

Rezoning Transportation Analysis

Petition Number: 2016-128

General Location Identifier: 03304109;03304123;03304122;03304119;03304120
03304117;03304111;03320114;03304110

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CDOT's review of this rezoning petition is intended to ensure consistency with the Transportation Action Plan (TAP) which seeks to ensure that the City's transportation network supports current and future land uses and includes streets that provide safe and comfortable mobility for motorists, pedestrians, bicyclists, and transit users.

This document is primarily for communication to Planning Department staff as part of the overall City staff analysis of the rezoning petition and includes an overall summary of the case from a transportation perspective, information on trip generation, and resolved or outstanding site plan concerns. Additional advisory information about the driveway permit process is provided for information only.

Based on our review of the petition, we offer the following information for your consideration.

Transportation Summary

The site is bordered by I-485 and two major thoroughfares. The current site plan commits to significant offsite transportation improvements along the adjacent major thoroughfares and creates public street network through a system of internal public and private streets with connectivity to existing streets. CDOT continues to have significant concerns related to form of internal street network. Specifically, developing an adequate cross section at the main entrance to the retail portion of the site to avoid creating backups onto the major thoroughfare and creating a public street spine with standard streetscape through each development area. Additionally, the current site plan does not commit to providing pedestrian facilities on the northern side of Mount Holly Huntersville that could occur in conjunction with pavement widening for vehicle mitigations along Mount Holly Huntersville.

General Description

The site is bordered by I-485 and two (2) major thoroughfares: Brookshire Hwy. (NC 16) and Mt. Holly-Huntersville Rd. The site is located within a Center outside Route 4. The site was previously rezoned (#2008-031, including Zoning Administrative Amendments) as a 100- acre suburban commercial/residential development. The proposed zoning adds corporate office use and increases the total development to 125 acres.

A Traffic Impact Study (TIS) was conducted in 2006 and identified major off-site transportation mitigation improvements that were included in the 2008 rezoning. An updated 2016 TIS has identified mitigations for Phase 1. Both NCDOT and CDOT are reviewing a Phase 2 & 3 TIS submitted in September 2016 and a supplemental analysis submitted on October 4, 2016. The petitioner, NCDOT, and CDOT discussed final mitigation measures on 10/18/16 the scope and phasing of significant offsite improvements needed to mitigate the anticipated trip generated by the proposed site plan. These improvements include complete reconfiguration of the intersection of Mount Holly Huntersville and Brookshire Highway, an additional through lane on eastbound Mount Holly Huntersville from Chastain Parc to Brookshire Highway, a new signal at Mount Holly Huntersville and Overlook, and a traffic calming monitoring and implementation approach to address community concerns about a required street connection.

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Trip Generation

Scenario	Land Use	Intensity	Trip Generation (vehicle trips/day)	Source		
Existing Use	Vacant	N/A	0	<i>Virtual Charlotte</i>		
Entitlement with Current Zoning	Mini-Storage	127k sf	23,356	<i>RZ 2008-031</i>		
	Apartments	500 dwellings				
	Townhomes	265 dwellings				
	Office	129k sf				
	Retail	402.5k sf				
Proposed Zoning	Mini-Storage	127k sf	41,590	<i>TIA Scoping</i>		
	Apartments	500 dwellings				
	Townhomes	93 dwellings				
	Hotel	200 rooms				
	Theater (Retail)	60k sf				
	Office	365k sf				
	Retail	188k sf				
	Gas Station	14 fueling pumps				
	Bank	4k sf				
	Restaurant	39.9k sf				
	Fast Food	8.1k sf				
	Mini-Storage	127k sf			37,177	<i>Supplemental TIS</i>
	Apartments	264 dwellings				
	Townhomes	93 dwellings				
Hotel	200 rooms					
Office	650k sf					
Retail	188k sf					
Gas Station	14 fueling pumps					
Bank	4k sf					
Restaurant	39.9k sf					
Fast Food	8.1k sf					

Curbline

The proposed zoning district has a setback measured from an existing or proposed future curbline.

- The future curb lines on Mt. Holly-Huntersville and Brookshire will be determined by conceptual exhibits developed from the TIS mitigation measures (including proposed right-of-ways)
- The future curbline for all internal public and/or network required streets will be set using the cross sections defined by the City's Standards for Urban Street Design applied through the Subdivision Ordinance

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Resolved Issues

1. Below are some initial thoughts about potential mitigation measures:
 - a. CDOT does not support westbound triple left turns from MMH Rd. onto inbound Brookshire Hwy. The petitioner should evaluate and recommend alternative capacity treatments at this intersection that maximizes traffic flow on Brookshire Blvd., such as a continuous flow intersection (CFI), a superstreet design or the future conversion to grade separation.
 - b. Access "B" at MHH Rd. /Public Street 1 should be limited to a westbound directional left-over, providing lefts in/rights-in/rights-outs.
2. The petitioner should revise the site plan to show Street 7 as public streets.
3. The petitioner should revise the site plan to improve the walkability and interconnectivity among land uses.
 - a. Encourage walkability by moving office closer to retail uses or vice versa.
4. The petitioner should consider traffic calming design features along public street 7.
5. The petitioner should revise the site plan to improve the walkability and interconnectivity among land uses.
 - a. Site's internal sidewalk and/or MUPs need to connect frequently to MHH Rd. and the paralleling Brookshire Hwy's proposed MUPs.
6. The 2016 TIS is currently under review by NCDOT and CDOT. The petitioner submitted a supplemental analysis on October 4, 2016. Additional transportation comments may be forthcoming once the agencies have completed the review of the most recently submitted TIS and Technical Addendum.
 - a. The petitioner shall implement two (2) westbound MHH Rd. thru travel lanes from Chastain Parc Dr. to Brookshire Hwy. before Development Phase 2 first building's CO is issued. Remove conditional note 4 III b.
 - b. Public Street 2's connection to Chastain Parc Dr. and Chastain Parc Dr. speed humps should be approved and in place before the site's first building certificate of occupancy is issued.
 - c. The petitioner should be advised that a *Developer Traffic Signal Agreement* with CDOT is required and he will be responsible for all traffic and pedestrian signal costs to implement proposed new traffic signals and modifications to existing signals.
 - d. The petitioner should revise the site plan note 4. II. b (upon completion of the TIS) specifying all transportation improvements will be constructed and approved before the site's first building certificate of occupancy is issued or phased per the site's development plan.
7. The petitioner should revise the site plan to show on-street parallel parking on all internal public streets except within 70' of intersecting street.
8. The petitioner should revise the site plan to include conditional notes related to improving the walkability and interconnectivity among land uses as follows.
 - a. Provide 12' multi-use paths (MUP) along Brookshire Hwy. (instead of in-street bike lanes) through the limits of any/all transportation improvements, including safe connections to existing facilities or at gaps in the bicycle/pedestrian network.
10/12/16 Update: The MUP paralleling Brookshire Hwy. does not need to be in or adjacent to NCDOT's right-of-way. The requested Brookshire Hwy. MUP path needs to be located on the east side of Duke's transmission line easement and adjacent to development parcels A and D.
 - b. Petitioner should be advised CDOT multi-use paths are 12' wide minimum. 10' wide as indicated in note 5f is considered a "wide sidewalk" and would be acceptable to CDOT as described.
 - c. Consider additional connection(s) between Development Area E (residential) and Development Area B/D (theater/retail/storage).
 - d. Internal street midblock crossing locations will be determined by CDOT during permitting.
9. The petitioner should revise the site plan to add a note specifying all transportation improvements and access will be constructed and approved before the site's first building certificate of occupancy is issued or phased per the site's development plan.
10. Transportation notes should be revised as follows:
 - a. Add a note for commitments to pedestrian facilities:

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- i. Accommodate "protected" pedestrian/bike movements through the intersection, including necessary pedestrian refuge areas and connections to existing sidewalks, location as determined during permitting, as needed to optimize signal timing and pedestrian safety.
 - ii. Construction and/or reconstruction of all curb returns and pedestrian signals to PROWAG standards at intersections where signals are installed or modified by/for this development including offsite mitigations.
- b. 4 II b 1 I (Phase 1)
- i. NC 16 x MHH – Include commitment to any/all signal modifications associated with EB peak dual right blank out installation
 - ii. Access A Second bullet – add "per lane" to end of sentence
 - iii. Include construction of median on MHH from Callabridge Court through Access B
 - iv. Access B
 1. Include commitment to 150' internal protected stem at Development Access B
- c. 4 II b 2 ii (Phase 2) - Provide 7-lane section on MHH from NC 16 to Callabridge Court as discussed on 10/18/16 or viable alternative to address MHH WB throughs blocking WB MHH lefts at NC 16 caused by unbalanced lane utilization
- d. 4 II b 3 i (Phase 3)
- i. NC 16 x MHH Scenario 1
 1. Second bullet - Include approximate 500' spacing between main intersection and crossover signals
 2. Fifth bullet - Revise NC 16 NB right storage length to commit to maximized lane storage with the bay taper be for both turn lanes at the same time location. A 400' and 200' lane can't share a bay taper so this is not a preferred design because there is the potential for bad lane utilization due to one lane filling up and not allowing access into the other. *350' storage per lane recommended in TIS.*
 - ii. Access C - Include commitment to 400' internal protected stem
 - iii. NC 16 x MHH Scenario 2
 1. Fifth bullet - Revise NC 16 NB right storage length to maximum storage possible between the left turn CFI signal and main intersection signal.
- e. 4 II e – remove last sentence
- f. Include commitment the auxiliary through lane on westbound Couloak or viable alternative to address MHH WB through unbalanced lane utilization at right turn lane drop (CDOT rescind)
- g. Include commitment to mill and overlay full cross section through restriping limits (CDOT rescind)

CDOT requests the petitioner to provide a conceptual design exhibit for the proposed mitigations for each phase and scenario including existing and proposed right-of-ways, all travel lanes, left/right turn storage lengths, raised medians, pedestrian refuge areas, pedestrian/bike crossings for each intersection approach, cross-over intersection locations, interface and traffic access management requirements associated with existing area developments and driveways locations. (CDOT rescind)

11. The petitioner should revise the site plan to remove (i) and (ii) from note 4 III h. and revise note h as follows "The petitioner will be responsible for acquiring and dedicating, in fee simple to NCDOT and before the site's first building certificate of occupancy is issued in each phase, right-of-way necessary along Brookshire Hwy. and MHH Rd. that encompasses transportation improvements required. Actual right of way boundaries will be determined in final off-site roadway design approved by NCDOT and CDOT." CDOT requests dedication from street's centerline through 2' behind sidewalk and as needed for all offsite transportation improvements.
12. The petitioner should revise the site plan to add a condition note to prohibit construction traffic to enter site from Chastain Parc connection during all phases of development.
13. The petitioner should revise the site plan to add a note specifying dedication and fee simple conveyance of all rights of way to the City before the site's first building certificate of occupancy is issued or phased per the site's development plan.

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Outstanding Issues

1. Transportation notes should be revised as follows:
 - a. 4 I - Remove Figure IMP-1 and references in any conditional notes
 - b. 4 II b 1 I (Phase 1)
 - i. Access B
 1. Consider moving construction of WB left-over to this phase to reduce construction impact
 - c. 4 II b 3 i (Phase 3)
 - i. NC 16 x MHH Scenario 2
 1. Second bullet - Include approximate 500' spacing between main intersection and crossover signals
2. ~~The petitioner should revise the site plan to show street 6 as "public" street. Public Streets 6 and 7 should be constructed to local office/commercial wide street section standards (CLDSM U-05), including right of way dedication.~~
11/30/16 Update: Extend public right of way along street 6 from MHH through Street 5 intersection.
3. The petitioner should revise the site plan to include conditional notes related to improving the walkability and interconnectivity among land uses as follows.
 - a. An MUP is recommended to connect the proposed residential use to Chastain Parc subdivision along the site's southern property line.
10/12/16 Update: Extend sidewalk connection from street 3 to connect to the southern terminus of Chastain Park
11/7/16 Update: If approved by property owner
 - b. Provide 12' multi-use paths (MUP) along both (**north** and south) sides of MHH Rd. (instead of in-street bike lanes) through the limits of any/all transportation improvements, including safe connections to existing facilities or at gaps in the bicycle/pedestrian network.
11/30/16 Update: 10' MUP is acceptable as long as path is implemented on both the north and south sides of MHH as transportation improvements are constructed.
 - c. Revise note 5g to commit to implementing 8' planting strips and 6' sidewalks along all the site's internal "private" network streets. Eight (8)' hardscape with tree grates may be considered for planting strip.
4. Parallel parking spaces are preferred for on-street parking on public streets. However, reverse angle parking, (not head-in), on public street 6 is acceptable to CDOT only if the petitioner also includes a second southbound lane on the public street 6 segment between streets 5 and 7 (matching the street's NB configuration).
11/30/16 Update: This is critical to ensure adequate operation of the MHH x Callabridge intersection.
5. ~~The petitioner should remove choker road and callouts on site plan and conditional notes 4 III b, c, and d and replace with the following: "The petitioner shall monitor public street 2 and Chastain Parc Drive for implementation of traffic calming measures as identified and justified by CDOT's Traffic Calming Policies. The petitioner will be required to perform on-going monitoring and traffic calming measure installation, if needed, throughout permitting and for two (2) years after the development's last CO is issued." Additionally, the petitioner should revise the site plan to indicate "potential traffic calming locations" on street 2 and Chastain Parc instead of specific speed table locations as traffic calming measures may be revised during permitting. CDOT recommends a meeting prior to permitting submittal to discuss traffic calming. There are several alternatives that can be evaluated before implementation. CDOT does not support a one-way "choker" at this time.~~
11/30/16 Update: Pavement width and curbline for connection to Chastain should match existing stub. Choker design should be with implemented with curb extensions, not curbline modifications. CDOT does not support street narrowing as shown in current site plan.

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6. The petitioner should revise the site plan to remove the proposed first driveway on street 5, east of street 6 (serving the proposed fueling station). This driveway is located too close to street 6/5 full access intersection.
7. The petitioner should submit supplemental traffic analysis to address the following items emailed on 10/19/16:
 - a. Pedestrian crossing impacts on traffic operations signalized intersections
 - b. CFI life expectancy
 - c. Any mitigation measures identified by NCDOT and CDOT on 10/18/16 that are not incorporated into the current proposal
 - d. Operations at intersections along Street 7 in Phase 3 Scenario 2
 - e. Summary of queueing reports along
 - i. NB NC 16 to confirm queues do not back up to interchange intersection
 - ii. WB MHH to confirm queues do not back up into Callabridge Court intersection
 - f. Explanation of improved v/c for CFI in supplemental report
 - g. Analysis of revised Street 6/7 roundabout/traffic circle operations
 - h. Discussion of parameters being reported for NB/SB Pump Station LOS
8. All streets (public and private) should have a label and/or condition note referencing the typical street section. Public streets should be labeled with CLDSM typical section reference and right-of-way dedication
9. Revise development notes to limit Area F to 93 dwellings to match TIS.
10. The petitioner should revise the site plan to indicate Street 3 as a public street.

Advisory Information

The following are requirements of the developer that must be satisfied prior to driveway permit approval. We recommend that the petitioner reflect these on the rezoning plan as-appropriate.

1. The setback for this district is measured from the back of the existing or future curbline as determined by CDOT and Planning during the permitting process.
2. According to the City of Charlotte's Driveway Regulations, CDOT has the authority to regulate/approve all private street/driveway and public street connections to the right-of-way of a street under the regulatory jurisdiction of the City of Charlotte.
3. Adequate sight triangles must be reserved at the existing/proposed street entrance(s). Two 35' x 35' sight triangles (and two 10' x 70' sight triangles on North Carolina Department of Transportation on NCDOT maintained streets) are required for the entrance(s) to meet requirements. All proposed trees, berms, walls, fences, and/or identification signs must not interfere with sight distance at the entrance(s). Such items should be identified on the site plan.
4. The proposed driveway connection(s) to public streets will require a driveway permit(s) to be submitted to CDOT (and the North Carolina Department of Transportation on NCDOT maintained streets) for review and approval. The exact driveway location(s) and type/width of the driveway(s) will be determined by CDOT during the driveway permit process. The locations of the driveway(s) shown on the site plan are subject to change in order to align with driveway(s) on the opposite side of the street and comply with City Driveway Regulations and the City Tree Ordinance.
5. All proposed commercial driveway connections to a future public street will require a driveway permit to be submitted to CDOT for review and approval.

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6. Any fence or wall constructed along or adjacent to any sidewalk or street right-of-way requires a certificate issued by CDOT.

7. A Right-of-Way Encroachment Agreement is required for the installation of any non-standard item(s) (irrigation systems, decorative concrete pavement, brick pavers, etc.) within a proposed/existing City maintained street right-of-way by a private individual, group, business, or homeowner's/business association. An encroachment agreement must be approved by CDOT prior to the construction/installation of the non-standard item(s). Contact CDOT for additional information concerning cost, submittal, and liability insurance coverage requirements.

Revision Log

Date	Description	By
08-31-2016	First Review	RHG
10-12-2016	Second Review	RHG
11-07-2016	Third Review	RHG
11-30-2016	Fourth Review	RHG