July 2020

Addendum 1

Clemson University Long Range Framework Plan

Perimeter Road Corridor

PERIMETER ROAD CORRIDOR AND PARKING STUDY

The Perimeter Road Corridor and Parking Study coordinates several planned and potential projects in the south campus area with the recommendations of the 2017 Long Range Framework Plan. The projects addressed in the study include:

- Perimeter Road widening to five lanes from Cherry Road to Highway 76 including strategies to rationalize curb cuts and improve vehicular flow
- Old Stadium / Williamson Road intersection reconfiguration
- Land use implications associated with the potential Old Stadium Road / Williamson Road reconfiguration
- Athletic District Parking lot improvements and alignment (Lots P-03 & P-04)
- Parking Deck locations / siting, size and traffic flow (potential sites: S. Palmetto at Williamson Road, Lee Hall (Lots E-03 and C-05), and the Brooks Center (Lot C-11)
- Cherry Road improvements (Perimeter Road to Jersey Lane)
- Madren Center pedestrian access and arrival sequence
- Kappa Street conditions
- Fire station access

CHAPTER AT A GLANCE

Perimeter Road Corridor and Parking Study

1. **Introduction & Campus Parking**
   Summary of the planning process and existing campus parking as of June 2020
2. **Perimeter Road Corridor & Surface Parking Improvements**
   Proposed improvements to Perimeter Road, associated intersections, and surface parking throughout the corridor
3. **Realignment Options for Williamson Road & Old Stadium Road**
   Various studies illustrating options and costs for potential road realignments to improve both pedestrian and vehicle safety
4. **Potential Parking Deck Locations**
   Studies illustrating options for potential parking deck sites, including access and capacity
5. **Update to 2017 Long Range Framework Plan**
   Updated illustrative campus plan, including the proposed improvements identified throughout this report

Introduction & Campus Parking

The overarching goal of the study is to coordinate the above noted components with the principles and vision set out in the Long Range Framework Plan for the campus. In considering the mobility objectives for Perimeter Road and the broader campus include:

Prioritize the use of Perimeter Road as the primary day-to-day vehicular access to campus

Prioritize pedestrian movement throughout the campus with a focus on accessibility

Promote and facilitate the use of transit to reduce parking demand in the core of campus

Expand the campus bicycle network through campus and beyond

Enhance the character and continuity of campus through landscape and wayfinding improvements

The Planning Process

The Perimeter Road corridor and Parking Study commenced in February 2020 and concluded in July 2020. It engaged representatives from the Campus Planning and Design Office, Academic Facilities Planning and Operations, Parking & Transportation services, Landscape & Maintenance Services, and Athletics. The study was carried out by Sasaki Associates, Inc. (Sasaki) in partnership with Stantec Consulting Services Inc. (Stantec).

The process included several work sessions both in-person and online to review the content and progress at each stage of the planning process.

Existing Conditions Analysis

The planning process included updating the campus plan to include projects completed since 2017 as well as projects underway or soon to be underway. It also included a review of the existing conditions along the Perimeter Road Corridor, options for integrating each of the proposed projects into the context, and documenting the process and recommendations.

The following provides an overview of the project findings.

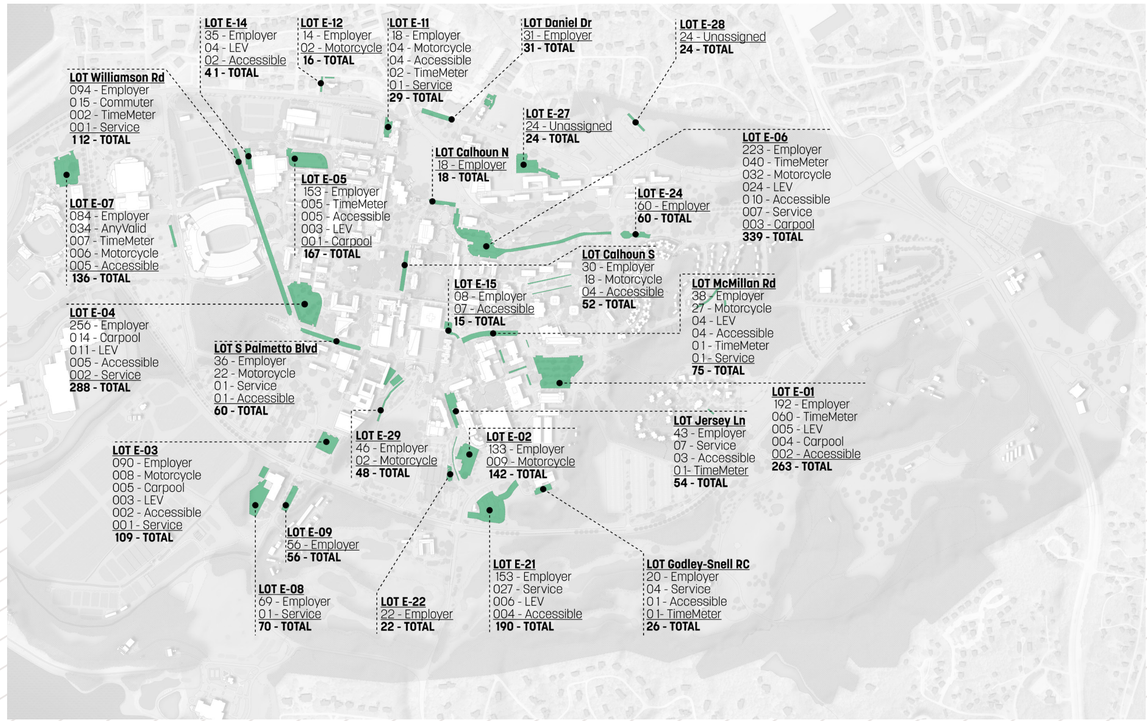
Campus Parking

The existing parking diagrams document the present parking supply on campus. The parking information is based on the 2017 parking inventory prepared by Stantec Consulting Services Inc. as part of the 2017 Clemson University Long Range Framework Plan. In addition, parking projects implemented since 2017 are included.

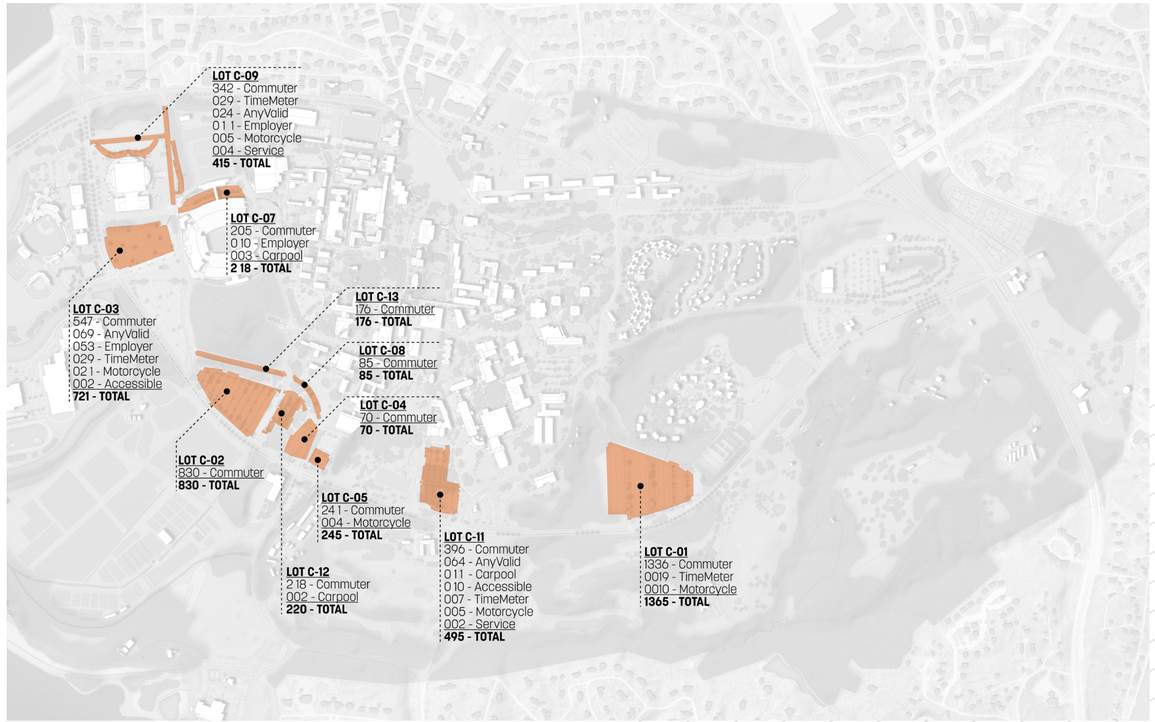
Existing Parking Conditions

The campus parking supply diagram is based on the existing parking CAD plan provided by Clemson Parking & Transportation services, with the majority of spaces being assigned to three primary groups: 1) commuters; 2) employees; and, 3) residents. These diagrams are not intended to suggest a holistic representation of the total parking supply. Rather, they illustrate the general size and distribution of parking for the three primary user groups. Note that each parking lot is identified as either a commuter, employee, or resident parking lot based on the majority of spaces in the lot. Detailed breakdowns indicating quantities for specific parking types at each lot are provided on the diagrams.

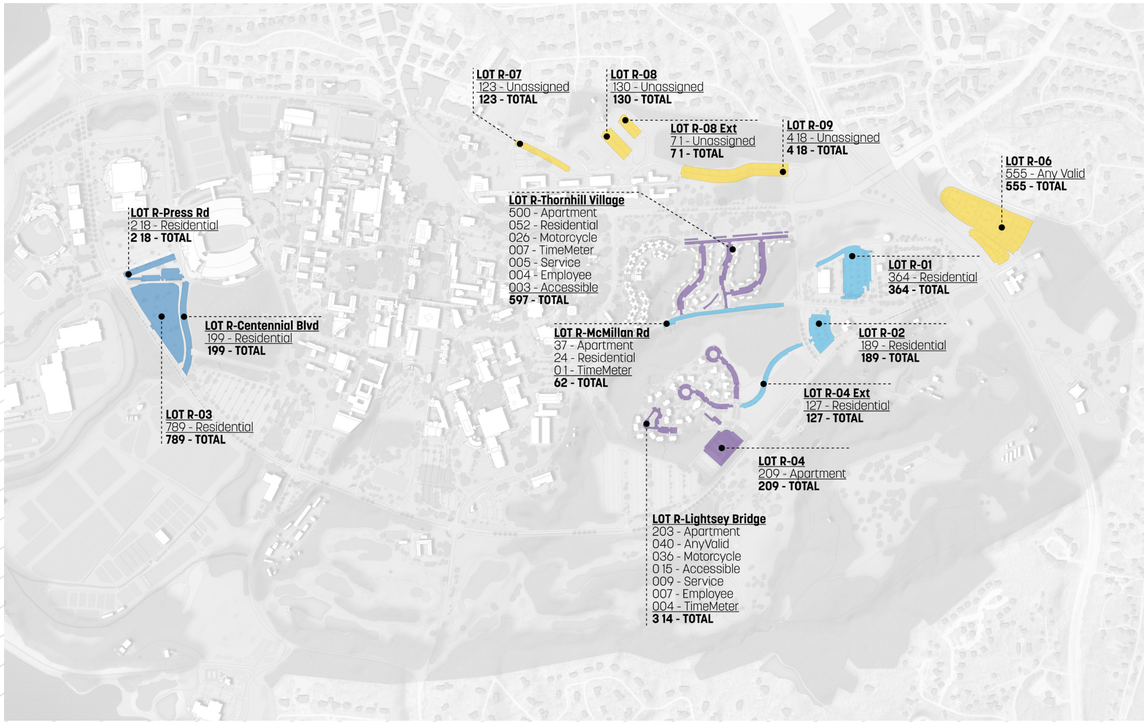
Employee Parking is allocated in parking lots nearest to the campus core with the goal of maximizing accessibility and efficiency for employees of the University.



Commuter Parking is allocated in parking lots along Perimeter Road with the goal of intercepting commuter traffic on the periphery of the campus pedestrian core.



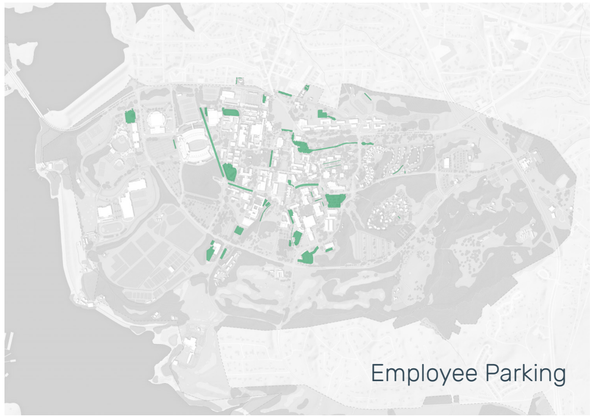
Resident Student Parking is allocated in peripheral lots on the campus and in close proximity to existing housing where possible.



Campus Parking
Subtotals

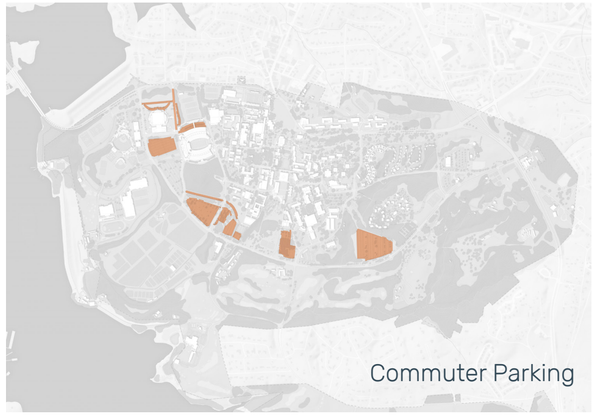
The campus parking supply is allocated to the primary user groups as follows:

- Employee parking is concentrated in the campus core in close proximity to faculty and administrative office spaces. A total of 2,605 spaces are allocated to employees.
- Commuter parking is allocated in the lots with direct access to Perimeter Road. A total of 4,896 spaces are provided.
- Residential parking generally is located on the periphery of the campus core. A total of 4,365 spaces are provided.



Lot	Spaces
E-01	263
E-02	142
E-03	109
E-04	288
E-05	167
E-06	339
E-07	136
E-08	070
E-09	056
E-11	029
E-12	016
E-14	041
E-15	015
E-21	190
E-22	022

Lot	Spaces
E-24	060
E-26	029
E-27	133
E-28	024
E-29	048
Lehotsky	054
Godley-Snell	026
McMillan Rd	075
S. Palmetto	060
Daniel Dr	031
Calhoun Dr	018
Eng. College	052
Perimeter Rd	112
Total	2,605



Lot	Spaces
C-01	1,365
C-02	830
C-02A	056
C-03	721
C-04	070
C-05	245
C-07	218
C-09	415
C-11	495
C-12	220
C-13	176
Total	4,896

Lot	Spaces
R-01	364
R-02	189
R-03	789
R-04	127
R-06	555
R-07	123
R-08	130
R-08 EXT	071
R-09	418
Lightsey Br.	314
Thornhill	597
McMillan	062
Press Rd.	218
Centennial	199
Total	4,365

Perimeter Road & Surface Parking Improvements

The analysis and recommendations for the proposed Perimeter Road and associated surface parking improvements are summarized in this section.

The changes for Perimeter Road focus on widening the cross section from two lanes to four lanes from Cherry Road to Highway 76. The widening is required to handle the increased traffic volume on Perimeter Road resulting from the decision to shift east-west traffic off of WT Cox Boulevard.

West of Cherry Road, the Perimeter Road section currently includes two travel lanes in both directions. Proposed changes west of Perimeter Road include the addition of a central planted median and left-turn lanes where required and the rationalization of the location and number of curb cuts.

Other changes along Perimeter include:

- The introduction of a central, landscaped median and left turning lanes (where needed) along the entire length of the road;
- Multi-purpose trail is on the “campus-side” of Perimeter Road from Highway 76 on the east to WT Cox on the west; and,
- The rationalization of curb cuts and key intersections.

Given the length of Perimeter Road, it is divided into five (5) detailed enlargement study areas from east-to-west as follows:

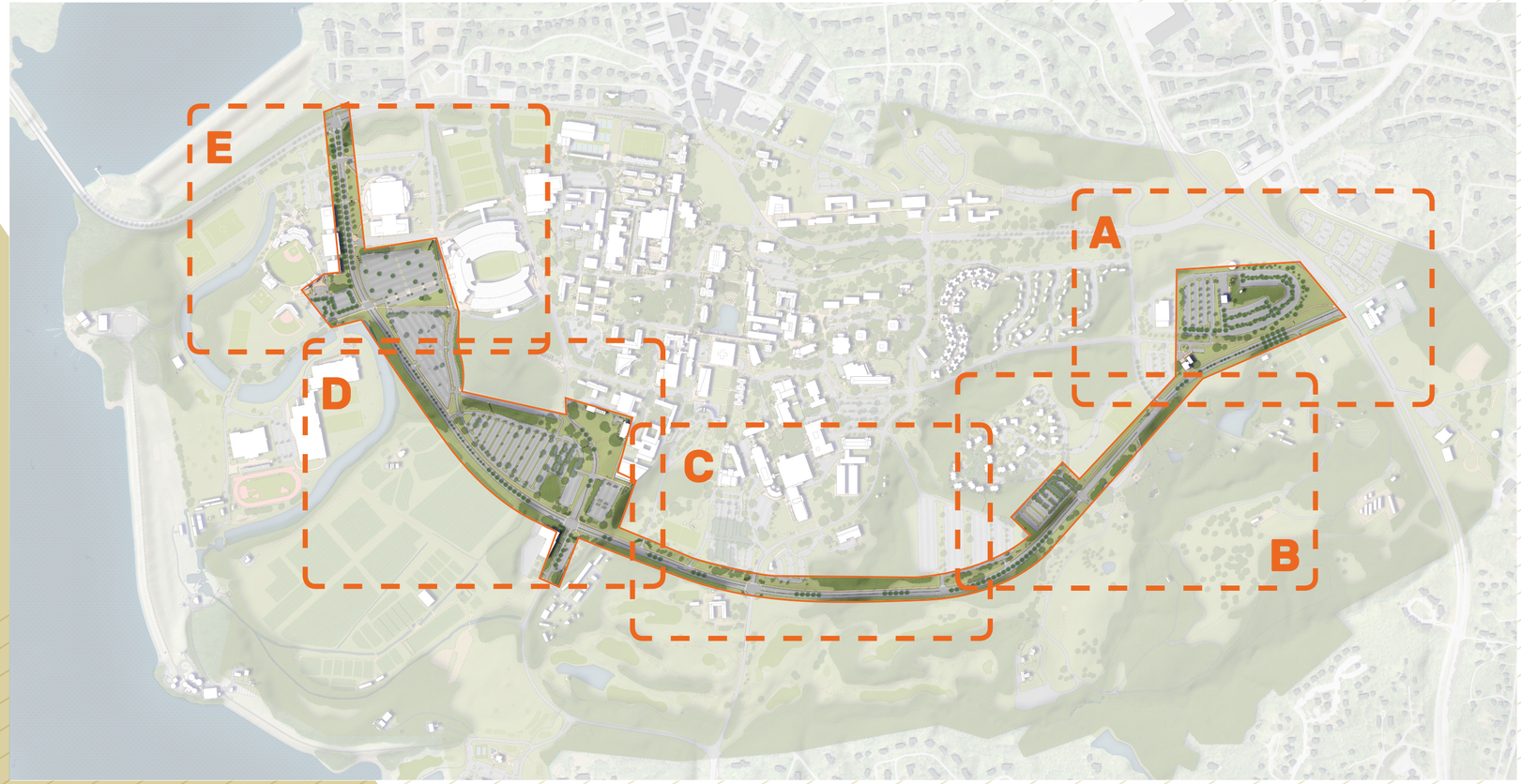
A. US 76 Intersection, Kite Hill, and Fire/EMS Station

B. Theta Kappa Street, Garden Trail, & R-04 Parking Lot

C. Cherry Road, Brooks Center Drive, and Kappa Street

D. Old Stadium & Williamson Roads, & Centennial Blvd.

E. Jervey Meadows, Athletics Precinct, & SC93



Enlargement Area A

US 76 Intersection and Kite Hill Parking Expansion

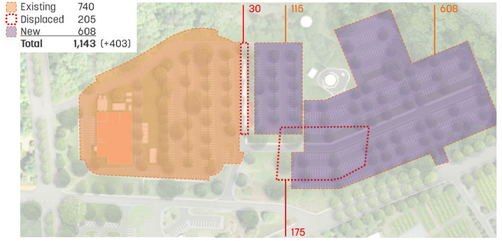
Enlargement Area A of Perimeter Road functions as the east gateway to the campus. It is defined by the topography of Kite Hill, the Clemson water tower and the South Carolina Botanical Gardens. Kite Hill is a prominent feature for those traveling north on Highway 76. Proposed changes and improvements in the area are coordinated with the intent of enhancing the arrival sequence to the campus. Land Use changes include maintaining the existing recycling facility at Kite Hill until such time that is relocated. After relocation, surface parking is planned. The existing Fire/EMS station will be either utilized as a transit hub or demolished to make way for additional parking.

Existing Parking

Existing conditions in Enlargement Area A include the recently constructed power plant at the northeast corner of McMillan and Newman Roads, 565 paved parking spaces and 175 gravel surface spaces for a total of 740 spaces.

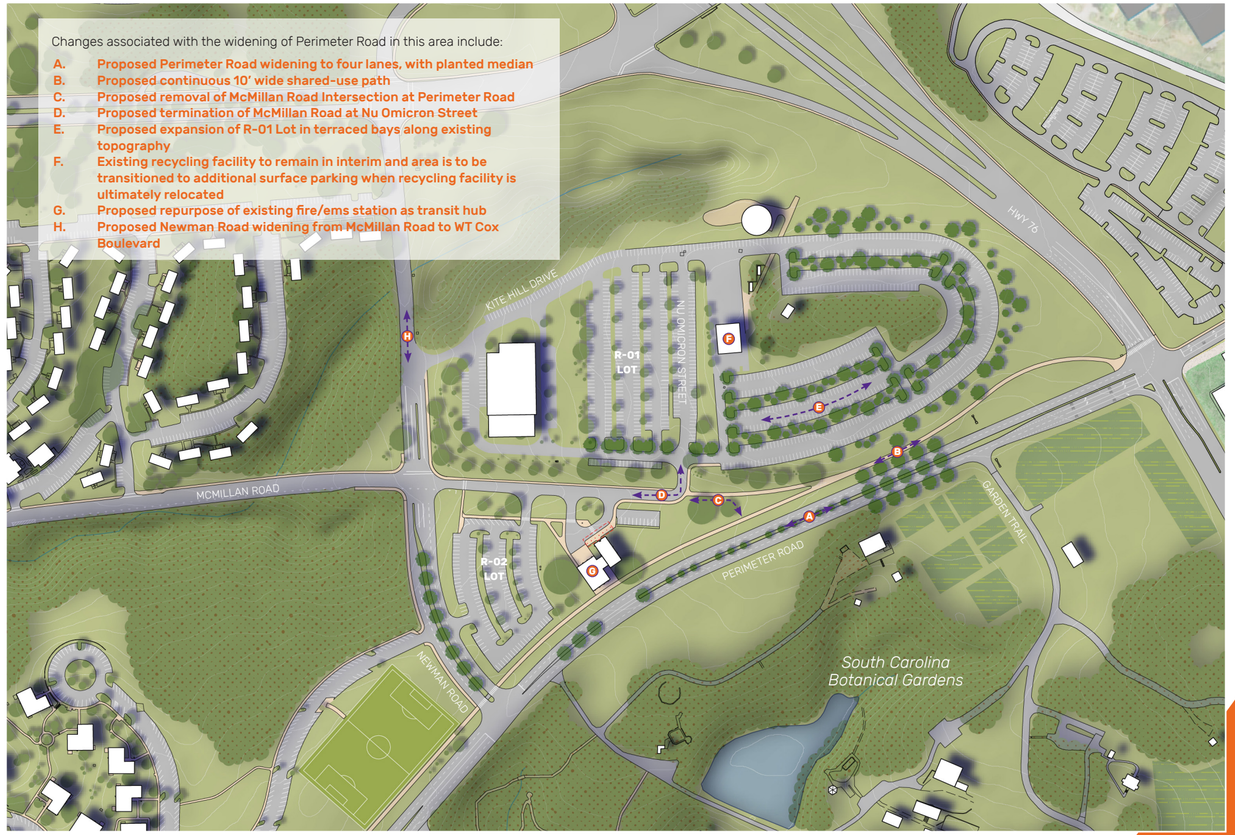
This study examined opportunities for expanding the parking in a curved manner responsive to the topography of Kite Hill. The parking spaces are organized in terraced bays enhanced by a comprehensive tree planting strategy for the medians between parking isles and along the periphery of the parking lots. The goal is to enhance this highly visible and prominent gateway to the campus.

Existing Condition



2017 Framework Plan

Proposed Enhancements



Enlargement Area A

Fire / EMS Station

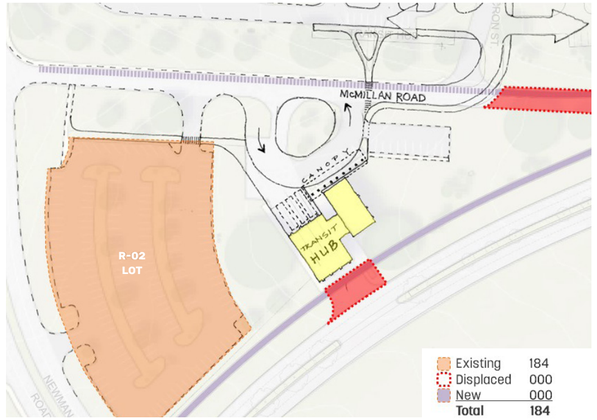
It is understood that the existing fire and EMS functions will be relocated to a new facility east of Highway 76. Two options are suggested for the future use of the site and the building. Option 1 examines the reuse of the building as a transit hub for the CATS system. Option 2 examines the demolition of the building to provide an expanded parking area.

Fire / EMS Station from Perimeter Road

Fire / EMS Station from McMillan Road

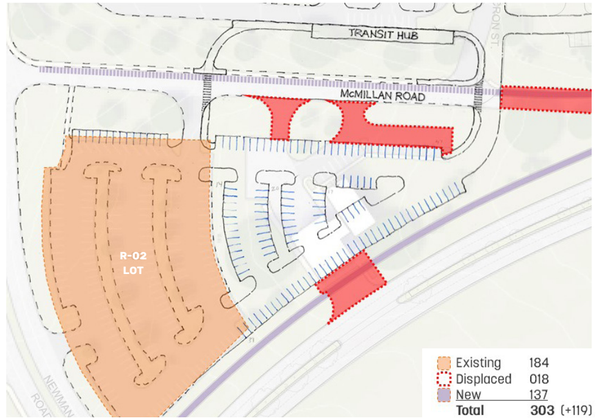
Existing Condition

The Fire / EMS Station site includes the three-bay fire station and associated residential and administrative facility as well as supporting parking. The site also includes Parking Lot R2 with 189 spaces allocated for residential users. Vehicle access is provided from both McMillan and Perimeter Roads.



Option 1: Transit Hub

In this option, the facility is converted for bus maintenance, a driver lounge and potentially, transit user lounge. It would function as transit hub for the users of the existing and expanded Kite Hill parking area. Passenger waiting areas are proposed on the north side of the facility along with a reconfigured paved area to accommodate bus queueing and passenger waiting. A canopy is proposed to provide a covered area for commuters waiting for buses providing access to the campus core.



Option 2: Parking Expansion

In this option, the existing station is demolished to make way for an expansion of Lot R2. The expansion includes an additional 119 spaces.

Enlargement Area A

Botanical Garden Access

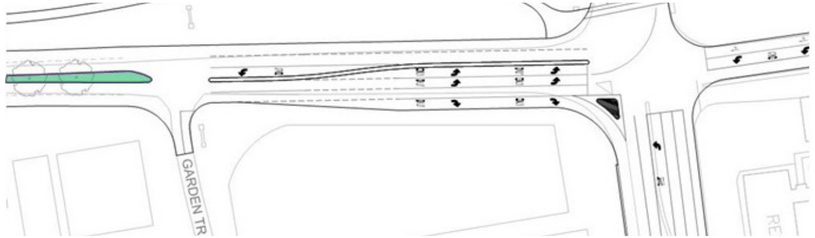
The proposed changes to Perimeter Road are coordinated with preliminary plans for access to the South Carolina Botanical Gardens which include enhancements to the Garden Trail east entrance, additional paved and overflow parking, and bus parking areas.

Prior to receiving the details for the Garden Trail east entrance, the intersection of Perimeter Road and Highway 76 was configured to allow left and right turns out of the Botanical Gardens.

Given the additional traffic and potential impact on the Highway 76 Intersection associated with the proposed east entrance, left and right turns out of the Botanical Gardens are not recommended. Instead, two options are provided on the facing page for consideration.

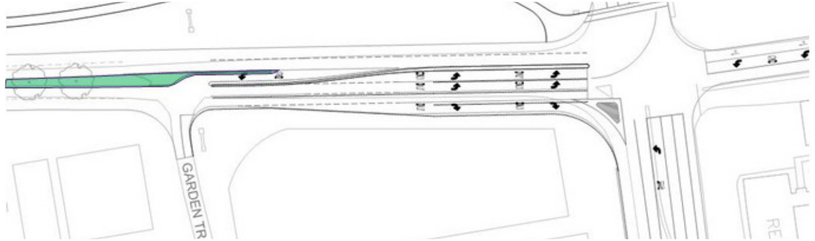
Pre-Design Concept

This diagram represents a pre-design concept that was prepared for Clemson prior to this study. This configuration would maximize turning movements at this intersection, which could cause traffic issues, particularly in the left turn lanes approaching Highway 76. Therefore, this intersection configuration at Garden Trail is not recommended and two options are provided for further consideration.



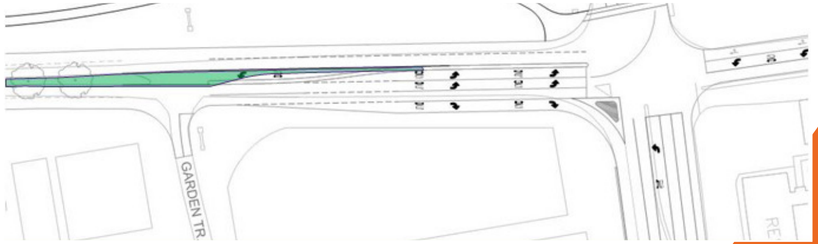
Option A

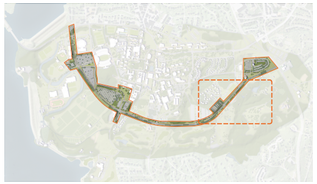
Option A illustrates a configuration that allows for left turns into the Botanical Gardens at Garden Trail east from Perimeter Road. Left turns out from Garden Trail east are prohibited deliberately by the proposed median layout. Right-in and right-out turning movements are permitted.



Option B

Option B illustrates the preferred configuration for the intersection of Garden Trail east and Perimeter Road. The proposed median configuration in this option limits vehicular movement to right-in and right-out turns only, while also extending the left-turn storage at the intersection with Highway 76.





Enlargement Area B

Theta Kappa Street, Garden Trail, & R-04 Parking Lot

Enlargement Area B focuses on the segment of Perimeter Road from the Theta Kappa Street and Garden Trail west intersection on the east to the west entry to the C-01 Parking lot.

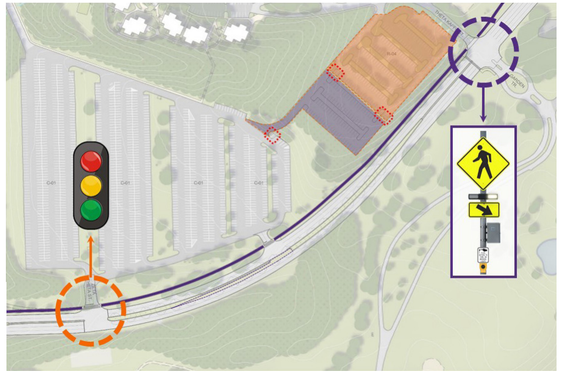
Theta Kappa Street is located north of Perimeter Road and provides access to the Lightsey Bridge residential area. Garden Trail west is located south of Perimeter Road and serves as the main entrance to the South Carolina Botanical Garden.

Proposed changes to Perimeter Road in this area include widening the road from two to four lanes, the introduction of a central median, and turning lanes at the C-01 Parking Lot west entrance and at the Theta Kappa – Garden Trail intersection. The multi-use trail located north of Perimeter Road is extended through this area.

A traffic signal was proposed at the C-01 Lot entrance and has recently been installed to accommodate left turns into and out of the 1,365 space parking lot. This traffic signal infrastructure will likely need to be modified to accommodate the widening of Perimeter Road.

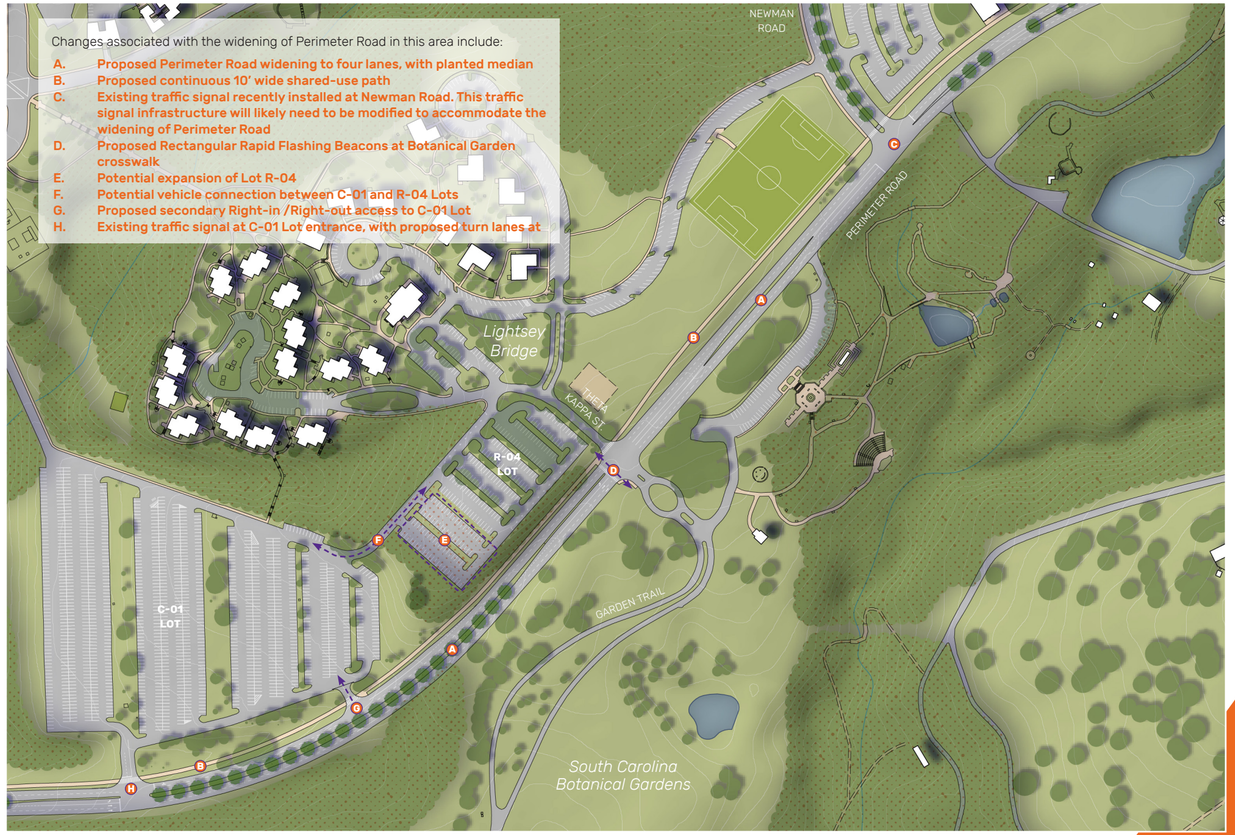
Rectangular Rapid Flashing Beacons are proposed at the Theta Kappa Street / Garden Trail west intersection to enhance the pedestrian crossing leading into and out of the Botanical Gardens. Rapid Flashing Beacons are designed for "on-call" use only when needed by pedestrians.

The potential expansion of Lot R-04 is illustrated to provide a net increase of 71 parking spaces and to connect the C-01 and R-04 lots for improved car and transit circulation.



Parking Detail: R-04

Existing	209	
Displaced	009	
New	080	
Total	280	(+71)



Enlargement Area C

Cherry Road, Brooks Center Drive, and Kappa Street

Area C extends from the C-01 parking entrance on the east to the Kappa Street entrance on the west. It includes two important gateway intersections: Cherry Road and Kappa Street.

Cherry Road

Cherry Road serves as an important north-south route through the campus connecting WT Cox Boulevard and Perimeter Road and points to the south such as the Madren Conference Center and Inn. It also serves as the gateway to the central campus and provides access to major public venues such as the Brooks Center for the Performing Arts and the Hendrix Student Center.

Landscape and signage improvements are recommended for the Cherry Road – Perimeter Road intersection to enhance the gateway and wayfinding experience. This potentially includes the introduction of new gateway elements such as the stone pillars utilized elsewhere on campus to signal the importance of the intersection as an entrance into the campus. New landscape planting strategies also are recommended to help define the gateway as an important wayfinding decision point along Perimeter Road.

Kappa Street

Kappa Street provides access to the Class of 1944 Visitor Center. To facilitate wayfinding and access, new landscape and signage elements are proposed for the Kappa Street - Perimeter Road intersection with the goal of creating a more memorable gateway.

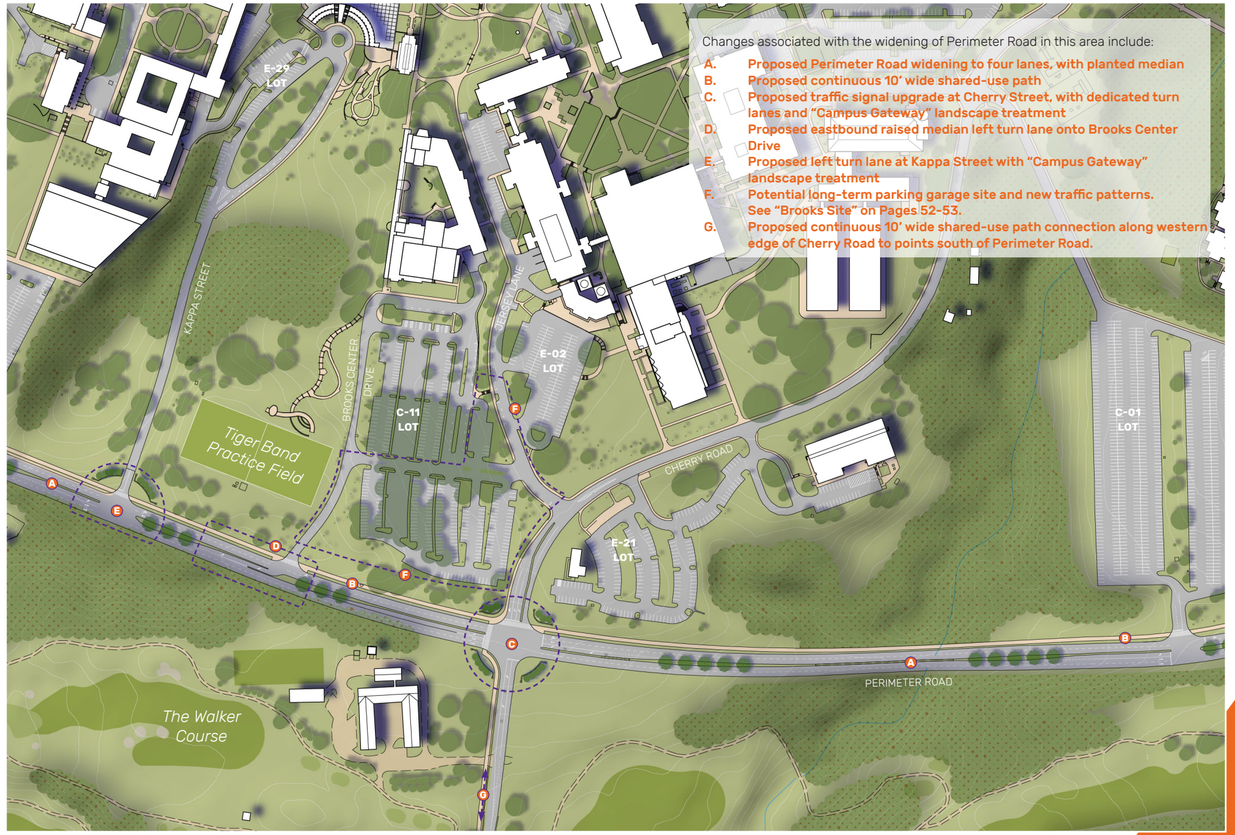
Perimeter Road Changes

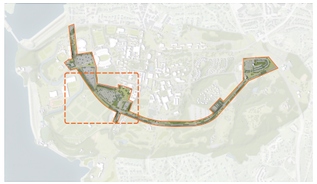
Changes to the Perimeter Road and Cherry Road circulation patterns include a widened cross section to four travel lanes east of Cherry Road, a central median and new left turning lanes at the Cherry Road - Perimeter Road intersection. The proposed left turn movements include the east bound left on to Cherry Road north from Perimeter; west bound left on to Cherry Road south from Perimeter; two left turn lanes from Cherry Road north on to Perimeter Road east bound and a left turn lane from Cherry Road south on to Perimeter Road west.

Modifications to Perimeter Road west of the Cherry Road intersection include the addition a central planted median and left turn lanes where required. Additional left turn lanes are proposed for east bound traffic at Kappa Street and at Brooks Center Drive - the south entrance to Lot C-11.

Campus Gateways

The importance of the gateway to a college or university campus cannot be overstated. Gateways may act as ceremonial entrances to the campus, define campus or prescinct boundaries, and assist in wayfinding. Images A and B, right, show the stone walls and median plantings that mark the primary entrance to campus on WT Cox Boulevard - a welcome first impression for visitors. Image C is a similar style stone threshold at the eastern edge of Perimeter Road, while the Botanical Gardens entry gates, Image D, mark a pronounced gateway into that campus prescinct. The design of gateways and their hierarchy should be conscious of the image that the university maintains, yet responsive to the distinct role of the gateway at different campus locations.





Enlargement Area D

Old Stadium & Williamson Roads, & Centennial Blvd

Enlargement Area D extends from Kappa Street on the east to Centennial Boulevard on the west. Key considerations in this area include:

- Safety of pedestrians, including grounds crews
- Improved vehicular flows related to the Williamson - Old Stadium intersection misalignment
- Future development capacity near Lee Hall
- Existing surface parking

Area D includes the offset intersections of Old Stadium Road (south of Perimeter Road) and Williamson Road (north of Perimeter Road). These offset intersections result in undesirable traffic patterns and contributes to safety concerns associated with the grounds services facility located south of Perimeter Road. Movement of slow moving equipment from the Grounds Services Facility to the central campus results in safety concerns as the service vehicles attempt to cross Perimeter Road without the protection of a traffic signal. The offset intersections, combined with the service vehicle safety concern, is a key driver for the proposed intersection changes in this area.

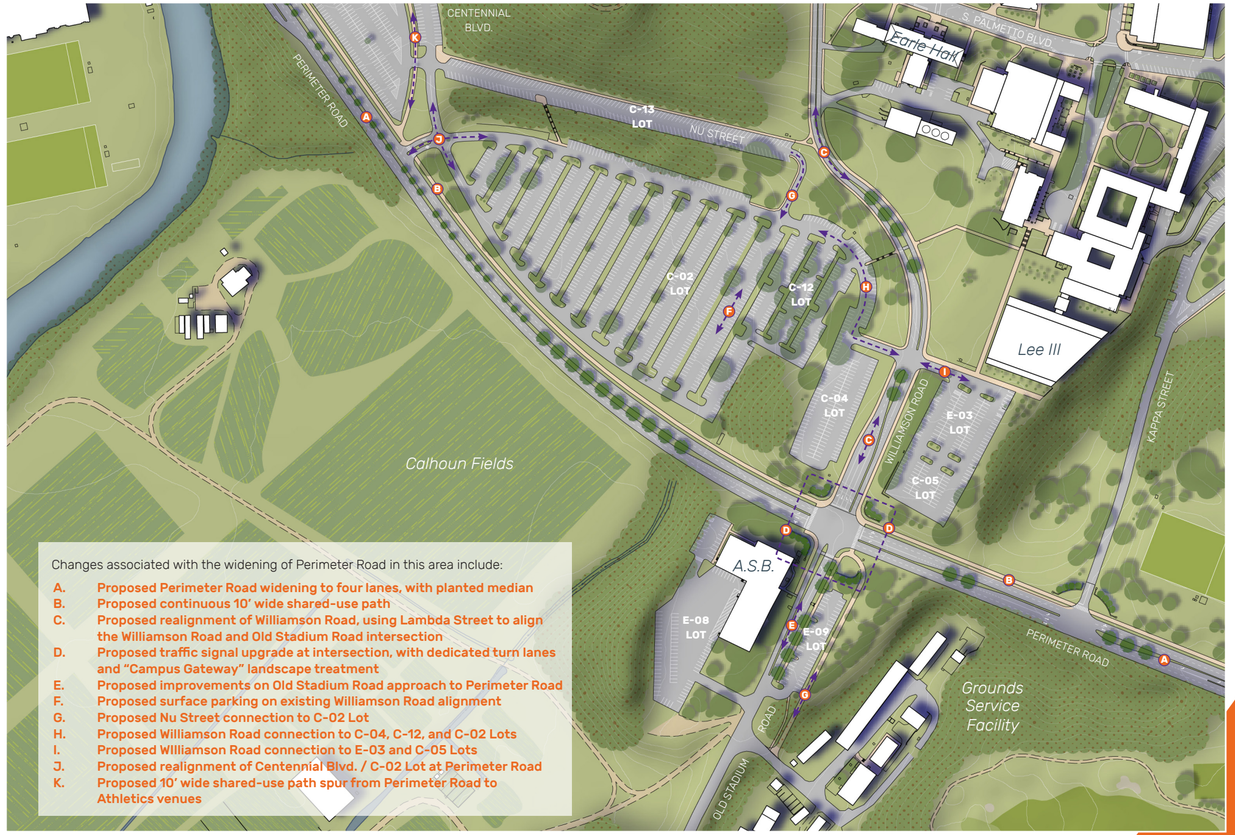
To address these issues, Lambda Street is realigned to connect directly to Old Stadium Drive, thereby creating a single, consolidated intersection and crossing point. Lambda Street also is realigned to create a seamless connection to Williamson Road and in doing so effectively links Williamson Road and Old Stadium Drive. The existing segment of Williamson Road extending from Lambda Road on the north to Perimeter Road on the south is vacated and utilized to create additional parking between Lots C-02 and C-12.

South of Perimeter Road, new pathways are provided to connect the Grounds Services Facilities to the Old Stadium intersection, thereby providing an improved crossing point for grounds equipment. Pedestrian connections to the Madren Alumni Center also are proposed.

North of Perimeter Road, the realigned Lambda Street is coordinated with land use plans to the west and south of Lee Hall. Future uses in this area include new engineering facilities, including CECAS.

Centennial Boulevard

The Centennial Boulevard intersection is reconfigured such that it aligns at a 90 degree angle with Perimeter Road. Centennial Boulevard itself is realigned to flow directly into Lot C-02.



Existing Condition at entrance to Athletics Precinct from SC93

Enlargement Area E

Jervey Meadows, Athletics Precinct, & SC93 Intersection

Enlargement Area E extends from the Jervey Meadows intersection on the south to the SC 93 - WT Cox Boulevard intersection on the north. Improvements to the Perimeter Road cross section include a central planted median with left turning lanes at the Jervey Meadows - Press Road intersection (southbound); at the E. Beach Drive intersection (northbound); and two left turn lanes from Perimeter Road on to SC 93 westbound. The multi-use path continues northward through this area to connect with Ravenel Road.

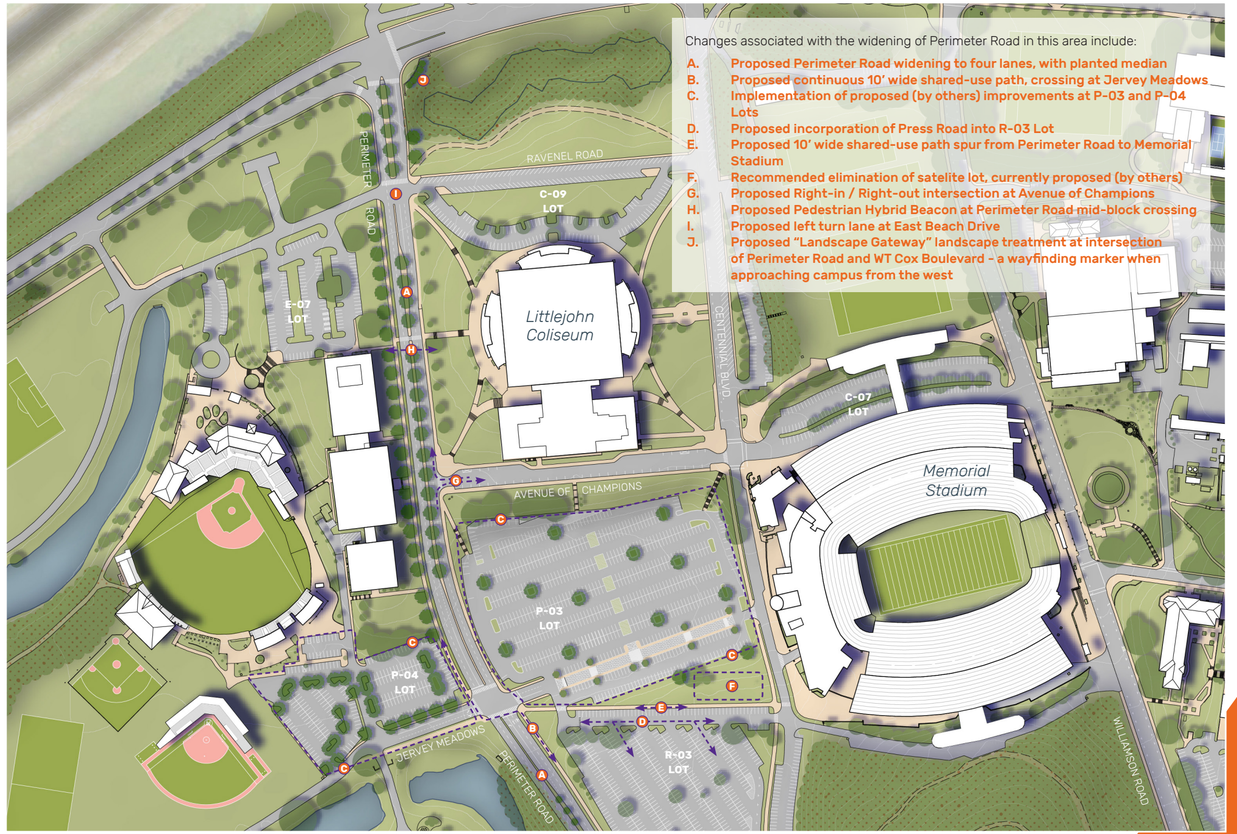
Intersection improvements are proposed to realign Press Road (east of Perimeter) to connect directly with Jervey Meadows (west of Perimeter). This change is coordinated with a proposed pedestrian promenade and landscape corridor leading from Perimeter Road to west side of Memorial Stadium on axis with Oculus.

It also is coordinated with the expansion of Lot R-03. As a result of these changes, Press Road from Centennial Boulevard and Perimeter Road is integrated into Lot R-03 and a new pedestrian pathway is provided to connect the Jervey Meadows intersection with Centennial Boulevard.

Perimeter Road pedestrian crosswalks in this area are proposed at the Jervey Meadows intersection and on the central axis of the Littlejohn Coliseum. The existing crossing point at the Avenue of Champions is eliminated.

Campus Gateways

With all of the recent and proposed vehicle circulation around campus, Perimeter Road will become a preferred route. While the existing entrance to campus at Perimeter Road is rather generic and austere in experience. However, there is ample landscape area along Perimeter Road - for example, from WT Cox Boulevard to Avenue of Champions - to establish a more memorable and graceful first impression of the University.



Changes associated with the widening of Perimeter Road in this area include:

A. Proposed Perimeter Road widening to four lanes, with planted median
B. Proposed continuous 10' wide shared-use path, crossing at Jervey Meadows
C. Implementation of proposed (by others) improvements at P-03 and P-04 Lots
D. Proposed incorporation of Press Road into R-03 Lot
E. Proposed 10' wide shared-use path spur from Perimeter Road to Memorial Stadium
F. Recommended elimination of satelite lot, currently proposed (by others)
G. Proposed Right-in / Right-out intersection at Avenue of Champions
H. Proposed Pedestrian Hybrid Beacon at Perimeter Road mid-block crossing
I. Proposed left turn lane at East Beach Drive
J. Proposed "Landscape Gateway" landscape treatment at intersection of Perimeter Road and WT Cox Boulevard - a wayfinding marker when approaching campus from the west

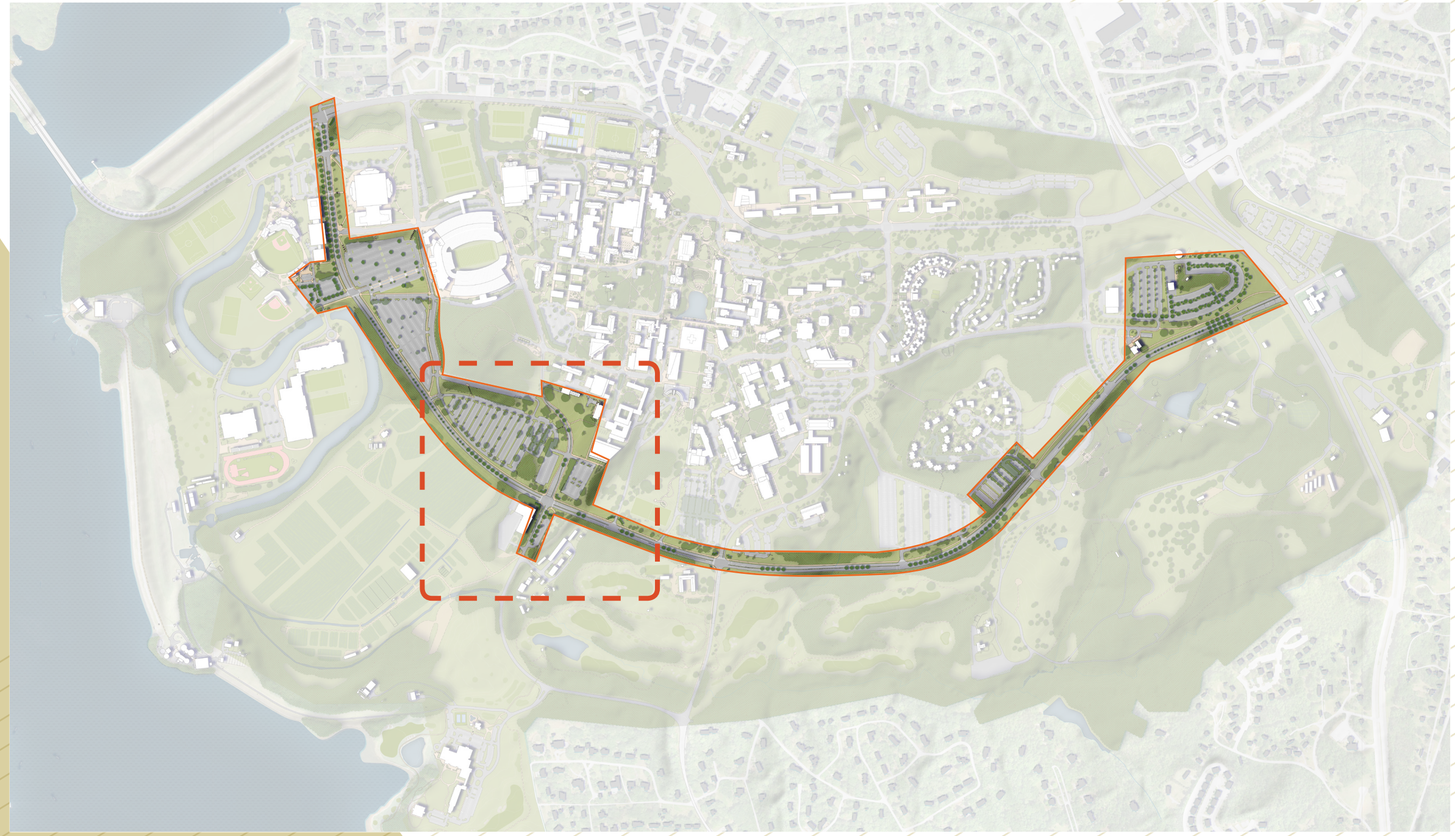
Old Stadium Road & Williamson Road Realignment Options

The analysis and recommendations for the proposed intersection realignment options for Williamson and Old Stadium Roads, as well as subsequent surface parking improvements, are summarized in this section.

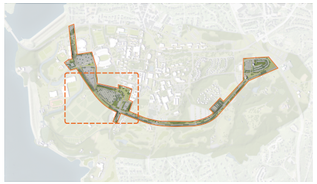
The above noted Old Stadium Road and Williamson Road intersection recommendations are the outcome of a detailed review of several options. Old Stadium Road is located south of Perimeter Road and Williamson Road, north. At one time Old Stadium Road continued north of Perimeter Road generally following the alignment of Lambda Street. This section provides an overview of the options considered in this planning study. The options build upon previous work completed by LPA, a civil engineering firm.

In working through the various options, the following objectives guided the work:

- **Align the Williamson Road and Old Stadium Road intersections to facilitate traffic movement**
- **Provide direct pathways from the Ground Facilities Complex to the central campus north of Perimeter Road**
- **Minimize the cost associated with intersection and roadway improvements**
- **Reserve the land west and south of Lee Hall for future academic and research facilities**



KEYPLAN
This plan shows the proposed Williamson and Old Stadium Road intersection at Perimeter Road in the context of the extensive vehicle and pedestrian improvements proposed in this study. This intersection is a nexus that ties many proposed improvements together at this critical juncture.



At a Glance

Old Stadium Road & Williamson Road Realignment Options

The planning study explored four options for the Old Stadium Road and Williamson Road intersection. The study area extends from the Administrative Services Building south of Perimeter Road to Lambda Street on the north. The Long Range Framework Plan identifies the area north of Perimeter Road (south and west of Lee Hall) for future academic and research facilities.

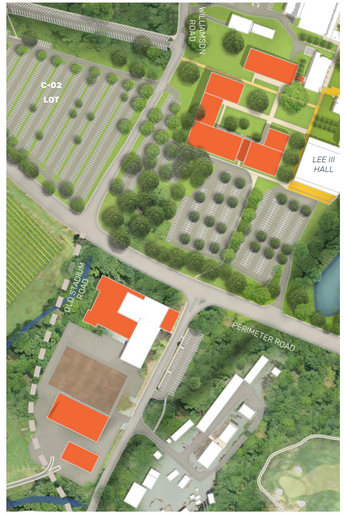
Existing conditions in the area of the Old Stadium Road and Williamson Road intersection include a number of parking lots north of Perimeter Road. The Administrative Services Building and the Grounds Services Facilities are located south of the Perimeter Road along with associated parking. In total, the area includes 879 parking spaces.

This section provides a high-level review of estimated costs, impacts to parking, and long-term

Existing Surface Parking

This campus prescinct is an important area for surface parking, as it contains multiple parking lots for employees and commuters. Realignments to existing roads throughout this prescinct will have an effect on existing surface parking counts.

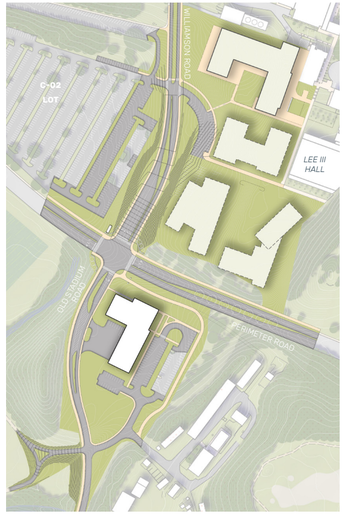
Existing	879
Displaced	000
New	000
Total	879



Option A: Long-Term Framework Plan

Option A illustrates the recommendations of the 2017 Long Range Framework Plan which include realigning Old Stadium Road to connect directly with the existing Williamson Road intersection. This requires a new roadway segment to link Old Stadium Road to the intersection. It also requires a culvert at Hunnicut Creek. Changes to the Creek are anticipated to require special permitting.

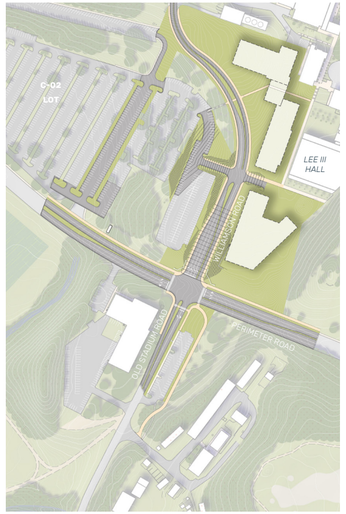
- **+/- $7M Total Project Cost**
- **No impacts to surface parking**
- **450,000 GSF development capacity**



Option B

Option B illustrates a variation on Option A. It includes a new roadway segment from Old Stadium Road and moves the Williamson Road intersection east of the current location. In doing so, the proposed road and intersection locations do not interfere with Hunnicutt Creek.

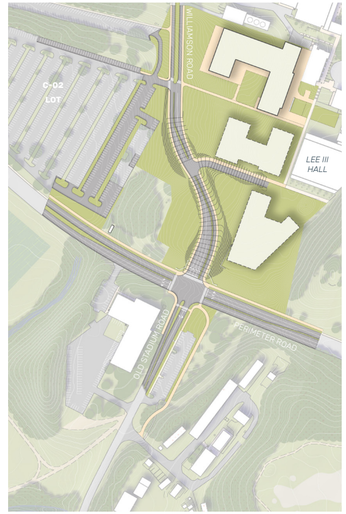
- **+/- $12,188,625 Total Project Cost**
- **-(22) net surface parking loss**
- **600,000 GSF development capacity**



Option C

Option C illustrates the most straightforward approach. In this option, Williamson Road is realigned to follow the existing Lambda Street and connect directly with Old Stadium Road.

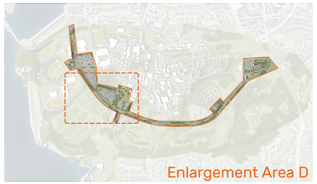
- **+/- $2,842,380 Total Project Cost**
- **-13 net parking loss**
- **375,000 GSF development capacity**



Option D

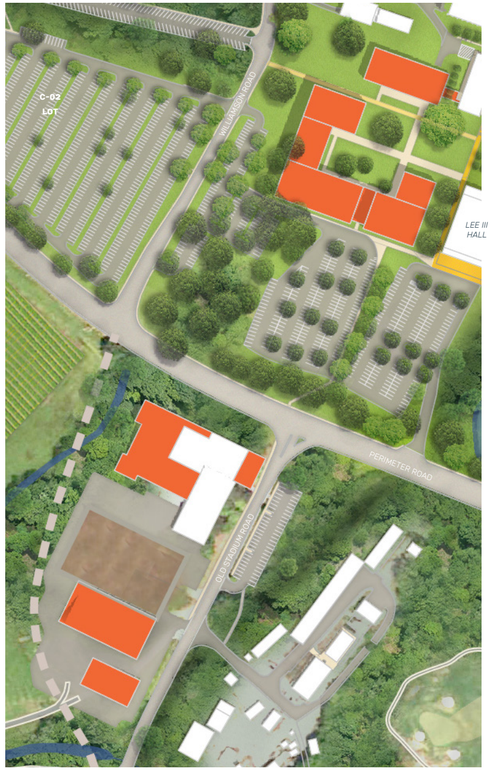
Option D illustrates a combination of Options B & C, whereby the intersection at Perimeter Road is still moved east to align with Old Stadium Road, but Lambda Street is eliminated altogether to maintain as large of a future development area as possible to the east of Williamson Road.

- **+/- $4,894,880 Total Project Cost**
- **-325 net parking loss**
- **450,000 GSF development capacity**

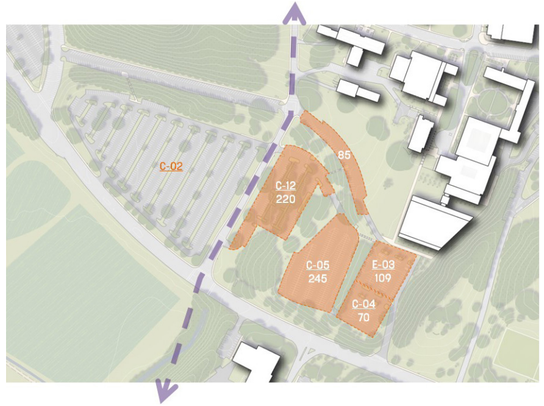


Old Stadium Road & Williamson Road Realignment Option A

Option A extends Williamson Road south to the south of Perimeter Road to connect with Old Stadium Road. This requires a culvert at Hunnicutt Creek and a new roadway segment south of the Administrative Services Building to link with Old Stadium Road. Given the culvert and other alterations required in the area of the Creek, special permitting is anticipated.



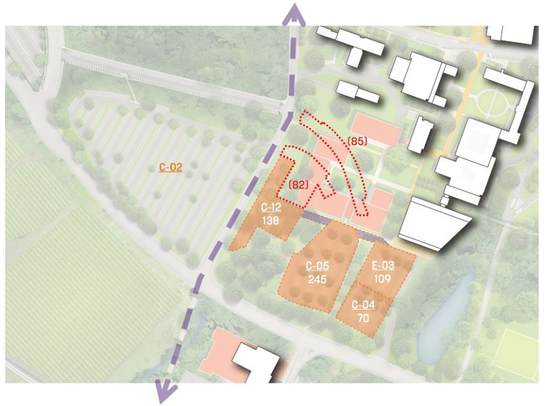
2017 Long-Term Framework Plan



Near-Term Impacts to Existing Surface

As noted, the land north of Perimeter Road is reserved in the Long Range Framework Plan to accommodate future academic and research expansion. Given the limited changes proposed, north of Perimeter Road, there are no losses in parking or future land use areas.

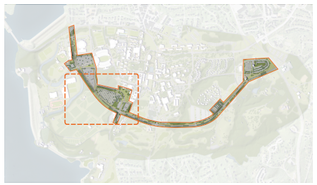
Existing	729
Displaced	000
New	000
Total	**729** (-000)



Long-Term Impacts to Existing Surface

Future academic and research expansion north of Perimeter Road is estimated at 450,000 sf as illustrated in the Long Range Framework Plan. Expansion results in the loss of 167 parking spaces along the Lambda Street alignment.

Existing	729
Displaced	167
New	000
Total	**562** (-167)

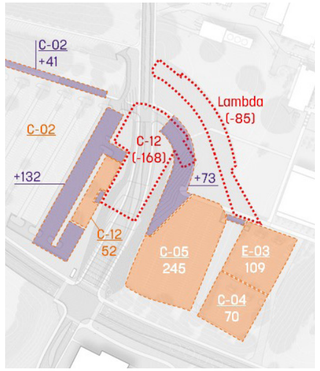


Old Stadium Road & Williamson Road Realignment Option B

Option B relocates the Williamson Road intersection to the east and includes a new road segment south of the Perimeter Road to connect with Old Stadium Road. A new intersection at Gama Street / Ground Service Drive is also required.

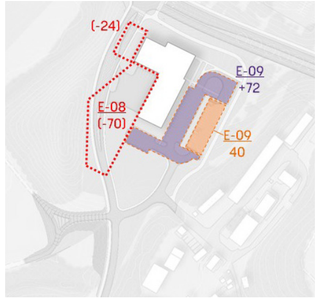
The area of site intervention associated with Option B extends from Lambda Street on the north to Gama Street on the south. In addition to the new roadway alignments, it results in the loss of 347 parking spaces north of Perimeter Road some of which can be replaced in new parking lots in the study area. A total of 325 spaces are possible in the reconfigured lots resulting in a loss of 22 spaces.

Parking losses south of Perimeter Road occur to the west of the Administrative Services Building. Seventy-two of these spaces are replaced to the east of the building.

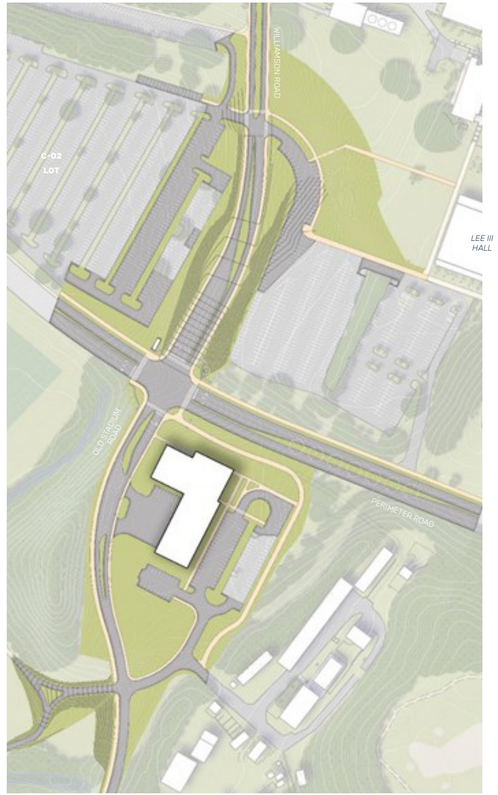


Parking Impacts North of Perimeter Road

Existing	879	
Displaced	347	
New	325	
Total	**857**	(-022)



Parking Impacts South of Perimeter Road



Near-Term Concept Plan

Concept Estimate of Probable Project Costs

- Primary Roadway Work
- Additional Roadway work
- Parking Lots

The extent of the project area results in costs associated with the new roadway alignments, parking lot reconfiguration, new walkways, earthwork, utilities and landscape and renovations to the Administrative Services building (to provide a new entry adjacent to the relocated parking area). Note that these probable costs include the Primary Roadway Work costs prepared by LPA as part of their 2019 Perimeter Connectivity Feasability Study. Additionally, note that the "Earthwork, Utilities, Landscape" allowance was calculated as 30% of the subtotal of Additional Work items.

Primary Roadway Work

$10,000,000	Roadway Work Project Cost (LPA)

Additional Work

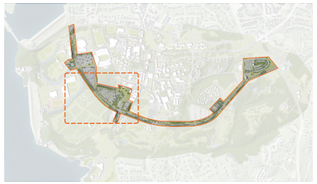
$ 15,000	Additional Roadway work (88 LF)
$ 56,000	Curb & Gutter (7,675 LF)
$ 932,750	Parking Lots (325 spaces)
$ 143,350	Concrete Sidewalks (2,560 LF)
$ 344,150	Earthwork, Utilities, Landscape
1,491,250	Add. Work Const. Costs Subtotal
$ 447,375	Soft Costs (30% of Const. Costs)
$ 250,000	ASB Lobby Renovation Allowance
$ 2,188,625	Add. Work. Total Project Costs

$12,188,625 Option B Est. Project Costs

Impacts to Academic Development Capacity

The Development Capacity illustrated in Option B totals 600,000 sf in four buildings including the preliminary design for the new CECAS building proposed to the west of Lee Hall.

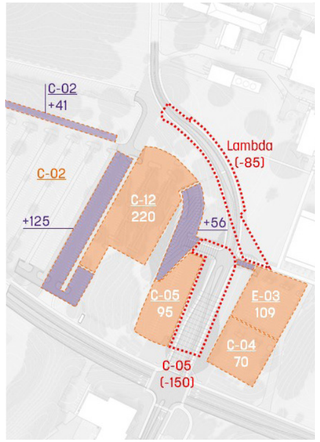
Long-Term Concept Plan



Old Stadium Road & Williamson Road Realignment Option C

Option C illustrates the most straightforward approach to roadway realignment. In this option, Williamson Road is diverted eastward onto the existing Lambda Street to connect with an extension of Old Stadium Road.

Extending Old Stadium Road northward to connect with Lambda Street results in the loss of 150 spaces of parking in Lot C-05 and 85 spaces along the Lambda Street alignment for a total loss of 235 spaces. To offset the losses, 125 new spaces are proposed along the former Williamson Road alignment, effectively expanding lot C-02. Lot C-05 and Lot C-12 are linked by new parking for an additional 56 spaces.

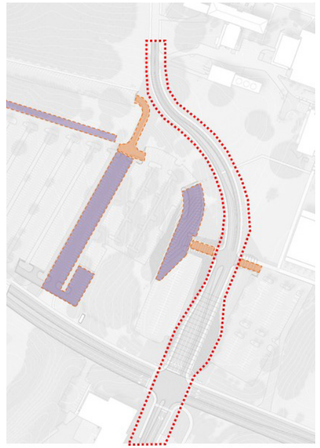


Surface Parking Impacts

Existing	729	
Displaced	235	
New	222	
Total	**716**	(-013)

This option results in the loss of 235 spaces total in the following lots: Lambda (85); C-05 (150). Proposed replacement parking includes 166 spaces added to Lot C-02, 56 spaces added to Lot C-05.

Near-Term Concept Plan



Primary Roadway Work

$ 1,500,000	Roadway Work Project Cost (LPA)

Additional Work

$ 63,750	Additional Roadway work (375 LF)
$ 30,750	Curb & Gutter (4,185 LF)
$ 637,150	Parking Lots (222 spaces)
$ 62,750	Concrete Sidewalks (1,120 LF)
$ 238,200	Earthwork, Utilities, Landscape
1,032,600	Add. Work Const. Costs Subtotal
$ 309,780	Soft Costs (30% of Const. Costs)
$ 1,342,380	Add. Work. Total Project Costs

$ 2,842,380 Option C Est. Project Costs

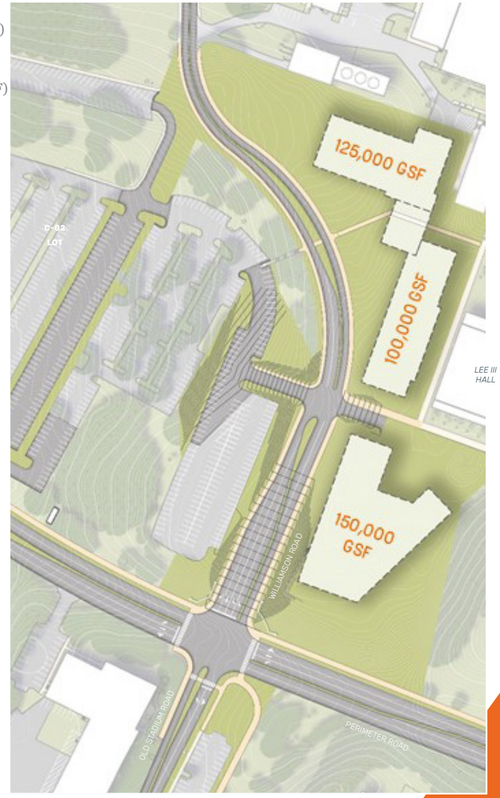
Concept Estimate of Probable Project Costs

- Primary Roadway Work
- Additional Roadway work
- Parking Lots

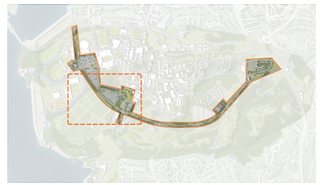
Costs associated with this option total include roadway extension, realignment and new parking areas. Note that these probable costs include the Primary Roadway Work costs prepared by LPA as part of their 2019 Perimeter Connectivity Feasability Study. Additionally, note that the "Earthwork, Utilities, Landscape" allowance was calculated as 30% of the subtotal of Additional Work items.

Impacts to Academic Development Capacity

Development Capacity in Option C totals 375,000 sf in three buildings. The roadway alignments prohibit the preliminary design for the CECAS building proposed to the west of Lee Hall.

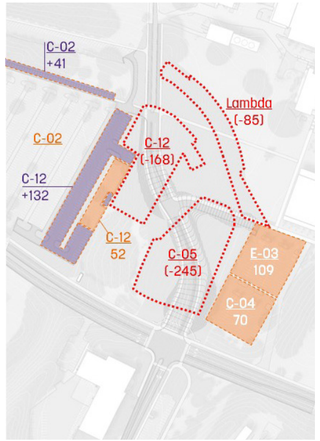


Long-Term Concept Plan



Old Stadium Road & Williamson Road Realignment Option D

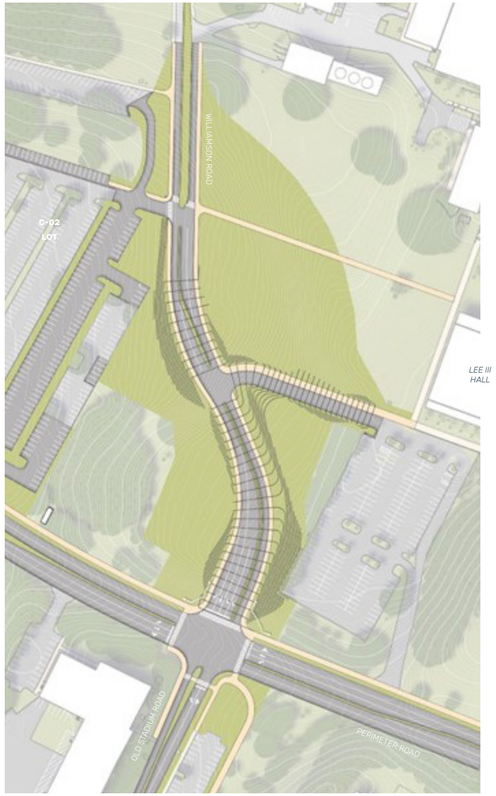
Option D illustrates the realignment of Williamson Road to connect directly with the existing Old Stadium Road intersection.



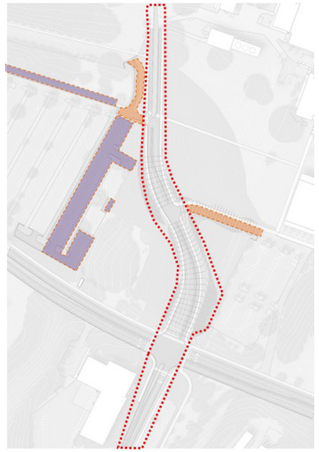
Surface Parking Impacts

	Existing	729
	Displaced	498
	New	173
	Total	**404** (-325)

This option results in the loss of 498 spaces total in the following lots: Lambda (85); C-12 (168); C-05 (245). Proposed replacement parking includes 173 spaces added to Lot C-02.



Near-Term Concept Plan



Primary Roadway Work
Additional Roadway work
Parking Lots

Primary Roadway Work

$ 3,000,000	Roadway Work Project Cost (LPA)

Additional Work

$ 78,800	Additional Roadway work (465 LF)
$ 35,500	Curb & Gutter (4,845 LF)
$ 932,750	Parking Lots (325 spaces)
$ 74,200	Concrete Sidewalks (1,325 LF)
$ 336,350	Earthwork, Utilities, Landscape
1,457,600	Add. Work Const. Costs Subtotal
$ 437,280	Soft Costs (30% of Const. Costs)
$ 1,894,880	Add. Work. Total Project Costs

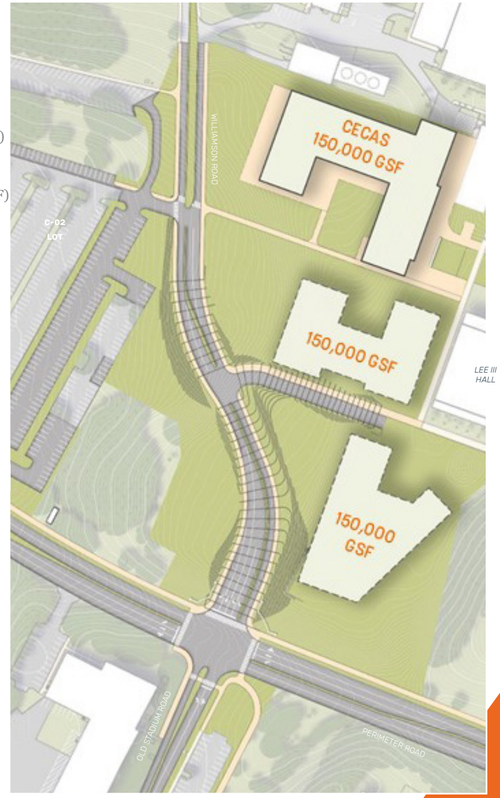
$ 4,894,880 Option D Est. Project Costs

Concept Estimate of Probable Project Costs

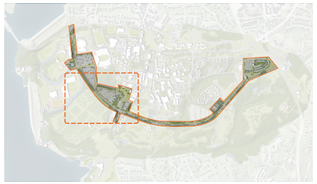
Costs associated with this option include the realignment of Williamson Road, new parking areas and intersection improvements. Note that these probable costs include the Primary Roadway Work costs prepared by LPA as part of their 2019 Perimeter Connectivity Feasability Study. Additionally, note that the "Earthwork, Utilities, Landscape" allowance was calculated as 30% of the subtotal of Additional Work items. Lastly, note that for Option D, the 325 parking spaces that are included the the "Additional Work" costs are intended to be constructed elsewhere on campus, rather than within the areas directly adjacent to the Primary Roadway Work.

Impacts to Academic Development Capacity

Development Capacity in Option D totals 450,000 sf in three buildings, including the preliminary design for the CECAS building proposed to the west of Lee Hall.



Long-Term Concept Plan

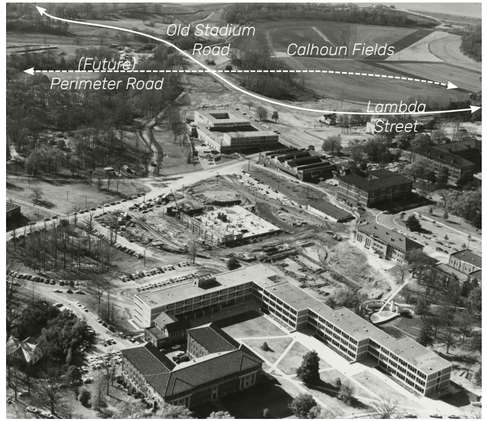


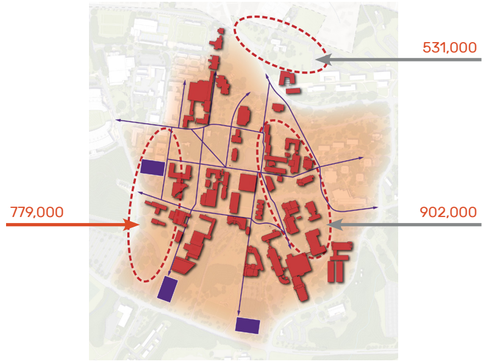
Old Stadium & Williamson Road Realignment Recommendations

Based on a review of the options with the project stakeholders, Option D emerged as the preferred direction for the Williamson Road - Old Stadium Road intersection. Option D addresses the objectives as follows:

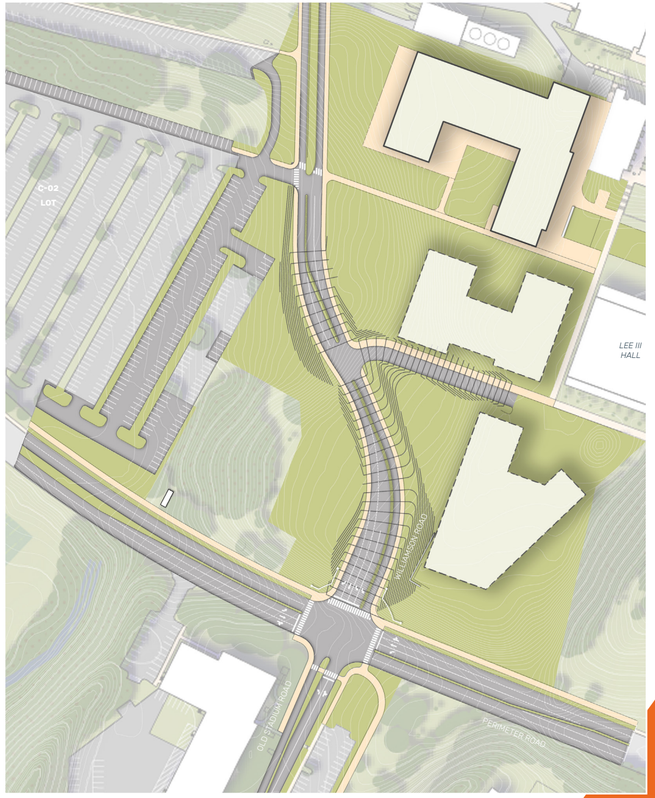
- **Align the Williamson Road and Old Stadium Road intersections to facilitate traffic movement**
- **Provide direct pathways from the Ground Facilities Complex to the central campus north of Perimeter Road**
- **Minimize the cost associated with intersection and roadway improvements**
- **Reserve the land west and south of Lee Hall for future academic and research facilities**

Near-Term Concept Plan - Option C





Academic Growth Capacity Diagram



Long-Term Concept Plan - Option D

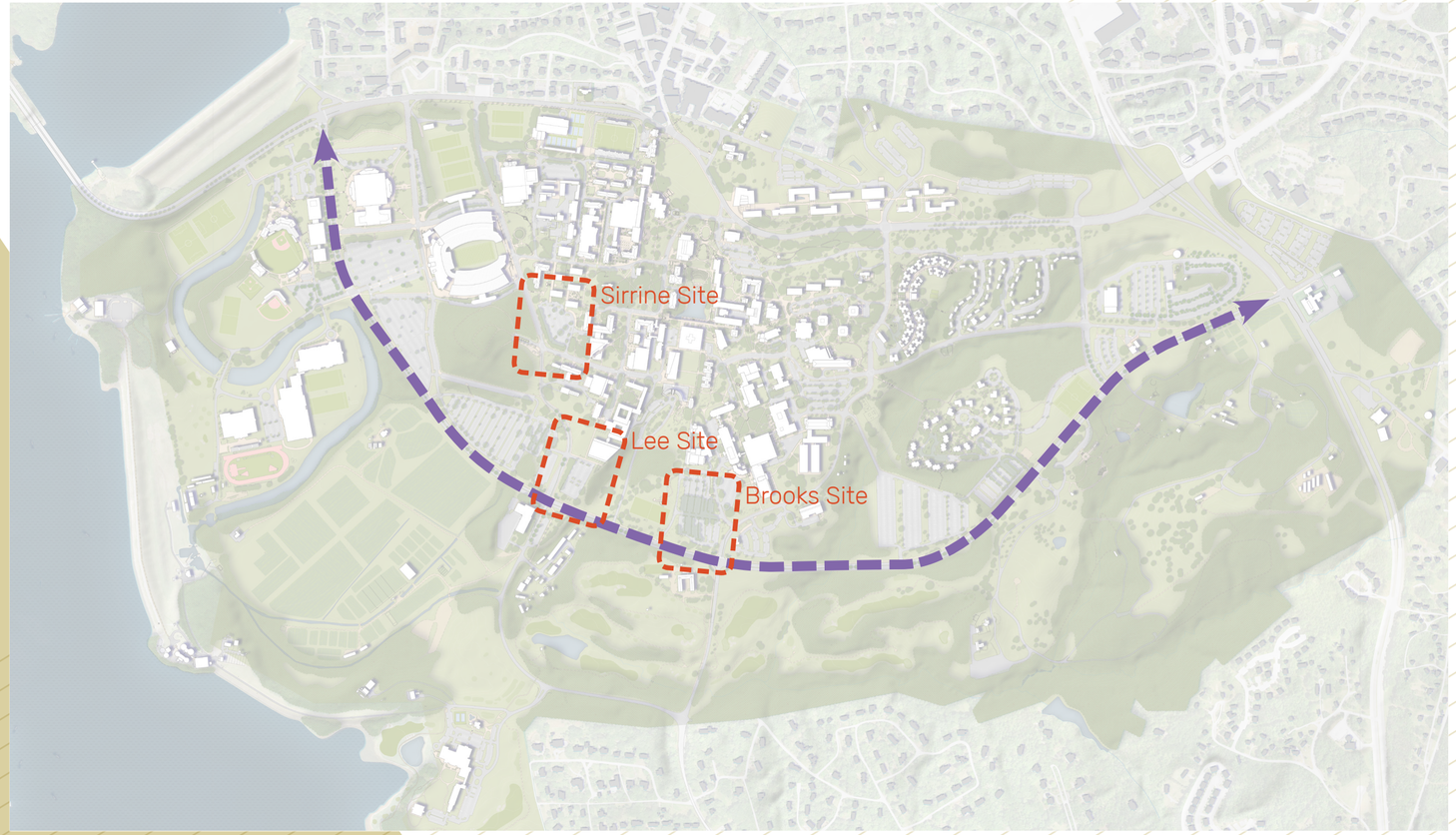
Potential Parking Deck Locations

In addition to the Perimeter Road cross section and intersection improvements, the study also assessed potential locations for a future parking deck.

Objectives

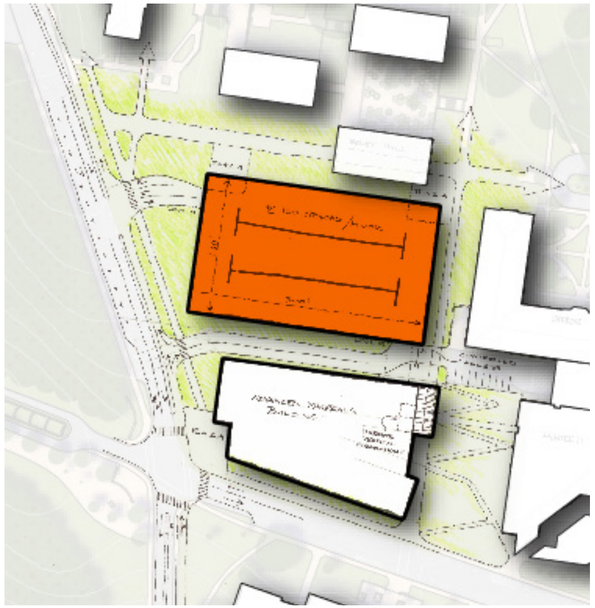
Three sites are explored in detail: Sirrine Site located at the northeast corner of Williamson Road and S. Palmetto Boulevard; Lee Site located south of Lee Hall on Lots E-04 and C-05; Brooks Center site located at the northwest corner of Cherry Road and Perimeter Road on Lot C-11. The following objectives guided the review of each parking site:

- **Locate the parking deck in support of the Long Range Framework Plan goal to pedestrianize the campus core**
- **Prioritize the use of Perimeter Road as the primary day-to-day vehicular access to campus**
- **Prioritize pedestrian movement with a focus on accessibility**
- **Maximize access & efficiency for the primary user groups: faculty/staff, resident students, commuter students, visitors, athletic and other events**
- **Maximize infrastructural value on multiple dimensions: Transit, utilities, security, etc.**
- **Integrate the physical design to complement the existing campus fabric**



Potential Parking Deck Locations

The diagrams to the right illustrate how a three-bay parking deck could be accommodated on the three sites.

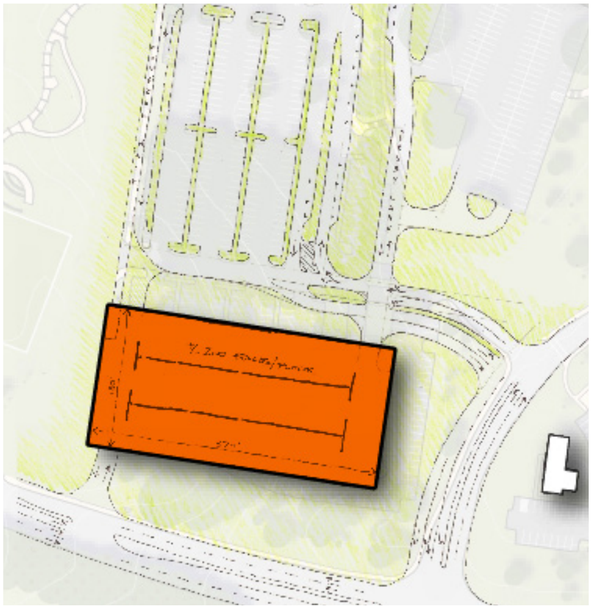


Sirrine Site

The Sirrine Site is a potential site for the parking deck as well as the proposed Advanced Materials Building (to be located west of Hunter Chemistry Building). This location positions the deck adjacent to the academic core of the campus in close proximity to the library and other academic buildings. Locating the deck on this site would facilitate the removal of parking from the internal roads of the campus. It also is positioned in close proximity to Memorial Stadium, offering additional parking for game day and other events.

Lee Site

The Lee Hall site is located south of Lee at the terminus to a major north-south pedestrian route leading into the core of the campus.



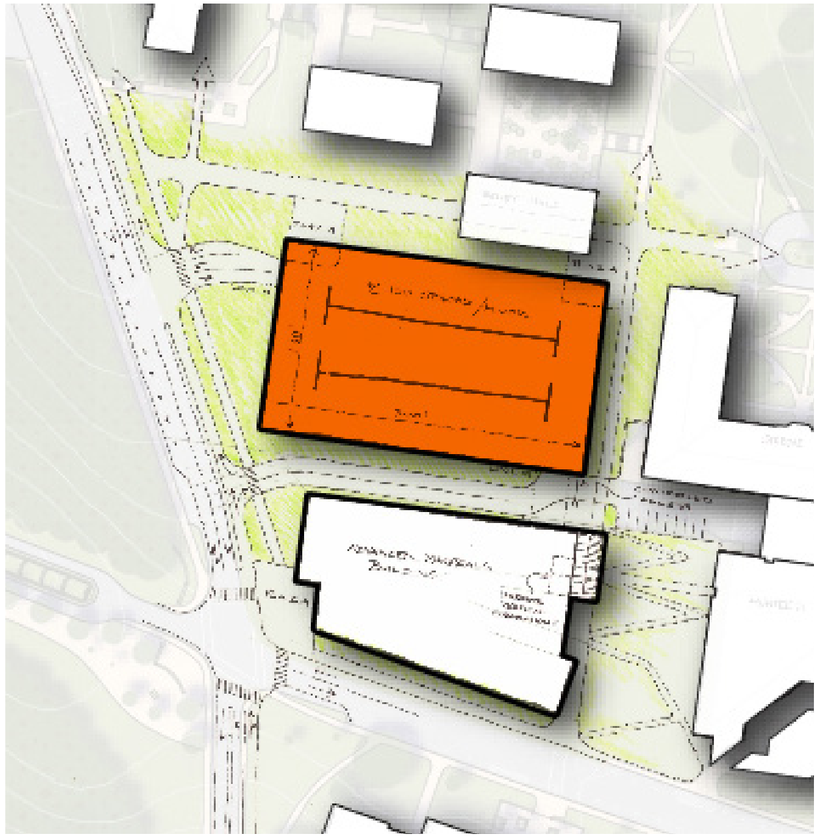
Brooks Site

The Brooks Hall site is located at the terminus of the major pedestrian route that extends northward through the campus to connect with the new Business Building.

Sirrine Site

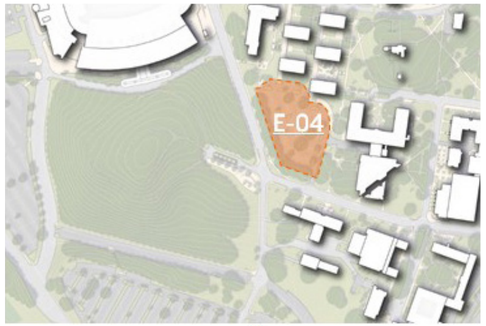
The Sirrine Site positions the parking deck on the periphery of the west academic core within a ten minute walking distance of major academic buildings. Locating the deck on this site would facilitate the pedestrianization of the campus core by consolidating existing on-street parking in the core into the deck.

The deck could be constructed in the hillside and shielded from view by Sirrine and the proposed Advanced Materials Building. Two access points are possible: one directly into the west side of the deck from Williamson Road; and, one via a new service road between the deck and the Advanced Materials Building. Pedestrian access to Earle Hall (south of Palmetto Boulevard) from Sirrine and Fort Hill is maintained on the west side of Hunter.



Traffic-related concerns with this location include a potential increase in traffic volume on WT Cox Boulevard during peak hours when users of the deck are traveling into campus from the east. Also, the site lines associated with the hill top location and vertical alignments on Williamson Road are a concern in terms of visibility.

The deck is proposed for the current E-04 Lot which accommodates 288 spaces. A total of 900 spaces are possible in a five level deck for a gain of 612 spaces in this location.



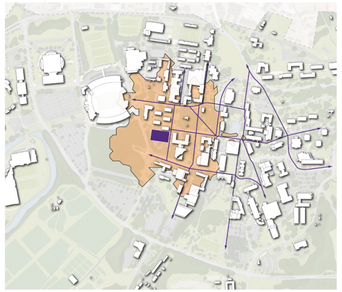
Existing	288	E-04
Displaced	288	
New	900	(150/Lvl.) 6 levels
Total	**900**	(+612)

PROS:

- **Located on major east-west pedestrian route**
- **Proximity to Stadium for game-day**
- **Will be architecturally screened on three sides**

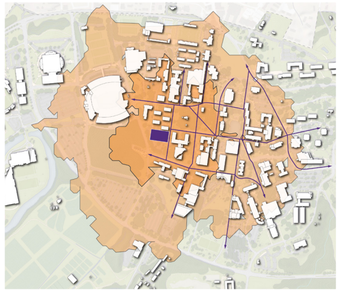
CONS:

- **Increased traffic on Williamson Road & WT Cox Boulevard**
- **Sightlines / pedestrian issues at S. Palmetto intersection**



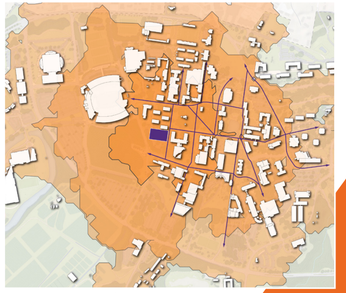
5 minute walk from Sirrine Site

(See isochrone explanation on page. 54)



10 minute walk from Sirrine Site

(See isochrone explanation on page. 54)



15 minute walk from Sirrine Site

(See isochrone explanation on page. 54)

Lee Site

The Lee Site encompasses Lots E-03 and C-04. A parking deck in the location is accessible directly from Perimeter Road, consistent with the traffic management strategy for the campus. Access also is possible from the realigned Williamson Road. It is located within a ten minute walk of major buildings on the west side of campus. The site is visually prominent from Perimeter Road as a result of the topography.

The parking deck is located on Lots E-03 and C-04 displacing 179 spaces. A total of 970 spaces are possible in the proposed deck configuration for a gain of 725 spaces.

PROS:

- **Located at the terminus of major pedestrian route**
- **Proximity to Perimeter Road for access**
- **Access from Perimeter Road and Williamson Road**

CONS:

- **Prominent site requires investment in architecture**
- **Impacts Lee Garden**
- **Limits future development capacity**

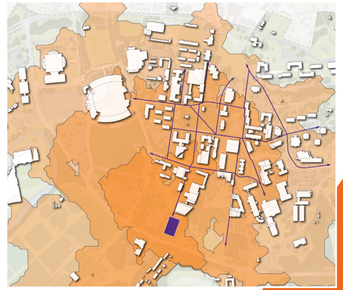
Existing	424	C-04, C-05, E-03
Displaced	179	
New	970	(194/Lvl.) 5 levels
Total	**1,149**	(+725)

5 minute walk from Lee Site

(See isochrone explanation on page. 54)

10 minute walk from Lee Site

(See isochrone explanation on page. 54)



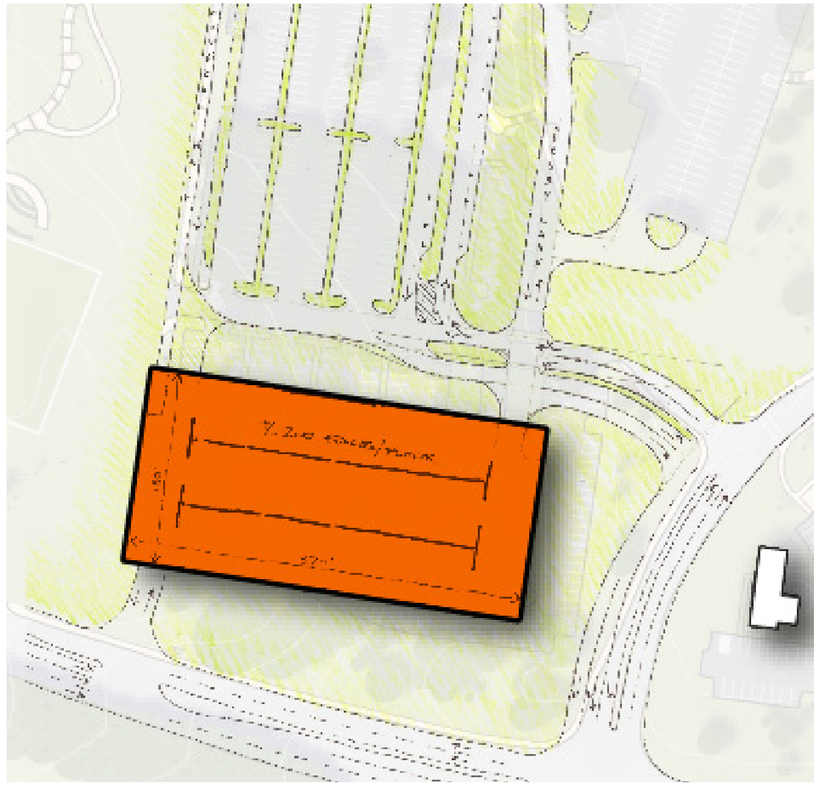
15 minute walk from Lee Site

(See isochrone explanation on page. 54)

Brooks Site

The Brooks Site positions the parking deck at the northwest corner of Cherry Road and Perimeter Road in close proximity to the Brooks Performing Arts Center, a major public venue of the campus. It also positions the deck along Perimeter Road, a suitable location for intercepting commuter traffic. This is a highly prominent site at a key gateway to the central campus. For that reason, the architecture detail and design character of the deck are important considerations.

Access to the parking deck is proposed from Cherry Road via a reconfigured intersection at Jersey Lane. Reconfiguration is proposed to increase intersection spacing and improve traffic flow into the deck, into the C-11 Lot, and to areas north on Jersey Lane. 3/4 access is proposed into and out of the parking deck from Perimeter Road (see Item D on page 25 plan).



An early concept sketch shows the deck occupying the southern end of the C-11 Lot, displacing 262 spaces of the existing 659 spaces. The proposed four level deck accommodates 1,000 spaces for a total 1,397, a gain of 738 spaces.

PROS:

- Located along major pedestrian route
- Maintains campus expansion potential south of Brooks Center
- Proximity to Perimeter Road for access
- Access from Perimeter Road and Cherry

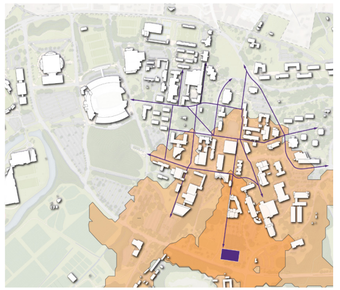
CONS:

- Prominent site requires investment in architecture
- Remote from core / longer walk
- Potential traffic congestion on Cherry Road

Existing	659	
Displaced	262	
New	1,000	[250/Lvl.] 4 levels
Total	**1,397**	(+738)

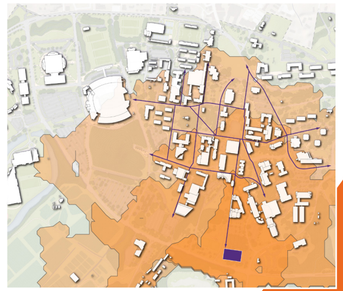
5 minute walk from Brooks Site

(See isochrone explanation on page. 54)



10 minute walk from Brooks Site

(See isochrone explanation on page. 54)

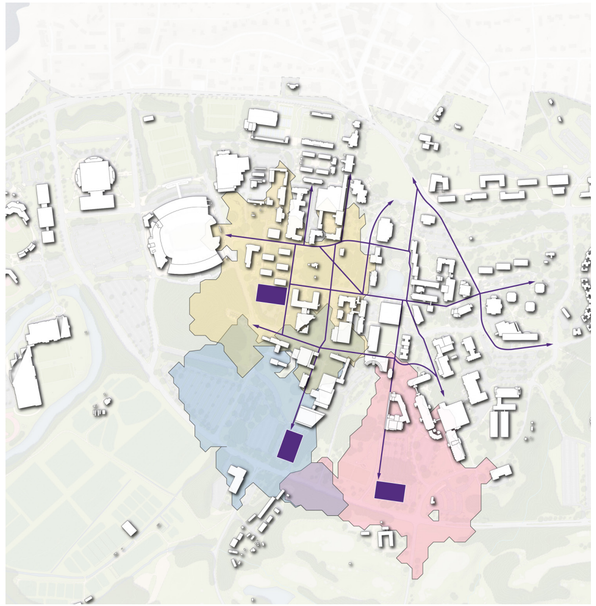


15 minute walk from Brooks Site

(See isochrone explanation on page. 54)

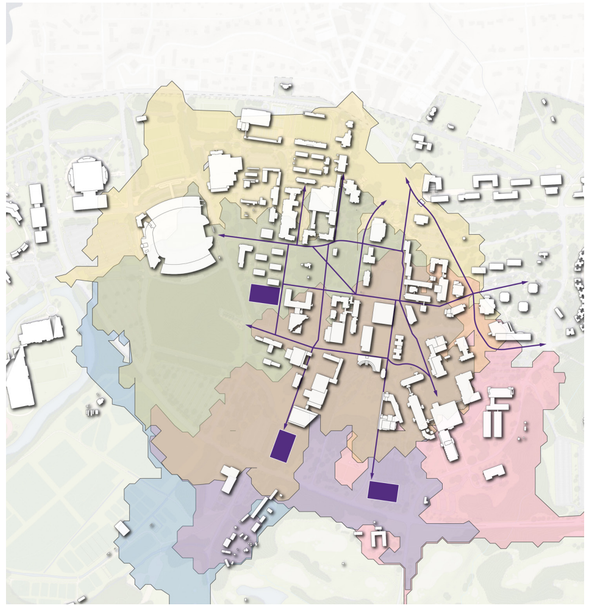
Potential Parking Deck Site Isochrone Mobility Ranges

As part of the site evaluation process for each of the decks, pedestrian access was examined to determine the convenience of each site to the major facilities within the campus core. To that end, ischrones were utilized to more accurately gauge walking distances based on existing pedestrian routes. They were used in lieu of “walking circles” to provide a more accurate representation of travel distances. The program assumes a 5 minute walk per ¼ mile (20 minute mile or +/-3mph) and is based on open street map data. The following observations are provided relative to the five, ten and fifteen minute walks for each site. The Sirrine Site Isochrone limits are shown in yellow, the Lee site in blue, and the Brooks site in pink.



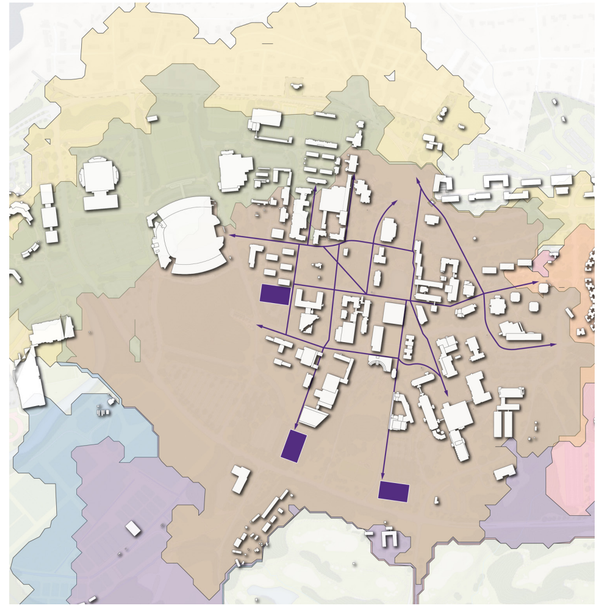
5 Minute Walk

- Cooper Library is not within a five minute walk of any of the sites.



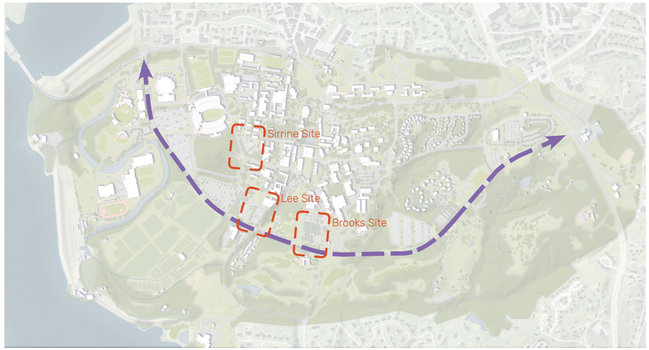
10 Minute Walk

- Hendrix Student Center is accessible from all deck sites
- Memorial Stadium is accessible from Sirrine & Lee sites



15 Minute Walk

- Core Campus is entirely accessible from all deck sites
- Bowman Field is accessible from all parking deck sites
- Douthit Hub is at the edge of accessibility for all deck sites
- Primary Athletics Venues accessible from Sirrine & Lee sites



Potential Parking Deck Site Evaluation Criteria

To assist the Clemson stakeholder committee in evaluating the parking deck sites, Stantec developed the interactive evaluation matrix as shown to the right. The matrix ranks ten evaluation criteria for locating the deck and enables the users to rank each of the criteria in terms of priority. The criteria are defined as follows:

- **Pedestrian Campus – Ability to stimulate the pedestrianization of campus**
- **Safety / Remoteness – Proximity to "eyes on the street," need for security sub-station**
- **Vehicular Access – Ease of vehicular access and egress from garage**
- **Displaced Parking – Impact to net parking increase**
- **Development Parcel Impact – Impact to potential development areas**
- **Vehicular Traffic Impact – Impact to both existing and resulting vehicle traffic**
- **Pedestrian Traffic Impact – Impact to both existing and resulting pedestrian traffic**
- **Flexible User Type – Accommodate Staff / Students / Visitors / Athletics / Events**
- **Transit Accessibility – Feasibility to incorporate a transit hub**
- **Cost – Take into account the complexities of construction and quality of facade**

The consultant team and the Clemson stakeholder group both utilized the matrix to evaluate the sites. The outcomes of both groups suggested that the Brooks site would best address the above noted criteria.

Perimeter Road Parking Deck Location Treatment Favorability Matrix

PRIORITY	9.57	8.57	7.86	7.14	7.86	8.57	7.86	8.14	8.00	8.43	RESULTS	
Change the priority with the up/down buttons *(10 is high priority, 1 is low priority)*	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼		
Deck Placement	**Pedestrian Campus**	**Safety/ Remoteness**	**Vehicular Access**	**Displaced Parking**	**Development Parcel Impact**	**Vehicular Traffic Impact**	**Pedestrian Traffic Impact**	**Flexible User Type**	**Transit Accessibility**	**Cost**	**TOTAL SCORE**	**% of Best Score**
1 Sirrine Lot	8.57	8.14	5.71	6.86	6.86	5.14	7.43	8.14	7.00	6.86	582.1	88%
2 Lee Lot	7.86	7.57	8.71	7.86	7.29	7.57	7.71	7.29	8.57	7.14	635.6	96%
3 Brooks Lot	7.57	7.57	9.57	8.00	8.00	8.29	7.86	7.57	9.00	7.57	662.8	100%

Stakeholder Group Composite Scoring

Respondents: Barry Anderson, Todd Barnette, Clint Carlson, Harry Harritos, John Gambrell, Peter Knudsen, Gerald Vander Mey

SCALE

Least Favorably Meets Objective — Most Favorably Meets Objective

1	2	3	4	5	6	7	8	9	10

Perimeter Road Parking Deck Location Treatment Favorability Matrix

PRIORITY	9.57	8.57	7.86	7.14	7.86	8.57	7.86	8.14	8.00	8.43	RESULTS	
Change the priority with the up/down buttons *(10 is high priority, 1 is low priority)*	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼		
Deck Placement	**Pedestrian Campus**	**Safety/ Remoteness**	**Vehicular Access**	**Displaced Parking**	**Development Parcel Impact**	**Vehicular Traffic Impact**	**Pedestrian Traffic Impact**	**Flexible User Type**	**Transit Accessibility**	**Cost**	**TOTAL SCORE**	**% of Best Score**
1 Sirrine Lot	8.33	9.00	4.83	5.83	5.00	5.33	5.33	6.83	7.00	5.80	524	88%
2 Lee Lot	7.00	6.17	8.50	7.67	5.20	8.00	7.83	6.50	6.60	5.80	567	95%
3 Brooks Lot	7.17	5.33	8.83	6.50	7.20	8.00	8.50	7.00	7.00	7.00	594.1	100%

Design Team Composite Scoring

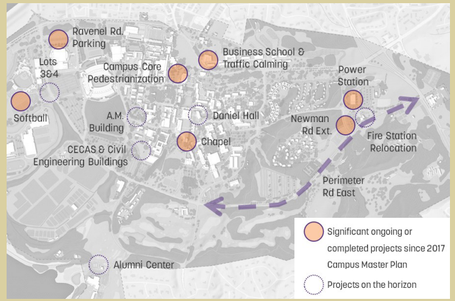
Respondents: Greg Havens, Matt Langan, Trey Sasser, Jill Allen Dixon, Stuart Day, Josh Mitchell

Update to 2017 Long Range Framework Plan

5

Illustrating recent Campus Development

As a final product for the Perimeter Road Study, the Long-Range Framework Plan illustrative has been updated to include projects completed since 2017 and to include the recommendations of this study. Projects identified since 2017 include:

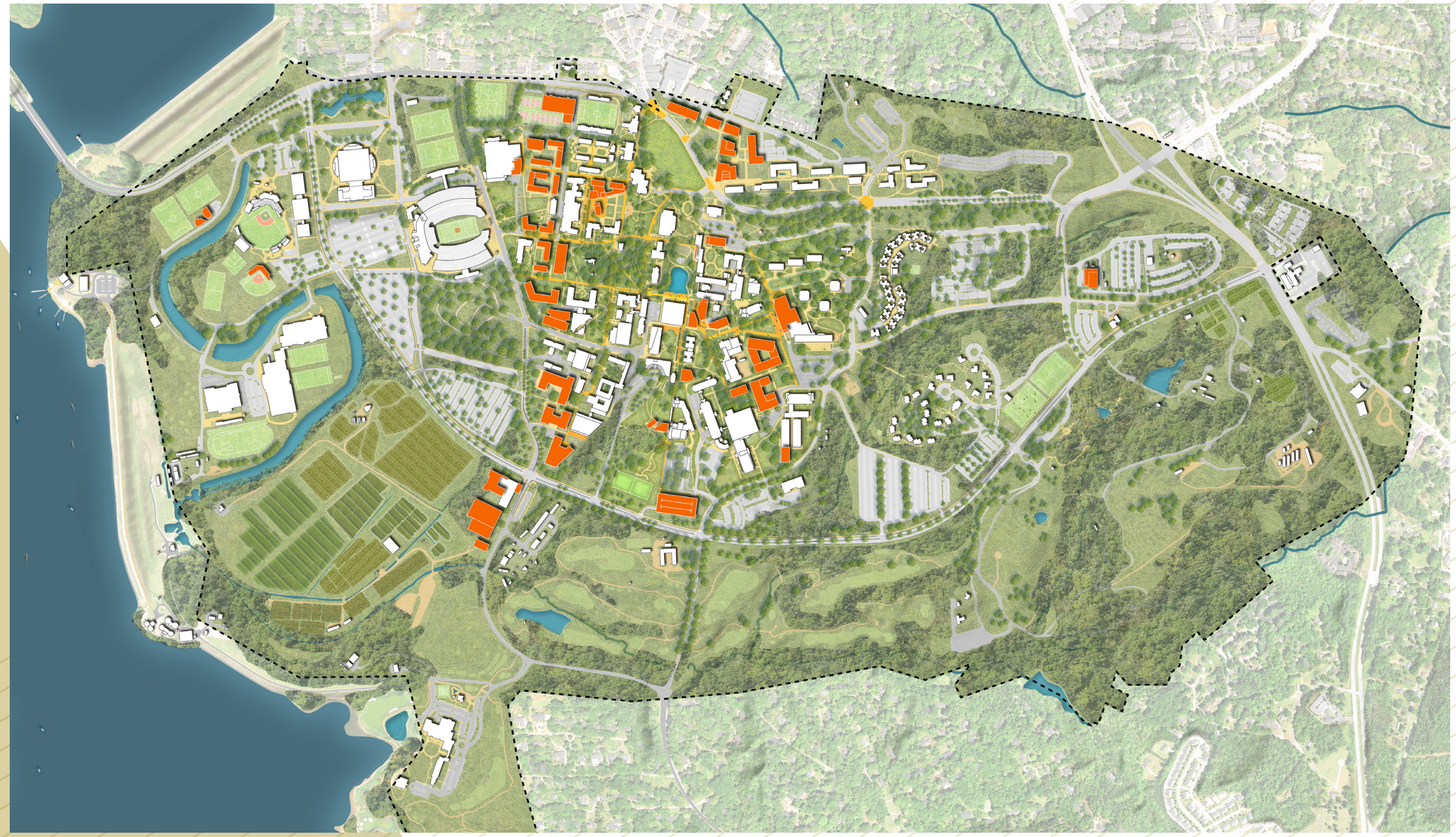


Ongoing or completed Projects

- Business School Building
- The Power Station
- The Chapel
- Softball Field
- Campus Core Pedestrianization
- R-06, P-07, & C-09 Lot Expansion

Projects on the Horizon

- Fire Station Relocation
- Daniel Hall
- Advanced Materials Building
- CECAS Building
- Alumni Center
- Lot P-03 & P-04 Reconfiguration



Campus Connections

As a final product for the Perimeter Road Study, the Long-Range Framework Plan illustrative has been updated to include projects completed since 2017 and to include the recommendations of this study. Projects completed since 2017 include:

Ongoing or completed Projects

- Business School Building
- The Power Station
- The Chapel
- Softball
- Campus Core Pedestrianization