

# Rezoning Transportation Analysis

Petition Number: 2017-054

General Location Identifier: 0703101, 07903102, 07903103 to 07903106

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## Revision Log:

Date	Description
03-27-2017	First Review
04-24-2017	Second Review
05-31-2017	Third Review
06-12-2017	Third Review Revision

## General Review Information

The site is bounded by Statesville Ave (major thoroughfare), Graham St (major thoroughfare), and Woodward Ave (major collector) within the Applied Innovation Corridor. The site is in a corridor inside Route 4.

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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.*

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

## Transportation Summary

To be provided prior to public hearing.

## Trip Generation

Scenario	Land Use	Intensity	Trip Generation (vehicle trips/day)	Source
Existing Use	Light Industrial	1,300,000 sf	9,600	Traffic Study
Entitlement with Current Zoning	Light Industrial	850,000 sf	16,100	Traffic Study
	Office	360,000 sf		
	Retail	90,000 sf		
Proposed Zoning	Light Industrial	65,000 sf	32,800	Traffic Study
	Office	1,500,000 sf		
	Retail	280,000 sf		
	Apartments	1,500 dwellings		

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## Outstanding Issues

1. The proposed zoning district has a setback measured from back of the existing or proposed future curbline. The future back of curb along the site's street frontage as measured as described below\*:
  - a. ~~Statesville Ave. — 47.0' as measured from Statesville's existing western back of curb (will be revised if road diet is not approved).~~
  - b. ~~Woodard Ave. — existing curb is in the future location. If on-street parking is desired it must be recessed from this curbline dimension.~~
  - c. ~~Graham St. — 30.5' as measured from Graham's St.'s existing centerline, to accommodate two travel lanes and buried bike lane. The petitioner should revise the Graham Street - Proposed Condition cross section on RZ-04 to label and dimension the future curbline (8' behind existing curb) as buried bike lane~~
  - d. ~~Sylvania Ave. — new public street back of curb to back of curb dimension = 37' to accommodate two travel lanes and 5' bike lanes. If on-street parking is desired it must be recessed from this curbline dimension. Southern back of curb should be inside southern property line. Set R/W at back of walk and use move 2' from SUE to planting strip~~
  - e. ~~Internal existing reuse and redevelopment streets — cross section and curbline to be determined as petitioner provides information~~

*\* Midblock dimensions noted. The final location of the future back of curb may be revised upon review of the TIS.*
2. **See Comment 17** A Traffic Impact Study (TIS) is needed for the complete review of this petition. The TIS scope has been approved and CDOT is awaiting the submittal of the report and supporting analysis files. The TIS is anticipated to provide information to help CDOT determine:
  - a. Potential offsite mitigation measures
  - b. Turning lanes into and from major site accesses
  - c. Curbline for four (4) public streets surrounding the site
  - d. Form, density, right of way/easement needs of proposed internal street network
  - e. Consideration for Statesville road diet
  - f. Timing and configuration of 24<sup>th</sup>/Woodard realignment
  - g. Locations of new signalized intersections on Graham
3. **See Comment 10** The petitioner should meet with CDOT to discuss the roadway design for the existing and proposed public streets that border this site.
  - a. Realignment of 24th Street/Woodard Ave. intersection to reduce skew
  - b. Existing bridge on Woodward is close (6-10 years) to the end of its service life
  - c. Sylvania cross section
  - d. Statesville road diet limits
  - e. Pedestrian crossings on Graham, Statesville, Woodward, and Sylvania
  - f. Rail trail concept
  - g. Planting strip and sidewalk dimensions
4. The petitioner should meet with CDOT and Planning to identify a denser internal street network in the redevelopment areas (Sheet RZ-02) and identify internal street cross sections that conform to City standard U-series.
5. The petitioner should revise the site plan to depict and add a note to provide the following cross sections. CDOT can work with the petitioner to reduce dimensions when needed at pinch points.
  - a. ~~Statesville — 8' planting strips and 6'-8' sidewalks along the Statesville street frontage (Sheet RZ-03).~~
  - b. ~~Graham — 16' planting strips (to accommodate an 8' buried buffered bike lane) and 6'-8' sidewalks along the Graham street frontage (Sheet RZ-04).~~
  - c. ~~Camp — provide 8' minimum width for pedestrian area directly behind straight curb (i.e. not buffered by parking or planting area) (Sheets RZ-05 Section F and RZ-06 Sections H, I-right side, and J)~~

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- d. Provide cross section(s) for pedestrian/bicycle route (orange) path through site. The orange symbology should be removed from Keswick from Camp to Graham.
  - e. Add cross sections to clarify the form of Connections A, D, 6, E, & G and Woonerfs 5 & 6.
  - f. ~~Include Sylvania cross section. CDOT's minimum expectation for the midblock cross section is two travel lanes, on-street bike lanes, curb and gutter, 8' planting strip and 6' sidewalk.~~
  - g. Provide updated exhibit in rezoning package
6. ~~The petitioner should revise the site plan to depict and add a note to provide pedestrian/bike connection across Woodard Ave. that aligns with a proposed 10' multi-use path along the western property line of parcel no. 07904204 (see RZ petition 2017-003).~~
  7. ~~The petitioner should revise the site plan to better distinguish between activated "woonerf" facilities versus simple alley loading areas.~~
  8. The petitioner should revise the site plan to add a note specifying dedication and fee simple conveyance of all rights-of-way, public access easements, and/or sidewalk utility easements to the City as each facility is constructed. CDOT requests right of way set at 2' behind back of sidewalk where feasible.

CDOT's minimum R/W and easement expectation is as follows and should be identified on the cross sections:

- a. Public R/W along site frontage from existing centerline through back of planting strip/front of sidewalk along Statesville, Graham, Woodward. Sidewalk preferred in public R/W but can be in SUE if needed.
  - b. Public R/W across Sylvania from southern property line/back of burb through back of planting strip/front of sidewalk. Sidewalk preferred in public R/W but can be in SUE if needed.
  - c. Public access easements from back of pedestrian path to back of pedestrian path for the full length of Camp, Keswick from Graham to Camp, Connection D, Woonerf 6 in RZ-01, and Connection A and Connection 6-E-G- Woonerf 5 (southern portion) in RZ-02
9. ~~The petitioner should revise the site plan to add a note specifying all transportation improvements will be approved and constructed before the site's first building certificate of occupancy is issued or phased per the site's development plan.~~
  10. In addition to curblines and cross section comments above and in response to separate offsite street package dated 3/10/17, the petitioner should revise the concept and update site plan and notes as follows:
    - a. Graham
      - i. Install a new traffic signal including pedestrian signalization and signal interconnect cable on Graham at Sylvania, Keswick and/or Camp when warranted by NCDOT/CDOT.
      - ii. Provide traffic signal modifications, including pedestrian signalization, signal interconnect cable and all accessible ramps at the existing "offset" signals at Graham/24<sup>th</sup>/Woodard.
      - iii. Add commitment to signalized pedestrian crossing location(s) on Graham.
      - iv. ~~Remove Woodward/24<sup>th</sup> intersection realignment.~~
      - v. ~~Left turn lane storage and new signalization along Graham (Sylvania, Camp, Woodward/24<sup>th</sup>) will be determined by TIS~~
    - b. Statesville
      - i. ~~Remove Statesville northbound right turn lane at Woodard.~~
      - ii. ~~Extend Statesville Ave.'s existing road diet from Woodard Ave. to Graham St. to provide 3' travel lanes and 5' bike lanes with intermittent raised median landscaped islands (some providing pedestrian refuge areas). Final median locations and configurations will be determined during permitting when uses are better understood.~~

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- iii. ~~City will review request to accommodate ultimate signal pole location for SE quadrant but will not delay installation of warranted, funded signal for this coordination.~~
- e. Sylvania
  - i. ~~Back of curb sidewalk is undesirable and should be avoided in design to intersections.~~
  - ii. ~~Off-street cycle path is an undesirable facility between Statesville and Graham~~
- d. ~~Unless otherwise noted, standard 8' planting strip and 6' sidewalk is expected. CDOT can work with the petitioner to reduce dimensions when needed at pinch points.~~
- e. Provide updated exhibit on sheet RZ-TIA

~~\* The revised/additional transportation recommendations may be included upon review of the TIS and determination of traffic mitigations needed for the site.~~

11. The petitioner needs to revise the site plan and add conditional note to state: Before development areas "C/D" redevelops the petitioner will work with CDOT/NCDOT to evaluate different 24<sup>th</sup>/Woodard at Graham realignment alternatives. This evaluation study needs to be funded by the petitioner to determine a mutually preferred 24<sup>th</sup>/Woodard realignment, which may require necessary right-of-way within these development areas.
12. The petitioner needs to revise the site plan and conditional notes to commit to construction of the full cross sections (as shown on Sheet RZ-03 though RZ-07) and submittal of public right of way or public access easement (as described in Comment 8) as follows:
  - a. Sylvania connecting Statesville to Graham prior to permit approval for the 200,001 square foot of office of Phase 1 entitlements or before the start of construction of the railroad grade crossing for any use, whichever comes first.
  - b. Camp connecting Statesville to Graham prior to permit approval for any Phase 2 entitlements or before the start of construction of the railroad grade crossing for any use, whichever comes first.
  - c. Keswick connecting Camp to Graham prior to permit approval for any Phase 2 entitlements or before the start of construction of the railroad grade crossing for any use, whichever comes first.
  - d. Connection D connecting Camp to Woodard prior to permit approval for any Phase 2 entitlements
  - e. Woonerf 6 connecting Camp to Sylvania in RZ-01 prior to permit approval for any Phase 2 entitlements
  - f. Transportation and streetscape improvements along Woodward and Graham frontages, as shown on RZ-03 and RZ-04 should be completed prior to permit approval for any Phase 2 entitlements
  - g. Transportation and streetscape improvements Statesville frontages as shown on RZ-03 should be completed prior to permit approval for any Phase 3 entitlements
  - h. Connection 6-E-G-Woonerf 5 (southern portion) in RZ-02 connecting Sylvania to Statesville upon demolition of conflicting portion of Building 3A. Southern portion of Woonerf 6 (connecting to Sylvania) cannot be abandoned until this connection and easement is provided
  - i. Orange pedestrian route connecting Woodward to Camp upon demolition of conflicting portion of Building 11
  - j. Connection A on RZ-02 upon development of Area A
  - k. The petitioner should update Note 5c to exclude these necessary connections in public R/W or public easement.
13. The petitioner needs to revise the site plan and conditional notes to remove all reference to CIP or suggested mitigation. Notes should reflect commitments of petition associated with entitlements.
14. ~~**Rescinded** The petitioner needs to revised the site plan and its conditional notes to verify and document the site's most intense trip generation is posted correctly for the site's Phase 3 build-out based upon the four proposed land use conversion alternatives as specified on sheet RZ-N1.~~

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15. ~~See Comment 12g The petitioner needs to revised the site plan and add a conditional notes to verify and document the trigger for implementing the proposed multi-modal pathway through the site as depicted in orange dots on RZ 02. Both CDOT and Planning believe this pathway is extremely important and needs to be implemented as early as possible. If it is partially implemented by development phase identify each implementation trigger for each phase.~~
16. The petitioner should revise the site access as follows:
- All new or reconstructed site access driveways (+/- 14 driveways) need to be configured with one (1) receiving lane, one left turn lane storage lane with a minimum 150' storage length, with appropriate bay taper lengths, and one thru/right turn lane and should properly align with existing far side streets and/or driveways to avoid off-set intersections.
  - The proposed site access "B" (study intersection #16) appears to have two access driveways side by side. This will be confusing/conflicting for drivers from Camp and P7. Remove the proposed driveway just north of Camp Ave and use Woonerf 4 connection to access P7. The Camp street connection to Statesville should have a minimum stem length of 200'.
  - Proposed site access on Woodard near Graham/Woodard signalized intersection should be removed or restricted to right-in/right-out. This access is too close to the signalized intersection to be full movement.
  - Proposed site access across from Graham/24th signalized intersection should be removed. A fourth leg cannot be accommodated at this signal because of the coordination with Graham/Woodward signal. A right-in/right-out driveway would be permitted on Graham midway between Camp and 24<sup>th</sup>.
  - Proposed P15 access on Sylvania should be relocated to Woonerf 5
  - Proposed P17 access on Sylvania near Graham/ Sylvania proposed signalized intersection should be removed or restricted to right-in/right-out. This access is too close to the signalized intersection to be full movement.
17. CDOT's review comments associated with the Camp End North TIS, submitted May 1, 2017 are as follows:
- Analysis Adjustments
    - The intersections of Graham/Statesville and Graham/Dalton need to be properly coded in Synchro as "group-controlled" and re-analyzed.
      - Phase 3 can't lag (run after phase 4 in the sequence) because it would create a yellow-trap for the EBLT from Dalton at Graham – adding an EBLT FYA would allow phase 3 to lag by eliminating the yellow-trap problem.
      - Phase 1 can't lag (run after phase 2 in the sequence) because it would create a yellow-trap for the SBLT from Graham at Dalton. Adding a SBLT lane at Graham & Dalton AND adding a SBLT FYA would fix this issue. This would also allow the ability to lead-lag the NBLT at Graham & Statesville.
    - The TIS needs to be revised to include Music Factory's project traffic volumes since future mitigations were included in model.
    - The Synchro runs for existing AM/PM traffic conditions need to be revised to only code one (1) NB Statesville Ave. thru lane (currently coded as two lanes) feeding into the existing one NB lane at Woodard Ave.
    - Include queueing reports for study intersections
    - Include protected/permissive southbound left turn on Graham St at 12<sup>th</sup>
    - Graham and Dalton - Build Phase 3 AM Synchro file shows a dual permissive southbound left turn with the outer lane as a shared left/through. This should be modified to reflect a single left turn lane.
    - Include full build analysis without proposed signals on Graham (see comment 17 b i)
    - Study appears to be missing "New 2017 Base Full Buildout (intersection Options for intersections 5, 8 & 9" as listed in bulleted study scenarios on page 22 of the report.
  - Suggested Mitigations

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- i. CDOT had not had adequate time to review and determine if the proposed signal locations are acceptable. The petitioner should update the notes to commit to a separate study of signal locations. Proposed traffic signals proposed at Sylvania Ave. and Camp St. do not meet preferred traffic signal spacing for signal coordination. Also the projected peak hour traffic volumes identified at Sylvania Ave. do not appear to be enough traffic to warrant a signal here.
      - ii. The projected high NB Statesville left turn volumes and its associated queue lengths are spilling into the downstream intersection at Graham and Music Factory intersection causing unsatisfactory traffic conditions. CDOT has serious concerns about our ability to serve 1100+ vehicles/hour (about 300 more than existing conditions) with a double-left turn during the peak hour at this intersection without having significant queuing that would impact the operations at the Graham & Music Factory signal, and potentially the other upstream signals. If we keep the current configuration then there will not be this much traffic making this turn because we simply do not have the infrastructure to handle this level of traffic. I am not aware of a signalized intersection in Charlotte that has this much left-turning traffic. A creative transportation solution needs to be explored and analyzed where these two streets are funnel into one street (intersections 8 and 9).
      - iii. CDOT had not had adequate time to review and determine if the proposed Statesville Rd. diet can be supported. The petitioner should update the notes to commit to a separate study in Phase III.
      - iv. Offset lefts at Oaklawn/Statesville intersection do not have to be a full lane width. See Woodward/Statesville intersection for example offset. Additionally, offset will to toward site and should be reflected in revised concept RZ-TIA. Please verify that the proposed 5' wide bike lanes and off-set left turns can fit into the existing pavement width and curblines remain as is. Provide typical street section at Statesville and Oaklawn.
      - v. Access "C" & Graham (Proposed signal): In Table 4d, the note under the table states "Laneage includes NB left turn lane on Graham St., Prop. Access includes 1 receiving lane + 2 exit lanes (separate left + right lanes) (NOT FEASIBLE [UTILITIES] – FOR INFO. PURPOSES ONLY)." What part of these improvements is not feasible? CDOT recommends 150' minimum storage at this access point.
      - vi. Add commitment to ped crossing on each street (Woodward, Statesville, Graham, and Sylvania)
    - c. Phasing
      - i. The petitioner should revise the site plan and add conditional note(s) to state: All assumed traffic mitigation by previous approved rezoning petitions and included in the TIS need to be also ATCO's responsibility to design and implement if not already in place (i.e. whichever developer gets there first is responsible).
      - ii. The petitioner is actively permitting uses under the existing zoning. These uses will be considered part of the Phase I entitlements when calculating development thresholds for transportation improvements.
    - d. Other - Revise the TIS to include the traffic mitigation recommendation concept drawing as recommended in the 2015 Music Factory TIS (i.e. Figure 7 - between study intersections 6 and 7).
18. The petitioner should revise note 3j to include a technical traffic memo that describes entitled and converted trip generation comparison and traffic mitigation recommendations with request for conversion submitted to planning.
19. The petitioner should revise Notes 4 and 5 per comments 10, 11, 12, 13, 16, and 17.
20. In general, the petitioner should revise the conditional notes to use plain language and concisely communicate the intent of each commitment.

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## 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 (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.
3. 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.
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.