

# 04 Project Implementation

## 4.1. Ordinance Changes

### 4.1.1. *Proposed Haggard Corridor Overlay Zoning District*

As discussed in the summary notes from the 1st Stakeholder Charette (November 2020) and the Phase 2-3 Stakeholder Kickoff Meeting held in July 2021 (as found in the Appendix), the Town of Elon, with the advice of the Stakeholders, is recommending that changes be made to the Town of Elon Land Development Ordinance (LDO adopted 2/04, amended 3/13/18) to implement the vision for the Haggard Corridor as discussed and mapped in Chapter 3.

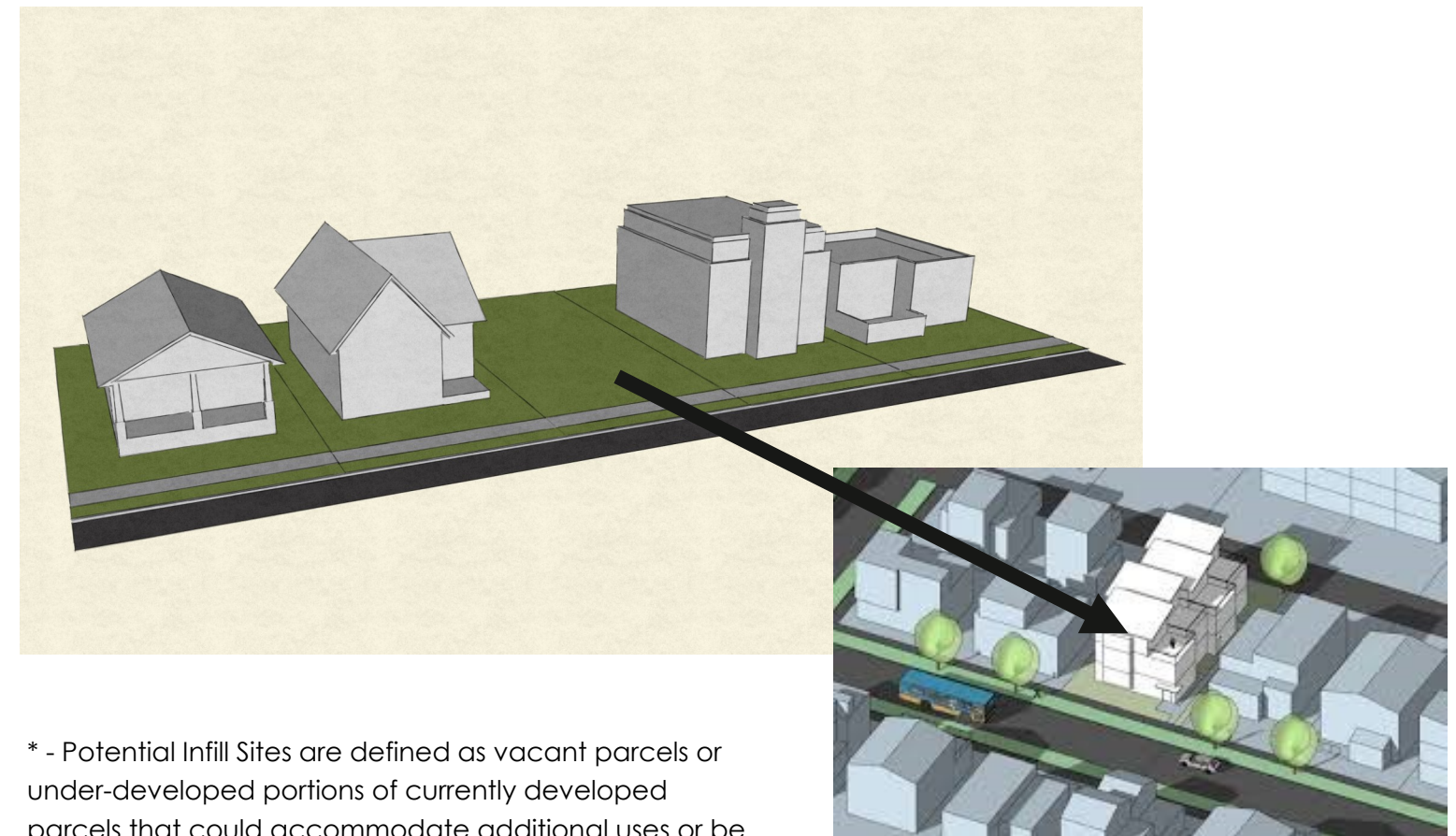
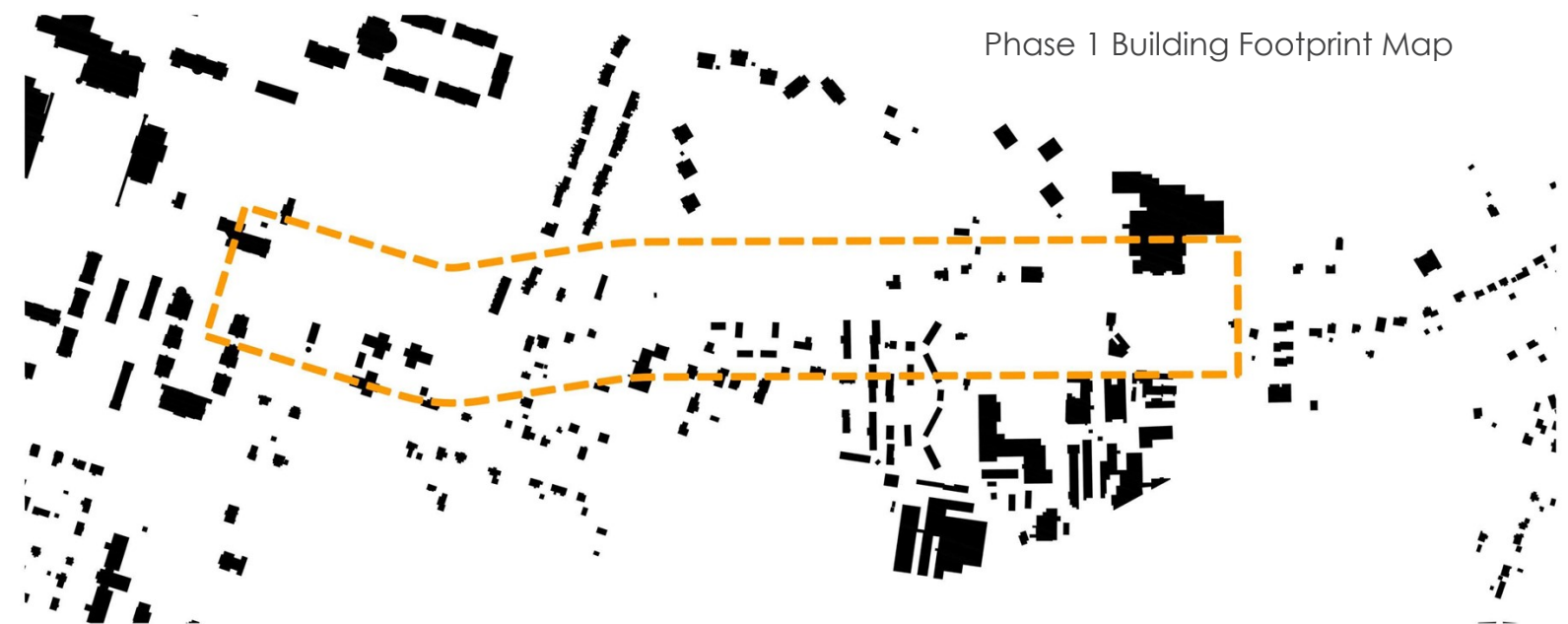
The following sections provide the rationale for a recommended new Corridor Overlay Zoning District, as well as areas of the Town's Roadway Design Standards that should be further evaluated for modification (currently within Section 5.7 of the Land Development Ordinance (LDO)). The Town intends to implement these new ordinance requirements with adoption of the Town's new Land Management Ordinance (LMO) (currently under preparation), which will replace the LDO.

#### Land Use

Given the dramatic impact land development has on the function and feel of adjacent roadways, the potential for new development or redevelopment in the corridor was evaluated to determine if current land use controls or additional controls are needed in the Overlay District. As shown on the Phase 1 Potential Infill Development Map\* on page 73, there are a total of 13 parcels (totaling 157.7 acres) located mostly in the Suburban Highway (eastern) portion of the corridor with the greatest potential for new development from infill or redevelopment. Of those, the one University-owned parcel totaling 86 acres east of the Daniele Center and the three privately owned parcels immediately to its east make up the main vacant/underdeveloped area in the center/north of the corridor. The next largest developable area in Phase 1 involves two parcels totaling 36 acres within the City of Burlington's Zoning Jurisdiction near York Road.

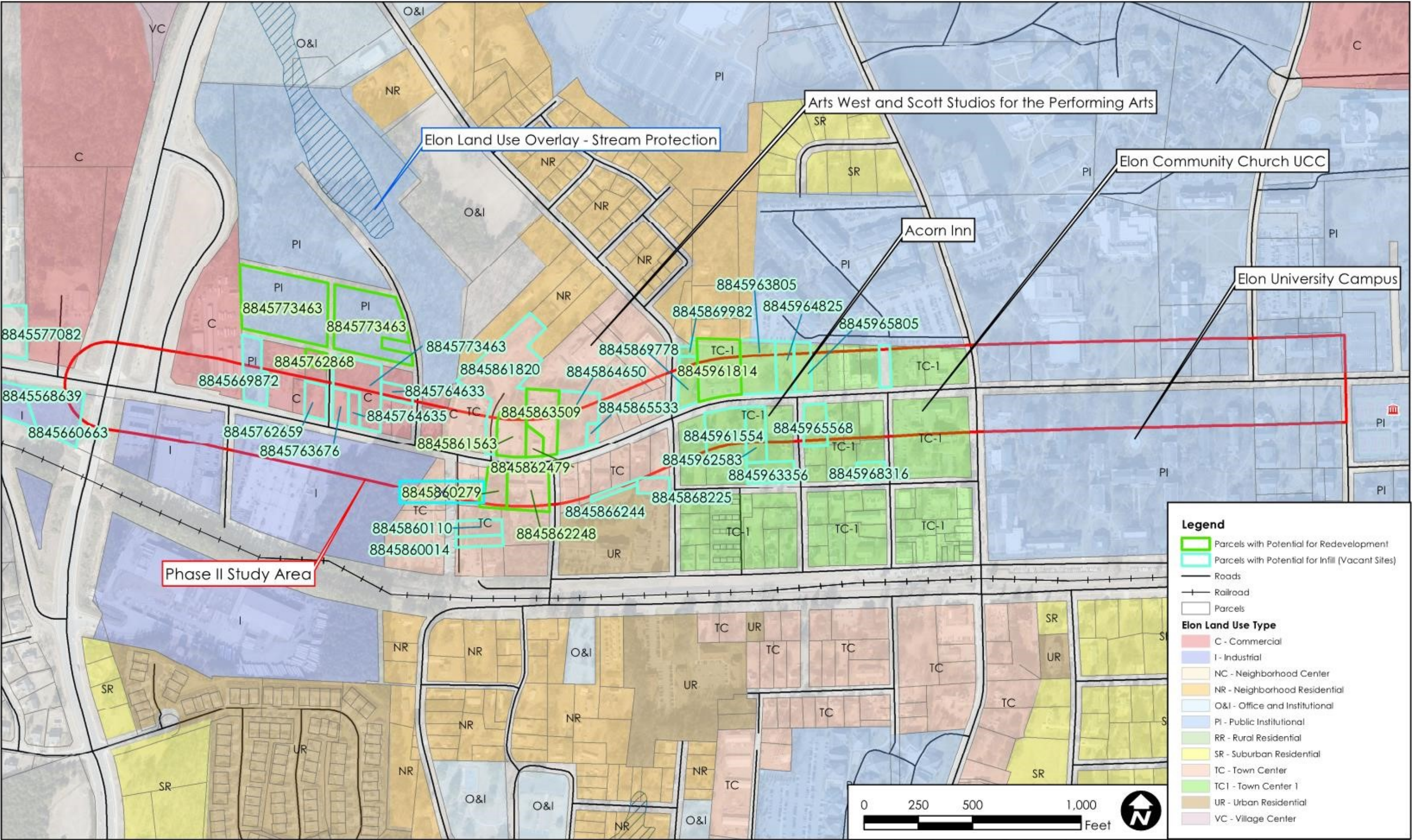
As shown on the Phase 2 Potential Infill Development Map on page 72, there are 27 relatively small vacant parcels in Town Center and Commercial Zones available for infill development. There are larger underdeveloped parcels in the Public Institution Zone on the western end of Phase 2 that are slated for expansion of the Elon Lodge.

The Phase 3 Potential Infill Development Map on page 74 shows 13 parcels with the potential for redevelopment or infill development in Commercial and Public Institutional Zones, the

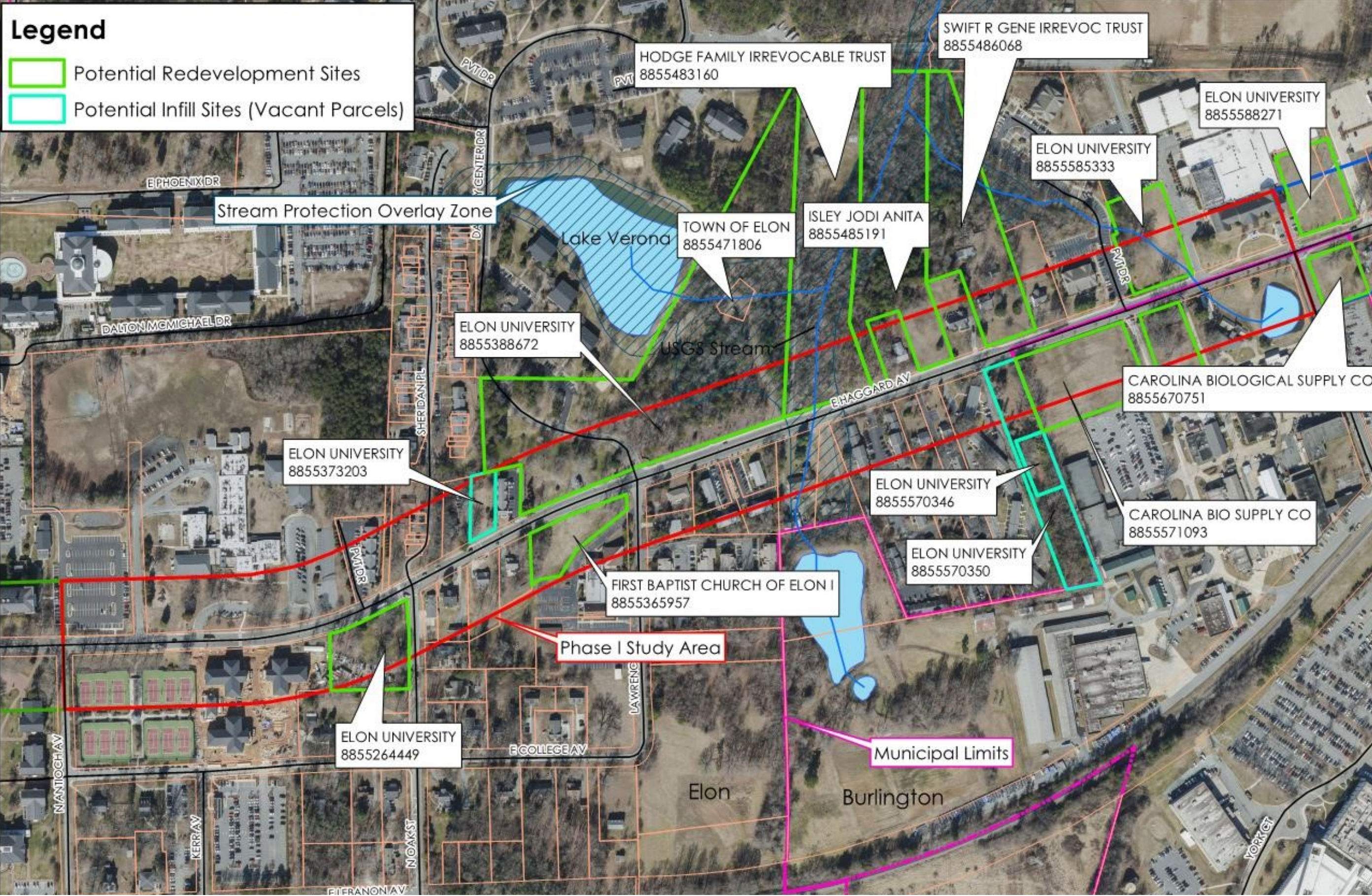


\* - Potential Infill Sites are defined as vacant parcels or under-developed portions of currently developed parcels that could accommodate additional uses or be combined with adjacent vacant or underdeveloped land and redeveloped.

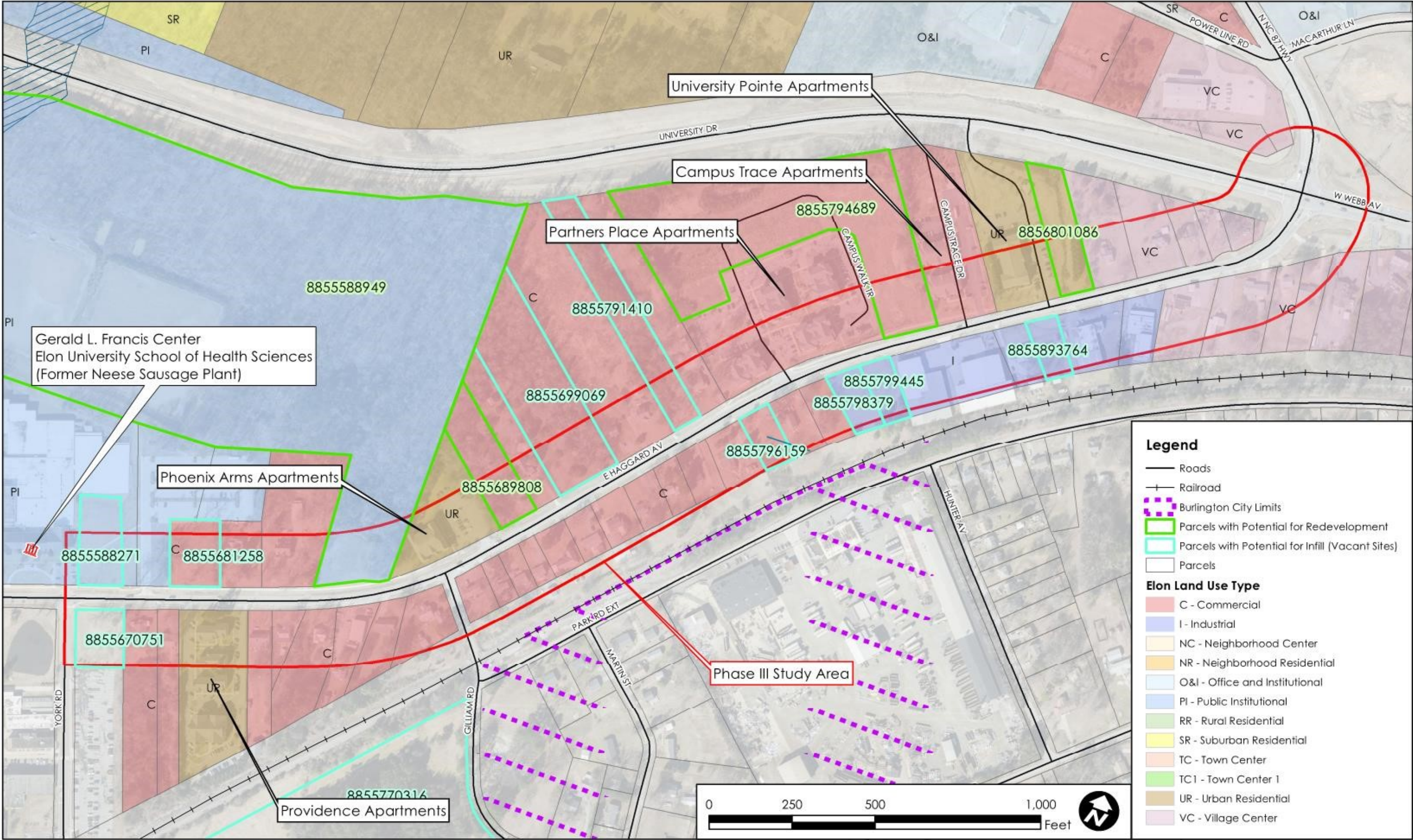














largest being on the north side of the corridor, within the Elon Campus and planned for future educational uses. The other larger parcels (also on the north side) are zoned Commercial or Urban Residential and likely to be developed into apartment or other forms of off-campus student housing, according to the Town Planner. The smaller parcels within the Commercial and Industrial Zones in Phase 3 are likely to be developed into non-residential uses.

As most of the future developable sites within Phase 1 are owned by Elon University with their intention of developing them for University purposes, it is the commitment of the Town to continue to collaborate with the University on future long -range planning and site development review to address the Town’s potential land use concerns. There are no specific land use elements recommended to be added to the Overlay District.

Access Management

Good transportation planning acknowledges that the placement, size and orientation of new driveways, entrances/exits and cross streets along urban roadways must be carefully planned and controlled, as they can either positively or negatively impact traffic flow, safety, development potential, environmental resources, and more broadly, community character.

FHWA’s Access Management Guidance\* specifically calls attention to the importance of managing access along arterials such as Haggard Avenue because of the need to protect both its mobility and access functions.

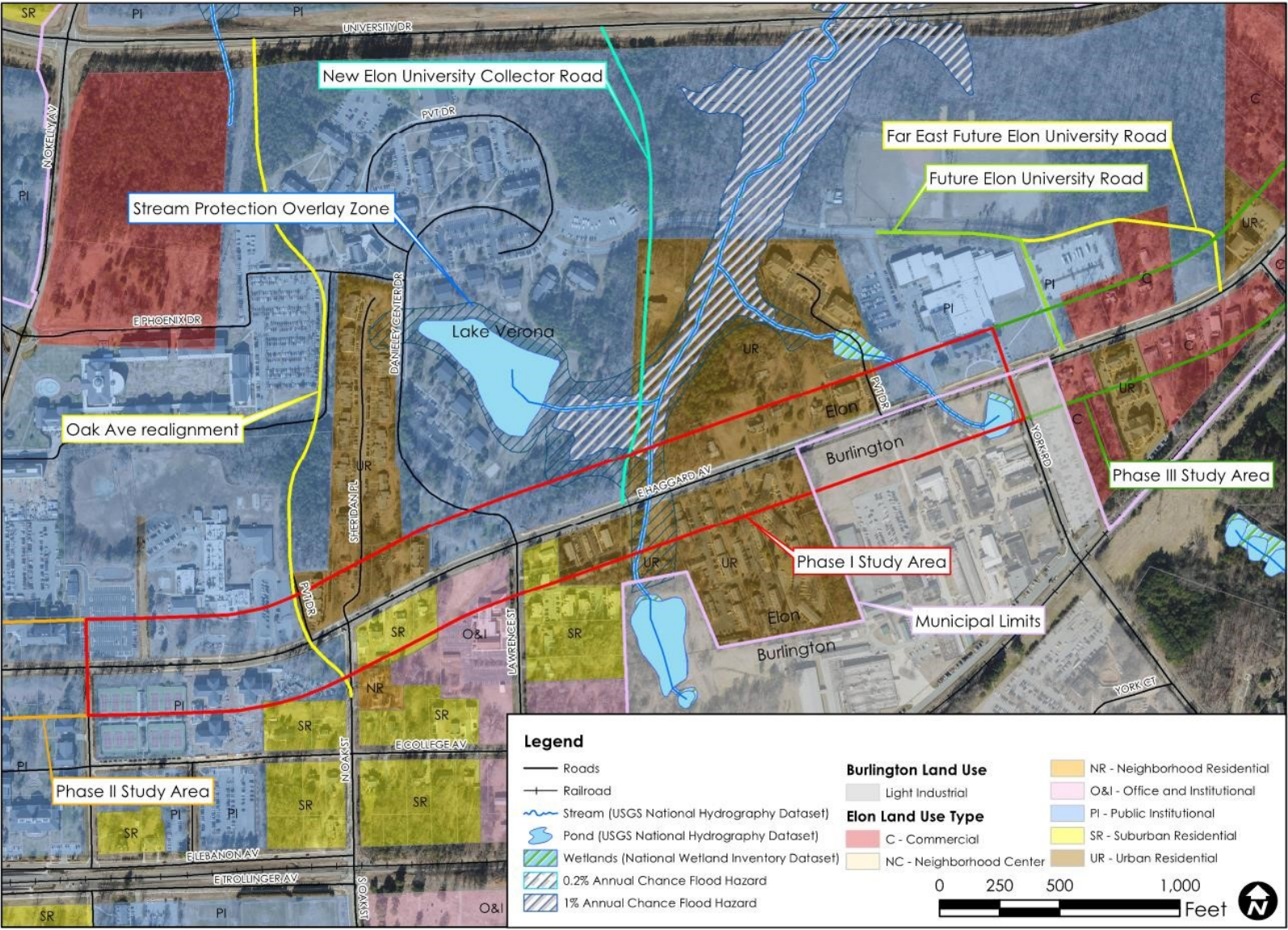
Given that every legal parcel of land is allowed at least one driveway, and new development could add even more, several new driveways may be

constructed on the corridor. Elon University is also proposing a new cross street (“Elon University (EU) Collector”) that would intersect the project corridor on the north side of East Haggard Avenue, across from Elon Village Homes and extending north to University Drive (see Future Land Use and University Roadways Map) This future roadway, along with other “ring roads” planned by the University further to the east in the Phase III project area (also shown on that map), are intended to provide non-arterial access to new University development in the area and help bypass (and therefore reduce vehicular traffic) on Haggard Avenue in the congested Campus Scale area.

The “EU Collector” is shown to lie on the University Master Plan directly within an Unnamed Tributary to Dry Creek where it extends under East Haggard Avenue at a culvert (see Existing Conditions Map).

According to FHWA, it is best to manage driveways so that access is provided to and from the roadway with the lower functional classification, as these roadways typically have lower traffic volumes and speeds. This helps to reduce the frequency of conflicts, which minimizes both the opportunity for crashes and the severity of those crashes, should they occur.

Thus, in planning, designing and managing access (i.e., driveways, entrances or exits), critical consideration must be given to arterial and collector streets as these streets serve both mobility and access functions. ([https://safety.fhwa.dot.gov/intersection/other\\_topics/fhwasa10002/#s11](https://safety.fhwa.dot.gov/intersection/other_topics/fhwasa10002/#s11))



Future Land Use and University Roadways





**Given the conditions , it is recommended that the Overlay District contain the following requirements to adequately manage access (and therefore protect the long term functionality and safety) of East Haggard Avenue after new infill / redevelopment:**

- Multiple driveway cuts on to East Haggard Avenue should be restricted to the maximum extent possible.
- All future new public roads, including the “EU Collector” road proposed by Elon University, should be located outside of environmentally sensitive areas to the maximum extent practicable.
- The Traffic Impact Analysis (TIA) prepared by Elon University for the development of its 86 acre parcel to the east of the Daniele Center (soon to be a requirement for all large developments as part of the new Elon LMO) should include:
  - ⇒ Analysis of the “EU Collector” roadway and its intersection with Haggard Avenue as part of the development of the site. The Town prefers that the this collector be public to help divert traffic through the Campus Scale area, but if the University proposes it to be private, which would allow closure on occasion, the TIA must also evaluate the impacts of this restriction on the transportation network, especially within the Campus Scale area. The TIA should evaluate all alternatives on how well they reduce traffic and improve safety on Haggard Avenue.
  - ⇒ Evaluation of the “EU Collector” as the primary means of access to the 86-acre development so that campus traffic is funneled to Haggard at one controlled location, with other access points for the development onto East Haggard Avenue restricted.
  - ⇒ Alternative locations of the “EU Collector” be evaluated to determine if placement near the eastern property line will allow/provide primary access for future development of that private parcel and also be used as the “front”/ primary access point for infill / redevelopment of other surrounding private-owned parcels.



Front Yard Building Setbacks

Front yard building setback is the minimum distance between the front edge of a parcel (measured at the public right-of-way line) and where a structure can be built. As noted in Section 7.2 of the current Elon LDO (see below), this setback is very important, as it provides the public spaces and green areas between buildings and streets, literally forming the “streetscape” zone as discussed in Chapter 2.

The following table shows current front yard building setbacks for the Elon and Burlington Zoning Districts.

Current Front Yard Setback Zoning		
(Elon LDO - Adopted 12/04; Amended 9/21; Burlington UDO – Last Updated 12/06/22)		
Urban Residential (UR) (Elon)	Public Institutional (PI) (Elon)	Light Industrial (LI) (Burlington)
10 ft min / 25 ft max	30 ft	40 ft*

\* - On corner lots of record, the street setback may be reduced by 50 percent on the long side lot.

It was noted by the Stakeholder Committee that, with most of the corridor planned for Public Institutional (PI) and owned by the University, collaboration between the Town and the University on future development plans should address most of the potential front yard setback concerns in the PI zoned areas.

Although the setbacks for the PI and LI zoned areas are sufficiently wide to provide the needed space for the amenities recommended for the corridor (30 and 40-ft, respectively), the minimum setback standard for the Urban Residential (UR) Zoning District (10 feet) may not be sufficient. Given the setback variation currently allowed in the UR zoning and the need for a consistent theme along the corridor, **it is recommended that the minimum front yard setbacks for UR development in the Overlay District be increased by 10-ft, such that a minimum of 20-ft front yard setback is required. It is also recommended that the maximum front yard setback in the UR zoned areas be increased to 30-ft, which would meet the minimum PI setback.**

7.2 Defining the Public Space of the Street (Current Elon LDO)

As the most prevalent public spaces in Elon, streets should be spatially defined by buildings. Proper alignment and delineation of the public street space occurs when the facades of adjacent buildings are aligned much like the walls forming a room. Buildings that make up the street edges are aligned in a disciplined manner. The defined space observes a certain ratio of height to width. Building articulation must take place primarily in the vertical plane of the façade. Appendages such as porches, balconies, and bay windows are encouraged to promote the transition between the public street and the private dwelling.





## Utilities

The current presence of above ground utilities (e.g., telephone poles carrying electrical and communications lines) in the sidewalk along portions of the existing corridor was identified as unattractive, inconsistent with FHWA and NCDOT guidance, and violates ADA requirements by making the sidewalk impassable for wheelchairs. Furthermore, this issue was recognized as in need of correction with the project by the Town and some Stakeholders.

According to the 2012 NCDOT Complete Street Design Manual, “when planning, designing and constructing sidewalks, planting strips, medians and other street features provided on complete streets, the design input team must allow for service access to underground and overhead utilities.” Placement of utilities in the design of the street side should therefore (according to this Manual) consider the following guidance:

- Longitudinal underground utility lines should be placed in a uniform alignment as close to the right of way line as practical, or within a planting strip or amenity zone.
- Consolidate utility poles and signage poles where possible. Remove redundant poles in retrofit situations.
- Whenever possible, utilities should be placed underground to preserve sidewalk capacity for pedestrians and allow for street trees and aesthetic treatments.
- When underground placement is not possible, consider alternative locations for utility poles including the back of the right of way or in the planting strip.”

If not placed underground, the DOT 2019 Complete Streets Policy would require new ones built within the corridor and placed “outside the Clear Zone”, or “a minimum of 12 feet from the face of the curb. And all utility poles that are placed closer than 12 feet shall be breakaway poles.”

**Placing utilities underground is therefore recommended for the corridor, as doing so will improve aesthetics as well as preserve sidewalk capacity for pedestrians and allow for street trees and aesthetic treatments.**





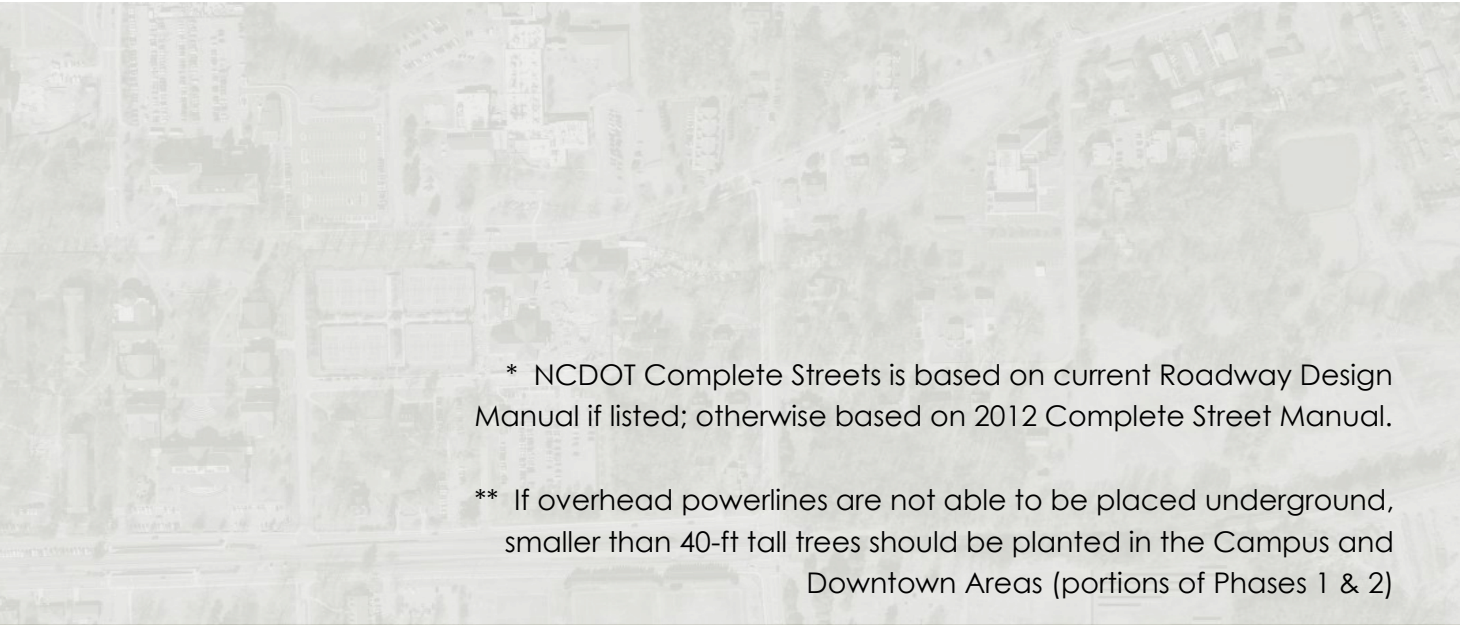
4.1.1. Roadway Design Standards

Public roadways are not built randomly. The portion of the corridor under control of the Town of Elon (between N. Williamson Avenue and N. Oak Street) is dictated by the Town’s Street Design Standards, as contained in the Elon LDO (Adopted 12/04; Last Amended 9/21). The portion of the corridor under NCDOT control (west of N. Williamson Ave. and east of N. Oak St.) is controlled by NCDOT Roadway Design Standards, as explained on page 23.

**The recommended Roadway Design Standards for the Haggard Corridor Overlay Zoning District are identified in the final column of the adjacent table.** These recommendations are based on: feedback received from the Town, Stakeholders, the Public; the proposed design schematics shown in Chapter 3; and various FHWA and NCDOT roadway design guidance, as discussed in Chapter 2.

This list of recommended standards has two purposes:

- 1) To inform the final design and construction of the improvements when eventually funded by NCDOT in a future STIP.
- 2) To become the basis of a Haggard Overlay Zoning District, which will ONLY become mandatory for development that occurs after the Overlay District is adopted as part of the new LMO being prepared separately by the Town. These regulations may be implemented with some flexibility to accommodate existing conditions in the corridor when applied to new development prior to the corridor being reconstructed with the future STIP Project.



\* NCDOT Complete Streets is based on current Roadway Design Manual if listed; otherwise based on 2012 Complete Street Manual.

\*\* If overhead powerlines are not able to be placed underground, smaller than 40-ft tall trees should be planted in the Campus and Downtown Areas (portions of Phases 1 & 2)

Streetscape Element	Town of Elon Standards	NCDOT Complete Streets Standards*	Recommended Overlay District Standard
Travel Lane Width	13-feet (included as an engineering technical standard, not listed in LDO)	12-ft (may be reduced to 11-ft in urban areas)	Min. 11-ft
Sidewalks	Min. 5-ft, 8-ft for commercial, 12-ft for retail/activity centers	Minimum – 4-ft (resid.), 5-ft (commercial/school routes) Desirable – 5-ft (residential), 10-ft (commercial/school routes) Areas with heavy pedestrian traffic warrant wider widths	Min. 8-ft in Suburban Zone, 10-12-ft in Campus Zone, 12-ft+ in Phase 2 Area 2 (Historic Campus Area)
	Both sides of street	Both sides of street	Both sides of street (or MUP)
Multi-Use Paths	8-ft	Not Mentioned	Min. 12-ft
Bike Lanes	4-ft striped/dedicated	5-6 ft on-street striped	5-6-ft striped/dedicated on street
	Required on-street	14-ft shared lane / sharrow	Or 14-15-ft sharrow
Green Zone / Sidewalk Buffer / Planting Strip	2 ft 6 in (included as an engineering technical standard, (not listed in LDO) for standard residential street)	6-8 ft (8-ft preferred for street trees)	Min. 2-8-ft, 8-ft+ for trees
Streetlights	160-200 ft separation	not mentioned	Equally spaced. Light footprint must overlap on roadway. Use manuf. lumen specs/ratings for each light type.
Pedestrian Lights	not mentioned	Equally spaced, Recommended	Equally spaced. Light footprint must overlap on sidewalk. Use manuf. lumen specs/ratings for each light type.
Pedestrian Crosswalks	Min. 10-ft in width	no specifics	Min 10-ft in width; high visibility markings/signage
Landscaping	1 large mature tree / 40 ft (should shade sidewalk)	no specifics	Min of 1 large mature tree / 40 ft (should shade sidewalk) **



## 4.2. Study Recommendations (Listed in Order of Priority)

1) Work with BGMPO and NCDOT to prioritize the entire project (Phases 1-3) and receive approval for the project to be included in a future STIP, which will provide funding for traffic engineering, final design, environmental impact analysis, permitting and construction of the following recommended corridor improvements:

- a) Implement Campus Scale Improvements between N. Williamson Ave and N. Oak Ave:
- Shift Haggard Avenue centerline approximately 6 ft north from Manning Ave to N. O'Kelly Ave.
  - Design and construct buffered bike lane along historic wall on Elon University campus.
  - Realignment of N. Oak Ave intersection, potential roundabout to serve as a corridor gateway
  - Multimodal intersection improvements at N. Williamson Ave, N. O'Kelly Ave, and N. Antioch Ave.
  - Mid-block and side street pedestrian crossings with pedestrian refuge, plantings, pavement markings, materials changes, and signage.
  - Widen and fill in sidewalk gaps.
  - Bicycle access via a multi-use path or on-street bike lanes.
  - Planted medians where access and corridor width allows.
  - Street trees that vary in size, spacing and location
- b) Implement Suburban Highway Improvements from University Drive to Williamson Ave and from N. Oak Ave to NC 87:
- Reduce travel lanes from 3 to 2 where present.
  - Fill in sidewalk gaps to complete pedestrian network
  - Multimodal intersection improvements at Manning Ave, N. Oak Ave, and Lawrence St with potential roundabout at York Road.
  - Add planting area between the back of curb and sidewalk where feasible
  - Pedestrian crossings, including distinct crosswalks and/or pedestrian refuges within median

- Provide bicycle access via a multi-use path
  - Street trees that vary in size, spacing and location
- 2) Develop and adopt a Haggard Avenue Corridor Overlay District that considers the following recommended requirements for new development:
- Streetscape Standards as shown in Section 4.1.1
  - Front-yard Setbacks - Consider setting the minimum front yard setbacks for UR development in the Overlay District to be 20-ft min. and 30-ft max. to provide adequate room for streetscape amenities and provide a consistent theme along the corridor.
  - Underground Utilities - It is the goal of the future Haggard Avenue corridor that all streetscape utilities will be placed underground to improve aesthetics as well as preserve sidewalk capacity for pedestrians and allow for street trees and aesthetic treatments. As such, when the Town submits its request to BGMPO and NCDOT for funding the improvements discussed in this Plan, it will specifically call out the need to fund the undergrounding of utilities along the streetscape. Given that it may take several years for NCDOT to construct these roadway improvements, it is important that any new development that occurs in the intervening time provide the improvements discussed in this plan. Therefore, it is recommended that the Overlay District contain language that requires applications for new development on parcels fronting on Haggard Avenue to either provide for the relocation of streetscape utilities underground, or provide hardship reasoning / justification as to why the developer does not propose to do so.
  - Environmental Protection - Require all future new public roads, including the "EU Collector" road proposed by Elon University, to be located outside of environmentally sensitive areas to the maximum extent practicable.
  - Access Management - Restrict multiple driveway cuts on to East Haggard Avenue to the maximum extent possible.

- 3) Require that the Traffic Impact Analysis prepared by Elon University for the development of its 86 acre parcel to the east of the Danieley Center (which will soon be a requirement for all large developments as part of the new Elon LMO) include the following:
- Analysis of the "EU Collector" roadway and its intersection with Haggard Avenue as part of the development of the site. The Town prefers that the this collector be public to help divert traffic through the Campus area, but if the University proposes it to be private, which would allow closure on occasion, the TIA must also evaluate the impacts of this restriction on the transportation network. The TIA should evaluate all alternatives as to how well they reduce traffic and improve safety on network roadways.
  - Evaluation of the "EU Collector" as the primary means of access to the 86-acre development so that campus traffic is funneled to Haggard at one controlled location, with other access points for the development onto East Haggard Avenue restricted.
  - Evaluate alternative locations of the "EU Collector" to determine if it can feasibly provide "frontage" / primary access for infill / redevelopment of surrounding privately-owned parcels.
  - Analysis of capacity and turning movements at Manning Ave, Williamson Ave, Antioch Ave, and Lawrence St.
  - Evaluate the operation of proposed roundabouts at N. Oak Ave and York Rd.
- 4) Continue collaboration with Elon University on future long-range planning efforts and site development to address the elements discussed throughout this plan.