

Rezoning Transportation Analysis

Petition Number	2016-056	Updated	10/11/2016
Location	Approximately 1,360 acres located west of Interstate 485 at West Boulevard generally surrounded by Interstate 485, Mt. Olive Church Road, Sadler Road, Lochfoot Drive, Bracebridge Court and Garrison Road		
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CDOT's Review of this rezoning petition is intended to ensure consistency with the Transportation Action Plan (TAP). The TAP seeks to ensure that Charlotte'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 to be used in the overall City staff analysis of the rezoning petition and includes information on trip generation, outstanding site plan concerns, and an overall summary of the case from a transportation perspective.

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

Background

This rezoning petition effectively proposes to create a new activity center. The activity center as proposed requires extensive technical analysis and coordination with other agencies in order to ensure that the transportation systems are planned and designed comprehensively. Specifically, the following topics are underway for evaluation as part of this proposal.

- 1) Regional Travel Demand Model Analysis
- 2) Transit System Plan Evaluation
- 3) Comprehensive Transportation Plan and CRTPO Thoroughfare Plan Amendments
- 4) West Boulevard Interchange Modifications
- 5) Arterial Street Designs
- 6) Phase 1 Traffic Impact Study
- 7) Local Street Network (subdivision Streets)
- 8) Local Transit Service
- 9) Pedestrian/Bicycle/Greenway System

Transportation Summary

Although this rezoning is located in a wedge based on the Centers, Corridors and Wedges Plan, the proposed level of entitlements, if approved, will effectively create a new activity center. Also, due to the large scale of this proposal, CDOT anticipates a significant increase in the necessary level of roadway capacity over what has historically been planned in this area. CDOT and Planning have worked with the petitioner to identify additional thoroughfares as well as upgrades in classifications for previously planned thoroughfares in order to provide the proper roadway network to support the anticipated level of travel demand.

The roadway network is also planned in a way that accommodates several other important community goals including but not limited to future extension of a major roadway to cross the Catawba River into Gaston County, anticipated growth at Charlotte Douglas International Airport, expansion of the freight intermodal yard, and future industrial development in the general vicinity of the airport and the intermodal yard. Accordingly, the review of the transportation aspects of this rezoning has been conducted in concert with the Airport-Area Strategic Development Plan (AASDP), and a planned feasibility study for the "Catawba Crossings project" by the Charlotte Regional Transportation Planning Organization (CRTPO), the Gaston-Cleveland-Lincoln MPO, and NCDOT.

The roadway network proposed with this rezoning is planned for three (3) major phases, in which land use entitlements are only available to the petitioner for development provided the corresponding phased improvements are completed by the time the buildings are occupied. The zoning allows that any of the three major phases may be subdivided into smaller phases provided the petitioner is able to demonstrate through additional traffic analysis that the requested sub-phase of development is matched to the appropriate level of additional roadway construction. The complete package of roadway improvements would be expected to be implemented over a 10-30 year period through a combination of public and private funding sources.

In order to establish that the proposed roadway network is appropriately scaled to the proposed level of entitlements, the petitioner and CDOT conducted a series of model analyses using the Metrolina Regional Model, which is the same model used by the CRTPO to plan large scale transportation improvements over a twenty-five-year time horizon. The results of this model work determined the network of streets that is intended to work in conjunction with a dense network of interconnected local streets, which will follow the rules of the Subdivision Ordinance. Additional traffic analyses will be performed over the build-out of this development to determine specific design details such as turn lanes at intersections or when traffic signals are warranted for installation.

The planned roadway network will require significant interchange modifications that will require approval by NCDOT and the Federal Highway Administration (FHWA). The conditional zoning plan as proposed will not enable development beyond the first phase without an approved interchange solution by state and federal authorities, which may differ from the exact concept depicted on this plan. The petitioner and CDOT have initiated preliminary discussions with NCDOT to determine the preferred concept. Final approval for a new or revised interchange will require additional technical analysis that with a 1 to 2-year timeframe for review and approval with NCDOT and FHWA.

The design details for the arterial street network will incorporate best practices for walking and bicycling through a variety of solutions that include sidewalks, bike lanes, shared-use paths, and greenways. In all cases the design of the streets and street network, will reinforce the overall transportation goals for activity centers, which is to maximize the ability to serve travel demand with the shortest trips possible, and to maximize the opportunities for transit, walking, and bicycling trips. In general, CDOT supports the approach of organizing growth for future residents in a way that can reduce long vehicle trips by providing well organized activity centers. This rezoning, as planned, helps achieve this goal and the requirements that govern the availability of entitlements by phase will help ensure that the growth is activated by planned investments in the major street network.

The outstanding transportation issues identified in the remainder of this analysis represent the deficiencies on the last plan made available for public review. CDOT has continued working with the petitioner to resolve these issues through the submittal of a revised plan by the petitioner at the public hearing.

Trip Generation

The proposed development could generate 120,000 trips per day as proposed. Based on review of national and local information, we estimate that approximately 45,000 of these trips will be captured internally within the Center and 75,000 of these trips will enter or exit the center daily. In order to ensure that these trips can be served adequately, the proposed transportation network must include a dense internal local street network supported by a system of well-designed arterial streets that have good connectivity to I-485.

Site Plan District	Uses	ITE Code	Intensity	Trips Per Day
Employment	Apartment	[ITE 220/Eq.]	500 dwellings	3,154
	Hotel	[ITE 310/Rates]	250 rooms	2,043
	Office	[ITE 710/Eq.]	4.5 million sf	23,694
	Retail	[ITE 820/Eq.]	50k sf	4,328
Town Center	Apartment	[ITE 220/Eq.]	1700 dwellings	10,426
	Hotel	[ITE 310/Rates]	500 rooms	4,085
	Office	[ITE 710/Eq.]	2 million sf	12,793
	Retail	[ITE 820/Eq.]	300k sf	13,870
Gateway	Hotel	[ITE 310/Rates]	250 Rooms	2,043
	Office	[ITE 710/Eq.]	500k sf	4,461
	Retail	[ITE 820/Eq.]	50k sf	4,328
Transitional	Apartments	[ITE 220/Eq.]	300 dwellings	1,942
	Office	[ITE 710/Eq.]	1 million sf	7,554
	Retail	[ITE 820/Eq.]	25k sf	2,758
Residential	Single Family	[ITE 210/Eq.]	1700 dwellings	14,233
	Apartment	[ITE 220/Eq.]	300 dwellings	1,942
	Retirement	[ITE 255/Rates]	200 units	480

	Community (CCRC)			
	Retail	[ITE 820/Eq.]	75k sf	5,633
			Total	120,000

Existing Zoning			
Scenario	Land Use	Intensity	Trip Generation (Vehicle trips/day)
Existing Use	Various Low-Density Uses	-	-
Entitlement	Single Family Warehouse	5,660 dwellings 750,000 sf	46,000

Curblines

Setbacks in the proposed zoning district will be measured from proposed future curblines. The curblines for local streets will be based on the standard local streets in the Charlotte Land Development Standards Manual or as otherwise prescribed in the conditional zoning plan. The future curblines for the arterial streets will be determined through the design process after the zoning decision.

Resolved Issues

1. The proposed Boulevard A (Linear Park) cross-section does not match USDG recommended cross-sections. Boulevard A should have a 17-foot wide median.
2. The “Green Street” cross-section shows a 10-foot wide multi-use path on only 1 side of the street. The multi-use path width is not adequate for two way bike traffic and pedestrians and should be at least 12’ wide.
3. The traffic impact study for phase 1 includes specific improvement recommendations for transportation improvements. CDOT has completed a review of this study and has the following preliminary recommendations for laneage. These recommendations are in addition to those already provided by NCDOT’s Congestion Management Unit in their March 29 report.

Wallace Neal Road at West Boulevard (proposed traffic signal):

- a. EB West Blvd lane configuration: 1 left turn only lane, 2 thru lanes (1 thru lane will drop before the bridge on West Blvd to the east of this intersection) (RESCINDED)
- b. Lane configurations of other approaches are the same as NCDOT recommendations.

West Boulevard/Byrum Drive & Steele Creek Road Intersection (existing traffic signal):

- c. Same comments as NCDOT

I-485 Inner Loop at West Boulevard intersection (proposed traffic signal):

- a. I-485 Inner Loop off-ramp lane configuration: 1 left turn only lane, 1 shared thru-right lane
- b. EB West Blvd lane configuration: 2 left turn only lanes (1st lane is a drop of the left-most thru lane, the 2nd lane forms immediately east of the West Blvd bridge over I-485) (Rescinded)
- c. WB West Blvd lane configuration: 1 thru lane, 1 right turn only lane

I-485 Outer Loop at West Boulevard intersection (proposed traffic signal):

- a. EB West Blvd lane configuration: 1 thru lane, 1 shared thru-right lane, with 2 EB receiving lanes on the east side of the intersection – a 3rd EB lane will form east of the taper that forms the WB left turn lanes at this intersection. This lane will drop as one of the left turn only lanes at the I-485 Inner Loop intersection.
- b. WB West Blvd lane configuration: 2 left turn only lanes, 2 thru lanes (2nd thru lane forms on west side of bridge over I-485)

I-485 Outer Loop at West Boulevard intersection (proposed traffic signal):

- a. I-485 Outer Loop off-ramp lane configuration: 1 left turn only lane, 1 shared left-thru lane, 2 right-turn only lanes. This change will enable more efficient signal phasing.

West Boulevard Bridge over I-485: Total of 4 lanes, 1 WB lane and 3 EB lanes (left-most EB lane will drop as one of the two left turn only lanes at the I-485 Inner Loop and West Blvd intersection).

4. We recommend elimination of the language that describes which local street sections will be used. This should be addressed through application of the Subdivision requirements.
1. CDOT does not support the “Transportation Methodology” as described on Sheet RZ-5A, which defers all analysis of future transportation commitments beyond phase 1 to further undefined transportation studies. CDOT is aware that concurrent discussions are underway between petitioner and the City to establish an MOU that deals with a variety of aspects of this petition and that this MOU could identify an alternate approach to transportation requirements. Regardless of the particular approach taken through the MOU, the conditional zoning plan will need to include greater specificity on the specific improvements that are expected and the technical approach to determining the required mitigations over time. We recommend replacing the language on sheet RZ-5A with the following:
 - The transportation improvements required for the River District Development will be accomplished in three major phases, the entitlements for which are described in section ____.
 - Phase 1 improvements are described in section ____.
 - Phase 2 improvements are described in section _____. These improvements will require additional freeway access at a location and in a configuration that is unknown at the time of conditional plan approval. All local, state, and federal approvals for the required interchange improvements must be completed prior to commencing phase 2 entitlements.
 - Phase 3 improvements are described in section ____.

- The Charlotte Regional Transportation Planning Organization (CRTPO) must approve any required changes to the adopted Thoroughfare Plan or Comprehensive Transportation Plan as applicable.
 - All improvements for each major phase are required to be completed prior to the issuance of the first certificate of occupancy for each phase. The petitioner shall be able to submit to the City proposals with accompanying technical information that allow for sub-phasing in order to proportionally allocate the improvements and entitlements within each major phase.
 - Some improvements may be completed by or in partnership with public funds. As project planning occurs for these improvements, design variations may occur from what is described in this zoning plan.
2. Given the requested inclusion of the language above, notes IVc.2-4 should be removed.
 3. On Sheet RZ 5-ADixie River road should be depicted as an Avenue, not a Main Street.
 4. We recommend eliminating the Notes IV a.1-a.3. This language does not seem useful in a conditional zoning document. We recommend consideration be given to replacing all of note IV with a statement that simply acknowledges the existence of an MOU which describes the topics listed.
 5. On Sheet RZ 5-B West Boulevard’s typical section should include a footnote that indicates the bicycle accommodations will vary from district to district.
 6. CDOT supports the idea of alternative street designs that offer environmental benefits. However, any specific designs must be evaluated through design review. The references to BMP’s in the public street right-of-way (including sheet RZ5-B) must clarify that this is subject to review and approval by CDOT or NCDOT as applicable.
 7. CDOT expects to have additional comments regarding supplemental language for ensuring an adequate local street network beyond the standard requirements of the Subdivision Ordinance.
 8. The greenway system envisioned for this site will become an integral part of the walking and bicycling network once constructed. We request a greenway system plan be included that depicts the intended limits of the greenways.
 9. CDOT supports the language in the notes establishing the minimum number of crossings of the Beaver Dam Creek. CDOT recommends additional language be provided to describe when these bridges will be created with respect to development activity. Also, the notes should commit that the bridges will provide adequate clearance to accommodate greenway underpasses.
 10. CDOT is concerned about the optional provisions that erode the potential of the development to succeed as a multi-modal place. In particular, CDOT is concerned about allowing parking between the streets and the buildings, not recessing doors onto sidewalks.
 11. The phasing on sheet RZ-2B is unclear. It appears from the table that all of the rezoning entitlements are included in the first phase. There are no other phases of entitlement described.
 12. Remove the phrase “installed by the developer” from note Va2.

13. CDOT does not support the portion of the “Right-of-Way Availability” note that indicates that CDOT will instruct other agencies to issue certificates of occupancy. The City has a process in place through the Engineering & Property Management Department that address the circumstances described in this note.
14. Eliminate note Vb6b titled “Transportation Methodology Framework for Phases and Sub-phases.”
15. Remove the phrase “by others” from the first bullet of note Vb2.
16. CDOT does not support note Va.8. While we expect additional regional model analysis will be necessary to support the determination of future interchange modifications, we do not expect to use the regional model to determine other transportation commitments for this petition. The results of the current regional model analysis need to support the phased improvements proposed with the conditional plan at the time of Council approval.

Outstanding Issues

Due to the large size of this rezoning petition and complexity of the activities described in the background above, additional outstanding issues may be identified as the technical review continues.

1. The Phase 2 and Phase 3 improvements are currently the subject of regional modeling analysis being completed by the petitioner and CDOT but should be included in the plan. The improvements for Phase 2 and 3 will need to be confirmed and described in the notes upon the conclusion of the regional-level analysis. CDOT does not support deferring the determination of the major roadway components for each phase beyond the city Council zoning approval, but does support the options already provided in the notes for revising or sub-phasing the proposed improvements. CDOT is awaiting clarification from the petitioner on the proposed phase 3 improvements. CDOT is also testing additional scenarios with the regional model that may yield additional or different recommended improvements. We expect this information to be available on or around October 5.
2. The latest site plan includes a detailed proposal for sub-phases to phase 2. CDOT cannot support the inclusion of this subphasing without a traffic study to validate this specific proposal. If the petitioner seeks to include this subphasing, CDOT will need more time in the review process to include the correct staff and to collaborate with NCDOT. Alternatively, the petitioner can simply remove the specific subphasing proposal and defer this level of analysis until after the zoning approval. The existing format of the conditional zoning plan supports this approach provided that the petition includes the recommended and validated improvements referenced in comment 1 above.
3. West Boulevard is expected to be relocated on the east side of I-485 in order to support future airport expansion. CDOT requests a note be added to the plan that identifies that a) construction coordination will be necessary with the planned relocation and b) the proposed mitigations at Steele Creek West Boulevard and Byrum will be transferred to the proposed new intersection at the western terminus of the West Blvd realignment project to be funded by the petitioner in the event that the relocation occurs prior to the development mitigations and in the event that the relocation restores the existing level of capacity that the River District Proposal otherwise proposes to improve.
4. The wording for “substantial completion” is still unclear. CDOT supports the idea of deeming a project substantially complete, subject to evaluation of safety and operational need for the improvements to be completed concurrent with a building opening. We recommend the language

be based on CDOT deeming a project substantially complete, as in “CDOT may deem a project substantially complete for the purposes of issuance of certificates of occupancy...” as opposed to “the petitioner may request.”

5. Since different development ordinances and zoning districts create different requirements for improvements to non-local streets, we recommend a note that explicitly requires that as development occurs, the fronting non-local streets must be built, or if mutually agreeable, funding provided to the City for non-local street construction. This would include travel lanes, bike facilities, curb-and-gutter, planting strip, and sidewalks.
6. All right-of-way for the arterial streets should be dedicated by the petitioner at the request of the City or concurrently with improvements made by the petitioner, whichever occurs first.
7. There is considerable development potential on the west end of Sadler Road as part of this petition that would use Sadler Road for access, portions of which pass through land that is outside of the rezoning limits. Sadler Road will need to be improved to provide 2 eleven (11)-foot travel lanes including a full overlay of the pavement or as otherwise may be directed by NCDOT. This improvement would not be required until development occurs along Sadler Road. We recommend a trigger in the notes that is based on specific development in this area as opposed to related to one of the overall development phases.

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. 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.
2. Adequate sight triangles must be reserved at the existing/proposed street entrance(s). Two 35' x 35' sight triangles 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.
3. The proposed driveway connections will require driveway permits to be submitted to CDOT and the North Carolina Department of Transportation for review and approval. The exact driveway locations and type/width of the driveways will be determined by CDOT during the driveway permit process. The locations of the driveways shown on the site plan are subject to change in order to align with driveways on the opposite side of the street and comply with City Driveway Regulations and the City Tree Ordinance.
4. All proposed commercial driveway connections to a future public street will require a driveway permit to be submitted to CDOT for review and approval.
5. Any fence or wall constructed along or adjacent to any sidewalk or street right-of-way requires a certificate issued by CDOT.

6. 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.