	8	0	4	114	0	0	0	140	3	0	274	1029
5:30 PM	0	0	0	0	5	0	4	0	5	98	0	0	0	126	7	0	245	1041
5:45 PM	0	0	0	0	6	0	11	0	4	90	0	0	0	116	5	0	232	993
6:00 PM	0	0	0	0	3	0	2	0	5	74	0	0	0	107	4	0	195	946
6:15 PM	0	0	0	0	7	0	5	0	3	79	0	0	0	122	7	0	223	895
6:30 PM	0	0	0	0	5	0	4	0	1	90	0	0	0	75	5	0	180	830
6:45 PM	0	0	0	0	6	0	11	0	3	58	0	0	0	104	3	0	185	783

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	16	0	32	0	4	484	0	0	0	552	32	0	1120
Heavy Trucks	0	0	0		0	0	0		0	8	0		0	12	0		20
Buses																	
Pedestrians		12				0				0				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/13/2021 8:15 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of report: Tube Count - Volume Data

LOCATION: Ackerman Hill Dr btwn Chapel Ridge Rd and Drayman Pl
QC JOB #: 15646906
SPECIFIC LOCATION:
DIRECTION: NB, SB
CITY/STATE: Apex, NC
DATE: Dec 7 2021 - Dec 7 2021

Start Time	Mon	Tue 7 Dec 21	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 AM		3				3			3	
06:15 AM		0				0			0	
06:30 AM		3				3			3	
06:45 AM		6				6			6	
07:00 AM		5				5			5	
07:15 AM		2				2			2	
07:30 AM		8				8			8	
07:45 AM		3				3			3	
08:00 AM		4				4			4	
08:15 AM		2				2			2	
08:30 AM		7				7			7	
08:45 AM		10				10			10	
09:00 AM		4				4			4	
09:15 AM		4				4			4	
09:30 AM		2				2			2	
09:45 AM		4				4			4	
10:00 AM		3				3			3	
10:15 AM		6				6			6	
10:30 AM		3				3			3	
10:45 AM		7				7			7	
11:00 AM		7				7			7	
11:15 AM		3				3			3	
11:30 AM		1				1			1	
11:45 AM		**13**				**13**			**13**	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										

Comments:

Report generated on 12/10/2021 5:01 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Ackerman Hill Dr btwn Chapel Ridge Rd and Drayman Pl **QC JOB #:** 15646906

SPECIFIC LOCATION: **DIRECTION:** NB, SB

CITY/STATE: Apex, NC **DATE:** Dec 7 2021 - Dec 7 2021

Start Time	Mon	Tue 7 Dec 21	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM		4				4			4	
12:15 PM		3				3			3	
12:30 PM		5				5			5	
12:45 PM		6				6			6	
01:00 PM		4				4			4	
01:15 PM		10				10			10	
01:30 PM		**12**				**12**			**12**	
01:45 PM		7				7			7	
02:00 PM		5				5			5	
02:15 PM		5				5			5	
02:30 PM		8				8			8	
02:45 PM		6				6			6	
03:00 PM		4				4			4	
03:15 PM		3				3			3	
03:30 PM		6				6			6	
03:45 PM		6				6			6	
04:00 PM		8				8			8	
04:15 PM		7				7			7	
04:30 PM		12				12			12	
04:45 PM		10				10			10	
05:00 PM		11				11			11	
05:15 PM		6				6			6	
05:30 PM		8				8			8	
05:45 PM		8				8			8	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										

Comments:

Report generated on 12/10/2021 5:01 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

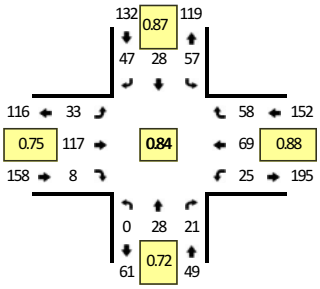
Type of peak hour being reported: Intersection Peak

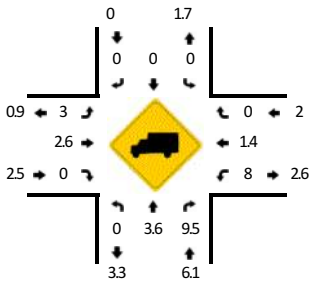
Method for determining peak hour: Total Entering Volume

LOCATION: Creekside Landing Dr -- Beaver Creek Commons Dr
CITY/STATE: Apex, NC

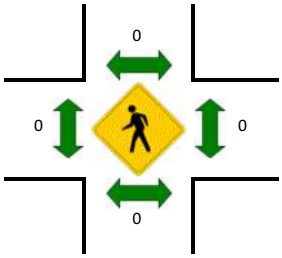
QC JOB #: 15646903
DATE: Tue, Dec 7 2021

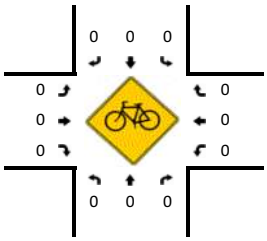
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

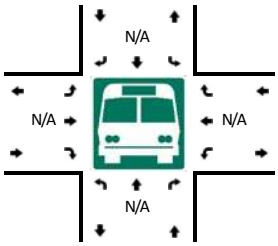


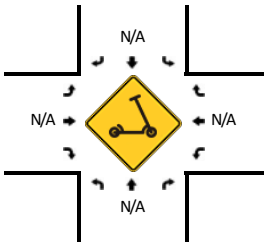


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Creekside Landing Dr (Northbound)				Creekside Landing Dr (Southbound)				Beaver Creek Commons Dr (Eastbound)				Beaver Creek Commons Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	8	3	0	4	3	6	0	2	13	0	0	2	9	4	0	54	
7:15 AM	1	3	8	0	7	4	4	0	3	18	2	0	1	4	7	0	62	
7:30 AM	0	6	6	0	12	2	11	0	7	23	2	0	3	9	4	0	85	
7:45 AM	0	7	1	0	15	9	10	0	8	18	0	0	2	18	7	0	95	296
8:00 AM	0	12	5	0	15	8	9	0	6	28	1	0	4	22	14	0	124	366
8:15 AM	0	5	2	0	15	7	11	0	9	24	2	0	5	15	11	0	106	410
8:30 AM	0	6	7	0	9	3	17	0	9	24	2	0	9	13	16	0	115	440
8:45 AM	0	5	7	0	18	10	10	0	9	41	3	0	7	19	17	0	146	491

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	20	28	0	72	40	40	0	36	164	12	0	28	76	68	0	584
Heavy Trucks	0	4	4		0	0	0		0	4	0		0	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

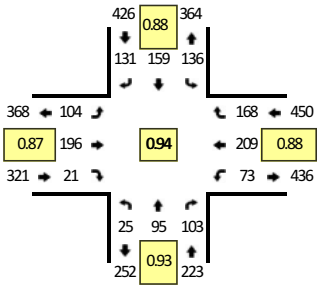
Report generated on 12/13/2021 8:15 AM

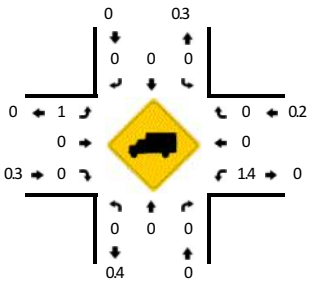
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

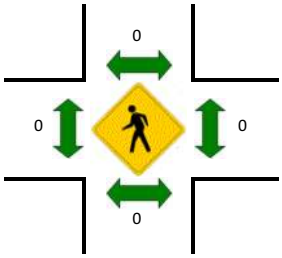
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

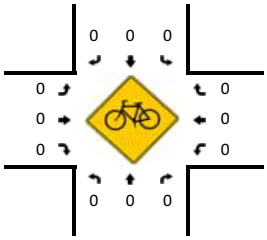
LOCATION: Creekside Landing Dr -- Beaver Creek Commons Dr | **QC JOB #:** 15646904
CITY/STATE: Apex, NC | **DATE:** Tue, Dec 7 2021

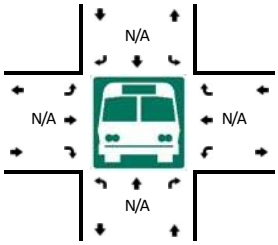
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

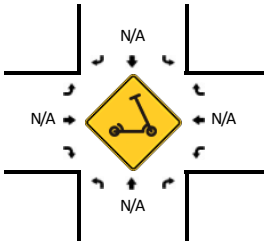












15-Min Count Period Beginning At	Creekside Landing Dr (Northbound)				Creekside Landing Dr (Southbound)				Beaver Creek Commons Dr (Eastbound)				Beaver Creek Commons Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	22	19	0	24	28	30	0	21	42	4	0	19	48	41	0	299	
4:15 PM	2	24	22	0	29	28	24	0	18	55	5	0	16	57	35	2	317	
4:30 PM	4	18	21	1	35	25	27	0	17	50	3	0	19	69	35	0	324	
4:45 PM	3	25	20	0	39	37	28	1	19	52	8	0	12	51	40	0	335	1275
5:00 PM	4	28	28	0	30	34	32	0	26	44	4	0	24	50	54	0	358	1334
5:15 PM	9	25	25	0	31	47	33	0	23	64	5	0	14	63	37	1	377	1394
5:30 PM	6	24	22	0	37	27	34	0	27	46	6	2	15	46	36	0	328	1398
5:45 PM	6	18	28	0	38	51	32	0	25	42	6	1	19	50	41	0	357	1420

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	100	100	0	124	188	132	0	92	256	20	0	56	252	148	4	1508
Heavy Trucks	0	0	0		0	0	0		4	0	0		4	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/13/2021 8:15 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix C:
Approved Development Data –
Olive Chapel Professional Park

TRAFFIC IMPACT ANALYSIS

FOR

OLIVE CHAPEL PROFESSIONAL PARK

LOCATED

IN

APEX, NORTH CAROLINA

Prepared For:
Olive Chapel Professional Park, LLC
1121 Pemberton Hill Road
Apex, NC

Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

October 2016

RKA Project No. 16246

Prepared By: DL

Reviewed By: JR

4. SITE TRIP GENERATION AND DISTRIBUTION

4.1. Trip Generation

The proposed development is assumed to consist of approximately 80,000 sq. ft. of general office space. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 9th Edition. Table 1 provides a summary of the trip generation potential for the site.

Table 1: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
General Office Building (710)	80,000 sq. ft.	1,110	141	19	29	139

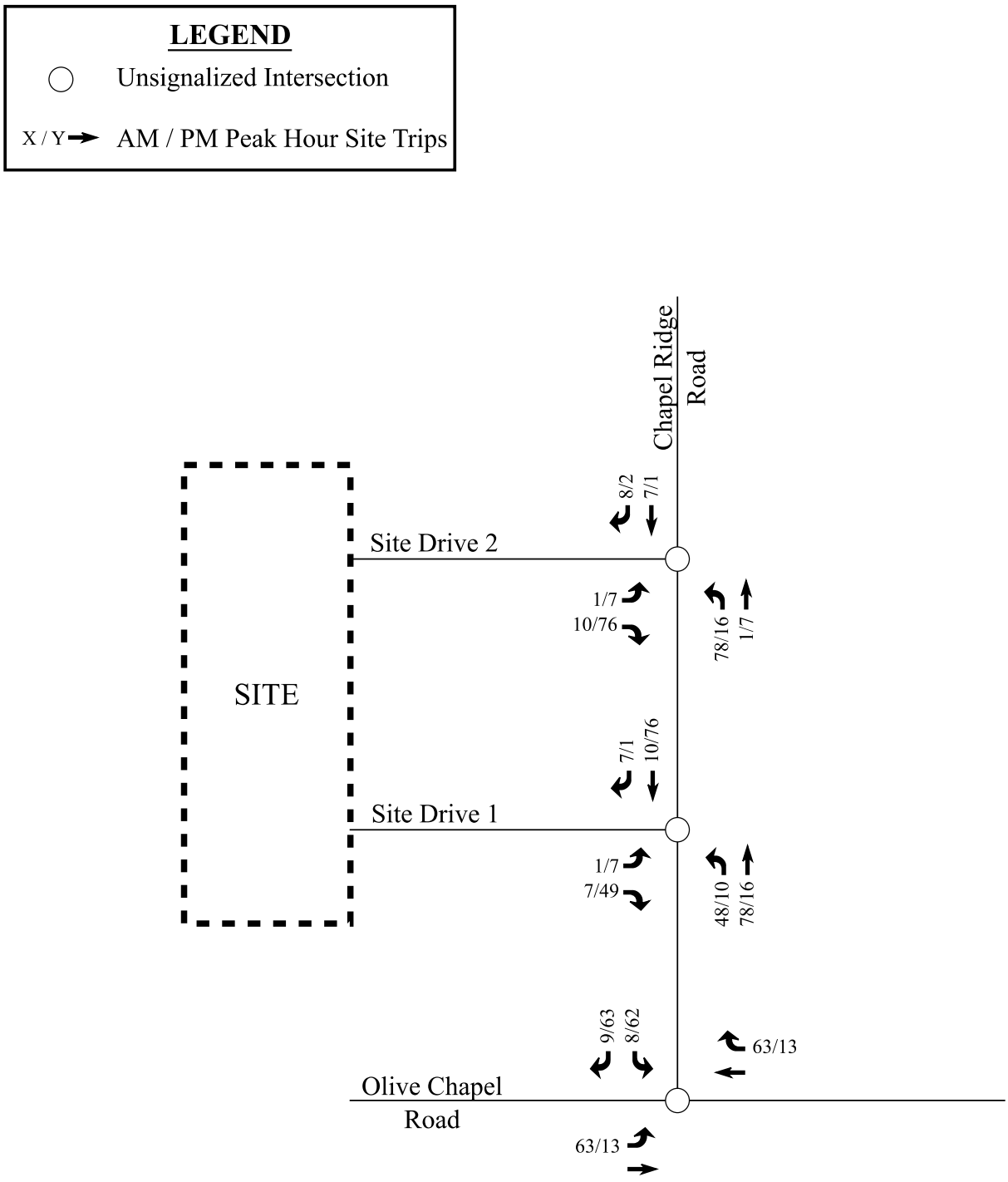
It is estimated that the proposed development will generate approximately 1,110 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 160 trips (141 entering and 19 exiting) will occur during the AM peak hour and 168 (29 entering and 139 exiting) will occur during the PM peak hour.

4.2. Site Trip Distribution and Assignment

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. It is estimated that trips will be distributed as follows:

- 45% to/from the west via Olive Chapel Road
- 45% to/from the east via Olive Chapel Road
- 10% to/from the north via Chapel Ridge Road (utilizing the proposed connection to the Beaver Creek Crossing Shopping Center, which is being constructed as part of the Hempstead at Beaver Creek development).

The site trip distribution, which has been reviewed and approved by the Town, is shown in Figure 9. Refer to Figure 10 for the site trip assignment.

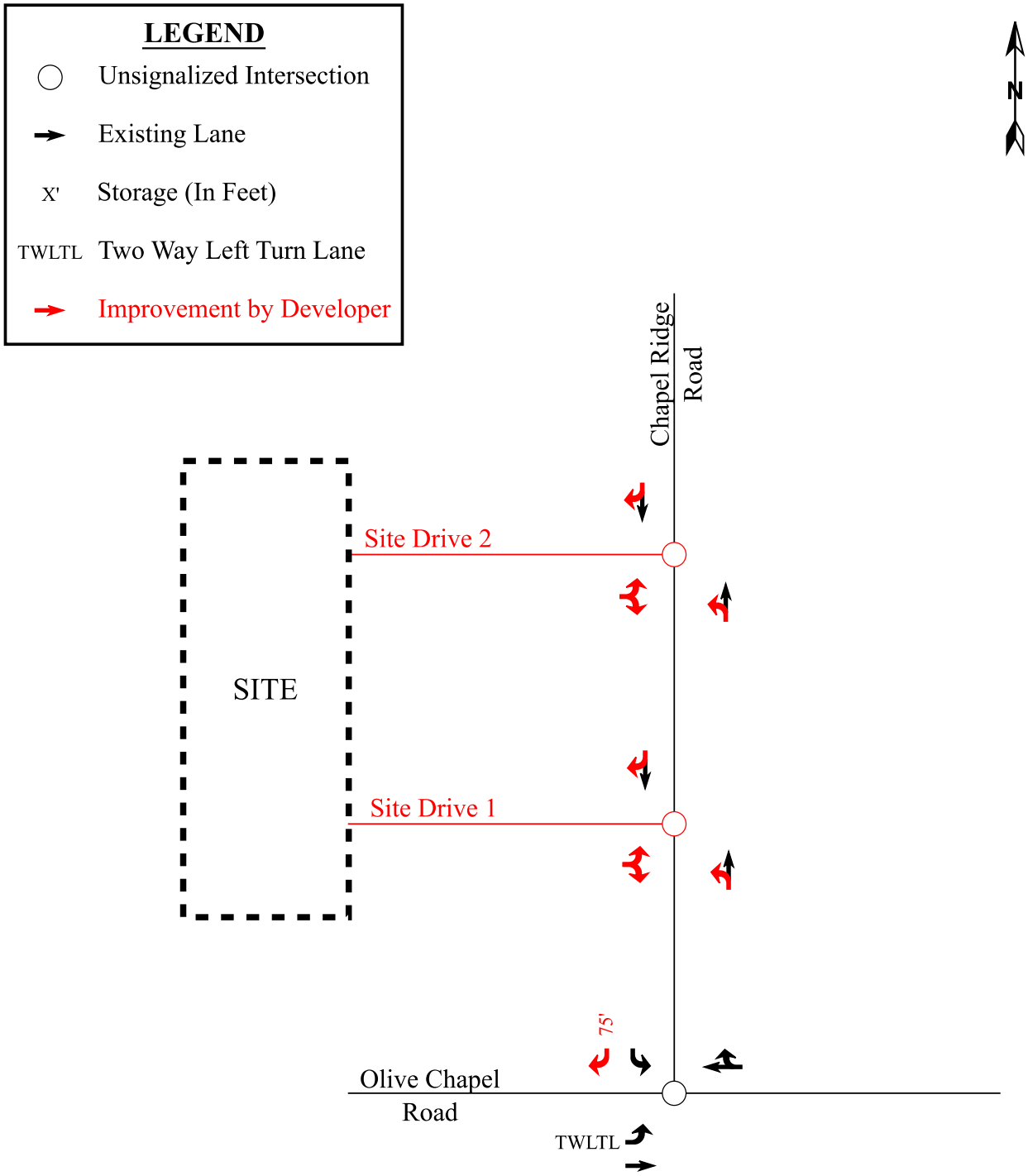


RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Olive Chapel Office Park
Apex, NC

Site Trip Assignment

Scale: Not to Scale | Figure 10



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Olive Chapel Office Park
Apex, NC

Recommended Lane Configurations

Scale: Not to Scale | Figure 12

Appendix D:
Trip Generation

Chapel Ridge Apartments

Table 1 - Trip Generation

Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour		
		Total	Total	In	Out	Total	In	Out
221 Multifamily Housing (Mid-Rise)	350 d.u.	1,906	117	30	87	147	90	57
Total Net New External Trips		**1,906**	**117**	**30**	**87**	**147**	**90**	**57**

Appendix E:
Intersection Spreadsheets

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**12/7/2021**
N/S Street:	**Kelly Road**
E/W Street:	**Wendhurst Ct/Beaver Creek Commons Dr**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.98

Description	Wendhurst Court **Eastbound** Left	Through	Right	Beaver Creek Commons Drive **Westbound** Left	Through	Right	Kelly Road **Northbound** Left	Through	Right	Kelly Road **Southbound** Left	Through	Right
2021 Traffic Count	19	8	38	83	4	22	38	684	117	29	346	9
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	19	8	38	83	4	22	38	684	117	29	346	9
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.126	0.000	0.126	0.000	0.126	0.126	0.126	0.126	0.000
2025 Background Growth	0	0	0	10	0	3	0	86	15	4	43	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	3	0	0	19	0
Total Committed Traffic	0	0	0	0	0	0	0	3	0	0	19	0
2025 Background Traffic	19	8	38	93	4	25	38	773	132	33	408	9
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	12	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	35	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	0	35	0	0	0	12	0	0
Total Project Traffic	0	0	0	0	0	35	0	0	0	12	0	0
Hempstead Traffic Diversion	0	0	0	0	0	28	0	0	0	8	0	0
2025 Buildout Total	19	8	38	93	4	88	38	773	132	53	408	9
Percent Impact (Approach)		0.0%			18.9%			0.0%			2.6%	

Overall Percent Impact 2.8%

PM PEAK HOUR
PM PHF = 0.98

Description	Wendhurst Court **Eastbound** Left	Through	Right	Beaver Creek Commons Drive **Westbound** Left	Through	Right	Kelly Road **Northbound** Left	Through	Right	Kelly Road **Southbound** Left	Through	Right
2021 Traffic Count	10	14	47	247	20	55	67	502	270	89	748	23
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	10	14	47	247	20	55	67	502	270	89	748	23
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.126	0.000	0.126	0.000	0.126	0.126	0.126	0.126	0.000
2025 Background Growth	0	0	0	31	0	7	0	63	34	11	94	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	19	0	0	4	0
Total Committed Traffic	0	0	0	0	0	0	0	19	0	0	4	0
2025 Background Traffic	10	14	47	278	20	62	67	584	304	100	846	23
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	36	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	23	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	0	23	0	0	0	36	0	0
Total Project Traffic	0	0	0	0	0	23	0	0	0	36	0	0
Hempstead Traffic Diversion	0	0	0	0	0	16	0	0	0	28	0	0
2025 Buildout Total	10	14	47	278	20	101	67	584	304	164	846	23
Percent Impact (Approach)		0.0%			5.8%			0.0%			3.5%	

Overall Percent Impact 2.4%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**12/7/2021**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Olive Chapel Road**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.85

Description	Olive Chapel Road **Eastbound** Left	Through	Right	Olive Chapel Road **Westbound** Left	Through	Right	**Northbound** Left	Through	Right	Chapel Ridge Road **Southbound** Left	Through	Right
2021 Traffic Count	20	355	0	0	356	24	0	0	0	11	0	7
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	20	355	0	0	356	24	0	0	0	11	0	7
Growth Factor (0.03 per year)	0.000	0.126	0.000	0.000	0.126	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	45	0	0	45	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	32	0	0	0	0	32	0	0	0	4	0	5
Total Committed Traffic	32	0	0	0	0	32	0	0	0	4	0	5
2025 Background Traffic	52	400	0	0	401	56	0	0	0	15	0	12
Project Traffic												
Percent Assignment Inbound	10%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	3	0	0	0	0	6	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	10%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	17	0	9
Total External Site Traffic	3	0	0	0	0	6	0	0	0	17	0	9
Total Project Traffic	3	0	0	0	0	6	0	0	0	17	0	9
2025 Buildout Total	55	400	0	0	401	62	0	0	0	32	0	21
Percent Impact (Approach)		0.7%			1.3%			-			49.1%	

Overall Percent Impact 3.6%

PM PEAK HOUR
PM PHF = 0.93

Description	Olive Chapel Road **Eastbound** Left	Through	Right	Olive Chapel Road **Westbound** Left	Through	Right	**Northbound** Left	Through	Right	Chapel Ridge Road **Southbound** Left	Through	Right
2021 Traffic Count	16	436	0	0	521	22	0	0	0	20	0	26
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	16	436	0	0	521	22	0	0	0	20	0	26
Growth Factor (0.03 per year)	0.000	0.126	0.000	0.000	0.126	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	55	0	0	65	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	7	0	0	0	0	7	0	0	0	31	0	32
Total Committed Traffic	7	0	0	0	0	7	0	0	0	31	0	32
2025 Background Traffic	23	491	0	0	586	29	0	0	0	51	0	58
Project Traffic												
Percent Assignment Inbound	10%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	9	0	0	0	0	18	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	10%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	11	0	6
Total External Site Traffic	9	0	0	0	0	18	0	0	0	11	0	6
Total Project Traffic	9	0	0	0	0	18	0	0	0	11	0	6
2025 Buildout Total	32	491	0	0	586	47	0	0	0	62	0	64
Percent Impact (Approach)		1.7%			2.8%			-			13.5%	

Overall Percent Impact 3.4%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**12/7/2021**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Ackerman Hill Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Eastbound			Ackerman Hill Drive Westbound			Chapel Ridge Road Northbound			Chapel Ridge Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	11	0	0	0	0	12	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	11	0	0	0	0	12	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	8	0	0	0	0	1	0	0	0
Total Committed Traffic	0	0	0	8	0	0	0	0	1	0	0	0
2025 Background Traffic	0	0	0	19	0	0	0	0	13	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	15%	0%	10%	10%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	5	0	3	3	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	10%	0%	10%	0%	0%	15%	0%
Outbound Project Traffic	0	0	0	0	0	9	0	9	0	0	13	0
Total External Site Traffic	0	0	0	0	0	9	0	14	0	3	16	0
Total Project Traffic	0	0	0	0	0	9	0	14	0	3	16	0
Hempstead Traffic Diversion	0	0	0	0	0	39	0	0	0	12	0	0
OliveChapProfPark Reassign	0	0	0	0	0	0	0	2	0	0	16	0
2025 Buildout Total	0	0	0	19	0	48	0	16	13	15	32	0
Percent Impact (Approach)		-			13.4%			48.3%			40.4%	

Overall Percent Impact 29.4%

PM PEAK HOUR
PM PHF = 0.90

Description	Eastbound			Ackerman Hill Drive Westbound			Chapel Ridge Road Northbound			Chapel Ridge Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	15	0	0	0	0	25	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	15	0	0	0	0	25	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	2	0	0	0	0	7	0	0	0
Total Committed Traffic	0	0	0	2	0	0	0	0	7	0	0	0
2025 Background Traffic	0	0	0	17	0	0	0	0	32	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	15%	0%	10%	10%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	14	0	9	9	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	10%	0%	10%	0%	0%	15%	0%
Outbound Project Traffic	0	0	0	0	0	6	0	6	0	0	9	0
Total External Site Traffic	0	0	0	0	0	6	0	20	0	9	18	0
Total Project Traffic	0	0	0	0	0	6	0	20	0	9	18	0
Hempstead Traffic Diversion	0	0	0	0	0	22	0	0	0	38	0	0
OliveChapProfPark Reassign	0	0	0	0	0	0	0	14	0	0	4	0
2025 Buildout Total	0	0	0	17	0	28	0	34	32	47	22	0
Percent Impact (Approach)		-			13.3%			30.3%			39.1%	

Overall Percent Impact 29.4%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**12/7/2021**
N/S Street:	**Creekside Landing Drive**
E/W Street:	**Beaver Creek Commons Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.84

	Beaver Creek Commons Drive **Eastbound**			Beaver Creek Commons Drive **Westbound**			Creekside Landing Drive **Northbound**			Creekside Landing Drive **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	33	117	8	25	69	58	0	28	21	57	28	47
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	33	117	8	25	69	58	0	28	21	57	28	47
Growth Factor (0.03 per year)	0.126	0.126	0.000	0.000	0.126	0.126	0.000	0.000	0.000	0.126	0.000	0.126
2025 Background Growth	4	15	0	0	9	7	0	0	0	7	0	6
Committed Projects												
Olive Chapel Professional Park	0	0	0	4	0	0	0	0	1	0	4	0
Total Committed Traffic	0	0	0	4	0	0	0	0	1	0	4	0
2025 Background Traffic	37	132	8	29	78	65	0	28	22	64	32	53
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	10%
Inbound Project Traffic	0	0	0	0	6	0	0	0	0	0	0	3
Percent Assignment Outbound	10%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	9	17	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	9	17	0	0	6	0	0	0	0	0	0	3
Total Project Traffic	9	17	0	0	6	0	0	0	0	0	0	3
OliveChapProfPark Reassign	0	2	0	0	8	0	0	0	0	0	0	8
2025 Buildout Total	46	151	8	29	92	65	0	28	22	64	32	64
Percent Impact (Approach)		12.7%			3.2%			0.0%			1.9%	

Overall Percent Impact 5.8%

PM PEAK HOUR
PM PHF = 0.94

	Beaver Creek Commons Drive **Eastbound**			Beaver Creek Commons Drive **Westbound**			Creekside Landing Drive **Northbound**			Creekside Landing Drive **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	104	196	21	73	209	168	25	95	103	136	159	131
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	104	196	21	73	209	168	25	95	103	136	159	131
Growth Factor (0.03 per year)	0.126	0.126	0.000	0.000	0.126	0.126	0.000	0.000	0.000	0.126	0.000	0.126
2025 Background Growth	13	25	0	0	26	21	0	0	0	17	0	16
Committed Projects												
Olive Chapel Professional Park	0	0	0	1	0	0	0	3	4	0	1	0
Total Committed Traffic	0	0	0	1	0	0	0	3	4	0	1	0
2025 Background Traffic	117	221	21	74	235	189	25	98	107	153	160	147
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	10%
Inbound Project Traffic	0	0	0	0	18	0	0	0	0	0	0	9
Percent Assignment Outbound	10%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	6	11	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	6	11	0	0	18	0	0	0	0	0	0	9
Total Project Traffic	6	11	0	0	18	0	0	0	0	0	0	9
OliveChapProfPark Reassign	6	8	0	0	2	0	0	0	0	0	0	2
2025 Buildout Total	129	240	21	74	255	189	25	98	107	153	160	158
Percent Impact (Approach)		4.4%			3.5%			0.0%			1.9%	

Overall Percent Impact 2.7%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**12/7/2021**
N/S Street:	**Beaver Creek Commons Drive**
E/W Street:	**Proposed Site Access**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Eastbound			Proposed Site Access Westbound			Beaver Creek Commons Drive Northbound			Beaver Creek Commons Drive Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	187	0	0	111	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	187	0	0	111	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.126	0.000
2025 Background Growth	0	0	0	0	0	0	0	23	0	0	14	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	210	0	0	125	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	40%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	12	9	0	0
Percent Assignment Outbound	0%	0%	0%	40%	0%	30%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	35	0	26	0	0	0	0	0	0
Total External Site Traffic	0	0	0	35	0	26	0	0	12	9	0	0
Total Project Traffic	0	0	0	35	0	26	0	0	12	9	0	0
Hempstead Traffic Diversion	0	0	0	28	0	11	0	0	8	3	0	0
OliveChapProfPark Reassign	0	0	0	0	0	2	0	0	0	16	0	0
2025 Buildout Total	0	0	0	63	0	39	0	210	20	28	125	0
Percent Impact (Approach)		-			59.8%			5.2%			5.9%	

Overall Percent Impact 16.9%

PM PEAK HOUR
PM PHF = 0.90

Description	Eastbound			Proposed Site Access Westbound			Beaver Creek Commons Drive Northbound			Beaver Creek Commons Drive Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	355	0	0	335	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	355	0	0	335	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.126	0.000
2025 Background Growth	0	0	0	0	0	0	0	45	0	0	42	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	400	0	0	377	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	40%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	36	27	0	0
Percent Assignment Outbound	0%	0%	0%	40%	0%	30%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	23	0	17	0	0	0	0	0	0
Total External Site Traffic	0	0	0	23	0	17	0	0	36	27	0	0
Total Project Traffic	0	0	0	23	0	17	0	0	36	27	0	0
Hempstead Traffic Diversion	0	0	0	16	0	6	0	0	28	10	0	0
OliveChapProfPark Reassign	0	0	0	0	0	14	0	0	0	4	0	0
2025 Buildout Total	0	0	0	39	0	37	0	400	64	41	377	0
Percent Impact (Approach)		-			52.6%			7.8%			6.5%	

Overall Percent Impact 10.8%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**-**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Proposed Site Access/North Site Driveway**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

	Proposed Site Access			North Site Driveway			Chapel Ridge Road					
	Eastbound			**Westbound**			**Northbound**			**Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	20%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	6	15	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	50%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	17	0	44	0	0	0	0	0
Total External Site Traffic	0	6	15	0	17	0	44	0	0	0	0	0
Total Project Traffic	0	6	15	0	17	0	44	0	0	0	0	0
Hempstead Traffic Diversion	0	0	12	0	0	0	39	0	0	0	0	0
OliveChapProfPark Reassign	0	0	16	0	0	0	2	0	0	0	0	0
2025 Buildout Total	0	6	43	0	17	0	85	0	0	0	0	0
Percent Impact (Approach)		42.9%			100.0%			51.8%			-	

Overall Percent Impact 54.3%

PM PEAK HOUR
PM PHF = 0.90

	Proposed Site Access			North Site Driveway			Chapel Ridge Road					
	Eastbound			**Westbound**			**Northbound**			**Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	20%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	18	45	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	50%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	11	0	29	0	0	0	0	0
Total External Site Traffic	0	18	45	0	11	0	29	0	0	0	0	0
Total Project Traffic	0	18	45	0	11	0	29	0	0	0	0	0
Hempstead Traffic Diversion	0	0	38	0	0	0	22	0	0	0	0	0
OliveChapProfPark Reassign	0	0	4	0	0	0	14	0	0	0	0	0
2025 Buildout Total	0	18	87	0	11	0	65	0	0	0	0	0
Percent Impact (Approach)		60.0%			100.0%			44.6%			-	

Overall Percent Impact 56.9%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**-**
N/S Street:	**Central Site Driveway**
E/W Street:	**Chapel Ridge Road**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Chapel Ridge Road **Eastbound**			Chapel Ridge Road **Westbound**			Central Site Driveway **Northbound**			Central Site Driveway **Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	5%	20%	25%	5%	0%	10%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	2	6	8	2	0	3	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	25%	0%	5%	10%	0%	5%
Outbound Project Traffic	0	0	0	0	17	0	22	0	4	9	0	4
Total External Site Traffic	2	6	8	2	17	3	22	0	4	9	0	4
Total Project Traffic	2	6	8	2	17	3	22	0	4	9	0	4
Hempstead Traffic Diversion	0	12	0	0	39	0	0	0	0	0	0	0
OliveChapProfPark Reassign	0	16	0	0	2	0	0	0	0	0	0	0
2025 Buildout Total	2	34	8	2	58	3	22	0	4	9	0	4
Percent Impact (Approach)		36.4%			34.9%			100.0%			100.0%	

Overall Percent Impact 52.7%

PM PEAK HOUR
PM PHF = 0.90

Description	Chapel Ridge Road **Eastbound**			Chapel Ridge Road **Westbound**			Central Site Driveway **Northbound**			Central Site Driveway **Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	5%	20%	25%	5%	0%	10%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	5	18	23	5	0	9	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	25%	0%	5%	10%	0%	5%
Outbound Project Traffic	0	0	0	0	11	0	14	0	3	6	0	3
Total External Site Traffic	5	18	23	5	11	9	14	0	3	6	0	3
Total Project Traffic	5	18	23	5	11	9	14	0	3	6	0	3
Hempstead Traffic Diversion	0	38	0	0	22	0	0	0	0	0	0	0
OliveChapProfPark Reassign	0	4	0	0	14	0	0	0	0	0	0	0
2025 Buildout Total	5	60	23	5	47	9	14	0	3	6	0	3
Percent Impact (Approach)		52.3%			41.0%			100.0%			100.0%	

Overall Percent Impact 55.4%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**Balanced with Ackerman Hill**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**South Site Driveway**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	South Site Driveway **Eastbound** Left	Through	Right	South Site Driveway **Westbound** Left	Through	Right	Chapel Ridge Road **Northbound** Left	Through	Right	Chapel Ridge Road **Southbound** Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	12	0	0	11	0
2021 Existing Traffic	0	0	0	0	0	0	0	12	0	0	11	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	1	0	0	8	0
Total Committed Traffic	0	0	0	0	0	0	0	1	0	0	8	0
2025 Background Traffic	0	0	0	0	0	0	0	13	0	0	19	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	10%	15%	5%	5%	0%	5%
Inbound Project Traffic	0	0	0	0	0	0	3	5	2	2	0	2
Percent Assignment Outbound	5%	0%	10%	5%	0%	5%	0%	0%	0%	0%	15%	0%
Outbound Project Traffic	4	0	9	4	0	4	0	0	0	0	13	0
Total External Site Traffic	4	0	9	4	0	4	3	5	2	2	13	2
Total Project Traffic	4	0	9	4	0	4	3	5	2	2	13	2
OliveChapProfPark Reassign	0	0	0	0	0	0	0	2	0	0	16	0
2025 Buildout Total	4	0	9	4	0	4	3	20	2	2	48	2
Percent Impact (Approach)		100.0%			100.0%			40.0%			32.7%	

Overall Percent Impact 49.0%

PM PEAK HOUR
PM PHF = 0.90

Description	South Site Driveway **Eastbound** Left	Through	Right	South Site Driveway **Westbound** Left	Through	Right	Chapel Ridge Road **Northbound** Left	Through	Right	Chapel Ridge Road **Southbound** Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	25	0	0	15	0
2021 Existing Traffic	0	0	0	0	0	0	0	25	0	0	15	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	7	0	0	2	0
Total Committed Traffic	0	0	0	0	0	0	0	7	0	0	2	0
2025 Background Traffic	0	0	0	0	0	0	0	32	0	0	17	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	10%	15%	5%	5%	0%	5%
Inbound Project Traffic	0	0	0	0	0	0	9	14	5	5	0	5
Percent Assignment Outbound	5%	0%	10%	5%	0%	5%	0%	0%	0%	0%	15%	0%
Outbound Project Traffic	3	0	6	3	0	3	0	0	0	0	9	0
Total External Site Traffic	3	0	6	3	0	3	9	14	5	5	9	5
Total Project Traffic	3	0	6	3	0	3	9	14	5	5	9	5
OliveChapProfPark Reassign	0	0	0	0	0	0	0	14	0	0	4	0
2025 Buildout Total	3	0	6	3	0	3	9	60	5	5	30	5
Percent Impact (Approach)		100.0%			100.0%			37.8%			47.5%	

Overall Percent Impact 48.1%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Without Chapel Ridge Townhomes**
Ct. Date	**Balanced with Ackerman Hill**
N/S Street:	**Site Driveway**
E/W Street:	**Ackerman Hill Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Ackerman Hill Drive **Eastbound** Left	Through	Right	Ackerman Hill Drive **Westbound** Left	Through	Right	Site Driveway **Northbound** Left	Through	Right	**Southbound** Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	12	0	0	11	0	0	0	0	0	0	0
2021 Existing Traffic	0	12	0	0	11	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	1	0	0	8	0	0	0	0	0	0	0
Total Committed Traffic	0	1	0	0	8	0	0	0	0	0	0	0
2025 Background Traffic	0	13	0	0	19	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	3	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	9	0	0	0	0	0
Total External Site Traffic	0	0	3	0	0	0	9	0	0	0	0	0
Total Project Traffic	0	0	3	0	0	0	9	0	0	0	0	0
Hempstead Traffic Diversion	0	12	0	0	39	0	0	0	0	0	0	0
OliveChapProfPark Reassign	0	0	0	0	0	0	0	0	0	0	0	0
2025 Buildout Total	0	25	3	0	58	0	9	0	0	0	0	0
Percent Impact (Approach)		10.7%			0.0%			100.0%			-	

Overall Percent Impact 12.6%

PM PEAK HOUR
PM PHF = 0.90

Description	Ackerman Hill Drive **Eastbound** Left	Through	Right	Ackerman Hill Drive **Westbound** Left	Through	Right	Site Driveway **Northbound** Left	Through	Right	**Southbound** Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	25	0	0	15	0	0	0	0	0	0	0
2021 Existing Traffic	0	25	0	0	15	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	7	0	0	2	0	0	0	0	0	0	0
Total Committed Traffic	0	7	0	0	2	0	0	0	0	0	0	0
2025 Background Traffic	0	32	0	0	17	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	9	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	6	0	0	0	0	0
Total External Site Traffic	0	0	9	0	0	0	6	0	0	0	0	0
Total Project Traffic	0	0	9	0	0	0	6	0	0	0	0	0
Hempstead Traffic Diversion	0	38	0	0	22	0	0	0	0	0	0	0
OliveChapProfPark Reassign	0	0	0	0	0	0	0	0	0	0	0	0
2025 Buildout Total	0	70	9	0	39	0	6	0	0	0	0	0
Percent Impact (Approach)		11.4%			0.0%			100.0%			-	

Overall Percent Impact 12.1%

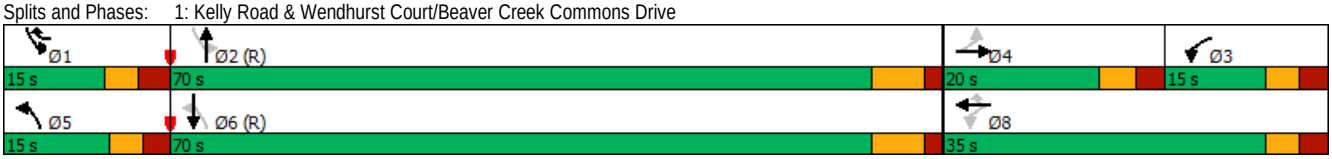
Appendix F:
Synchro & SIDRA Output:
Existing (2021)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	8	38	83	4	22	38	684	117	29	346	9
Future Volume (vph)	19	8	38	83	4	22	38	684	117	29	346	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1641	0	0	1768	1575	1743	3409	0	1753	1838	0
Flt Permitted		0.887			0.699		0.524			0.320		
Satd. Flow (perm)	0	1477	0	0	1296	1575	961	3409	0	591	1838	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				32		25			2	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	89	22	39	817	0	30	362	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	20.0	20.0		15.0	35.0	15.0	15.0	70.0		15.0	70.0	
Total Split (%)	16.7%	16.7%		12.5%	29.2%	12.5%	12.5%	58.3%		12.5%	58.3%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		13.3			13.3	26.1	93.7	86.4		92.7	89.2	
Actuated g/C Ratio		0.11			0.11	0.22	0.78	0.72		0.77	0.74	
v/c Ratio		0.33			0.62	0.06	0.05	0.33		0.06	0.26	
Control Delay		27.6			68.5	7.4	3.2	7.3		3.3	6.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		27.6			68.5	7.4	3.2	7.3		3.3	6.8	
LOS		C			E	A	A	A		A	A	
Approach Delay		27.6			56.4			7.1			6.5	
Approach LOS		C			E			A			A	
Queue Length 50th (ft)		19			67	0	5	113		4	92	
Queue Length 95th (ft)		60			118	15	15	173		12	160	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		230			324	396	827	2462		561	1367	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.29			0.27	0.06	0.05	0.33		0.05	0.26	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 51.4%	ICU Level of Service A
Analysis Period (min) 15	
Description: Signal No. 052254	

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	355	356	24	11	7
Future Volume (vph)	20	355	356	24	11	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1736	1827	1812	0	1703	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1827	1812	0	1703	1524
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	418	447	0	13	8
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	355	356	24	11	7
Future Vol, veh/h	20	355	356	24	11	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	6	6
Mvmt Flow	24	418	419	28	13	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	447	0	-	0	899	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	466	-
Critical Hdwy	4.14	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.236	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1103	-	-	-	304	614
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	623	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1103	-	-	-	297	614
Mov Cap-2 Maneuver	-	-	-	-	422	-
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	623	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1103	-	-	-	422	614
HCM Lane V/C Ratio	0.021	-	-	-	0.031	0.013
HCM Control Delay (s)	8.3	-	-	-	13.8	10.9
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	4	4	12	4	4
Future Volume (vph)	11	4	4	12	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1735	0	1671	0	0	1818
Flt Permitted	0.964					0.976
Satd. Flow (perm)	1735	0	1671	0	0	1818
Link Speed (mph)	25		25			25
Link Distance (ft)	289		696			330
Travel Time (s)	7.9		19.0			9.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	17	0	0	8
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	4	4	12	4	4
Future Vol, veh/h	11	4	4	12	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	12	4	4	13	4	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	23	11	0	0	17	0
Stage 1	11	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	993	1070	-	-	1600	-
Stage 1	1012	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	990	1070	-	-	1600	-
Mov Cap-2 Maneuver	990	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1010	1600	-
HCM Lane V/C Ratio	-	-	0.017	0.003	-
HCM Control Delay (s)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

MOVEMENT SUMMARY

Site: 4 [Existing AM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Chapel Ridge Apartments
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	4	6.0	5	6.0	0.063	4.1	LOS A	0.3	6.6	0.38	0.24	0.38	21.2
8	T1	28	6.0	33	6.0	0.063	4.1	LOS A	0.3	6.6	0.38	0.24	0.38	19.6
18	R2	21	6.0	25	6.0	0.063	4.1	LOS A	0.3	6.6	0.38	0.24	0.38	18.0
Approach		53	6.0	63	6.0	0.063	4.1	LOS A	0.3	6.6	0.38	0.24	0.38	19.1
East: Beaver Creek Commons Drive														
1	L2	25	2.0	30	2.0	0.145	4.1	LOS A	0.7	17.3	0.22	0.10	0.22	16.6
6	T1	69	2.0	82	2.0	0.145	4.1	LOS A	0.7	17.3	0.22	0.10	0.22	21.3
16	R2	58	2.0	69	2.0	0.145	4.1	LOS A	0.7	17.3	0.22	0.10	0.22	18.8
Approach		152	2.0	181	2.0	0.145	4.1	LOS A	0.7	17.3	0.22	0.10	0.22	19.7
North: Creekside Landing Drive														
7	L2	57	2.0	68	2.0	0.131	4.1	LOS A	0.6	15.2	0.27	0.14	0.27	19.8
4	T1	28	2.0	33	2.0	0.131	4.1	LOS A	0.6	15.2	0.27	0.14	0.27	16.3
14	R2	47	2.0	56	2.0	0.131	4.1	LOS A	0.6	15.2	0.27	0.14	0.27	19.2
Approach		132	2.0	157	2.0	0.131	4.1	LOS A	0.6	15.2	0.27	0.14	0.27	18.9
West: Beaver Creek Commons Drive														
5	L2	33	3.0	39	3.0	0.161	4.5	LOS A	0.7	19.0	0.30	0.16	0.30	21.1
2	T1	117	3.0	139	3.0	0.161	4.5	LOS A	0.7	19.0	0.30	0.16	0.30	21.0
12	R2	8	3.0	10	3.0	0.161	4.5	LOS A	0.7	19.0	0.30	0.16	0.30	18.9
Approach		158	3.0	188	3.0	0.161	4.5	LOS A	0.7	19.0	0.30	0.16	0.30	20.9
All Vehicles		495	2.7	589	2.7	0.161	4.2	LOS A	0.7	19.0	0.28	0.15	0.28	19.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

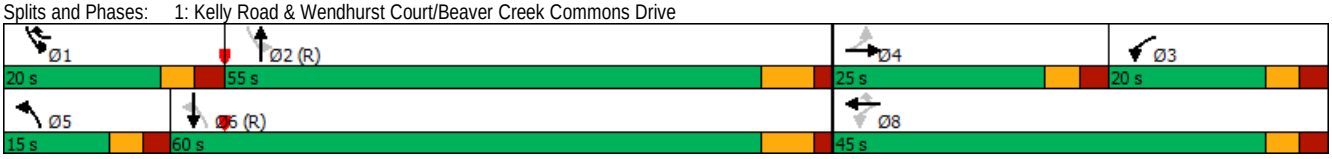
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	14	47	247	20	55	67	502	270	89	748	23
Future Volume (vph)	10	14	47	247	20	55	67	502	270	89	748	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1683	0	0	1772	1575	1743	3275	0	1805	1891	0
Flt Permitted		0.945			0.709		0.174			0.293		
Satd. Flow (perm)	0	1602	0	0	1314	1575	319	3275	0	556	1891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				56		102			2	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	272	56	68	788	0	91	786	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	25.0	25.0		20.0	45.0	20.0	15.0	55.0		20.0	60.0	
Total Split (%)	20.8%	20.8%		16.7%	37.5%	16.7%	12.5%	45.8%		16.7%	50.0%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		30.7			30.7	44.0	75.3	66.0		74.3	69.1	
Actuated g/C Ratio		0.26			0.26	0.37	0.63	0.55		0.62	0.58	
v/c Ratio		0.16			0.81	0.09	0.23	0.43		0.21	0.72	
Control Delay		13.7			59.7	5.4	11.0	15.6		10.1	26.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		13.7			59.7	5.4	11.0	15.6		10.1	26.3	
LOS		B			E	A	B	B		B	C	
Approach Delay		13.7			50.5			15.3			24.6	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		14			197	0	17	155		23	444	
Queue Length 95th (ft)		46			274	23	42	249		53	#797	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		445			438	697	323	1846		523	1089	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.16			0.62	0.08	0.21	0.43		0.17	0.72	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 24.5	Intersection LOS: C
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	
Description: Signal No. 052254	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	436	521	22	20	26
Future Volume (vph)	16	436	521	22	20	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1770	1863	1852	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1852	0	1770	1583
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	469	584	0	22	28
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	436	521	22	20	26
Future Vol, veh/h	16	436	521	22	20	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	469	560	24	22	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	584	0	-	0	1075	572
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	503	-
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	991	-	-	-	243	520
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	607	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	991	-	-	-	239	520
Mov Cap-2 Maneuver	-	-	-	-	373	-
Stage 1	-	-	-	-	555	-
Stage 2	-	-	-	-	607	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	991	-	-	-	373	520
HCM Lane V/C Ratio	0.017	-	-	-	0.058	0.054
HCM Control Delay (s)	8.7	-	-	-	15.2	12.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	4	4	25	4	4
Future Volume (vph)	15	4	4	25	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1744	0	1643	0	0	1818
Flt Permitted	0.961					0.976
Satd. Flow (perm)	1744	0	1643	0	0	1818
Link Speed (mph)	25		25			25
Link Distance (ft)	289		696			330
Travel Time (s)	7.9		19.0			9.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	32	0	0	8
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	4	4	25	4	4
Future Vol, veh/h	15	4	4	25	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	17	4	4	28	4	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	30	18	0	0	32	0
Stage 1	18	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	984	1061	-	-	1580	-
Stage 1	1005	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	981	1061	-	-	1580	-
Mov Cap-2 Maneuver	981	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	997	1580	-
HCM Lane V/C Ratio	-	-	0.021	0.003	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

MOVEMENT SUMMARY

Site: 4 [Existing PM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Chapel Ridge Apartments
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	25	2.0	27	2.0	0.284	7.4	LOS A	1.3	33.3	0.59	0.55	0.59	23.2
8	T1	95	2.0	101	2.0	0.284	7.4	LOS A	1.3	33.3	0.59	0.55	0.59	23.1
18	R2	103	2.0	110	2.0	0.284	7.4	LOS A	1.3	33.3	0.59	0.55	0.59	22.7
Approach		223	2.0	237	2.0	0.284	7.4	LOS A	1.3	33.3	0.59	0.55	0.59	22.9
East: Beaver Creek Commons Drive														
1	L2	73	2.0	78	2.0	0.453	8.5	LOS A	2.8	69.9	0.54	0.42	0.54	22.9
6	T1	209	2.0	222	2.0	0.453	8.5	LOS A	2.8	69.9	0.54	0.42	0.54	22.8
16	R2	168	2.0	179	2.0	0.453	8.5	LOS A	2.8	69.9	0.54	0.42	0.54	22.4
Approach		450	2.0	479	2.0	0.453	8.5	LOS A	2.8	69.9	0.54	0.42	0.54	22.7
North: Creekside Landing Drive														
7	L2	136	2.0	145	2.0	0.471	9.4	LOS A	2.9	74.4	0.62	0.56	0.66	22.6
4	T1	159	2.0	169	2.0	0.471	9.4	LOS A	2.9	74.4	0.62	0.56	0.66	22.5
14	R2	131	2.0	139	2.0	0.471	9.4	LOS A	2.9	74.4	0.62	0.56	0.66	22.1
Approach		426	2.0	453	2.0	0.471	9.4	LOS A	2.9	74.4	0.62	0.56	0.66	22.4
West: Beaver Creek Commons Drive														
5	L2	104	2.0	111	2.0	0.379	8.3	LOS A	2.0	49.5	0.60	0.54	0.60	22.9
2	T1	196	2.0	209	2.0	0.379	8.3	LOS A	2.0	49.5	0.60	0.54	0.60	22.8
12	R2	21	2.0	22	2.0	0.379	8.3	LOS A	2.0	49.5	0.60	0.54	0.60	22.3
Approach		321	2.0	341	2.0	0.379	8.3	LOS A	2.0	49.5	0.60	0.54	0.60	22.8
All Vehicles		1420	2.0	1511	2.0	0.471	8.5	LOS A	2.9	74.4	0.59	0.51	0.60	22.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

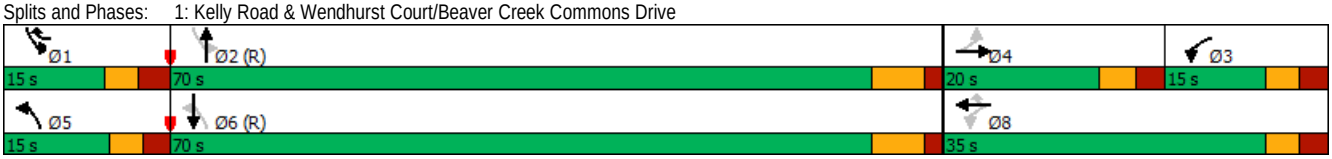
Appendix G:
Synchro & SIDRA Output:
Background (2025)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	8	38	93	4	25	38	773	132	33	408	9
Future Volume (vph)	19	8	38	93	4	25	38	773	132	33	408	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1641	0	0	1768	1575	1743	3409	0	1753	1840	0
Flt Permitted		0.888			0.700		0.481			0.279		
Satd. Flow (perm)	0	1478	0	0	1297	1575	883	3409	0	515	1840	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				32		25			1	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	99	26	39	924	0	34	425	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	20.0	20.0		15.0	35.0	15.0	15.0	70.0		15.0	70.0	
Total Split (%)	16.7%	16.7%		12.5%	29.2%	12.5%	12.5%	58.3%		12.5%	58.3%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		14.4			14.4	27.2	92.6	85.3		91.6	88.1	
Actuated g/C Ratio		0.12			0.12	0.23	0.77	0.71		0.76	0.73	
v/c Ratio		0.31			0.64	0.07	0.05	0.38		0.07	0.31	
Control Delay		26.2			67.5	9.3	3.6	8.2		3.8	7.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		26.2			67.5	9.3	3.6	8.2		3.8	7.7	
LOS		C			E	A	A	A		A	A	
Approach Delay		26.2			55.4			8.0			7.4	
Approach LOS		C			E			A			A	
Queue Length 50th (ft)		19			74	0	5	140		4	118	
Queue Length 95th (ft)		59			126	19	16	212		14	204	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		238			324	410	764	2431		503	1351	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.28			0.31	0.06	0.05	0.38		0.07	0.31	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 51.9%	ICU Level of Service A
Analysis Period (min) 15	
Description: Signal No. 052254	

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	400	401	56	15	12
Future Volume (vph)	52	400	401	56	15	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1736	1827	1796	0	1703	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1827	1796	0	1703	1524
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	471	538	0	18	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	400	401	56	15	12
Future Vol, veh/h	52	400	401	56	15	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	6	6
Mvmt Flow	61	471	472	66	18	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	538	0	-	0	1098	505
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	593	-
Critical Hdwy	4.14	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.236	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1020	-	-	-	231	559
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	544	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1020	-	-	-	217	559
Mov Cap-2 Maneuver	-	-	-	-	351	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	544	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1020	-	-	-	351	559
HCM Lane V/C Ratio	0.06	-	-	-	0.05	0.025
HCM Control Delay (s)	8.8	-	-	-	15.8	11.6
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	0.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	4	4	13	4	4
Future Volume (vph)	19	4	4	13	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1749	0	1667	0	0	1818
Flt Permitted	0.960					0.976
Satd. Flow (perm)	1749	0	1667	0	0	1818
Link Speed (mph)	25		25			25
Link Distance (ft)	289		696			330
Travel Time (s)	7.9		19.0			9.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	18	0	0	8
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	4	4	13	4	4
Future Vol, veh/h	19	4	4	13	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	21	4	4	14	4	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	23	11	0	0	18	0
Stage 1	11	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	993	1070	-	-	1599	-
Stage 1	1012	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	990	1070	-	-	1599	-
Mov Cap-2 Maneuver	990	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1599	-
HCM Lane V/C Ratio	-	-	0.025	0.003	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

MOVEMENT SUMMARY

Site: 4 [Background AM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Chapel Ridge Apartments
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	4	6.0	5	6.0	0.066	4.3	LOS A	0.3	6.9	0.40	0.27	0.40	24.0
8	T1	28	6.0	33	6.0	0.066	4.3	LOS A	0.3	6.9	0.40	0.27	0.40	23.9
18	R2	22	6.0	26	6.0	0.066	4.3	LOS A	0.3	6.9	0.40	0.27	0.40	23.5
Approach		54	6.0	64	6.0	0.066	4.3	LOS A	0.3	6.9	0.40	0.27	0.40	23.7
East: Beaver Creek Commons Drive														
1	L2	29	2.0	35	2.0	0.165	4.3	LOS A	0.8	20.0	0.24	0.11	0.24	24.0
6	T1	78	2.0	93	2.0	0.165	4.3	LOS A	0.8	20.0	0.24	0.11	0.24	23.8
16	R2	65	2.0	77	2.0	0.165	4.3	LOS A	0.8	20.0	0.24	0.11	0.24	23.4
Approach		172	2.0	205	2.0	0.165	4.3	LOS A	0.8	20.0	0.24	0.11	0.24	23.7
North: Creekside Landing Drive														
7	L2	64	2.0	76	2.0	0.150	4.3	LOS A	0.7	17.7	0.30	0.16	0.30	23.7
4	T1	32	2.0	38	2.0	0.150	4.3	LOS A	0.7	17.7	0.30	0.16	0.30	23.6
14	R2	53	2.0	63	2.0	0.150	4.3	LOS A	0.7	17.7	0.30	0.16	0.30	23.1
Approach		149	2.0	177	2.0	0.150	4.3	LOS A	0.7	17.7	0.30	0.16	0.30	23.5
West: Beaver Creek Commons Drive														
5	L2	37	3.0	44	3.0	0.184	4.8	LOS A	0.9	22.1	0.33	0.19	0.33	23.8
2	T1	132	3.0	157	3.0	0.184	4.8	LOS A	0.9	22.1	0.33	0.19	0.33	23.7
12	R2	8	3.0	10	3.0	0.184	4.8	LOS A	0.9	22.1	0.33	0.19	0.33	23.3
Approach		177	3.0	211	3.0	0.184	4.8	LOS A	0.9	22.1	0.33	0.19	0.33	23.7
All Vehicles		552	2.7	657	2.7	0.184	4.5	LOS A	0.9	22.1	0.30	0.17	0.30	23.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

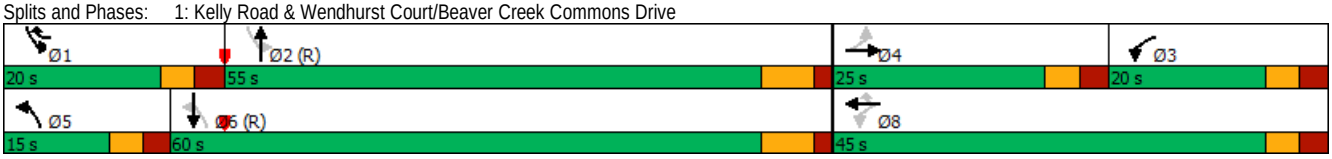
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	14	47	278	20	62	67	584	304	100	846	23
Future Volume (vph)	10	14	47	278	20	62	67	584	304	100	846	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1683	0	0	1770	1575	1743	3283	0	1805	1891	0
Flt Permitted		0.943			0.710		0.087			0.237		
Satd. Flow (perm)	0	1598	0	0	1316	1575	160	3283	0	450	1891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				63		95			1	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	304	63	68	906	0	102	886	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	25.0	25.0		20.0	45.0	20.0	15.0	55.0		20.0	60.0	
Total Split (%)	20.8%	20.8%		16.7%	37.5%	16.7%	12.5%	45.8%		16.7%	50.0%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		33.0			33.0	46.6	73.0	63.4		72.0	66.7	
Actuated g/C Ratio		0.28			0.28	0.39	0.61	0.53		0.60	0.56	
v/c Ratio		0.15			0.84	0.10	0.34	0.51		0.28	0.84	
Control Delay		13.1			60.9	4.9	14.5	18.5		11.6	34.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		13.1			60.9	4.9	14.5	18.5		11.6	34.0	
LOS		B			E	A	B	B		B	C	
Approach Delay		13.1			51.3			18.2			31.7	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		14			219	0	19	206		29	586	
Queue Length 95th (ft)		46			312	25	42	307		59	#968	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		473			438	730	231	1778		457	1051	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.15			0.69	0.09	0.29	0.51		0.22	0.84	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 87.4%	ICU Level of Service E
Analysis Period (min) 15	
Description: Signal No. 052254	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	491	586	29	51	58
Future Volume (vph)	23	491	586	29	51	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1770	1863	1852	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1852	0	1770	1583
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	528	661	0	55	62
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	491	586	29	51	58
Future Vol, veh/h	23	491	586	29	51	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	528	630	31	55	62

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	661	0	-	0	1224	646
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	578	-
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	927	-	-	-	198	472
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	561	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	927	-	-	-	193	472
Mov Cap-2 Maneuver	-	-	-	-	331	-
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	561	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	927	-	-	-	331	472
HCM Lane V/C Ratio	0.027	-	-	-	0.166	0.132
HCM Control Delay (s)	9	-	-	-	18	13.8
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	0.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	4	4	32	4	4
Future Volume (vph)	17	4	4	32	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1747	0	1635	0	0	1818
Flt Permitted	0.960					0.976
Satd. Flow (perm)	1747	0	1635	0	0	1818
Link Speed (mph)	25		25			25
Link Distance (ft)	289		696			330
Travel Time (s)	7.9		19.0			9.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	40	0	0	8
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	4	4	32	4	4
Future Vol, veh/h	17	4	4	32	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	19	4	4	36	4	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	34	22	0	0	40	0
Stage 1	22	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	979	1055	-	-	1570	-
Stage 1	1001	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	976	1055	-	-	1570	-
Mov Cap-2 Maneuver	976	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	990	1570	-
HCM Lane V/C Ratio	-	-	0.024	0.003	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

MOVEMENT SUMMARY

Site: 4 [Background PM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Chapel Ridge Apartments
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	25	2.0	27	2.0	0.311	8.2	LOS A	1.4	36.4	0.62	0.61	0.62	23.0
8	T1	98	2.0	104	2.0	0.311	8.2	LOS A	1.4	36.4	0.62	0.61	0.62	22.9
18	R2	107	2.0	114	2.0	0.311	8.2	LOS A	1.4	36.4	0.62	0.61	0.62	22.5
Approach		230	2.0	245	2.0	0.311	8.2	LOS A	1.4	36.4	0.62	0.61	0.62	22.7
East: Beaver Creek Commons Drive														
1	L2	74	2.0	79	2.0	0.511	9.6	LOS A	3.3	83.3	0.60	0.47	0.60	22.7
6	T1	235	2.0	250	2.0	0.511	9.6	LOS A	3.3	83.3	0.60	0.47	0.60	22.6
16	R2	189	2.0	201	2.0	0.511	9.6	LOS A	3.3	83.3	0.60	0.47	0.60	22.2
Approach		498	2.0	530	2.0	0.511	9.6	LOS A	3.3	83.3	0.60	0.47	0.60	22.4
North: Creekside Landing Drive														
7	L2	153	2.0	163	2.0	0.523	10.6	LOS B	4.1	104.7	0.67	0.72	0.85	22.3
4	T1	160	2.0	170	2.0	0.523	10.6	LOS B	4.1	104.7	0.67	0.72	0.85	22.2
14	R2	147	2.0	156	2.0	0.523	10.6	LOS B	4.1	104.7	0.67	0.72	0.85	21.8
Approach		460	2.0	489	2.0	0.523	10.6	LOS B	4.1	104.7	0.67	0.72	0.85	22.1
West: Beaver Creek Commons Drive														
5	L2	117	2.0	124	2.0	0.433	9.3	LOS A	2.5	64.4	0.64	0.63	0.71	22.6
2	T1	221	2.0	235	2.0	0.433	9.3	LOS A	2.5	64.4	0.64	0.63	0.71	22.5
12	R2	21	2.0	22	2.0	0.433	9.3	LOS A	2.5	64.4	0.64	0.63	0.71	22.1
Approach		359	2.0	382	2.0	0.433	9.3	LOS A	2.5	64.4	0.64	0.63	0.71	22.5
All Vehicles		1547	2.0	1646	2.0	0.523	9.6	LOS A	4.1	104.7	0.63	0.60	0.70	22.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix H:
Synchro & SIDRA Output:
Build-Out (2025)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	8	38	93	4	88	38	773	132	53	408	9
Future Volume (vph)	19	8	38	93	4	88	38	773	132	53	408	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1641	0	0	1768	1575	1743	3409	0	1753	1840	0
Flt Permitted		0.888			0.700		0.481			0.276		
Satd. Flow (perm)	0	1478	0	0	1297	1575	883	3409	0	509	1840	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				90		25			1	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	99	90	39	924	0	54	425	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	20.0	20.0		15.0	35.0	15.0	15.0	70.0		15.0	70.0	
Total Split (%)	16.7%	16.7%		12.5%	29.2%	12.5%	12.5%	58.3%		12.5%	58.3%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		14.4			14.4	27.2	92.6	82.8		90.6	88.1	
Actuated g/C Ratio		0.12			0.12	0.23	0.77	0.69		0.76	0.73	
v/c Ratio		0.31			0.64	0.21	0.05	0.39		0.12	0.31	
Control Delay		26.2			67.5	8.0	3.6	8.8		4.0	7.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		26.2			67.5	8.0	3.6	8.8		4.0	7.7	
LOS		C			E	A	A	A		A	A	
Approach Delay		26.2			39.2			8.5			7.3	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		19			74	0	5	140		7	118	
Queue Length 95th (ft)		59			126	40	16	212		20	204	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		238			324	454	764	2359		497	1351	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.28			0.31	0.20	0.05	0.39		0.11	0.31	

Intersection Summary

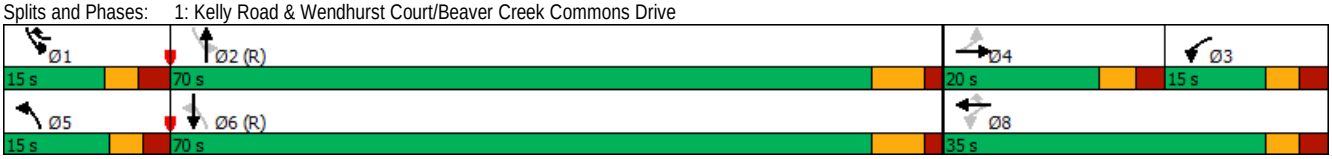
Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 55.9%	ICU Level of Service B
Analysis Period (min) 15	
Description: Signal No. 052254	

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	55	400	401	62	32	21
Future Volume (vph)	55	400	401	62	32	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1736	1827	1794	0	1703	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1827	1794	0	1703	1524
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	471	545	0	38	25
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	55	400	401	62	32	21
Future Vol, veh/h	55	400	401	62	32	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	6	6
Mvmt Flow	65	471	472	73	38	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	545	0	-	0	1110	509
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	601	-
Critical Hdwy	4.14	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.236	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1014	-	-	-	227	556
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	540	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1014	-	-	-	212	556
Mov Cap-2 Maneuver	-	-	-	-	347	-
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	540	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1014	-	-	-	347	556
HCM Lane V/C Ratio	0.064	-	-	-	0.108	0.044
HCM Control Delay (s)	8.8	-	-	-	16.6	11.8
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	48	16	13	15	32
Future Volume (vph)	19	48	16	13	15	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1659	0	1753	0	0	1833
Flt Permitted	0.986					0.984
Satd. Flow (perm)	1659	0	1753	0	0	1833
Link Speed (mph)	25		25			25
Link Distance (ft)	292		213			210
Travel Time (s)	8.0		5.8			5.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	32	0	0	53
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	48	16	13	15	32
Future Vol, veh/h	19	48	16	13	15	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	21	53	18	14	17	36

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	95	25	0	0	32	0
Stage 1	25	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	905	1051	-	-	1580	-
Stage 1	998	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	895	1051	-	-	1580	-
Mov Cap-2 Maneuver	895	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	943	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1001	1580	-
HCM Lane V/C Ratio	-	-	0.074	0.011	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

MOVEMENT SUMMARY

Site: 4 [Build-Out AM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Chapel Ridge Apartments
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	4	6.0	5	6.0	0.068	4.5	LOS A	0.3	7.1	0.43	0.30	0.43	24.0
8	T1	28	6.0	33	6.0	0.068	4.5	LOS A	0.3	7.1	0.43	0.30	0.43	23.9
18	R2	22	6.0	26	6.0	0.068	4.5	LOS A	0.3	7.1	0.43	0.30	0.43	23.4
Approach		54	6.0	64	6.0	0.068	4.5	LOS A	0.3	7.1	0.43	0.30	0.43	23.7
East: Beaver Creek Commons Drive														
1	L2	29	2.0	35	2.0	0.181	4.5	LOS A	0.9	22.2	0.26	0.13	0.26	23.9
6	T1	92	2.0	110	2.0	0.181	4.5	LOS A	0.9	22.2	0.26	0.13	0.26	23.8
16	R2	65	2.0	77	2.0	0.181	4.5	LOS A	0.9	22.2	0.26	0.13	0.26	23.4
Approach		186	2.0	221	2.0	0.181	4.5	LOS A	0.9	22.2	0.26	0.13	0.26	23.7
North: Creekside Landing Drive														
7	L2	64	2.0	76	2.0	0.164	4.5	LOS A	0.8	19.5	0.32	0.19	0.32	23.7
4	T1	32	2.0	38	2.0	0.164	4.5	LOS A	0.8	19.5	0.32	0.19	0.32	23.6
14	R2	64	2.0	76	2.0	0.164	4.5	LOS A	0.8	19.5	0.32	0.19	0.32	23.1
Approach		160	2.0	190	2.0	0.164	4.5	LOS A	0.8	19.5	0.32	0.19	0.32	23.4
West: Beaver Creek Commons Drive														
5	L2	46	3.0	55	3.0	0.213	5.0	LOS A	1.0	26.3	0.34	0.20	0.34	23.7
2	T1	151	3.0	180	3.0	0.213	5.0	LOS A	1.0	26.3	0.34	0.20	0.34	23.6
12	R2	8	3.0	10	3.0	0.213	5.0	LOS A	1.0	26.3	0.34	0.20	0.34	23.2
Approach		205	3.0	244	3.0	0.213	5.0	LOS A	1.0	26.3	0.34	0.20	0.34	23.6
All Vehicles		605	2.7	720	2.7	0.213	4.7	LOS A	1.0	26.3	0.32	0.18	0.32	23.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	39	210	20	28	125
Future Volume (vph)	63	39	210	20	28	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1715	0	1840	0	1770	1863
Flt Permitted	0.970				0.950	
Satd. Flow (perm)	1715	0	1840	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	432		357			558
Travel Time (s)	11.8		7.0			10.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	255	0	31	139
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	39	210	20	28	125
Future Vol, veh/h	63	39	210	20	28	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
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	70	43	233	22	31	139

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	445	244	0	0	255	0
Stage 1	244	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	571	795	-	-	1310	-
Stage 1	797	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	557	795	-	-	1310	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	813	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	678	1310	-
HCM Lane V/C Ratio	-	-	0.167	0.024	-
HCM Control Delay (s)	-	-	11.4	7.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	6	43	4	17	85	4
Future Volume (vph)	6	43	4	17	85	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1643	0	0	1846	1766	0
Flt Permitted				0.991	0.954	
Satd. Flow (perm)	1643	0	0	1846	1766	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	432			273	553	
Travel Time (s)	11.8			7.4	15.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	23	98	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	6	43	4	17	85	4
Future Vol, veh/h	6	43	4	17	85	4
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	7	48	4	19	94	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	58	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	27	-
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	-	-	1550	-	949	1043
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	996	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1550	-	946	1043
Mov Cap-2 Maneuver	-	-	-	-	946	-
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	993	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	950	-	-	1550	-
HCM Lane V/C Ratio	0.104	-	-	0.003	-
HCM Control Delay (s)	9.2	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	34	8	4	58	4	22	4	4	9	4	4
Future Volume (vph)	4	34	8	4	58	4	22	4	4	9	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1811	0	0	1842	0	0	1765	0	0	1758	0
Flt Permitted		0.996			0.997			0.964			0.973	
Satd. Flow (perm)	0	1811	0	0	1842	0	0	1765	0	0	1758	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		553			210			358			340	
Travel Time (s)		15.1			5.7			9.8			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	72	0	0	32	0	0	18	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

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	4	34	8	4	58	4	22	4	4	9	4	4
Future Vol, veh/h	4	34	8	4	58	4	22	4	4	9	4	4
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	-	-	-	-	-	-	-	-	-	-	-	-
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	4	38	9	4	64	4	24	4	4	10	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	68	0	0	47	0	0	129	127	43	129	129	66
Stage 1	-	-	-	-	-	-	51	51	-	74	74	-
Stage 2	-	-	-	-	-	-	78	76	-	55	55	-
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	1533	-	-	1560	-	-	844	764	1027	844	762	998
Stage 1	-	-	-	-	-	-	962	852	-	935	833	-
Stage 2	-	-	-	-	-	-	931	832	-	957	849	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1533	-	-	1560	-	-	833	759	1027	833	757	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	833	759	-	833	757	-
Stage 1	-	-	-	-	-	-	959	849	-	932	831	-
Stage 2	-	-	-	-	-	-	919	830	-	945	846	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	9.4	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	843	1533	-	-	1560	-	-	846
HCM Lane V/C Ratio	0.04	0.003	-	-	0.003	-	-	0.022
HCM Control Delay (s)	9.4	7.4	0	-	7.3	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	9	4	4	4	4	20	4	4	48	4
Future Volume (vph)	4	4	9	4	4	4	4	20	4	4	48	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1704	0	0	1750	0	0	1816	0	0	1840	0
Flt Permitted		0.989			0.984			0.993			0.997	
Satd. Flow (perm)	0	1704	0	0	1750	0	0	1816	0	0	1840	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		248			378			405			213	
Travel Time (s)		6.8			10.3			11.0			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	12	0	0	30	0	0	61	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	9	4	4	4	4	20	4	4	48	4
Future Vol, veh/h	4	4	9	4	4	4	4	20	4	4	48	4
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	-	-	-	-	-	-	-	-	-	-	-	-
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	4	4	10	4	4	4	4	22	4	4	53	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	99	97	55	102	97	24	57	0	0	26	0	0
Stage 1	63	63	-	32	32	-	-	-	-	-	-	-
Stage 2	36	34	-	70	65	-	-	-	-	-	-	-
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	883	793	1012	879	793	1052	1547	-	-	1588	-	-
Stage 1	948	842	-	984	868	-	-	-	-	-	-	-
Stage 2	980	867	-	940	841	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	872	788	1012	862	788	1052	1547	-	-	1588	-	-
Mov Cap-2 Maneuver	872	788	-	862	788	-	-	-	-	-	-	-
Stage 1	945	839	-	981	865	-	-	-	-	-	-	-
Stage 2	968	864	-	923	838	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9.1	1	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1547	-	-	916	888	1588	-	-
HCM Lane V/C Ratio	0.003	-	-	0.021	0.015	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9	9.1	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	25	4	4	58	9	4
Future Volume (vph)	25	4	4	58	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1831	0	0	1857	1729	0
Flt Permitted				0.997	0.966	
Satd. Flow (perm)	1831	0	0	1857	1729	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	292			367	225	
Travel Time (s)	8.0			10.0	6.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	0	68	14	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	25	4	4	58	9	4
Future Vol, veh/h	25	4	4	58	9	4
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	28	4	4	64	10	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	32	0	102	30
Stage 1	-	-	-	-	30	-
Stage 2	-	-	-	-	72	-
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	-	-	1580	-	896	1044
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1580	-	893	1044
Mov Cap-2 Maneuver	-	-	-	-	893	-
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	935	-	-	1580	-
HCM Lane V/C Ratio	0.015	-	-	0.003	-
HCM Control Delay (s)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

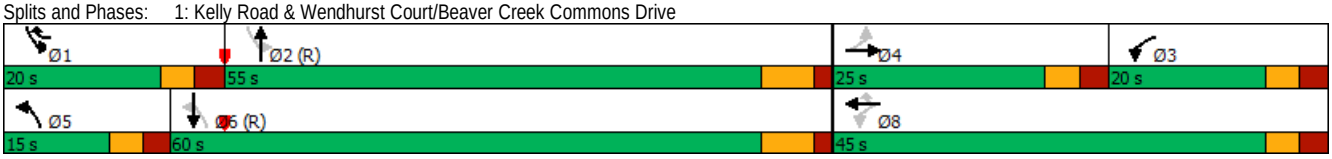
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	14	47	278	20	101	67	584	304	164	846	23
Future Volume (vph)	10	14	47	278	20	101	67	584	304	164	846	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1683	0	0	1770	1575	1743	3283	0	1805	1891	0
Flt Permitted		0.943			0.710		0.087			0.232		
Satd. Flow (perm)	0	1598	0	0	1316	1575	160	3283	0	441	1891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				103		95			1	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	304	103	68	906	0	167	886	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	25.0	25.0		20.0	45.0	20.0	15.0	55.0		20.0	60.0	
Total Split (%)	20.8%	20.8%		16.7%	37.5%	16.7%	12.5%	45.8%		16.7%	50.0%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		33.0			33.0	48.2	73.0	61.8		72.0	66.7	
Actuated g/C Ratio		0.28			0.28	0.40	0.61	0.52		0.60	0.56	
v/c Ratio		0.15			0.84	0.15	0.34	0.52		0.44	0.84	
Control Delay		13.1			60.9	3.7	14.5	19.8		13.6	34.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		13.1			60.9	3.7	14.5	19.8		13.6	34.0	
LOS		B			E	A	B	B		B	C	
Approach Delay		13.1			46.4			19.4			30.8	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		14			219	0	19	214		49	586	
Queue Length 95th (ft)		46			312	29	42	322		91	#968	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		473			438	752	231	1737		449	1051	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.15			0.69	0.14	0.29	0.52		0.37	0.84	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 28.4	Intersection LOS: C
Intersection Capacity Utilization 87.4%	ICU Level of Service E
Analysis Period (min) 15	
Description: Signal No. 052254	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	32	491	586	47	62	64
Future Volume (vph)	32	491	586	47	62	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1770	1863	1844	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1844	0	1770	1583
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	528	681	0	67	69
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	32	491	586	47	62	64
Future Vol, veh/h	32	491	586	47	62	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	528	630	51	67	69

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	681	0	-	0	1252	656
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	596	-
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	912	-	-	-	190	465
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	550	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	912	-	-	-	183	465
Mov Cap-2 Maneuver	-	-	-	-	322	-
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	550	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	16.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	912	-	-	-	322	465
HCM Lane V/C Ratio	0.038	-	-	-	0.207	0.148
HCM Control Delay (s)	9.1	-	-	-	19.1	14.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8	0.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	28	34	32	47	22
Future Volume (vph)	17	28	34	32	47	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1674	0	1740	0	0	1801
Flt Permitted	0.981					0.967
Satd. Flow (perm)	1674	0	1740	0	0	1801
Link Speed (mph)	25		25			25
Link Distance (ft)	292		213			210
Travel Time (s)	8.0		5.8			5.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	74	0	0	76
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	28	34	32	47	22
Future Vol, veh/h	17	28	34	32	47	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	19	31	38	36	52	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	184	56	0	0	74	0
Stage 1	56	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	805	1011	-	-	1526	-
Stage 1	967	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	777	1011	-	-	1526	-
Mov Cap-2 Maneuver	777	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	5.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	908	1526	-
HCM Lane V/C Ratio	-	-	0.055	0.034	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

MOVEMENT SUMMARY

Site: 4 [Build-Out PM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Chapel Ridge Apartments
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	25	2.0	27	2.0	0.322	8.6	LOS A	1.5	37.5	0.64	0.64	0.64	22.9
8	T1	98	2.0	104	2.0	0.322	8.6	LOS A	1.5	37.5	0.64	0.64	0.64	22.8
18	R2	107	2.0	114	2.0	0.322	8.6	LOS A	1.5	37.5	0.64	0.64	0.64	22.4
Approach		230	2.0	245	2.0	0.322	8.6	LOS A	1.5	37.5	0.64	0.64	0.64	22.7
East: Beaver Creek Commons Drive														
1	L2	74	2.0	79	2.0	0.538	10.2	LOS B	4.1	104.5	0.63	0.56	0.70	22.5
6	T1	255	2.0	271	2.0	0.538	10.2	LOS B	4.1	104.5	0.63	0.56	0.70	22.4
16	R2	189	2.0	201	2.0	0.538	10.2	LOS B	4.1	104.5	0.63	0.56	0.70	22.0
Approach		518	2.0	551	2.0	0.538	10.2	LOS B	4.1	104.5	0.63	0.56	0.70	22.3
North: Creekside Landing Drive														
7	L2	153	2.0	163	2.0	0.548	11.3	LOS B	4.7	118.9	0.70	0.80	0.96	22.2
4	T1	160	2.0	170	2.0	0.548	11.3	LOS B	4.7	118.9	0.70	0.80	0.96	22.1
14	R2	158	2.0	168	2.0	0.548	11.3	LOS B	4.7	118.9	0.70	0.80	0.96	21.7
Approach		471	2.0	501	2.0	0.548	11.3	LOS B	4.7	118.9	0.70	0.80	0.96	22.0
West: Beaver Creek Commons Drive														
5	L2	129	2.0	137	2.0	0.471	10.0	LOS B	3.1	79.3	0.66	0.70	0.80	22.5
2	T1	240	2.0	255	2.0	0.471	10.0	LOS B	3.1	79.3	0.66	0.70	0.80	22.4
12	R2	21	2.0	22	2.0	0.471	10.0	LOS B	3.1	79.3	0.66	0.70	0.80	22.0
Approach		390	2.0	415	2.0	0.471	10.0	LOS B	3.1	79.3	0.66	0.70	0.80	22.4
All Vehicles		1609	2.0	1712	2.0	0.548	10.3	LOS B	4.7	118.9	0.66	0.68	0.79	22.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	37	400	64	41	377
Future Volume (vph)	39	37	400	64	41	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1696	0	1827	0	0	1853
Flt Permitted	0.975					0.995
Satd. Flow (perm)	1696	0	1827	0	0	1853
Link Speed (mph)	25		35			35
Link Distance (ft)	432		357			558
Travel Time (s)	11.8		7.0			10.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	515	0	0	465
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	37	400	64	41	377
Future Vol, veh/h	39	37	400	64	41	377
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	43	41	444	71	46	419

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	991	480	0	0	515	0
Stage 1	480	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	273	586	-	-	1051	-
Stage 1	622	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	257	586	-	-	1051	-
Mov Cap-2 Maneuver	388	-	-	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	568	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	464	1051	-
HCM Lane V/C Ratio	-	-	0.182	0.043	-
HCM Control Delay (s)	-	-	14.5	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	18	87	4	11	65	4
Future Volume (vph)	18	87	4	11	65	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1654	0	0	1840	1766	0
Flt Permitted				0.988	0.955	
Satd. Flow (perm)	1654	0	0	1840	1766	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	432			273	553	
Travel Time (s)	11.8			7.4	15.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	0	0	16	76	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	87	4	11	65	4
Future Vol, veh/h	18	87	4	11	65	4
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	20	97	4	12	72	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	117	0	89	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	20	-
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	-	-	1471	-	912	994
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1471	-	909	994
Mov Cap-2 Maneuver	-	-	-	-	909	-
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	1000	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	914	-	-	1471	-
HCM Lane V/C Ratio	0.084	-	-	0.003	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	60	23	5	47	9	14	4	4	6	4	4
Future Volume (vph)	5	60	23	5	47	9	14	4	4	6	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1792	0	0	1818	0	0	1762	0	0	1754	0
Flt Permitted		0.997			0.996			0.968			0.977	
Satd. Flow (perm)	0	1792	0	0	1818	0	0	1762	0	0	1754	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		553			210			358			340	
Travel Time (s)		15.1			5.7			9.8			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	68	0	0	24	0	0	15	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.8%		ICU Level of Service A	
Analysis Period (min) 15			

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	5	60	23	5	47	9	14	4	4	6	4	4
Future Vol, veh/h	5	60	23	5	47	9	14	4	4	6	4	4
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	-	-	-	-	-	-	-	-	-	-	-	-
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	6	67	26	6	52	10	16	4	4	7	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	62	0	0	93	0	0	165	166	80	165	174	57
Stage 1	-	-	-	-	-	-	92	92	-	69	69	-
Stage 2	-	-	-	-	-	-	73	74	-	96	105	-
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	1541	-	-	1501	-	-	800	727	980	800	719	1009
Stage 1	-	-	-	-	-	-	915	819	-	941	837	-
Stage 2	-	-	-	-	-	-	937	833	-	911	808	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1541	-	-	1501	-	-	788	721	980	788	713	1009
Mov Cap-2 Maneuver	-	-	-	-	-	-	788	721	-	788	713	-
Stage 1	-	-	-	-	-	-	911	816	-	937	834	-
Stage 2	-	-	-	-	-	-	924	830	-	898	805	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.6	9.6	9.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	803	1541	-	-	1501	-	-	814
HCM Lane V/C Ratio	0.03	0.004	-	-	0.004	-	-	0.019
HCM Control Delay (s)	9.6	7.3	0	-	7.4	0	-	9.5
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	6	4	4	4	9	60	5	5	30	5
Future Volume (vph)	4	4	6	4	4	4	9	60	5	5	30	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1723	0	0	1750	0	0	1833	0	0	1816	0
Flt Permitted		0.987			0.984			0.994			0.993	
Satd. Flow (perm)	0	1723	0	0	1750	0	0	1833	0	0	1816	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		248			378			405			213	
Travel Time (s)		6.8			10.3			11.0			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	12	0	0	83	0	0	45	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	6	4	4	4	9	60	5	5	30	5
Future Vol, veh/h	4	4	6	4	4	4	9	60	5	5	30	5
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	-	-	-	-	-	-	-	-	-	-	-	-
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	4	4	7	4	4	4	10	67	6	6	33	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	142	141	36	144	141	70	39	0	0	73	0	0
Stage 1	48	48	-	90	90	-	-	-	-	-	-	-
Stage 2	94	93	-	54	51	-	-	-	-	-	-	-
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	828	750	1037	825	750	993	1571	-	-	1527	-	-
Stage 1	965	855	-	917	820	-	-	-	-	-	-	-
Stage 2	913	818	-	958	852	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	814	742	1037	809	742	993	1571	-	-	1527	-	-
Mov Cap-2 Maneuver	814	742	-	809	742	-	-	-	-	-	-	-
Stage 1	958	852	-	911	814	-	-	-	-	-	-	-
Stage 2	898	812	-	943	849	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.4	0.9	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1571	-	-	870	835	1527	-	-
HCM Lane V/C Ratio	0.006	-	-	0.018	0.016	0.004	-	-
HCM Control Delay (s)	7.3	0	-	9.2	9.4	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	70	9	4	39	6	4
Future Volume (vph)	70	9	4	39	6	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1835	0	0	1855	1717	0
Flt Permitted				0.996	0.969	
Satd. Flow (perm)	1835	0	0	1855	1717	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	292			367	225	
Travel Time (s)	8.0			10.0	6.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	0	47	11	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	9	4	39	6	4
Future Vol, veh/h	70	9	4	39	6	4
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	78	10	4	43	7	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	88	0	134	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	51	-
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	-	-	1508	-	860	976
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	971	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1508	-	857	976
Mov Cap-2 Maneuver	-	-	-	-	857	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	968	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	901	-	-	1508	-
HCM Lane V/C Ratio	0.012	-	-	0.003	-
HCM Control Delay (s)	9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Appendix I:

Supplemental Analysis:

Chapel Ridge Townes Development Data

Appendix I:

Traffic Signal Warrant Analysis:

Olive Chapel Road at Chapel Ridge Road

Raw Count Volumes (15-minute intervals)

			Chapel Ridge Road SB			Olive Chapel Road EB			Olive Chapel Road WB		
Start		End	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	06:15 AM	1	0	2	0	12	0	0	8	3
06:15 AM	TO	06:30 AM	0	0	0	0	21	0	0	17	0
06:30 AM	TO	06:45 AM	0	0	2	2	20	0	0	42	3
06:45 AM	TO	07:00 AM	2	0	7	5	22	0	0	62	2
07:00 AM	TO	07:15 AM	8	0	6	2	48	0	0	58	1
07:15 AM	TO	07:30 AM	3	0	3	1	92	0	0	68	0
07:30 AM	TO	07:45 AM	3	0	4	2	76	0	0	89	5
07:45 AM	TO	08:00 AM	4	0	4	5	77	0	0	87	6
08:00 AM	TO	08:15 AM	1	0	1	2	76	0	0	91	10
08:15 AM	TO	08:30 AM	3	0	2	7	76	0	0	89	1
08:30 AM	TO	08:45 AM	5	0	1	4	100	0	0	68	8
08:45 AM	TO	09:00 AM	2	0	3	7	103	0	0	108	5
09:00 AM	TO	09:15 AM	3	0	1	6	87	0	0	99	5
09:15 AM	TO	09:30 AM	4	0	2	4	77	0	0	71	4
09:30 AM	TO	09:45 AM	1	0	1	3	54	0	0	71	1
09:45 AM	TO	10:00 AM	3	0	7	6	63	0	0	73	6
10:00 AM	TO	10:15 AM	2	0	2	1	49	0	0	50	2
10:15 AM	TO	10:30 AM	4	0	2	4	62	0	0	62	2
10:30 AM	TO	10:45 AM	0	0	4	6	59	0	0	69	3
10:45 AM	TO	11:00 AM	3	0	7	4	78	0	0	65	3
11:00 AM	TO	11:15 AM	5	0	5	5	62	0	0	74	2
11:15 AM	TO	11:30 AM	2	0	4	3	62	0	0	81	2
11:30 AM	TO	11:45 AM	4	0	3	1	48	0	0	79	7
11:45 AM	TO	12:00 PM	3	0	9	6	81	0	0	105	7
12:00 PM	TO	12:15 PM	6	0	5	6	68	0	0	77	3
12:15 PM	TO	12:30 PM	5	0	2	8	93	0	0	115	2
12:30 PM	TO	12:45 PM	2	0	4	2	82	0	0	94	4
12:45 PM	TO	01:00 PM	4	0	6	10	93	0	0	96	3
01:00 PM	TO	01:15 PM	2	0	5	3	72	0	0	99	1
01:15 PM	TO	01:30 PM	6	0	7	7	61	0	0	89	3
01:30 PM	TO	01:45 PM	5	0	7	6	60	0	0	66	8
01:45 PM	TO	02:00 PM	6	0	3	7	56	0	0	75	5
02:00 PM	TO	02:15 PM	3	0	4	4	55	0	0	68	7
02:15 PM	TO	02:30 PM	3	0	6	5	60	0	0	71	4
02:30 PM	TO	02:45 PM	7	0	4	7	85	0	0	68	3
02:45 PM	TO	03:00 PM	5	0	11	5	104	0	0	94	6
03:00 PM	TO	03:15 PM	6	0	5	3	78	0	0	100	5
03:15 PM	TO	03:30 PM	2	0	7	5	82	0	0	112	0
03:30 PM	TO	03:45 PM	2	0	5	4	89	0	0	126	7
03:45 PM	TO	04:00 PM	1	0	4	7	90	0	0	128	3
04:00 PM	TO	04:15 PM	3	0	3	5	112	0	0	127	6
04:15 PM	TO	04:30 PM	3	0	7	7	95	0	0	126	6
04:30 PM	TO	04:45 PM	5	0	11	3	100	0	0	101	13
04:45 PM	TO	05:00 PM	4	0	8	1	121	0	0	138	8
05:00 PM	TO	05:15 PM	6	0	6	6	103	0	0	117	4
05:15 PM	TO	05:30 PM	5	0	8	4	114	0	0	140	3
05:30 PM	TO	05:45 PM	5	0	4	5	98	0	0	126	7
05:45 PM	TO	06:00 PM	6	0	11	4	90	0	0	116	5
06:00 PM	TO	06:15 PM	3	0	2	5	74	0	0	107	4
06:15 PM	TO	06:30 PM	7	0	5	3	79	0	0	122	7
06:30 PM	TO	06:45 PM	5	0	4	1	90	0	0	75	5
06:45 PM	TO	07:00 PM	6	0	11	3	58	0	0	104	3

Hourly Count Volumes

			Chapel Ridge Road SB			Olive Chapel Road EB			Olive Chapel Road WB		
Start Time		End Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	3	0	11	7	75	0	0	129	8
07:00 AM	TO	08:00 AM	18	0	17	10	293	0	0	302	12
08:00 AM	TO	09:00 AM	11	0	7	20	355	0	0	356	24
09:00 AM	TO	10:00 AM	11	0	11	19	281	0	0	314	16
10:00 AM	TO	11:00 AM	9	0	15	15	248	0	0	246	10
11:00 AM	TO	12:00 PM	14	0	21	15	253	0	0	339	18
12:00 PM	TO	01:00 PM	17	0	17	26	336	0	0	382	12
01:00 PM	TO	02:00 PM	19	0	22	23	249	0	0	329	17
02:00 PM	TO	03:00 PM	18	0	25	21	304	0	0	301	20
03:00 PM	TO	04:00 PM	11	0	21	19	339	0	0	466	15
04:00 PM	TO	05:00 PM	15	0	29	16	428	0	0	492	33
05:00 PM	TO	06:00 PM	22	0	29	19	405	0	0	499	19
06:00 PM	TO	07:00 PM	21	0	22	12	301	0	0	408	19

Existing Volumes

			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	3	0	11	7	75	0	0	129	8
07:00 AM	TO	08:00 AM	18	0	17	10	293	0	0	302	12
08:00 AM	TO	09:00 AM	11	0	7	20	355	0	0	356	24
09:00 AM	TO	10:00 AM	11	0	11	19	281	0	0	314	16
10:00 AM	TO	11:00 AM	9	0	15	15	248	0	0	246	10
11:00 AM	TO	12:00 PM	14	0	21	15	253	0	0	339	18
12:00 PM	TO	01:00 PM	17	0	17	26	336	0	0	382	12
01:00 PM	TO	02:00 PM	19	0	22	23	249	0	0	329	17
02:00 PM	TO	03:00 PM	18	0	25	21	304	0	0	301	20
03:00 PM	TO	04:00 PM	11	0	21	19	339	0	0	466	15
04:00 PM	TO	05:00 PM	15	0	29	16	428	0	0	492	33
05:00 PM	TO	06:00 PM	22	0	29	19	405	0	0	499	19
06:00 PM	TO	07:00 PM	21	0	22	12	301	0	0	408	19

Existing Right-turn Volumes Adjusted

			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	3	0	0	7	75	0	0	129	8
07:00 AM	TO	08:00 AM	18	0	0	10	293	0	0	302	12
08:00 AM	TO	09:00 AM	11	0	0	20	355	0	0	356	24
09:00 AM	TO	10:00 AM	11	0	0	19	281	0	0	314	16
10:00 AM	TO	11:00 AM	9	0	0	15	248	0	0	246	10
11:00 AM	TO	12:00 PM	14	0	0	15	253	0	0	339	18
12:00 PM	TO	01:00 PM	17	0	0	26	336	0	0	382	12
01:00 PM	TO	02:00 PM	19	0	0	23	249	0	0	329	17
02:00 PM	TO	03:00 PM	18	0	0	21	304	0	0	301	20
03:00 PM	TO	04:00 PM	11	0	0	19	339	0	0	466	15
04:00 PM	TO	05:00 PM	15	0	0	16	428	0	0	492	33
05:00 PM	TO	06:00 PM	22	0	0	19	405	0	0	499	19
06:00 PM	TO	07:00 PM	21	0	0	12	301	0	0	408	19

Chapel Ridge Apartments

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Olive Chapel Road at Chapel Ridge

COUNT DATE: 1-Jan-10

INTERSECTION CONDITION: Existing

MAJOR STREET: Olive Chapel Road

OF APPROACH LANES: 1

MINOR STREET: Chapel Ridge Road/Chapel Ridge Road

OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	HIGHEST HOUR MINOR ST	WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
									CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES →			350	105		525	53		280	84		420	42			
06:00 AM TO 07:00 AM	219	3														
07:00 AM TO 08:00 AM	617	18	Y			Y			Y			Y				
08:00 AM TO 09:00 AM	755	11	Y			Y			Y			Y				
09:00 AM TO 10:00 AM	630	11	Y			Y			Y			Y				
10:00 AM TO 11:00 AM	519	9	Y						Y			Y				
11:00 AM TO 12:00 PM	625	14	Y			Y			Y			Y				
12:00 PM TO 01:00 PM	756	17	Y			Y			Y			Y				
01:00 PM TO 02:00 PM	618	19	Y			Y			Y			Y				
02:00 PM TO 03:00 PM	646	18	Y			Y			Y			Y				
03:00 PM TO 04:00 PM	839	11	Y			Y			Y			Y				
04:00 PM TO 05:00 PM	969	15	Y			Y			Y			Y				
05:00 PM TO 06:00 PM	942	22	Y			Y			Y			Y				
06:00 PM TO 07:00 PM	740	21	Y			Y			Y			Y				
	8,875	189			**0**			**0**			**0**			**0**	**0**	**0**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant

Condition A : Minimum Vehicular Volume

Condition B : Interruption of Continuous Traffic

Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Chapel Ridge Apartments

Table 1 - Trip Generation (Approved Development #1)

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
710 General Office Building[3]	80,000 s.f.	1,110	555	555	160	141	19	168	29	139
Total Net New External Trips (50% occupied)		**555**	**278**	**278**	**80**	**71**	**10**	**84**	**15**	**70**

Approved Development Volumes: Remaining Build-out of Olive Chapel Professional Park

			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	1	0	0	6	0	0	0	0	6
07:00 AM	TO	08:00 AM	4	0	0	32	0	0	0	0	32
08:00 AM	TO	09:00 AM	4	0	0	18	0	0	0	0	18
09:00 AM	TO	10:00 AM	5	0	0	8	0	0	0	0	8
10:00 AM	TO	11:00 AM	7	0	0	7	0	0	0	0	7
11:00 AM	TO	12:00 PM	13	0	0	8	0	0	0	0	8
12:00 PM	TO	01:00 PM	13	0	0	13	0	0	0	0	13
01:00 PM	TO	02:00 PM	8	0	0	11	0	0	0	0	11
02:00 PM	TO	03:00 PM	8	0	0	10	0	0	0	0	10
03:00 PM	TO	04:00 PM	11	0	0	9	0	0	0	0	9
04:00 PM	TO	05:00 PM	19	0	0	7	0	0	0	0	7
05:00 PM	TO	06:00 PM	31	0	0	7	0	0	0	0	7
06:00 PM	TO	07:00 PM	4	0	0	2	0	0	0	0	2

Approved Development Right-turn Volumes Adjusted: Remaining Build-out of Olive Chapel Professional Park

			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	1	0	0	6	0	0	0	0	6
07:00 AM	TO	08:00 AM	4	0	0	32	0	0	0	0	32
08:00 AM	TO	09:00 AM	4	0	0	18	0	0	0	0	18
09:00 AM	TO	10:00 AM	5	0	0	8	0	0	0	0	8
10:00 AM	TO	11:00 AM	7	0	0	7	0	0	0	0	7
11:00 AM	TO	12:00 PM	13	0	0	8	0	0	0	0	8
12:00 PM	TO	01:00 PM	13	0	0	13	0	0	0	0	13
01:00 PM	TO	02:00 PM	8	0	0	11	0	0	0	0	11
02:00 PM	TO	03:00 PM	8	0	0	10	0	0	0	0	10
03:00 PM	TO	04:00 PM	11	0	0	9	0	0	0	0	9
04:00 PM	TO	05:00 PM	19	0	0	7	0	0	0	0	7
05:00 PM	TO	06:00 PM	31	0	0	7	0	0	0	0	7
06:00 PM	TO	07:00 PM	4	0	0	2	0	0	0	0	2

No-Build Traffic Volumes (Existing + Growth + Approved Developments)

			Chapel Ridge Road			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			NB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	4	0	11	0	0	0	13	84	0	0	145	14
07:00 AM	TO	08:00 AM	22	0	17	0	0	0	42	330	0	0	340	44
08:00 AM	TO	09:00 AM	15	0	7	0	0	0	38	400	0	0	401	42
09:00 AM	TO	10:00 AM	16	0	11	0	0	0	27	316	0	0	353	24
10:00 AM	TO	11:00 AM	16	0	15	0	0	0	22	279	0	0	277	17
11:00 AM	TO	12:00 PM	27	0	21	0	0	0	23	285	0	0	382	26
12:00 PM	TO	01:00 PM	30	0	17	0	0	0	39	378	0	0	430	25
01:00 PM	TO	02:00 PM	27	0	22	0	0	0	34	280	0	0	370	28
02:00 PM	TO	03:00 PM	26	0	25	0	0	0	31	342	0	0	339	30
03:00 PM	TO	04:00 PM	22	0	21	0	0	0	28	382	0	0	524	24
04:00 PM	TO	05:00 PM	34	0	29	0	0	0	23	482	0	0	554	40
05:00 PM	TO	06:00 PM	53	0	29	0	0	0	26	456	0	0	562	26
06:00 PM	TO	07:00 PM	25	0	22	0	0	0	14	339	0	0	459	21

No-Build Right-Turn Volumes Adjusted

			Chapel Ridge Road			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			NB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	4	0	0	0	0	0	13	84	0	0	145	14
07:00 AM	TO	08:00 AM	22	0	0	0	0	0	42	330	0	0	340	44
08:00 AM	TO	09:00 AM	15	0	0	0	0	0	38	400	0	0	401	42
09:00 AM	TO	10:00 AM	16	0	0	0	0	0	27	316	0	0	353	24
10:00 AM	TO	11:00 AM	16	0	0	0	0	0	22	279	0	0	277	17
11:00 AM	TO	12:00 PM	27	0	0	0	0	0	23	285	0	0	382	26
12:00 PM	TO	01:00 PM	30	0	0	0	0	0	39	378	0	0	430	25
01:00 PM	TO	02:00 PM	27	0	0	0	0	0	34	280	0	0	370	28
02:00 PM	TO	03:00 PM	26	0	0	0	0	0	31	342	0	0	339	30
03:00 PM	TO	04:00 PM	22	0	0	0	0	0	28	382	0	0	524	24
04:00 PM	TO	05:00 PM	34	0	0	0	0	0	23	482	0	0	554	40
05:00 PM	TO	06:00 PM	53	0	0	0	0	0	26	456	0	0	562	26
06:00 PM	TO	07:00 PM	25	0	0	0	0	0	14	339	0	0	459	21

Chapel Ridge Apartments

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Olive Chapel Road at Chapel Ridge

COUNT DATE: 1-Jan-10

INTERSECTION CONDITION: No-Build

MAJOR STREET: Olive Chapel Road

OF APPROACH LANES: 1

MINOR STREET: Chapel Ridge Road/Chapel Ridge Road

OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST BOTH APPROACHES	HIGHEST HOUR MINOR ST HIGHEST APPROACH	WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
									CONDITION A			CONDITION B				
			MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES →			350	105		525	53		280	84		420	42			
06:00 AM TO 07:00 AM	256	4														
07:00 AM TO 08:00 AM	756	22	Y			Y			Y			Y				
08:00 AM TO 09:00 AM	881	15	Y			Y			Y			Y				
09:00 AM TO 10:00 AM	720	16	Y			Y			Y			Y				
10:00 AM TO 11:00 AM	595	16	Y			Y			Y			Y				
11:00 AM TO 12:00 PM	716	27	Y			Y			Y			Y				
12:00 PM TO 01:00 PM	872	30	Y			Y			Y			Y				
01:00 PM TO 02:00 PM	712	27	Y			Y			Y			Y				
02:00 PM TO 03:00 PM	742	26	Y			Y			Y			Y				
03:00 PM TO 04:00 PM	958	22	Y			Y			Y			Y				
04:00 PM TO 05:00 PM	1,099	34	Y			Y			Y			Y				
05:00 PM TO 06:00 PM	1,070	53	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
06:00 PM TO 07:00 PM	833	25	Y			Y			Y			Y				
	10,216	324			**0**			**1**			**0**			**1**	**0**	**0**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant

Condition A : Minimum Vehicular Volume

Condition B : Interruption of Continuous Traffic

Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Chapel Ridge Apartments

Table 1 - Trip Generation

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
221 Multifamily Housing (Mid-Rise)	350 d.u.	1,906	953	953	117	30	87	147	90	57
Total Net New External Trips		**1,906**	**953**	**953**	**117**	**30**	**87**	**147**	**90**	**57**

Site Volumes

			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	12	0	0	1	0	0	0	0	3
07:00 AM	TO	08:00 AM	17	0	0	3	0	0	0	0	6
08:00 AM	TO	09:00 AM	17	0	0	3	0	0	0	0	7
09:00 AM	TO	10:00 AM	11	0	0	3	0	0	0	0	5
10:00 AM	TO	11:00 AM	9	0	0	3	0	0	0	0	5
11:00 AM	TO	12:00 PM	9	0	0	4	0	0	0	0	9
12:00 PM	TO	01:00 PM	9	0	0	5	0	0	0	0	9
01:00 PM	TO	02:00 PM	9	0	0	4	0	0	0	0	8
02:00 PM	TO	03:00 PM	10	0	0	6	0	0	0	0	11
03:00 PM	TO	04:00 PM	9	0	0	6	0	0	0	0	13
04:00 PM	TO	05:00 PM	12	0	0	10	0	0	0	0	20
05:00 PM	TO	06:00 PM	11	0	0	9	0	0	0	0	18
06:00 PM	TO	07:00 PM	13	0	0	9	0	0	0	0	18

Site Volumes Right-turn Volumes Adjusted

			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	12	0	0	1	0	0	0	0	3
07:00 AM	TO	08:00 AM	17	0	0	3	0	0	0	0	6
08:00 AM	TO	09:00 AM	17	0	0	3	0	0	0	0	7
09:00 AM	TO	10:00 AM	11	0	0	3	0	0	0	0	5
10:00 AM	TO	11:00 AM	9	0	0	3	0	0	0	0	5
11:00 AM	TO	12:00 PM	9	0	0	4	0	0	0	0	9
12:00 PM	TO	01:00 PM	9	0	0	5	0	0	0	0	9
01:00 PM	TO	02:00 PM	9	0	0	4	0	0	0	0	8
02:00 PM	TO	03:00 PM	10	0	0	6	0	0	0	0	11
03:00 PM	TO	04:00 PM	9	0	0	6	0	0	0	0	13
04:00 PM	TO	05:00 PM	12	0	0	10	0	0	0	0	20
05:00 PM	TO	06:00 PM	11	0	0	9	0	0	0	0	18
06:00 PM	TO	07:00 PM	13	0	0	9	0	0	0	0	18

Build Traffic Volumes (Existing + Growth + Approved Developments + Project Site)

			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	16	0	11	14	84	0	0	145	17
07:00 AM	TO	08:00 AM	39	0	17	45	330	0	0	340	50
08:00 AM	TO	09:00 AM	32	0	7	41	400	0	0	401	49
09:00 AM	TO	10:00 AM	27	0	11	30	316	0	0	353	29
10:00 AM	TO	11:00 AM	25	0	15	25	279	0	0	277	22
11:00 AM	TO	12:00 PM	36	0	21	27	285	0	0	382	35
12:00 PM	TO	01:00 PM	39	0	17	44	378	0	0	430	34
01:00 PM	TO	02:00 PM	36	0	22	38	280	0	0	370	36
02:00 PM	TO	03:00 PM	36	0	25	37	342	0	0	339	41
03:00 PM	TO	04:00 PM	31	0	21	34	382	0	0	524	37
04:00 PM	TO	05:00 PM	46	0	29	33	482	0	0	554	60
05:00 PM	TO	06:00 PM	64	0	29	35	456	0	0	562	44
06:00 PM	TO	07:00 PM	38	0	22	23	339	0	0	459	39

Build Right-Turn Volumes Adjusted

			Chapel Ridge Road			Olive Chapel Road			Olive Chapel Road		
			SB			EB			WB		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
06:00 AM	TO	07:00 AM	16	0	0	14	84	0	0	145	17
07:00 AM	TO	08:00 AM	39	0	0	45	330	0	0	340	50
08:00 AM	TO	09:00 AM	32	0	0	41	400	0	0	401	49
09:00 AM	TO	10:00 AM	27	0	0	30	316	0	0	353	29
10:00 AM	TO	11:00 AM	25	0	0	25	279	0	0	277	22
11:00 AM	TO	12:00 PM	36	0	0	27	285	0	0	382	35
12:00 PM	TO	01:00 PM	39	0	0	44	378	0	0	430	34
01:00 PM	TO	02:00 PM	36	0	0	38	280	0	0	370	36
02:00 PM	TO	03:00 PM	36	0	0	37	342	0	0	339	41
03:00 PM	TO	04:00 PM	31	0	0	34	382	0	0	524	37
04:00 PM	TO	05:00 PM	46	0	0	33	482	0	0	554	60
05:00 PM	TO	06:00 PM	64	0	0	35	456	0	0	562	44
06:00 PM	TO	07:00 PM	38	0	0	23	339	0	0	459	39

Chapel Ridge Apartments

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Olive Chapel Road at Chapel Ridge

COUNT DATE: 1-Jan-10

INTERSECTION CONDITION: Build

MAJOR STREET: Olive Chapel Road

OF APPROACH LANES: 1

MINOR STREET: Chapel Ridge Road/Chapel Ridge Road

OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST BOTH APPROACHES	HIGHEST HOUR MINOR ST HIGHEST APPROACH	WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
									CONDITION A			CONDITION B				
			MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES →			350	105		525	53		280	84		420	42			
06:00 AM TO 07:00 AM	260	16														
07:00 AM TO 08:00 AM	765	39	Y			Y			Y			Y				
08:00 AM TO 09:00 AM	891	32	Y			Y			Y			Y				
09:00 AM TO 10:00 AM	728	27	Y			Y			Y			Y				
10:00 AM TO 11:00 AM	603	25	Y			Y			Y			Y				
11:00 AM TO 12:00 PM	729	36	Y			Y			Y			Y				
12:00 PM TO 01:00 PM	886	39	Y			Y			Y			Y				
01:00 PM TO 02:00 PM	724	36	Y			Y			Y			Y				
02:00 PM TO 03:00 PM	759	36	Y			Y			Y			Y				
03:00 PM TO 04:00 PM	977	31	Y			Y			Y			Y				
04:00 PM TO 05:00 PM	1,129	46	Y			Y			Y			Y	Y	**Y**		
05:00 PM TO 06:00 PM	1,097	64	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
06:00 PM TO 07:00 PM	860	38	Y			Y			Y			Y				
	10,472	491			**0**			**1**			**0**			**2**	**1**	**0**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant

Condition A : Minimum Vehicular Volume

Condition B : Interruption of Continuous Traffic

Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

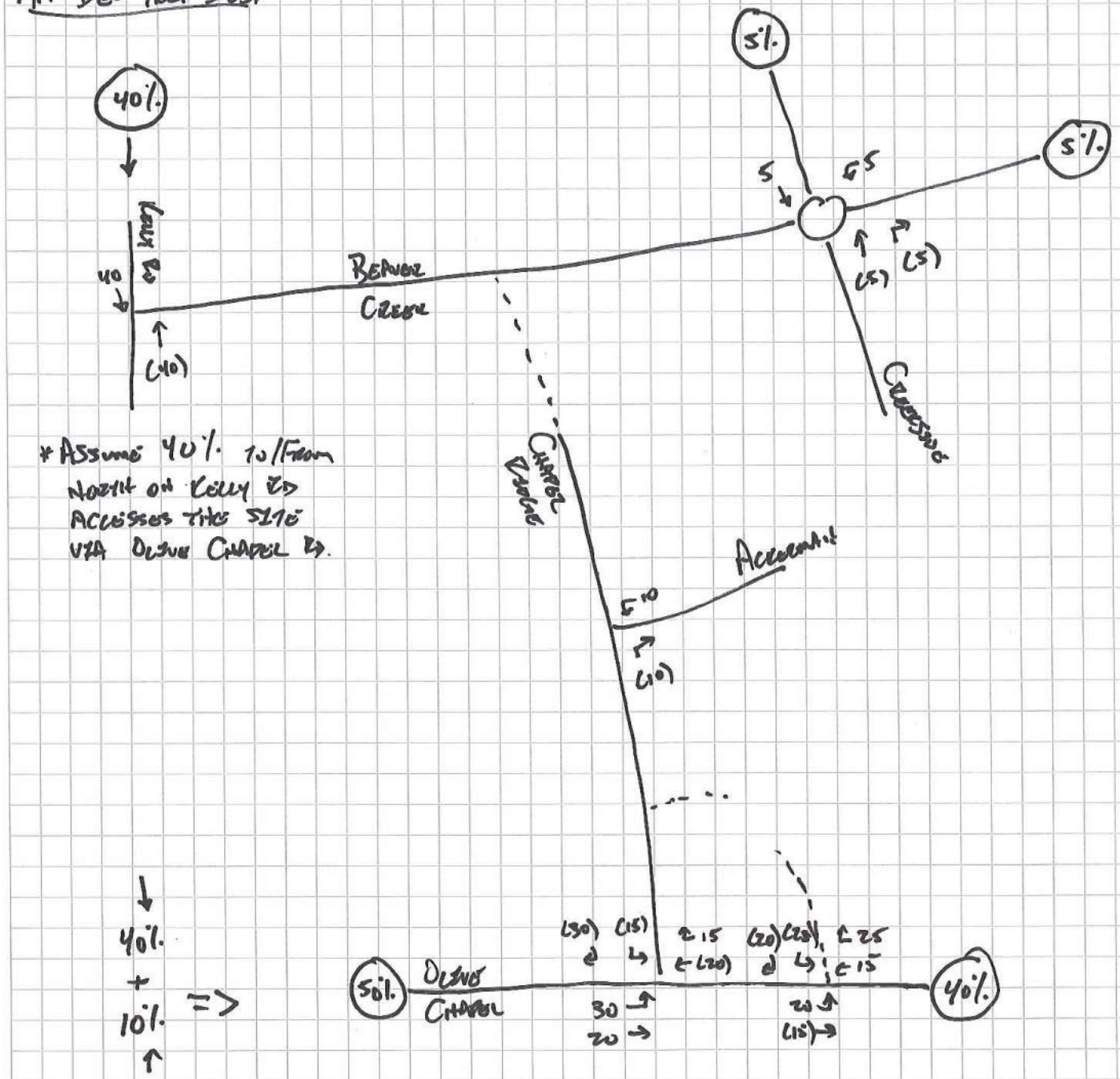
WARRANT 3 -- Peak Hour Warrant

Appendix J:
Supplemental Analysis:
Chapel Ridge Townes Development Data

Kimley»Horn
Expect More. Experience Better.

Job CHAPEL RIDGE Subject APP DEV TRIP DIST Sheet No. ____ of ____
Designed By KH Date 11/30 Checked By ____ Date ____ Job No. ____

APP DEV TRIP DIST



* ASSUMES 40% TO/FROM NORTH ON KELLY RD ACCESSES THE SITE VIA OLIVE CHAPEL RD.

* ASSUMES 1 FM DEWY ON OLIVE CHAPEL RD & 2 ON CHAPEL RIDGE CONSISTENT W/ PREVIOUS PLANS

NOTE: WHILE THIS REZONING WAS DENIED, TRIPS WILL BE ASSIGNED AS SHOWN ABOVE TO REFLECT POTENTIAL IMPACTS.

INTERSECTION ANALYSIS SHEET

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**12/7/2021**
N/S Street:	**Kelly Road**
E/W Street:	**Wendhurst Ct/Beaver Creek Commons Dr**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	13	42	43	25

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.98

	Wendhurst Court **Eastbound**			Beaver Creek Commons Drive **Westbound**			Kelly Road **Northbound**			Kelly Road **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	5	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	17	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	17	0	0	5	0

PM PEAK HOUR
PM PHF = 0.98

	Wendhurst Court **Eastbound**			Beaver Creek Commons Drive **Westbound**			Kelly Road **Northbound**			Kelly Road **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	17	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	10	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	10	0	0	17	0

INTERSECTION ANALYSIS SHEET

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**12/7/2021**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Olive Chapel Road**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	13	42	43	25

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.85

	Olive Chapel Road **Eastbound**			Olive Chapel Road **Westbound**			**Northbound**			Chapel Ridge Road **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	30%	20%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	4	3	0	0	0	2	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	0%	0%	0%	15%	0%	30%
Outbound Project Traffic	0	0	0	0	8	0	0	0	0	6	0	13
Total Project Traffic	4	3	0	0	8	2	0	0	0	6	0	13

PM PEAK HOUR
PM PHF = 0.93

	Olive Chapel Road **Eastbound**			Olive Chapel Road **Westbound**			**Northbound**			Chapel Ridge Road **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	30%	20%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	13	9	0	0	0	6	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	0%	0%	0%	15%	0%	30%
Outbound Project Traffic	0	0	0	0	5	0	0	0	0	4	0	7
Total Project Traffic	13	9	0	0	5	6	0	0	0	4	0	7

INTERSECTION ANALYSIS SHEET

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**12/7/2021**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Ackerman Hill Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	13	42	43	25

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

	Eastbound			Ackerman Hill Drive Westbound			Chapel Ridge Road Northbound			Chapel Ridge Road Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	1	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	4	0	0	0
Total Project Traffic	0	0	0	1	0	0	0	0	4	0	0	0

PM PEAK HOUR
PM PHF = 0.90

	Eastbound			Ackerman Hill Drive Westbound			Chapel Ridge Road Northbound			Chapel Ridge Road Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	4	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	2	0	0	0
Total Project Traffic	0	0	0	4	0	0	0	0	2	0	0	0

INTERSECTION ANALYSIS SHEET

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**12/7/2021**
N/S Street:	**Creekside Landing Drive**
E/W Street:	**Beaver Creek Commons Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	13	42	43	25

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.84

	Beaver Creek Commons Drive **Eastbound**			Beaver Creek Commons Drive **Westbound**			Creekside Landing Drive **Northbound**			Creekside Landing Drive **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	0	1	0	0	0	0	0	0	1	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	5%	5%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	2	2	0	0	0
Total Project Traffic	0	0	0	1	0	0	0	2	2	0	1	0

PM PEAK HOUR
PM PHF = 0.94

	Beaver Creek Commons Drive **Eastbound**			Beaver Creek Commons Drive **Westbound**			Creekside Landing Drive **Northbound**			Creekside Landing Drive **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	0	2	0	0	0	0	0	0	2	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	5%	5%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	1	1	0	0	0
Total Project Traffic	0	0	0	2	0	0	0	1	1	0	2	0

INTERSECTION ANALYSIS SHEET

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**12/7/2021**
N/S Street:	**Beaver Creek Commons Drive**
E/W Street:	**Proposed Site Access**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	13	42	43	25

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

	Eastbound			Proposed Site Access Westbound			Beaver Creek Commons Drive Northbound			Beaver Creek Commons Drive Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR
PM PHF = 0.90

	Eastbound			Proposed Site Access Westbound			Beaver Creek Commons Drive Northbound			Beaver Creek Commons Drive Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION ANALYSIS SHEET

	AM In	AM Out	PM In	PM Out
Net New Trips:	13	42	43	25

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**-**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Proposed Site Access/North Site Driveway**

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

	Proposed Site Access Eastbound			North Site Driveway Westbound			Chapel Ridge Road Northbound			Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR
PM PHF = 0.90

	Proposed Site Access Eastbound			North Site Driveway Westbound			Chapel Ridge Road Northbound			Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION ANALYSIS SHEET

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**-**
N/S Street:	**Central Site Driveway**
E/W Street:	**Chapel Ridge Road**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	13	42	43	25

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

	Chapel Ridge Road **Eastbound**			Chapel Ridge Road **Westbound**			Central Site Driveway **Northbound**			Central Site Driveway **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR
PM PHF = 0.90

	Chapel Ridge Road **Eastbound**			Chapel Ridge Road **Westbound**			Central Site Driveway **Northbound**			Central Site Driveway **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION ANALYSIS SHEET

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**Balanced with Ackerman Hill**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**South Site Driveway**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	13	42	43	25

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

	South Site Driveway **Eastbound**			South Site Driveway **Westbound**			Chapel Ridge Road **Northbound**			Chapel Ridge Road **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	1	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	4	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	4	0	0	1	0

PM PEAK HOUR
PM PHF = 0.90

	South Site Driveway **Eastbound**			South Site Driveway **Westbound**			Chapel Ridge Road **Northbound**			Chapel Ridge Road **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	4	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	2	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	2	0	0	4	0

INTERSECTION ANALYSIS SHEET

Project:	**Supp. Analysis-Chapel Ridge Townes Trips**
Location:	**Apex, NC**
Scenario:	**Chapel Ridge Townhomes Trip Calcs**
Ct. Date	**Balanced with Ackerman Hill**
N/S Street:	**Site Driveway**
E/W Street:	**Ackerman Hill Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	13	42	43	25

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

	Ackerman Hill Drive **Eastbound**			Ackerman Hill Drive **Westbound**			Site Driveway **Northbound**			**Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	1	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	4	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	4	0	0	1	0	0	0	0	0	0	0

PM PEAK HOUR
PM PHF = 0.90

	Ackerman Hill Drive **Eastbound**			Ackerman Hill Drive **Westbound**			Site Driveway **Northbound**			**Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	4	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	2	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	2	0	0	4	0	0	0	0	0	0	0

Appendix K:
Supplemental Analysis:
Intersection Spreadsheets

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**12/7/2021**
N/S Street:	**Kelly Road**
E/W Street:	**Wendhurst Ct/Beaver Creek Commons Dr**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.98

Description	Wendhurst Court **Eastbound** Left	Through	Right	Beaver Creek Commons Drive **Westbound** Left	Through	Right	Kelly Road **Northbound** Left	Through	Right	Kelly Road **Southbound** Left	Through	Right
2021 Traffic Count	19	8	38	83	4	22	38	684	117	29	346	9
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	19	8	38	83	4	22	38	684	117	29	346	9
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.126	0.000	0.126	0.000	0.126	0.126	0.126	0.126	0.000
2025 Background Growth	0	0	0	10	0	3	0	86	15	4	43	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	3	0	0	19	0
Chapel Ridge Townes	0	0	0	0	0	0	0	17	0	0	5	0
Total Committed Traffic	0	0	0	0	0	0	0	20	0	0	24	0
2025 Background Traffic	19	8	38	93	4	25	38	790	132	33	413	9
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	12	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	35	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	35	0	0	0	12	0	0
Hempstead Traffic Diversion	0	0	0	0	0	28	0	0	0	8	0	0
2025 Buildout Total	19	8	38	93	4	88	38	790	132	53	413	9
Percent Impact (Approach)		0.0%			18.9%			0.0%			2.5%	

Overall Percent Impact 2.8%

PM PEAK HOUR
PM PHF = 0.98

Description	Wendhurst Court **Eastbound** Left	Through	Right	Beaver Creek Commons Drive **Westbound** Left	Through	Right	Kelly Road **Northbound** Left	Through	Right	Kelly Road **Southbound** Left	Through	Right
2021 Traffic Count	10	14	47	247	20	55	67	502	270	89	748	23
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	10	14	47	247	20	55	67	502	270	89	748	23
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.126	0.000	0.126	0.000	0.126	0.126	0.126	0.126	0.000
2025 Background Growth	0	0	0	31	0	7	0	63	34	11	94	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	19	0	0	4	0
Chapel Ridge Townes	0	0	0	0	0	0	0	10	0	0	17	0
Total Committed Traffic	0	0	0	0	0	0	0	29	0	0	21	0
2025 Background Traffic	10	14	47	278	20	62	67	594	304	100	863	23
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	36	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	23	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	23	0	0	0	36	0	0
Hempstead Traffic Diversion	0	0	0	0	0	16	0	0	0	28	0	0
2025 Buildout Total	10	14	47	278	20	101	67	594	304	164	863	23
Percent Impact (Approach)		0.0%			5.8%			0.0%			3.4%	

Overall Percent Impact 2.4%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**12/7/2021**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Olive Chapel Road**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.85

Description	Olive Chapel Road Eastbound			Olive Chapel Road Westbound			Northbound			Chapel Ridge Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	20	355	0	0	356	24	0	0	0	11	0	7
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	20	355	0	0	356	24	0	0	0	11	0	7
Growth Factor (0.03 per year)	0.000	0.126	0.000	0.000	0.126	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	45	0	0	45	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	32	0	0	0	0	32	0	0	0	4	0	5
Chapel Ridge Townes	4	3	0	0	8	2	0	0	0	6	0	13
Total Committed Traffic	36	3	0	0	8	34	0	0	0	10	0	18
2025 Background Traffic	56	403	0	0	409	58	0	0	0	21	0	25
Project Traffic												
Percent Assignment Inbound	10%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	3	0	0	0	0	6	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	10%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	17	0	9
Total Project Traffic	3	0	0	0	0	6	0	0	0	17	0	9
2025 Buildout Total	59	403	0	0	409	64	0	0	0	38	0	34
Percent Impact (Approach)		0.6%			1.3%			-			36.1%	

Overall Percent Impact 3.5%

PM PEAK HOUR
PM PHF = 0.93

Description	Olive Chapel Road Eastbound			Olive Chapel Road Westbound			Northbound			Chapel Ridge Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	16	436	0	0	521	22	0	0	0	20	0	26
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	16	436	0	0	521	22	0	0	0	20	0	26
Growth Factor (0.03 per year)	0.000	0.126	0.000	0.000	0.126	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	55	0	0	65	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	7	0	0	0	0	7	0	0	0	31	0	32
Chapel Ridge Townes	13	9	0	0	5	6	0	0	0	4	0	7
Total Committed Traffic	20	9	0	0	5	13	0	0	0	35	0	39
2025 Background Traffic	36	500	0	0	591	35	0	0	0	55	0	65
Project Traffic												
Percent Assignment Inbound	10%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	9	0	0	0	0	18	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	10%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	11	0	6
Total Project Traffic	9	0	0	0	0	18	0	0	0	11	0	6
2025 Buildout Total	45	500	0	0	591	53	0	0	0	66	0	71
Percent Impact (Approach)		1.7%			2.8%			-			12.4%	

Overall Percent Impact 3.3%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**12/7/2021**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Ackerman Hill Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Eastbound Left	Eastbound Through	Eastbound Right	Ackerman Hill Drive Westbound Left	Ackerman Hill Drive Westbound Through	Ackerman Hill Drive Westbound Right	Chapel Ridge Road Northbound Left	Chapel Ridge Road Northbound Through	Chapel Ridge Road Northbound Right	Chapel Ridge Road Southbound Left	Chapel Ridge Road Southbound Through	Chapel Ridge Road Southbound Right
2021 Traffic Count	0	0	0	11	0	0	0	0	12	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	11	0	0	0	0	12	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	8	0	0	0	0	1	0	0	0
Chapel Ridge Townes	0	0	0	1	0	0	0	0	4	0	0	0
Total Committed Traffic	0	0	0	9	0	0	0	0	5	0	0	0
2025 Background Traffic	0	0	0	20	0	0	0	0	17	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	15%	0%	10%	10%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	5	0	3	3	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	10%	0%	10%	0%	0%	15%	0%
Outbound Project Traffic	0	0	0	0	0	9	0	9	0	0	13	0
Total Project Traffic	0	0	0	0	0	9	0	14	0	3	16	0
Hempstead Traffic Diversion	0	0	0	0	0	39	0	0	0	12	0	0
OliveChapProfPark Reassign	0	0	0	0	0	0	0	2	0	0	16	0
ChapelRidgeTownes Divers.	0	0	0	-1	0	0	0	4	-4	0	1	0
2025 Buildout Total	0	0	0	19	0	48	0	20	13	15	33	0
Percent Impact (Approach)		-			13.4%			42.4%			39.6%	

Overall Percent Impact 28.4%

PM PEAK HOUR
PM PHF = 0.90

Description	Eastbound Left	Eastbound Through	Eastbound Right	Ackerman Hill Drive Westbound Left	Ackerman Hill Drive Westbound Through	Ackerman Hill Drive Westbound Right	Chapel Ridge Road Northbound Left	Chapel Ridge Road Northbound Through	Chapel Ridge Road Northbound Right	Chapel Ridge Road Southbound Left	Chapel Ridge Road Southbound Through	Chapel Ridge Road Southbound Right
2021 Traffic Count	0	0	0	15	0	0	0	0	25	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	15	0	0	0	0	25	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	2	0	0	0	0	7	0	0	0
Chapel Ridge Townes	0	0	0	4	0	0	0	0	2	0	0	0
Total Committed Traffic	0	0	0	6	0	0	0	0	9	0	0	0
2025 Background Traffic	0	0	0	21	0	0	0	0	34	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	15%	0%	10%	10%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	14	0	9	9	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	10%	0%	10%	0%	0%	15%	0%
Outbound Project Traffic	0	0	0	0	0	6	0	6	0	0	9	0
Total Project Traffic	0	0	0	0	0	6	0	20	0	9	18	0
Hempstead Traffic Diversion	0	0	0	0	0	22	0	0	0	38	0	0
OliveChapProfPark Reassign	0	0	0	0	0	0	0	14	0	0	4	0
ChapelRidgeTownes Divers.	0	0	0	-4	0	0	0	2	-2	0	4	0
2025 Buildout Total	0	0	0	17	0	28	0	36	32	47	26	0
Percent Impact (Approach)		-			13.3%			29.4%			37.0%	

Overall Percent Impact 28.5%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**12/7/2021**
N/S Street:	**Creekside Landing Drive**
E/W Street:	**Beaver Creek Commons Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.84

Description	Beaver Creek Commons Drive **Eastbound** Left	Through	Right	Beaver Creek Commons Drive **Westbound** Left	Through	Right	Creekside Landing Drive **Northbound** Left	Through	Right	Creekside Landing Drive **Southbound** Left	Through	Right
2021 Traffic Count	33	117	8	25	69	58	0	28	21	57	28	47
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	33	117	8	25	69	58	0	28	21	57	28	47
Growth Factor (0.03 per year)	0.126	0.126	0.000	0.000	0.126	0.126	0.000	0.000	0.000	0.126	0.000	0.126
2025 Background Growth	4	15	0	0	9	7	0	0	0	7	0	6
Committed Projects												
Olive Chapel Professional Park	0	0	0	4	0	0	0	0	1	0	4	0
Chapel Ridge Townes	0	0	0	1	0	0	0	2	2	0	1	0
Total Committed Traffic	0	0	0	5	0	0	0	2	3	0	5	0
2025 Background Traffic	37	132	8	30	78	65	0	30	24	64	33	53
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	10%
Inbound Project Traffic	0	0	0	0	6	0	0	0	0	0	0	3
Percent Assignment Outbound	10%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	9	17	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	9	17	0	0	6	0	0	0	0	0	0	3
OliveChapProfPark Reassign	0	2	0	0	8	0	0	0	0	0	0	8
ChapelRidgeTownes Divers.	2	2	0	-1	1	0	0	-2	-2	0	-1	1
2025 Buildout Total	48	153	8	29	93	65	0	28	22	64	32	65
Percent Impact (Approach)		12.4%			3.2%			0.0%			1.9%	

Overall Percent Impact 5.8%

PM PEAK HOUR
PM PHF = 0.94

Description	Beaver Creek Commons Drive **Eastbound** Left	Through	Right	Beaver Creek Commons Drive **Westbound** Left	Through	Right	Creekside Landing Drive **Northbound** Left	Through	Right	Creekside Landing Drive **Southbound** Left	Through	Right
2021 Traffic Count	104	196	21	73	209	168	25	95	103	136	159	131
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	104	196	21	73	209	168	25	95	103	136	159	131
Growth Factor (0.03 per year)	0.126	0.126	0.000	0.000	0.126	0.126	0.000	0.000	0.000	0.126	0.000	0.126
2025 Background Growth	13	25	0	0	26	21	0	0	0	17	0	16
Committed Projects												
Olive Chapel Professional Park	0	0	0	1	0	0	0	3	4	0	1	0
Chapel Ridge Townes	0	0	0	2	0	0	0	1	1	0	2	0
Total Committed Traffic	0	0	0	3	0	0	0	4	5	0	3	0
2025 Background Traffic	117	221	21	76	235	189	25	99	108	153	162	147
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	10%
Inbound Project Traffic	0	0	0	0	18	0	0	0	0	0	0	9
Percent Assignment Outbound	10%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	6	11	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	6	11	0	0	18	0	0	0	0	0	0	9
OliveChapProfPark Reassign	6	8	0	0	2	0	0	0	0	0	0	2
ChapelRidgeTownes Divers.	1	1	0	-2	2	0	0	-1	-1	0	-2	2
2025 Buildout Total	130	241	21	74	257	189	25	98	107	153	160	160
Percent Impact (Approach)		4.3%			3.5%			0.0%			1.9%	

Overall Percent Impact 2.7%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**12/7/2021**
N/S Street:	**Beaver Creek Commons Drive**
E/W Street:	**Proposed Site Access**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Eastbound			Proposed Site Access Westbound			Beaver Creek Commons Drive Northbound			Beaver Creek Commons Drive Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	187	0	0	111	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	187	0	0	111	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.126	0.000
2025 Background Growth	0	0	0	0	0	0	0	23	0	0	14	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Chapel Ridge Townes	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	210	0	0	125	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	40%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	12	9	0	0
Percent Assignment Outbound	0%	0%	0%	40%	0%	30%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	35	0	26	0	0	0	0	0	0
Total Project Traffic	0	0	0	35	0	26	0	0	12	9	0	0
Hempstead Traffic Diversion	0	0	0	28	0	11	0	0	8	3	0	0
OliveChapProfPark Reassign	0	0	0	0	0	2	0	0	0	16	0	0
ChapelRidgeTownes Divers.	0	0	0	0	0	4	0	0	0	2	0	0
2025 Buildout Total	0	0	0	63	0	43	0	210	20	30	125	0
Percent Impact (Approach)		-			57.5%			5.2%			5.8%	

Overall Percent Impact 16.7%

PM PEAK HOUR
PM PHF = 0.90

Description	Eastbound			Proposed Site Access Westbound			Beaver Creek Commons Drive Northbound			Beaver Creek Commons Drive Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	355	0	0	335	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	355	0	0	335	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.126	0.000
2025 Background Growth	0	0	0	0	0	0	0	45	0	0	42	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Chapel Ridge Townes	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	400	0	0	377	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	40%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	36	27	0	0
Percent Assignment Outbound	0%	0%	0%	40%	0%	30%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	23	0	17	0	0	0	0	0	0
Total Project Traffic	0	0	0	23	0	17	0	0	36	27	0	0
Hempstead Traffic Diversion	0	0	0	16	0	6	0	0	28	10	0	0
OliveChapProfPark Reassign	0	0	0	0	0	14	0	0	0	4	0	0
ChapelRidgeTownes Divers.	0	0	0	0	0	2	0	0	0	4	0	0
2025 Buildout Total	0	0	0	39	0	39	0	400	64	45	377	0
Percent Impact (Approach)		-			51.3%			7.8%			6.4%	

Overall Percent Impact 10.7%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**-**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**Proposed Site Access/North Site Driveway**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Proposed Site Access **Eastbound**			North Site Driveway **Westbound**			Chapel Ridge Road **Northbound**			**Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Chapel Ridge Townes	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	20%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	6	15	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	50%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	17	0	44	0	0	0	0	0
Total Project Traffic	0	6	15	0	17	0	44	0	0	0	0	0
Hempstead Traffic Diversion	0	0	12	0	0	0	39	0	0	0	0	0
OliveChapProfPark Reassign	0	0	16	0	0	0	2	0	0	0	0	0
ChapelRidgeTownes Divers.	0	0	2	0	0	0	4	0	0	0	0	0
2025 Buildout Total	0	6	45	0	17	0	89	0	0	0	0	0
Percent Impact (Approach)		41.2%			100.0%			49.4%			-	

Overall Percent Impact 52.2%

PM PEAK HOUR
PM PHF = 0.90

Description	Proposed Site Access **Eastbound**			North Site Driveway **Westbound**			Chapel Ridge Road **Northbound**			**Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Chapel Ridge Townes	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	20%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	18	45	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	50%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	11	0	29	0	0	0	0	0
Total Project Traffic	0	18	45	0	11	0	29	0	0	0	0	0
Hempstead Traffic Diversion	0	0	38	0	0	0	22	0	0	0	0	0
OliveChapProfPark Reassign	0	0	4	0	0	0	14	0	0	0	0	0
ChapelRidgeTownes Divers.	0	0	4	0	0	0	2	0	0	0	0	0
2025 Buildout Total	0	18	91	0	11	0	67	0	0	0	0	0
Percent Impact (Approach)		57.8%			100.0%			43.3%			-	

Overall Percent Impact 55.1%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**-**
N/S Street:	**Central Site Driveway**
E/W Street:	**Chapel Ridge Road**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Chapel Ridge Road **Eastbound**			Chapel Ridge Road **Westbound**			Central Site Driveway **Northbound**			Central Site Driveway **Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Chapel Ridge Townes	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	5%	20%	25%	5%	0%	10%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	2	6	8	2	0	3	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	25%	0%	5%	10%	0%	5%
Outbound Project Traffic	0	0	0	0	17	0	22	0	4	9	0	4
Total Project Traffic	2	6	8	2	17	3	22	0	4	9	0	4
Hempstead Traffic Diversion	0	12	0	0	39	0	0	0	0	0	0	0
OliveChapProfPark Reassign	0	16	0	0	2	0	0	0	0	0	0	0
ChapelRidgeTownes Divers.	0	2	0	0	4	0	0	0	0	0	0	0
2025 Buildout Total	2	36	8	2	62	3	22	0	4	9	0	4
Percent Impact (Approach)		34.8%			32.8%			100.0%			100.0%	

Overall Percent Impact 50.7%

PM PEAK HOUR
PM PHF = 0.90

Description	Chapel Ridge Road **Eastbound**			Chapel Ridge Road **Westbound**			Central Site Driveway **Northbound**			Central Site Driveway **Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	0	0	0	0	0
Chapel Ridge Townes	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2025 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	5%	20%	25%	5%	0%	10%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	5	18	23	5	0	9	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	0%	25%	0%	5%	10%	0%	5%
Outbound Project Traffic	0	0	0	0	11	0	14	0	3	6	0	3
Total Project Traffic	5	18	23	5	11	9	14	0	3	6	0	3
Hempstead Traffic Diversion	0	38	0	0	22	0	0	0	0	0	0	0
OliveChapProfPark Reassign	0	4	0	0	14	0	0	0	0	0	0	0
ChapelRidgeTownes Divers.	0	4	0	0	2	0	0	0	0	0	0	0
2025 Buildout Total	5	64	23	5	49	9	14	0	3	6	0	3
Percent Impact (Approach)		50.0%			39.7%			100.0%			100.0%	

Overall Percent Impact 53.6%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**Balanced with Ackerman Hill**
N/S Street:	**Chapel Ridge Road**
E/W Street:	**South Site Driveway**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	South Site Driveway **Eastbound**			South Site Driveway **Westbound**			Chapel Ridge Road **Northbound**			Chapel Ridge Road **Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	12	0	0	11	0
2021 Existing Traffic	0	0	0	0	0	0	0	12	0	0	11	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	5	0	0	9	0
Chapel Ridge Townes	0	0	0	0	0	0	0	4	0	0	1	0
Total Committed Traffic	0	0	0	0	0	0	0	9	0	0	10	0
2025 Background Traffic	0	0	0	0	0	0	0	21	0	0	21	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	10%	15%	5%	5%	0%	5%
Inbound Project Traffic	0	0	0	0	0	0	3	5	2	2	0	2
Percent Assignment Outbound	5%	0%	10%	5%	0%	5%	0%	0%	0%	0%	15%	0%
Outbound Project Traffic	4	0	9	4	0	4	0	0	0	0	13	0
Total Project Traffic	4	0	9	4	0	4	3	5	2	2	13	2
OliveChapProfPark Reassign	0	0	0	0	0	0	0	2	0	0	16	0
2025 Buildout Total	4	0	9	4	0	4	3	28	2	2	50	2
Percent Impact (Approach)		100.0%			100.0%			30.3%			31.5%	

Overall Percent Impact 44.4%

PM PEAK HOUR
PM PHF = 0.90

Description	South Site Driveway **Eastbound**			South Site Driveway **Westbound**			Chapel Ridge Road **Northbound**			Chapel Ridge Road **Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	25	0	0	15	0
2021 Existing Traffic	0	0	0	0	0	0	0	25	0	0	15	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	0	0	0	0	0	0	9	0	0	6	0
Chapel Ridge Townes	0	0	0	0	0	0	0	2	0	0	4	0
Total Committed Traffic	0	0	0	0	0	0	0	11	0	0	10	0
2025 Background Traffic	0	0	0	0	0	0	0	36	0	0	25	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	10%	15%	5%	5%	0%	5%
Inbound Project Traffic	0	0	0	0	0	0	9	14	5	5	0	5
Percent Assignment Outbound	5%	0%	10%	5%	0%	5%	0%	0%	0%	0%	15%	0%
Outbound Project Traffic	3	0	6	3	0	3	0	0	0	0	9	0
Total Project Traffic	3	0	6	3	0	3	9	14	5	5	9	5
OliveChapProfPark Reassign	0	0	0	0	0	0	0	14	0	0	4	0
2025 Buildout Total	3	0	6	3	0	3	9	64	5	5	38	5
Percent Impact (Approach)		100.0%			100.0%			35.9%			39.6%	

Overall Percent Impact 44.0%

INTERSECTION ANALYSIS SHEET

Project:	**Chapel Ridge Apartments**
Location:	**Apex, NC**
Scenario:	**Supp. Analysis: With Chapel Ridge Townes**
Ct. Date	**Balanced with Ackerman Hill**
N/S Street:	**Site Driveway**
E/W Street:	**Ackerman Hill Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	30	87	90	57

Annual Growth Rate:	3.0%	**Existing Year:**	2021
Growth Factor:	0.125509	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	Ackerman Hill Drive **Eastbound**			Ackerman Hill Drive **Westbound**			Site Driveway **Northbound**			**Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	12	0	0	11	0	0	0	0	0	0	0
2021 Existing Traffic	0	12	0	0	11	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	5	0	0	9	0	0	0	0	0	0	0
Chapel Ridge Townes	0	4	0	0	1	0	0	0	0	0	0	0
Total Committed Traffic	0	9	0	0	10	0	0	0	0	0	0	0
2025 Background Traffic	0	21	0	0	21	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	3	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	9	0	0	0	0	0
Total Project Traffic	0	0	3	0	0	0	9	0	0	0	0	0
Hempstead Traffic Diversion	0	12	0	0	39	0	0	0	0	0	0	0
OliveChapProfPark Reassign	0	0	0	0	0	0	0	0	0	0	0	0
ChapelRidgeTownes Divers.	0	-4	0	0	-1	0	0	0	0	0	0	0
2025 Buildout Total	0	29	3	0	59	0	9	0	0	0	0	0
Percent Impact (Approach)		9.4%			0.0%			100.0%			-	

Overall Percent Impact 12.0%

PM PEAK HOUR
PM PHF = 0.90

Description	Ackerman Hill Drive **Eastbound**			Ackerman Hill Drive **Westbound**			Site Driveway **Northbound**			**Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	25	0	0	15	0	0	0	0	0	0	0
2021 Existing Traffic	0	25	0	0	15	0	0	0	0	0	0	0
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Olive Chapel Professional Park	0	9	0	0	6	0	0	0	0	0	0	0
Chapel Ridge Townes	0	2	0	0	4	0	0	0	0	0	0	0
Total Committed Traffic	0	11	0	0	10	0	0	0	0	0	0	0
2025 Background Traffic	0	36	0	0	25	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	9	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	6	0	0	0	0	0
Total Project Traffic	0	0	9	0	0	0	6	0	0	0	0	0
Hempstead Traffic Diversion	0	38	0	0	22	0	0	0	0	0	0	0
OliveChapProfPark Reassign	0	0	0	0	0	0	0	0	0	0	0	0
ChapelRidgeTownes Divers.	0	-2	0	0	-4	0	0	0	0	0	0	0
2025 Buildout Total	0	72	9	0	43	0	6	0	0	0	0	0
Percent Impact (Approach)		11.1%			0.0%			100.0%			-	

Overall Percent Impact 11.5%

Appendix L:
Supplemental Analysis:
Synchro & SIDRA Output:
Background (2025)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	8	38	93	4	25	38	790	132	33	413	9
Future Volume (vph)	19	8	38	93	4	25	38	790	132	33	413	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1641	0	0	1768	1575	1743	3409	0	1753	1840	0
Flt Permitted		0.888			0.700		0.478			0.273		
Satd. Flow (perm)	0	1478	0	0	1297	1575	877	3409	0	504	1840	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				32		25			1	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	99	26	39	941	0	34	430	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	20.0	20.0		15.0	35.0	15.0	15.0	70.0		15.0	70.0	
Total Split (%)	16.7%	16.7%		12.5%	29.2%	12.5%	12.5%	58.3%		12.5%	58.3%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		14.4			14.4	27.2	92.6	85.3		91.6	88.1	
Actuated g/C Ratio		0.12			0.12	0.23	0.77	0.71		0.76	0.73	
v/c Ratio		0.31			0.64	0.07	0.05	0.39		0.07	0.32	
Control Delay		26.2			67.5	9.3	3.6	8.3		3.8	7.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		26.2			67.5	9.3	3.6	8.3		3.8	7.8	
LOS		C			E	A	A	A		A	A	
Approach Delay		26.2			55.4			8.1			7.5	
Approach LOS		C			E			A			A	
Queue Length 50th (ft)		19			74	0	5	143		4	120	
Queue Length 95th (ft)		59			126	19	16	217		14	206	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		238			324	410	760	2431		496	1351	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.28			0.31	0.06	0.05	0.39		0.07	0.32	

Intersection Summary

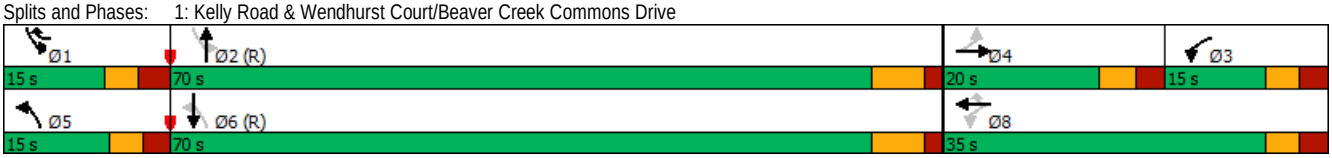
Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 51.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	403	409	58	21	25
Future Volume (vph)	56	403	409	58	21	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1736	1827	1796	0	1703	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1827	1796	0	1703	1524
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	474	549	0	25	29
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	403	409	58	21	25
Future Vol, veh/h	56	403	409	58	21	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	6	6
Mvmt Flow	66	474	481	68	25	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	549	0	-	0	1121	515
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	606	-
Critical Hdwy	4.14	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.236	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1011	-	-	-	224	552
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1011	-	-	-	209	552
Mov Cap-2 Maneuver	-	-	-	-	344	-
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1011	-	-	-	344	552
HCM Lane V/C Ratio	0.065	-	-	-	0.072	0.053
HCM Control Delay (s)	8.8	-	-	-	16.3	11.9
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	4	4	17	4	4
Future Volume (vph)	20	4	4	17	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1749	0	1654	0	0	1818
Flt Permitted	0.959					0.976
Satd. Flow (perm)	1749	0	1654	0	0	1818
Link Speed (mph)	25		25			25
Link Distance (ft)	289		696			330
Travel Time (s)	7.9		19.0			9.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	23	0	0	8
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	4	4	17	4	4
Future Vol, veh/h	20	4	4	17	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	22	4	4	19	4	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	26	14	0	0	23	0
Stage 1	14	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	989	1066	-	-	1592	-
Stage 1	1009	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	986	1066	-	-	1592	-
Mov Cap-2 Maneuver	986	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	998	1592	-
HCM Lane V/C Ratio	-	-	0.027	0.003	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

MOVEMENT SUMMARY

Site: 4 [Background AM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Supp. Analysis - With Chapel Ridge Townhomes
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	4	6.0	5	6.0	0.071	4.3	LOS A	0.3	7.4	0.40	0.27	0.40	24.0
8	T1	30	6.0	36	6.0	0.071	4.3	LOS A	0.3	7.4	0.40	0.27	0.40	23.9
18	R2	24	6.0	29	6.0	0.071	4.3	LOS A	0.3	7.4	0.40	0.27	0.40	23.5
Approach		58	6.0	69	6.0	0.071	4.3	LOS A	0.3	7.4	0.40	0.27	0.40	23.7
East: Beaver Creek Commons Drive														
1	L2	30	2.0	36	2.0	0.167	4.3	LOS A	0.8	20.2	0.24	0.11	0.24	23.9
6	T1	78	2.0	93	2.0	0.167	4.3	LOS A	0.8	20.2	0.24	0.11	0.24	23.8
16	R2	65	2.0	77	2.0	0.167	4.3	LOS A	0.8	20.2	0.24	0.11	0.24	23.4
Approach		173	2.0	206	2.0	0.167	4.3	LOS A	0.8	20.2	0.24	0.11	0.24	23.7
North: Creekside Landing Drive														
7	L2	64	2.0	76	2.0	0.152	4.4	LOS A	0.7	17.8	0.30	0.17	0.30	23.7
4	T1	33	2.0	39	2.0	0.152	4.4	LOS A	0.7	17.8	0.30	0.17	0.30	23.6
14	R2	53	2.0	63	2.0	0.152	4.4	LOS A	0.7	17.8	0.30	0.17	0.30	23.1
Approach		150	2.0	179	2.0	0.152	4.4	LOS A	0.7	17.8	0.30	0.17	0.30	23.5
West: Beaver Creek Commons Drive														
5	L2	37	3.0	44	3.0	0.184	4.8	LOS A	0.9	22.1	0.33	0.19	0.33	23.8
2	T1	132	3.0	157	3.0	0.184	4.8	LOS A	0.9	22.1	0.33	0.19	0.33	23.7
12	R2	8	3.0	10	3.0	0.184	4.8	LOS A	0.9	22.1	0.33	0.19	0.33	23.3
Approach		177	3.0	211	3.0	0.184	4.8	LOS A	0.9	22.1	0.33	0.19	0.33	23.7
All Vehicles		558	2.7	664	2.7	0.184	4.5	LOS A	0.9	22.1	0.30	0.17	0.30	23.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	14	47	278	20	62	67	594	304	100	863	23
Future Volume (vph)	10	14	47	278	20	62	67	594	304	100	863	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1683	0	0	1770	1575	1743	3283	0	1805	1891	0
Flt Permitted		0.943			0.710		0.075			0.233		
Satd. Flow (perm)	0	1598	0	0	1316	1575	138	3283	0	443	1891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				63		93			1	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	304	63	68	916	0	102	904	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	25.0	25.0		20.0	45.0	20.0	15.0	55.0		20.0	60.0	
Total Split (%)	20.8%	20.8%		16.7%	37.5%	16.7%	12.5%	45.8%		16.7%	50.0%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		33.0			33.0	46.6	73.0	63.4		72.0	66.7	
Actuated g/C Ratio		0.28			0.28	0.39	0.61	0.53		0.60	0.56	
v/c Ratio		0.15			0.84	0.10	0.36	0.52		0.28	0.86	
Control Delay		13.1			60.9	4.9	15.6	18.7		11.7	35.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		13.1			60.9	4.9	15.6	18.7		11.7	35.4	
LOS		B			E	A	B	B		B	D	
Approach Delay		13.1			51.3			18.5			33.0	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		14			219	0	19	210		29	608	
Queue Length 95th (ft)		46			312	25	43	312		59	#999	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		473			438	730	219	1778		454	1051	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.15			0.69	0.09	0.31	0.52		0.22	0.86	

Intersection Summary

Area Type: Other

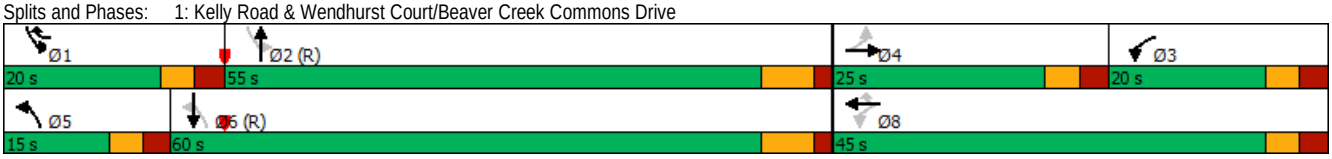
Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 29.3	Intersection LOS: C
Intersection Capacity Utilization 88.3%	ICU Level of Service E
Analysis Period (min) 15	
Description: Signal No. 052254	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	36	500	591	35	55	65
Future Volume (vph)	36	500	591	35	55	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1770	1863	1848	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1848	0	1770	1583
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	538	673	0	59	70
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	500	591	35	55	65
Future Vol, veh/h	36	500	591	35	55	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	538	635	38	59	70

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	673	0	-	0	1270	654
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	616	-
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	918	-	-	-	186	467
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	539	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	918	-	-	-	178	467
Mov Cap-2 Maneuver	-	-	-	-	317	-
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	539	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	16.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	918	-	-	-	317	467
HCM Lane V/C Ratio	0.042	-	-	-	0.187	0.15
HCM Control Delay (s)	9.1	-	-	-	18.9	14.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	0.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	4	4	34	4	4
Future Volume (vph)	21	4	4	34	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1751	0	1635	0	0	1818
Flt Permitted	0.959					0.976
Satd. Flow (perm)	1751	0	1635	0	0	1818
Link Speed (mph)	25		25			25
Link Distance (ft)	289		696			330
Travel Time (s)	7.9		19.0			9.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	42	0	0	8
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	4	4	34	4	4
Future Vol, veh/h	21	4	4	34	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	23	4	4	38	4	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	35	23	0	0	42	0
Stage 1	23	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	978	1054	-	-	1567	-
Stage 1	1000	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	975	1054	-	-	1567	-
Mov Cap-2 Maneuver	975	-	-	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	987	1567	-
HCM Lane V/C Ratio	-	-	0.028	0.003	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

MOVEMENT SUMMARY

Site: 4 [Background PM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Supp. Analysis - With Chapel Ridge Townhomes
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	25	2.0	27	2.0	0.314	8.2	LOS A	1.4	36.8	0.63	0.61	0.63	23.0
8	T1	99	2.0	105	2.0	0.314	8.2	LOS A	1.4	36.8	0.63	0.61	0.63	22.9
18	R2	108	2.0	115	2.0	0.314	8.2	LOS A	1.4	36.8	0.63	0.61	0.63	22.5
Approach		232	2.0	247	2.0	0.314	8.2	LOS A	1.4	36.8	0.63	0.61	0.63	22.7
East: Beaver Creek Commons Drive														
1	L2	76	2.0	81	2.0	0.513	9.6	LOS A	3.3	83.9	0.60	0.48	0.60	22.7
6	T1	235	2.0	250	2.0	0.513	9.6	LOS A	3.3	83.9	0.60	0.48	0.60	22.6
16	R2	189	2.0	201	2.0	0.513	9.6	LOS A	3.3	83.9	0.60	0.48	0.60	22.2
Approach		500	2.0	532	2.0	0.513	9.6	LOS A	3.3	83.9	0.60	0.48	0.60	22.4
North: Creekside Landing Drive														
7	L2	153	2.0	163	2.0	0.527	10.7	LOS B	4.2	106.7	0.67	0.73	0.87	22.3
4	T1	162	2.0	172	2.0	0.527	10.7	LOS B	4.2	106.7	0.67	0.73	0.87	22.2
14	R2	147	2.0	156	2.0	0.527	10.7	LOS B	4.2	106.7	0.67	0.73	0.87	21.8
Approach		462	2.0	491	2.0	0.527	10.7	LOS B	4.2	106.7	0.67	0.73	0.87	22.1
West: Beaver Creek Commons Drive														
5	L2	117	2.0	124	2.0	0.435	9.4	LOS A	2.6	65.2	0.64	0.64	0.72	22.6
2	T1	221	2.0	235	2.0	0.435	9.4	LOS A	2.6	65.2	0.64	0.64	0.72	22.5
12	R2	21	2.0	22	2.0	0.435	9.4	LOS A	2.6	65.2	0.64	0.64	0.72	22.1
Approach		359	2.0	382	2.0	0.435	9.4	LOS A	2.6	65.2	0.64	0.64	0.72	22.5
All Vehicles		1553	2.0	1652	2.0	0.527	9.7	LOS A	4.2	106.7	0.64	0.61	0.71	22.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix M:
Supplemental Analysis:
Synchro & SIDRA Output:
Build-out (2025)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	8	38	93	4	88	38	790	132	53	413	9
Future Volume (vph)	19	8	38	93	4	88	38	790	132	53	413	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1641	0	0	1768	1575	1743	3409	0	1753	1840	0
Flt Permitted		0.888			0.700		0.478			0.270		
Satd. Flow (perm)	0	1478	0	0	1297	1575	877	3409	0	498	1840	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				90		25			1	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	99	90	39	941	0	54	430	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	20.0	20.0		15.0	35.0	15.0	15.0	70.0		15.0	70.0	
Total Split (%)	16.7%	16.7%		12.5%	29.2%	12.5%	12.5%	58.3%		12.5%	58.3%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		14.4			14.4	27.2	92.6	82.8		90.6	88.1	
Actuated g/C Ratio		0.12			0.12	0.23	0.77	0.69		0.76	0.73	
v/c Ratio		0.31			0.64	0.21	0.05	0.40		0.12	0.32	
Control Delay		26.2			67.5	8.0	3.6	8.8		4.0	7.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		26.2			67.5	8.0	3.6	8.8		4.0	7.8	
LOS		C			E	A	A	A		A	A	
Approach Delay		26.2			39.2			8.6			7.4	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		19			74	0	5	143		7	120	
Queue Length 95th (ft)		59			126	40	16	217		20	206	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		238			324	454	760	2359		489	1351	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.28			0.31	0.20	0.05	0.40		0.11	0.32	

Intersection Summary

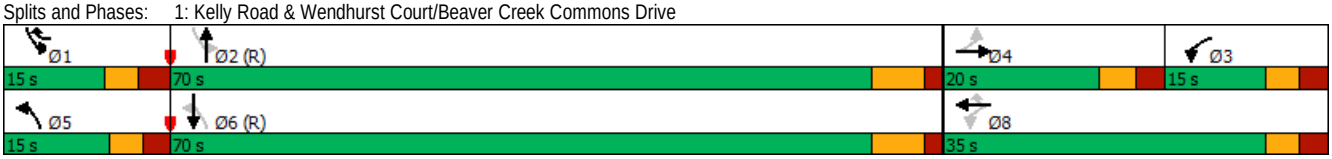
Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 56.4%	ICU Level of Service B
Analysis Period (min) 15	
Description: Signal No. 052254	

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	403	409	64	38	34
Future Volume (vph)	59	403	409	64	38	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1736	1827	1794	0	1703	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1827	1794	0	1703	1524
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	474	556	0	45	40
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	59	403	409	64	38	34
Future Vol, veh/h	59	403	409	64	38	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	6	6
Mvmt Flow	69	474	481	75	45	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	556	0	-	0	1131	519
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	612	-
Critical Hdwy	4.14	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.236	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1005	-	-	-	221	549
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	533	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1005	-	-	-	206	549
Mov Cap-2 Maneuver	-	-	-	-	341	-
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	533	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1005	-	-	-	341	549
HCM Lane V/C Ratio	0.069	-	-	-	0.131	0.073
HCM Control Delay (s)	8.8	-	-	-	17.1	12.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	48	20	13	15	33
Future Volume (vph)	19	48	20	13	15	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1659	0	1764	0	0	1835
Flt Permitted	0.986					0.985
Satd. Flow (perm)	1659	0	1764	0	0	1835
Link Speed (mph)	25		25			25
Link Distance (ft)	292		213			210
Travel Time (s)	8.0		5.8			5.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	36	0	0	54
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	48	20	13	15	33
Future Vol, veh/h	19	48	20	13	15	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	21	53	22	14	17	37

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	100	29	0	0	36	0
Stage 1	29	-	-	-	-	-
Stage 2	71	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	899	1046	-	-	1575	-
Stage 1	994	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	889	1046	-	-	1575	-
Mov Cap-2 Maneuver	889	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	942	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	996	1575	-
HCM Lane V/C Ratio	-	-	0.075	0.011	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

MOVEMENT SUMMARY

Site: 4 [Build-Out AM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Supp. Analysis - With Chapel Ridge Townhomes
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	4	6.0	5	6.0	0.069	4.5	LOS A	0.3	7.1	0.43	0.30	0.43	24.0
8	T1	28	6.0	33	6.0	0.069	4.5	LOS A	0.3	7.1	0.43	0.30	0.43	23.9
18	R2	22	6.0	26	6.0	0.069	4.5	LOS A	0.3	7.1	0.43	0.30	0.43	23.4
Approach		54	6.0	64	6.0	0.069	4.5	LOS A	0.3	7.1	0.43	0.30	0.43	23.7
East: Beaver Creek Commons Drive														
1	L2	29	2.0	35	2.0	0.182	4.5	LOS A	0.9	22.4	0.26	0.13	0.26	23.9
6	T1	93	2.0	111	2.0	0.182	4.5	LOS A	0.9	22.4	0.26	0.13	0.26	23.8
16	R2	65	2.0	77	2.0	0.182	4.5	LOS A	0.9	22.4	0.26	0.13	0.26	23.3
Approach		187	2.0	223	2.0	0.182	4.5	LOS A	0.9	22.4	0.26	0.13	0.26	23.7
North: Creekside Landing Drive														
7	L2	64	2.0	76	2.0	0.166	4.6	LOS A	0.8	19.6	0.32	0.19	0.32	23.7
4	T1	32	2.0	38	2.0	0.166	4.6	LOS A	0.8	19.6	0.32	0.19	0.32	23.6
14	R2	65	2.0	77	2.0	0.166	4.6	LOS A	0.8	19.6	0.32	0.19	0.32	23.1
Approach		161	2.0	192	2.0	0.166	4.6	LOS A	0.8	19.6	0.32	0.19	0.32	23.4
West: Beaver Creek Commons Drive														
5	L2	48	3.0	57	3.0	0.217	5.1	LOS A	1.1	27.0	0.34	0.20	0.34	23.7
2	T1	153	3.0	182	3.0	0.217	5.1	LOS A	1.1	27.0	0.34	0.20	0.34	23.6
12	R2	8	3.0	10	3.0	0.217	5.1	LOS A	1.1	27.0	0.34	0.20	0.34	23.2
Approach		209	3.0	249	3.0	0.217	5.1	LOS A	1.1	27.0	0.34	0.20	0.34	23.6
All Vehicles		611	2.7	727	2.7	0.217	4.7	LOS A	1.1	27.0	0.32	0.19	0.32	23.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	43	210	20	30	125
Future Volume (vph)	63	43	210	20	30	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1709	0	1840	0	1770	1863
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1709	0	1840	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	432		357			558
Travel Time (s)	11.8		7.0			10.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	255	0	33	139
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	43	210	20	30	125
Future Vol, veh/h	63	43	210	20	30	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
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	70	48	233	22	33	139

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	449	244	0	0	255	0
Stage 1	244	-	-	-	-	-
Stage 2	205	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	568	795	-	-	1310	-
Stage 1	797	-	-	-	-	-
Stage 2	829	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	554	795	-	-	1310	-
Mov Cap-2 Maneuver	619	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	680	1310	-
HCM Lane V/C Ratio	-	-	0.173	0.025	-
HCM Control Delay (s)	-	-	11.4	7.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	6	45	4	17	89	4
Future Volume (vph)	6	45	4	17	89	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1643	0	0	1846	1768	0
Flt Permitted				0.991	0.954	
Satd. Flow (perm)	1643	0	0	1846	1768	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	432			273	553	
Travel Time (s)	11.8			7.4	15.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	23	103	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	6	45	4	17	89	4
Future Vol, veh/h	6	45	4	17	89	4
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	7	50	4	19	99	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	59	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	27	-
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	-	-	1547	-	948	1042
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	996	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1547	-	945	1042
Mov Cap-2 Maneuver	-	-	-	-	945	-
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	993	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	949	-	-	1547	-
HCM Lane V/C Ratio	0.109	-	-	0.003	-
HCM Control Delay (s)	9.3	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	36	8	4	62	4	22	4	4	9	4	4
Future Volume (vph)	4	36	8	4	62	4	22	4	4	9	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1813	0	0	1844	0	0	1765	0	0	1758	0
Flt Permitted		0.996			0.997			0.964			0.973	
Satd. Flow (perm)	0	1813	0	0	1844	0	0	1765	0	0	1758	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		553			210			358			340	
Travel Time (s)		15.1			5.7			9.8			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	0	77	0	0	32	0	0	18	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		

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	4	36	8	4	62	4	22	4	4	9	4	4
Future Vol, veh/h	4	36	8	4	62	4	22	4	4	9	4	4
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	-	-	-	-	-	-	-	-	-	-	-	-
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	4	40	9	4	69	4	24	4	4	10	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	49	0	0	136	134	45	136	136	71
Stage 1	-	-	-	-	-	-	53	53	-	79	79	-
Stage 2	-	-	-	-	-	-	83	81	-	57	57	-
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	1527	-	-	1558	-	-	835	757	1025	835	755	991
Stage 1	-	-	-	-	-	-	960	851	-	930	829	-
Stage 2	-	-	-	-	-	-	925	828	-	955	847	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1527	-	-	1558	-	-	823	752	1025	824	750	991
Mov Cap-2 Maneuver	-	-	-	-	-	-	823	752	-	824	750	-
Stage 1	-	-	-	-	-	-	957	848	-	927	827	-
Stage 2	-	-	-	-	-	-	913	826	-	943	844	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	9.5	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	834	1527	-	-	1558	-	-	838
HCM Lane V/C Ratio	0.04	0.003	-	-	0.003	-	-	0.023
HCM Control Delay (s)	9.5	7.4	0	-	7.3	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	9	4	4	4	4	28	4	4	50	4
Future Volume (vph)	4	4	9	4	4	4	4	28	4	4	50	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1704	0	0	1750	0	0	1827	0	0	1842	0
Flt Permitted		0.989			0.984			0.995			0.997	
Satd. Flow (perm)	0	1704	0	0	1750	0	0	1827	0	0	1842	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		248			378			405			213	
Travel Time (s)		6.8			10.3			11.0			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	12	0	0	39	0	0	64	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	9	4	4	4	4	28	4	4	50	4
Future Vol, veh/h	4	4	9	4	4	4	4	28	4	4	50	4
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	-	-	-	-	-	-	-	-	-	-	-	-
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	4	4	10	4	4	4	4	31	4	4	56	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	111	109	58	114	109	33	60	0	0	35	0	0
Stage 1	66	66	-	41	41	-	-	-	-	-	-	-
Stage 2	45	43	-	73	68	-	-	-	-	-	-	-
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	867	781	1008	863	781	1041	1544	-	-	1576	-	-
Stage 1	945	840	-	974	861	-	-	-	-	-	-	-
Stage 2	969	859	-	937	838	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	856	776	1008	847	776	1041	1544	-	-	1576	-	-
Mov Cap-2 Maneuver	856	776	-	847	776	-	-	-	-	-	-	-
Stage 1	942	837	-	971	858	-	-	-	-	-	-	-
Stage 2	957	856	-	920	835	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.2	0.8	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1544	-	-	906	875	1576	-	-
HCM Lane V/C Ratio	0.003	-	-	0.021	0.015	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9.1	9.2	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	29	4	4	59	9	4
Future Volume (vph)	29	4	4	59	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1835	0	0	1857	1729	0
Flt Permitted				0.997	0.966	
Satd. Flow (perm)	1835	0	0	1857	1729	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	292			367	225	
Travel Time (s)	8.0			10.0	6.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	0	0	70	14	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	29	4	4	59	9	4
Future Vol, veh/h	29	4	4	59	9	4
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	32	4	4	66	10	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	36	0	108	34
Stage 1	-	-	-	-	34	-
Stage 2	-	-	-	-	74	-
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	-	-	1575	-	889	1039
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	949	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1575	-	886	1039
Mov Cap-2 Maneuver	-	-	-	-	886	-
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	946	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	928	-	-	1575	-
HCM Lane V/C Ratio	0.016	-	-	0.003	-
HCM Control Delay (s)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

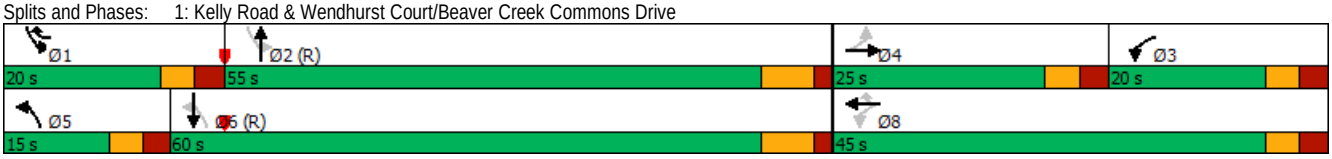
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	14	47	278	20	101	67	594	304	164	863	23
Future Volume (vph)	10	14	47	278	20	101	67	594	304	164	863	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			3%			-4%	
Storage Length (ft)	0		0	275		0	275		0	170		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			50			125			170		
Satd. Flow (prot)	0	1683	0	0	1770	1575	1743	3283	0	1805	1891	0
Flt Permitted		0.943			0.710		0.075			0.228		
Satd. Flow (perm)	0	1598	0	0	1316	1575	138	3283	0	433	1891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				103		93			1	
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		513			641			1004			905	
Travel Time (s)		14.0			12.5			15.2			13.7	
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	304	103	68	916	0	167	904	0
Turn Type	Perm	NA		pm+pt	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases		4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	6			2		
Detector Phase	4	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	
Minimum Split (s)	30.0	30.0		14.0	30.0	14.0	14.0	30.0		14.0	25.0	
Total Split (s)	25.0	25.0		20.0	45.0	20.0	15.0	55.0		20.0	60.0	
Total Split (%)	20.8%	20.8%		16.7%	37.5%	16.7%	12.5%	45.8%		16.7%	50.0%	
Yellow Time (s)	3.2	3.2		3.0	3.1	3.0	3.0	4.9		3.0	4.9	
All-Red Time (s)	2.6	2.6		2.8	2.7	2.8	2.4	1.6		2.8	1.6	
Lost Time Adjust (s)		-0.8			-0.8	-0.8	-0.4	-1.5		-0.8	-1.5	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag		Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		33.0			33.0	48.2	73.0	61.8		72.0	66.7	
Actuated g/C Ratio		0.28			0.28	0.40	0.61	0.52		0.60	0.56	
v/c Ratio		0.15			0.84	0.15	0.36	0.53		0.44	0.86	
Control Delay		13.1			60.9	3.7	15.6	20.0		13.7	35.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		13.1			60.9	3.7	15.6	20.0		13.7	35.4	
LOS		B			E	A	B	B		B	D	
Approach Delay		13.1			46.4			19.7			32.0	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		14			219	0	19	218		49	608	
Queue Length 95th (ft)		46			312	29	43	328		91	#999	
Internal Link Dist (ft)		433			561			924			825	
Turn Bay Length (ft)							275			170		
Base Capacity (vph)		473			438	752	219	1737		445	1051	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.15			0.69	0.14	0.31	0.53		0.38	0.86	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 88.3%	ICU Level of Service E
Analysis Period (min) 15	
Description: Signal No. 052254	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelly Road & Wendhurst Court/Beaver Creek Commons Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	500	591	53	66	71
Future Volume (vph)	45	500	591	53	66	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	300				25	
Satd. Flow (prot)	1770	1863	1842	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1842	0	1770	1583
Link Speed (mph)		45	45		25	
Link Distance (ft)		797	812		509	
Travel Time (s)		12.1	12.3		13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	538	692	0	71	76
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	500	591	53	66	71
Future Vol, veh/h	45	500	591	53	66	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	538	635	57	71	76

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	692	0	-	0	1298	664
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	634	-
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	903	-	-	-	178	461
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	529	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	903	-	-	-	169	461
Mov Cap-2 Maneuver	-	-	-	-	308	-
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	529	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	17.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	903	-	-	-	308	461
HCM Lane V/C Ratio	0.054	-	-	-	0.23	0.166
HCM Control Delay (s)	9.2	-	-	-	20.2	14.4
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9	0.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	28	36	32	47	26
Future Volume (vph)	17	28	36	32	47	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1674	0	1744	0	0	1805
Flt Permitted	0.981					0.969
Satd. Flow (perm)	1674	0	1744	0	0	1805
Link Speed (mph)	25		25			25
Link Distance (ft)	292		213			210
Travel Time (s)	8.0		5.8			5.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	76	0	0	81
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	28	36	32	47	26
Future Vol, veh/h	17	28	36	32	47	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	19	31	40	36	52	29

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	191	58	0	0	76	0
Stage 1	58	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	798	1008	-	-	1523	-
Stage 1	965	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	770	1008	-	-	1523	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	862	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	4.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	903	1523	-
HCM Lane V/C Ratio	-	-	0.055	0.034	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

MOVEMENT SUMMARY

Site: 4 [Build-Out PM (Site Folder: General)]

Beaver Creek Commons Drive at Creekside Landing Drive
Site Category: Supp. Analysis - With Chapel Ridge Townhomes
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Creekside Landing Drive														
3	L2	25	2.0	27	2.0	0.323	8.6	LOS A	1.5	37.6	0.64	0.64	0.64	22.9
8	T1	98	2.0	104	2.0	0.323	8.6	LOS A	1.5	37.6	0.64	0.64	0.64	22.8
18	R2	107	2.0	114	2.0	0.323	8.6	LOS A	1.5	37.6	0.64	0.64	0.64	22.4
Approach		230	2.0	245	2.0	0.323	8.6	LOS A	1.5	37.6	0.64	0.64	0.64	22.6
East: Beaver Creek Commons Drive														
1	L2	74	2.0	79	2.0	0.541	10.3	LOS B	4.2	106.7	0.63	0.57	0.71	22.5
6	T1	257	2.0	273	2.0	0.541	10.3	LOS B	4.2	106.7	0.63	0.57	0.71	22.4
16	R2	189	2.0	201	2.0	0.541	10.3	LOS B	4.2	106.7	0.63	0.57	0.71	22.0
Approach		520	2.0	553	2.0	0.541	10.3	LOS B	4.2	106.7	0.63	0.57	0.71	22.3
North: Creekside Landing Drive														
7	L2	153	2.0	163	2.0	0.552	11.4	LOS B	4.8	121.0	0.70	0.81	0.97	22.1
4	T1	160	2.0	170	2.0	0.552	11.4	LOS B	4.8	121.0	0.70	0.81	0.97	22.0
14	R2	160	2.0	170	2.0	0.552	11.4	LOS B	4.8	121.0	0.70	0.81	0.97	21.6
Approach		473	2.0	503	2.0	0.552	11.4	LOS B	4.8	121.0	0.70	0.81	0.97	21.9
West: Beaver Creek Commons Drive														
5	L2	130	2.0	138	2.0	0.473	10.1	LOS B	3.2	80.3	0.66	0.71	0.81	22.5
2	T1	241	2.0	256	2.0	0.473	10.1	LOS B	3.2	80.3	0.66	0.71	0.81	22.4
12	R2	21	2.0	22	2.0	0.473	10.1	LOS B	3.2	80.3	0.66	0.71	0.81	22.0
Approach		392	2.0	417	2.0	0.473	10.1	LOS B	3.2	80.3	0.66	0.71	0.81	22.4
All Vehicles		1615	2.0	1718	2.0	0.552	10.3	LOS B	4.8	121.0	0.66	0.68	0.80	22.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	39	400	64	45	377
Future Volume (vph)	39	39	400	64	45	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1694	0	1827	0	0	1853
Flt Permitted	0.976					0.995
Satd. Flow (perm)	1694	0	1827	0	0	1853
Link Speed (mph)	25		35			35
Link Distance (ft)	432		357			558
Travel Time (s)	11.8		7.0			10.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	0	515	0	0	469
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	39	400	64	45	377
Future Vol, veh/h	39	39	400	64	45	377
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	43	43	444	71	50	419

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	999	480	0	0	515	0
Stage 1	480	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	270	586	-	-	1051	-
Stage 1	622	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	253	586	-	-	1051	-
Mov Cap-2 Maneuver	384	-	-	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	560	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	464	1051	-
HCM Lane V/C Ratio	-	-	0.187	0.048	-
HCM Control Delay (s)	-	-	14.5	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	18	91	4	11	67	4
Future Volume (vph)	18	91	4	11	67	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1652	0	0	1840	1766	0
Flt Permitted				0.988	0.955	
Satd. Flow (perm)	1652	0	0	1840	1766	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	432			273	553	
Travel Time (s)	11.8			7.4	15.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	0	16	78	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	91	4	11	67	4
Future Vol, veh/h	18	91	4	11	67	4
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	20	101	4	12	74	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	121	0	91	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	20	-
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	-	-	1467	-	909	991
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1467	-	906	991
Mov Cap-2 Maneuver	-	-	-	-	906	-
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	1000	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	910	-	-	1467	-
HCM Lane V/C Ratio	0.087	-	-	0.003	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	64	23	5	49	9	14	4	4	6	4	4
Future Volume (vph)	5	64	23	5	49	9	14	4	4	6	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1794	0	0	1820	0	0	1762	0	0	1754	0
Flt Permitted		0.997			0.996			0.968			0.977	
Satd. Flow (perm)	0	1794	0	0	1820	0	0	1762	0	0	1754	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		553			210			358			340	
Travel Time (s)		15.1			5.7			9.8			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	70	0	0	24	0	0	15	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.1%		ICU Level of Service A	
Analysis Period (min) 15			

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	5	64	23	5	49	9	14	4	4	6	4	4
Future Vol, veh/h	5	64	23	5	49	9	14	4	4	6	4	4
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	-	-	-	-	-	-	-	-	-	-	-	-
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	6	71	26	6	54	10	16	4	4	7	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	97	0	0	171	172	84	171	180	59
Stage 1	-	-	-	-	-	-	96	96	-	71	71	-
Stage 2	-	-	-	-	-	-	75	76	-	100	109	-
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	1538	-	-	1496	-	-	792	721	975	792	714	1007
Stage 1	-	-	-	-	-	-	911	815	-	939	836	-
Stage 2	-	-	-	-	-	-	934	832	-	906	805	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1538	-	-	1496	-	-	780	715	975	780	708	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	780	715	-	780	708	-
Stage 1	-	-	-	-	-	-	907	812	-	935	833	-
Stage 2	-	-	-	-	-	-	921	829	-	893	802	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.6	9.7	9.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	796	1538	-	-	1496	-	-	809
HCM Lane V/C Ratio	0.031	0.004	-	-	0.004	-	-	0.019
HCM Control Delay (s)	9.7	7.3	0	-	7.4	0	-	9.5
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	6	4	4	4	9	64	5	5	38	5
Future Volume (vph)	4	4	6	4	4	4	9	64	5	5	38	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1723	0	0	1750	0	0	1835	0	0	1824	0
Flt Permitted		0.987			0.984			0.994			0.994	
Satd. Flow (perm)	0	1723	0	0	1750	0	0	1835	0	0	1824	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		248			378			405			213	
Travel Time (s)		6.8			10.3			11.0			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	12	0	0	87	0	0	54	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.7%		ICU Level of Service A	
Analysis Period (min) 15			

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	4	4	6	4	4	4	9	64	5	5	38	5
Future Vol, veh/h	4	4	6	4	4	4	9	64	5	5	38	5
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	-	-	-	-	-	-	-	-	-	-	-	-
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	4	4	7	4	4	4	10	71	6	6	42	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	155	154	45	157	154	74	48	0	0	77	0	0
Stage 1	57	57	-	94	94	-	-	-	-	-	-	-
Stage 2	98	97	-	63	60	-	-	-	-	-	-	-
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	812	738	1025	809	738	988	1559	-	-	1522	-	-
Stage 1	955	847	-	913	817	-	-	-	-	-	-	-
Stage 2	908	815	-	948	845	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	798	730	1025	794	730	988	1559	-	-	1522	-	-
Mov Cap-2 Maneuver	798	730	-	794	730	-	-	-	-	-	-	-
Stage 1	948	844	-	907	811	-	-	-	-	-	-	-
Stage 2	893	809	-	933	842	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	9.4	0.8	0.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1559	-	-	856	824	1522	-	-
HCM Lane V/C Ratio	0.006	-	-	0.018	0.016	0.004	-	-
HCM Control Delay (s)	7.3	0	-	9.3	9.4	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	72	9	4	43	6	4
Future Volume (vph)	72	9	4	43	6	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1835	0	0	1855	1717	0
Flt Permitted				0.996	0.969	
Satd. Flow (perm)	1835	0	0	1855	1717	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	292			367	225	
Travel Time (s)	8.0			10.0	6.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	52	11	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	72	9	4	43	6	4
Future Vol, veh/h	72	9	4	43	6	4
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	80	10	4	48	7	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	90	0	141	85
Stage 1	-	-	-	-	85	-
Stage 2	-	-	-	-	56	-
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	-	-	1505	-	852	974
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	967	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1505	-	849	974
Mov Cap-2 Maneuver	-	-	-	-	849	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	964	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.1
HCM LOS			A

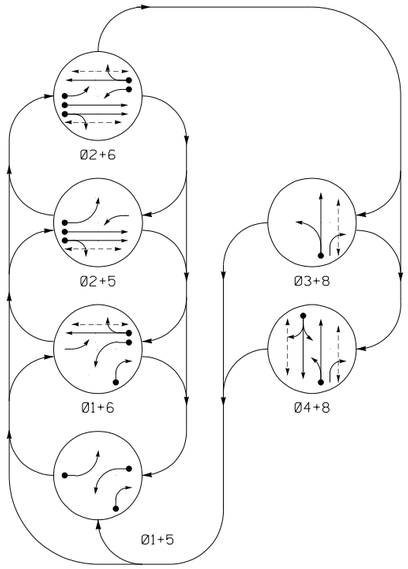
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	895	-	-	1505	-
HCM Lane V/C Ratio	0.012	-	-	0.003	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Appendix N:
Traffic Signal Plans

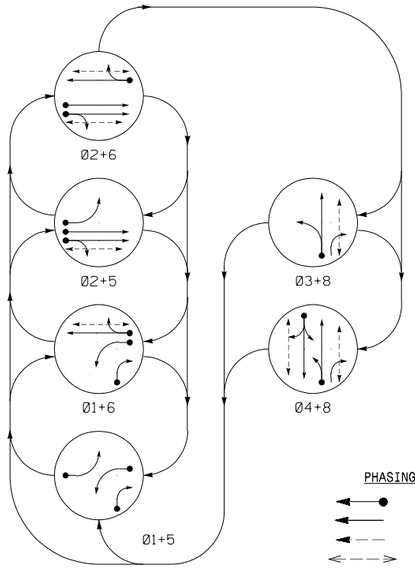
PROJECT REFERENCE NO.	SHEET NO.
36249.3755	Sig.1.0

6 Phase
Fully Actuated
SR 1163 (Kelly Road) CLS

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



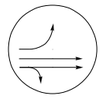
DEFAULT EV PREEMPT PHASES

(MEDIUM PRIORITY)

EVP 3
(Ø2+5)

ALTERNATE EV PREEMPT PHASES

(MEDIUM PRIORITY)



EVP 3
(Ø2+5)

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

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
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15*	-	Y
					6**	Y	Y	Y	-	3	-	Y
1B	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
2A/S6	6X6	300	4	Y	2	Y	Y	-	-	-	Y	Y
2B/S7	6X6	300	4	Y	2	Y	Y	-	-	-	Y	Y
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	15	-	Y
					8	Y	Y	-	-	3	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	5	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15*	-	Y
					2**	Y	Y	Y	-	3	-	Y
6A	6X6	300	5	Y	6	Y	Y	-	-	-	-	Y

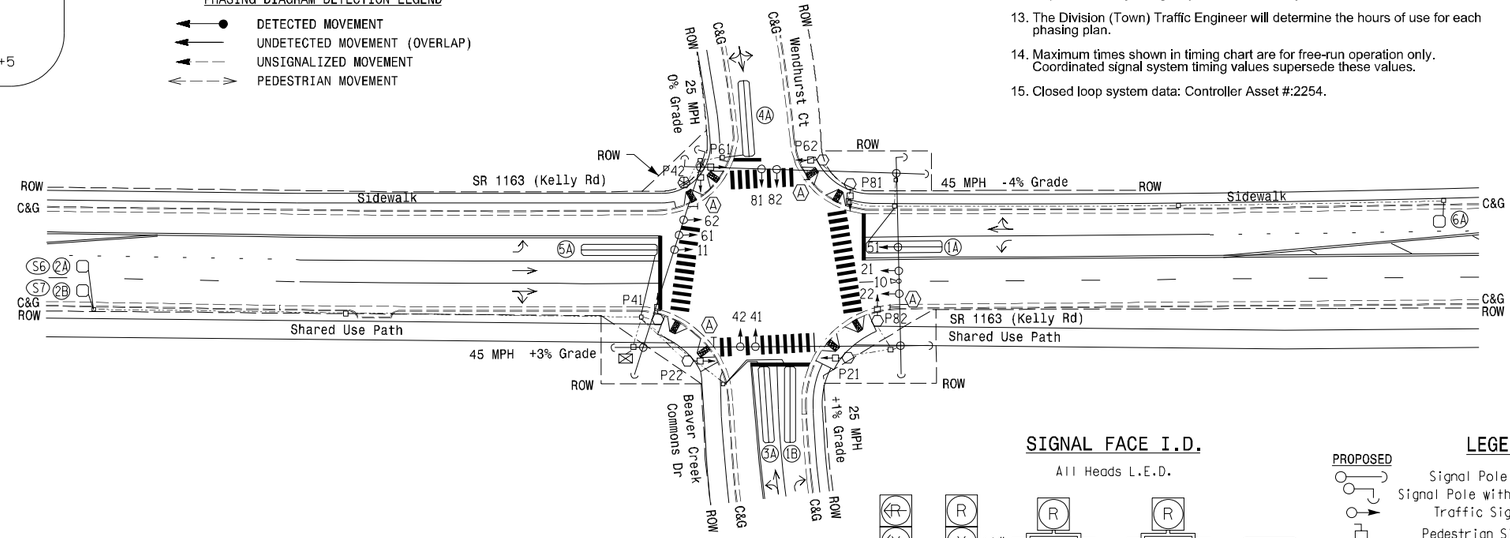
* Disable Delay During Alternate Phasing
** Disable Phase Call for Loops During Alternate Phasing

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012 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. Omit phase 3 during phase 4 on.
4. Phase 1 and/or phase 5 may be lagged.
5. Set all detector units to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "DON'T WALK" time only.
9. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
10. This intersection features a GPS preemption system. Equipment shall be installed per the manufacturer's recommendations.
11. Preemption channel 1 calls EVP 3.
12. Contractor to locate buried fiber optic cable on west side of SR 1163 (Kelly Rd) and field adjust signal poles as necessary.
13. The Division (Town) Traffic Engineer will determine the hours of use for each phasing plan.
14. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
15. Closed loop system data: Controller Asset #:2254.

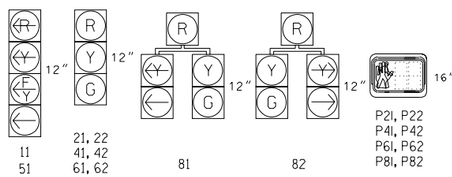
DEFAULT PHASING TABLE OF OPERATION								
SIGNAL FACE	PHASE							
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+8	Ø4+8	EVP 3	FLASH
11	←	←	←FY	←FY	←R	←R	←FY	←Y
21, 22	R	R	G	G	R	R	G	Y
41, 42	R	R	R	R	G	R	R	R
51	←FY	←FY	←FY	←FY	←R	←R	←	←Y
61, 62	R	G	R	G	R	R	R	Y
81	R	R	R	R	↘G	G	R	R
82	R→	R→	R	R	G	G	R	R
P21, P22	DW	DW	W	W	DW	DW	DW	DRK
P41, P42	DW	DW	DW	DW	DW	W	DW	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	W	W	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION								
SIGNAL FACE	PHASE							
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+8	Ø4+8	EVP 3	FLASH
11	←	←	←R	←R	←R	←R	←R	←Y
21, 22	R	R	G	G	R	R	G	Y
41, 42	R	R	R	R	G	R	R	R
51	←	←R	←	←R	←R	←R	←	←Y
61, 62	R	G	R	G	R	R	R	Y
81	R	R	R	R	↘G	G	R	R
82	R→	R→	R	R	G	G	R	R
P21, P22	DW	DW	W	W	DW	DW	DW	DRK
P41, P42	DW	DW	DW	DW	DW	W	DW	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	W	W	DW	DRK



SIGNAL FACE I.D.

All Heads L.E.D.



LEGEND

PROPOSED		EXISTING
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Traffic Signal Head	
	Pedestrian Signal Head With Push Button & Sign	
	Optical Detector	
	Sign	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Curb Ramp	
	2-in Underground Conduit	
	Right of Way	
	Directional Arrow	
	Type I Signal Pedestal	
	Type II Signal Pedestal	
(A)	Street Name Sign (D3-1)	(A)

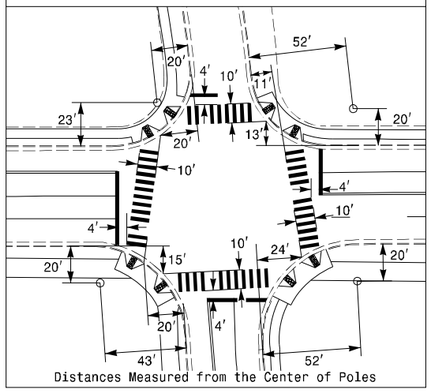
OASIS 2070 TIMING CHART							
	PHASE						
FEATURE	1	2	3	4	5	6	8
Min Green 1 *	7	12	7	7	7	12	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0
Max Green 1 *	15	90	25	15	15	90	15
Yellow Clearance	3.0	4.9	3.0	3.2	3.0	4.9	3.1
Red Clearance	2.8	1.6	2.8	2.6	2.4	1.6	2.7
Red Revert	-	-	-	-	-	-	-
Walk 1 *	-	7	-	7	-	7	7
Don't Walk 1	-	15	-	16	-	10	16
Seconds Per Actuation *	-	1.8	-	-	-	2.5	-
Max Variable Initial *	-	34	-	-	-	34	-
Time Before Reduction *	-	15	-	-	-	15	-
Time To Reduce *	-	30	-	-	-	30	-
Minimum Gap	-	3.0	-	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-
Dual Entry	-	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

OASIS 2070 EV PREEMPT	
FUNCTION	EVP 3
Interval1 – Dwell Green	255
Interval1 – Dwell Yellow	0.0*
Interval1 – Dwell Red	0.0*
Interval5 – Exit Green	1
Interval5 – Yellow	0.0
Interval5 – Red	0.0
Exit Phase(s)	2+6
Priority	MEDIUM
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	8
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	7
Enable Backup Protection	N
Ped Clear Through Yellow	Y
Omit Overlaps	-
Preempt Extend**	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

POLE, STOP LINE & CROSSWALK LOCATIONS



Distances Measured from the Center of Poles

vhb
Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705
919.829.0328

NC Dept of Transportation
Division of Highways

Final Drawing Date: 9/1/2017

Date Signed by:

ITS & Signals Unit

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 1163 (Kelly Rd) at Beaver Creek Commons Dr/ Wendhurst Ct

Division 5 Wake County Apex

PLAN DATE:	August 2017	REVIEWED BY:	J.L. Lewis
PREPARED BY:	M.L. Stygles	REVIEWED BY:	J. Wa

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

Jianxin Ma 2017.08.31 14:23:36 -04'00'

SIGNATURE DATE

SIG. INVENTORY NO. 05-2254

9/1/2017
M:\Projects\Raleigh\38745.09 BHR_KellyRd-BeaverCreek\Cad\M-prjMgt\052254_DistSig_201708_g.dgn
User:jma

PLANNING BOARD REPORT TO TOWN COUNCIL

Rezoning Case: 22CZ07 Chapel Ridge North PUD

Planning Board Meeting Date: July 11, 2022

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:	+/- 20.62
PIN(s):	0732340602, 0732347912, 0732343920, 0732354594, 0732352538, 0732249869, & 0732256180
Current Zoning:	RR
Proposed Zoning:	PUD-CZ
Current 2045 Land Use Map:	Medium Density Residential

If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential

Town Limits:	Inside the ETJ

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: If rezoned, the 2045 Land Use Map will automatically be amended to High Density Residential.

☑ Apex Transportation Plan

☑ Consistent ☐ Inconsistent Reason: Planning Board recommended approval of the associated Transportation Plan amendment.

☑ 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: If rezoned, the 2045 Land Use Map will automatically be amended to High Density Residential.

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 with conditions 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 as presented.

☐ *Denial*: the project is not consistent with all applicable officially adopted plans and/or the applicable legislative considerations as noted above.

With 4 Planning Board Member(s) voting "aye"

With 2 Planning Board Member(s) voting "no"

Reasons for dissenting votes:

Tina Sherman - lack of cohesion and lack of communication on the Town's part.
Sarah Soh - agree with Tina, plus insufficient space in schools and incompatible architectural context and scale.

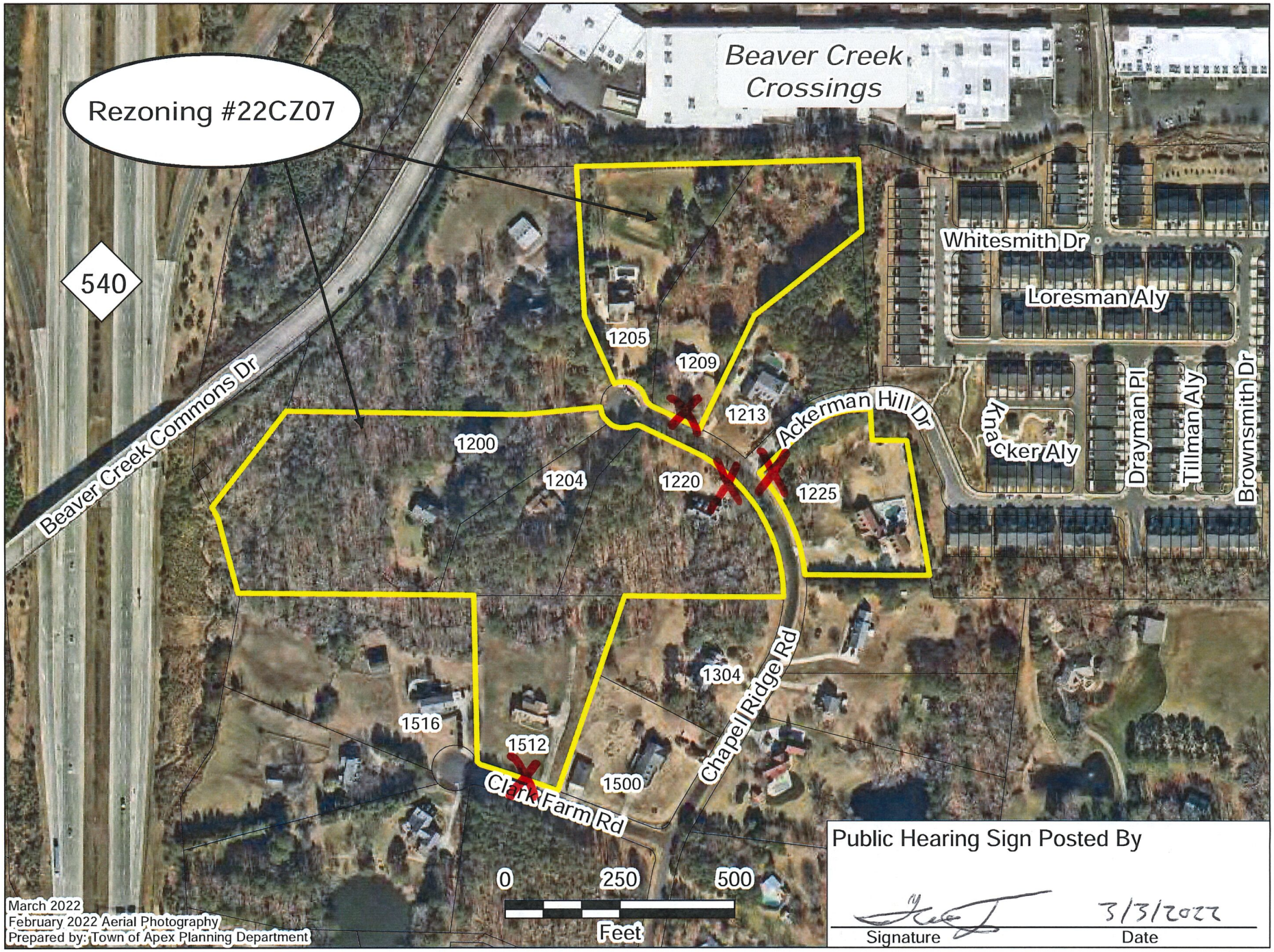
This report reflects the recommendation of the Planning Board, this the 11th day of July 2022.

Attest:

Reginald Skinner, Planning Board Chair

Dianne Khin Digitally signed by Dianne Khin Date: 2022.07.11 20:44:09 -04'00'

Dianne Khin, Director of Planning and Community Development



Public Hearing Sign Posted By

Signature

3/3/2022

Date

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION
OF PUBLIC HEARINGS
CONDITIONAL ZONING #22CZ07
Chapel Ridge North PUD

Pursuant to the provisions of North Carolina General Statutes §160D-602 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: High Street District Development, Inc.
Authorized Agent: Joshua Dix
Property Addresses: 1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd and 1512 Clark Farm Rd
Acreage: ±20.62 acres
Property Identification Numbers (PINs): 0732340602, 0732347912, 0732343920, 0732354594, 0732352538, 0732249869, & 0732256180.
Current 2045 Land Use Map Designation: Medium Density Residential
If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential
Existing Zoning of Properties: Rural Residential
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chamber, 2nd Floor
73 Hunter Street, Apex, North Carolina

Planning Board Public Hearing Date and Time: July 11, 2022 4:30 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. Please visit www.apexnc.org on the day of the meeting to confirm whether the meeting will be held in-person or remotely.

If you are unable to attend, you may provide a written statement by email to public.hearing@apexnc.org, or submit it to the clerk of the Planning Board, Jeri Pederson (73 Hunter Street or USPS mail - P.O. Box 250, Apex, NC 27502), at least two business days prior to the Planning Board vote. You must provide your name and address for the record. The written statements will be delivered to the Planning Board prior to their vote. Please include the Public Hearing name in the subject line.

In the event that the Planning Board meeting is held remotely or with at least one member attending virtually, written comments may be submitted up to 24 hours prior to the scheduled time of the meeting per NCGS §166A-19.24 according to the methods specified above. Virtual meetings may be viewed via the Town's YouTube livestream at https://www.youtube.com/c/townofapexgov.

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, tenants, and neighborhood associations 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/38521

Dianne F. Khin, AICP
Director of Planning and Community Development

TOWN OF APEX
PO BOX 250
APEX, NORTH CAROLINA 27502
TELÉFONO 919-249-3426

NOTIFICACIÓN PÚBLICA DE AUDIENCIAS PÚBLICAS
ORDENAMIENTO TERRITORIAL CONDICIONAL #22CZ07
Chapel Ridge North PUD (Desarrollo de Unidad Planificada)

De conformidad con las disposiciones de los Estatutos Generales de Carolina del Norte §160D-602 y con la Sección 2.2.11 de la Ordenanza de Desarrollo Unificado (UDO) del ayuntamiento de Apex, por la presente se notifican las audiencias públicas ante la Junta de Planificación de Apex. El propósito de estas audiencias es considerar lo siguiente:

Solicitante: High Street District Development, Inc.
Agente autorizado: Joshua Dix
Dirección de las propiedades: 1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd, and 1512 Clark Farm Rd
Superficie: ±20.62 acres
Números de identificación de las propiedades: 0732340602, 0732347912, 0732343920, 0732354594, 0732352538, 0732249869, & 0732256180.
Designación actual en el Mapa de Uso Territorial para 2045: Medium Density Residential
Si se aprueba el cambio de zonificación como se propone, el Mapa de Uso Territorial para el 2045 cambiará a: High Density Residential
Ordenamiento territorial existente de las propiedades: Rural Residential (RR)
Ordenamiento territorial propuesto para las propiedades: Planned Unit Development-Conditional Zoning (PUD-CZ)

Lugar de la audiencia pública: Ayuntamiento de Apex
Cámara del Consejo, 2º piso
73 Hunter Street, Apex, Carolina del Norte

Fecha y hora de la audiencia pública de la Junta de Planificación: 11 de julio de 2022 4:30 P.M.

Puede asistir a la reunión de manera presencial o seguir la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov. Por favor visite www.apexnc.org el día de la reunión para confirmar si la reunión se llevará a cabo de manera presencial o remotamente.

Si no puede asistir, puede enviar una declaración escrita por correo electrónico a public.hearing@apexnc.org, o presentarla a la secretaría de la Junta de Planificación, Jeri Pederson (73 Hunter Street o por correo USPS a P.O. Box 250, Apex, NC 27502), al menos dos días hábiles antes de la votación de la Junta de Planificación. Debe proporcionar su nombre y dirección para que conste en el registro. Las declaraciones escritas se entregarán a la Junta de Planificación antes de la votación. No olvide incluir el nombre de la audiencia pública en el asunto.

En caso de que la reunión de la Junta de Planificación se lleve a cabo remotamente o que por lo menos uno de los miembros asista virtualmente, se permite presentar comentarios por escrito hasta 24 horas antes de la hora programada de la reunión según los estatutos de Carolina del Norte NCGS §166A-19.24 siguiendo los métodos especificados anteriormente. Las reuniones virtuales se pueden seguir en la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov.

De conformidad con los requisitos estatales de notificaciones públicas, se enviará por correo y se publicará por separado una notificación de la audiencia pública del Consejo Municipal sobre este proyecto.

Mapa de las inmediaciones:

Los propietarios, inquilinos y asociaciones de vecinos en un radio de 300 pies del Ordenamiento Territorial Condicional propuesto han recibido esta notificación por correo postal de primera clase. Todas las partes interesadas pueden presentar comentarios sobre la solicitud a través de los medios especificados anteriormente. La ubicación de la propiedad también puede verse aquí: https://maps.raleighnc.gov/imaps. Puede ver el Mapa de Uso Territorial para 2045 aquí: www.apexnc.org/DocumentCenter/View/478. Si tiene preguntas o desea obtener más información, puede comunicarse con el Departamento de Planificación y Desarrollo Comunitario al 919-249-3426. Puede ver la solicitud y otros documentos relacionados aquí: https://www.apexnc.org/DocumentCenter/View/38521

Dianne F. Khin, AICP
Directora de Planificación y Desarrollo Comunitario

Fechas de publicación: 24 de junio - 11 de julio de 2022

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION OF PUBLIC HEARINGS

CONDITIONAL ZONING #22CZ07
Chapel Ridge North PUD

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Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: June 24 – July 11, 2022

TOWN OF APEX
PO BOX 250
APEX, NORTH CAROLINA 27502
TELÉFONO 919-249-3426

NOTIFICACIÓN PÚBLICA DE AUDIENCIAS PÚBLICAS

ORDENAMIENTO TERRITORIAL CONDICIONAL #22CZ07
Chapel Ridge North PUD (Desarrollo de Unidad Planificada)

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Cámara del Consejo, 2º piso
73 Hunter Street, Apex, Carolina del Norte

Fecha y hora de la audiencia pública de la Junta de Planificación: 11 de julio de 2022 4:30 P.M.

Puede asistir a la reunión de manera presencial o seguir la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov. Por favor visite www.apexnc.org el día de la reunión para confirmar si la reunión se llevará a cabo de manera presencial o remotamente.

Si no puede asistir, puede enviar una declaración escrita por correo electrónico a public.hearing@apexnc.org, o presentarla a la secretaría de la Junta de Planificación, Jeri Pederson (73 Hunter Street o por correo USPS a P.O. Box 250, Apex, NC 27502), al menos dos días hábiles antes de la votación de la Junta de Planificación. Debe proporcionar su nombre y dirección para que conste en el registro. Las declaraciones escritas se entregarán a la Junta de Planificación antes de la votación. No olvide incluir el nombre de la audiencia pública en el asunto.

En caso de que la reunión de la Junta de Planificación se lleve a cabo remotamente o que por lo menos uno de los miembros asista virtualmente, se permite presentar comentarios por escrito hasta 24 horas antes de la hora programada de la reunión según los estatutos de Carolina del Norte NCGS §166A-19.24 siguiendo los métodos especificados anteriormente. Las reuniones virtuales se pueden seguir en la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov.

De conformidad con los requisitos estatales de notificaciones públicas, se enviará por correo y se publicará por separado una notificación de la audiencia pública del Consejo Municipal sobre este proyecto.

Mapa de las inmediaciones:

Los propietarios, inquilinos y asociaciones de vecinos en un radio de 300 pies del Ordenamiento Territorial Condicional propuesto han recibido esta notificación por correo postal de primera clase. Todas las partes interesadas pueden presentar comentarios sobre la solicitud a través de los medios especificados anteriormente. La ubicación de la propiedad también puede verse aquí: https://maps.raleighnc.gov/imaps. Puede ver el Mapa de Uso Territorial para 2045 aquí: www.apexnc.org/DocumentCenter/View/478. Si tiene preguntas o desea obtener más información, puede comunicarse con el Departamento de Planificación y Desarrollo Comunitario al 919-249-3426. Puede ver la solicitud y otros documentos relacionados aquí: https://www.apexnc.org/DocumentCenter/View/38521

Dianne F. Khin, AICP
Directora de Planificación y Desarrollo Comunitario

Fechas de publicación: 24 de junio - 11 de julio de 2022

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 #22CZ07 Chapel Ridge North PUD
Project Location:	1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd and 1512 Clark Farm Rd
Applicant or Authorized Agent:	Joshua Dix
Firm:	High Street District Development, Inc.

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 June 24, 2022, 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 and tenants within 300' of the land subject to notification. I further certify that I relied on information from the Wake County Tax Assessor and the Town of Apex Master Address Repository provided to me by Town of Apex GIS Staff as to accuracy of the list and accuracy of mailing addresses of property owners and tenants within 300' of the land subject to notification.

6/27/2022
Date

Director of Planning and 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 27 day of June, 2022.

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

SEAL

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

PUBLIC NOTIFICATION OF PUBLIC HEARINGS
CONDITIONAL ZONING #22CZ07
Chapel Ridge North PUD

Pursuant to the provisions of North Carolina General Statutes §160D-602 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: High Street District Development, Inc.
Authorized Agent: Joshua Dix
Property Addresses: 1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd and 1512 Clark Farm Rd
Acreage: ±20.62 acres
Property Identification Numbers (PINs): 0732340602, 0732347912, 0732343920, 0732354594, 0732352538, 0732249869, & 0732256180.
Current 2045 Land Use Map Designation: Medium Density Residential
If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential
Existing Zoning of Properties: Rural Residential (RR)
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chamber, 2nd Floor
73 Hunter Street, Apex, North Carolina

Comments received prior to the Planning Board public hearing will not be provided to the Town Council. Separate comments for the Town Council public hearing must be provided by the deadline specified below.

Town Council Public Hearing Date and Time: July 26, 2022 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. Please visit www.apexnc.org on the day of the meeting to confirm whether the meeting will be held in-person or remotely.

If you are unable to attend, you may provide a written statement by email to public.hearing@apexnc.org, or submit it to the Office of the Town Clerk (73 Hunter Street or USPS mail - P.O. Box 250, Apex, NC 27502), at least two business days prior to the Town Council vote. You must provide your name and address for the record. The written statements will be delivered to the Town Council members prior to their vote. Please include the Public Hearing name in the subject line.

In the event that the Town Council meeting is held remotely or with at least one member attending virtually, written comments may be submitted up to 24 hours prior to the scheduled time of the meeting per NCGS §166A-19.24 according to the methods specified above. Virtual meetings may be viewed via the Town's YouTube livestream at https://www.youtube.com/c/townofapexgov.

Vicinity Map:

Property owners, tenants, and neighborhood associations 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/38521

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: July 1-July 26, 2022

TOWN OF APEX
PO BOX 250
APEX, NORTH CAROLINA 27502
TELÉFONO 919-249-3426

NOTIFICACIÓN PÚBLICA DE AUDIENCIAS PÚBLICAS

ORDENAMIENTO TERRITORIAL CONDICIONAL #22CZ07
Chapel Ridge North PUD (Desarrollo de Unidad Planificada)

De conformidad con las disposiciones de los Estatutos Generales de Carolina del Norte §160D-602 y con la Sección 2.2.11 de la Ordenanza de Desarrollo Unificado (UDO) del ayuntamiento de Apex, por la presente se notifican las audiencias públicas ante el Consejo Municipal del Ayuntamiento de Apex. El propósito de estas audiencias es considerar lo siguiente:

Solicitante: High Street District Development, Inc.
Agente autorizado: Joshua Dix
Dirección de las propiedades: 1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd, and 1512 Clark Farm Rd
Superficie: ±20.62 acres
Números de identificación de las propiedades: 0732340602, 0732347912, 0732343920, 0732354594, 0732352538, 0732249869, & 0732256180.
Designación actual en el Mapa de Uso Territorial para 2045: Medium Density Residential
Si se aprueba el cambio de zonificación como se propone, el Mapa de Uso Territorial para el 2045 cambiará a: High Density Residential
Ordenamiento territorial existente de las propiedades: Rural Residential (RR)
Ordenamiento territorial propuesto para las propiedades: Planned Unit Development-Conditional Zoning (PUD-CZ)
Lugar de la audiencia pública: Ayuntamiento de Apex
Cámara del Consejo, 2º piso
73 Hunter Street, Apex, Carolina del Norte

Los comentarios recibidos antes de la audiencia pública de la Junta de Planificación no se proporcionarán al Consejo Municipal. Los comentarios para la audiencia pública del Consejo Municipal deben presentarse por separado en el plazo especificado a continuación.

Fecha y hora de la audiencia pública del Consejo Municipal: 26 de julio de 2022 6:00 P.M.

Puede asistir a la reunión de manera presencial o seguir la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov. Por favor visite www.apexnc.org el día de la reunión para confirmar si la reunión se llevará a cabo de manera presencial o remotamente.

Si no puede asistir, puede enviar una declaración escrita por correo electrónico a public.hearing@apexnc.org, o presentarla a la oficina del Secretario Municipal (73 Hunter Street o por correo USPS a P.O. Box 250, Apex, NC 27502), al menos dos días hábiles antes de la votación del Consejo Municipal. Debe proporcionar su nombre y dirección para que conste en el registro. Las declaraciones escritas se entregarán al Consejo Municipal antes de la votación. No olvide incluir el nombre de la audiencia pública en el asunto.

En caso de que la reunión del Consejo Municipal se lleve a cabo remotamente o que por lo menos uno de los miembros asista virtualmente, se permite presentar comentarios por escrito hasta 24 horas antes de la hora programada de la reunión según los estatutos de Carolina del Norte NCGS §166A-19.24 siguiendo los métodos especificados anteriormente. Las reuniones virtuales se pueden seguir en la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov.

Mapa de las inmediaciones:

Los propietarios, inquilinos y asociaciones de vecinos en un radio de 300 pies del Ordenamiento Territorial Condicional propuesto han recibido esta notificación por correo postal de primera clase. Todas las partes interesadas pueden presentar comentarios sobre la solicitud a través de los medios especificados anteriormente. La ubicación de la propiedad también puede verse aquí: https://maps.raleighnc.gov/imaps. Puede ver el Mapa de Uso Territorial para 2045 aquí: www.apexnc.org/DocumentCenter/View/478. Si tiene preguntas o desea obtener más información, puede comunicarse con el Departamento de Planificación y Desarrollo Comunitario al 919-249-3426. Puede ver la solicitud y otros documentos relacionados aquí: https://www.apexnc.org/DocumentCenter/View/38521

Dianne F. Khin, AICP
Directora de Planificación y Desarrollo Comunitario

Fechas de publicación: 1 de julio - 26 de julio de 2022

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION OF PUBLIC HEARINGS

CONDITIONAL ZONING #22CZ07
Chapel Ridge North PUD

Pursuant to the provisions of North Carolina General Statutes §160D-602 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: High Street District Development, Inc.
Authorized Agent: Joshua Dix
Property Addresses: 1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd and 1512 Clark Farm Rd
Acreage: ±20.62 acres
Property Identification Numbers (PINs): 0732340602, 0732347912, 0732343920, 0732354594, 0732352538, 0732249869, & 0732256180.
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If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential
Existing Zoning of Properties: Rural Residential (RR)
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chamber, 2nd Floor
73 Hunter Street, Apex, North Carolina

Comments received prior to the Planning Board public hearing will not be provided to the Town Council. Separate comments for the Town Council public hearing must be provided by the deadline specified below.

Town Council Public Hearing Date and Time: July 26, 2022 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. Please visit www.apexnc.org on the day of the meeting to confirm whether the meeting will be held in-person or remotely.

If you are unable to attend, you may provide a written statement by email to public.hearing@apexnc.org, or submit it to the Office of the Town Clerk (73 Hunter Street or USPS mail - P.O. Box 250, Apex, NC 27502), at least two business days prior to the Town Council vote. You must provide your name and address for the record. The written statements will be delivered to the Town Council members prior to their vote. Please include the Public Hearing name in the subject line.

In the event that the Town Council meeting is held remotely or with at least one member attending virtually, written comments may be submitted up to 24 hours prior to the scheduled time of the meeting per NCGS §166A-19.24 according to the methods specified above. Virtual meetings may be viewed via the Town's YouTube livestream at https://www.youtube.com/c/townofapexgov.

Vicinity Map:

Property owners, tenants, and neighborhood associations 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/38521

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: July 1-July 26, 2022

TOWN OF APEX
PO BOX 250
APEX, NORTH CAROLINA 27502
TELÉFONO 919-249-3426

NOTIFICACIÓN PÚBLICA DE AUDIENCIAS PÚBLICAS

ORDENAMIENTO TERRITORIAL CONDICIONAL #22CZ07
Chapel Ridge North PUD (Desarrollo de Unidad Planificada)

De conformidad con las disposiciones de los Estatutos Generales de Carolina del Norte §160D-602 y con la Sección 2.2.11 de la Ordenanza de Desarrollo Unificado (UDO) del ayuntamiento de Apex, por la presente se notifican las audiencias públicas ante el Consejo Municipal del Ayuntamiento de Apex. El propósito de estas audiencias es considerar lo siguiente:

Solicitante: High Street District Development, Inc.
Agente autorizado: Joshua Dix
Dirección de las propiedades: 1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd, and 1512 Clark Farm Rd
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Designación actual en el Mapa de Uso Territorial para 2045: Medium Density Residential
Si se aprueba el cambio de zonificación como se propone, el Mapa de Uso Territorial para el 2045 cambiará a: High Density Residential
Ordenamiento territorial existente de las propiedades: Rural Residential (RR)
Ordenamiento territorial propuesto para las propiedades: Planned Unit Development-Conditional Zoning (PUD-CZ)
Lugar de la audiencia pública: Ayuntamiento de Apex
Cámara del Consejo, 2º piso
73 Hunter Street, Apex, Carolina del Norte

Los comentarios recibidos antes de la audiencia pública de la Junta de Planificación no se proporcionarán al Consejo Municipal. Los comentarios para la audiencia pública del Consejo Municipal deben presentarse por separado en el plazo especificado a continuación.

Fecha y hora de la audiencia pública del Consejo Municipal: 26 de julio de 2022 6:00 P.M.

Puede asistir a la reunión de manera presencial o seguir la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov. Por favor visite www.apexnc.org el día de la reunión para confirmar si la reunión se llevará a cabo de manera presencial o remotamente.

Si no puede asistir, puede enviar una declaración escrita por correo electrónico a public.hearing@apexnc.org, o presentarla a la oficina del Secretario Municipal (73 Hunter Street o por correo USPS a P.O. Box 250, Apex, NC 27502), al menos dos días hábiles antes de la votación del Consejo Municipal. Debe proporcionar su nombre y dirección para que conste en el registro. Las declaraciones escritas se entregarán al Consejo Municipal antes de la votación. No olvide incluir el nombre de la audiencia pública en el asunto.

En caso de que la reunión del Consejo Municipal se lleve a cabo remotamente o que por lo menos uno de los miembros asista virtualmente, se permite presentar comentarios por escrito hasta 24 horas antes de la hora programada de la reunión según los estatutos de Carolina del Norte NCGS §166A-19.24 siguiendo los métodos especificados anteriormente. Las reuniones virtuales se pueden seguir en la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov.

Mapa de las inmediaciones:

Los propietarios, inquilinos y asociaciones de vecinos en un radio de 300 pies del Ordenamiento Territorial Condicional propuesto han recibido esta notificación por correo postal de primera clase. Todas las partes interesadas pueden presentar comentarios sobre la solicitud a través de los medios especificados anteriormente. La ubicación de la propiedad también puede verse aquí: https://maps.raleighnc.gov/imaps. Puede ver el Mapa de Uso Territorial para 2045 aquí: www.apexnc.org/DocumentCenter/View/478. Si tiene preguntas o desea obtener más información, puede comunicarse con el Departamento de Planificación y Desarrollo Comunitario al 919-249-3426. Puede ver la solicitud y otros documentos relacionados aquí: https://www.apexnc.org/DocumentCenter/View/38521

Dianne F. Khin, AICP
Directora de Planificación y Desarrollo Comunitario

Fechas de publicación: 1 de julio - 26 de julio de 2022

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 #22CZ07 Chapel Ridge North PUD
Project Location:	1200, 1204, 1205, 1209, 1220, 1225 Chapel Ridge Rd and 1512 Clark Farm Rd
Applicant or Authorized Agent:	Joshua Dix
Firm:	High Street District Development, Inc.

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 July 1, 2022, 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 and tenants within 300' of the land subject to notification. I further certify that I relied on information from the Wake County Tax Assessor and the Town of Apex Master Address Repository provided to me by Town of Apex GIS Staff as to accuracy of the list and accuracy of mailing addresses of property owners and tenants within 300' of the land subject to notification.

7/7/2022
Date

Director of Planning and 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 7 day of July, 2022.

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

SEAL

Jeri Chastain Pederson
Notary Public

My Commission Expires: 3/10/2024

Student Assignment
5625 Dillard Drive
Cary, NC, 27518
Email: studentassignment@wcpss.net

tel: (919) 431-7333
fax: (919) 694-7753

April 13, 2022

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: March 1, 2022
- Name of development: 22CZ07 Chapel Ridge Apartments PUD
- Address of rezoning: 1200, 1204, 1205, 1209, 1220, & 1225 Chapel Ridge Rd; 1512 Clark Farm Rd
- Total number of proposed residential units: 370
- Type(s) of residential units proposed: Apartments

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