

WILLIAMSON ROAD PARKING DECK FEASIBILITY STUDY

Clemson University | September 28, 2023



Jenkins · Peer Architects

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| EXECUTIVE SUMMARY

INTRODUCTION

Why This Study?

In response to continually high growth rates in student enrollment, Clemson University faces increasing demands for additional campus facilities, classrooms, residence halls, and parking. Several previous studies have been conducted to address these demands, including a focus on parking capacity. This report presents a comprehensive study of a 6-level, 1,200 space parking structure, addressing the current and future needs of the University.

Why Now?

Clemson Parking Services projected current parking facilities will be over capacity by 2025. Providing necessary additional parking will prevent overcrowding and inconvenience to students, faculty, staff, and visitors.

Project Vision

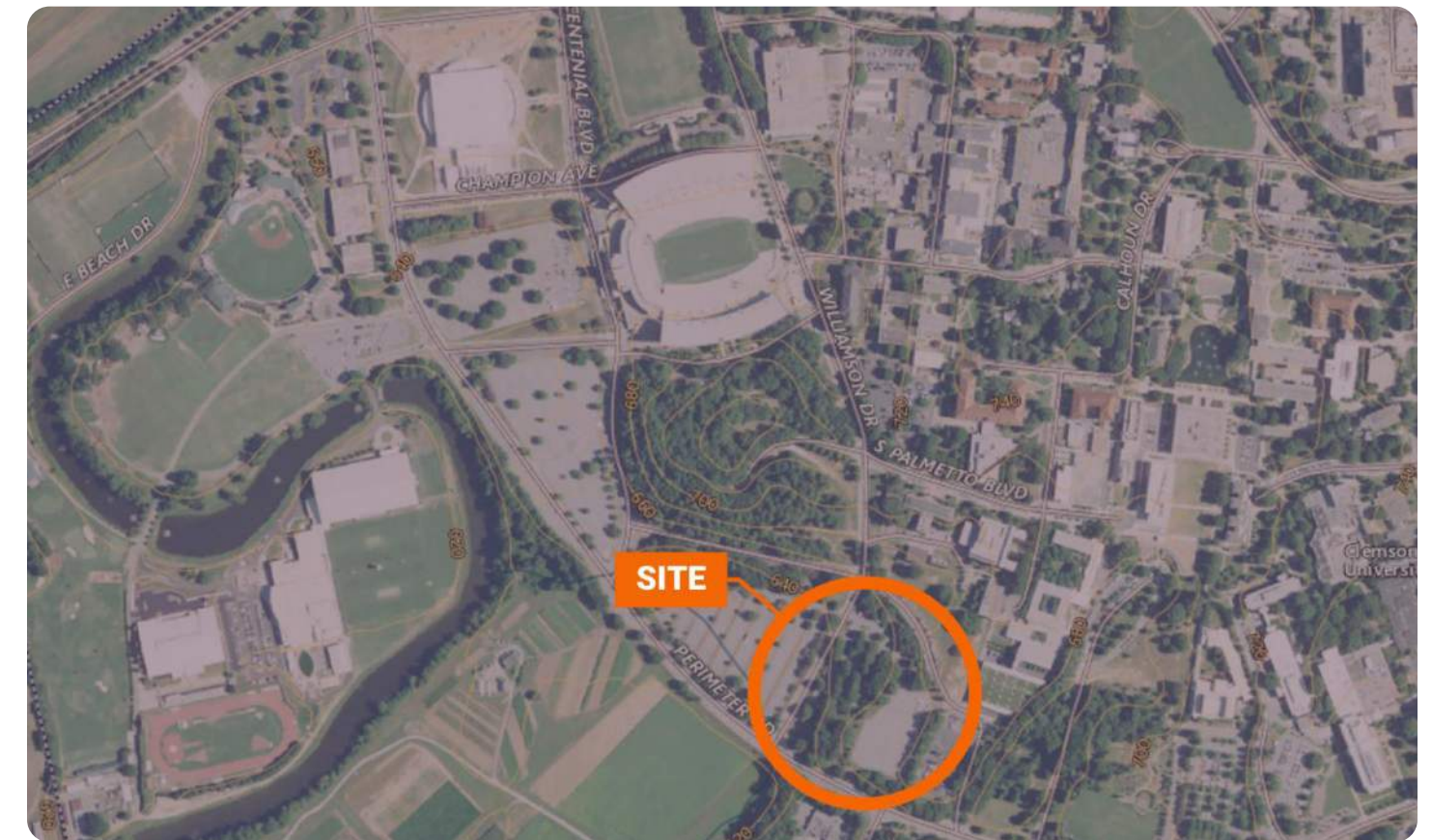
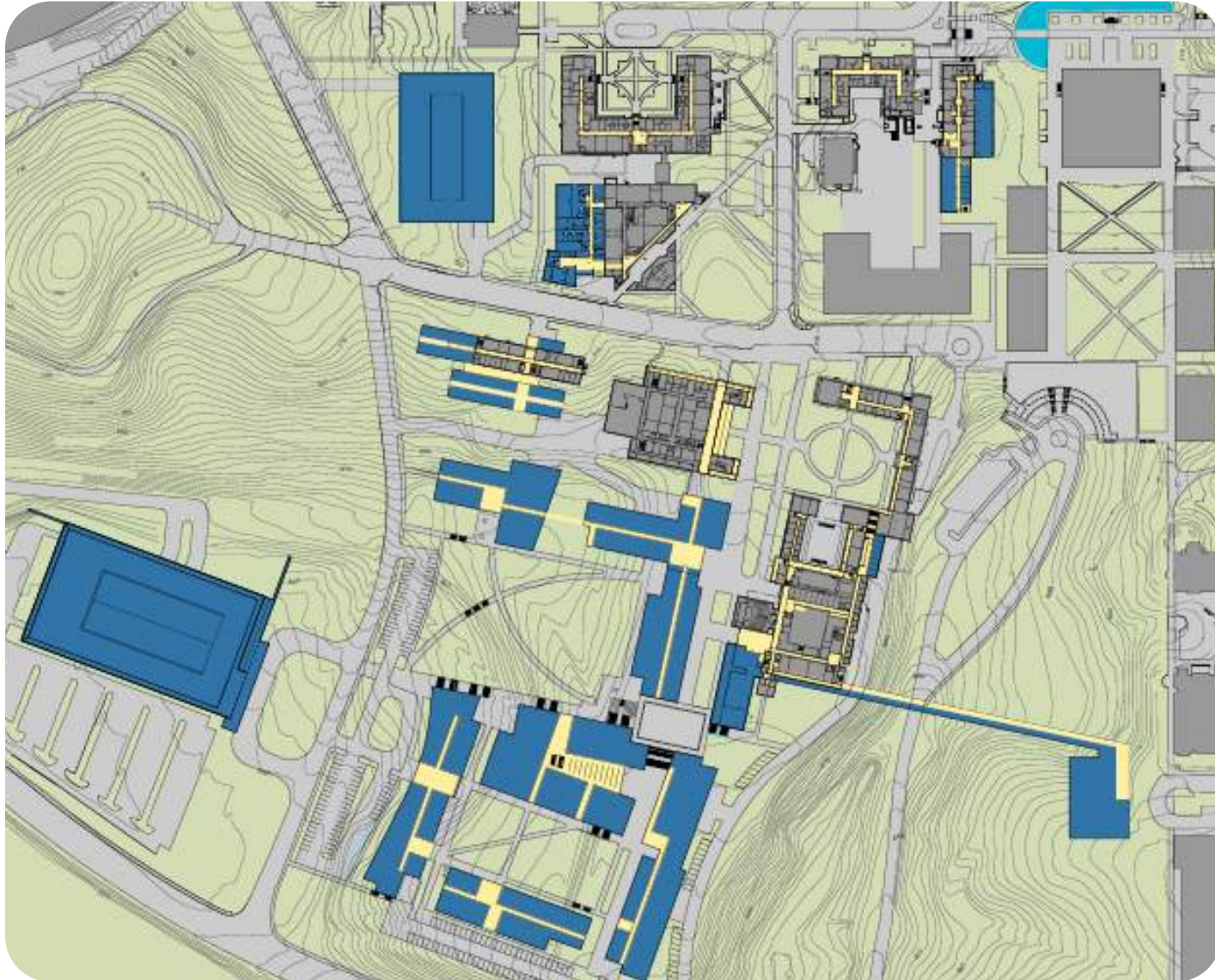
The project vision aligns the parking structure with Clemson's Long-Range Framework Plan. The new parking structure will be situated outside the core campus to protect pedestrian circulation while remaining conveniently adjacent to the core campus. Key objectives include establishing a connection to a multimodal transportation hub, ensuring safe pedestrian circulation, maintaining adequate vehicular circulation, and minimizing visual impact on the campus.



PREVIOUS STUDIES

Prior to this study, various investigations were conducted to address Clemson University's parking challenges. These studies identified the pressing need for additional parking capacity and informed the design process for this current study.

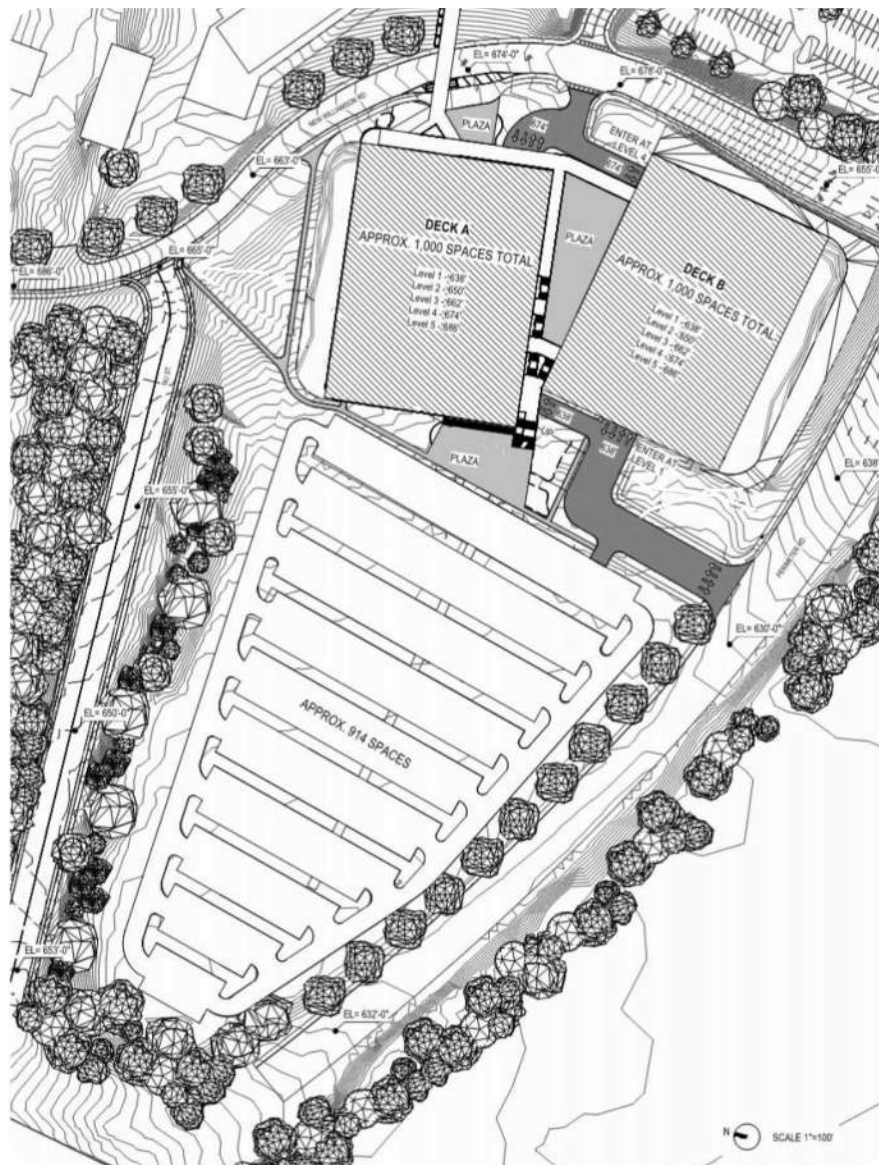
- Campus Master Plan - 2002
- High Ground Precinct Plan - 2003
- Parking and Transportation Master Plan - 2007
- Long Range Framework Plan Addendum - 2020
- Parking Comprehensive Operational Audit - 2022
- Parking Structure Feasibility Study - 2022
- Parking Structure Concept Design - 2023



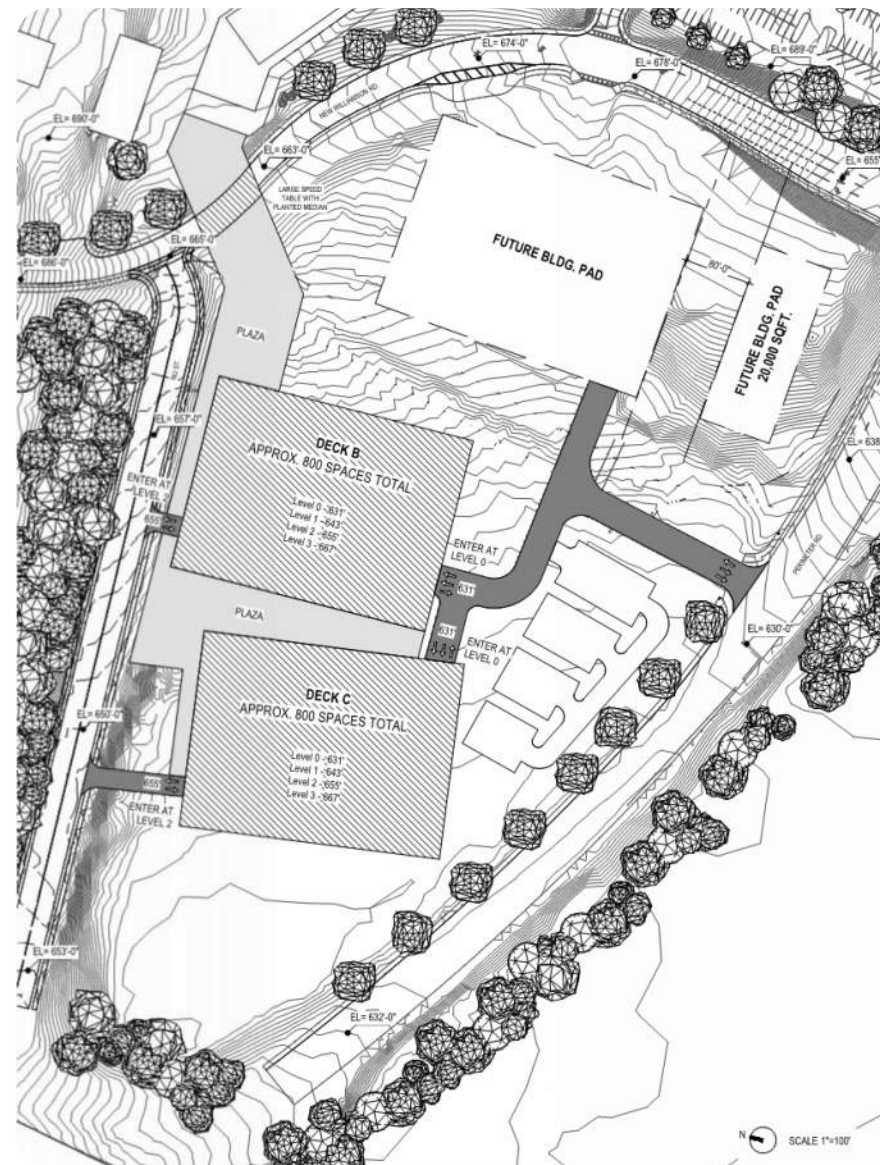
| CONCEPT DESIGN

DESIGN PROCESS

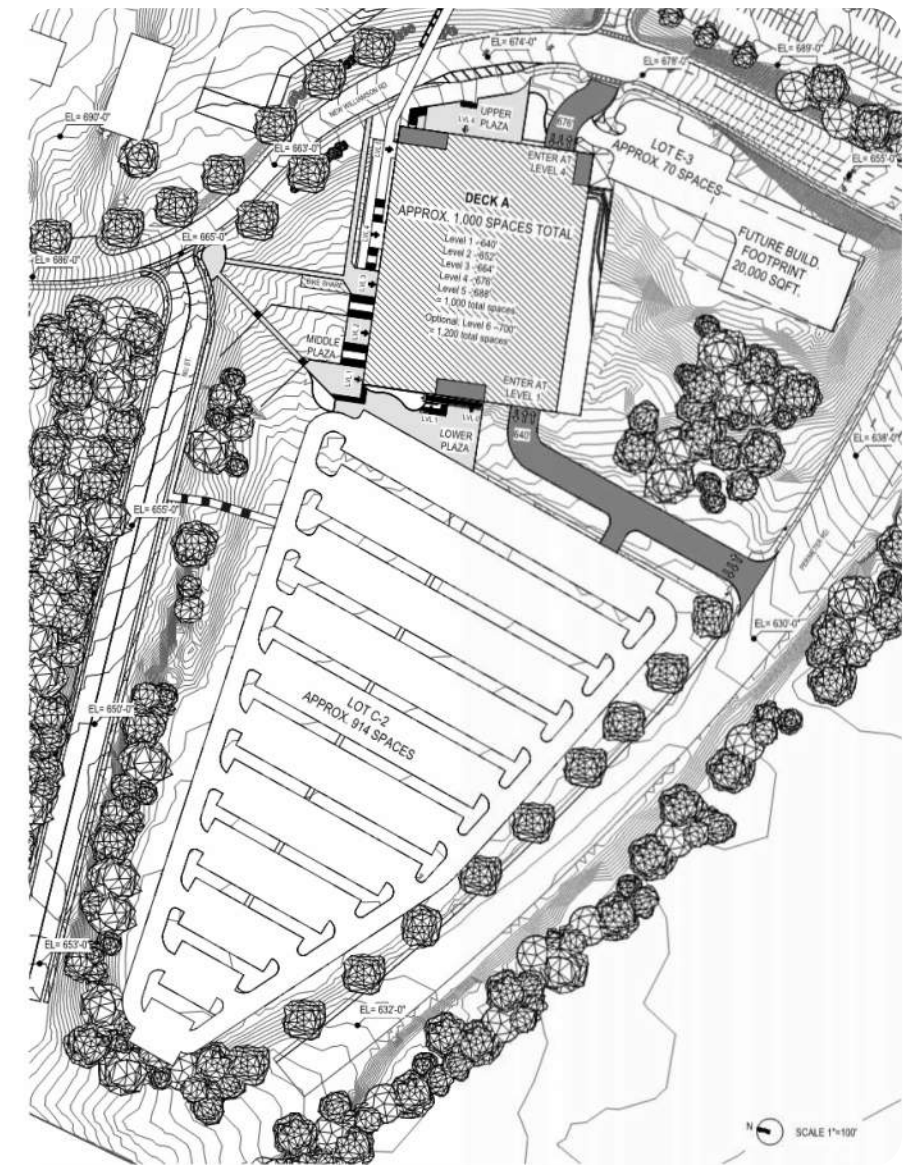
The design process took a collaborative and iterative approach; involving stakeholder meetings to identify the project vision and priorities. Valuable insight was gained in understanding lessons learned and best practices from other universities. The iterative approach allowed an ideal solution to rise to the top, while considering budget, aesthetics, function, program, uses, adjacencies, project vision and priorities.



FIRST ITERATION



INTERIM ITERATION



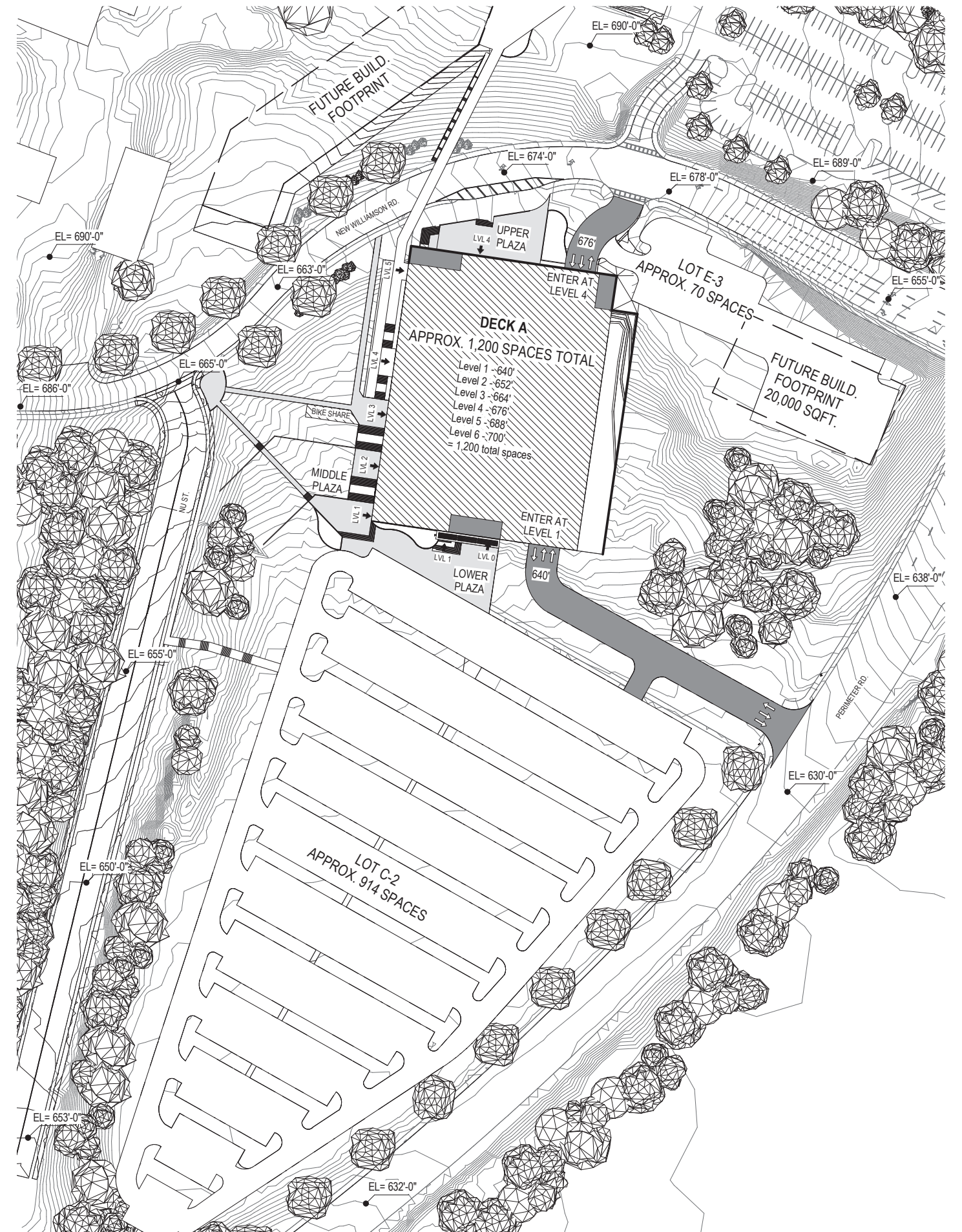
FINAL ITERATION

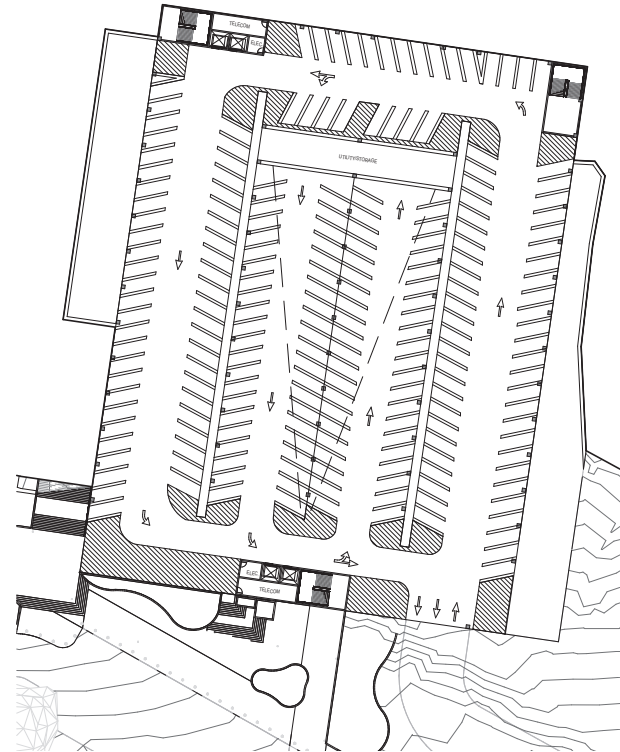
DESIGN SCHEME - SITE

An in-depth site analysis revealed an optimal configuration for the parking structure. The design considers several crucial elements that align with the University's goals and addresses the evolving needs of the campus. Crucial elements include: adjacencies, safety, traffic flow, accessibility, and minimal visual impact to the campus context.

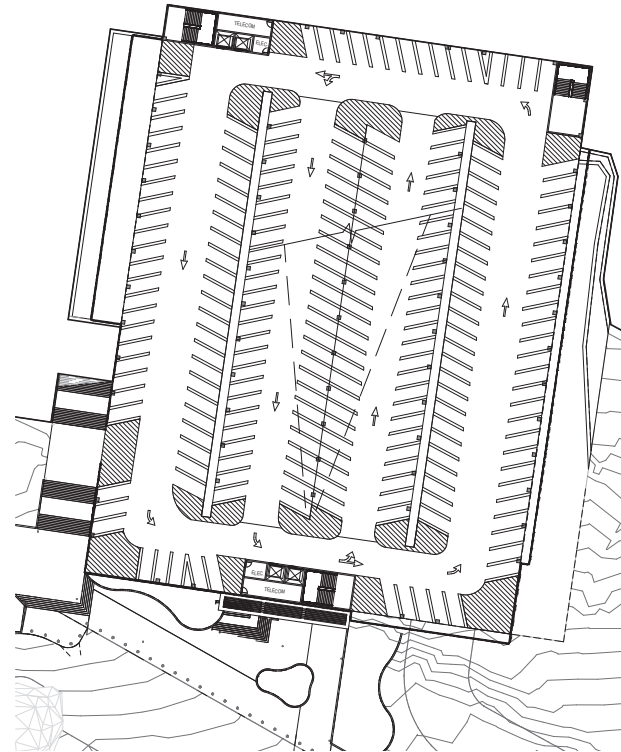
The parking structure is strategically placed adjacent to existing surface lots, transit hubs, and the center of campus; creating convenient access for both vehicular and pedestrian traffic. The placement of the deck provides vehicular access from New Williamson Road and Perimeter Road and solidifies an intuitive pedestrian circulation approach from the adjoining C-2 and E-3 surface parking lots. A pedestrian bridge enhances accessibility and pedestrian safety by encouraging students, faculty, staff and visitors to safely move up through the site and over the busy road without having to interface with vehicular traffic.

Existing grades are optimized with Level 1, 2, and 3 sitting below grade on the north face of the building, allowing for only Level 4, 5, and 6 to be seen from the center of Campus. This approach minimizes visual impact and preserves the campus aesthetic. Stepped retaining walls promote airflow and improves aesthetics by reducing retaining wall heights. The location of the deck on the site aims to maximize tree save areas so to be sensitive to the surrounding campus conditions.

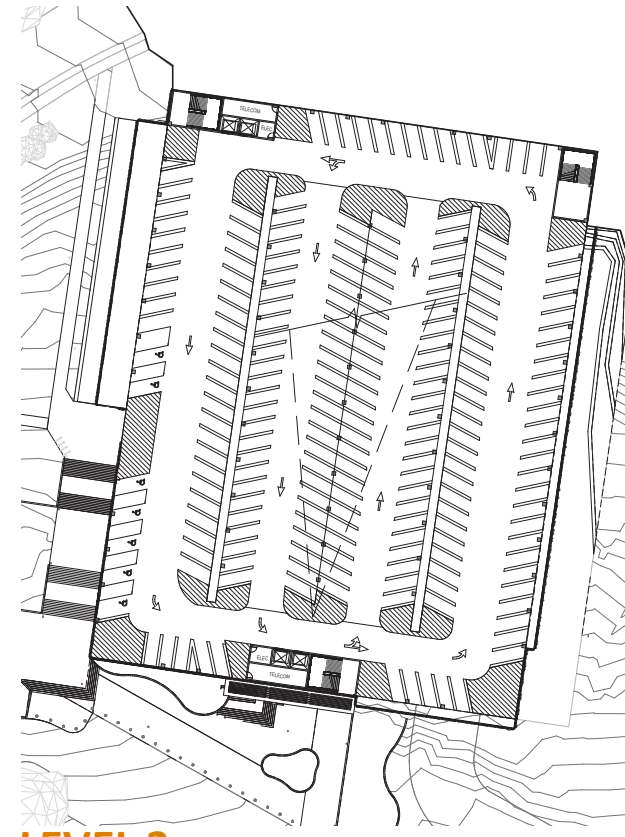




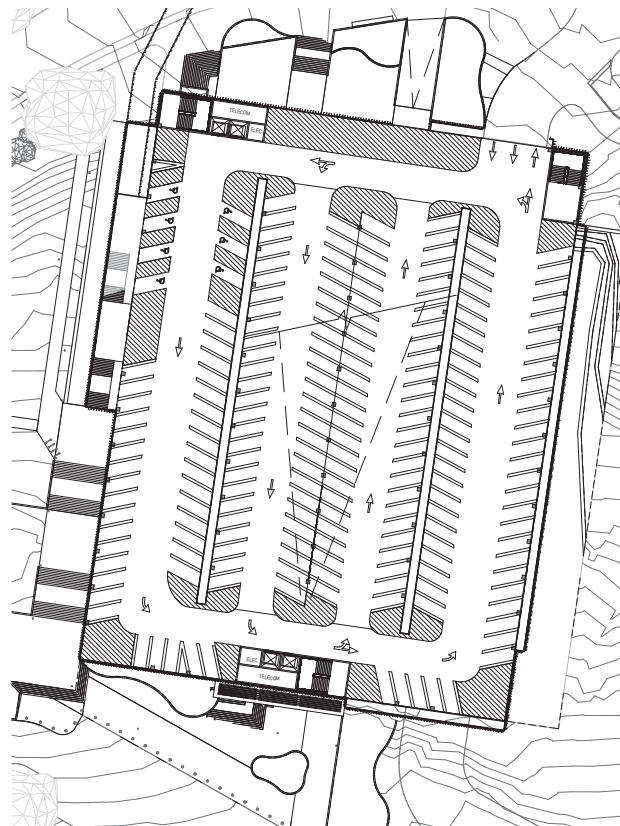
LEVEL 1



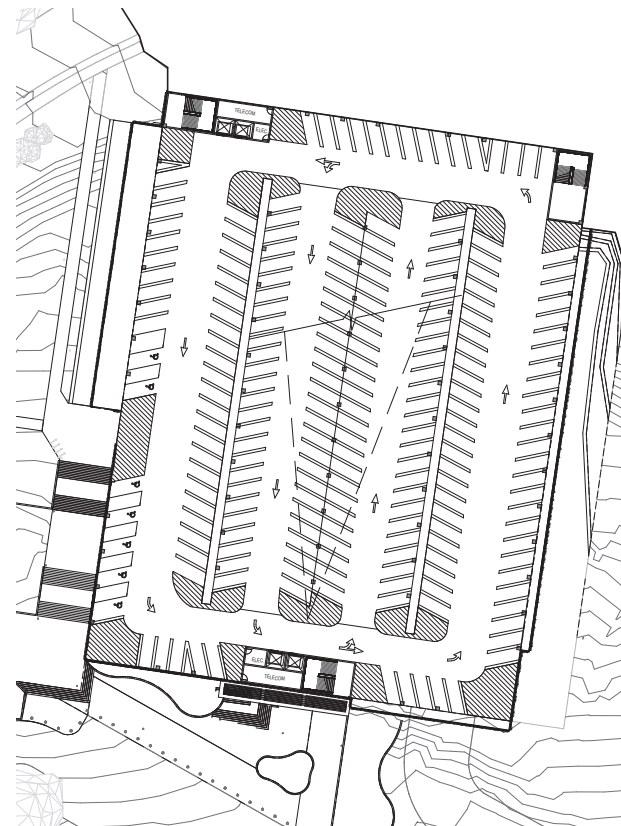
LEVEL 2



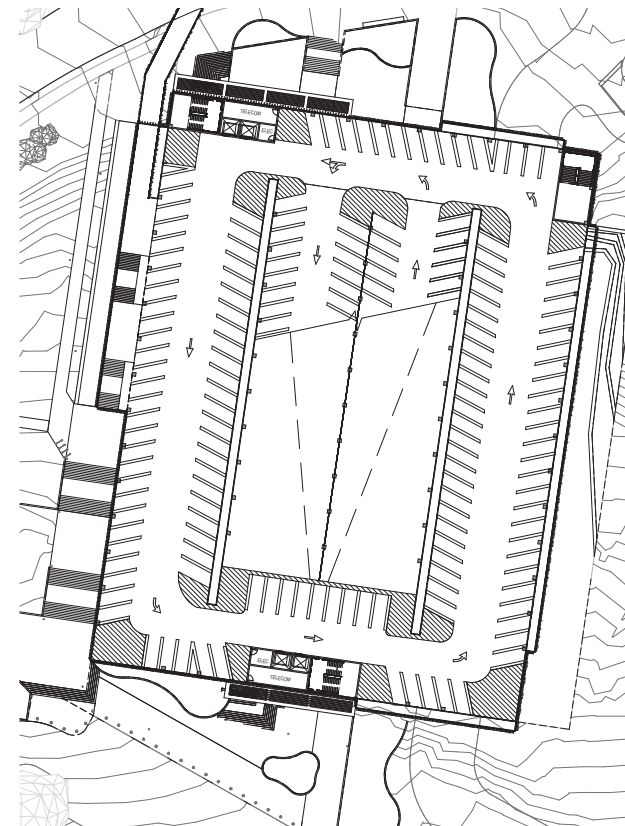
LEVEL 3



LEVEL 4



LEVEL 5



LEVEL 6

DESIGN SCHEME FLOOR PLANS

Total Square Feet: 432,000

Parking Capacity: 1,200 Spaces

Total Square Feet per Floor: 76,800

Number of Levels: 6

STRUCTURAL | CIRCULATION

The recommended structure is a four-bay cast-in-place concrete structure with 12'-0" floor-to-floor heights. One-way vehicular circulation is emphasized with angled parking and a side-by-side helix in the center two parking bays. The cast-in-place structure will be engineered to allow for tailgating on every floor of the deck. Vehicular entrances are at Level 1 and Level 4. Pedestrian entrances are at each level which connect to the primary circulation spine and ultimately the pedestrian bridge.

LIFE SAFETY

Life Safety provisions include three stair cores, a full dry-pipe sprinkler system, and a pedestrian circulation spine stepping up the side of the deck.

MATERIALS

Building materials include a screening system, a core cladding material, and a retaining wall material that will integrate into the campus context.

TECHNOLOGY

Security cameras and license plate reader cameras will be provided throughout the deck. Electric vehicle charging will not be included in the deck.







CONCLUSION

This report outlines the comprehensive study of a 6-level, 1,200 space parking structure designed to address Clemson University's growing parking needs. The project vision aligns with the University's Long-Range Framework Plan, emphasizing sustainability, accessibility, and minimal visual impact to the campus. Through an iterative design process, stakeholder engagement and lessons learned from other institutions, this parking structure aims to not only alleviate current parking challenges but also to contribute to the University's continued growth.



| APPENDIX

CONSTRUCTION COST SUMMARY

This cost estimate was prepared by Palacio Collaborative. It represents projected costs for the construction of two schemes, a 1,000 space deck and a 1,200 space deck, illustrated in the document above.

PROJECT COST SUMMARY

PROJECT BUDGET: WILLIAMSON ROAD PARKING DECK	1,000 Spaces (5 Levels)		1,200 Spaces (6 Levels)	
CONSTRUCTION COST				
Parking Deck:	\$27,511,892	(\$27,512/ space)	\$31,827,926	(\$26,523/ space)
Exterior Façade/ Screen System:	\$6,543,813		\$7,852,575	
Earthwork, Exterior Improvements and Site Utilities:	\$10,696,259		\$10,696,259	
Pedestrian Bridge:	\$2,070,000		\$2,070,000	
Construction Cost Subtotal:	\$46,821,964	(\$46,822/ space)	\$52,446,760	(\$43,706/ space)
Design/ Market Contingency (10%):	\$4,071,475		\$4,560,588	
Total Construction Cost:	\$50,893,439	(\$50,893/ space)	\$57,007,348	(\$47,506/ space)
Project Soft Costs:	\$11,037,622		\$12,321,543	
TOTAL PROJECT COST	\$61,931,061		\$69,328,891	
ALTERNATES				
Extend Const. Start Date 3rd QT. 2025 (6% Esc./year = 10.5% total):	\$6,502,761		\$7,279,533	
Open Space Parking Guidance System:	\$144,900		\$144,900	
Structural upcharge for tailgating (all floors):	\$582,120		\$727,650	
Additional Pedestrian Conveyance:	\$150,000		\$150,000	
TOTAL PROJECT COST (with Alternates Above):	\$69,310,842		\$77,630,974	

STUDY PARTICIPANTS

CLEMSON UNIVERSITY

TODD BARNETTE
Facilities

STEPHANIE COOPER
Planning and Design

PETE KNUDSEN
Planning and Design

JOHN GAMBRELL
Planning and Design

BARRY ANDERSON
Planning and Design

TOMMY FALLAW
Landscape Services

RICK PETILLO
Finance and Operations

STEVE HULME
Finance and Operations

KATHY HOBGOOD
Finance and Operations

DAN HOFMANN
Parking

KAT MORELAND
Parking

ERIC SABIN
Athletics

JASON WILSON
Athletics

JON ALLEN
Athletics

JAMES GOWAN
University Police

GREGORY MULLEN
University Police

CHRISTOPHER HARRINGTON
University Police

RICK CRAMER
University Fire

DONALD BREWER
University Fire

BRET McCARLEY
Utility Services

DWAYNE FENNELL
Utility Services

JENKINS PEER ARCHITECTS

VICTOR JONES
Principal

DAN VAN DYKE
Principal

RONNA EMERLING
Associate Principal

MICHAEL HOPPA
Project Designer

LAND PLANNING ASSOC.

PATRICK RIVERS
Civil Engineer

STANTEC

STUART DAY
Traffic Engineer

WALKER CONSULTANTS

LESLI JO HURWITZ
Principal

MARION PARKER
Principal

TENTATIVE SCHEDULE

SCHEDULE	DAYS	START DATE	END DATE
FEASIBILITY STUDY	24 days	Wed 8/2/23	Mon 9/4/23
A1 APPROVAL	94 days	Fri 9/22/23	Wed 1/31/24
PHASE 1	176 days	Mon 10/9/23	Mon 6/10/24
EARLY A/E SELECTION	84 days	Mon 10/9/23	Thu 2/1/24
CMR ADVERTISEMENT	40 days	Thu 2/1/24	Wed 3/27/24
SCHEMATIC DESIGN	92 days	Fri 2/2/24	Mon 6/10/24
PHASE 2	866 days	Thu 7/18/24	Thu 11/11/27
PHASE 2 APPROVAL	47 days	Thu 7/18/24	Fri 9/20/24
PHASE 2 DD & CD	162 days	Mon 9/23/24	Tue 5/6/25
PHASE 2 GMP's	21 days	Wed 5/7/25	Wed 6/4/25
PHASE 2 CONSTRUCTION	396 days	Thu 6/5/25	Thu 12/10/26
CLOSEOUT	240 days	Fri 12/11/26	Thu 11/11/27

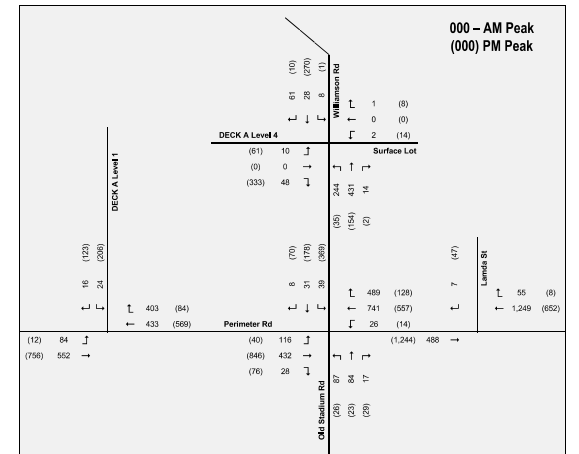
TRAFFIC STUDY

Volume Projection Assumptions

- 85% Parking Lot Occupancy
- 60% Parking loading/unloading in peak hour
- 10% of new trips to/from Williamson Road to the North
- AM peak loading/ PM peak unloading - assumed equal but reversed magnitude of trips
- 15% of peak loading/unloading assumed to occur in opposite direction
- Perimeter Road/Old Stadium Road new trip distribution assumed
 - 60% to/from Perimeter Road to/from the east
 - 20% via Perimeter Road to/from the west and
 - 20% via Old Stadium Road to/from the south
- 404 existing spaces (C2, E3, C5, C12, Lambda Street) assumed displaced
 - Existing entering and exiting trips reduced according to occupancy, peak hour loading factors assumed above.
- Existing trips to/from campus via Williamson Road reduced by 10% due to potential pedestrianization and building projects further displacing parking

DECK A (1,200 Spaces):

Assumed 404 existing spaces displaced
 $404 * 0.85 * 0.60 * 0.90 = 185 \text{ trips reduced}$
 Assumed 1,200-Space Deck
 $1,200 * 0.85 * 0.60 = 612 \text{ new deck trips}$



AM PEAK | REPRESENTATIVE QUEUE



AM PEAK | QUEUE LENGTH INDICATORS



PM PEAK | REPRESENTATIVE QUEUE



PM PEAK | QUEUE LENGTH INDICATORS

PARKING MATRIX

Parking Lot	Existing (with Williamson Project)	During Construction (Single Deck)	After Construction (Single Deck)
C-02	949	549	856
C-12	216	0	23
E-3 Ext.	130	0	113
Deck	-	-	1,200
Total	1,295	549	2,192