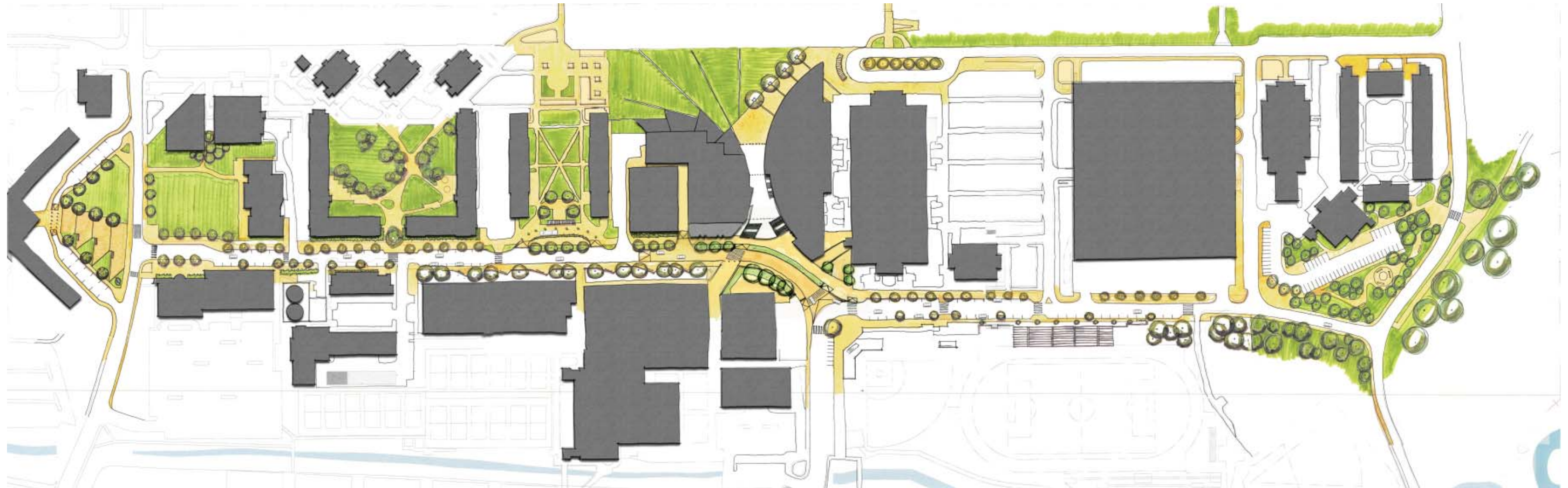


# NC STATE UNIVERSITY CATES AVENUE MASTER PLAN

July 16, 2010



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# Project Description

Drawing on ideals set forth in the North Carolina State University Physical Master Plan and the vision described in the Student Life Master Plan (SLMP) this analysis and master plan for Cates Avenue serves to further define the design of the Cates Avenue streetscape. The Central Campus, of which Cates is the primary east west street, includes the majority of on-campus housing and, according to the NCSU Student Life Master Plan, Cates Avenue is projected to become a primary pedestrian street linking these housing units to the Talley Student Center.

The SLMP suggests an improvement to Cates Avenue to make the street more pedestrian friendly while improving conditions along the length of the road. During the Cates Avenue Master Plan concept design development, controlled access points were considered to further limit vehicular volume and provide greater freedom of pedestrian flow in certain locations along the street. However, given that Cates Avenue is the primary east-west vehicular street on campus the current plan intends to maintain uncontrolled access for vehicular traffic. The Cates Avenue Master Plan explores the existing conditions from the intersection of Dan Allen Drive at the western end of Cates to the eastern intersection at Pullen Road and includes the junction of Cates and Morrill Drive. The future addition and renovation of the Talley Student Center, currently in schematic design, will have a direct impact on Cates Avenue and will likely establish solutions for initial improvements of Cates Avenue and some modifications to Dunn Avenue in front of Reynolds Coliseum.

Analysis contained in this document demonstrates the varying nature of the street dimensions and confirms the lack of an understandable and experiential pattern that supports the level of pedestrian priority that the SLMP study aspires to create along Cates Avenue. Providing an enhanced student experience is the foremost purpose. The principle intention is to reconfigure Cates Avenue to create a heightened awareness of the pedestrian and thus improve the safety, comfort, and flow. In addition to general student foot traffic, heavy pedestrian traffic associated with University athletic and recreational programs has been observed. Groups of runners on sidewalks and bicyclists and skateboarders have been observed along Cates Avenue. This diverse use of the street and sidewalk should be encouraged.

The critical first steps involve the documentation of existing conditions using information obtained from NCSU as well as on site observation. Analysis confirming the existing building uses and entrances, service access and their current relationship to sidewalks and street, hardscape and softscape provides a basis by which to measure appropriate changes to these conditions. Also essential to future solutions is an understanding of existing vehicular traffic. This will enable the design of alternative solutions for improving traffic flow, comfort/safety and flow of vehicular and pedestrian movement and well as accommodation of required service vehicle access. It is presupposed that this endeavor proposes modifications to both the street configuration and its relationship to the varied configuration of parking. In doing so it is assumed that parking counts along the street will be reduced incrementally.



The current goal for the Cates Avenue Master Plan is to produce a broad analytical study. Eventually, the conceptual nature of this master plan should be verified through quantifiable traffic data collection, and specific survey information particularly at the primary intersections. It is intended that this Concept Design exercise will help inform the future implementation of incrementally phased improvements to Cates Avenue.

The Cates Avenue Master Plan developed by Duda/Paine Architect's includes the following:

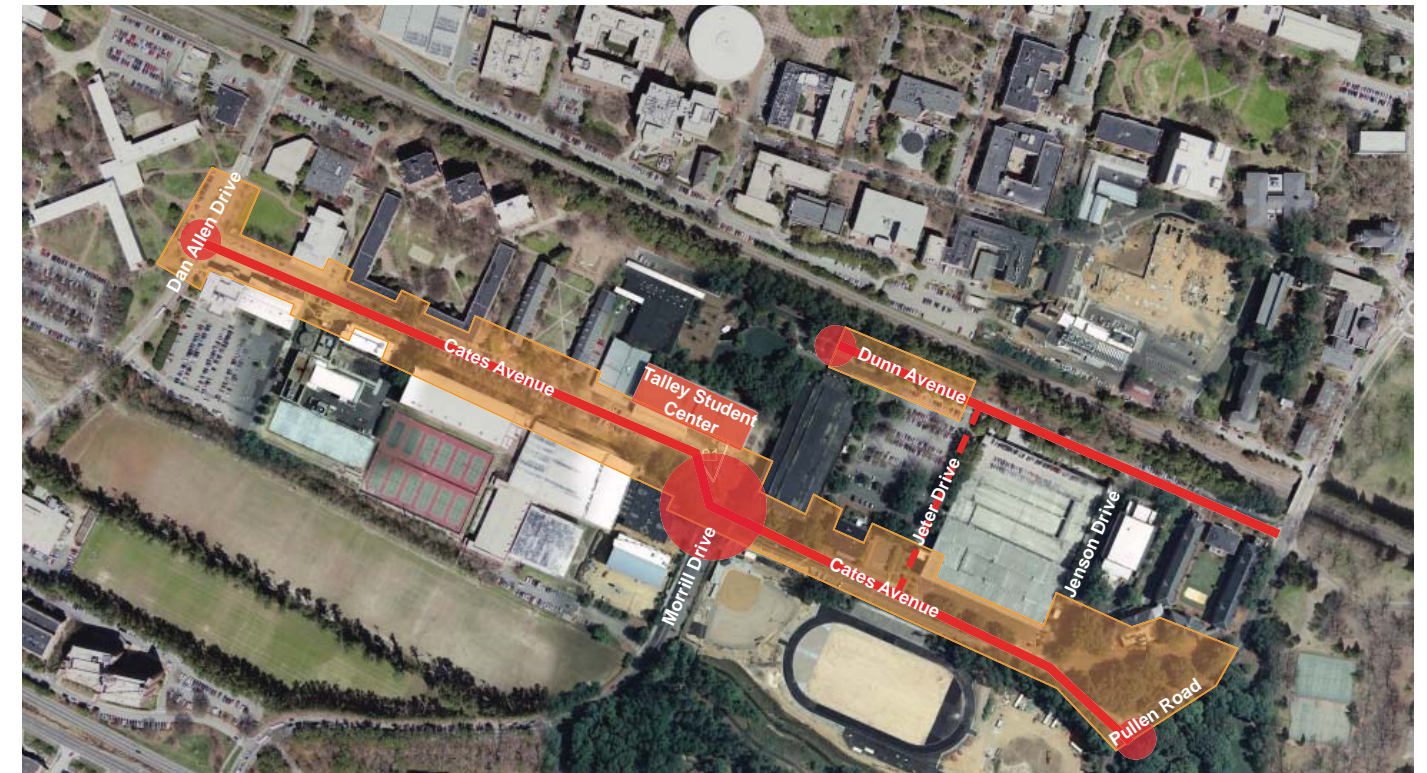
- Identification of University Goals
- Existing Analysis including diagrams, sections, and photographs of existing conditions
- Identification of current issues exposed by the analysis
- Identification of Cates Avenue Master Plan intentions
- Large scale plan and section sketches showing concept proposals for specific areas along Cates Avenue between Dan Allen Drive and Pullen Road
- Overall concept plan indicating adjustments to the existing street sections

Traffic Consultant:

Martin/Alexiou/Bryson, PC (M/A/B) traffic consultants participated in the Advanced Planning process through a series of meetings and design work sessions guided by Duda/Paine Architects and North Carolina State University's Office of the University Architects, Capital Projects Management and University Transportation.

Referenced Documents:

During concept design Duda/Paine has researched various documents and resources that are directly applicable to the Cates Avenue Master Plan. These documents include Master Plan proposals from North Carolina State University, existing building assessment reports and as-built drawings, as well as University and State Construction guidelines and requirements.



## University Goals

- Reinforce Cates Avenue as the East-West "All Campus path from Pullen to Dan Allen"
- Improve Cates Avenue to be more pedestrian friendly and enhance safety, comfort and flow
- Establish the new Talley Student Center to serve as the hub of pedestrian circulation along the "Student Main Street" and act as a crossroads between the all campus paths of Cates and Dunn.

# Existing Conditions

- Existing Diagrams
- Current Issues
- Existing Sections

Cates Avenue is the primary east-west street on North Carolina State University's Central Campus and is bounded by Dan Allen Drive to the west and Pullen Road to the east. Both of these streets are primary campus arteries that connect Western Boulevard to Hillsborough Street. Cates receives significant vehicular traffic from both these streets as well as Morrill Drive which intersects Cates Avenue at its midway point. This central location is the current hub of student life on Central Campus. Surrounding buildings include the Carmichael Gymnasium, Reynolds Coliseum and the Talley Student Center with Stewart Theatre which is a catalyst for the future enhancements to Cates Avenue. This section of Cates is highlighted by the existence of mature trees that offer a rhythm to the street and the pleasant canopy that provides significant shade. The buildings on the north have a direct but inadequate relationship to the sidewalk and street. On the south, significant grade changes, imposing parking and the separation of buildings from the sidewalk are problematic conditions. The intersection of Cates Avenue and Morrill Drive is confusing and congested for the pedestrian as well as vehicular and service traffic.

Other student service buildings are located along Cates Avenue to the west, including the Student Health Center, the First Year College Commons and Witherspoon Student Center with Harris Field. Harris Field is currently an important green space that is used for campus activities, including small concerts, step shows, outdoor movies, and fraternity and sorority events. These activities are sometimes challenged by drainage issues. Also to the west and along the north side of Cates are a number of student housing dormitories including Alexander, Turlington, Owen and Tucker Residence Halls with Bragaw Hall at the intersection of Cates and Dan Allen. The mature trees end west of Turlington and the character along the street changes with a variety of parking and service related drives and equipment located in proximity to the street. Tucker and Owen Residence Hall have an extremely close proximity to the street and several other buildings toward Dan Allen Drive have a severe relationship to the sidewalk. Dan Allen Drive is typically highly congested during peak periods of vehicular traffic. Additionally, the intersection of Cates Avenue and Dan Allen Drive is not signaled, presenting a difficult vehicular turning condition and pedestrian crossing zone.

To the east of the intersection of Cates Avenue and Morrill Drive, Case Academic Center is located at the Jeter Drive intersection on the north side of Cates and sits directly across from the Dail Softball Stadium and Paul Derr Track. Improvements to Cates Avenue and Derr track are currently under design and these future conditions have been taken into account in the development of the Cates Avenue Master Plan. Further to the east the Cates Avenue Parking Deck and a surface lot abut the north side of the street and are bounded by Jensen Drive and Jeter Drive. East of Jeter, Cates Avenue changes to one way traffic flow eastbound to the intersection of Pullen Road. There are a few dispersed areas of mature trees in front of Reynolds, the surface parking lot and west of Jensen Drive, but shading is limited by a lack of trees on the south side of Cates Avenue. The buildings here have a varied edge on the north and there is no building edge beyond the Dail Softball Stadium. The sidewalk to the south ends in parking at this location with a dirt path beyond to Pullen Road and on the north continues to the south until Jensen



Drive. This area is wooded at the intersection of Pullen Road and is complicated by an existing boundary between NCSU and City of Raleigh property.

An analysis of existing conditions along Cates Avenue has been performed to better understand the physical characteristics of the street and surrounding buildings and their effects on the movement of pedestrians and vehicles. This analysis has included site observation, measurement and photographic documentation and a series of existing condition diagrams, existing plan and section studies, and the identification of current issues paired with photographic images along Cates Avenue. Site observation alone reveals the inconsistencies along the length of Cates; however, supporting evidence in the form of analytical drawings highlights specific area of interest from these on-site experiences.

### Existing Diagrams:

Duda/Paine Architects' existing analysis diagrams included:

- Campus Paths
- Pedestrian Movement
- Buildings and Entry
- Building Use
- Bus Routes
- Shuttle Routes
- Traffic Flow
- Service Zones
- Parking
- Parking Counts
- Cates Parking
- City/Campus Boundaries

### Existing Sections:

Existing sections along Cates were provided to demonstrate the varied existing conditions. Street width changes depending on whether or not there is on-street parking and its physical orientation depends on if it is head-in, parallel or angled. The relationship of building height to sidewalk width and distance to the street also significantly changes. Grades along the street are also variable and are most significant toward the section of Cates from the First Year College Commons east to the intersection of Cates Avenue and Morrill Drive. Numerous existing trees of a diverse variety and some of significant stature are located along Cates and are included in the existing plan and section drawings.

### Current Issues:

Duda/Paine Architects have identified eight zones and presented photographs of existing conditions that highlight the following current issues:

- Student safety and lack of comfort on main pedestrian paths
- Inefficient pedestrian flow
- Lack of connections between public areas along Cates Avenue
- Drop off location hinders movement in public spaces
- Dorm room proximity to sidewalk
- Lack of arrival, orientation and destination identity along Cates
- Unsafe parking on Cates curve
- Poorly located parking hinders pedestrian path and vision
- Service yards and Utilities exposed to pedestrian paths
- Confusing and congested intersections



Cates Avenue/Dan Allen Drive Intersection



Cates Avenue/Morrill Drive Intersection



Cates Avenue/Pullen Road Intersection

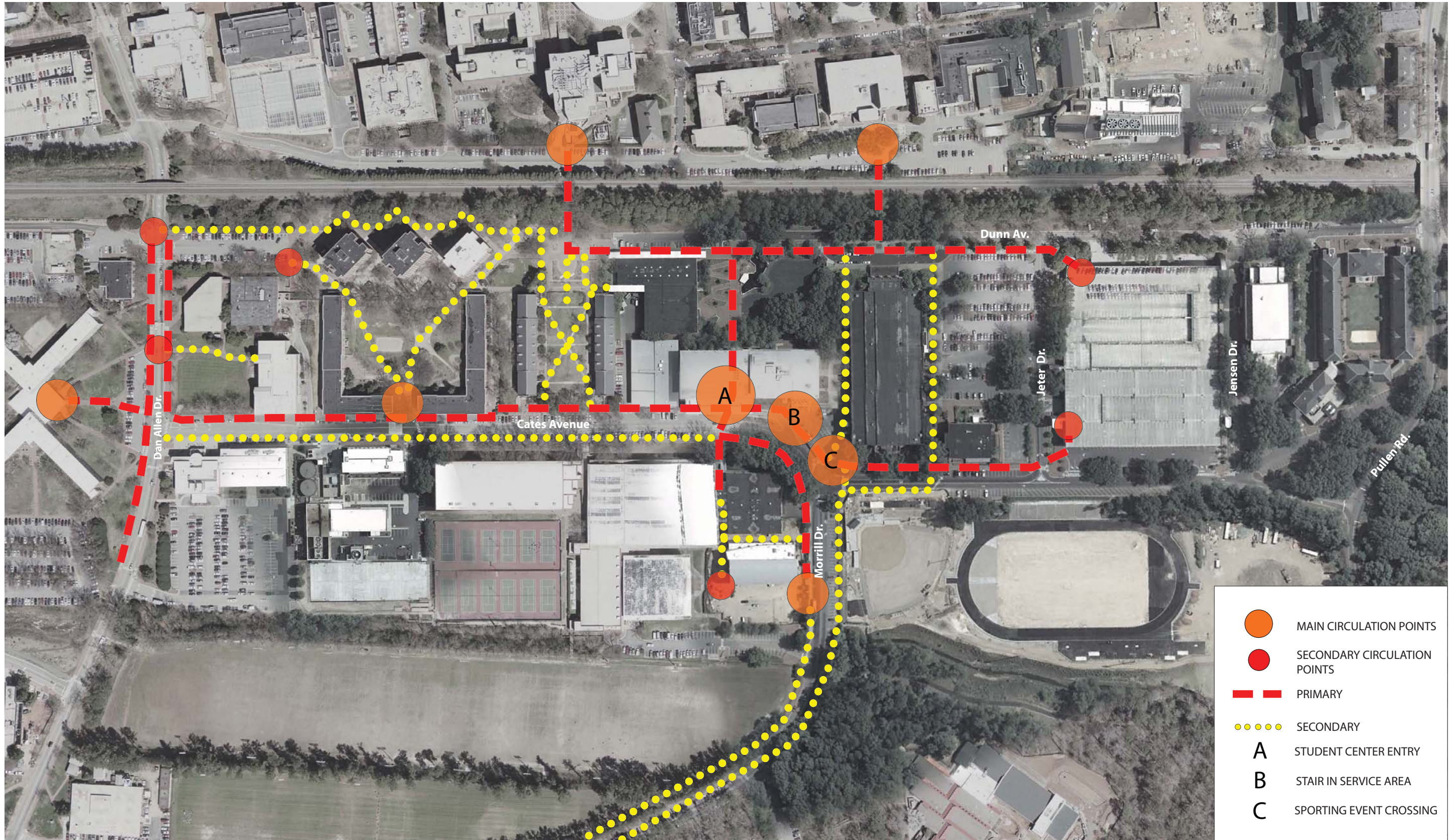


# Existing Diagrams



## CAMPUS PATHS





PEDESTRIAN MOVEMENT





## BUILDINGS AND ENTRIES

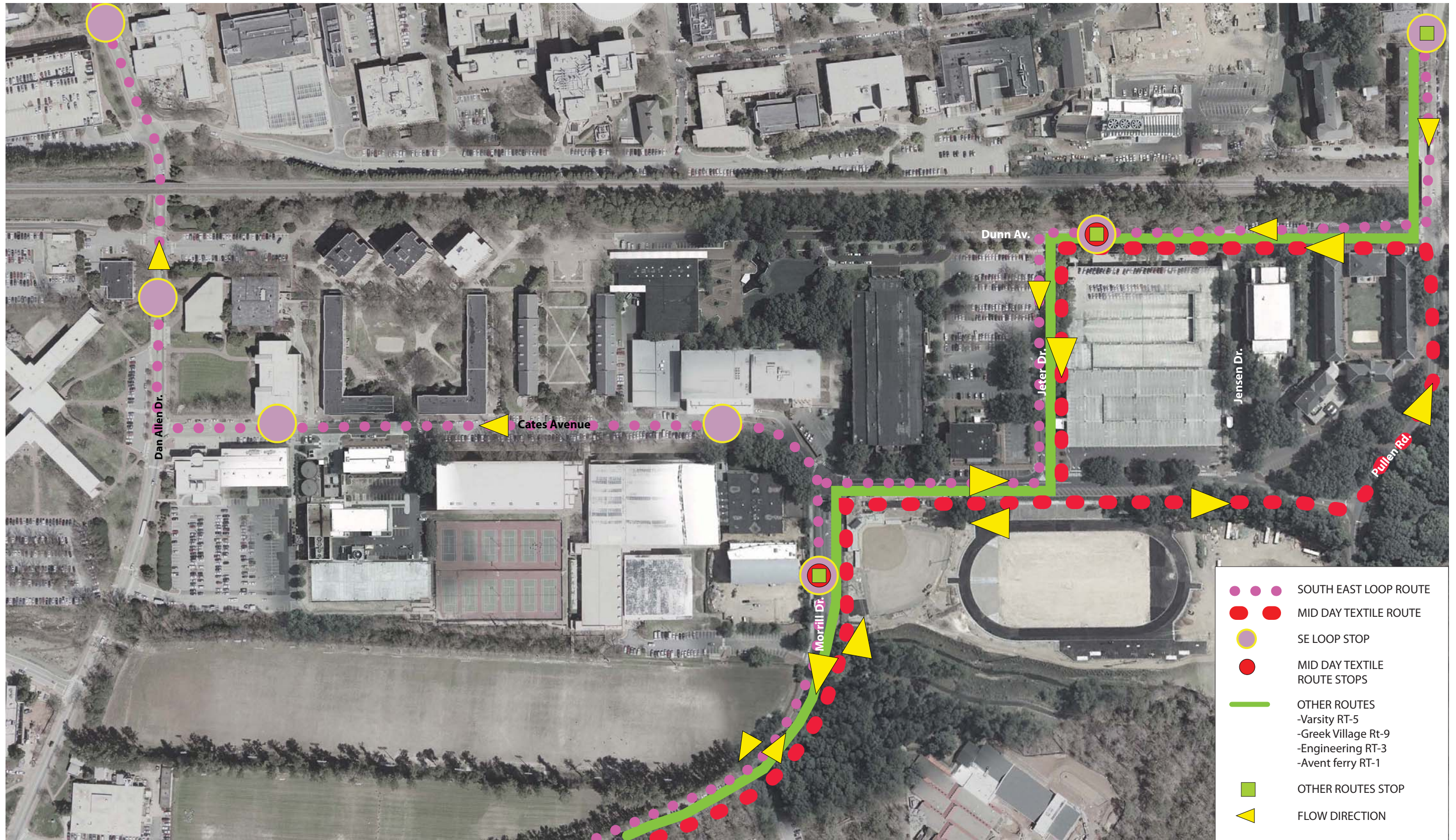




BUILDING USE

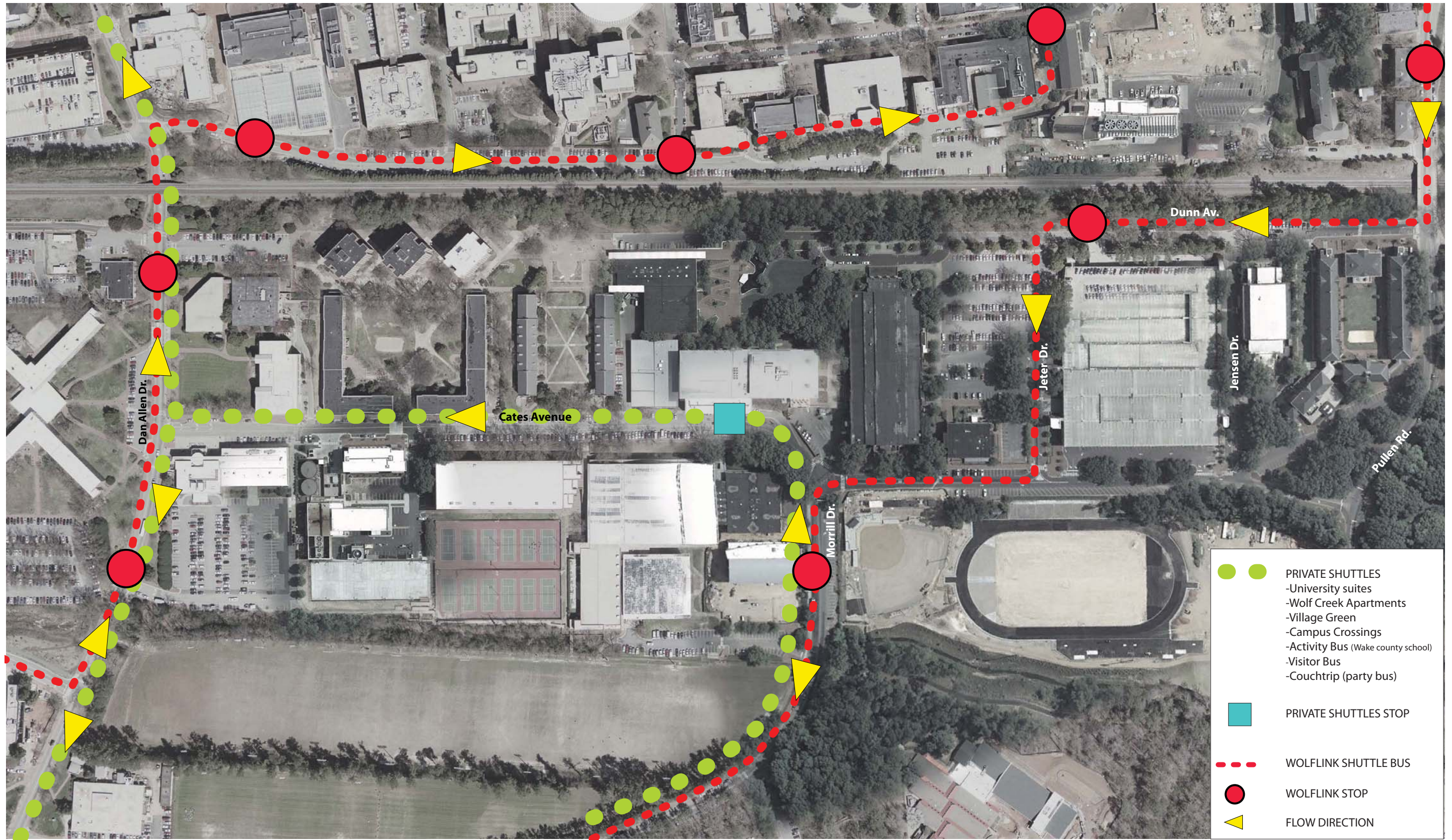
**NC STATE UNIVERSITY**  
**CATES AVENUE MASTER PLAN**





## BUS ROUTES

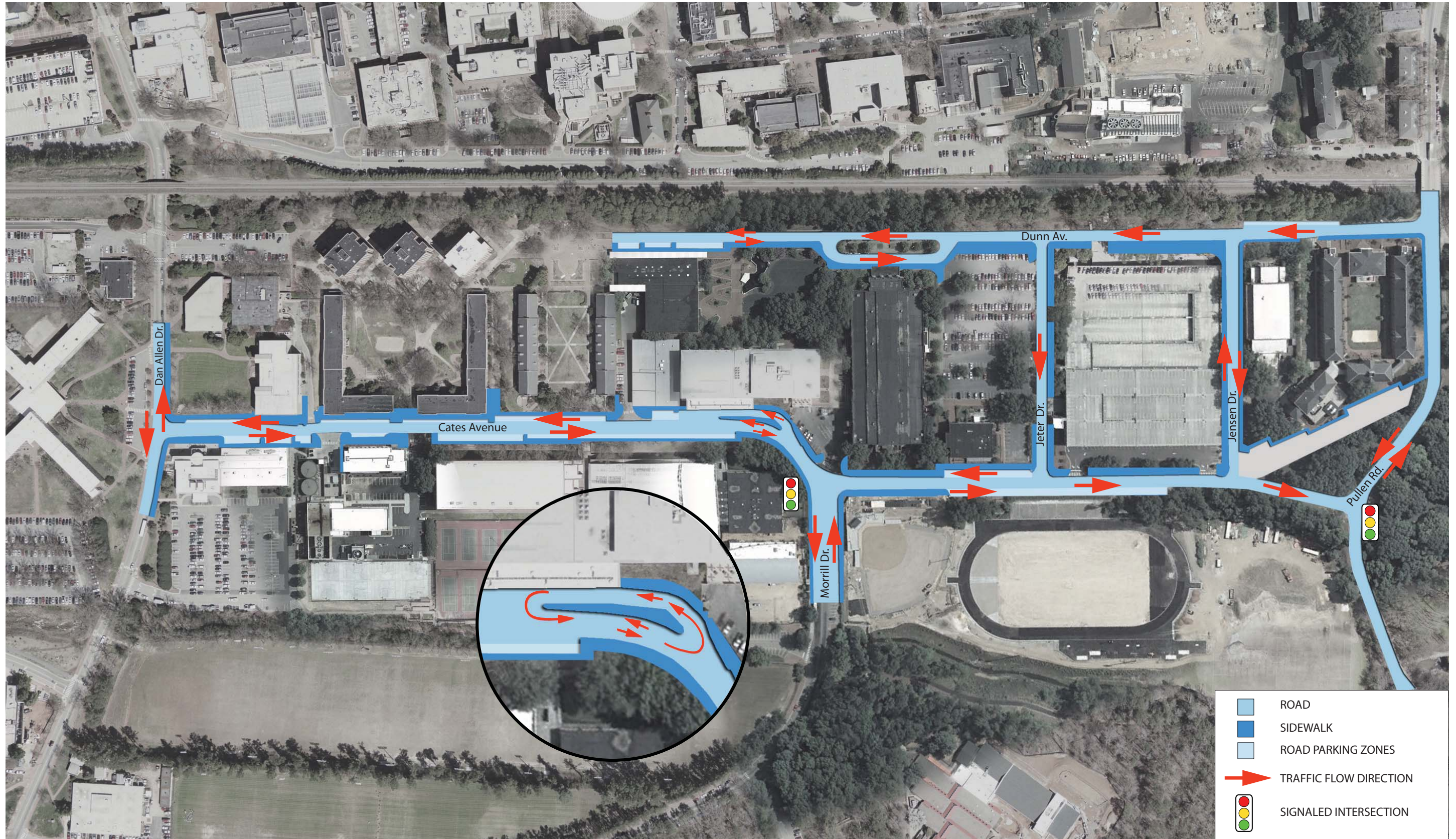




- PRIVATE SHUTTLES
  - University suites
  - Wolf Creek Apartments
  - Village Green
  - Campus Crossings
  - Activity Bus (Wake county school)
  - Visitor Bus
  - Couchtrip (party bus)
- PRIVATE SHUTTLES STOP
- - - WOLFLINK SHUTTLE BUS
- WOLFLINK STOP
- ▲ FLOW DIRECTION

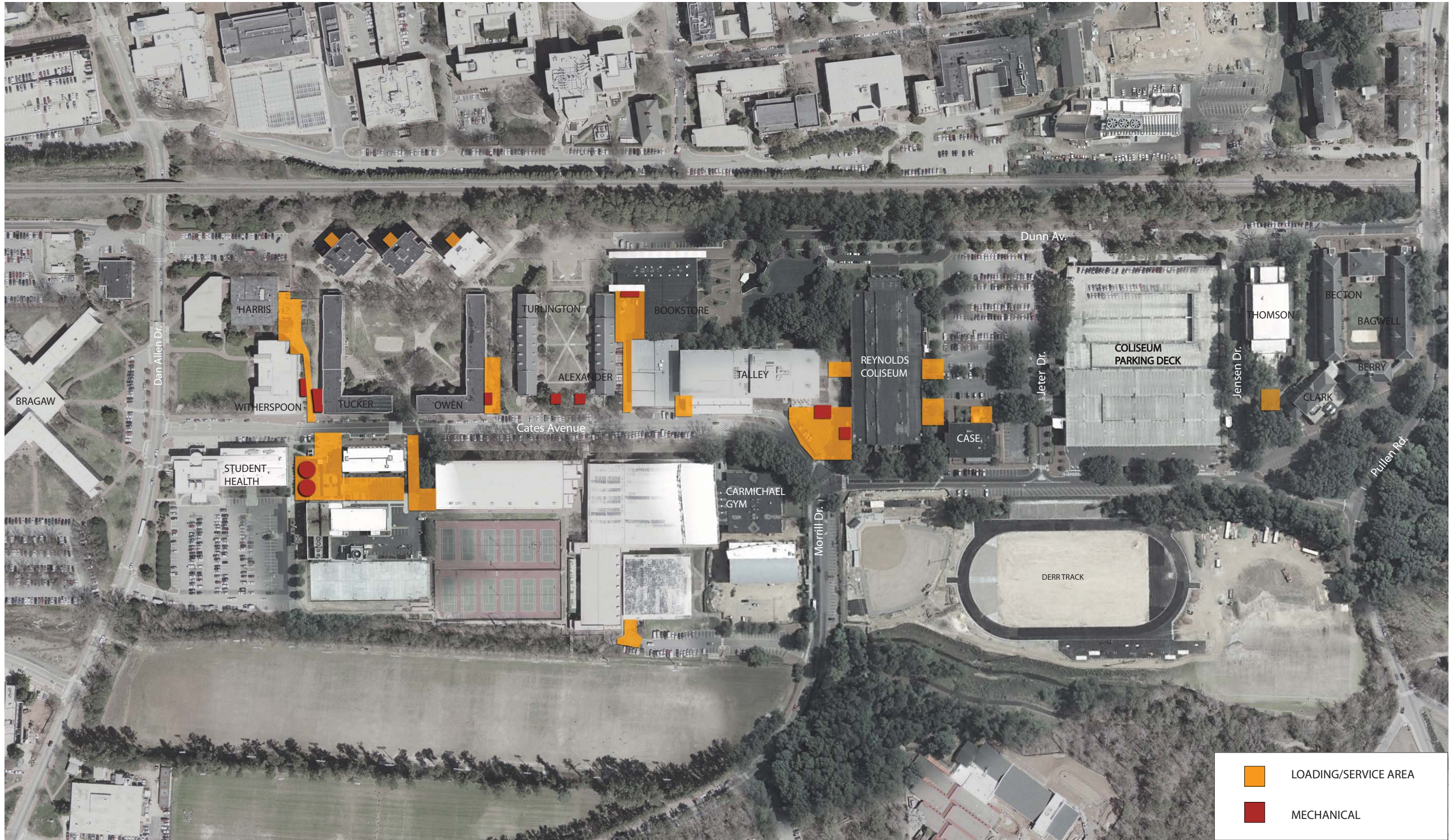
SHUTTLE ROUTES





## TRAFFIC FLOW





SERVICE ZONES





## PARKING





VICINITY PARKING COUNT





**EXISTING PARKING**

**RED ZONE**  
 RE - 93  
 RD - (9)  
 LO - (2)  
 SV - (2)  
 HC - (5)  
**TOTAL- 111**

**GREEN ZONE**  
 SV- (2)  
 C- 57  
 HC - (9)  
**TOTAL- 68**

**PINK ZONE**  
 RE - 94  
 HC - (2)  
**TOTAL- 96**

( ) 31 PRIORITY PARKING SPACES including RD, LO, SV, HC spaces as requested by the University Architect's Office - May 14, 2010



**OVERALL TOTAL EXISTING**  
**275**

\* Information and image obtained from North Carolina State University Transportation Department ( May 4, 2010)

**CATES PARKING**



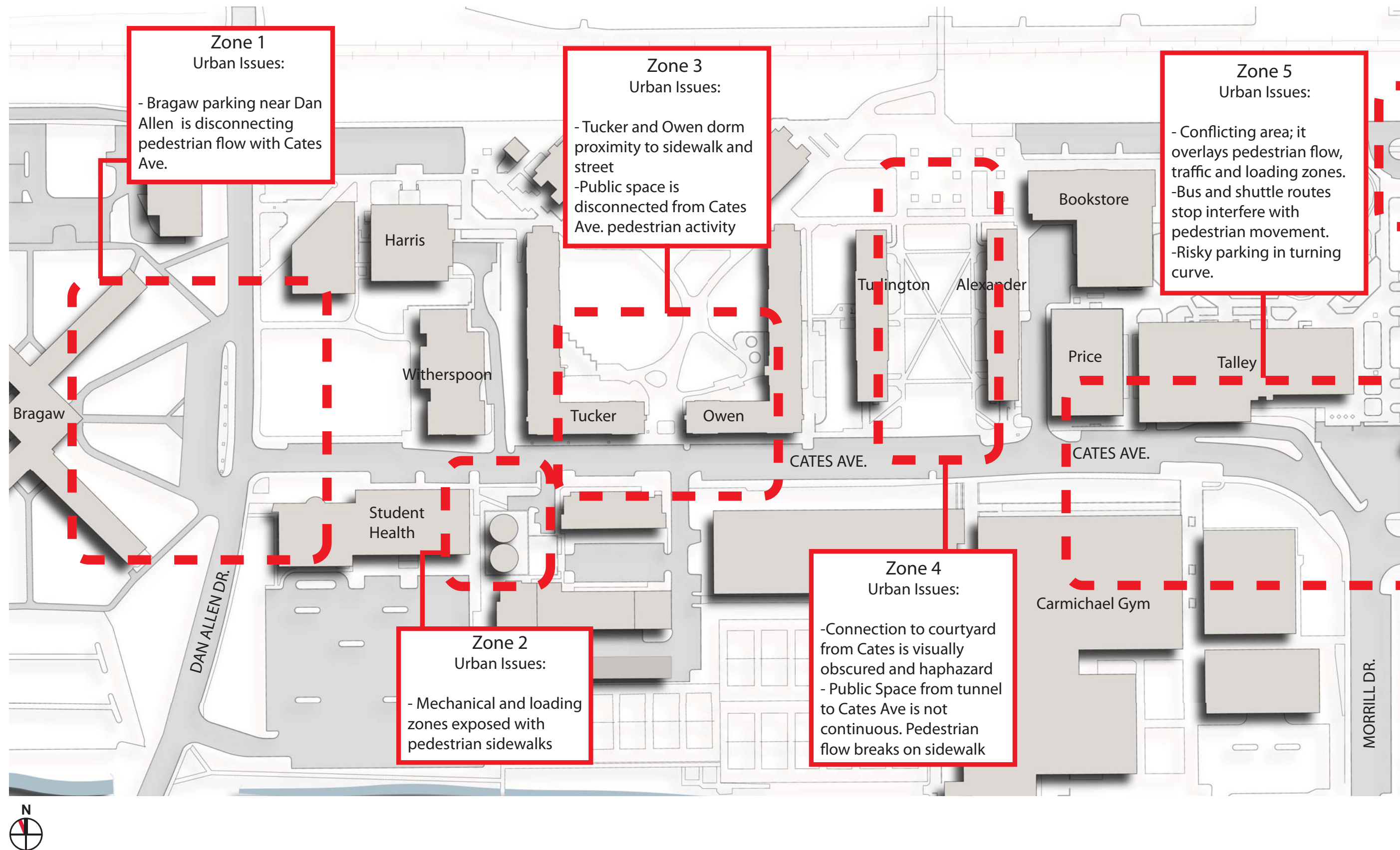


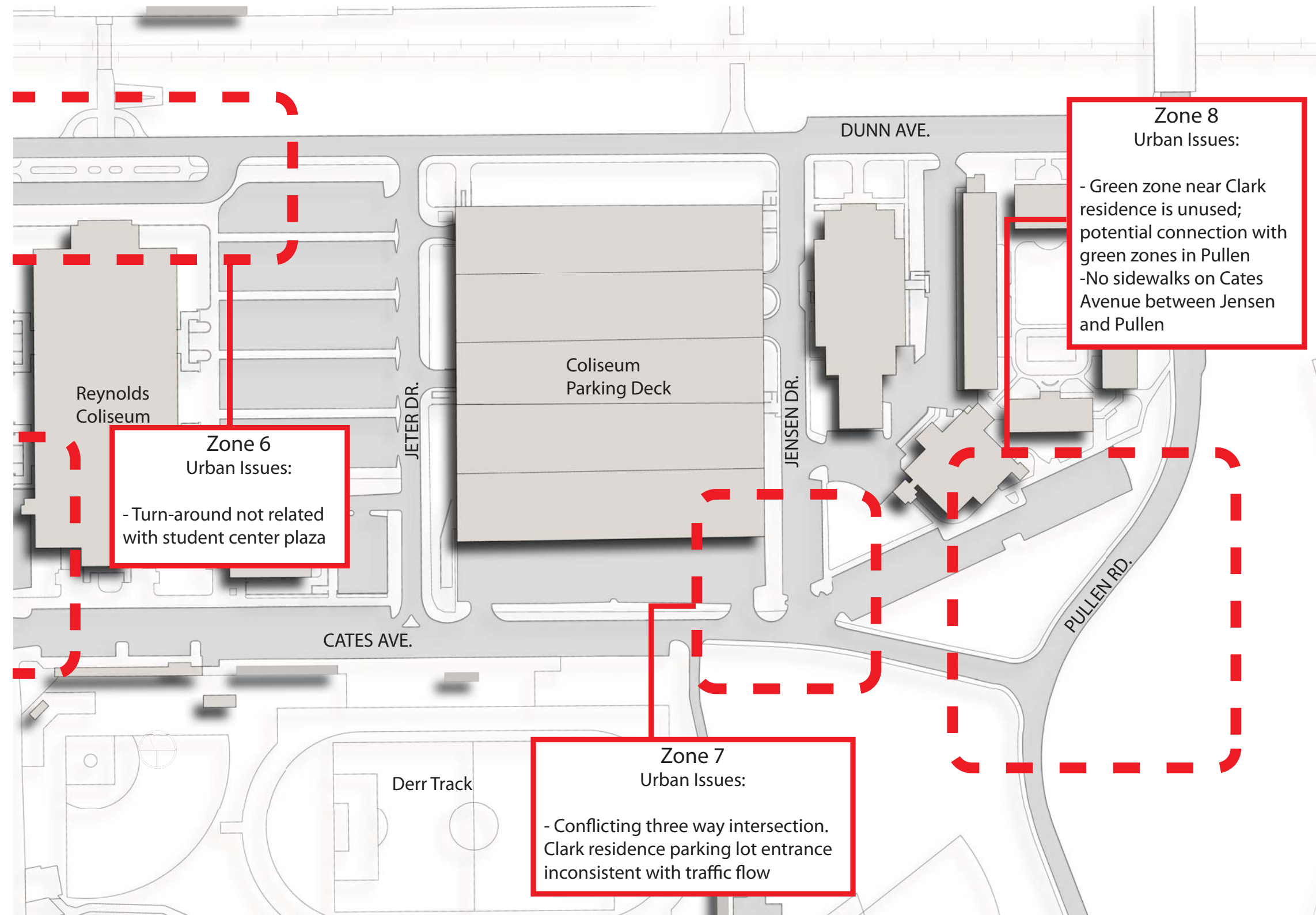
-  CITY OF RALEIGH
-  PULLEN PARK

CITY BOUNDARY

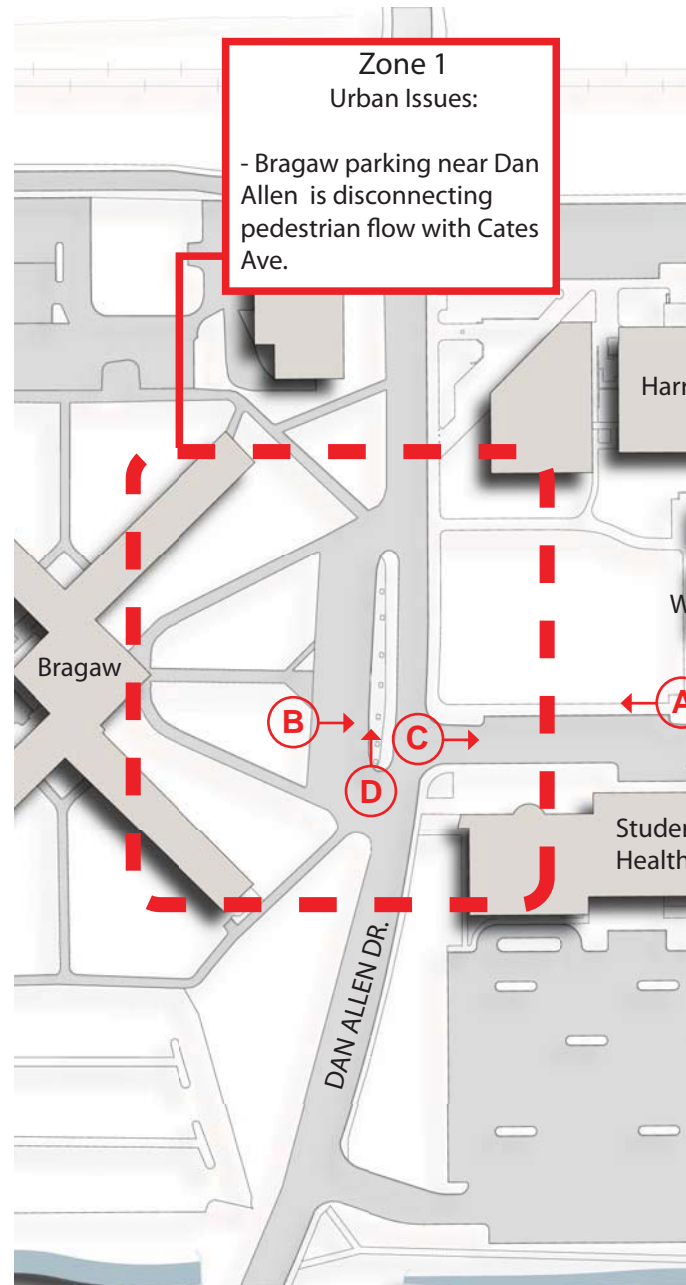
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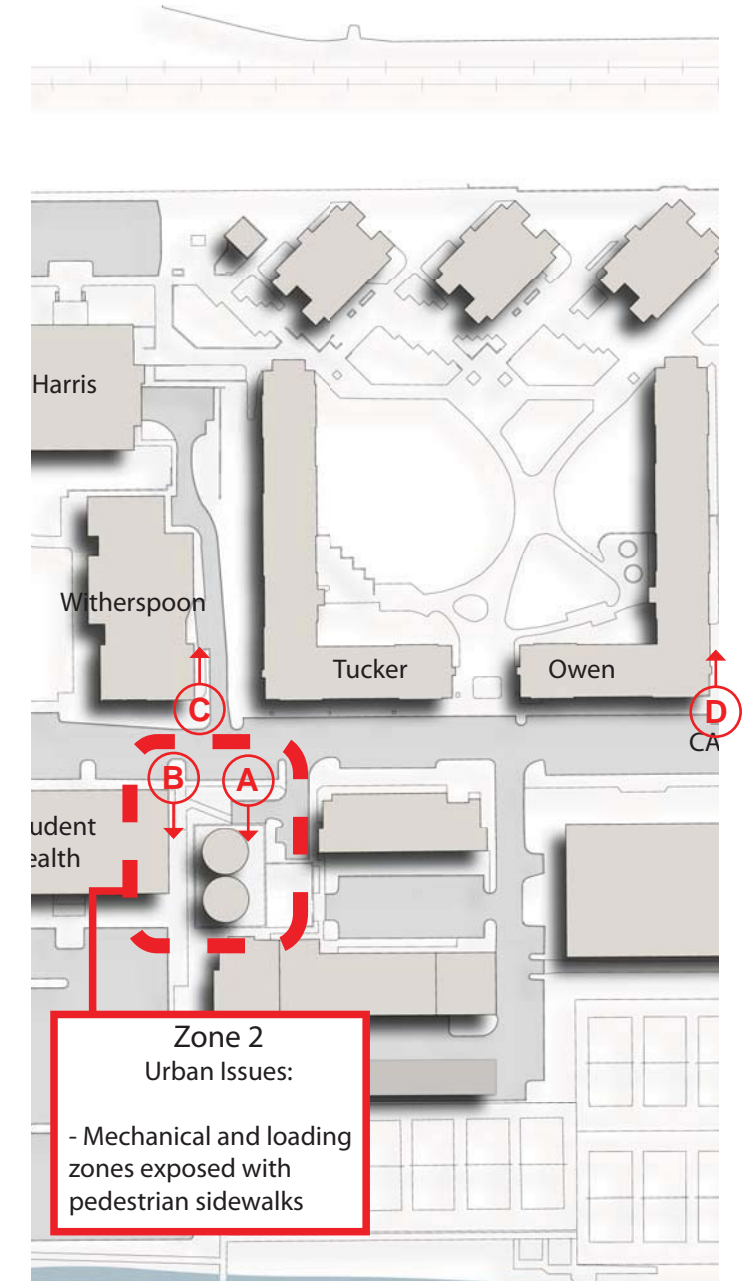




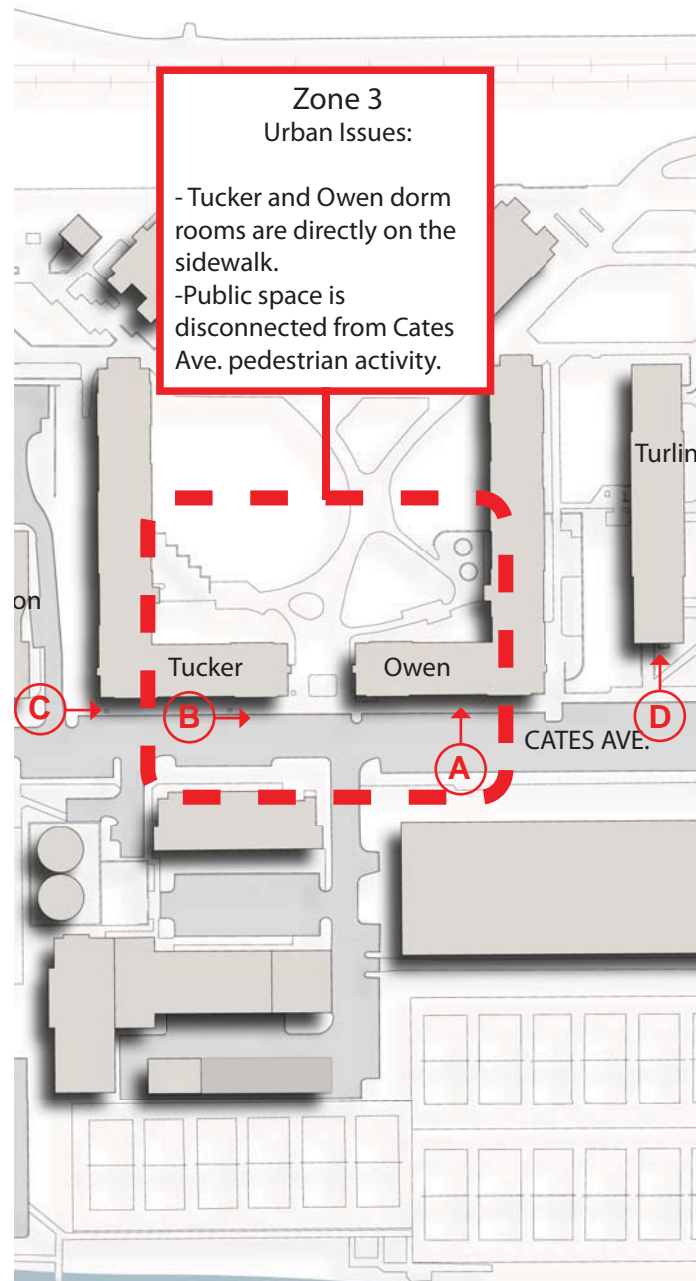




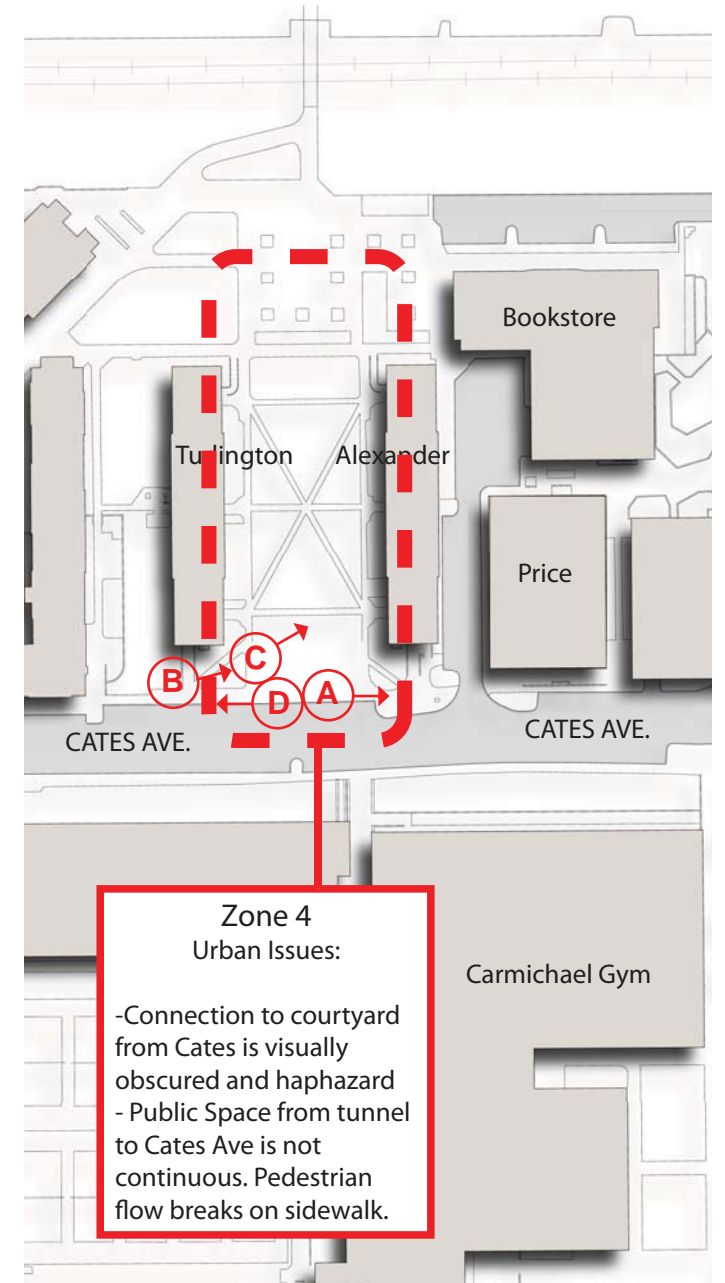








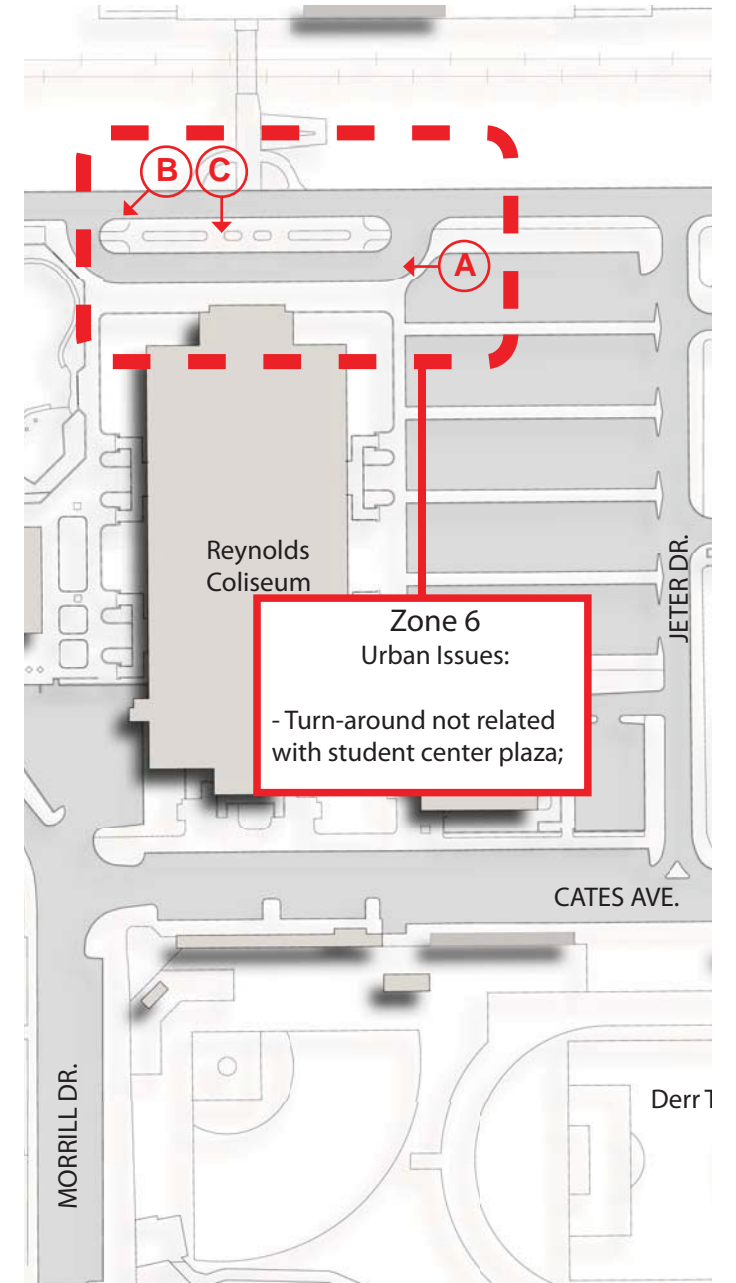




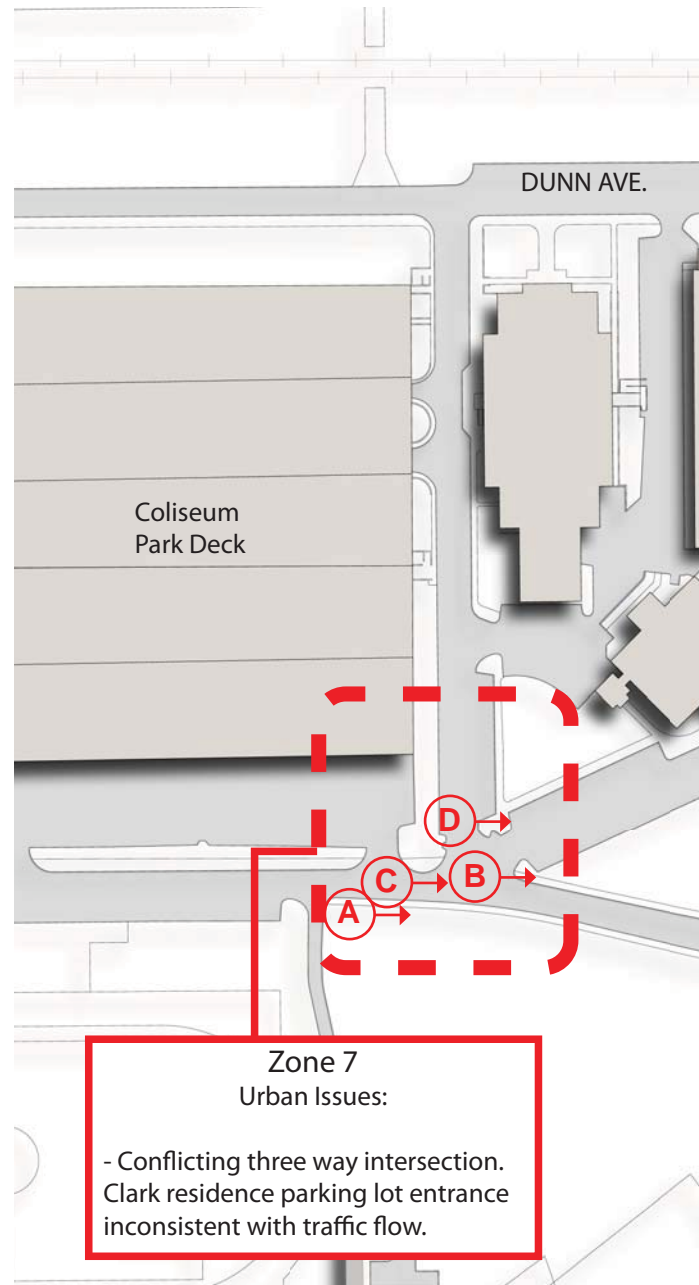




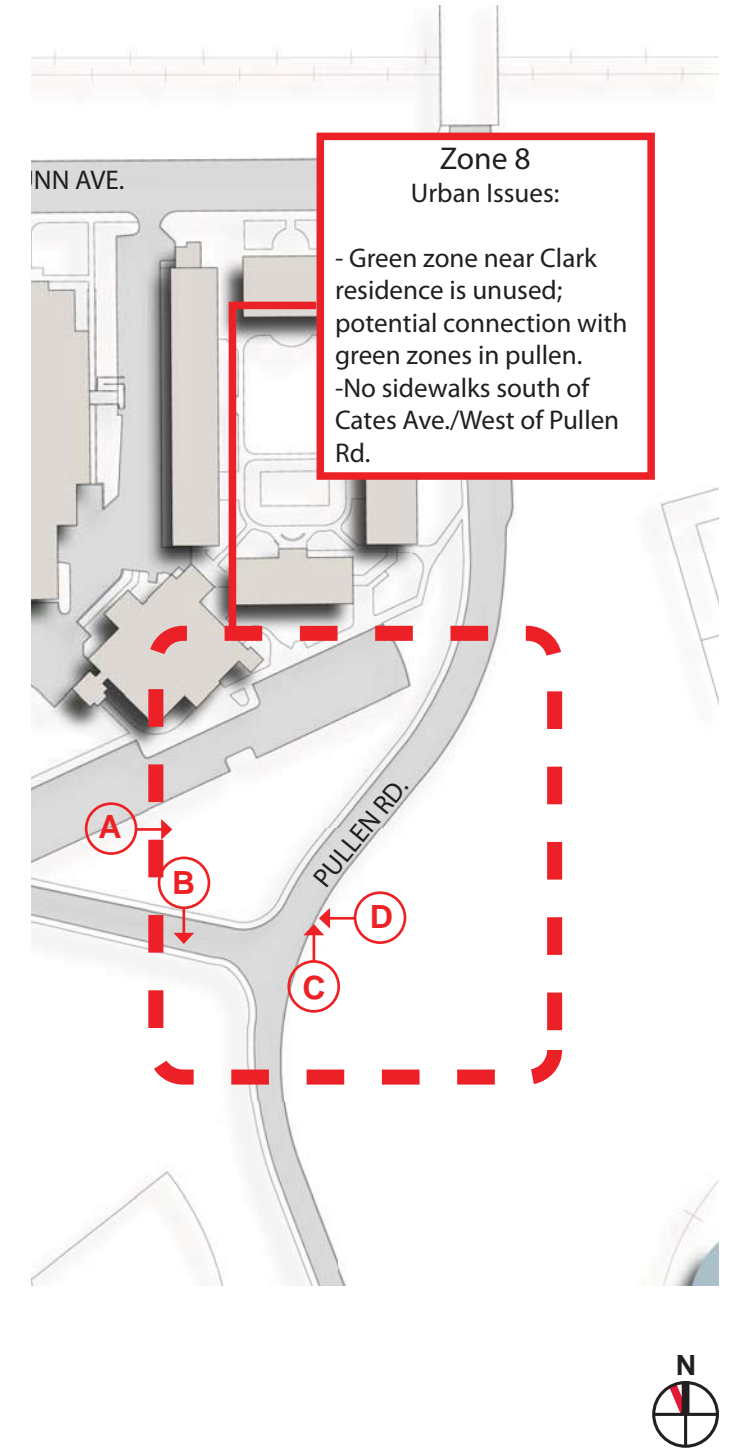






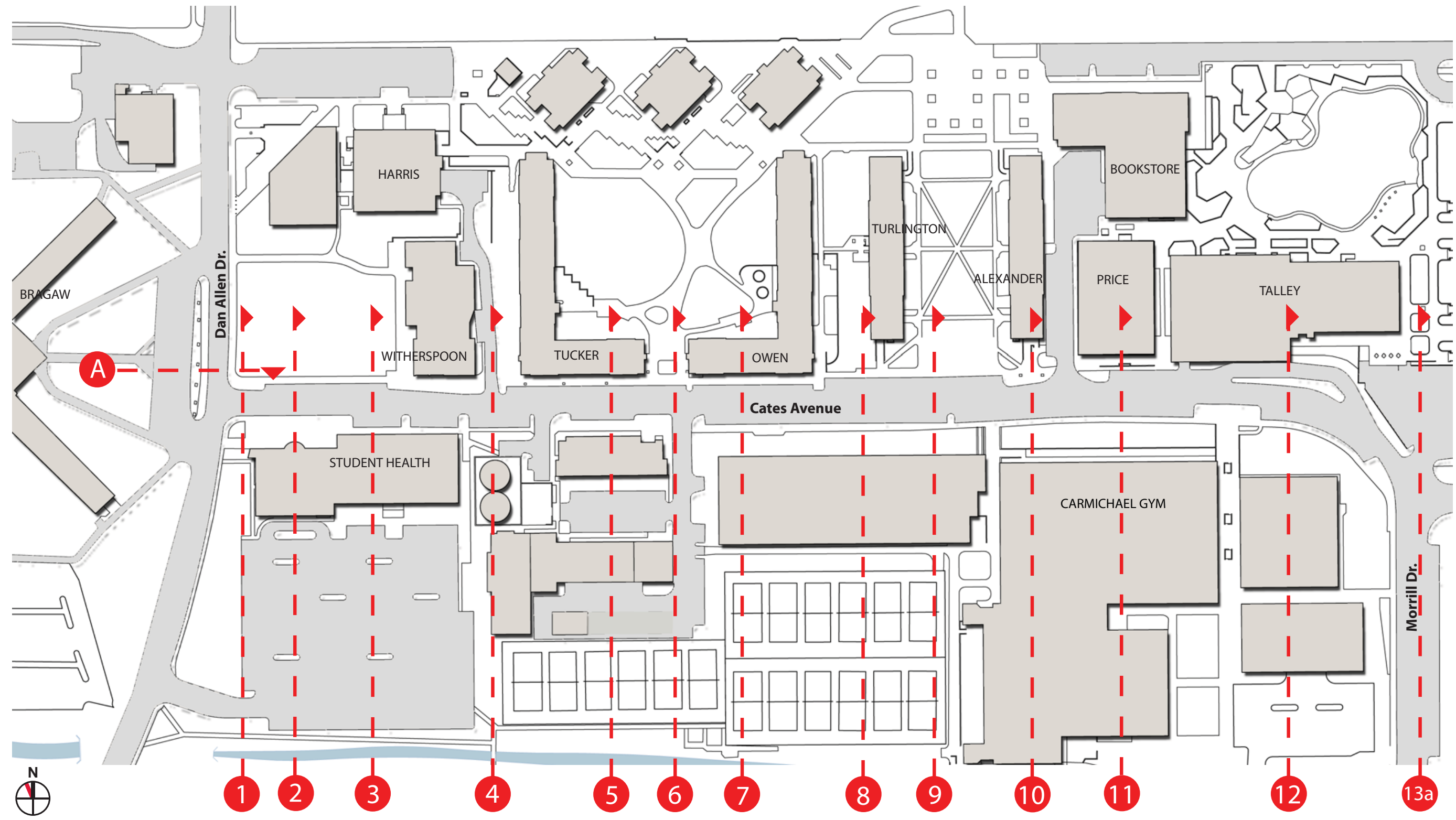




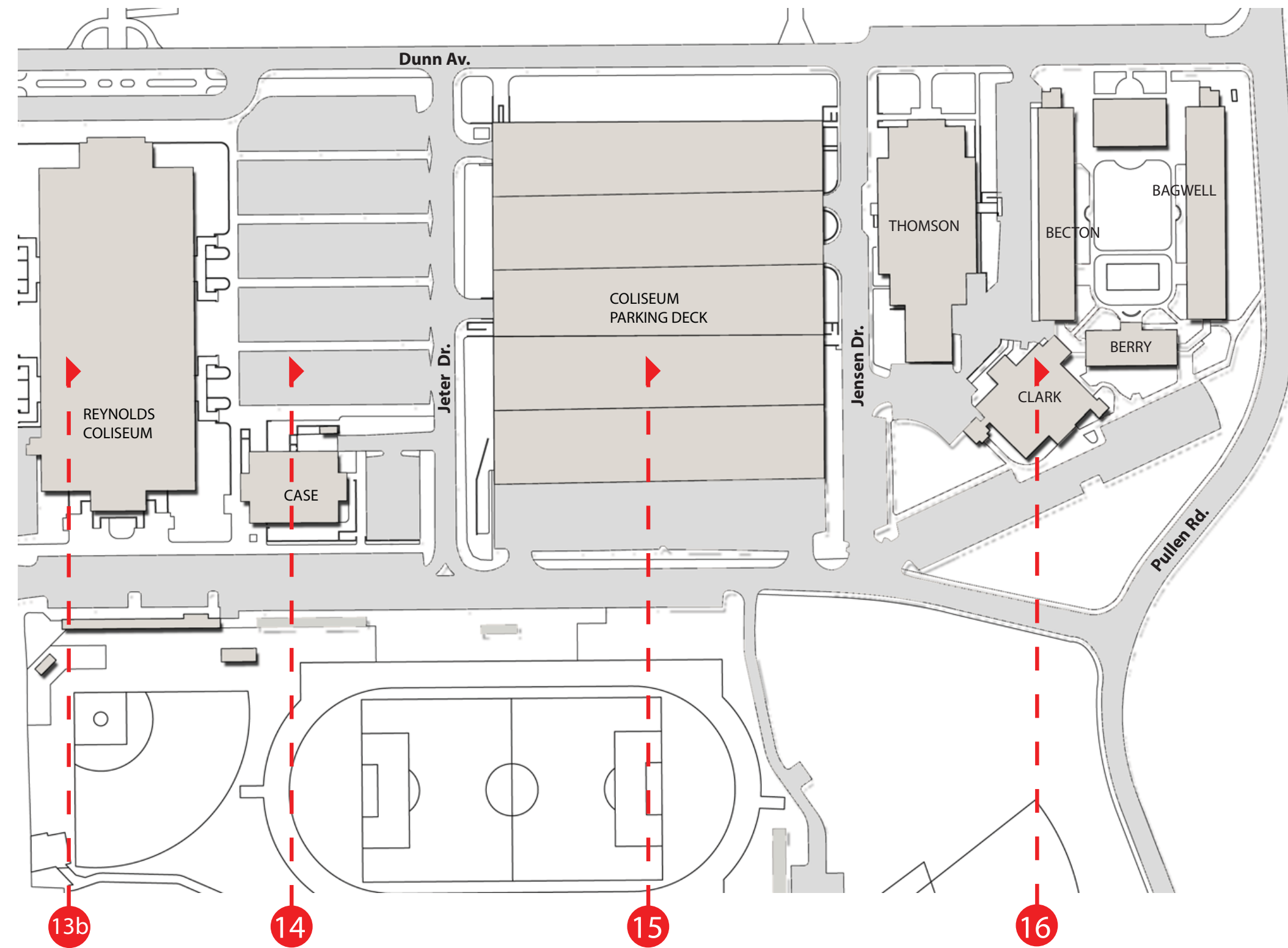




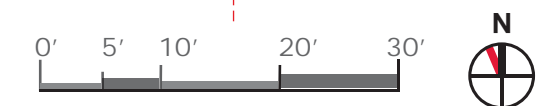
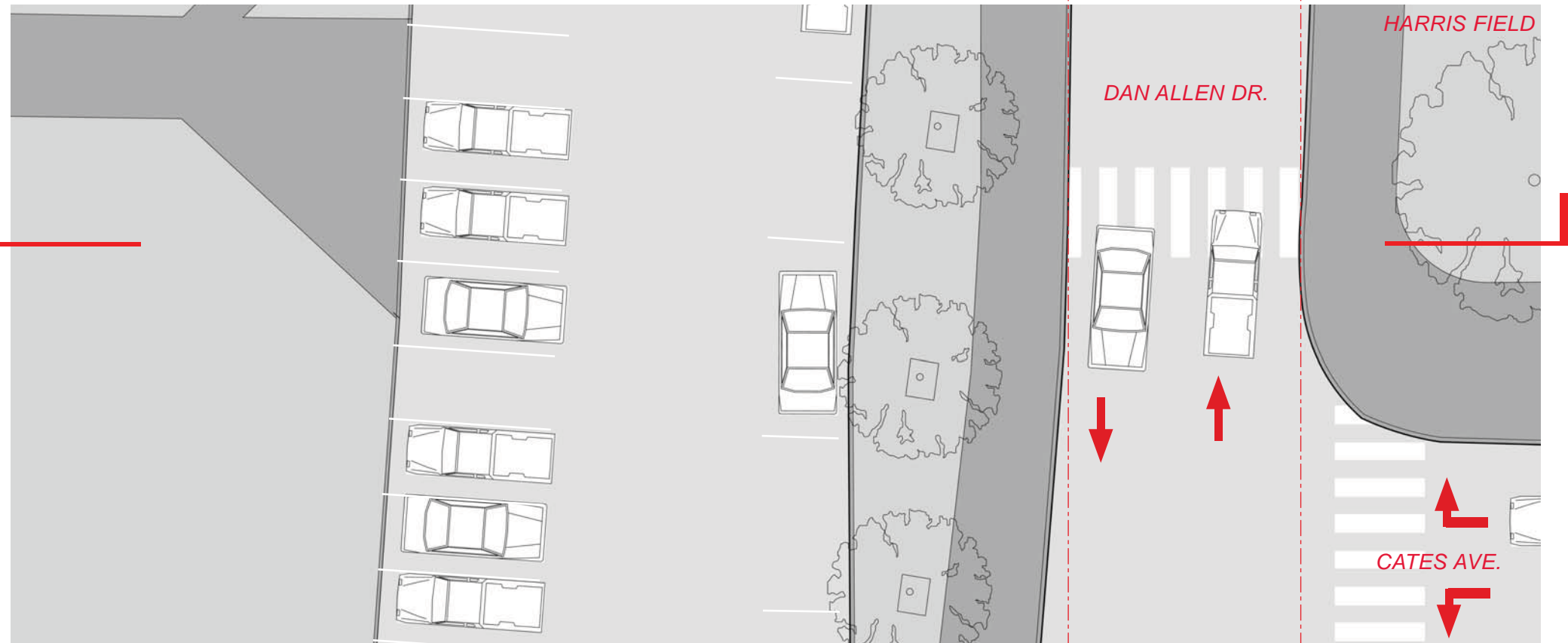
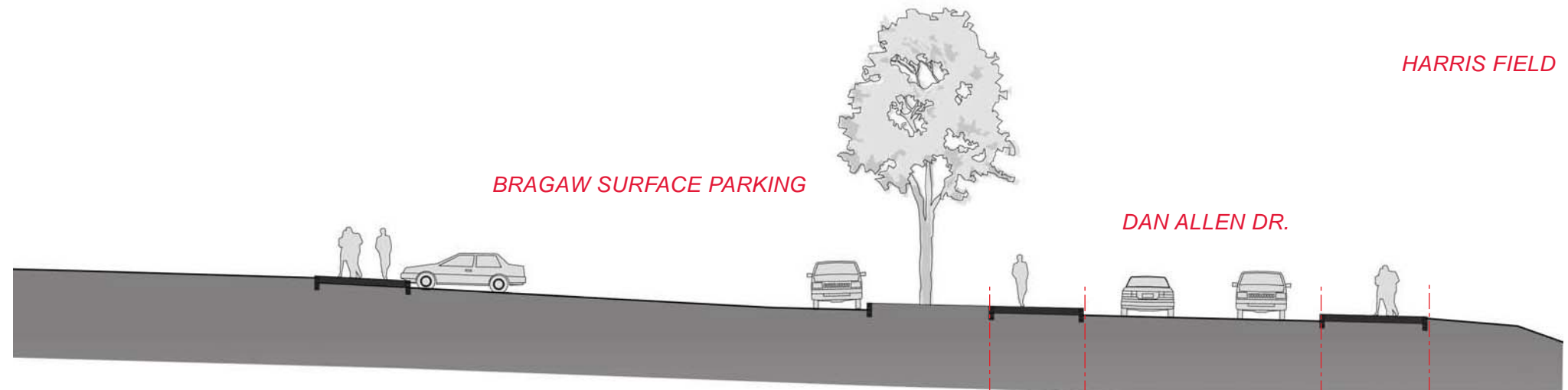
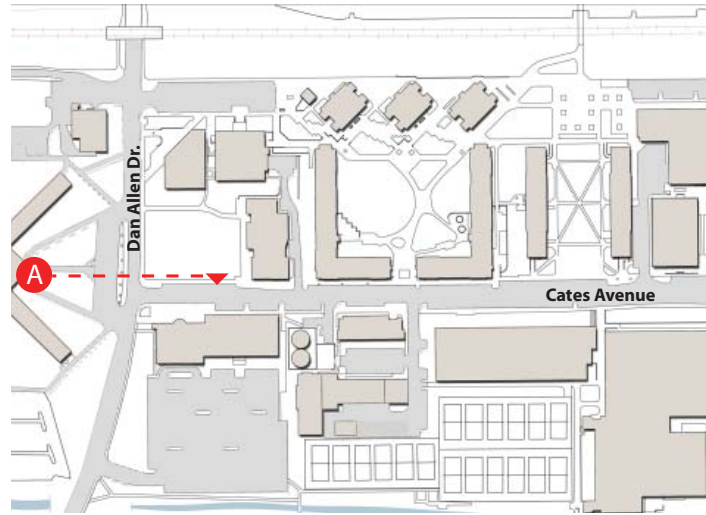
# Existing Sections







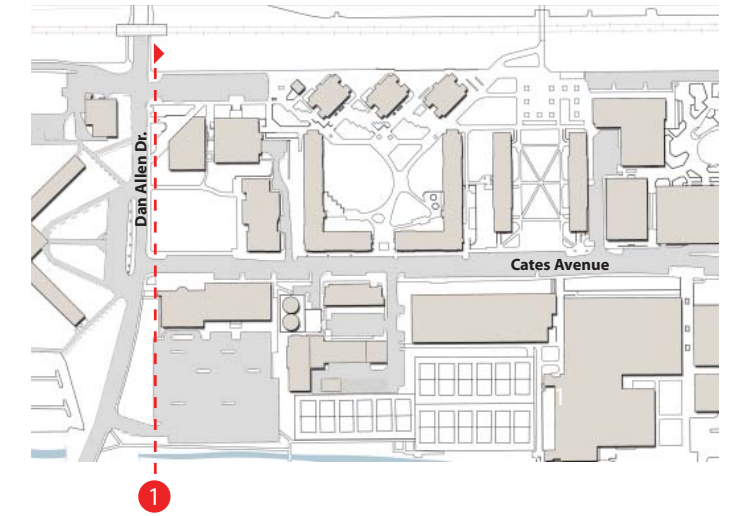
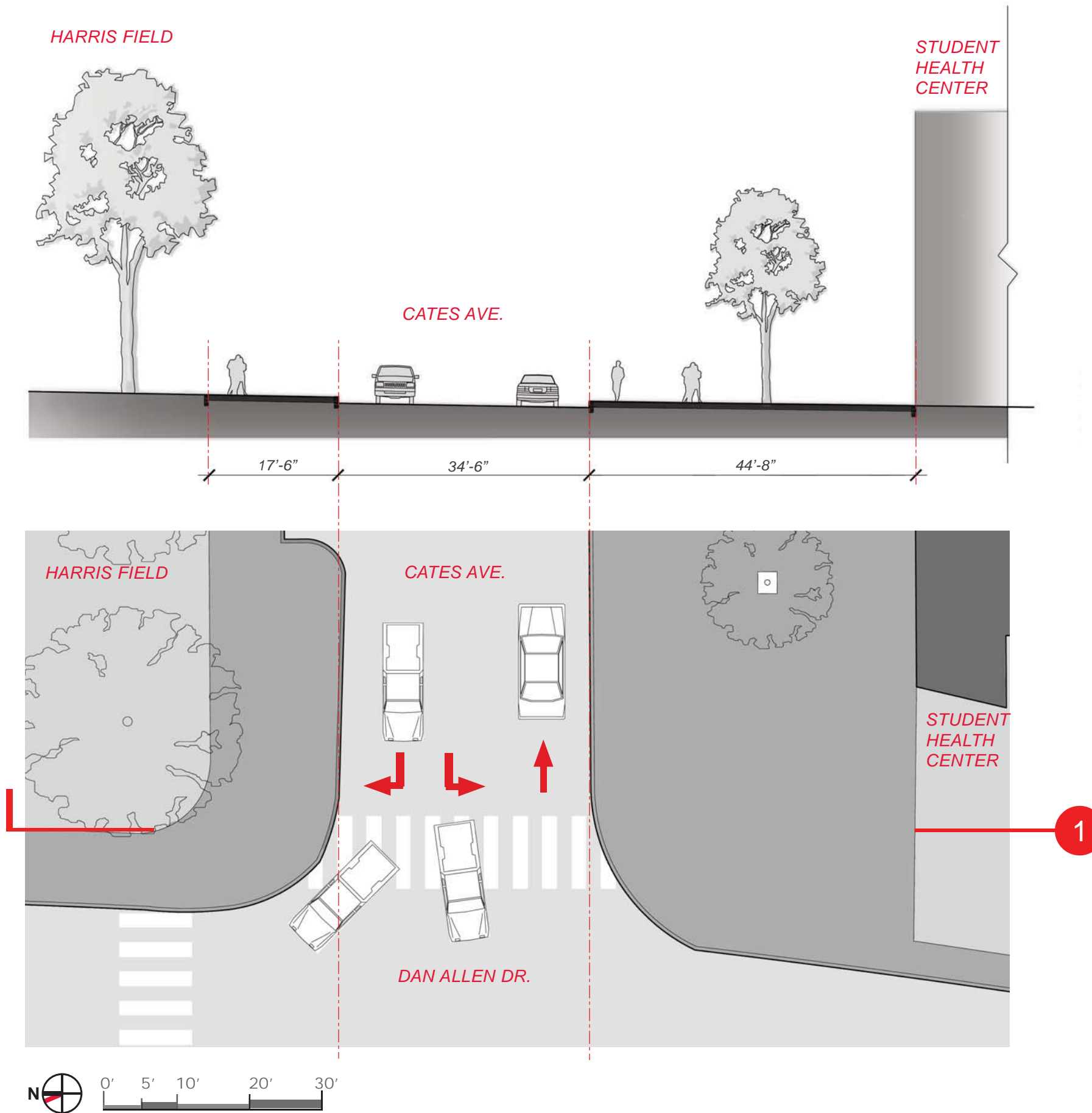




## Section A

- Cates Avenue and Dan Allen Drive intersection is bound by the Student Health Center to the south, Harris field to the north and Bragaw Hall parking to the west
- Parallel parking on Cates Avenue begins 60 feet east of the Dan Allen intersection
- Existing trees are located on the south edge of Harris Field and in planters on the sidewalk in front of the Student Health Center.
- Sidewalks are dissimilar widths
- Dan Allen Drive is a primary north-south street connecting Western Blvd. with Hillsborough Street
- Vehicular traffic traveling west on Cates Avenue backs up as a result of two turning lanes and a difficult left turn onto Dan Allen
- Vehicular traffic traveling north backs up along Dan Allen
- Pedestrian crossing east-west from Bragaw Hall is significant
- Combination of major pedestrian crossing and vehicular traffic creates a congested condition

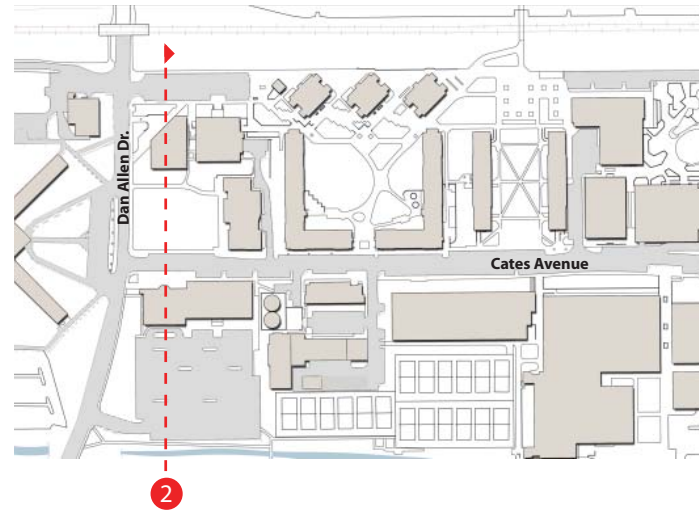




## Section 1

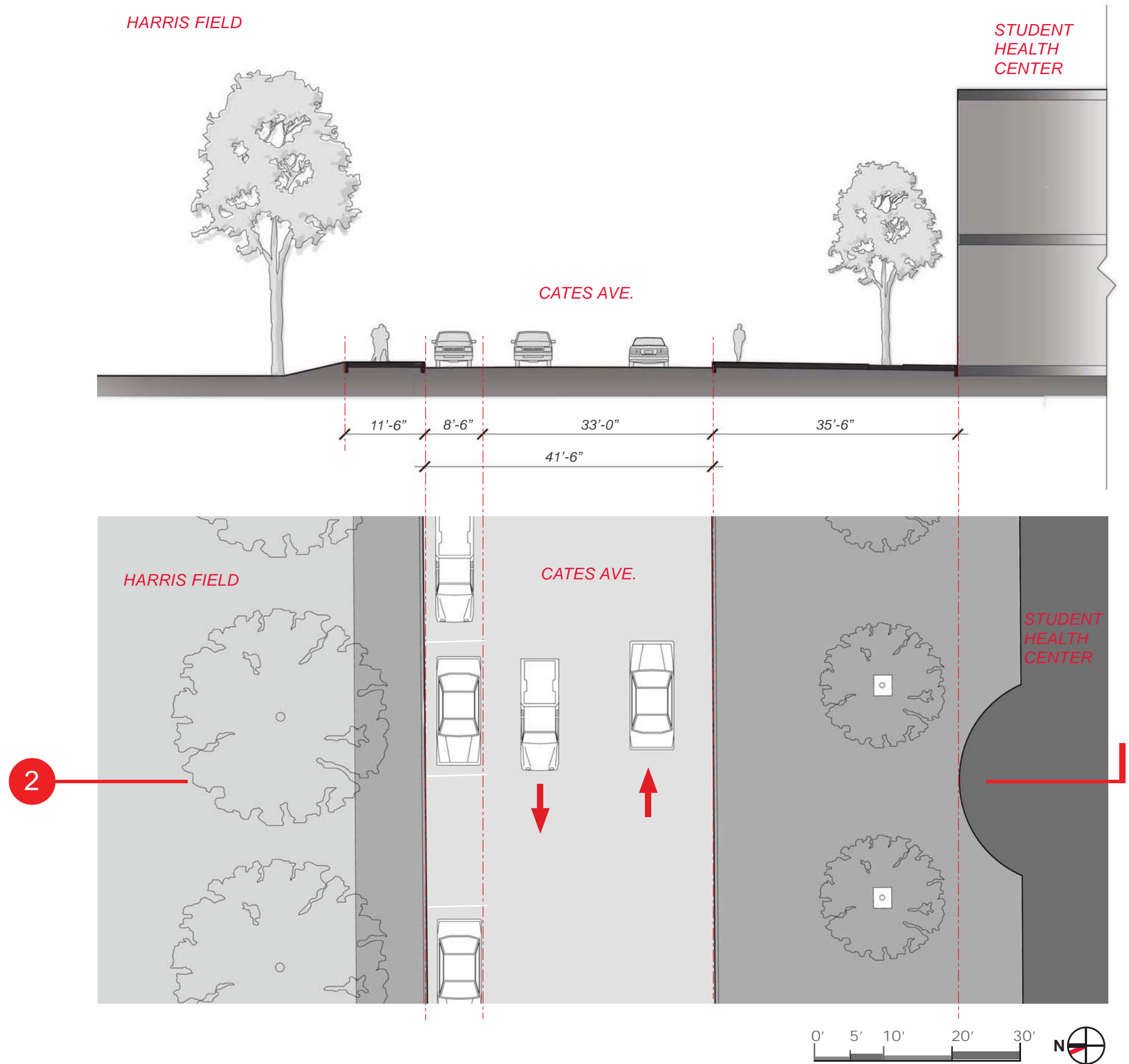
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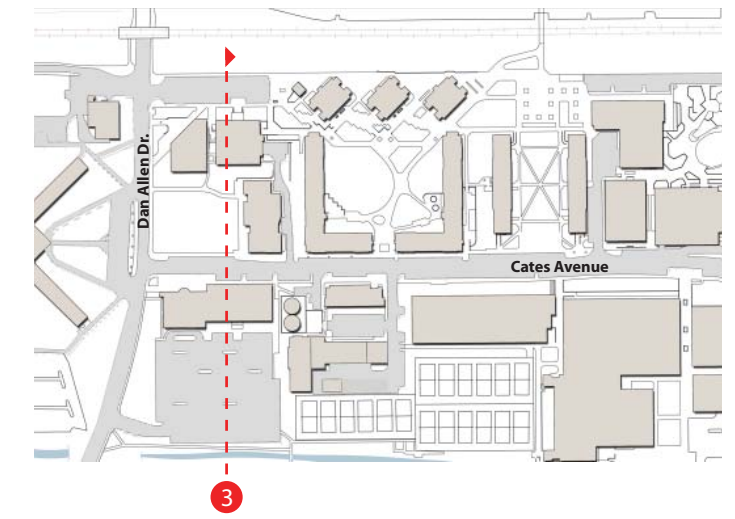
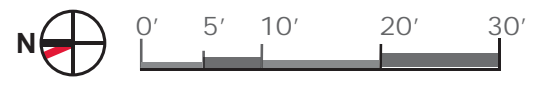
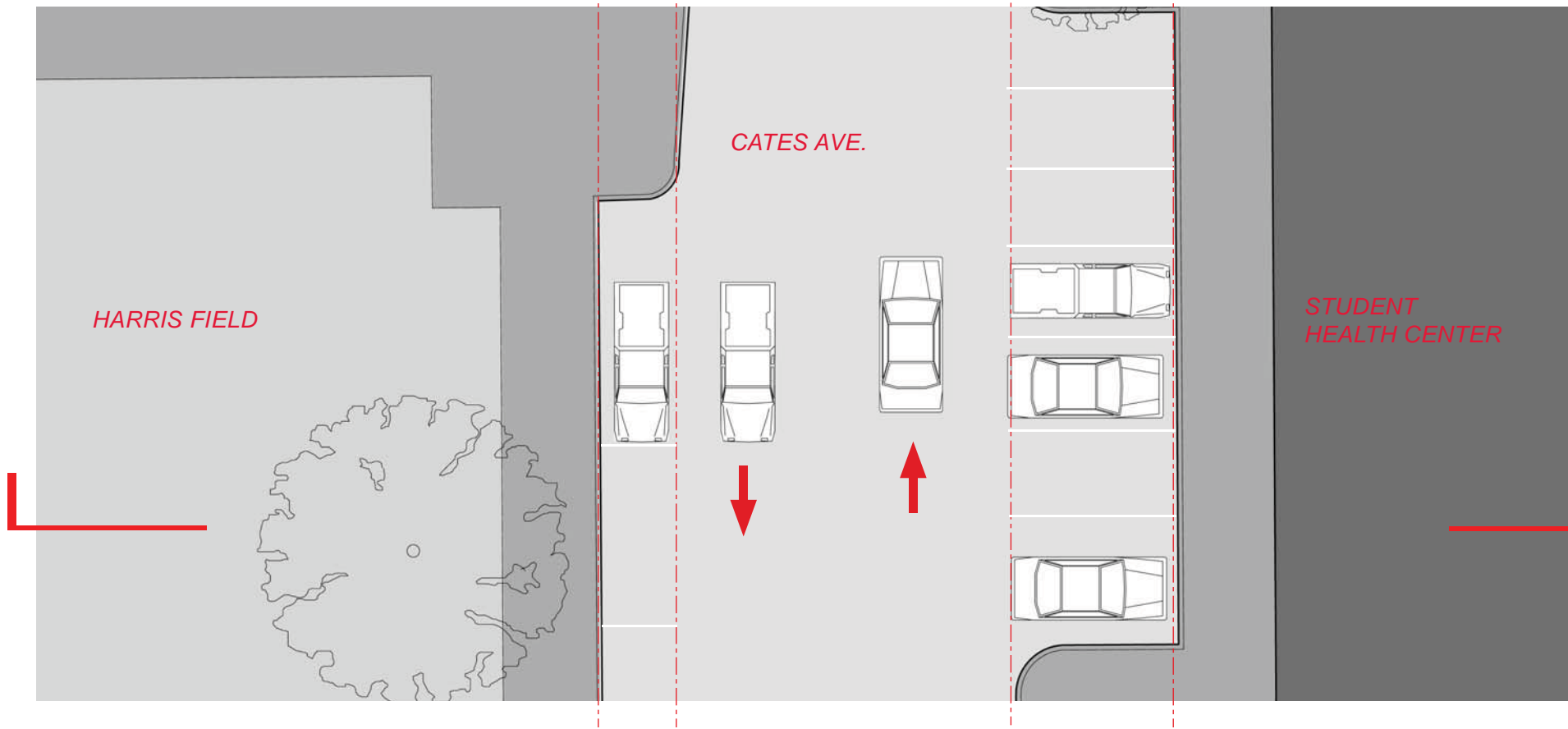
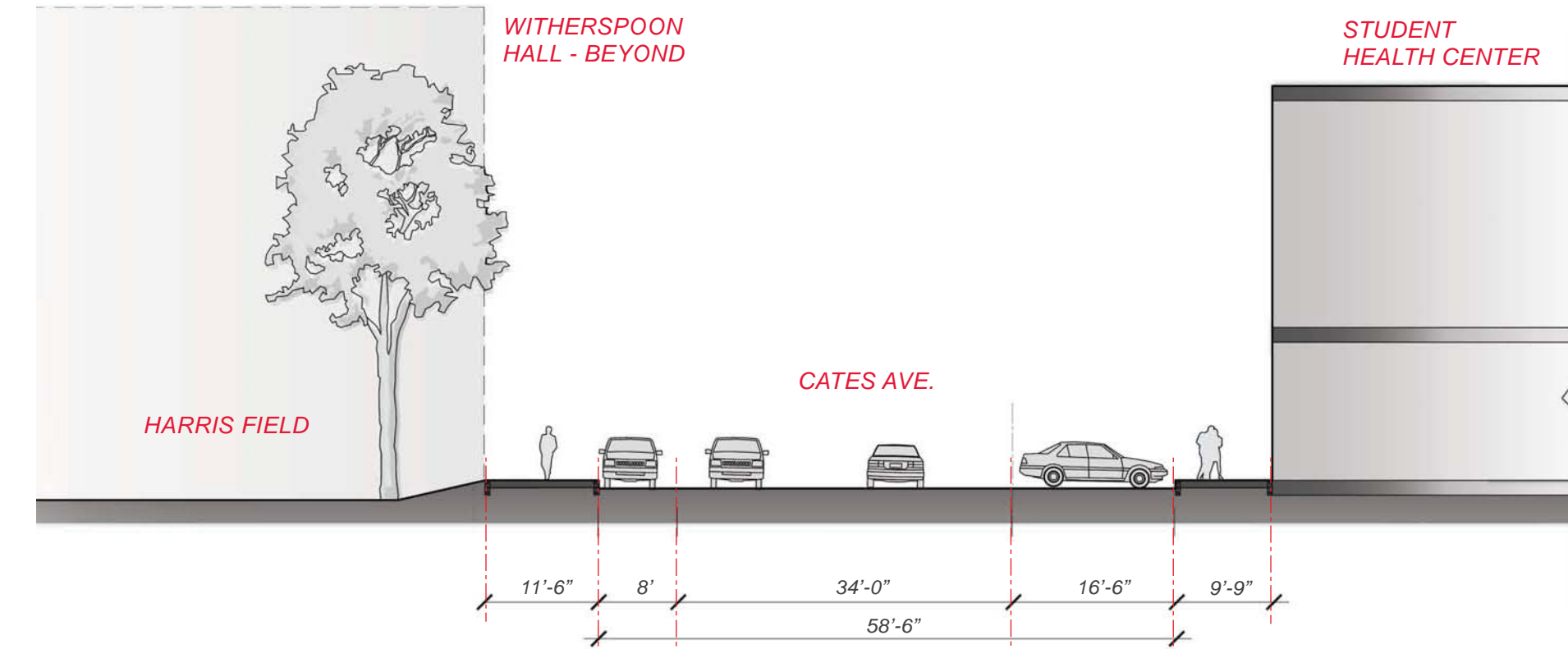


## Section 2

- Cates Avenue is bounded by the Student Health Center to the south and Harris Field to the north
- Parallel parking exists on the north side of Cates Avenue
- Existing trees are located on the south edge of Harris Field and are located in planters on the south sidewalk in front of the Student Health Center
- Sidewalks are dissimilar widths on north and south
- No existing pedestrian crossing from north to south
- Pedestrian traffic flow to the main entry of Student Health Center building must cross further east or west



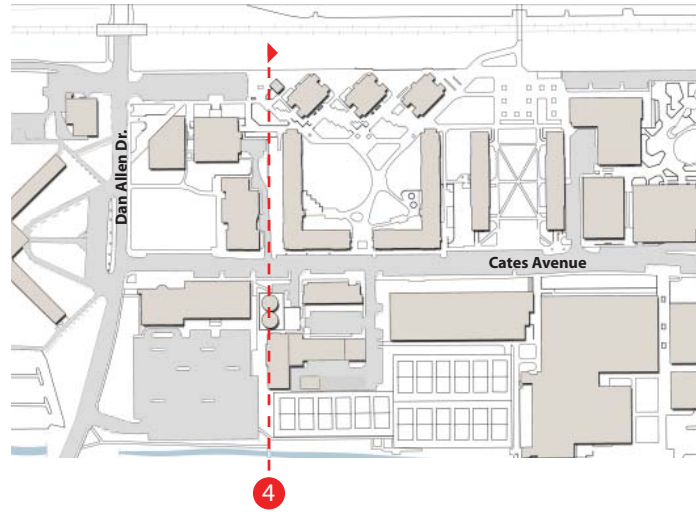




### Section 3

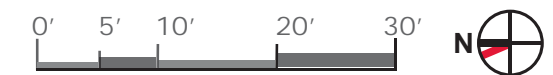
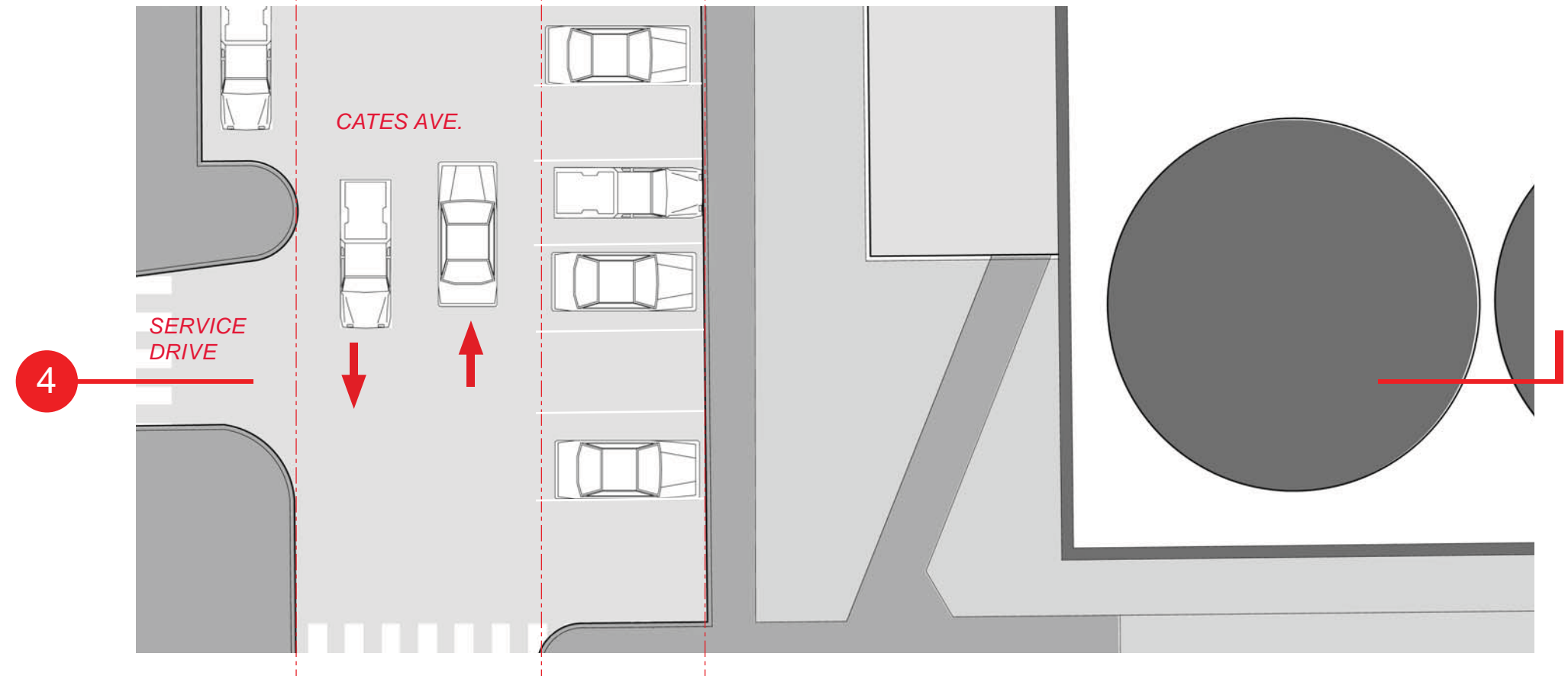
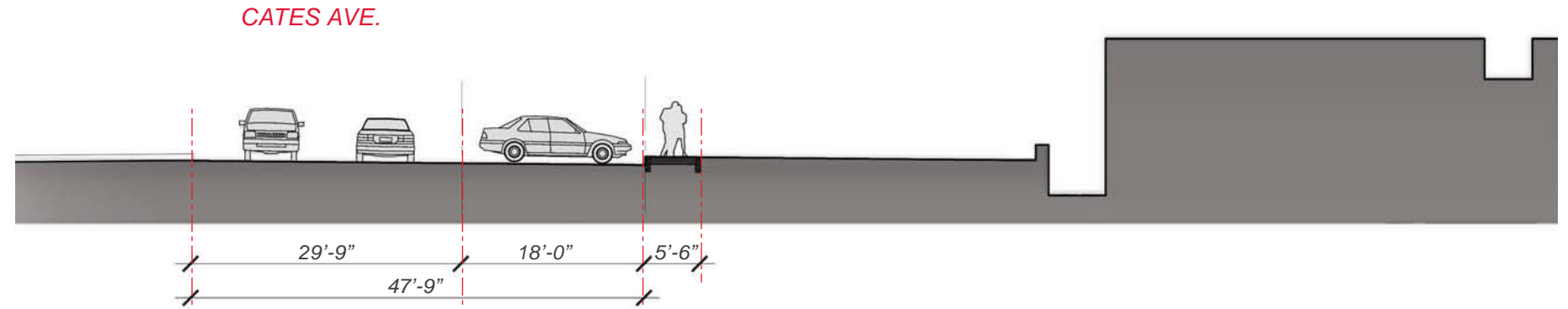
- Cates Avenue is bounded by the Student Health Center to the south and Harris field to the north
- Parallel parking on the north side of Cates Avenue and head in parking exists on the south side
- Existing trees are located on the south edge of Harris Field
- Sidewalks are dissimilar widths on north and south
- The Student Health Center facade meets the sidewalk abruptly



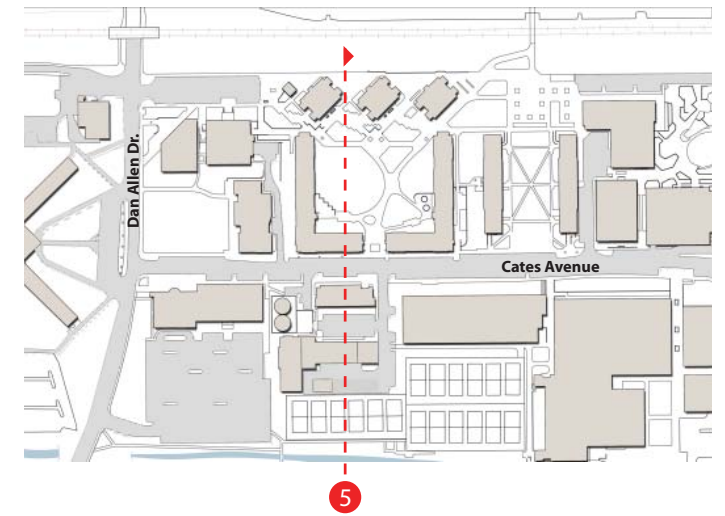
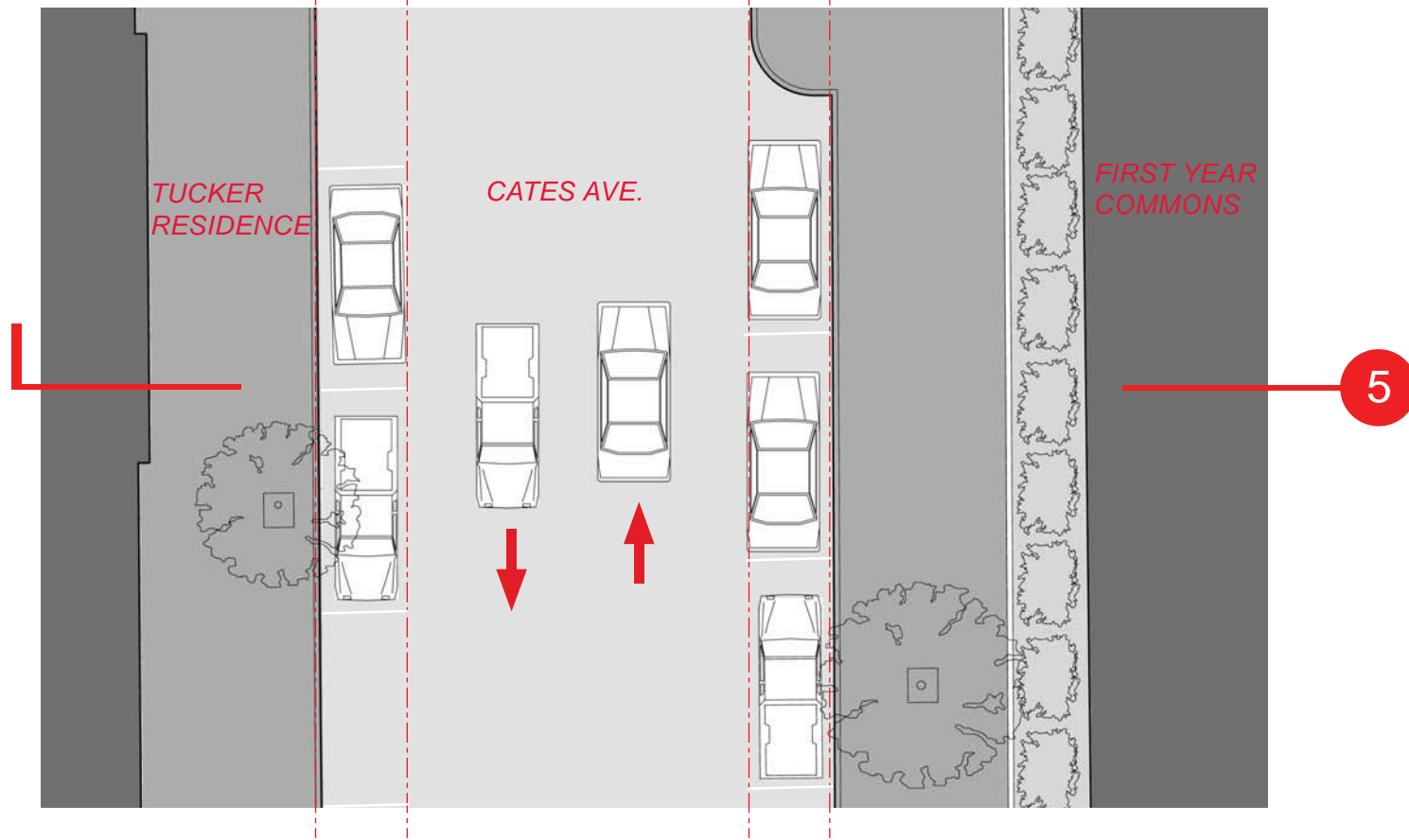
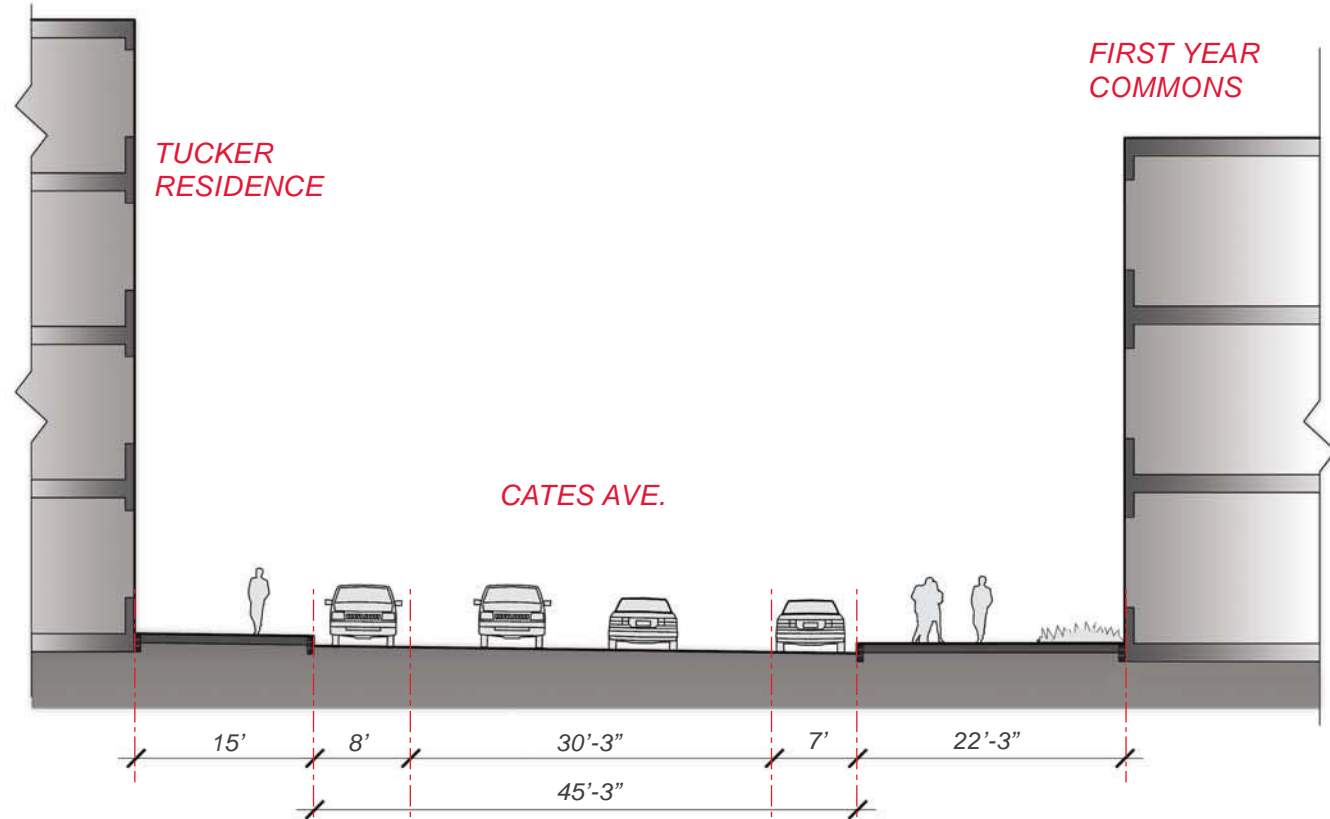


## Section 4

- Cates Avenue is bounded by a service drive to the north and a service area and cooling towers to the south
- Parallel parking exists on the north side of Cates Avenue and head in parking exists on the south side
- No trees exist along the sidewalks
- Sidewalks are dissimilar widths on north and south
- Pedestrian traffic flow is primarily east-west
- Street drive lane width narrows



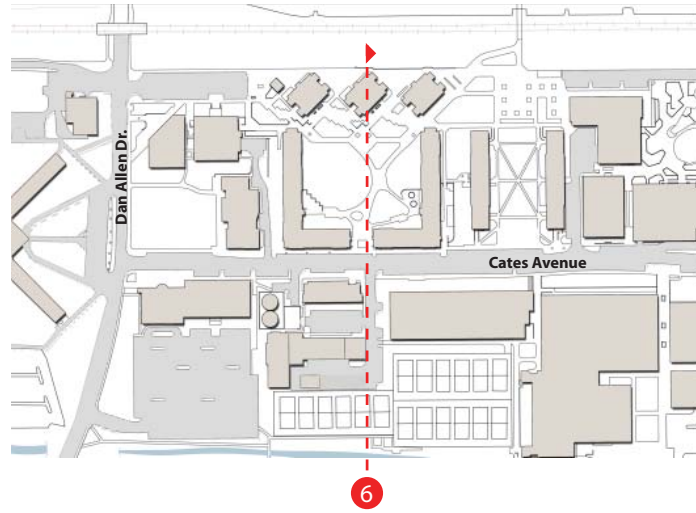




## Section 5

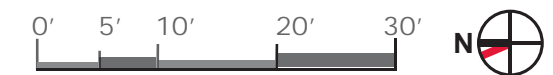
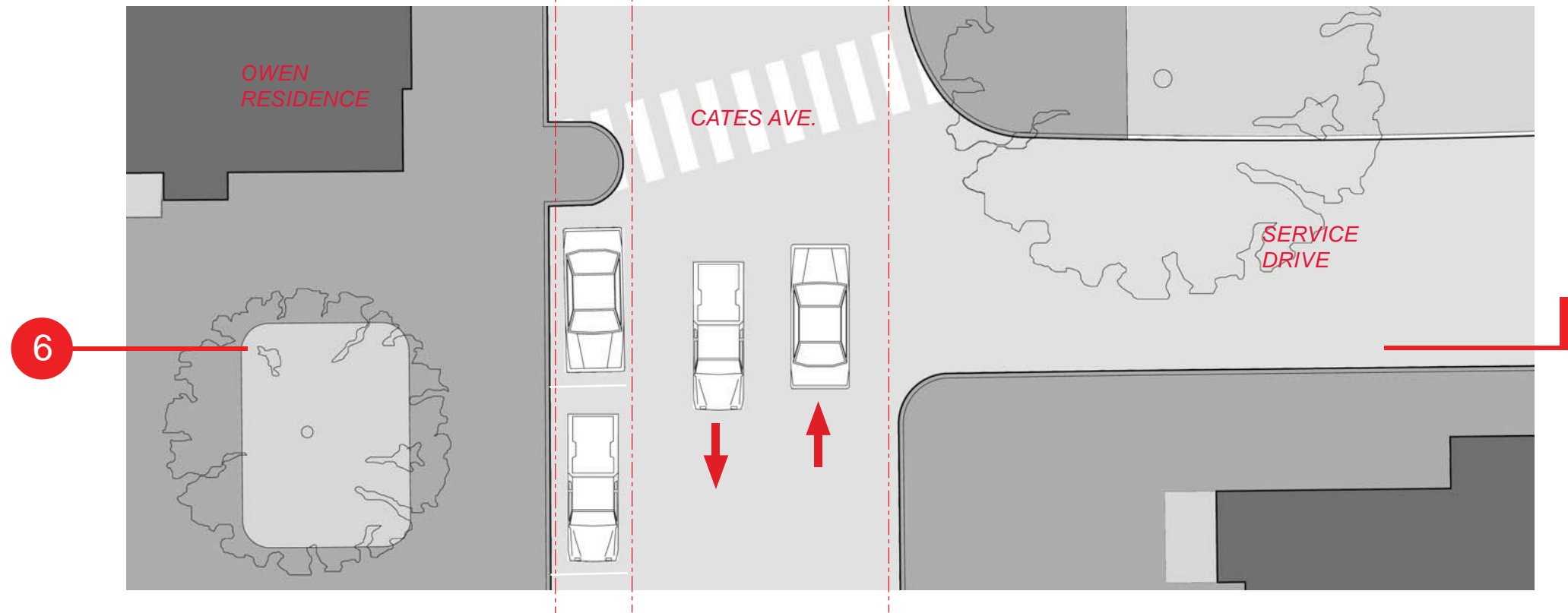
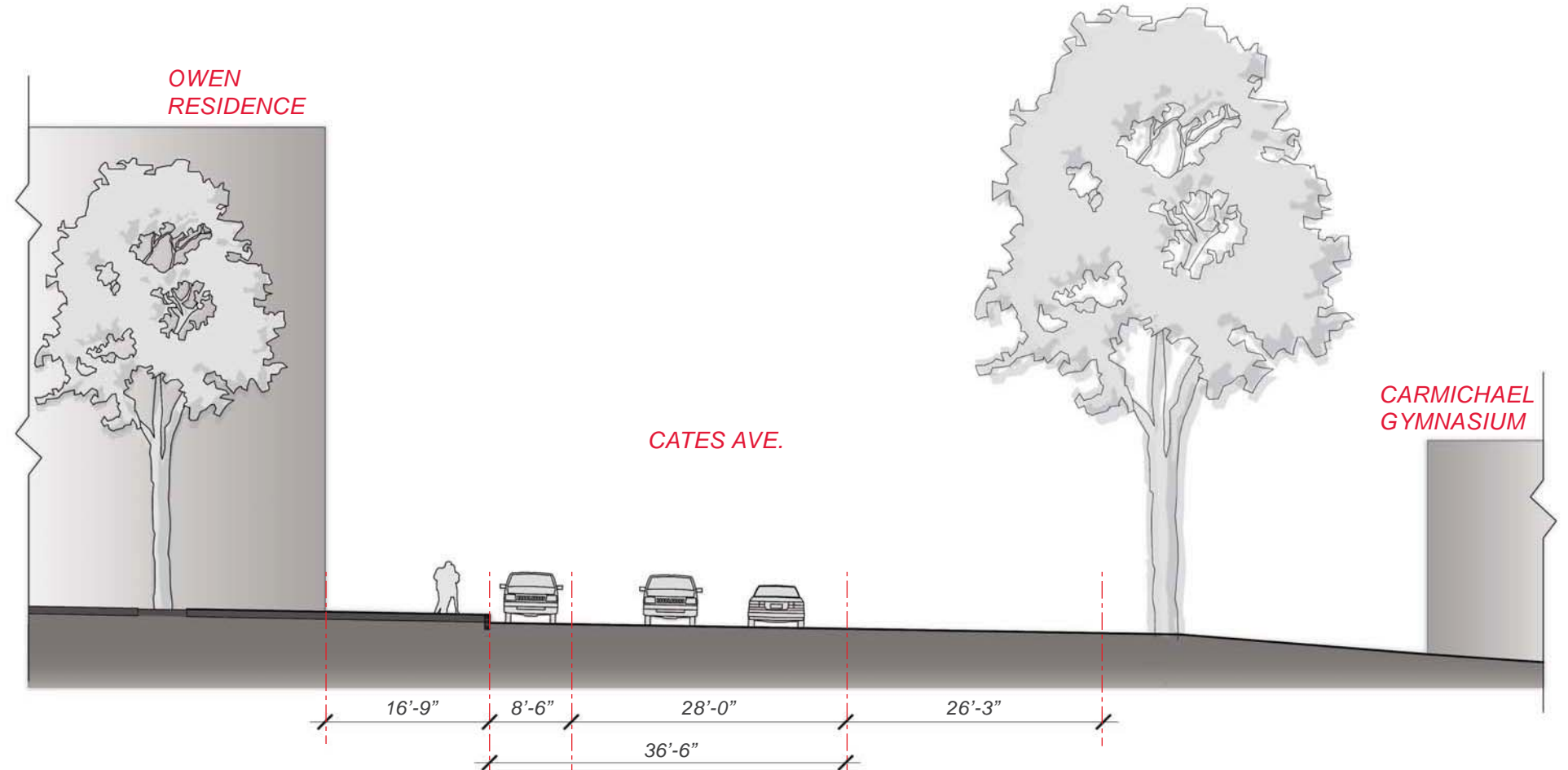
- Cates Avenue is bound by Tucker Residence to the north and First Year Commons to the south
- Parallel parking exists on the north and south sides of Cates Avenue
- New trees are located in planters on the north and south sidewalks
- A low planter is located between the south sidewalk and the First Year Commons Building
- Sidewalks are dissimilar widths on north and south
- Pedestrian traffic flow is primarily east-west and is heavier on the north sidewalk. There is one existing pedestrian crossing
- An existing basement access staircase sits between Owen Residence and the sidewalk



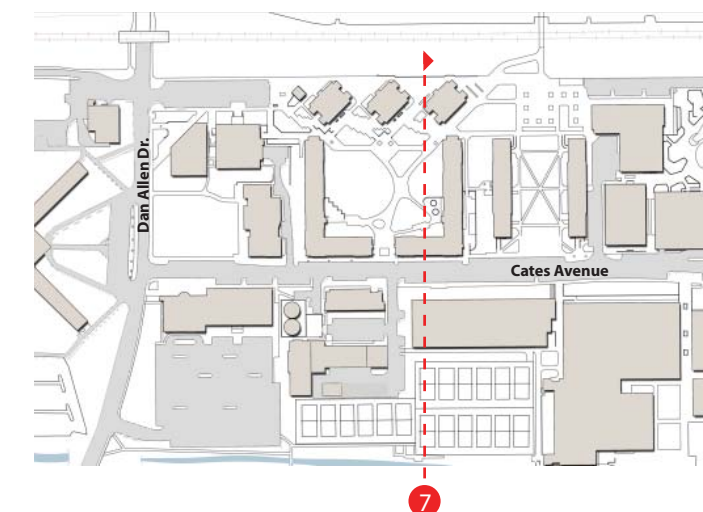
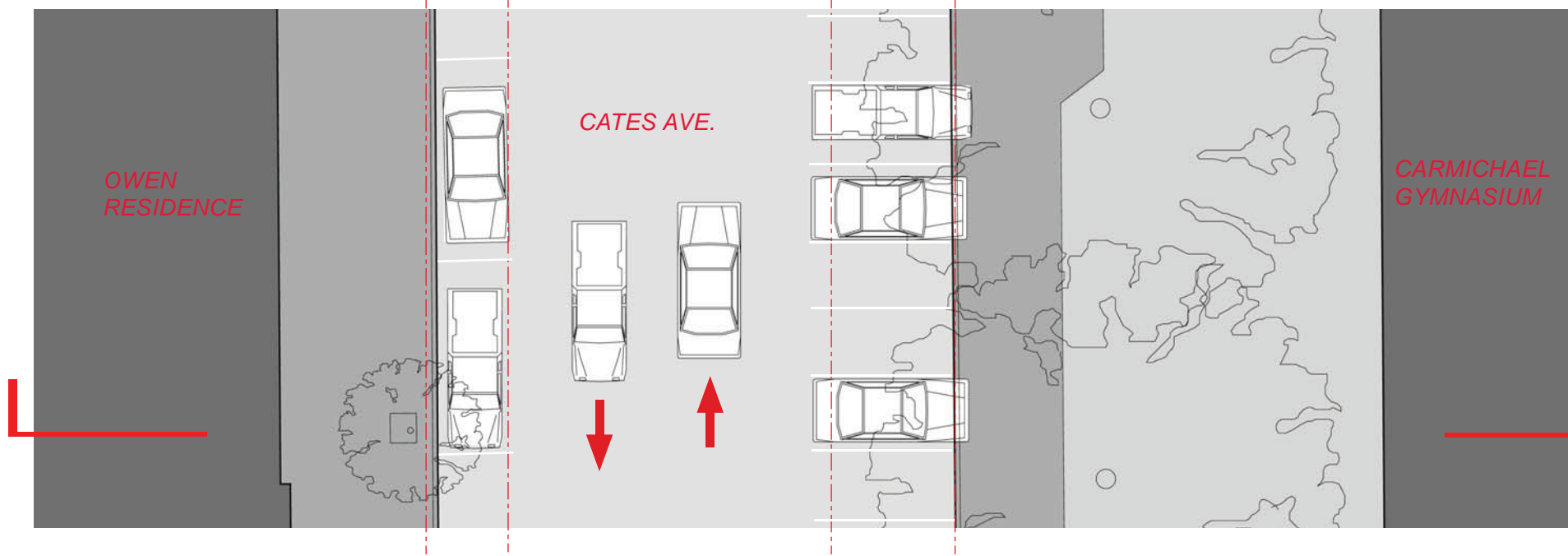
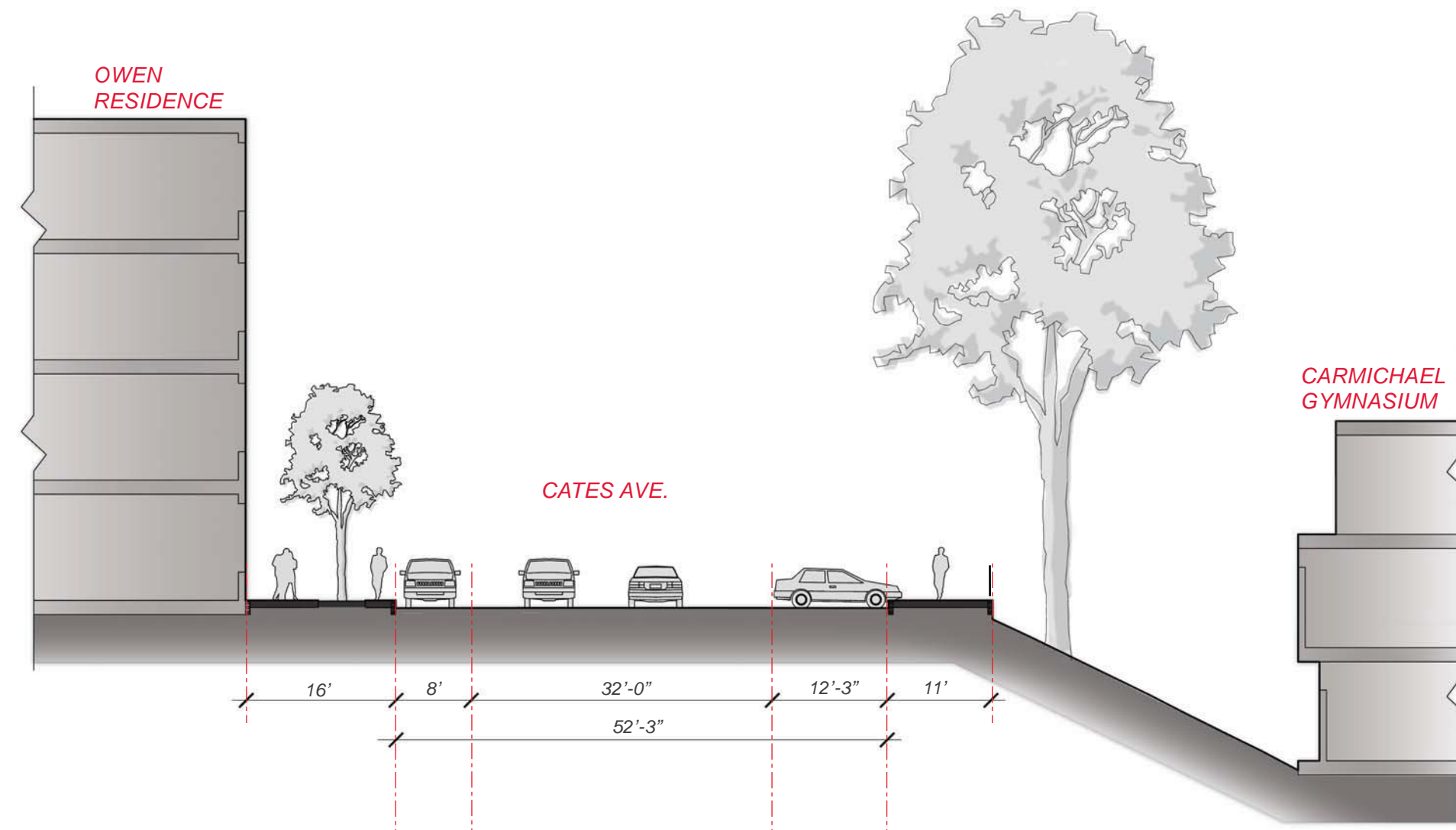


## Section 6

- Cates Avenue is bound by a plaza between Tucker and Owen Residences to the north and a service drive to the south
- Tucker and Owen Residences meet the sidewalk abruptly with private dorm windows directly at sidewalk
- Parallel parking exists on the north side of Cates Avenue
- Large existing trees are located both between Tucker and Owen Residences to the north and to the south along Carmichael Gymnasium
- Sidewalks are similar widths on north and south
- Pedestrian traffic flow is primarily east-west and is heavier on the north sidewalk. There is no defined pedestrian crossing
- Street width narrows

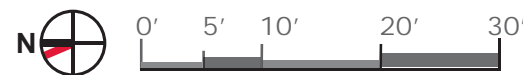




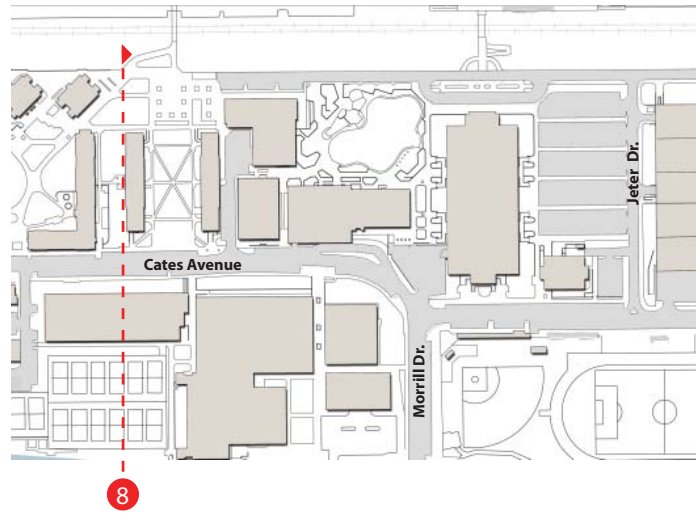


## Section 7

- Cates Avenue is bound by Owen Residence to the north and Carmichael Gymnasium to the south
- Owen Residence meets the sidewalk abruptly with private dorm windows directly at sidewalk
- Parallel parking exists on the north side of Cates Avenue and head in parking exists on the south side
- New trees are located in planters on the north sidewalk and large existing trees are located to the south along Carmichael Gymnasium
- Sidewalks are dissimilar widths on north and south
- A significant slope between south sidewalk and Carmichael Gymnasium create an undefined zone that isolates pedestrian activity to the street edge

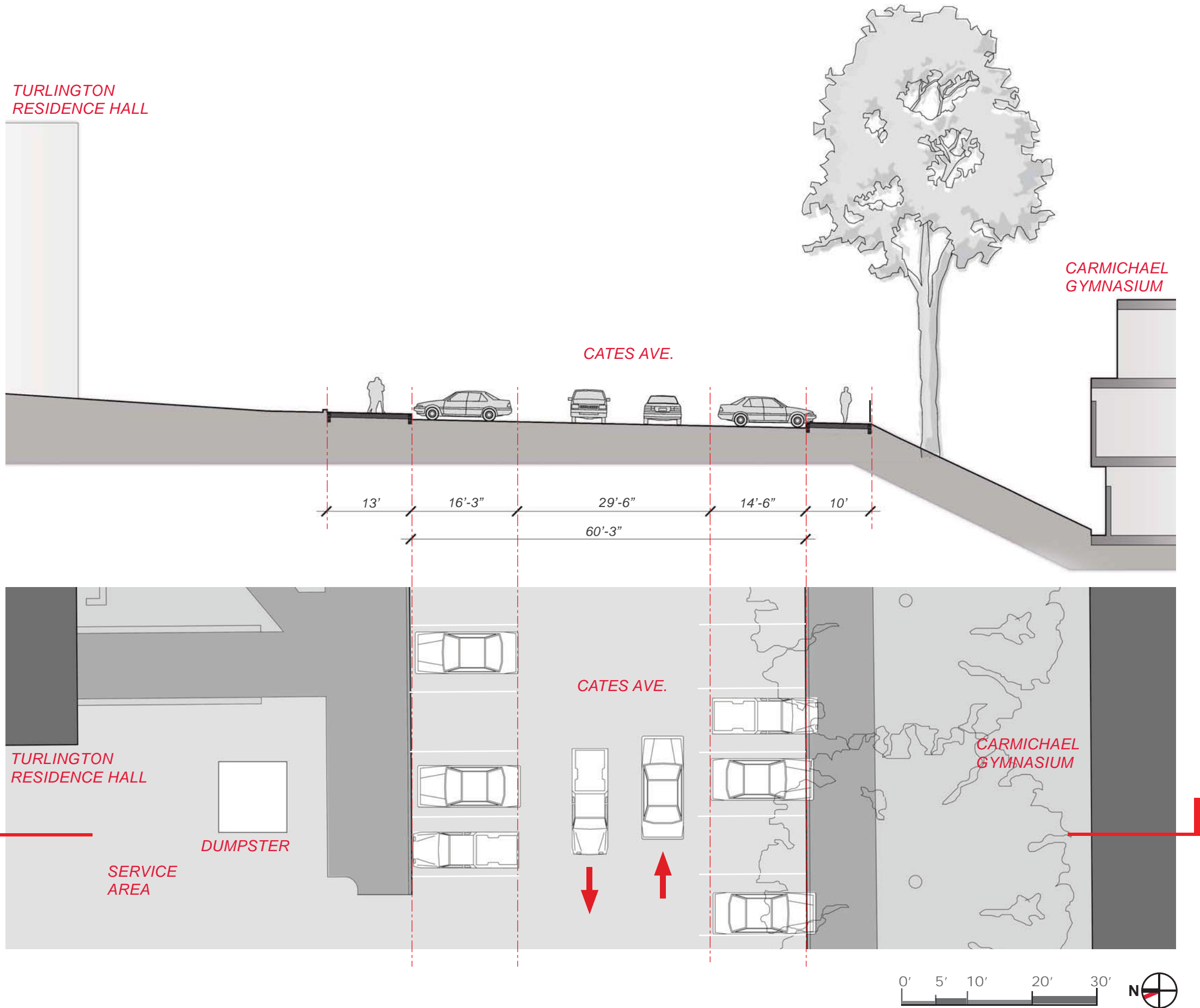






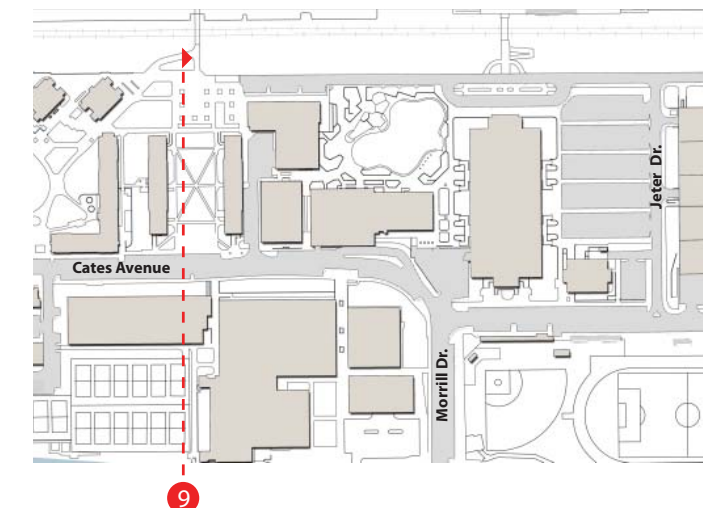
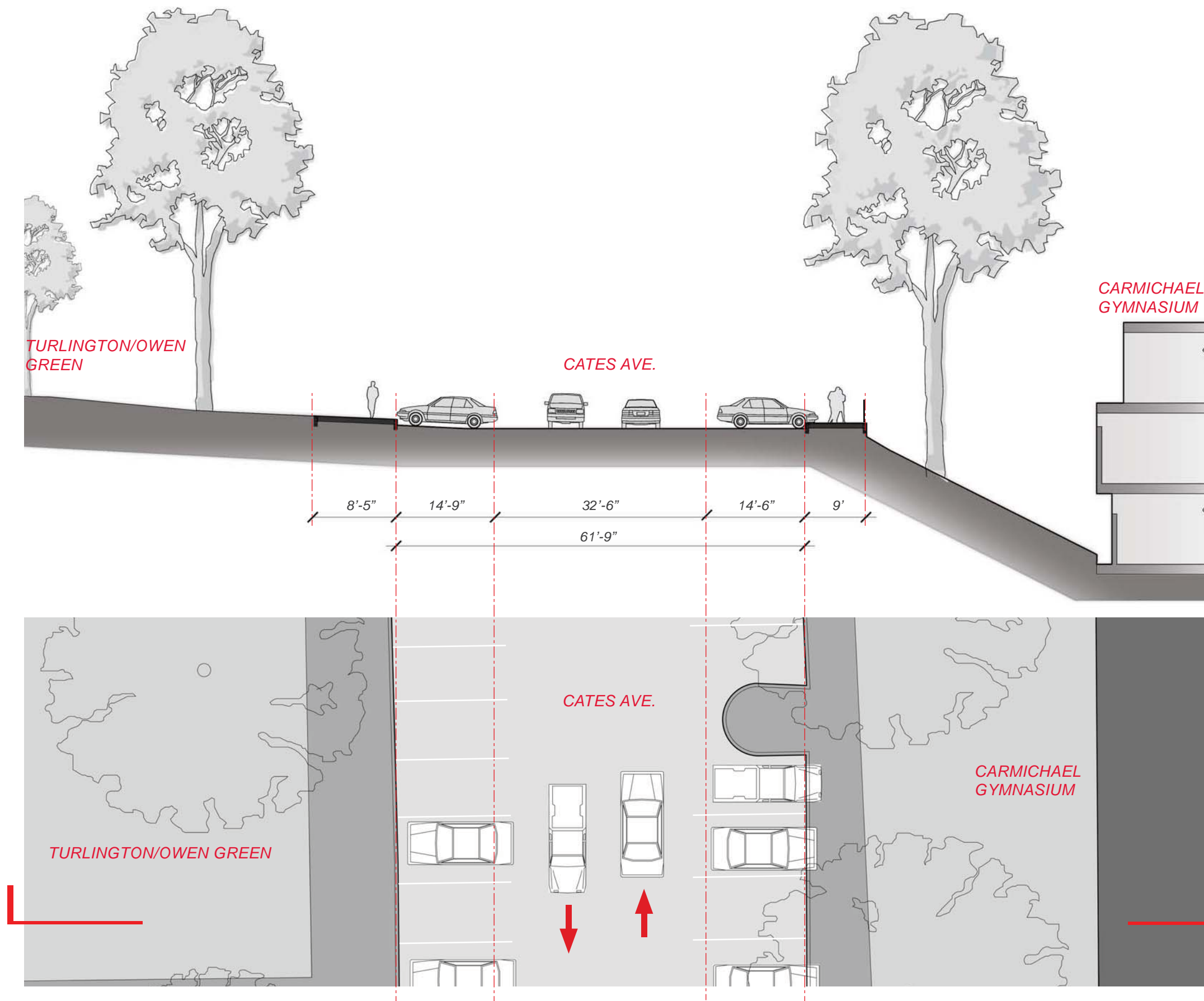
## Section 8

- Cates Avenue is bounded by Turlington Residence Hall to the north and Carmichael Gym to the south
- Service area and heavy foliage adjacent to Turlington Residence create inconsistent edge and isolate pedestrians on sidewalk from the lawn area between residences
- Head in parking exists on both the north and south side of Cates Avenue
- Large existing trees are located to the south along Carmichael Gymnasium
- Sidewalks are dissimilar widths on north and south
- Street driver lane width narrows
- A significant slope between south sidewalk and Carmichael Gymnasium create an undefined zone that isolates pedestrian activity to the street edge



8

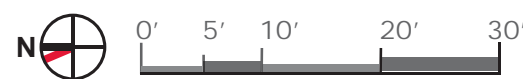




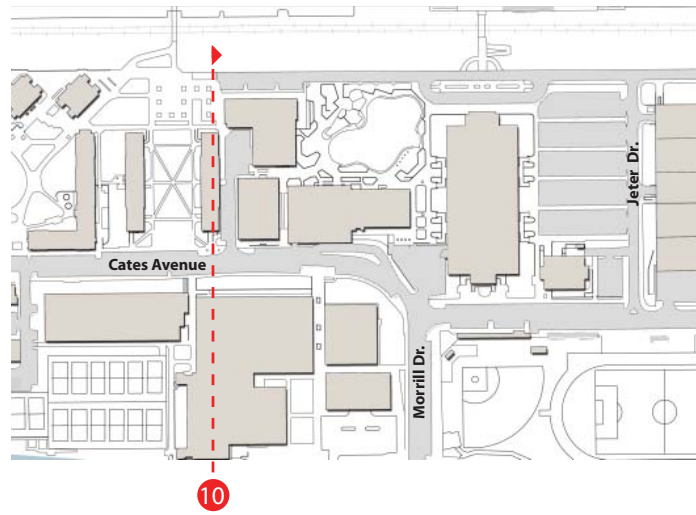
## Section 9

- Cates Avenue is bounded by greenspace between Turlington and Alexander to the north and Carmichael Gym to the south
- Head in parking exists on both the north and south side of Cates Avenue
- Mature trees are located along both sidewalks on Cates Avenue
- Sidewalks are similar widths on north and south, but are reduced
- There is an existing pedestrian crossing in the vicinity.
- Street width narrows
- A significant slope between south sidewalk and Carmichael Gymnasium create an undefined zone that isolates pedestrian activity to the street edge

9

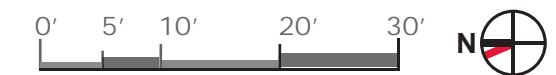
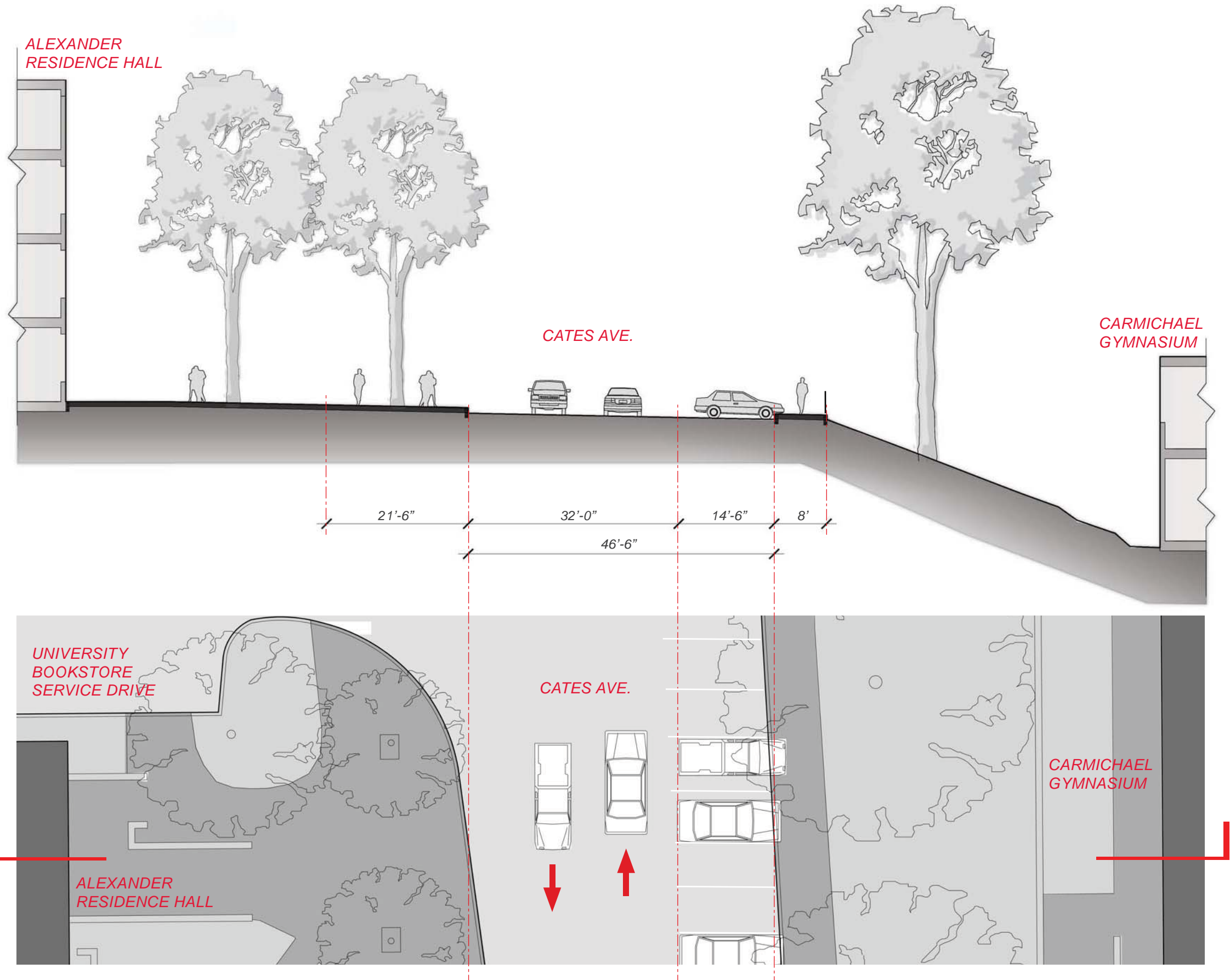




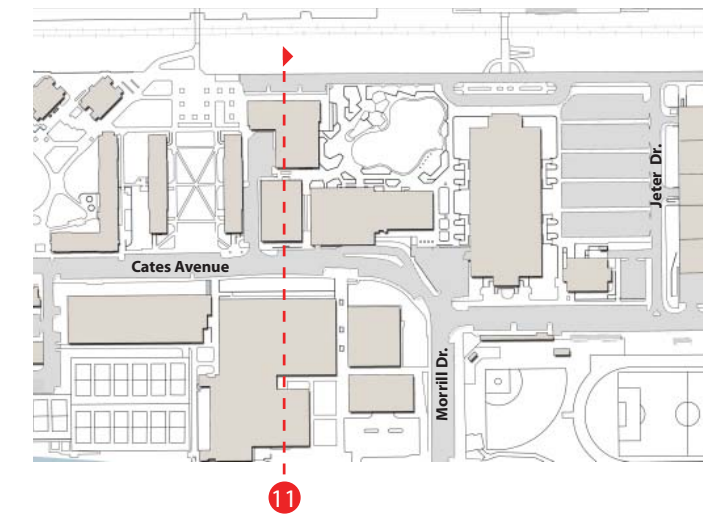
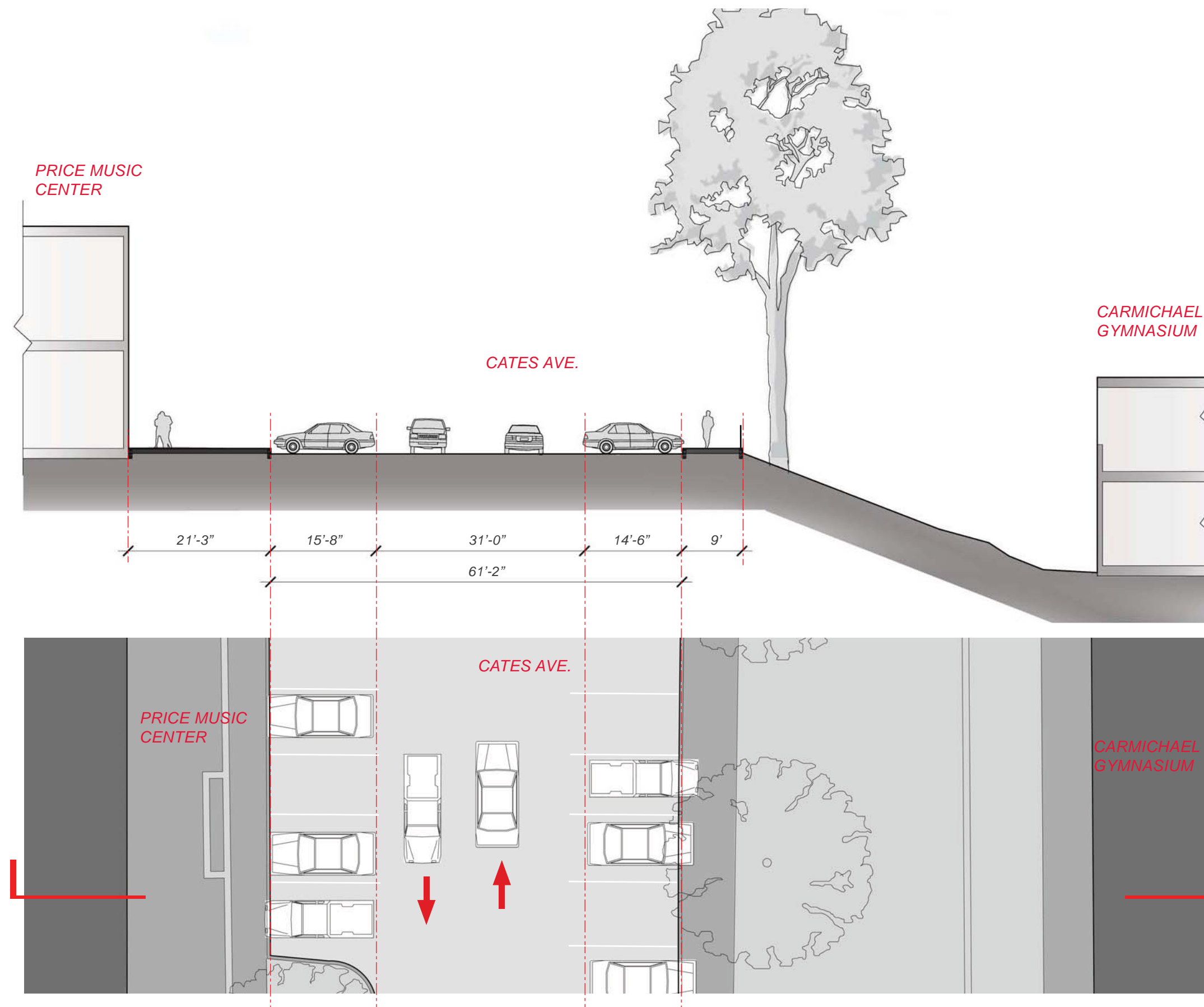


## Section 10

- Cates Avenue is bounded by Alexander Residence Hall to the north and Carmichael Gym to the south
- Head in parking exists on south side of Cates Avenue
- Mature trees are located along both sidewalks on Cates Avenue. Smaller are located in planters in front of Alexander Residence Hall
- Sidewalks are dissimilar widths on north and south, but are reduced
- A significant slope between south sidewalk and Carmichael Gymnasium create an undefined zone that isolates pedestrian activity to the street edge



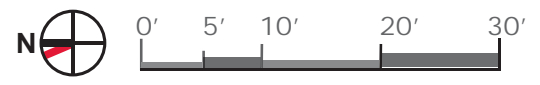




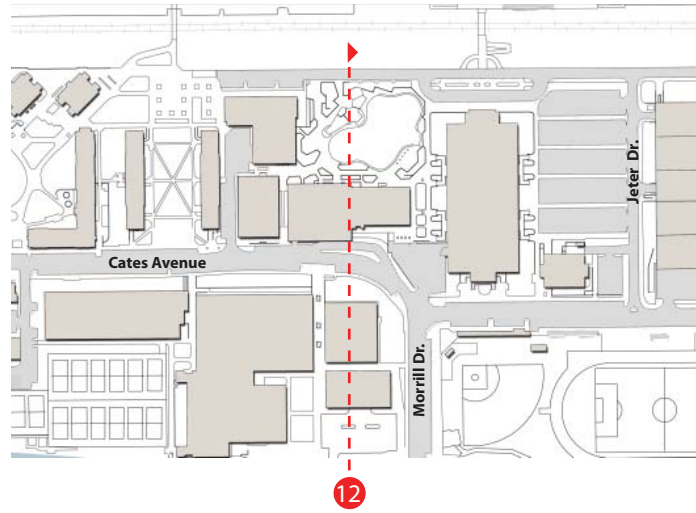
### Section 11

- Cates Avenue is bounded by Price Music Center to the north and Carmichael Gym to the south
- Head in parking exists on the north and south side of Cates Avenue
- Mature existing trees are located along the south sidewalk
- Sidewalks are dissimilar widths on north and south
- A significant slope between south sidewalk and Carmichael Gymnasium create an undefined zone that isolates pedestrian activity to the street edge
- Pedestrian traffic flow is heavy on the north sidewalk crosswalks are located to the east and west of this location.

11

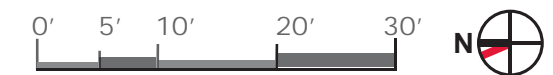
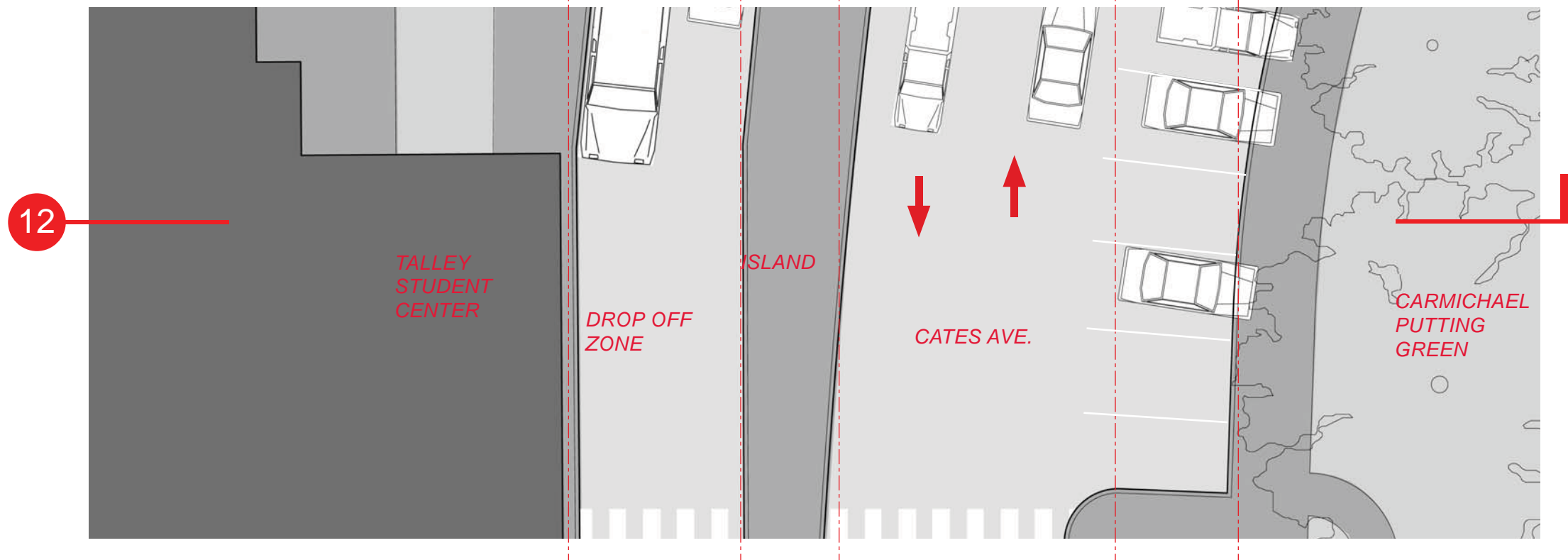
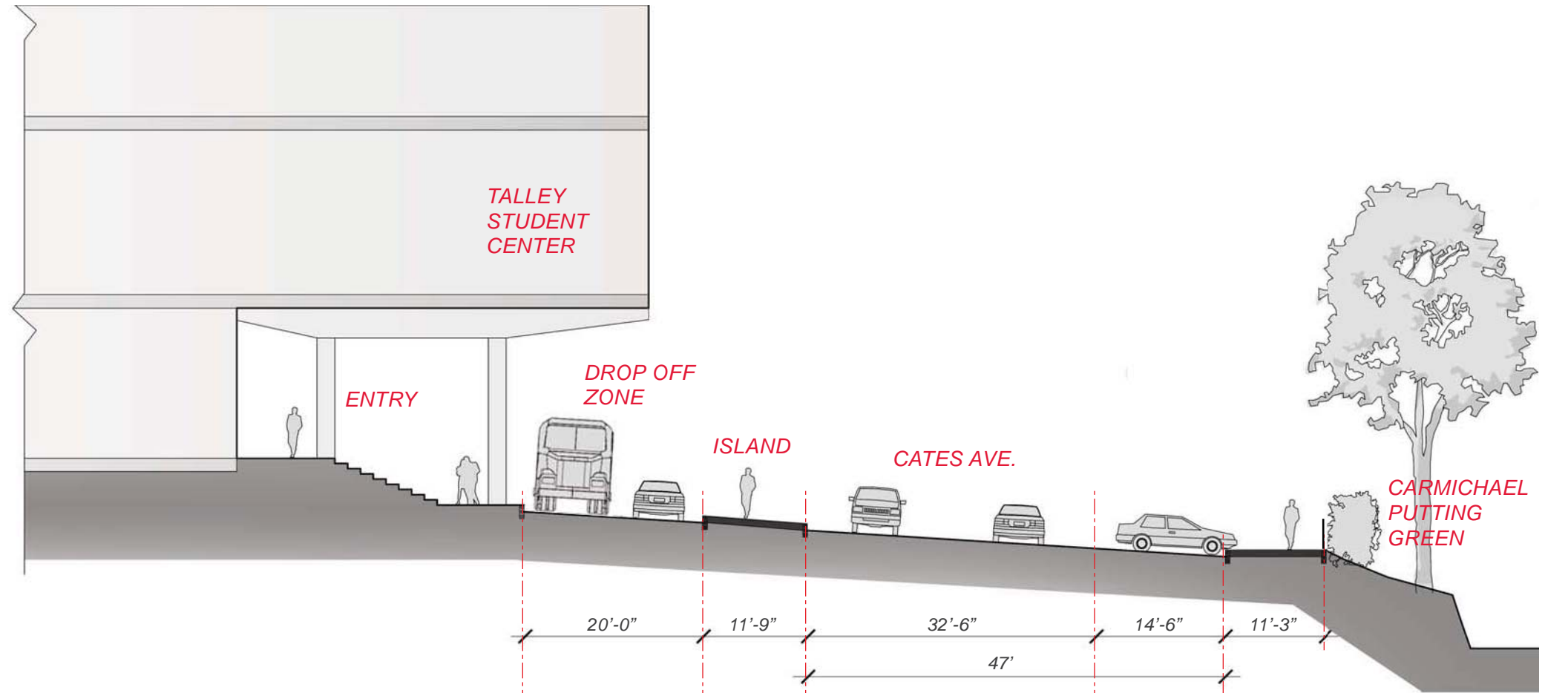




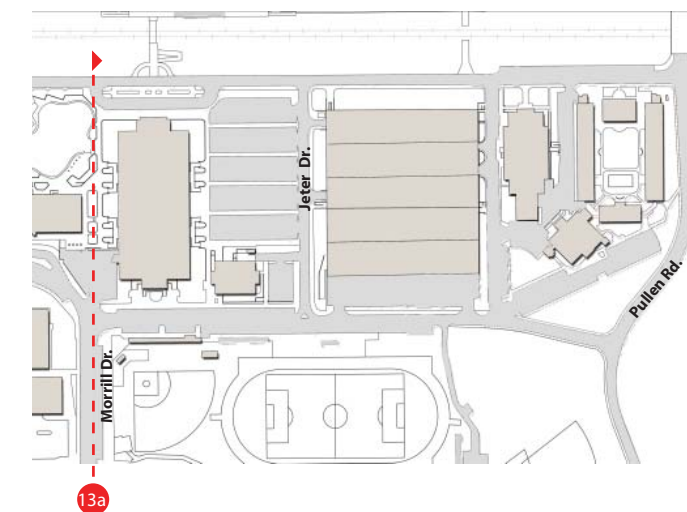
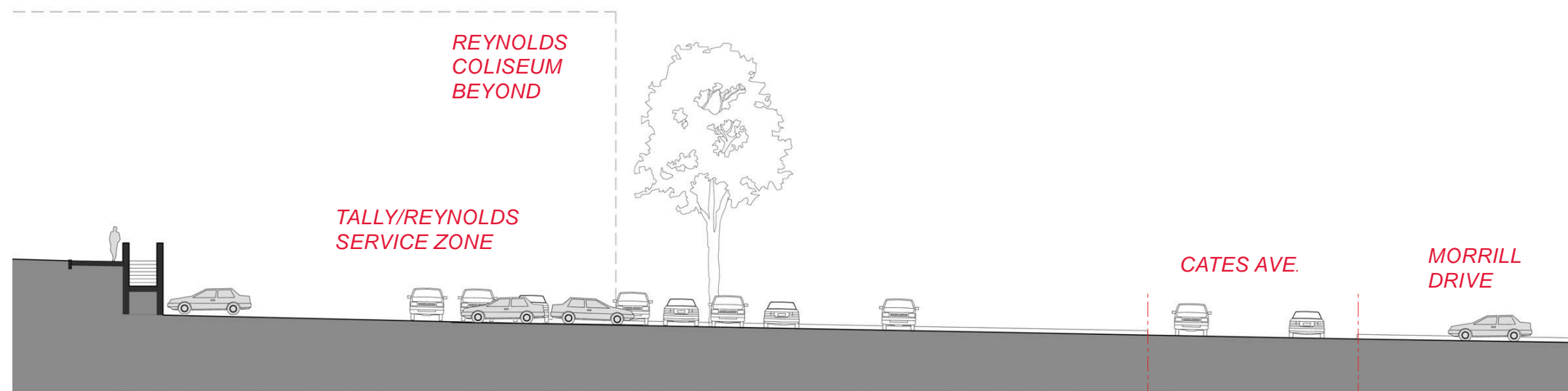


## Section 12

- Cates Avenue is bounded by Talley Student Center to the north and Carmichael Gymnasium to the south
- Head in parking exists along the curve on south side of Cates Avenue
- Mature trees are located along the south sidewalk
- Sidewalks are dissimilar widths on north and south
- Pedestrian path is disrupted by Stewart Theatre loading zone, elevation change from sidewalk to Talley entry and sloping section through the street
- Pedestrian traffic flow is heavy on the north sidewalk and there is a defined north-south pedestrian crossing in front of the Talley Student Center

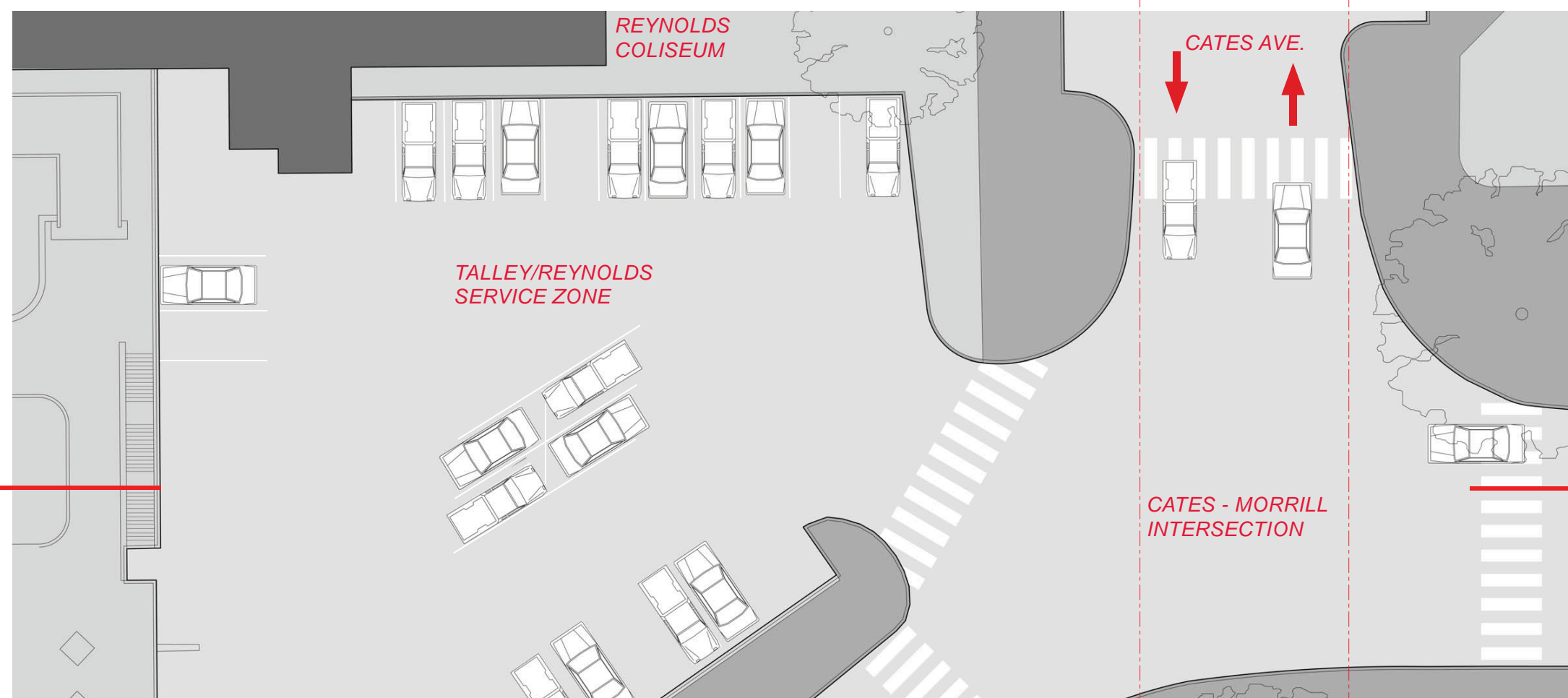






### Section 13a

- Cates Avenue and Morrill intersection is four-way and signaled
- Intersection handles general vehicular traffic, bus and shuttle traffic, and service vehicles
- Head in and parallel parking surround the intersection
- Bus and shuttle stops to the south and west promote heavy pedestrian traffic across this intersection

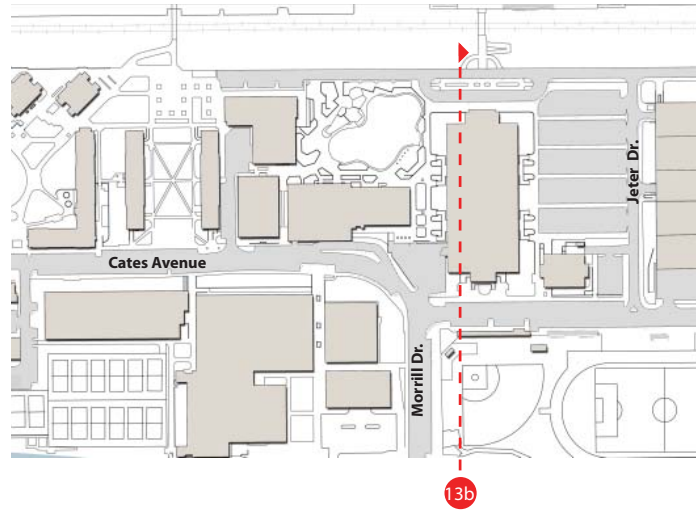


13a



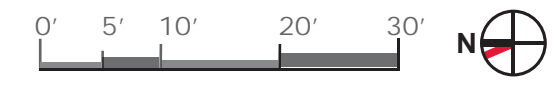
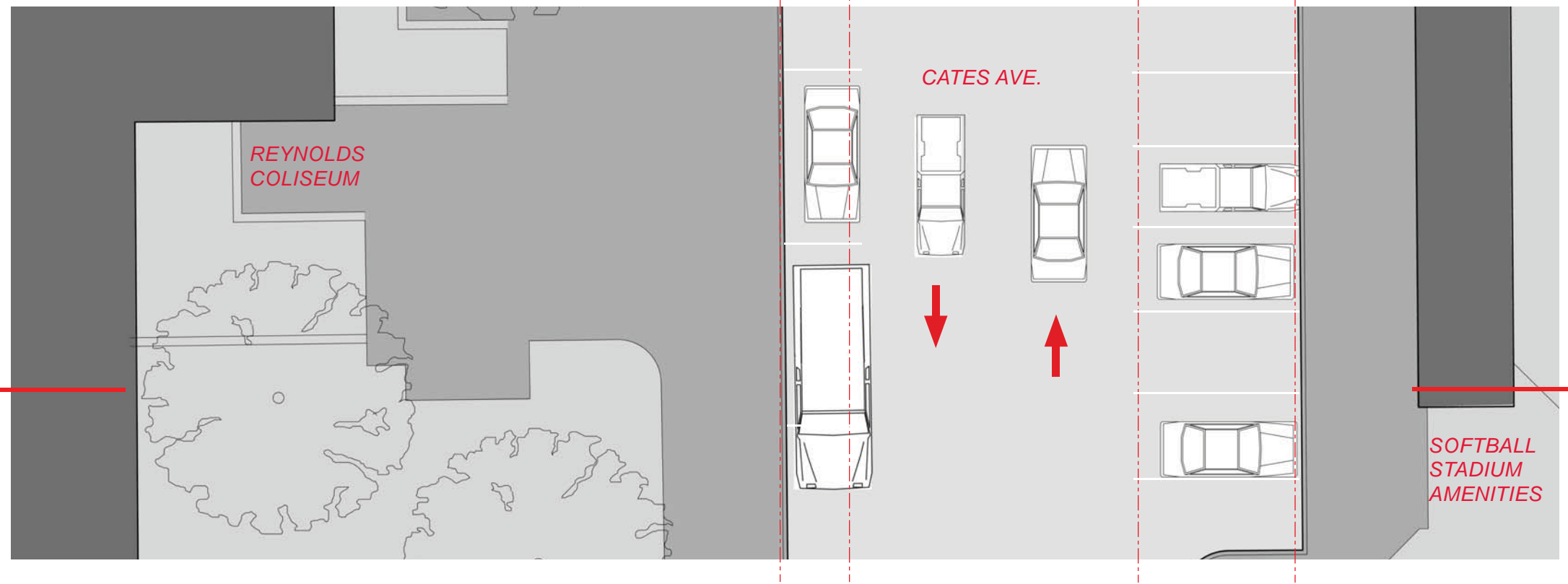
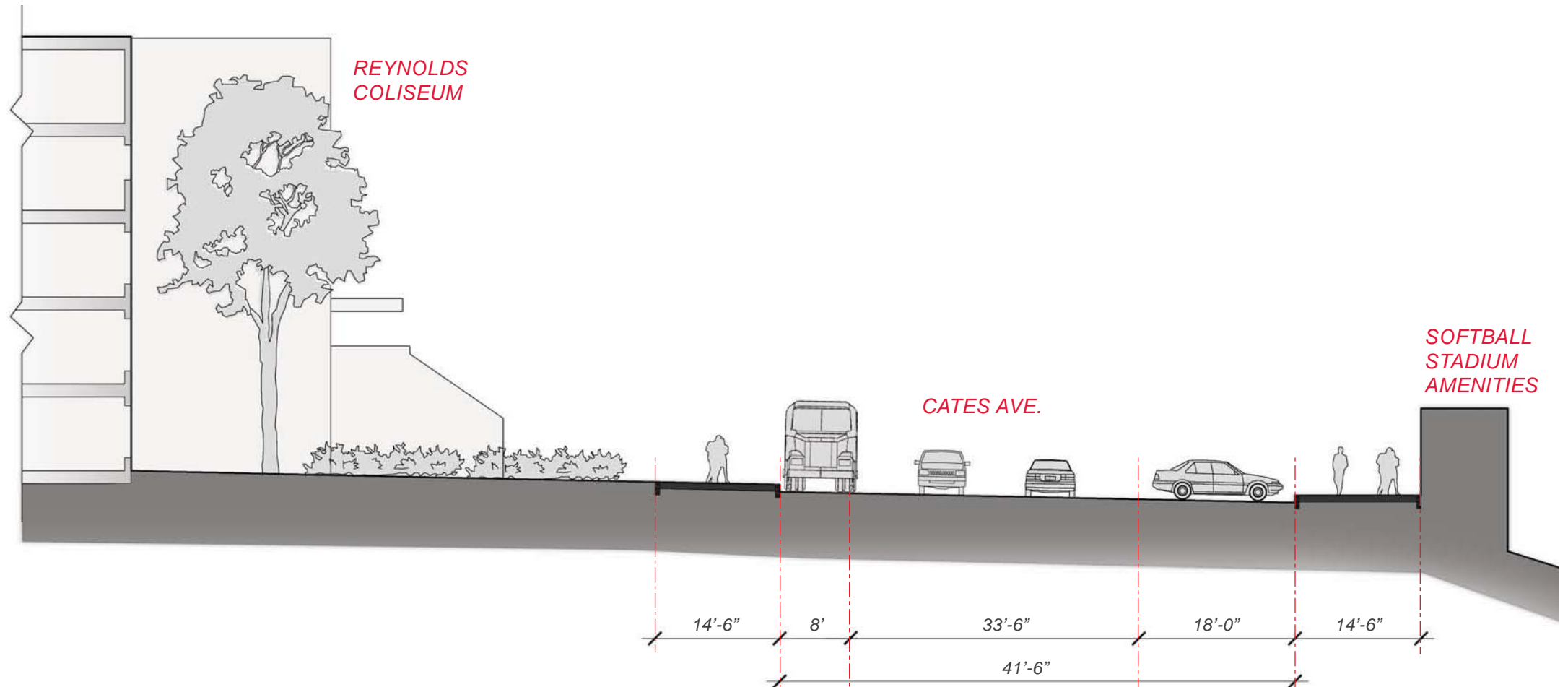
Note: This section is shown at a different scale





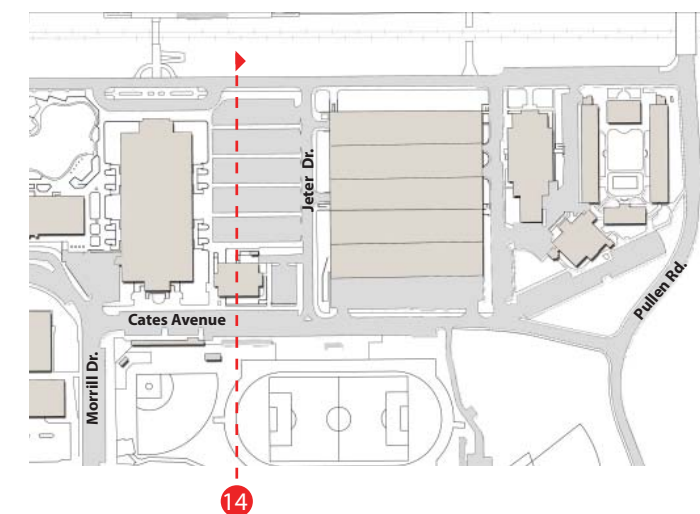
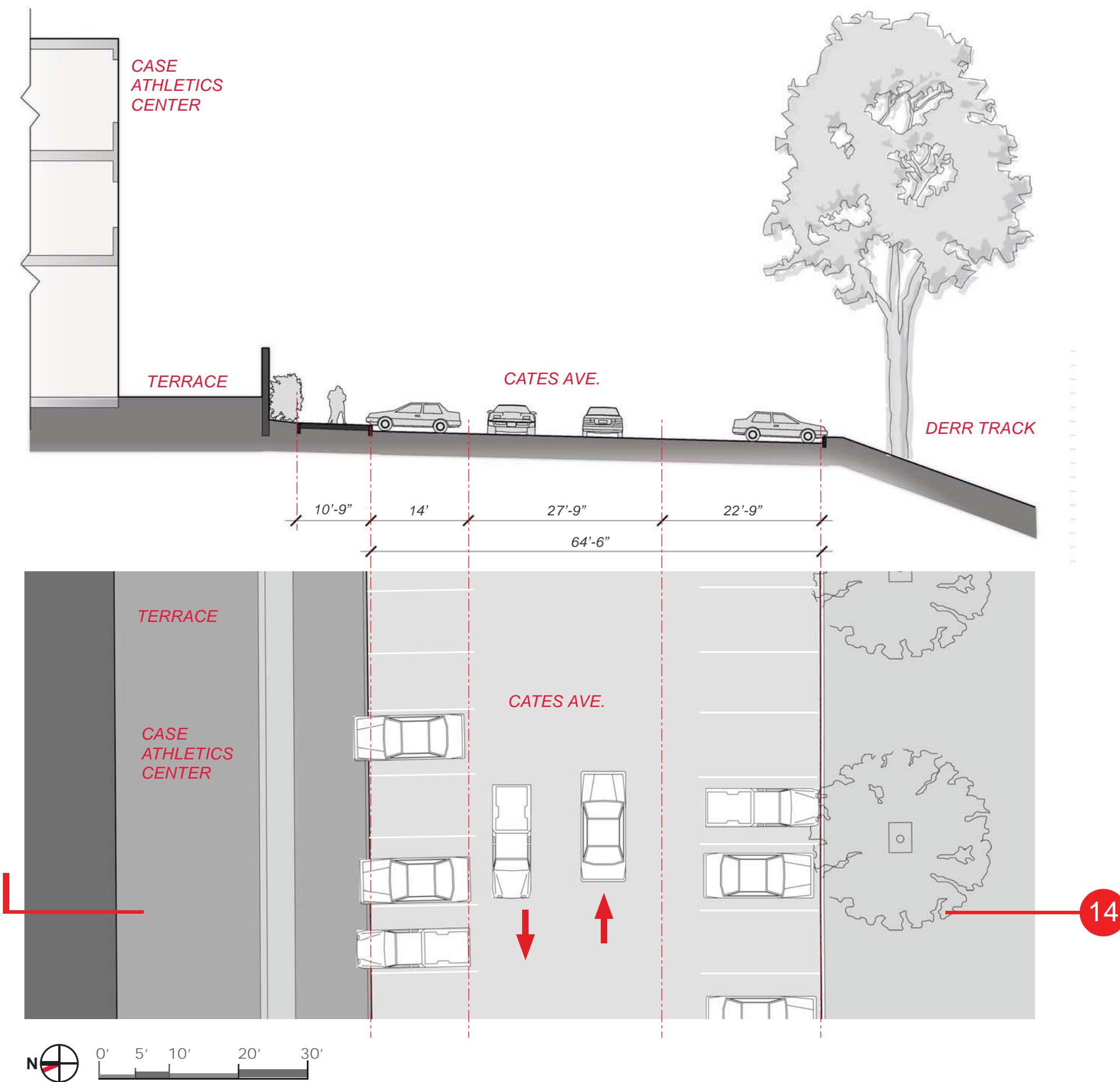
## Section 13b

- Cates Avenue is bounded by Reynolds Coliseum to the north and the softball stadium to the south
- Head in parking exists along the south side of Cates Avenue
- Mature trees and shrubs are located in front of Reynolds Coliseum
- Sidewalks are dissimilar widths on north and south
- Wall of softball stadium amenities meets sidewalk abruptly creating harsh edge that isolates pedestrians from activities on the field
- Pedestrian traffic flow is heavy on the north sidewalk and there is no defined north-south pedestrian crossing
- Street width increases



13b

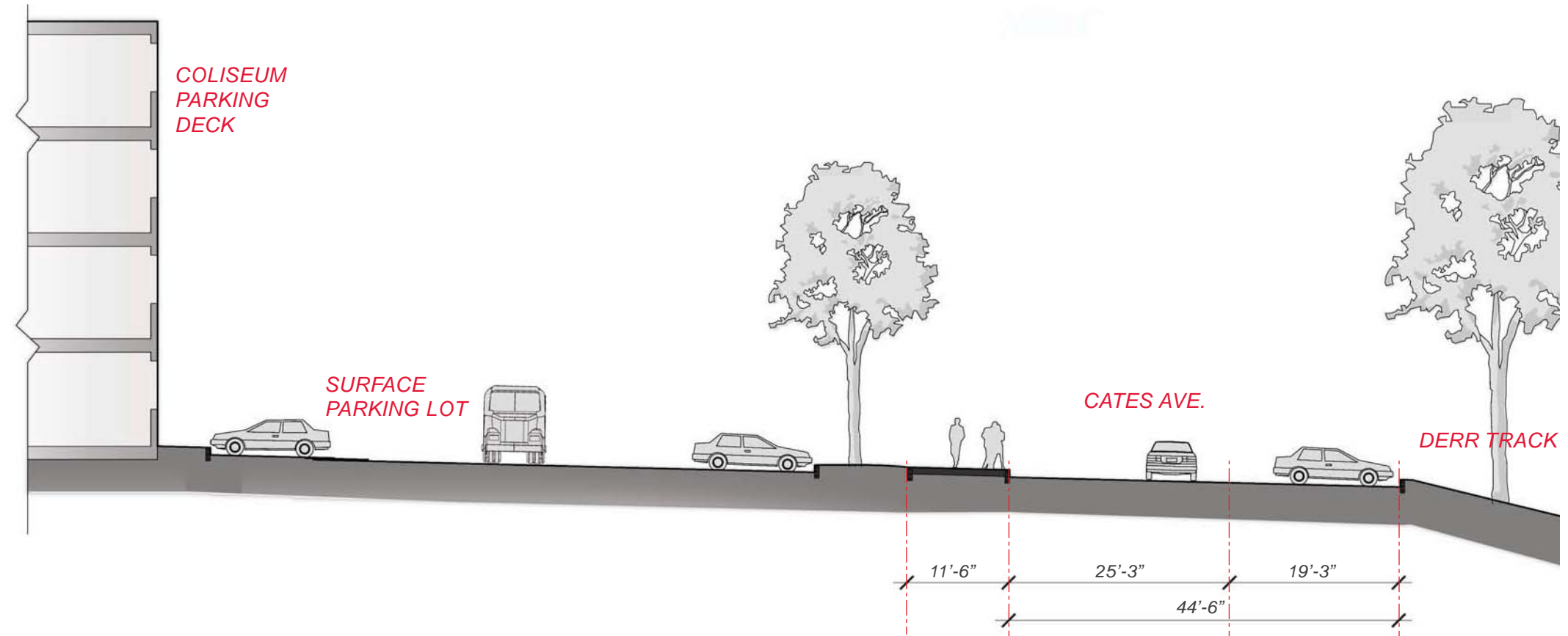
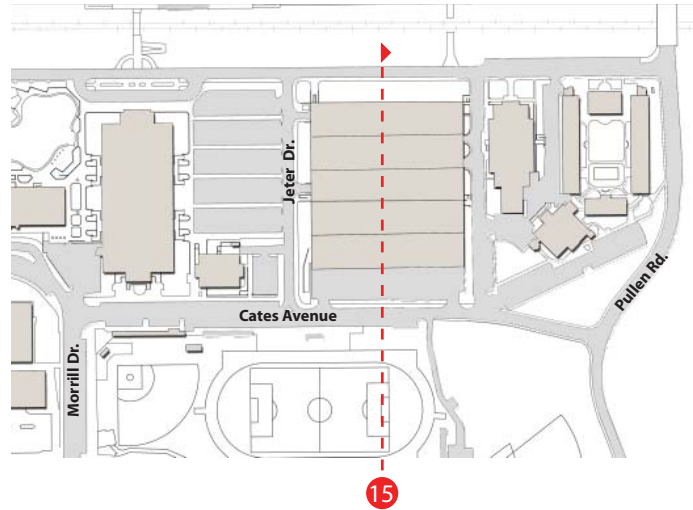




## Section 14

- Cates Avenue is bounded by Case Athletics Center terrace and planter to the north and a slope to Derr Track to the south
- Head in parking exists along both the north and south sides of Cates Avenue
- Existing trees are located off sidewalk on south side
- No existing sidewalk on south side of Cates Avenue

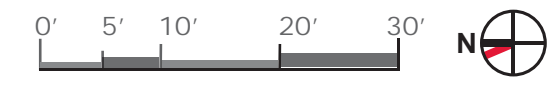
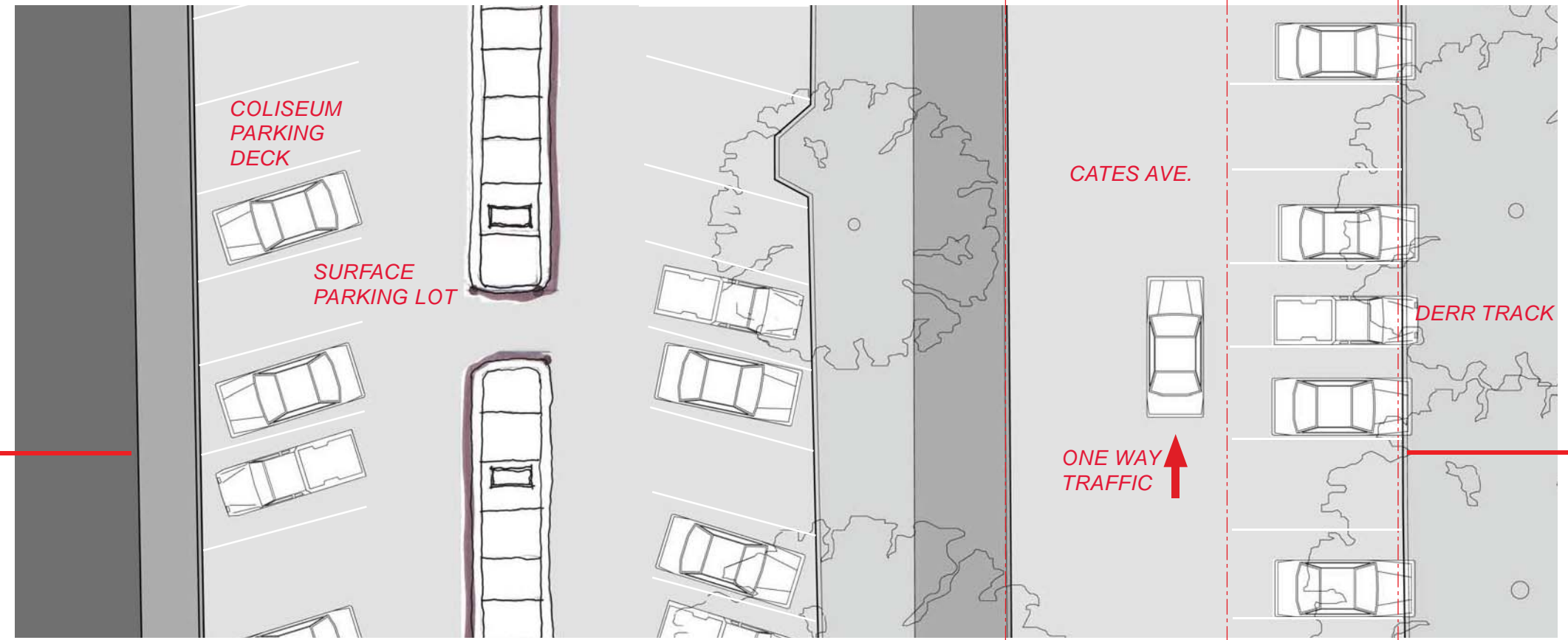




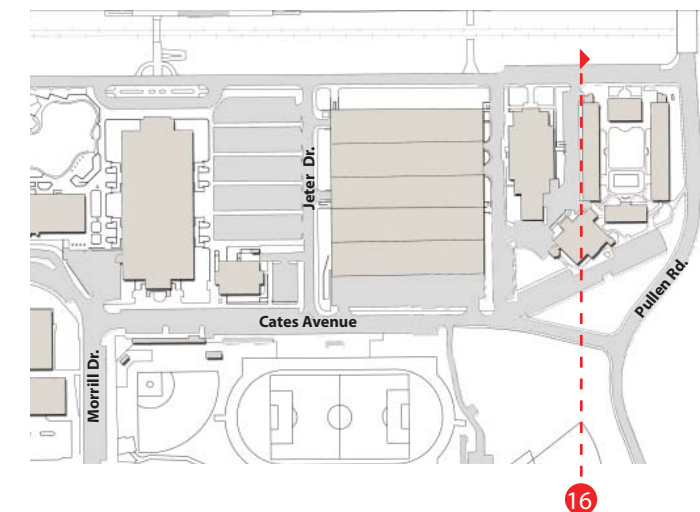
## Section 15

- Cates Avenue is bounded by the Coliseum Parking Deck to the north and Derr Track to the south
- Head in parking exists along the south side of Cates Avenue
- Traffic is one way east after Jeter
- Mature trees are located between surface parking and sidewalk to the north and between Derr Track and sidewalk to the south
- No existing sidewalk to the south
- No existing pedestrian crossing
- Surface lot next to parking deck is closed to car parking during events to allow bus parking

15

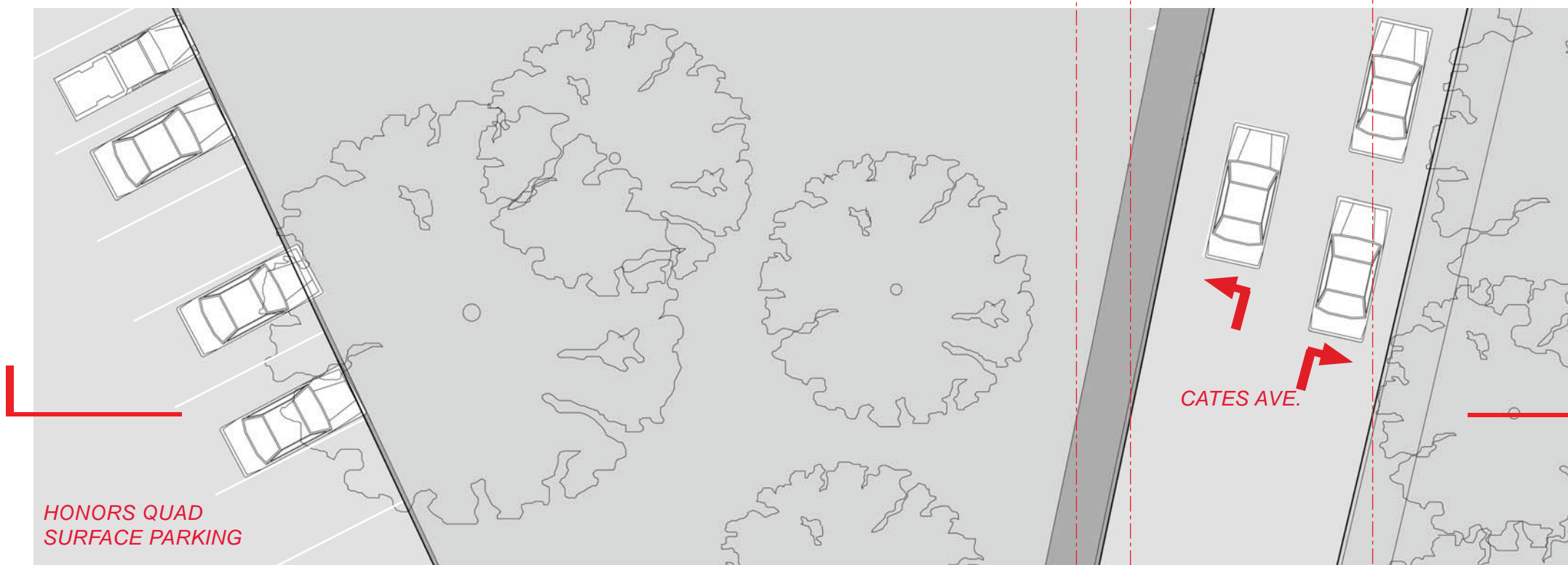
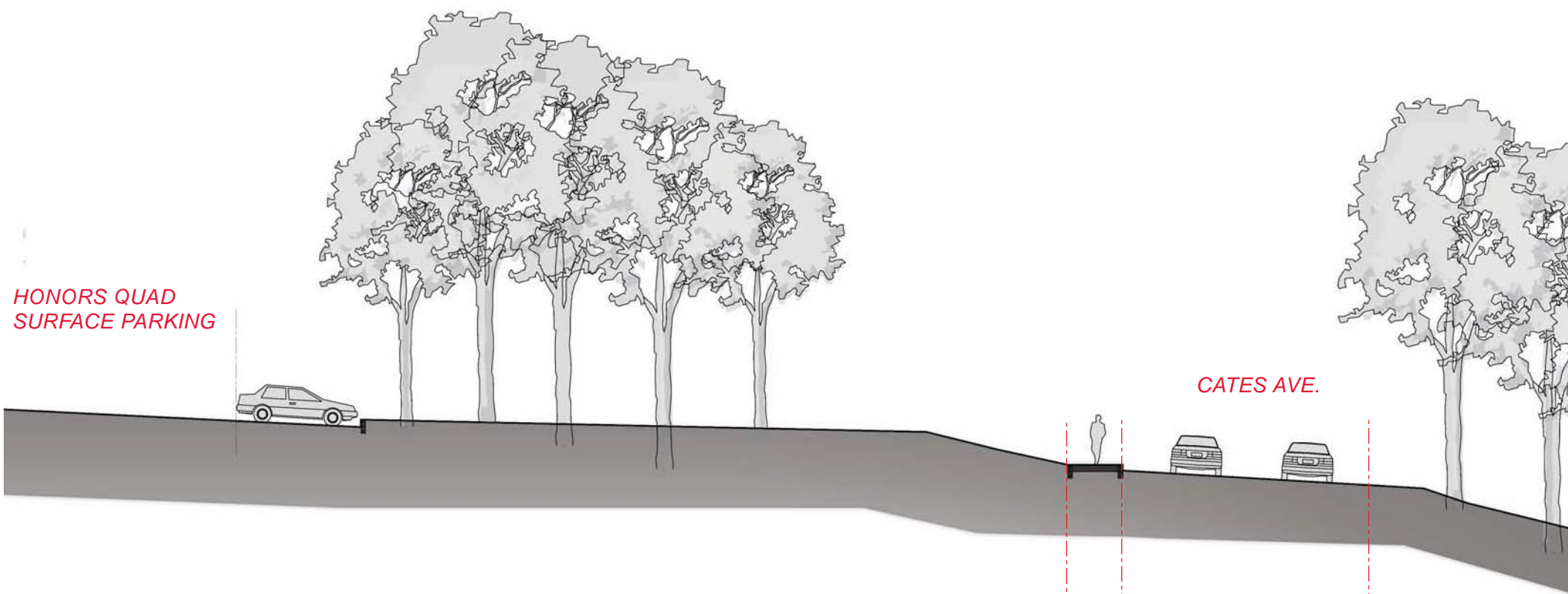






## Section 16

- Cates Avenue is bounded by Honors Quad Service parking and forested green space to the north side of Cates Avenue and mature trees on city property to the south
- No parking exists on either side of Cates
- Cates Avenue becomes two lanes of one way traffic to a signaled intersection at Pullen Road
- Mature trees are located on both sides of Cates Avenue
- A narrow sidewalk exists on the north side and no sidewalk exists on the south side



16



# Master Plan Concept

- Master Plan Intentions
- Master Plan Concept Design
- Master Plan Concept Diagrams

## Master Plan Intentions

A review of the North Carolina State University campus master plan documents, thorough assessment of the existing conditions along Cates Avenue, and an understanding of the program and conceptual design for the planned Talley Student Center has provided a framework for a broad understanding of the future of Central Campus. In order to move beyond this understanding and toward a conceptual master plan for Cates Avenue that aims to enhance student life around the hub of the Central Campus, Duda/Paine Architects has identified several guiding principles.

Duda/Paine Architects has identified four primary intentions to guide the Cates Avenue Master Plan design concept:

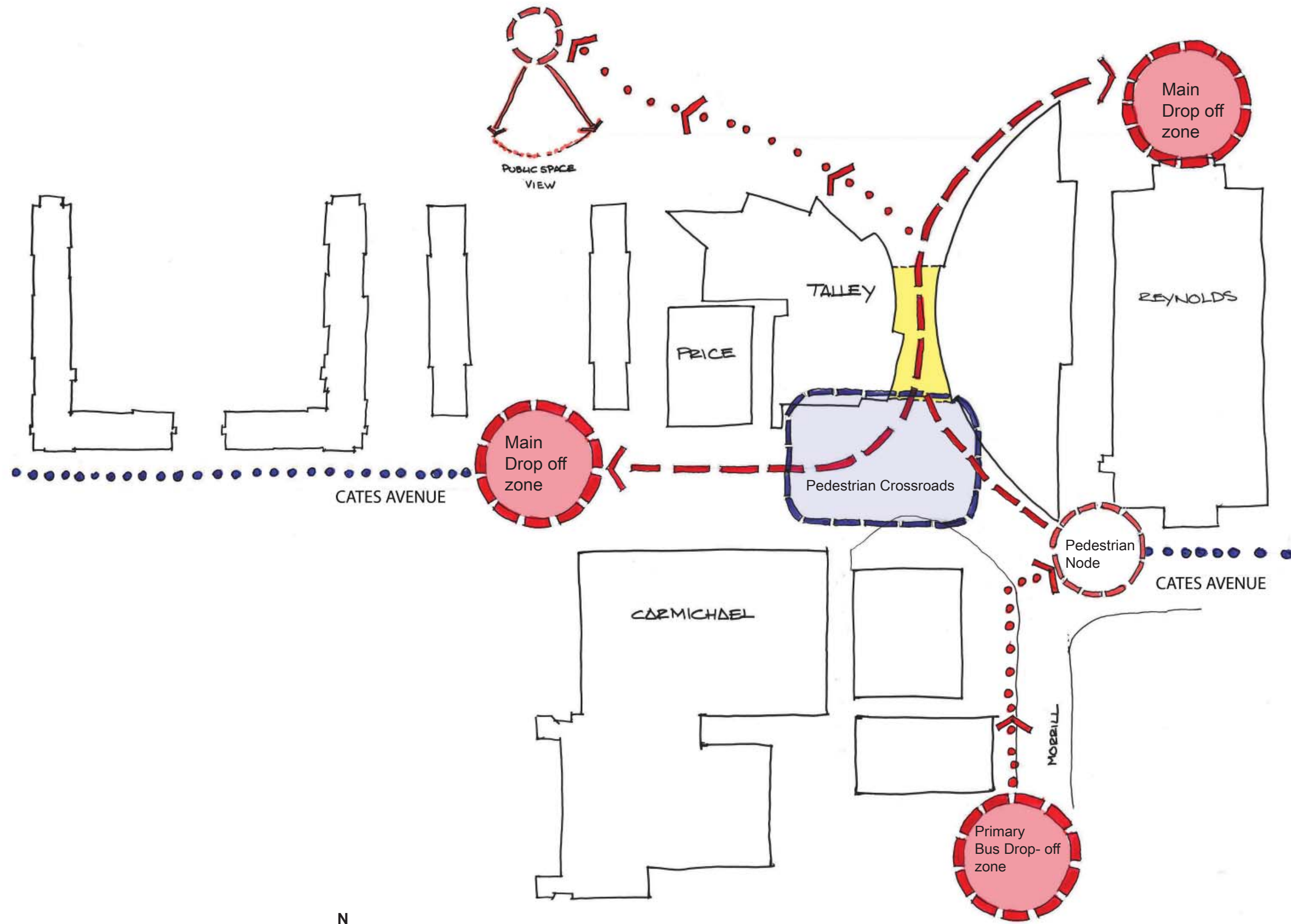
- Clear recognizable sidewalks
- Clarify arrival and orientation on Cates Avenue
- Solve traffic and vehicular congestion
- Identify site specific conditions to facilitate improvements to Cates Avenue over time

## Master Plan Concept Diagrams:

Duda/Paine Architects has produced the following future conditions diagrams (see p 49,62-68) that included:

- Drop-Off Diagram - Indicates a shift in drop-off zones, intended to decongest the area in front of the Talley Student Center and reinforce this area for pedestrians.
- Pedestrian movement – Reinforces the crossroads concept with the new Talley Student Center as the hub of Cates
- Building and Entries – Indicates the concept for entries into the new Talley Student Center building and improvements to the campus greenscape and hardscape along Cates Avenue
- Building Use – Indicates building use and location including the conceptual design footprint for the Talley Student Center addition and renovation
- Bus Routes – Indicates the relocation of the Talley Student Center bus drop-off west toward Turlington and Alexander Residence Halls
- Shuttle Routes – Indicates the relocation of the Talley Student Center shuttle and event drop-off to the Reynolds turn-around on Dunn Avenue and rerouting the shuttles to Jensen Drive
- Traffic Flow - Shows the new and expanded sidewalk locations along Cates Avenue and the Reynolds Coliseum turn-around
- Service Zones – Shows the new Talley Service drive locations
- Concept design parking count - Indicates specific areas along Cates Avenue where parallel parking is recommended and a total of 86 spaces





DROP-OFF DIAGRAM 



## Master Plan Concept Design:

A fundamental assumption of the Cates Avenue Master Plan is the incorporation of the conceptual design footprint of the addition and renovation to the Talley Student Center. The new orientation for the Talley building provides a central destination for pedestrians and a physical landmark for both pedestrian and vehicular movement approaching from west along Cates, north along Morrill and east along Dunn. This reconfiguration aligns with the concept, presented in the Student Life Master Plan, of the new Talley Student Center, with an extended hours zone, as the hub for Cates Avenue.

Central to the Cates Avenue Master Plan concept is the reduction of vehicular congestion and the reorganization of pedestrian paths around the intersection of Cates Avenue and Morrill Drive. Initial ideas of creating a one-way street, closing a section of road to vehicular traffic or providing gated and controlled access were explored. This idea is worthy of continued consideration, however, during the course of the concept design study it was determined that Cates Avenue needs to remain accessible to two-way vehicular traffic for students, service vehicles, and campus visitors. Therefore, reorganizing and reconfiguring the physical street became central to the initiative of reducing vehicular congestion, enhancing the pedestrian environment, and improving safety for all users.

A conceptual drop-off diagram describes a method for relieving this congestion by shifting drop-off locations away from the confusing area that currently exists at the Talley Student Center front entrance. The development of this diagram suggests prioritizing the north sidewalk of Cates Avenue for pedestrian use and creates a clear crossroads for pedestrian movement through the new Talley Student Center by establishing a link to the new drop-off zones. To do so, the main drop off for bus and vehicular traffic was shifted west toward Turlington and Alexander. Shuttles would be re-routed to drop off at the Reynolds Coliseum turn-around on Dunn Avenue. The existing bus stop on the west side of Morrill Drive is intended to remain in its current location.

Reinforcing the north sidewalk as the primary pedestrian path by expanding the sidewalk dimension toward the south for the length of Cates Avenue allows the entire street to be redefined. An overall Cates Avenue plan showing the existing street edge condition in red juxtaposed with the proposed concept plan indicates the realignment of the street compared with the existing curb edge and demonstrates the asymmetrical nature of the proposed changes.

This asymmetrical concept creates a consistent sidewalk dimension for both sides of the street and allows the road to become a consistent dimension for its entirety. The north sidewalk is provided a generous 15'-0" dimension and a 8'-0" minimum dimension for the south sidewalk is achieved. Head-in and angled parking are eliminated allowing the street dimensions to reduce and provide space back to the sidewalk which allows room for planter buffers, new trees and the preservation of existing trees. All parking spaces along Cates are reconfigured to be parallel and the general governing street section would be 40'-0" with two 8'-0" parking zones and two-way traffic within a 24'-0" dimension. This narrowed street is intended to slow traffic and heighten awareness of the pedestrian. The intent to improve safety and reduce vehicle speed

should also allow bicycle traffic to share the road with vehicular traffic in a safe manner. Breaks in the street edge planter are indicated to allow for pedestrian movement from parked cars.

The asymmetrical concept, through this new organization of street dimensions, also acts to enhance specific nodes along Cates Avenue. Landscaping elements and more generous walkways along the street enhance thresholds to existing courtyards specifically at the Tucker and Owen Residence Halls and again at Turlington and Alexander Residence Halls.

Street edge planters and other landscaping elements may provide opportunities for best practices of sustainable stormwater management to be implemented. The inclusion of designed stormwater management along Cates would not only serve an ecological function, but would enable this corridor to act as an educational opportunity and demonstration of the University's commitment to environmental stewardship.

While the starting point for the conceptual design originates at the Talley Student Center, emphasis on an arrival identity, orientation and sense of place are also imperative at each end of Cates Avenue. The master plan concept design proposes the reconfiguration of space in front of Bragaw Hall as well as a more pedestrian friendly solution linking to Pullen Park at the intersection of Cates Avenue and Pullen Road.

Duda/Paine Architects has identified three zones over the entirety of Cates Avenue by which to describe in plan and section changes proposed in the concept design master plan. (see p 54-55)

Zone A - (from Dan Allen Road to Alexander residence) focused on:

- The Bragaw entry and green space
- Tucker and Owen Hall and the First Year College Commons area
- Turlington and Alexander Residence Halls

Reconfiguration of the parking and arrival area on the east side of Bragaw Hall is intended to provide a formal beginning and public space for Cates Avenue and to facilitate pedestrian flow from the residence hall to a focused point of crossing at Dan Allen Drive at the head of Cates Avenue. Currently students must walk down a graded lawn and go north or south around a parking lot, but more typically continue straight and weave through the lot to the sidewalk and on across the street. Providing a drop-off drive and parallel parking closer to the Bragaw building allows for a green space and plaza that creates a major public space at the termination of Cates and relieves students from crossing an extended zone of asphalt. It also pulls the entrance and exit to this drive away from the congested intersection. This new plaza and crossing aligns asymmetrically and reinforces the expansion of the Cates Avenue north sidewalk.

The area around Tucker and Owen Hall and the First Year College Commons benefits from the asymmetric concept. Currently Owen and Tucker abut the sidewalk with dorm rooms on the ground level. The proposed concept would provide a north sidewalk with a 28'-0" total dimension, with a 7'-0" planter in front of the dorms to act as a buffer. The sidewalk would consist



of a 15'-0" wide path with a 6'-0" planter area for trees and the south sidewalk would be 9'-0" wide with parallel parking on both sides of Cates Avenue.

The new bus drop-off on Cates Avenue at the southern end of the green space between Tur lington and Alexander helps to complete this public area and complements Wolf Plaza to the north. A covered waiting area is proposed and the pedestrian flow along the Cates sidewalk can remain continuous across an island. A raised table and material change within the drop-off zone signals vehicles to slow. This bus drop-off is intended to replace the existing location in front of Talley and will alleviate vehicle congestion in that location. On the south sidewalk, small public spaces are created in front of Carmichael Gymnasium by taking advantage of the space between existing trees.

Zone B - (from Alexander residence to the Reynolds Coliseum parking deck) focused on:

- Talley entrance and pedestrian crossing to Carmichael Gymnasium
- Intersection of Cates and Morrill
- Reynolds Coliseum and the softball stadium

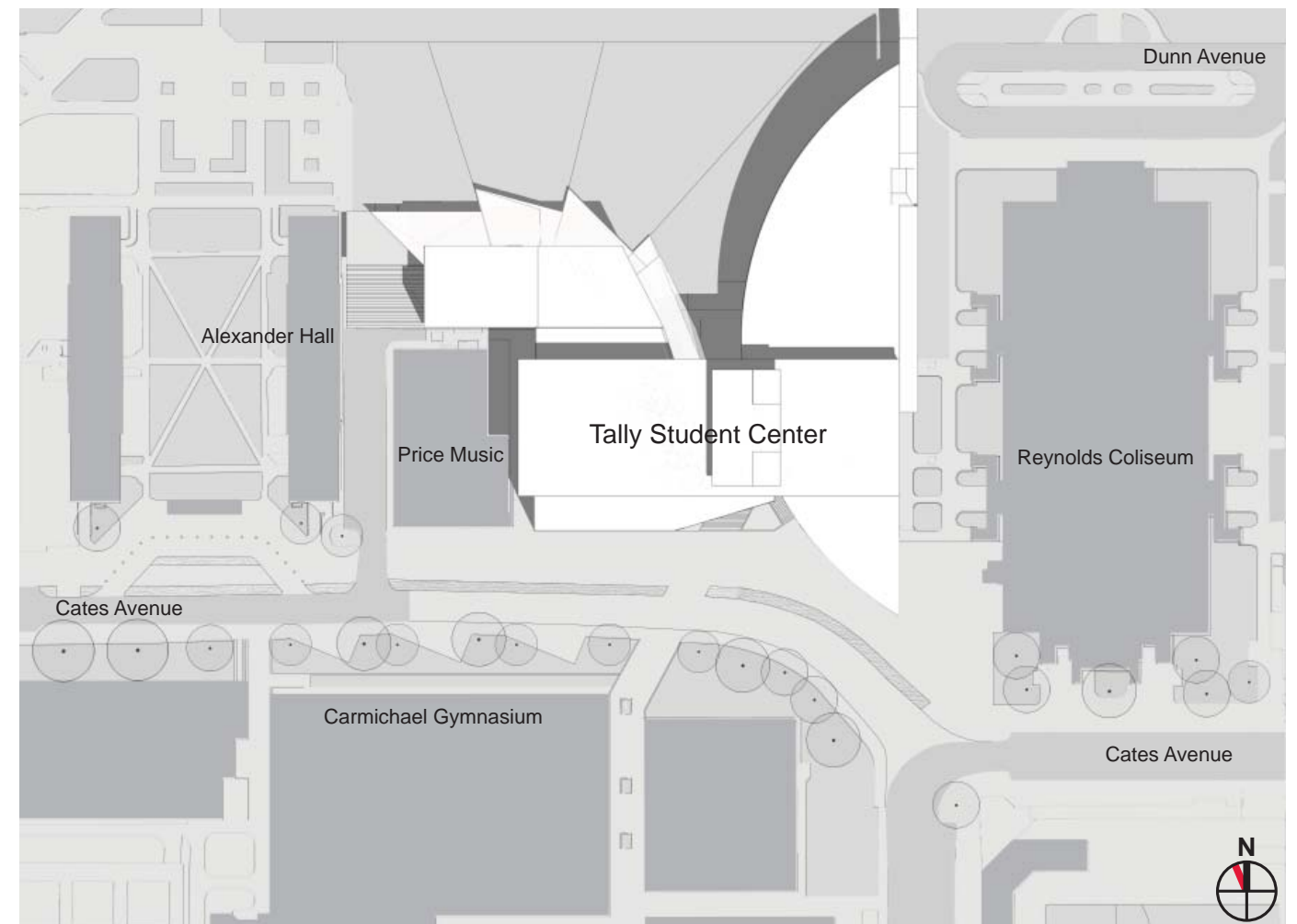
The plan and section presented for this area illustrate the reconfiguration of the Talley Student Center entrance, the elimination of the drop-off zone and the relationship to the entrance of Carmichael Gym. The current Shuttle drop-off would be directed to the Dunn Avenue turnaround. Pedestrian flow from the Morrill Drive bus depot and from Talley would be enhanced by a generous crossing zone and the removal of this shuttle drop off. A raised table and material change from the north-east edge of the intersection east to the front of the Price Music Building and clearly identified crossings prioritize the pedestrian. Head-in parking is removed completely in this area along the steeply graded curve approaching the intersection. Incorporating a hard-scape courtyard in the current service area adjacent to Reynolds provides a pedestrian node at the south end of the new Talley Student Center and could continue to support some servicing if required. Removal of servicing in this area reduces the traffic volume and allows for greater pedestrian freedom of movement with a clear path to enter the Talley Student Center.

The concept design allows for parallel parking in front of Reynolds Coliseum to remain but head in parking east of Reynolds to Jeter is changed to parallel parking and the north sidewalk width is increased. All head in parking on the south adjacent to the softball stadium becomes parallel and the sidewalk width is increased due to this change.

Zone C - (from the Cates Avenue parking deck to Pullen Road) focused on:

- Cates Avenue parking deck and Derr track
- Jenson drive entry
- Cates and Pullen intersection

The master plan proposes parallel parking on both sides of Cates Avenue in front of Coliseum parking deck and Derr Track with an enhanced pedestrian crossing at Jeter Drive. The cur-



TALLEY STUDENT CENTER CONCEPT DESIGN SITE PLAN

rent Derr Track design improvements are incorporated into the building edges and sidewalk of the Cates Avenue Master Plan concept design. However, the master plan proposes adding sidewalk dimension to this side of Cates by reclaiming the space gained through replacing the head-in parking with parallel parking. The new tree locations from the Derr Track design plan are incorporated to shade the south sidewalk.

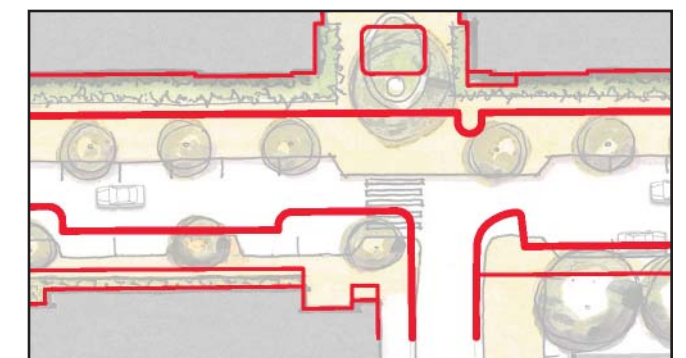
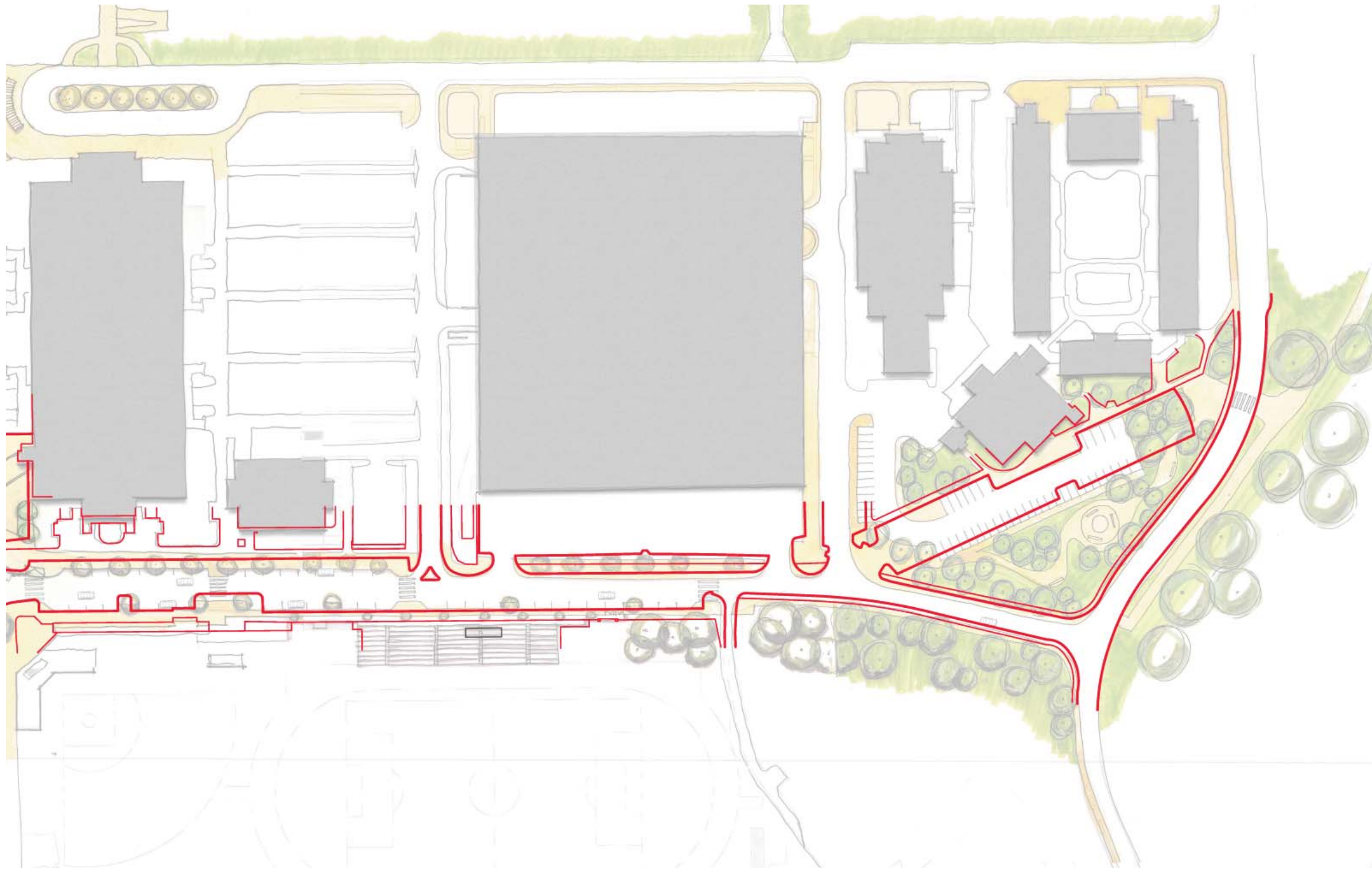
Between the parking deck and the Derr Track the 15'-0" sidewalk on the north is maintained along with existing trees and a green zone. This enhanced sidewalk provides a generous zone to support the assumption that a new building will eventually replace the surface parking lot. Further east, the entry condition at Jenson Drive is reconfigured to address the confusing nature of the existing parking lot entry. This new organization should enhance pedestrian crossing toward the Cates Avenue and Pullen Road intersection. The master plan proposes sidewalks on both sides of Cates Avenue and an enhanced park on the north-west corner of the intersection which provides a link to a crossing to Pullen Park.





CONCEPT VS. EXISTING

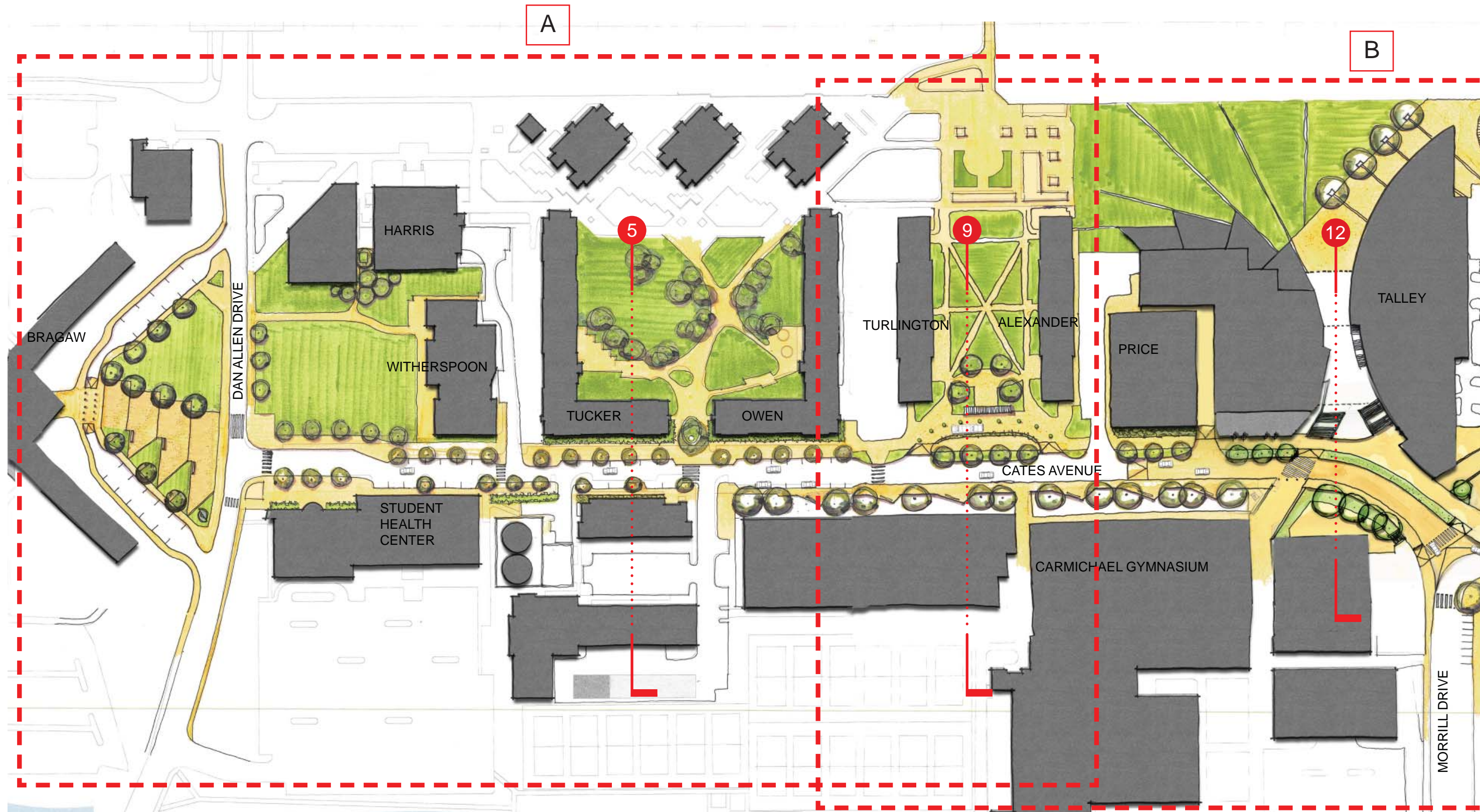




- Existing Curb Edge
- Concept Curb Edge

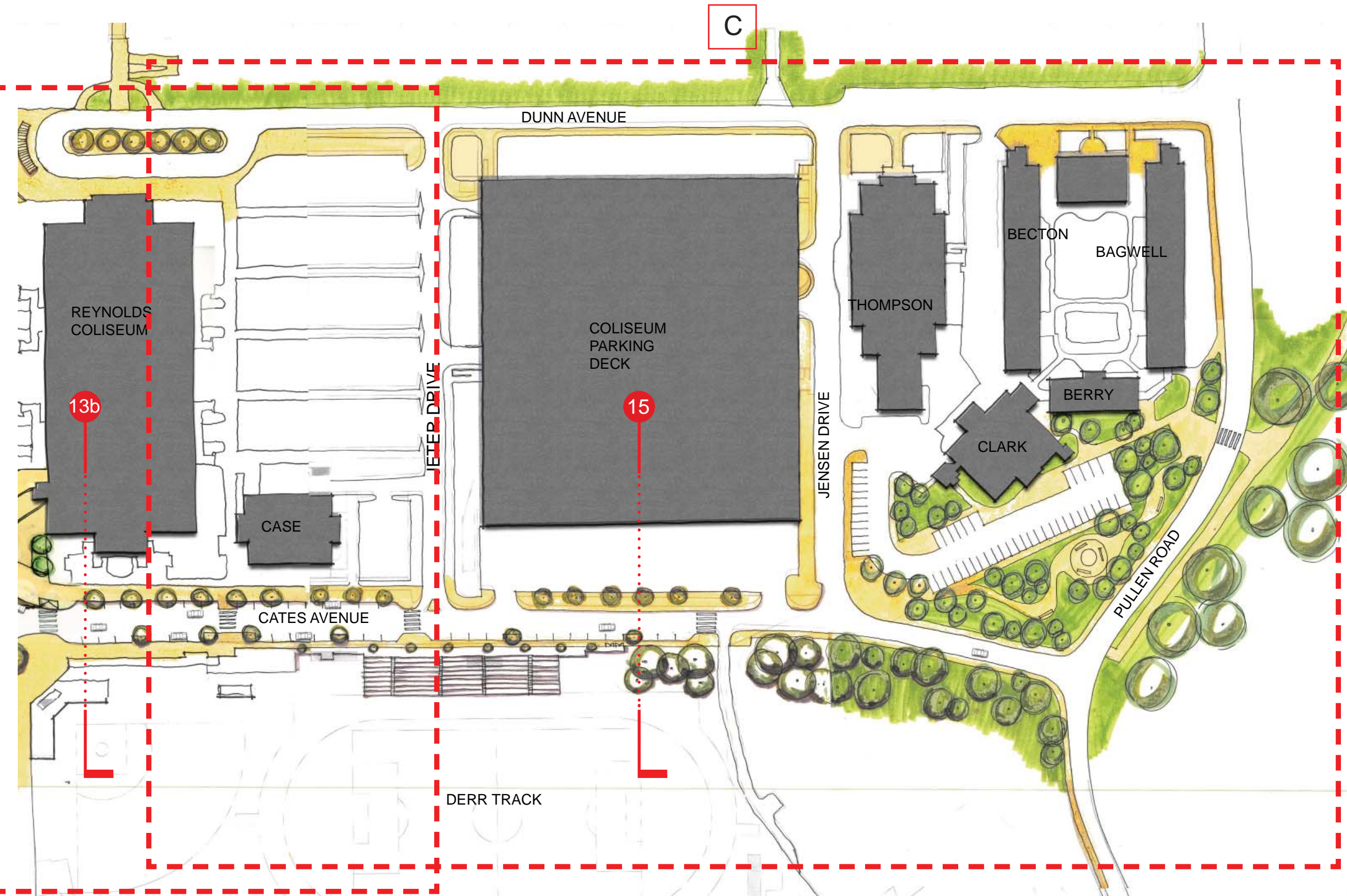
**NC STATE UNIVERSITY**  
**CATES AVENUE MASTER PLAN**



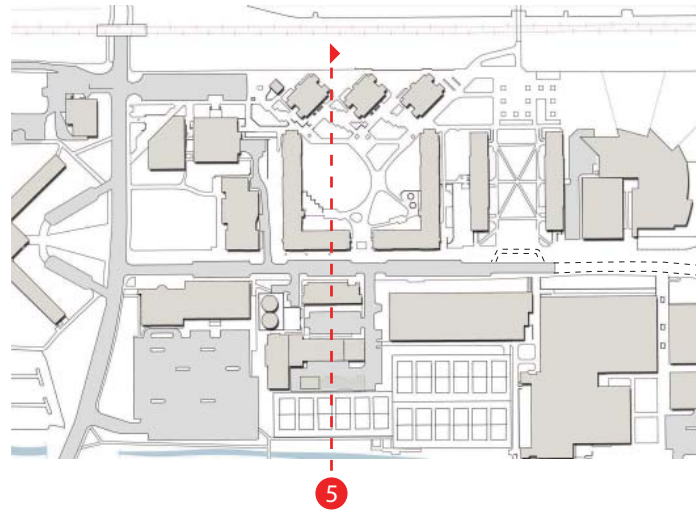


MASTER PLAN CONCEPT



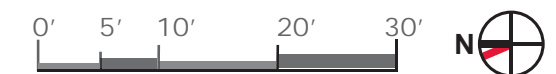
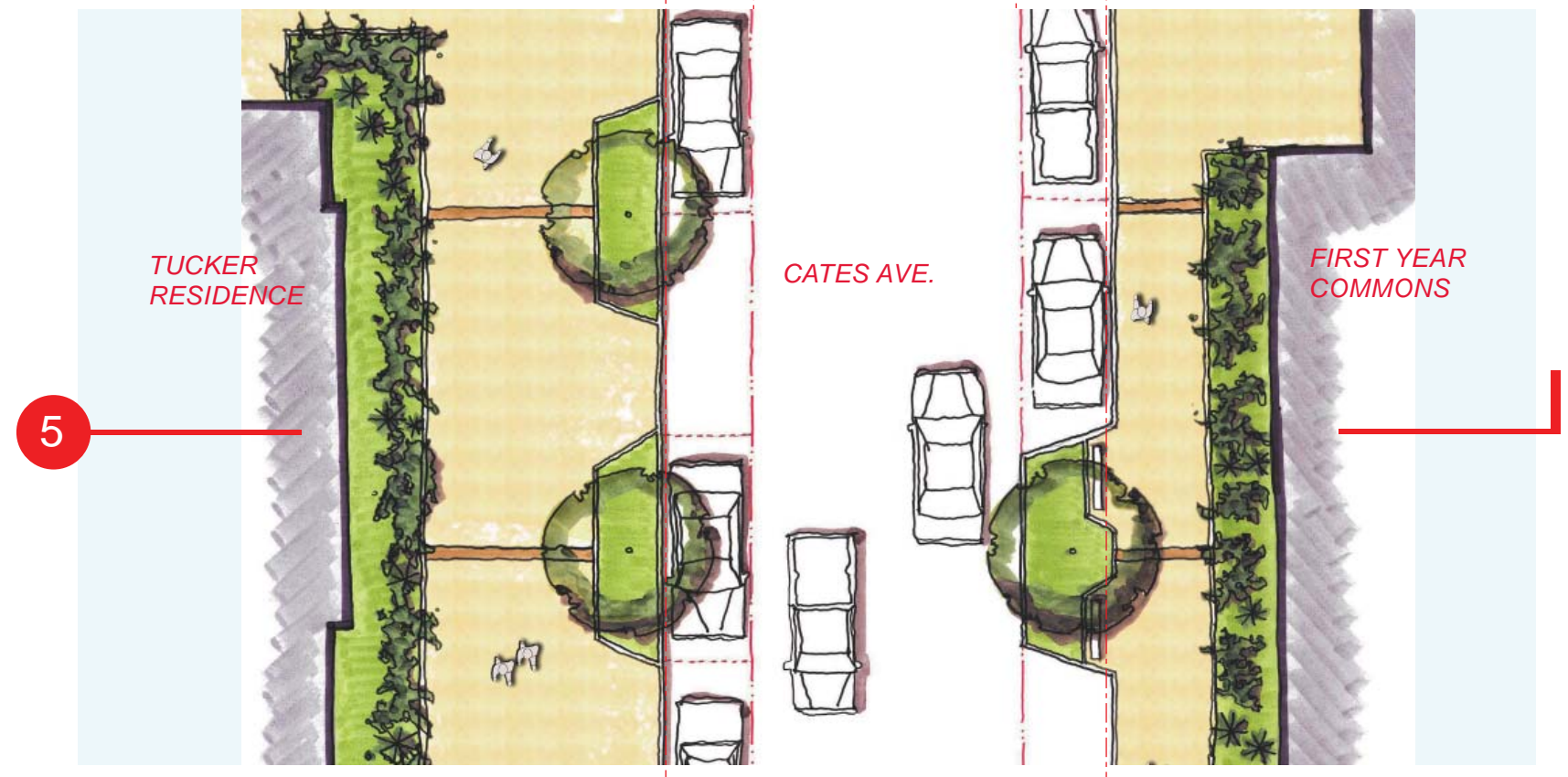
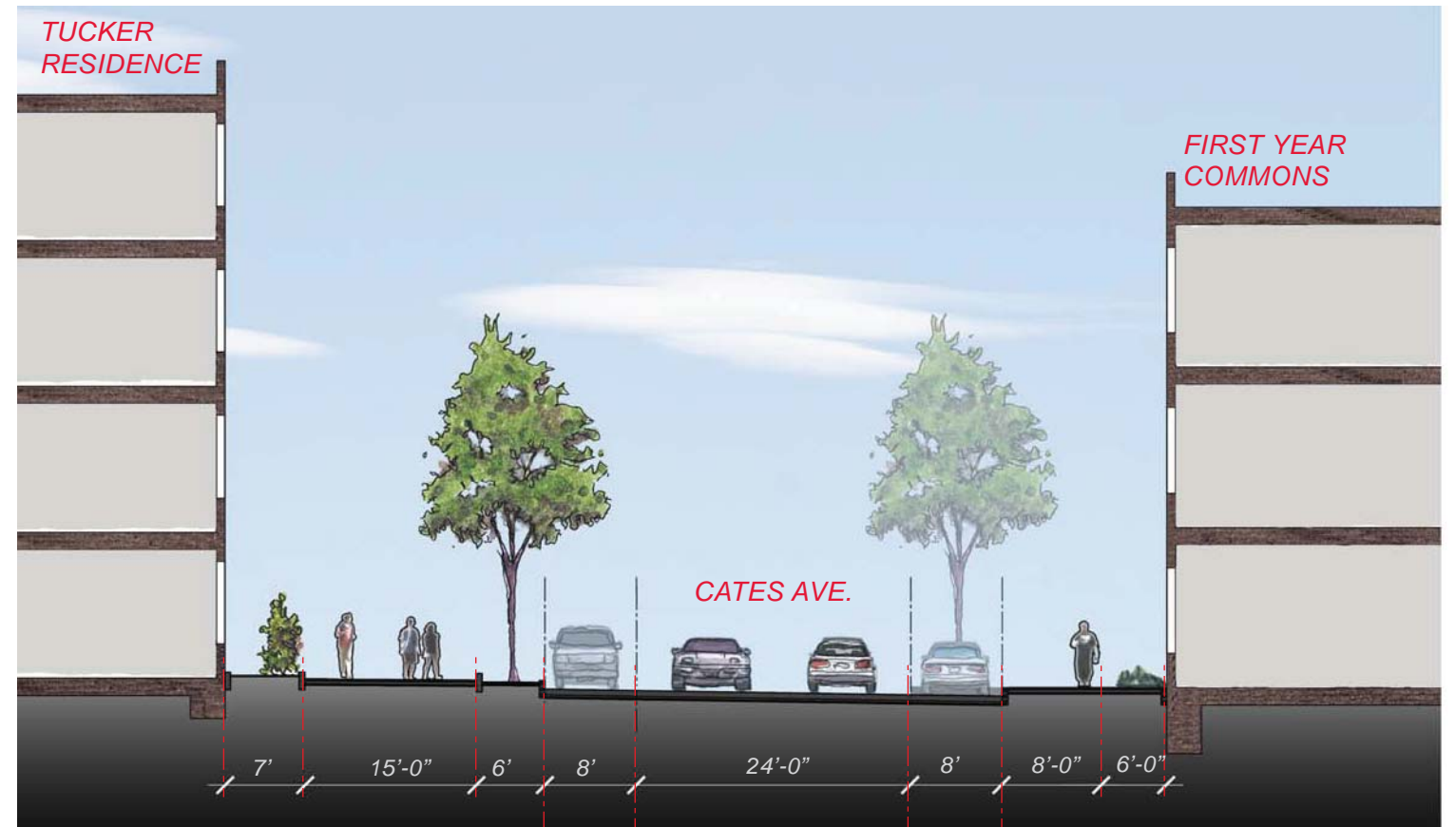




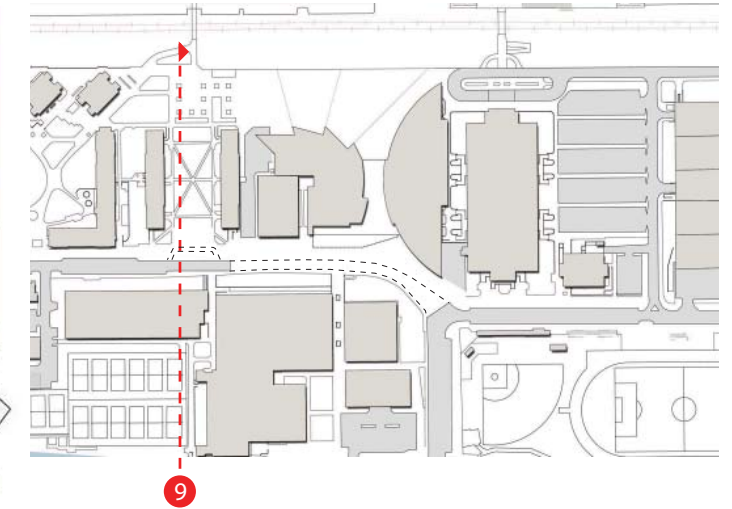
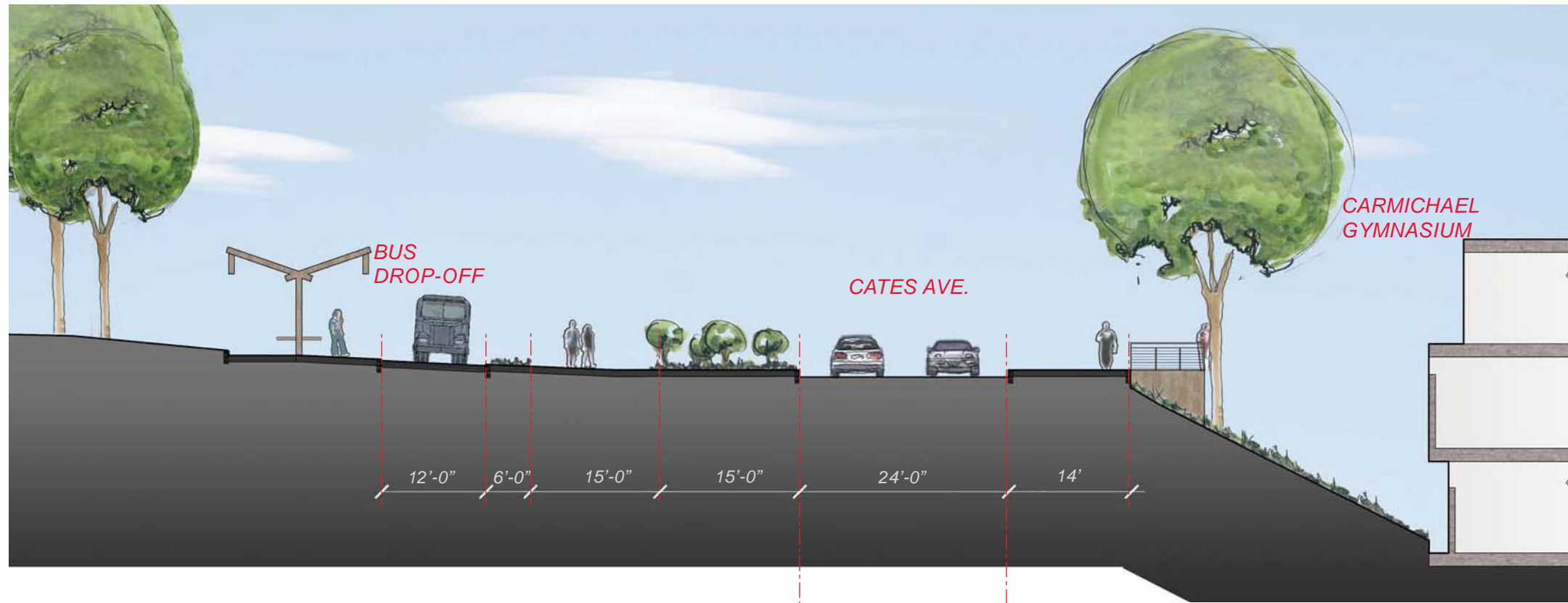


## Section 5

- Pedestrian priority established by redefining Cates Avenue curb to curb width and implementing parallel parking on both sides
- Expanded north sidewalk serves as the main pedestrian zone with green buffers to the dorms and the street
- South sidewalk maintains a generous dimension and incorporates trees for shading
- Planter serves as a buffer between Tucker and Owen Residence Hall facade and Cates Avenue
- Low planter located between the south sidewalk and the First Year Commons Building is preserved

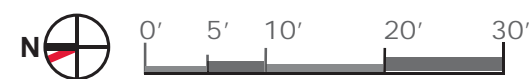
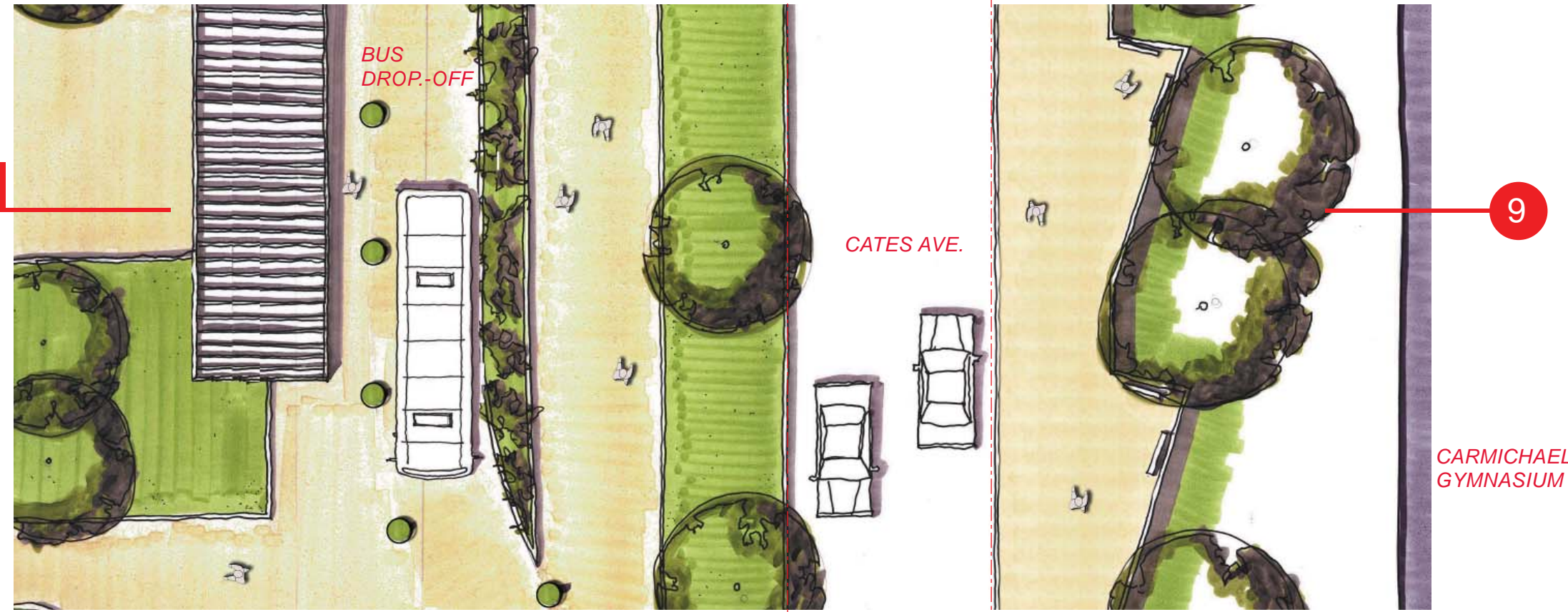




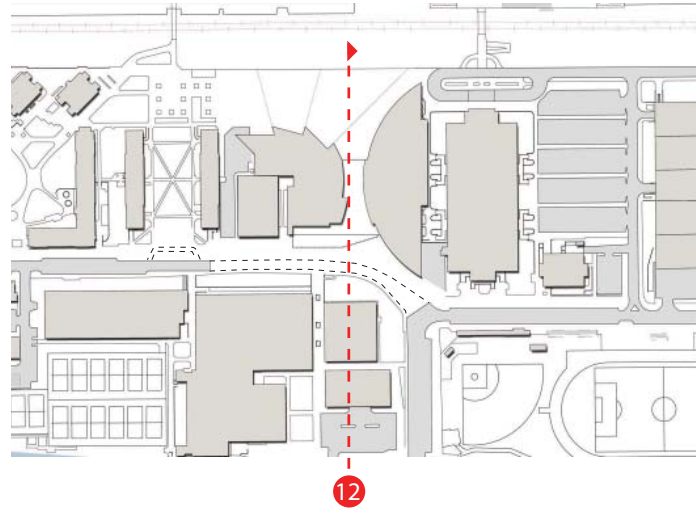


## Section 9

- Talley Student Center bus drop-off and vehicular turn-around relocated west to Turlington and Alexander creating a node to the south of the existing green space
- Raised drop-off zone and material change slows traffic
- Low planter located in drop-off zone to provide a buffer between vehicles and pedestrians along the north sidewalk
- Wide green zone with new trees separates the north sidewalk from Cates Avenue
- Parking removed along this section of Cates Avenue with two way traffic in a reduced curb to curb dimension
- South sidewalk expands to create a series of small terraced elements in front of Carmichael Gymnasium

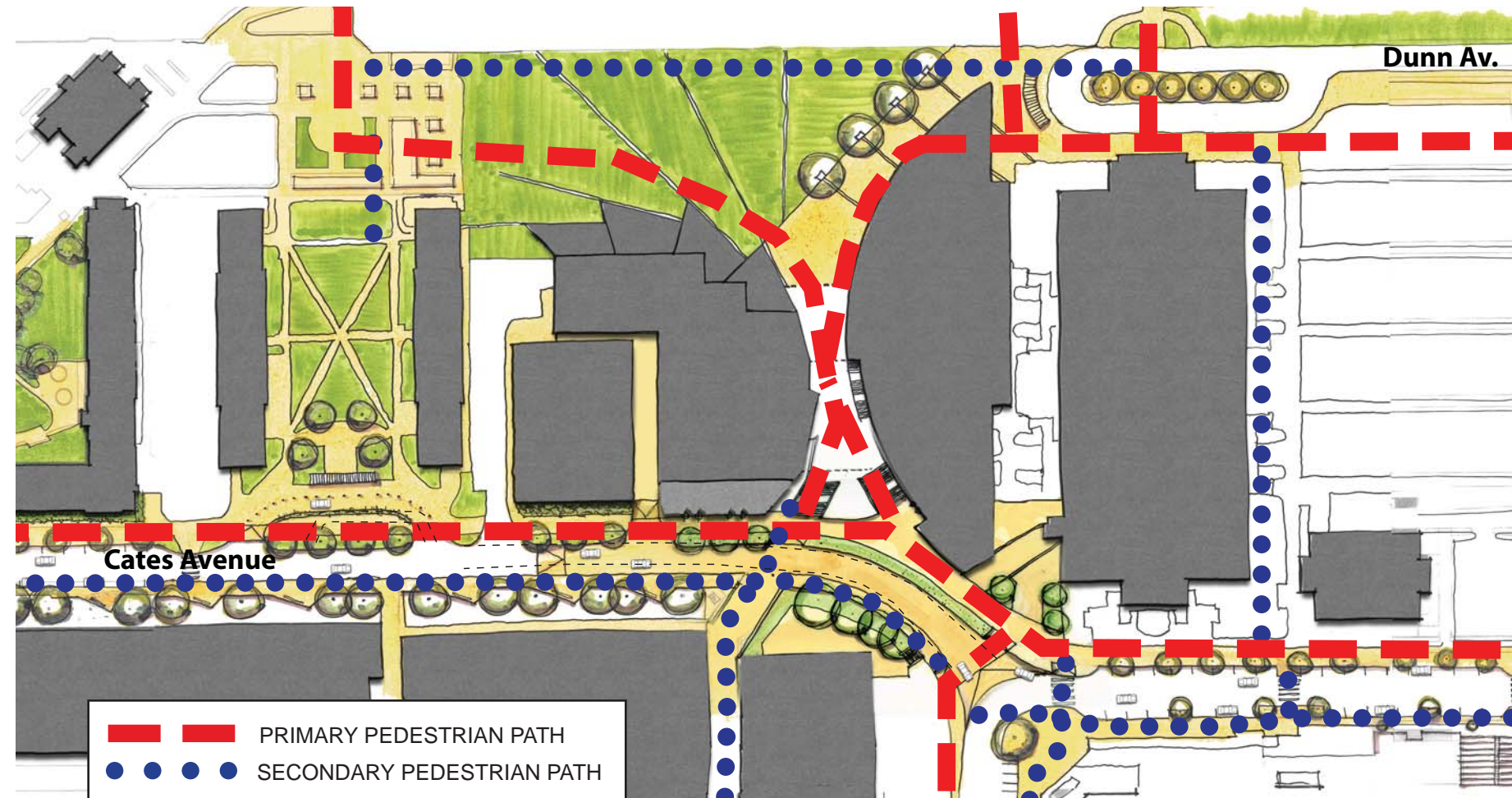
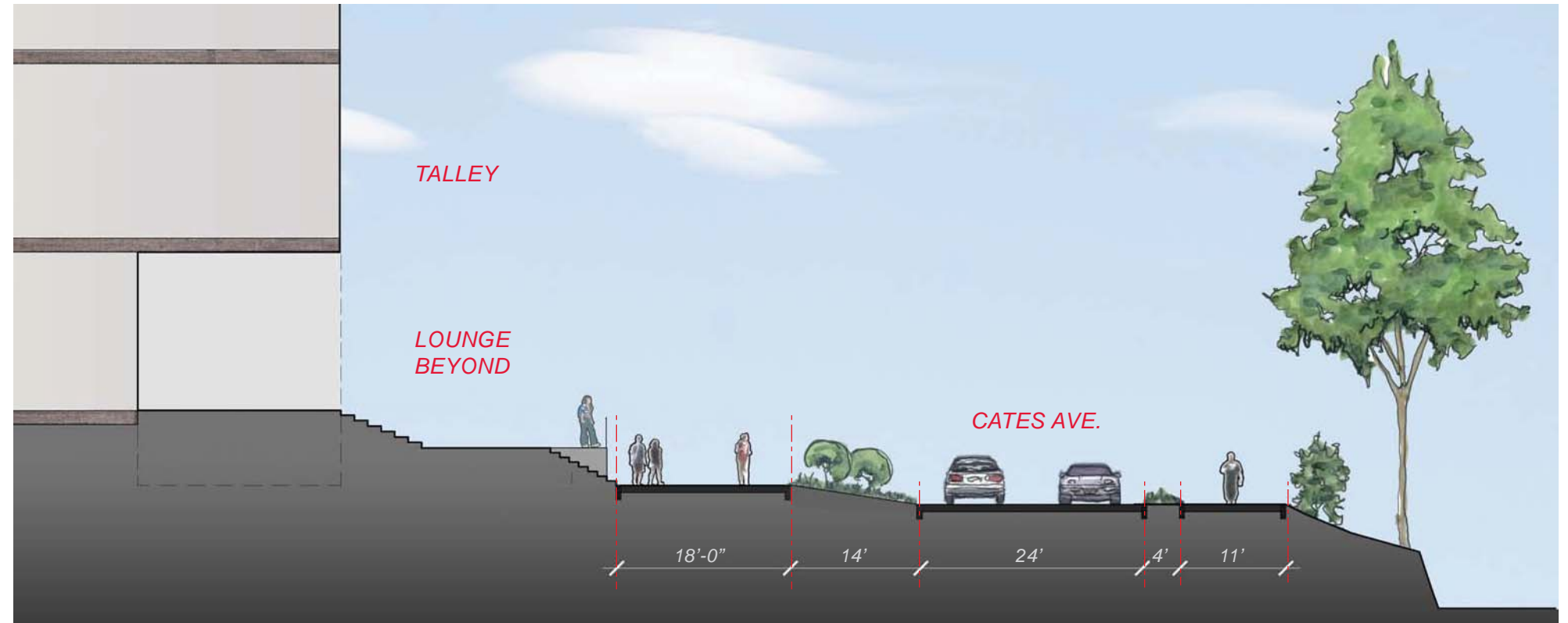






## Section 12

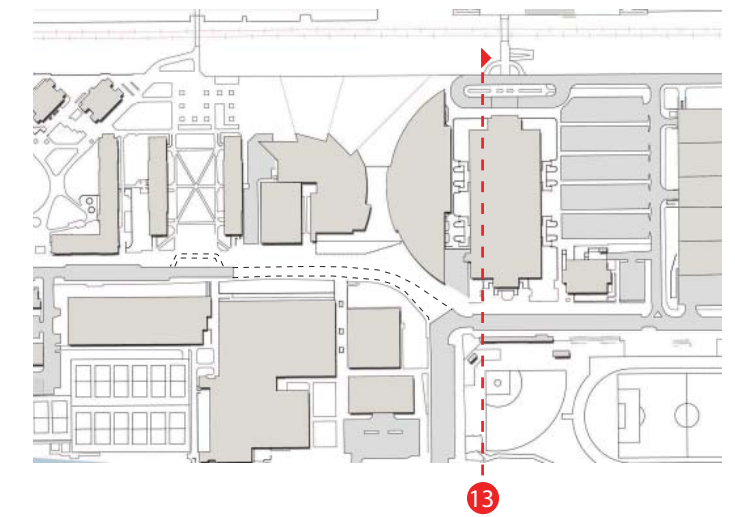
- Cates and Morrill intersection redefined to the west by creating a pedestrian priority zone with raised street, material change and removal of head in parking
- Pedestrian flow redirected through the new Talley Student Center
- Relocation of new Talley Student service area reduces traffic flow at the intersection
- Reduced drive width slows traffic
- Relocated Bus and Shuttle drop off removes traffic from Talley front entrance
- Regrading at the street creates a smoother transition across Cates Avenue connecting Talley to Carmichael Gymnasium
- South sidewalk expands to create a series of small terraced elements in front of Carmichael Gymnasium
- Expanded north sidewalk and Talley entry plaza serves as the main pedestrian zone with green buffers to the street



— — — PRIMARY PEDESTRIAN PATH  
● ● ● SECONDARY PEDESTRIAN PATH





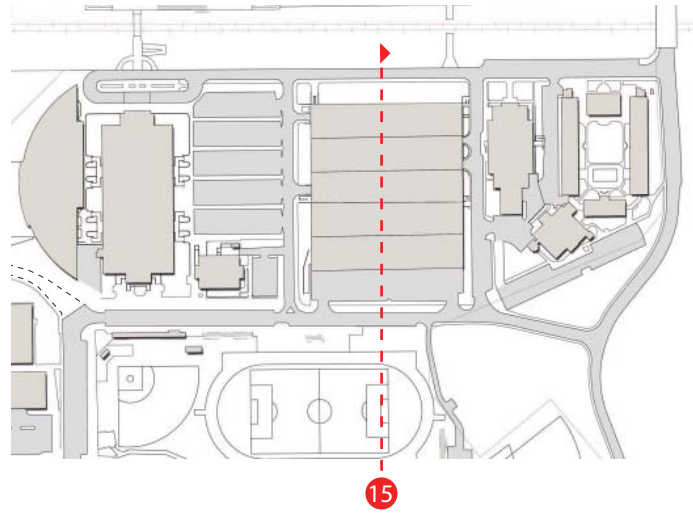


### Section 13b

- Pedestrian priority established by redefining Cates Avenue curb to curb width and implementing parallel parking on both sides
- Expanded north sidewalk serves as the main pedestrian zone with green buffers to the street creating an enhanced public space in front of Reynolds
- South sidewalk expanded in front of the softball stadium and incorporates trees for shading

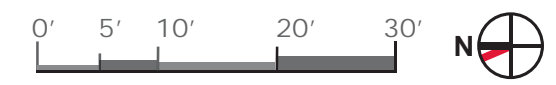
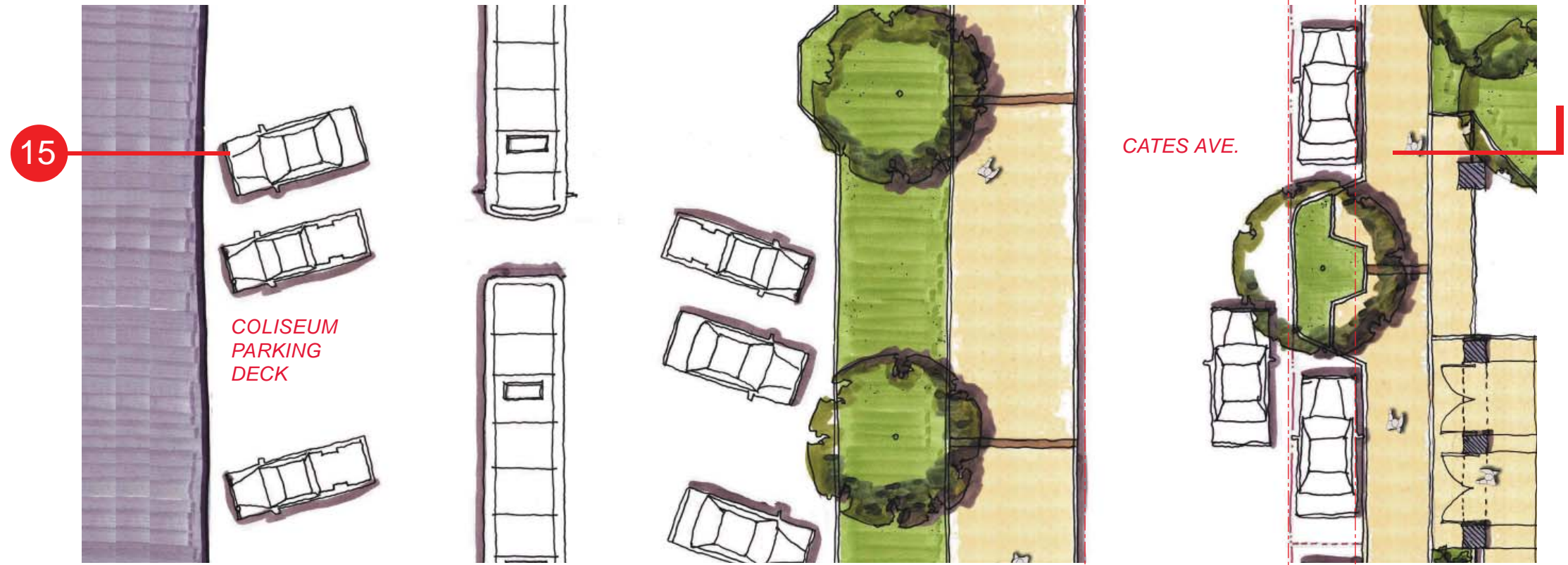






## Section 15

- Pedestrian priority established by redefining Cates Avenue curb to curb width and implementing parallel parking on the south side of Cates
- Expanded north sidewalk serves as the main pedestrian zone maintaining green buffers to the existing surface parking lot
- South sidewalk maintains a generous dimension and incorporates trees for shading consistent with the Derr Track renovation plans

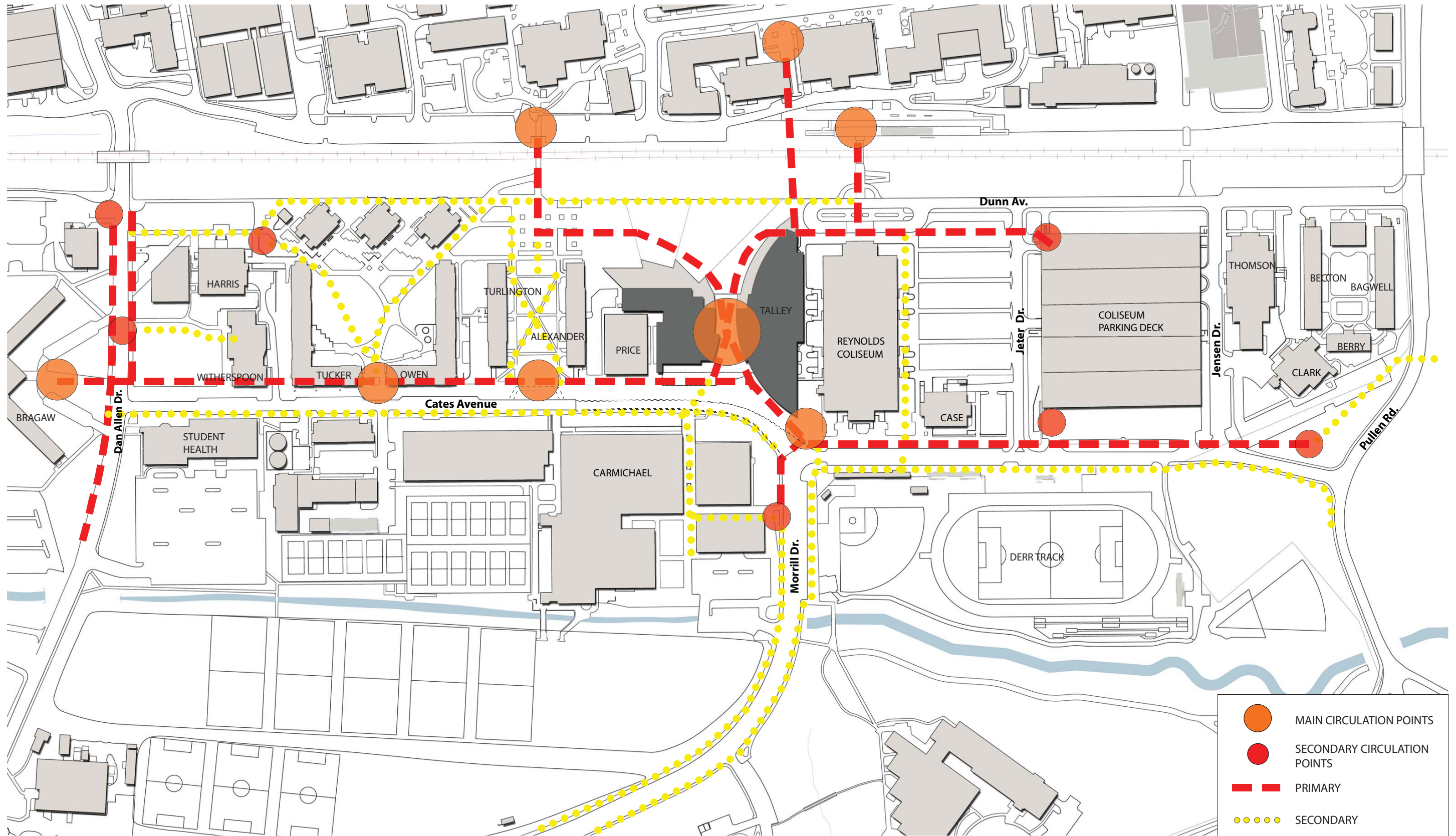








# Master Plan Concept Diagrams



## PEDESTRIAN MOVEMENT

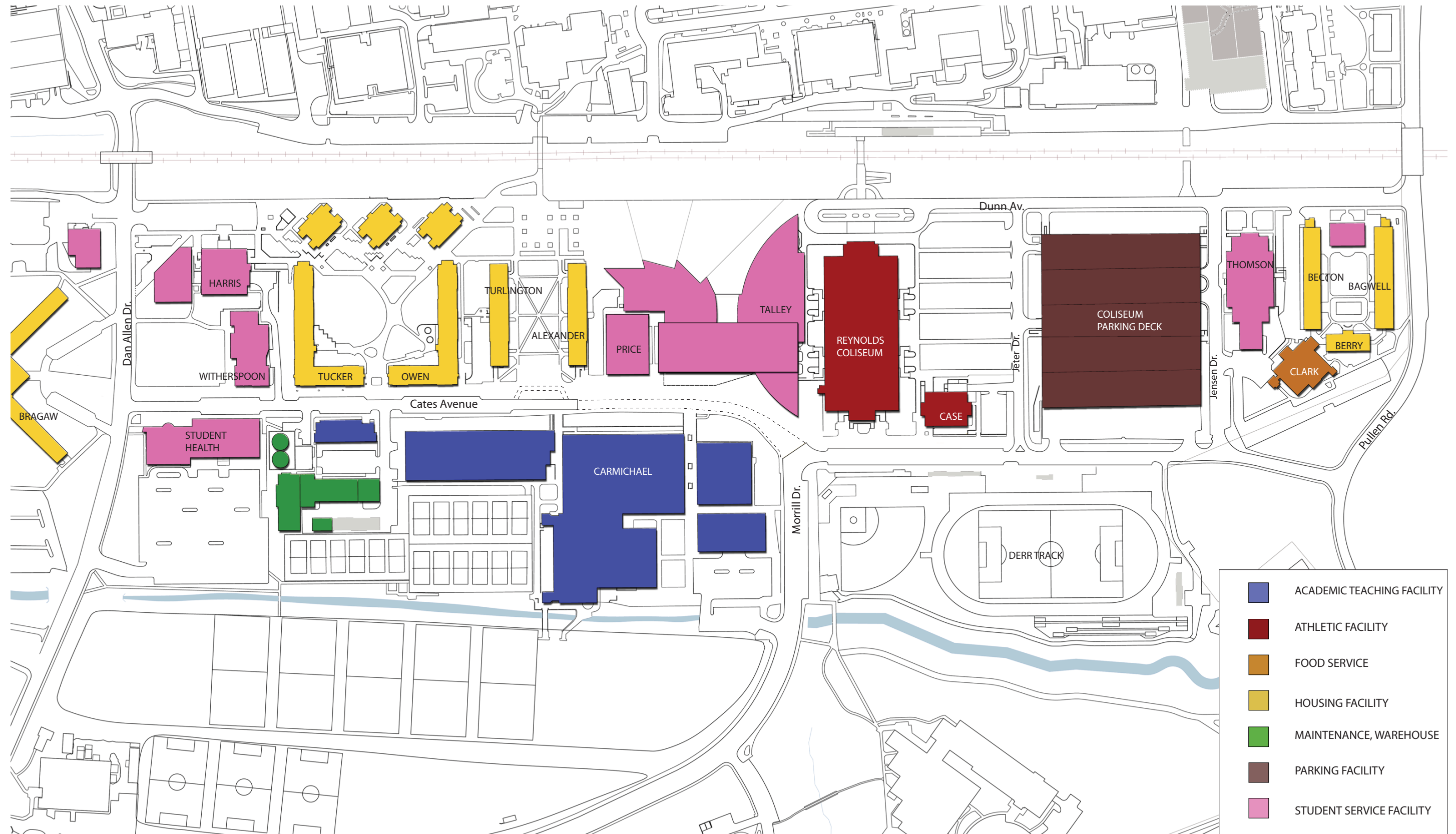




BUILDINGS AND ENTRIES

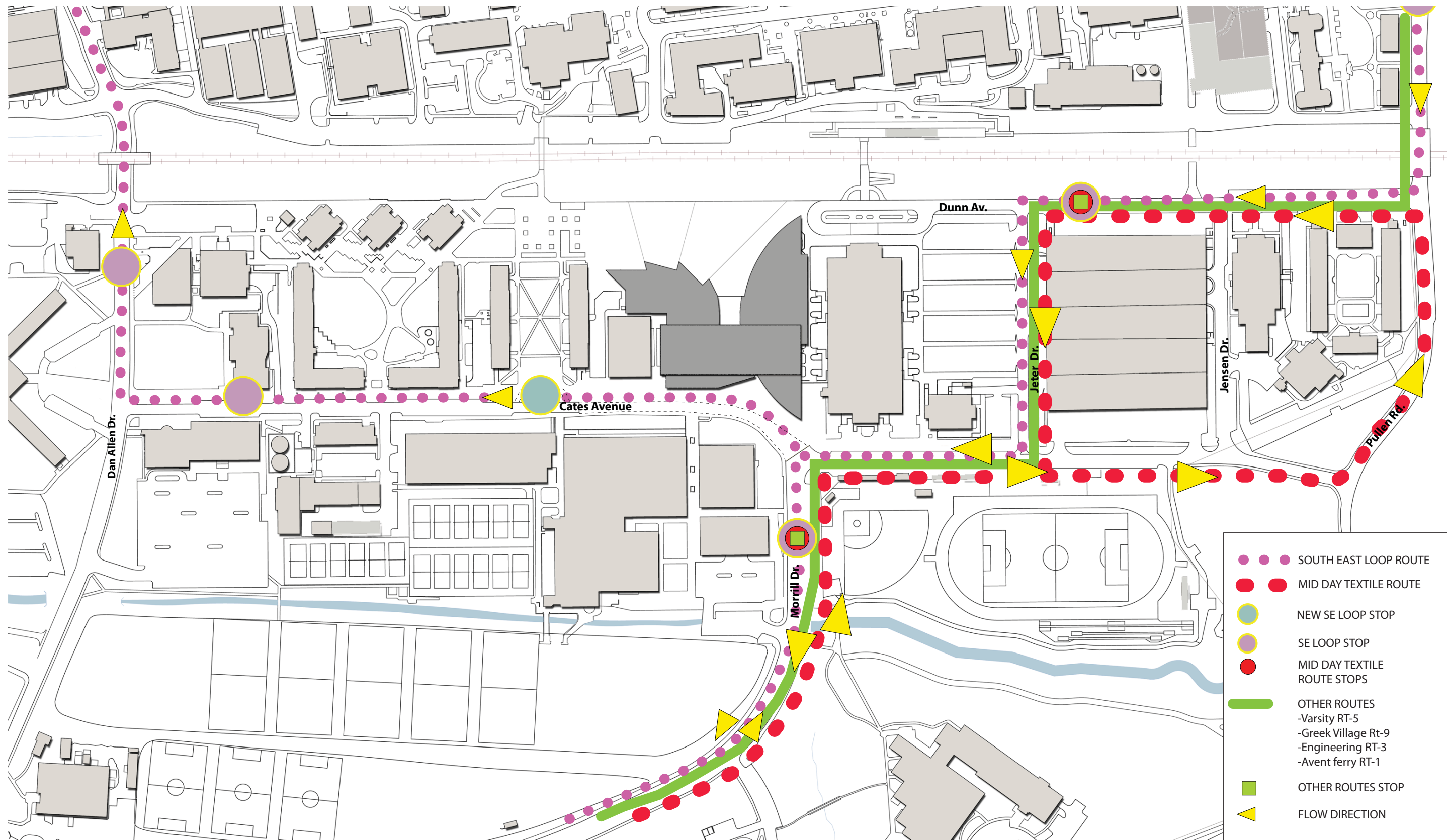
**NC STATE UNIVERSITY**  
**CATES AVENUE MASTER PLAN**





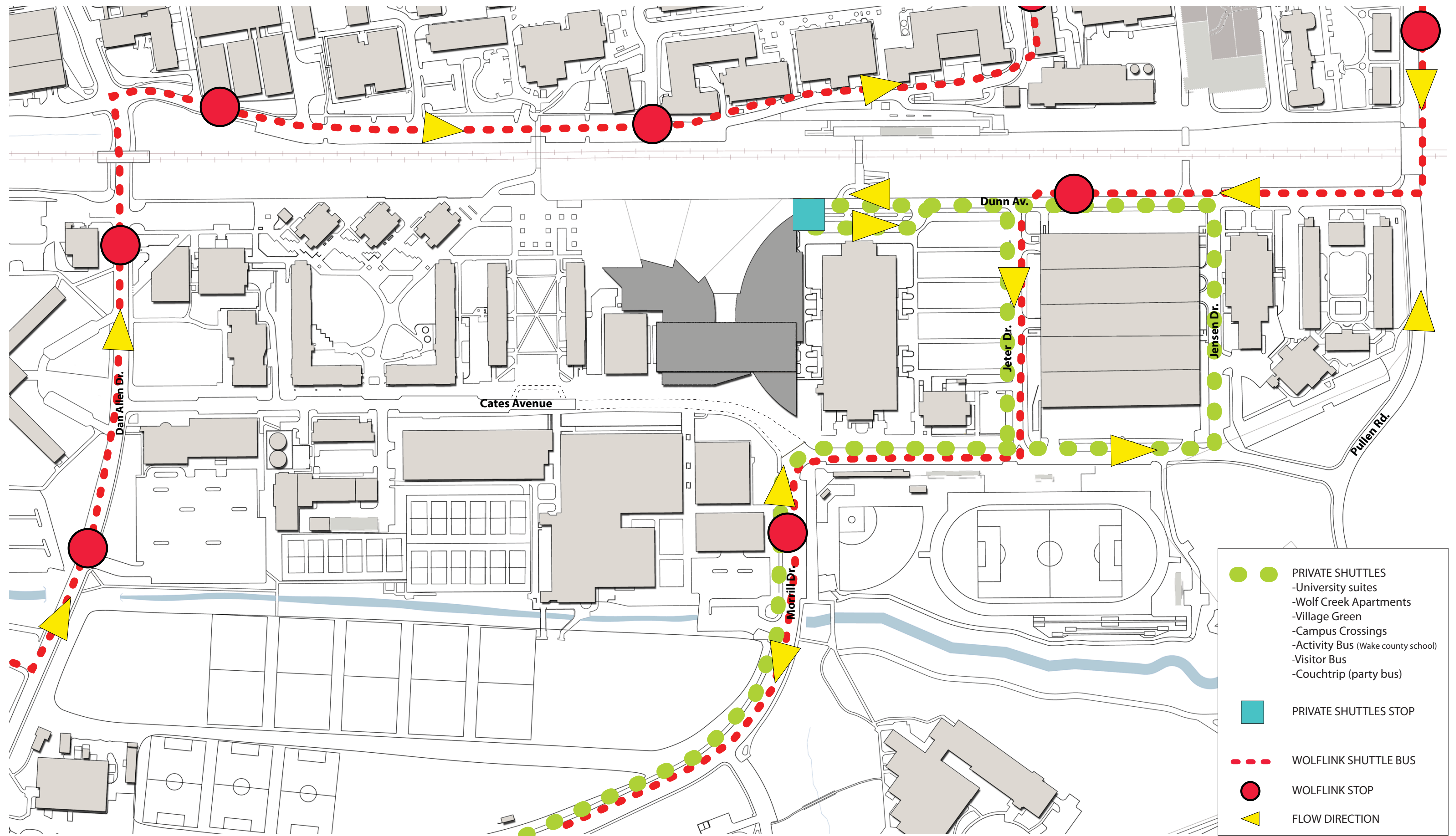
## BUILDING USE





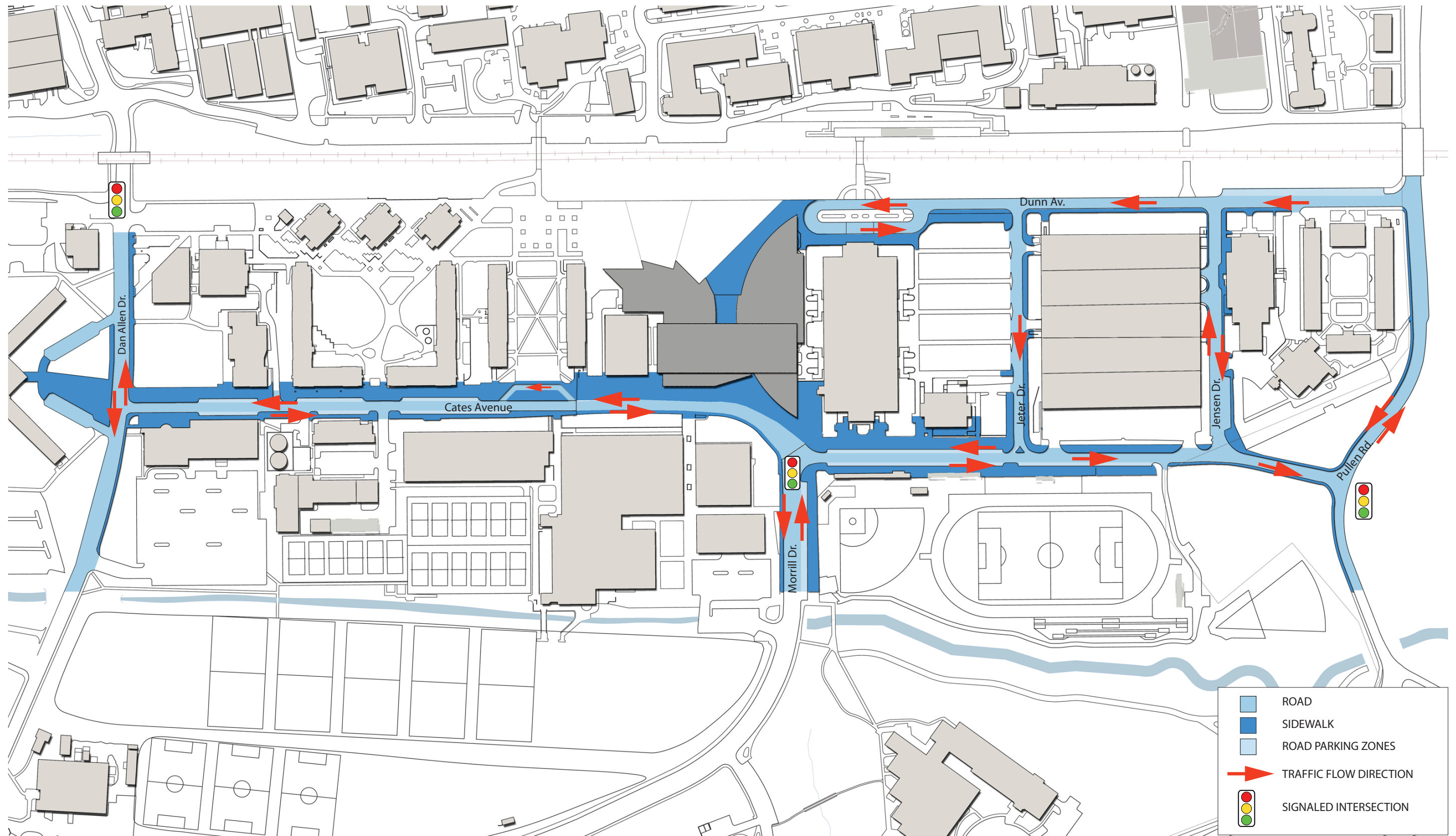
BUS ROUTES





SHUTTLE ROUTES

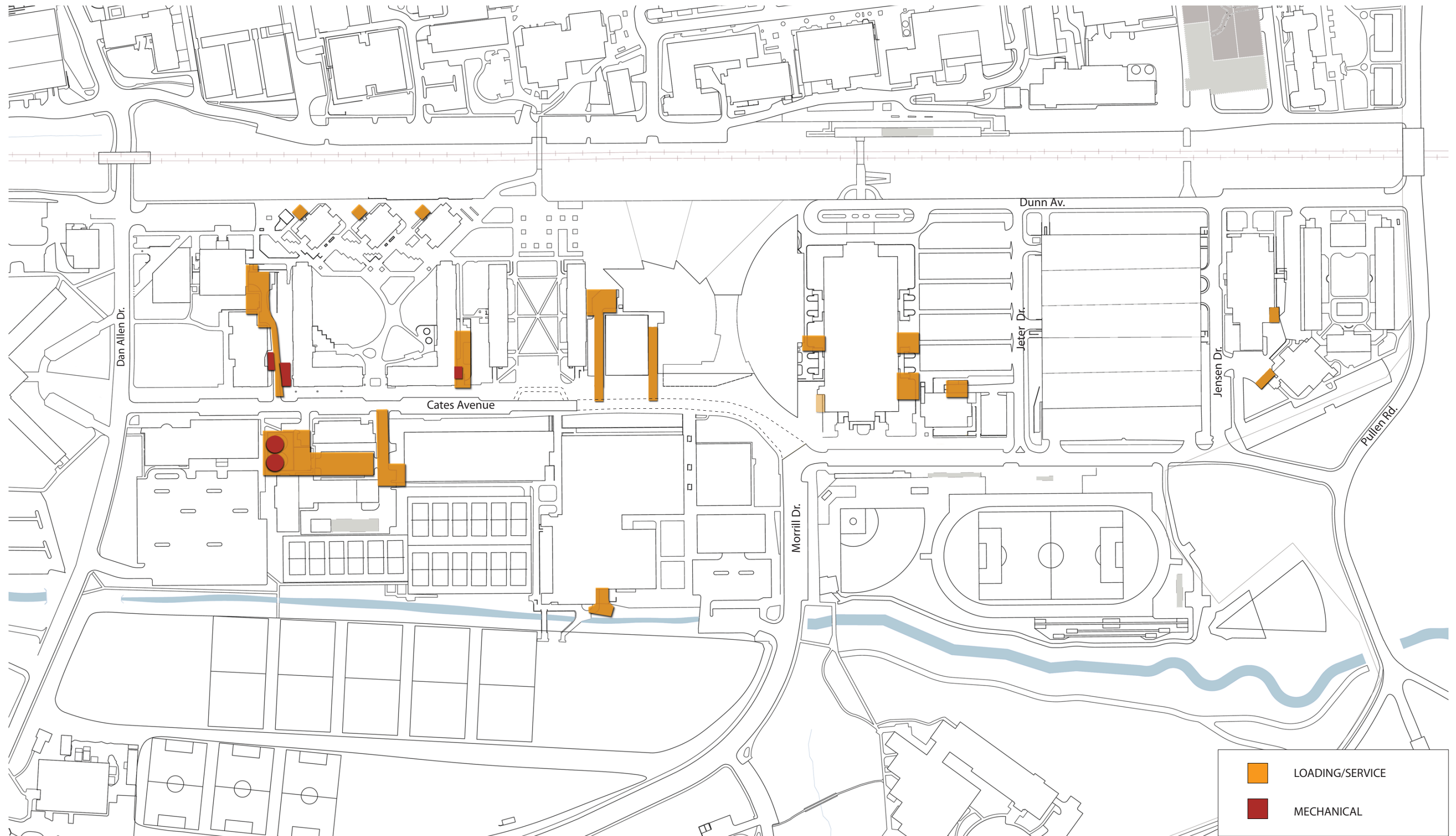




TRAFFIC FLOW

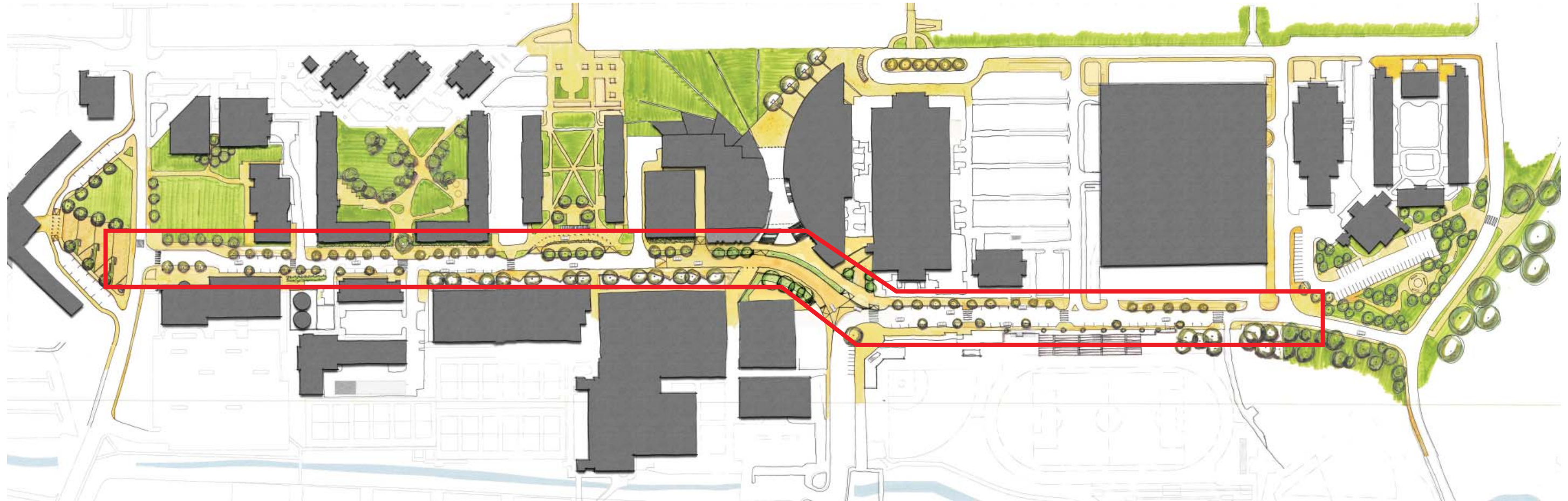
**NC STATE UNIVERSITY**  
**CATES AVENUE MASTER PLAN**





## SERVICE ZONES





TOTAL = 86 SPACES  
\*31 Identified Priority Spaces

MASTER PLAN CONCEPT PARKING COUNT



# Summary

The Cates Avenue Master Plan concept design phase is intended to be a broad analytical and conceptual design study. As such it projects a future set of conditions which aspires to create a truly enriched pedestrian experience that presents students a generous, comfortable and active street that supports student life. The study endeavors to establish a consistent character and set of patterns through the proportion between building and street, shading and rhythm of tree canopies, and variety of materials that provide an opportunity for diverse public spaces.

Duda/Paine Architects further recommends that Cates improvements adjacent to the Talley Student Center should be considered concurrently with the design of the addition and renovation project. While the Cates Avenue Master Plan was a separate study from the Talley Student Center project, the inclusion of an initial phased area of street would allow an opportunity for the master plan concept design and the new building, with its reconfigured relationship to Cates, to create a set of conditions consistent with anticipated future site improvements. With this in mind, the next steps for additional development of the master plan concept design are recommended to provide a clearer understanding of the scope and feasibility of incrementally phased changes and detail more specifically the anticipated future site improvements for the entire scope extents including the section of Cates in front of the Talley Student Center.

Along with the suggested reconfiguration of parking, the master plan concept design projects a decrease in the number of available space along Cates Avenue. These parking reductions would be phased incrementally over the implementation of the proposed plan for Cates Avenue. The Office for the University Architect has suggested the project would be similar to the phased nature of the Stinson Drive improvements. Currently, the West Lot Parking Deck is under construction and future parking structures, located on the periphery of the campus, are planned to decrease on-campus traffic and relieve displaced cars during future improvements along various campus streets like Cates Avenue as indicated in the NCSU physical master plan.

## **Traffic Analysis:**

Martin/Alexiou/Bryson, PC (M/A/B) traffic consultants have participated in all design meetings during the Cates Avenue Master Plan and have provided suggestions that have helped to shape the current concept design. M/A/B has performed a review of existing studies and data collected from 2001-2009 provided by NCSU, which includes studies of traffic demand, traffic operations and traffic safety on a street segment or individual intersections. Specific traffic data, collected over the same period, has also been reviewed but is limited and outdated. The following existing issues have been identified through previous studies and reports:

- Traffic congestion and traffic control alternatives at the intersection of Cates Avenue and Dan Allen Drive
- Traffic control alternatives at the intersection of Cates Avenue and Morrill Drive
- Traffic congestion issue and signal warrant study at the intersection of Pullen Road and Dunn Avenue
- Traffic safety issue along Cates Avenue, particularly concerning parked vehicles

Current traffic analysis has not yet been performed to validate or augment any previous findings or to allow specific analysis of the Cates Avenue Master Plan concept design. M/A/B have



identified the need to conduct more current analysis to test the concept design, however, a meaningful traffic analysis cannot be conducted until the fall semester. Recollection of the following data is recommended:

- Vehicle turning movement data at key intersections such as Cates Avenue and Dan Allen Drive, Cates Avenue and Morrill Drive, Cates Avenue and Pullen Road, and Pullen Road and Dunn Avenue
- Pedestrian crossing volumes at the raised/striped crosswalks along Cates Avenue, Dunn Avenue, and selected locations at Dan Allen Drive
- Bus routes and stop locations along Cates Avenue and Dunn Avenue

M/A/B has reviewed the current Cates Avenue Master Plan including the concept design for the renovation and addition to the Tally Student Center and anticipates the following traffic impacts created by this construction project:

- With reduced parking and the relocation of bus stops/loading zones, vehicle traffic demand along Cates Avenue should decrease
- The pedestrian crossing volume in front of Tally Student Center should increase significantly and become safer due to the anticipated implementation of improved pedestrian amenities, pavement markings, signage, and a reduction in the volume of vehicular traffic on Cates Avenue.
- The change from perpendicular parking to parallel parking, coupled with the reduced vehicle volume, should improve traffic safety along Cates Avenue
- The northbound left-turn movement at the intersection of Pullen Road at Dunn Avenue is expected to increase in traffic volume if shuttle drivers use the new drop-off area on Dunn Avenue as specified in the concept plan

The Cates Avenue Master plan concept provides the flexibility to allow for incremental change including specific modifications required through further analysis and geometry studies. The specific traffic analysis identified above should be conducted so that it can be applied to develop detailed direction for modifications to specific areas. While this analysis is intended to be included as an addendum to the document at a later date, the following potential traffic related issues have been identified:

- Given the relocation of some service and loading areas, traffic management along Cates Avenue and in the new Talley Student Center should be implemented to provide direction to drivers
- Bookstore parking is anticipated to have a higher turnover rate than typical parking spaces and should be located off the road or along the low volume roadway section
- Traffic control and geometrics at the unsignalized intersection of Pullen Road and Dunn Avenue, where traffic queue backup currently exists from the left-turn pocket lane, should be upgraded
- Pedestrian crossing and traffic calming locations should be clearly identified to increase the awareness of pedestrian flow
- Bus turning radius checks need to be performed along the new bus and shuttle routes



# Appendix

- June 28 Design Review Comments

## DESIGN REVIEW COMMENTS NORTH CAROLINA STATE UNIVERSITY

**Project Number:** 201020015

**Project Name:** Cates Avenue Master Plan Study

**Project Manager:** Sumayya Jones-Humienny

**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** Roger Manley, Gregg Museum Director

**Date of Comments:** 2010-06-22    **Date of Response:** July 1, 2010

### COMMENTS

### RESPONSES

<p>1. Basic plan looks okay, although most of the focus seems to be on rerouting vehicular traffic and encouraging pedestrian traffic. Instead of focusing on the area so much as a corridor, a variety of “destination activities” offered along this corridor--C-Store, ticket access, informal performance spaces (student with acoustic guitar), ice cream or taco vendors, cement tables with chess boards built-in as mosaics, permanent outdoor ping-pong tables (cement), lots of places to sit and socialize and people-watch outdoors with access to electrical outlets and wifi, even a skateboard-friendly zone—would do a lot to further enhance its function as an active pedestrian area and campus activity core.</p>	<p>1. The Cates Avenue Master Plan study is primarily a result of an analytical study of existing physical conditions, traffic flow and pedestrian flow. The concept design presented is intended to focus on potential alterations to these existing physical constraints and develop a generous plan strategy that would allow and support a variety of activities and spaces along the entire length of Cates Avenue. Design details for specific locations should be resolved in a future design phase.</p>
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**DESIGN REVIEW COMMENTS  
NORTH CAROLINA STATE UNIVERSITY  
Project Number: 201020015**

**Project Name:** Cates Avenue Master Plan Study  
**Project Manager:** Sumayya Jones-Humienny  
**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** Matt Miller, Carmichael Complex Facilities and Operations Director

**Date of Comments:** 06/24/2010      **Date of Response:** July 1, 2010

**COMMENTS**

**RESPONSES**

<p>1. On pg. 62 it appears that there are some bollards at the new diagonal slope crosswalk between Carmichael and Talley, can those be removable/eliminated? Currently that is one area that EMS will respond to if there is an emergency on Courts 1-8 of Carmichael. Also, since there is not a service elevator or any elevator access to the 2nd floor of the 1961 portion of Carmichael, this is an area where deliveries are made (for short periods of time 15-30 minutes) when we host large-scale University events such as: Open House, Athletic Camps, Stop Hunger Now, Graduations, etc. This needs to be maintained. Requiring people to use the Carmichael Lot and carry 500 lb. wrestling mats or 1000's of chairs and staging up very narrow flights of steps is not feasible.</p>	<p>1. Emergency accessibility, servicing, and delivery comments are noted. The design team recognizes that a greater understanding of all the individual building along Cates Avenue and their specific operations and functions would be required moving forward with the Master Plan Concept Design as a conceptual starting point. Coordination of design details with specific access points, and building functions should be resolved in a future design phase.</p>
<p>2. Pg. 55. Would like clarification that the bus stop and/or where the buses are allowed to park is to remain in its current location. It appears that it is sliding down closer to the intersection of Morrill and the Carmichael Lot entrance. This is already a VERY dangerous spot and moving the buses any closer would only make it more dangerous.</p>	<p>2. The existing bus stop on the west side of Morrill Drive is intended to remain in its current location. The diagram has been adjusted clarify this.</p>
<p>3. Parking in general. As Carmichael is continually pushed to generate more revenue from Faculty/Staff/Other memberships, our parking continues to be decreased – first with Rocky Branch and now with this master plan. While we fully</p>	<p>3. Proximity of parking for Carmichael users is noted. All parking displaced in the master plan needs to be coordinated with the Office of the University Architect and NCSU Transportation.</p>

<p>support Cates being more pedestrian, parking in and around Carmichael needs to be re-evaluated, or our ability to meet any revenue projections will not be sustainable. One option to consider is making Carmichael Lot 2 hour parking. Currently it mainly serves staff parking for the Complex and Talley employees, and there is very little turnover in the spaces from 8am-5pm. This would help and provide members a better opportunity to find parking. Cars that need to sit all day could use the Reynolds surface lot or deck. Another idea is to offer shuttles especially at lunchtime and after work that just service Carmichael. Our number one reason for people canceling their memberships continues to be lack of parking and this will only make it worse. This has an ability to negatively impact the long-term financial stability of two departments and needs to be considered.</p>	
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**DESIGN REVIEW COMMENTS  
NORTH CAROLINA STATE UNIVERSITY  
Project Number: 201020015**

**Project Name:** Cates Avenue Master Plan Study  
**Project Manager:** Sumayya Jones-Humienny  
**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** Mathew Trickel, Housekeeping

**Date of Comments:** 06/24/2010      **Date of Response:** July 1, 2010

**COMMENTS**

**RESPONSES**

<p>1. University Housekeeping has no comments to submit at this time</p>	<p>1. No response required.</p>
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**DESIGN REVIEW COMMENTS  
NORTH CAROLINA STATE UNIVERSITY**

**Project Number: 201020015**

**Project Name:** Cates Avenue Master Plan Study

**Project Manager:** Sumayya Jones-Humienny

**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** OUA Planning

**Date of Comments:** 06/24/2010 **Date of Response:** July 1, 2010

**COMMENTS**

**RESPONSES**

1. P. 6 Make connector path and All Campus path graphics the same width to communicate that they carry similar amounts of foot traffic. The distinction is that All Campus Paths provide additional amenities that Connector Paths do not.	1. Document is amended to reflect comment.
2. P.12 There is not a sidewalk on the north side of Cates between Jensen and Pullen.	2. Document is amended to reflect comment.
3. P.14 The eastern most bay of parking in the Carmichael Recreation Center parking lot is mostly service vehicle space.	3. Document is amended to reflect comment.
4. P.14 Make the lot south of Carmichael Rec. Center smaller to reflect ex condition with new Recreation Center building and similar edit for future addition at Student Health Center.	4. Document is amended to reflect comment.
5. P.13 The driveway east of softball is not service.	5. Document is amended to reflect comment.
6. P.33 Change section line bubble from 14 to 13A	6. Document is amended to reflect comment.
7. P.38 Zone 3 – Bigger issue is proximity of rooms to path and street. (Photos on P.42 show this) Zone 4 – Bigger issue is the connection and condition of the courtyard at Cates. Other connection/path in the courtyard is OK. (Photos on P.43 show this).	7. Document is amended to reflect comment.

8. Zone 8 – Change to say there are no sidewalks.	8. Document is amended to reflect comment.
9. P.41 Photo D is east of Owen. Move photo to P.42?	9. Document is amended to reflect comment.

10. P.43 In diagram, switch labels for B and C to correspond with photo locations, and adjust arrows for the proper direction of view in the photos.	10. Document is amended to reflect comment.
11. P.44 Shift C and D bubble/labels left to show correction location.	11. Document is amended to reflect comment.
12. P.45 Is meter parking an issue? (We don't think so.) Shift arrow on "B" bubble to 45 degrees to show direction of view.	12. Document is amended to reflect comment.
13. P.46 Shift "A" bubble further west	13. Document is amended to reflect comment.
14. P.47 Change "C" bubble to "D" to match the photo. Photo labeled "C" looks like Yarbrough Drive south of Mann Hall.	14. Document is amended to reflect comment.
15. P.48 In first bullet, delete "...for students" Under Master Plan diagrams narrative, make clear that the bullets relate to a forthcoming diagram. Add a bullet to describe the "drop off diagram"	15. Document is amended to reflect comment.
16. Seems that the MP concept (on 62-63) should come before the concept diagrams.	16. Document is amended to reflect comment.
17. P.49 To what do lettered zones on pp 50-51 correspond? How do they correspond to zone map on 38-39?	17. The three lettered zones referred to on pages 50-51 were meant to be referenced in the master plan concept drawing. The document is amended to incorporate these reference marks.



18. P.62-63 Repeat to section 12 on P.63 (for clarity, due to binding.) Keep image on P.62 as is.	17. Graphic modification to the document has been made to simplify the image crossing the binding.
18. P.62 At Bragaw: We like the plaza concept, but think it should show less hardscape on southern path, and needs more direct and generous connection to the pedestrian table crossing on Dan Allen (to north).	18. The document is amended to show more green space in the plaza area and indicates a direction connection across Cates.
19. P.62 At Student Health Center, show a shrub planting strip between the building and sidewalk.	19. Document is amended to reflect comment.
20. P.64 Dimension the walk and planter separately adjacent to First Year College. The tree planter on north side of Cates should not be continuous to allow access to/from parked cars.	20. Document is amended to reflect comment.
21. P.65 Would rather show portable planters to control vehicle movement instead of bollards. The structure at the bus drop off should address both sides (north and south). For the triangular terraced elements on the south side of Cates, the niches should respond to the building architecture especially the entrances.	21. Planters have been included in the drawing in lieu of bollards. The canopy structure is shown to address both sides. The triangular terraced elements were located around the existing tree locations. The configuration and details for these niches and their relationship to the surrounding buildings should be resolved in a future design phase.
22. P.66 Seems like the plan view is incorrect/missing.	22. This particular detailed section is paired with a different scaled plan which indicates the diagram of pedestrian crossing in this area. Due to the configuration and extents of this area a larger scale plan did not include enough information to be understandable. The details in this area should be resolved in a future design phase.
23. P.67 Change to section 13b for consistency with the existing section label. The new section dimensions do not appear to correspond with existing conditions What is occurring in the 11'-3" adjacent to Reynolds? How is that shown in the existing conditions? On P.34, show existing planter width at softball stadium and dimension it. Is planter to be removed in the proposed MP?	23. Document is amended to reflect comment and clarify the dimensional issues.
24.P.68 In the 15' width walk, this walk is shown north of trees on P.63. Shouldn't they be south of the walk (as on P.63?)	24. Document is amended to reflect comment.

25.P.63 Consider relocating the driveway near the SE corner of the Coliseum Deck (at Cates.) Its proximity to Jensen is problematic/confusing.	25. The design team has noted this issue. Given the current alignment of the entry drive with the entry to the parking deck, the location of existing trees and surrounding grades, this area warrants further study and should be resolved in a future design phase.
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**DESIGN REVIEW COMMENTS**

**NORTH CAROLINA STATE UNIVERSITY**

**Project Number: 201020015**

**Project Name:** Cates Avenue Master Plan Study

**Project Manager:** Sumayya Jones-Humienny

**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** Bengt Carlson, University Scholars Program

**Date of Comments:** 2010-06-17 **Date of Response:** July 1, 2010

**COMMENTS**

**RESPONSES**

1. I especially support the Cates Avenue Master plan's emphasis on pedestrian and bicycle traffic, and also the shift towards limiting it as a thoroughfare for automobiles. This trend seems to me to be in the best interests of the students, as well as the overall usage of this campus area.	1. No response required.
2. Are there any parts of the plan that can be adapted in the future to further limit "vehicular use" and expand the area as a more pedestrian friendly zone?	2. During the Cates Avenue Master Plan concept design development, controlled access points were considered to further limit vehicular volume and provide greater freedom of pedestrian flow in certain locations along the street. However, given that Cates Avenue is the primary east-west vehicular street on campus the current plan intends to maintain uncontrolled access for vehicular traffic but decongest and reduce the volume to enhance the pedestrian experience.



**DESIGN REVIEW COMMENTS  
NORTH CAROLINA STATE UNIVERSITY**

**Project Number: 201020015**

**Project Name:** Cates Avenue Master Plan Study

**Project Manager:** Sumayya Jones-Humienny

**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** Al Ball, PE EE, NCSU Power Distribution Assistant Power System Engr

**Date of Comments: 06-24-10**

**Date of Response: July 1, 2010**

**COMMENTS**

**RESPONSES**

<p>1. Al Ball, PE EE, NCSU General Comment - Parking:</p> <p>How will the loss of nearly 200 parking places along Cates Avenue be offset?</p> <p>Will these have to be paid for?</p>	<p>1. The Cates Avenue Master Plan Concept Design is intended as a conceptual starting point. The design team was directed to explore parallel parking in part to better understand the parking reduction implications and in part because safety is a major concern with head-in parking. The implementation of any reductions would be incremental over a long period of time All displaced parking would be relocated to structured parking per the University Master Plan and associated funding needs to be coordinated with the Office of the University Architect and NCSU Transportation.</p>
<p>2. Al Ball, PE EE, NCSU General Comment - Traffic:</p> <p>Cates Avenue in combination with Dunn Avenue, Jeter Drive, and Jensen Drive is the only uncontrolled access East and West through the campus. It is a major thoroughfare due at least in part to the Reynolds Coliseum Parking Deck.</p>	<p>2. This is the design teams understanding as well. The Cates Avenue Master Plan intends to maintain this east-west uncontrolled access for vehicular traffic but decongest and reduce the volume to enhance the pedestrian experience and minimize safety hazards.</p>
<p>3. Al Ball, PE EE, NCSU Study, Page 59 – Plantings and Sidewalks:</p> <p>Some the proposed plantings and sidewalks would severely limit service accesses.</p> <p>Particularly, the ramp area at the West end of the Cates Plant. This area allows service access to the switchgear and transformers for</p>	<p>3. Servicing access comments are noted. The design team recognizes that a greater understanding of all the individual buildings along Cates Avenue and their specific service operations and system and utility requirements would be necessary moving forward with the Master Plan Concept Design as a conceptual starting point. Coordination of design details with</p>

<p>the Cates Plant. Also, Trash and Recycling container pickup would be negatively impacted.</p> <p>In addition, other plantings and sidewalks along Cates Avenue farther East would negatively impact access to Building Electrical Switches and Transformers.</p>	<p>specific service and utility locations should be resolved in a future design phase.</p>
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<p>4. Al Ball, PE EE, NCSU Study, Several pages - North Indicators:</p> <p>All North indicators are pointing in the same direction regardless of the view. Cates Avenue runs from approximately 30 degrees North of West at Dan Allen Drive to approximately 30 degrees South of East at Pullen Road.</p> <p>Dan Allen Drive and Pullen Road run approximately perpendicular to Cates Avenue.</p>	<p>4. The specific orientation of Cates Avenue and its relationship to the NCSU Campus, including Dan Allen Drive and Pullen Road is understood. Key plans and overall plans are oriented orthogonally to the page for simplicity of presentation with north up. Detailed plans are typically rotated 90 degrees to align with the detailed sections above and the north arrow is rotated accordingly.</p>
<p>5. Al Ball, PE EE, NCSU</p> <p>The Study seemed to abruptly end on Page 71.</p>	<p>5. The final paragraph is intended to provide a summary and recommendations for further study. Specific conclusions are withheld until a traffic analysis and report is completed.</p>

**DESIGN REVIEW COMMENTS  
NORTH CAROLINA STATE UNIVERSITY**

**Project Number: 201020015**

**Project Name:** Cates Avenue Master Plan Study

**Project Manager:** Sumayya Jones-Humienny

**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** Jon Brann, Deputy Fire Marshal, Environmental Health & Public Safety

**Date of Comments: 06/18/10**

**Date of Response: July 1, 2010**

**COMMENTS**

**RESPONSES**

<p>1. No comments at this time.</p>	<p>1. No response required.</p>
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**DESIGN REVIEW COMMENTS  
NORTH CAROLINA STATE UNIVERSITY**

**Project Number: 201020015**

**Project Name:** Cates Avenue Master Plan Study

**Project Manager:** Sumayya Jones-Humienny

**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** EVELYN REIMAN

**Date of Comments:** 06/21/2010

**Date of Response:** July 1, 2010

**COMMENTS**

**RESPONSES**

<p>1. I applaud, and wholeheartedly support, the goal of giving Cates Avenue a “pedestrian priority.” What was missing to me was a recognition/articulation of the Cates corridor for other “locomotion,” especially fitness related given the proximity to Carmichael Complex. For example, Carmichael now houses the “Wolf Wheels” bike exchange, so what about cyclists? We also get the fitness walkers and joggers, some in PE classes at Carmichael. I daily also see students moving via skateboards and, yes, even a regular unicyclist.</p>	<p>1. The design team recognizes pedestrian traffic associated with University athletic and recreational programs. Groups of runners on sidewalks and bicyclists and skateboarders have been observed along Cates Avenue. The design team is aware that Wolf Wheels currently operates out of Carmichael. The Cates Avenue Master Plan concept design intends to provide a safer configuration of parking, a reduction in traffic volume and speed that should support bicycle traffic to share the road with vehicular traffic in a safe manner. Additionally, consistent and wider sidewalks will allow for more gracious use by walkers, joggers, and skateboarders.</p>
<p>2. Curious—does LEED, or some other, certification exist that recognizes efforts to reduce dependence on cars? NC State has aspirations to be a leader in Sustainability and our designs, inside and outside, ought to reflect this.</p>	<p>2. Yes, Tracy Dixon, Director of Sustainability, is working with Transportation to produce a LEED-based Transportation Demand Management Plan (TDM) for a LEED block credit for all future campus projects. The Sustainability Office also has long range plans to be carbon-neutral, which will involve reduction of dependence on cars. -SJH</p>
<p>3. p. 3 and p. 66 “Talley” is misspelled. P. 37, second bullet needs an extra space between “exists” and “on”</p>	<p>3. Document is corrected to reflect comment.</p>
<p>4. p. 4—an “amen” to the observation that the Cates and Morrill intersection is “confusing and congested.” The current configuration creates a terrible first (second, and third !) impression of the Student Center.</p>	<p>4. No response required.</p>

<p>5. p. 41—glad the study observes that “mechanical and loading zones are exposed.” A real eyesore and not consistent with our vision that Cates become “Main Street.”</p>	<p>5. No response required. <i>A balance between reasonable service access and screening is warranted for further study and resolution in a future design phase.</i> -SJH</p>
<p>6. As our “Main Street” for student life, what are the possibilities for incorporating signs and symbols of Wolfpack pride? To include, but not be limited to, banners, wolf tracks embedded in sidewalks or streets, fountains, Wolf sculpture...</p>	<p>6. The Cates Avenue Master Plan concept design presented is intended to focus on potential alterations to these existing physical constraints and develop a generous plan strategy that would allow and support a variety of activities and spaces along the entire length of Cates Avenue. Design details for specific locations should be resolved in a future design phase.</p>
<p>7. How about incorporating “mile markers” for fitness buffs, historic markers (e.g. Reynolds as the scene of.....)</p>	<p>7. See response to item 6.</p>
<p>8. I recommend a note that Harris Field is used for campus activities, to include small concerts, step shows, outdoor movies (“Screen on the Green”), fraternity and sorority “roll outs.” These uses have been challenged by drainage issues on the field, but it is an important green space and one adjacent to Witherspoon Student Center, SHS, and residence halls.</p>	<p>8. Document is amended to reflect comment.</p>
<p>9. There will be concern with the concept of reducing the head in parking—from first hand experience, I would stress that the entire stretch, not just at curves, is very dangerous to drivers and pedestrians. With few crosswalks, and limited visibility (particularly when you are parked next to a “land yacht”), backing out of these spaces is challenging and often frightening, as cyclists and pedestrians suddenly appear behind you.</p>	<p>9. The design team was directed to explore parallel parking, along the length of Cates Avenue, primarily to address these safety concerns. The concept design also intends to enhance safety by decongesting conflicting pedestrian and vehicular high traffic areas and clearly identifying pedestrian zones through material changes and other indicators that would be clarified and developed in a future design phase.</p>



**DESIGN REVIEW COMMENTS  
NORTH CAROLINA STATE UNIVERSITY**

**Project Number:** 201020015

**Project Name:** Cates Avenue Master Plan Study

**Project Manager:** Sumayya Jones-Humienny

**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** Transportation – Ryan Givens

**Date of Comments:** 24 June 2010 **Date of Response:** July 1, 2010

**COMMENTS**

**RESPONSES**

1. Pg 11 – The shuttle route flow path at the intersection of Dan Allen Dr. and Cates Ave. shows the flow going northbound on Dan Allen Dr. I do not know the exact percentage, but if I had to guess, I would say that the majority of the shuttle traffic goes southbound on Dan Allen Dr. towards Western Blvd.	1. Document is amended to reflect comment. The design team based the private shuttle route diagram on observation and on-site interviews with students and operators. The design team has not identified the origin or destination of these private shuttles beyond Cates Avenue. Future traffic study should include an analysis of these private shuttle routes.
2. Pg 13 – Remove the loading zone/service area shown on the east side of Morrill Dr. (by softball field).	2. Document is amended to reflect comment.
3. Though the plan reduces the number of loading zones and service areas on Cates Ave., we have a significant problem with university vehicles parking on sidewalks, etc. to do work. Highly recommend a way to make the revised sidewalks inviting to pedestrians, but find a way to make them uninviting for vehicles. Not sure how this can be accomplished, but it is an issue that needs to be resolved or at least greatly diminished.	3. Issues with parking on the sidewalk is noted. In part this appears to be a general NCSU operational concern. Coordination of design details including configurations of sidewalks should be resolved in a future design phase.
4. Pg 14 - The HD parking area in blue behind the First Yr College Bldg is actually bigger then shown.	4. Document is amended to reflect comment.
5. Pg 14 – The HD parking area in the Carmichael Gym Lot is actually smaller then shown	5. Document is amended to reflect comment.

6. Pg 14 – On far east side of Dunn Ave., the HD parking shown, should actually be AN and extended more to the east. There is also some PR parking on Dunn Ave. that is not shown.	6. Document is amended to reflect comment.
7. Pgs 15 & 16 – HC should be used as the code to identify accessible spaces, not AS. AS is actually the code we use to identify reserved assigned spaces on campus.	7. Document is amended to reflect comment.
8. Pg 15 – The yellow/green colored RE zone west of Dan Allen Dr. should actually be a C zone with 31 spaces (22 C; 2 HC; 6 SV and 1 TTA Van).	8. Document is amended to reflect comment.
9. Pg 15 – The SV zone in between Talley and Reynolds should read, “SV 17; MC 1; AS 4). There are 4 reserved assigned spaces in that lot.	9. Document is amended to reflect comment.
10. Pg 16 – Under Red, Green and Pink zones, change AS to HC.	10. Document is amended to reflect comment.
11. Pg 16 – Can you please identify what constitutes the 31 priority parking spaces? Not sure Transportation was involved in the development of this number or the priority.	11. It was recommended that the design team consider RD, LO, SV, and HC parking spaces as the priority spaces. It was suggested that incremental relocation of RE spaces could occur in various locations around campus. <b>NOTE:</b> This study has only attempted to basically quantify the difference between the number of parking spaces that currently exist and the projected number if parallel parking was implemented entirely along Cates Avenue. The master plan has not identified specific relocation of space types and assumes the NCSU transportation would coordinate this.
12. Pg 39 – Looking at this page and some of the others that show the area where Cates Ave., Jensen Dr. and the parking lot off of Cates meet, I wonder if this is some merit into some future studies to determine if Jensen Dr. should be one way (southbound)?	12. This suggestion is noted and could be considered during the future traffic analysis.
13. Pg. 50 – Last year, we placed parallel on-street parking on parts of Main Campus Dr. on Centennial Campus. The roadway is 40’ wide in that area, with 8’ parallel spaces on each side and a 12’ lanes. Based on our observations, we have not seen	13. The design team arrived at the overall width of 40’-0” based on feedback from consultants as to the minimum for reasonable vehicular movement. It is important to note that the traffic lanes are 12’-0” wide with an overall two-way drive



where on-street parking on a 40' roadway has greatly reduced the speed of vehicles. Just something to keep in mind since one of the stated goals is to build a road cross section that will slow traffic down.	lane of 24'-0". The other 16'-0" consists of 8'-0" parallel parking on either side of Cates Avenue. Thus the effective drive width for two-way traffic is only 24'-0".  Also, the reduction in the street width section is only one measure the master plan recommends in terms of slowing traffic down. Providing better sidewalks, clearly defined pedestrian crossings, better visibility and identity and design details would all serve the greater cause of enhancing an awareness of the pedestrian.
14. Another aspect of the road cross section that need to be looked at in regards to determining final roadway cross section is whether the intent exists to have sharrows for bikes.	14. The Cates Avenue Master Plan concept design intends to provide a safer configuration of parking, a reduction in traffic volume and speed that should support bicycle traffic to share the road with vehicular traffic in a safe manner. No specific bicycle lanes are currently considered in the concept design.
15. It looks like the proposed changes to the Dan Allen Carriageway (lot on Dan Allen Dr opposite Cates Ave), would impact the pedestrian table on Cates Ave. and the Wolfline stop that is located on the east side of Dan Allen Dr. at the pedestrian table. Future planning in this area needs to take that into account.	15. This comment is noted and specific details and roadway geometries and configurations should be resolved in a future design phase.
16. The reconfigured lot needs to be done to either allow large vehicles to enter, i.e., UPS, Coke, FedEx, etc. or done so it discourages larger vehicles from entering this lot.	16. See comments in item 15. In addition, vehicle accessibility, servicing, and delivery comments are noted. A better understanding of the specific operations and functions required in and around the Dan Allen-Cates Avenue intersection and Bragaw Hall would be required moving forward. Coordination of design details with specific access points, and building functions should be resolved in a future design phase.
17. Pg 65 – Only concern with proposed width of bus lane is that it does not allow a bus to get through when a vehicle is parked in the lane or parked half in the lane, half on the curb. It is an occurrence that will take place.	17. This comment is noted and specific details and roadway geometries and configurations should be resolved in a future design phase along with the future traffic analysis.

18. The bus pull-in lane may be a great area to include some covered bike parking. Think that covered bike parking should also be considered in additional locations along Cates Ave. where they can be placed without negatively impacting pedestrian traffic.	18. This comment is noted. While the Cates Avenue Master Plan study is primarily a result of an analytical study of existing physical conditions, traffic flow and pedestrian flow, the design team recognizes the significant use of bicycles in this area. Special consideration for bicycle specific parking locations and associated design details should be resolved in a future design phase.
19. Pg 68 – Sketch should show the parking in the surface lot in front of Coliseum Deck as angled instead of head-in, as the spaces are angled spaces.	19. Document is amended to reflect comment.

**DESIGN REVIEW COMMENTS**

**NORTH CAROLINA STATE UNIVERSITY**

**Project Number: 201020015**

**Project Name:** Cates Avenue Master Plan Study

**Project Manager:** Sumayya Jones-Humienny

**Design Phase:** Study

**Consultant:** Duda/Paine Architects

**Reviewed by:** Randy Reggi, Design and Construction Services ADA Program Manager

**Date of Comments:** 2010-06-23

**Date of Response:** July 1, 2010

**COMMENTS**

**RESPONSES**

1. Do not have any particular comments on accessibility. Hopefully, the new student center/this project will address access in that area.	1. <i>The Talley Student Center project will comply with the universal accessibility design guidelines. - SJH</i>
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