City of Memphis, Tennessee

Jim Strickland, Mayor

REQUEST FOR INFORMATION

Design Professional Services

Simmons Bank Liberty Stadium

355 S. Hollywood St.

Memphis, TN 38104

RFI 2022-02

Simmons Bank Liberty Stadium Renovation

Issued: December 13, 2022

Due: January 18, 2022, No Later Than 12 Noon (Central Time)

The City of Memphis is issuing this Request for Information (RFI) to solicit written responses from Design Professionals who are interested in providing Design Professional Services (DP) for Phases I & II of the Simmons Bank Liberty Stadium Renovation, as follows:

Phase I:

- Halo Activation
- West Grand-Stand
- North End Zone Access Ramp
- Wayfinding & Graphics

Phase I Alternates:

- Larger West Grand-Stand

Phase II:

- North End Zone Service Level
- North End Zone

Each of the phases are further described in the Master Plan Study for the Simmons Bank Liberty Stadium, dated March 15, 2022 (attached hereto as Exhibit 1). It is The City of Memphis's intent to design and construct the maximum scope allowable consistent with available funding, in the order of importance as described above.

A non-mandatory, pre-submission meeting will be held on Tuesday, December 20, 2022 from 10:00 a.m. – 12:00 pm Central Time in the Isaac Bruce Training Room located at 355 S. Hollywood Street, Memphis, TN 38104. A facility tour will take place following the meeting. Attendees who are unable to attend in-person can participate virtually using the following link: https://us06web.zoom.us/j/85249325503.

I. Introduction

The City of Memphis desires to activate this historic stadium and preserve its iconic character into the future. Since it was built in 1965, Simmons Bank Liberty Stadium has been the home of the Liberty Bowl, The Southern Heritage Classic, and the Memphis Tigers, all of which are a part of the fabric of Memphis. In addition to sporting events, the stadium has been the host of many concert and cultural events throughout the decades. With neighboring communities such as Chickasaw Gardens, Cooper-Young and Orange Mound (one of the country's oldest and most storied African American neighborhoods) surrounding the site, the Simmons Bank Liberty Stadium is a central gathering point in Memphis that represents more than just a venue for sports entertainment. This initiative will serve the City as an opportunity to preserve history, strengthen community connections, and generate economic development.

II. Scope of Work

The City of Memphis plans to upgrade Simmons Bank Liberty Stadium by adding premium spaces, increasing multiple new amenity options, and improving its overall functionality. The revitalization would allow for more frequent and diversified activities at the stadium, ultimately supporting revenue generation and job growth. This renovation will create a spectacular community gathering-space that serves as a destination for locals and visitors alike, as well as complementing its surrounding neighborhoods.

The City of Memphis compiled a master-plan study that demonstrates a path forward to transform Simmons Bank Liberty Stadium into a Power Five football arena, with diverse event-hosting capabilities for the community; the master plan is included for your review.

Designers should demonstrate a comprehensive understanding of stadium planning, including current trends in stadium design practices. Respondents should illustrate their knowledge and expertise in this field by showing examples of recent similar work and providing resumes of the key personnel with this experience who will be assigned to the Simmons Bank Liberty Stadium project. Local architectural and engineering firms are encouraged to associate with nationally recognized sports architectural and engineering firms in order to maximize local participation and/or EBO requirements with industry knowledge leaders.

Responses shall include all architectural, landscape architecture, civil, structural, mechanical, plumbing, and electrical engineering consultants teaming together for the project. It is understood that additional specialty consultants may be added once the exact scope of work is adopted and the need for additional consultants is confirmed. The EBO participation goal has not yet been set for the total A/E fee, however, respondents are encouraged to utilize EBO vendors, listed in memphistn.gov, to the maximum extent possible in their submission. Upon completion of the definitive scope and budget verification, EBO vendor participation stipulations will be assigned to this project, and respondents will be requested to comply accordingly, to the maximum extent possible.

III. Proposed Project Timeline *

- Architectural Team Notice to Proceed	March 9, 2023
- Scope & Budget Verification	April 6, 2023
- 100% Schematic Design Deliverable	June 8, 2023
- 100% Schematic Design Estimate	July 6, 2023
- 50% Design Development Deliverable	July 20, 2023
- 50% Design Development Estimate	August 24, 2023
- 100% Design Development Deliverable	September 19, 2023
- Partial Permit Set Deliverable	October 2, 2023
- GMP Delivery	November 1, 2023
- Cost/Scope Reconciliation	November 28, 2023
- Limited Notice to Proceed	December 14, 2023
- 90% Construction Document / Balance Permit Set	January 2, 2024
- GMP Confirmation	February 1, 2024
- Issue for Construction Documents Deliverable	February 15, 2024
- Substantial Completion	July 1, 2025
- Final Completion	September 1, 2025
- Post-Occupancy Review	November 14, 2025

** These Dates are subject to change. The City of Memphis may wish to advance construction activities in phases in order to accommodate owner-occupied schedules.*

IV. Response Requirements

Respondents shall include each of the sections referenced in the table below. The preferred method of submittal is in a three-ring binder with tabbed sections.

Sections and Topics
Section 1 – Cover Letter
Section 2 - Qualifications
Section 3 – Experience
Section 4 - Approach

a. Section 1 – Cover Letter

Respondent's response shall contain a cover letter identifying the agency's name, address, telephone number, and email address. Please include name, title, telephone number, and email address of the individual who will serve as agency's primary contact, and confirm your agency's capacity to perform the work within the Proposed Project Timeline.

b. Section 2 – Qualifications

Include an organizational chart identifying the lead agency and other members of the project team, including sub-consultants.

Provide a company overview for architectural, civil, landscape architecture, structural, mechanical, plumbing, and electrical engineering consulting firms.

Include resumes for proposed project manager and key staff from each participating firm. Address each team member's area of expertise presented in submittal.

Identify the Project Manager for the following disciplines, and confirm that each has a minimum of five years' experience on similar facilities:

i. Lead Architectural Team Member
ii. Lead Structural Engineering Team Member
iii. Lead Mechanical/Plumbing Engineering Team Member
iv. Lead Electrical Engineering Team Member

c. Section 3 – Experience

Provide a narrative to describe relevant experience on similar stadium facilities in the past five years. For each example, please include the following information:

i. Project data and description of work
ii. Firm's role on the project
iii. Key project staff and their role(s)
iv. Stakeholders/users who were part of the decision-making process
v. Overall project budget and final cost
vi. Client's point-of-contact information
vii. Photographs, if available

d. Section 4 – Approach

Provide a narrative to describe your team's approach to the Simmons Bank Liberty Stadium project, including:

i. Your understanding of the scope of work
ii. Proposed distribution of tasks among team members
iii. Stakeholder engagement throughout the process
iv. Cost and schedule control measures
v. Experience with staging and phasing construction, while facility is owner-occupied throughout construction
vi. Capacity to perform the work within the Proposed Project Timeline

V. Instructions on RFI Process

Respondents requesting additional information or clarification shall contact Brynn Wiswall, Purchasing Agent with the City of Memphis, AND Frances Brooks, Purchasing Supervisor, in writing at brynn.wiswall@memphistn.gov AND frances.brooks@memphistn.gov. Questions should include RFI 2022-02 in the subject of the email. Reference the section of the RFI to which the question pertains, and include all contact information for the person submitting the questions. In order to prevent an unfair advantage to any respondent, verbal questions will not be answered.

The deadline for submitting questions will be the end of day Tuesday, January 3, 2023, with answers posted to the City's website by end of day Tuesday, January 10, 2023.

Firms may request consideration by submitting one original (clearly marked as such), four copies of the proposal, and a digital copy via thumb-drive that follows the submittal format described in section VI of this RFQ to Brynn Wiswall, Purchasing Agent, Brynn.wiswall@memphistn.gov, City of Memphis, 125 North Main, Room 354, Memphis, TN 38103.

All responses must be received in the Purchasing Agent's office on or before 12 Noon (Central Time), Wednesday, January 18, 2023.

Submittals will be reviewed by a review committee to assess the qualifications of the respondents. At its discretion, the committee may select one or more respondents to participate in an interview process.

V. Timeline

Architect RFI Milestone Dates:

Tuesday, December 13, 2022	Publish RFI
Tuesday, December 20, 2022	Non-Mandatory Pre-Submission Meeting 10AM – Noon Central Time Location: 355 S. Hollywood St. Memphis, TN 38104 Isaac Bruce Training Room Zoom Option: https://us06web.zoom.us/j/85249325503 Facility Tour Following Meeting
Tuesday, January 3, 2022	Proposer Questions Deadline
Tuesday, January 10, 2023	City Response to Questions
Wednesday, January 18, 2023	Proposal Submission Deadline
TBD	Presentations – Optional (City's Discretion)
Wednesday, February 15, 2023	Selection of Architect
February 22 – March 8, 2023	Negotiations
Thursday, March 9, 2023	Agreement Finalization; Architect Begins Work

Currently Proposed CMAR RFP Milestone Dates:
[For Reference Only]

January 3, 2023	Publish RFP
January 10, 2023	Pre-Submission Meeting
January 20, 2023	Proposer Questions Deadline
January 25, 2023	City Response to Questions
February 8, 2023	Proposal Submission Deadline
February 20/21, 2023	Finalist Presentations – Optional (City's Discretion)
February 24, 2023	Selection of CMAR
Feb 25 - March 7, 2023	Negotiations
March 8, 2023	Agreement Finalization; CMAR Begins Work

EXHIBIT 1
STADIUM MASTER PLAN

Simmons Bank Liberty Stadium
Master Plan Study

March 15, 2022

POPULOUS

Contents

01/

Executive Summary

OVERVIEW

The purpose of Simmons Bank Liberty Stadium master plan study is to explore a comprehensive vision for future renovations and development. This study seeks to transform a site that lacks activation and connectivity to a space that engages a range of events for both the City of Memphis and the University of Memphis. It is focused on increasing the amenities and functionality of the current stadium to demonstrate the viability of it becoming a Power Five football stadium that can also be used for other sports, concerts and stadium-sized events.

It is time for Memphis to consider how it will activate this historic space and carry its iconic character into the future. Since it was first built in 1965, Simmons Bank Liberty Stadium has been home to the Memphis Tigers, becoming woven into the fabric of Memphis — a city deeply rooted in civil rights history and progress. The site of the stadium has been a host of many cultural events throughout the decades, resolute through generations of economic and social change. With neighboring communities such as Orange Mound, one of the country's oldest and most storied Black neighborhoods, the Simmons Bank Liberty Stadium is more than just a venue for sport and entertainment. It's an opportunity to preserve history, strengthen community connections and generate economic development.

While other reports and studies have been conducted around Simmons Bank Liberty Stadium previously, this master plan study is the most comprehensive to date. It offers the city and university tangible opportunities for renovation and development, based on current and future market drivers. The design provides a new vision for Simmons Bank Liberty Stadium, including:

+ Integration of new and diverse premium spaces and spectator areas that offer unique fan experiences and support increased revenue generation.
+ Holistic improvements to create a top-tier stadium that activates its surroundings to host local, regional and national events.
+ Prioritization of improvement projects with associated cost estimates to demonstrate the feasibility of a renovated Simmons Bank Liberty Stadium.
+ Incorporation of operations, maintenance and building code aspects relevant to the renovation that are identified in infrastructure assessments.
+ Strategies for improved wayfinding and brand integration.

KEY BENEFITS

The concepts presented in this study can elevate the City of Memphis and University of Memphis' profile as a destination for live entertainment. Following are some of the key benefits highlighted in

Modern Amenities Connected with Historical Architecture: This study seeks to preserve the history and structure of the stadium with the addition of the latest modern amenities, design and premium experiences. When first built, formerly named the Liberty Bowl Memorial Stadium was a vision for a progressive future with the bold architectural gesture of modern concrete columns and arches wrapped in a ribbon rolling down to the end zones and rising back up again to form a powerful ring of completeness. The concrete band that wraps the stadium together creates an "in bowl" experience like no other. This iconic single bowl stadium form, comparable to the Rose Bowl, is derived from the Colosseum in Rome, the first and lasting example of great stadiums. A reinvented home for the Memphis Tigers will retain the history of the most iconic form of a stadium, allow the stadium to continue to progress forward and support the university in achieving its conference goals. With upgraded premium spaces, multiple amenity options and improvements to the overall functionality, the site can expand its hosting opportunities to keep pace with evolving fan expectations. The renovation builds on the history of the iconic stadium, enhancing the space for the future rather than letting it fade into the past.

New Visitation: Modern stadiums are designed to be flexible and adaptable to activate the space more days out of the year, with many stadiums playing host to a variety of events from other sporting events to concerts and social events like beer and culinary festivals. The revitalization would allow for more frequent and diversified activities at the stadium, ultimately supporting revenue generation and job growth. By adding another main entry to the stadium, the design creates an inviting experience for fans on game day, as well as for visitors and community members throughout the year. The central location of this stadium, from historic neighborhoods, the riverfront, downtown to the west and University of Memphis to the east, is all located just minutes north of the Memphis International Airport — this location enhances the stadium's prime position as a destination for visitors and residents alike.

Transformative and Iconic Effects: The renovation of this high-profile, historic stadium could have extensive, long-lasting transformative impacts on the Memphis community and destination, in terms of quality of life, community prestige and perception by visitors. The renovation would create a spectacular gathering community space in Memphis that serves as a destination for all, locals and visitors alike, as well as a complement to the surrounding neighborhoods.

Spin-off Development: New retail and other businesses tend to sprout up near renovated public assembly venues and open spaces, spurred by the associated activities and operations, representing additions to the local tax base. This will likely result in enhanced economic growth and ancillary private sector development surrounding the renovated stadium and space.

Executive Summary **Vision Statement**

PROCESS

The process for developing Simmons Bank Liberty Stadium master plan study has been reflective and collaborative. The study began with a site visit for all involved parties to experience the facility and a game day firsthand. This allowed for an assessment of what worked well by today's venue standards and what needed to be enhanced. As a result, all stakeholders were able to identify a shared goal for the study.

The design team then generated various design options focused on making the most of what worked well, improving what did not and activating the currently underutilized spaces. These initial and iterative drawings were shared with stakeholders to capture feedback. The design team then collaborated with the entire group to determine how to make the shared vision a reality, with structural, building systems and accessibility considerations in mind.

Finally, the team compiled the information into a master plan study that demonstrates a path forward to transform Simmons Bank Liberty Stadium into a Power Five football stadium that has diverse event hosting capabilities for the community. This study articulates revenue opportunities and estimates cost impacts to guide decisions and direction on the future of Simmons Bank Liberty Stadium.

02/

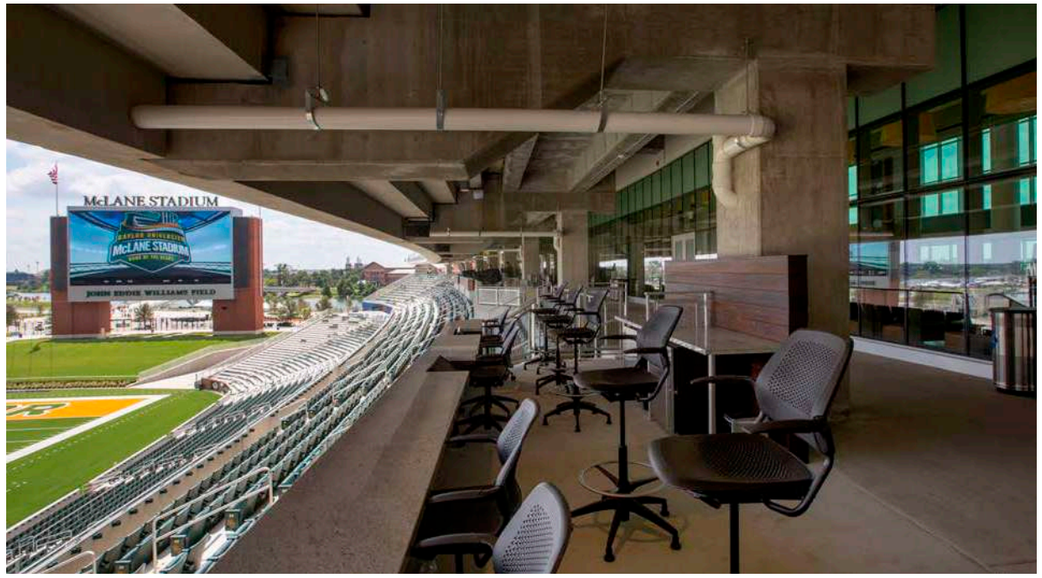
Collegiate Precedents

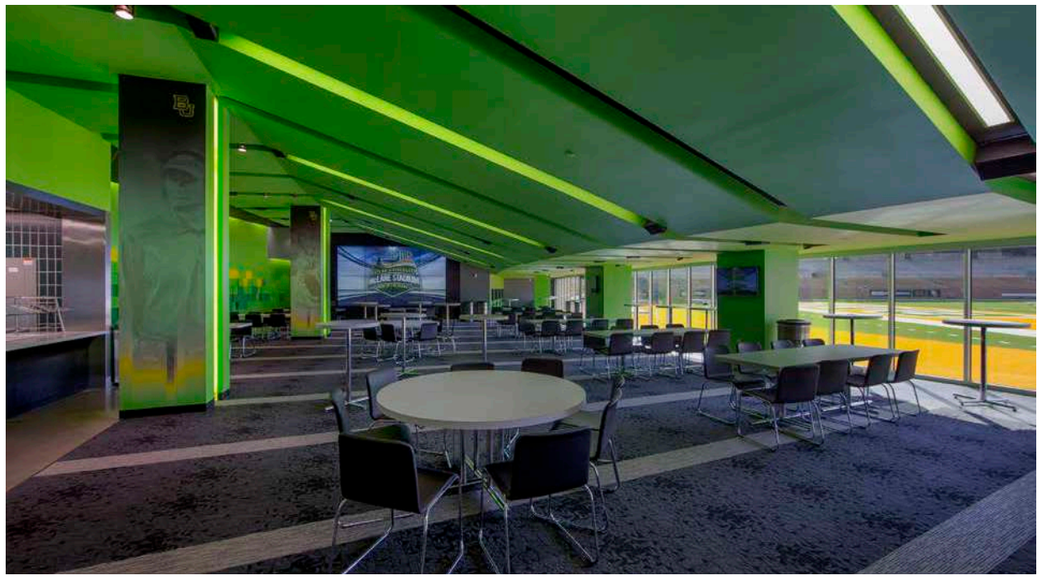
Baylor University - McLane Stadium

CAPACITY
45,000

PREMIUM SEATING
+ Founder's Suites
+ Suites
+ Loge Boxes
+ Outdoor Club Seats

STADIUM FEATURES
+ On-field recuritng room
+ Student Tailgating
+ Hosted more than 600 events in opening year



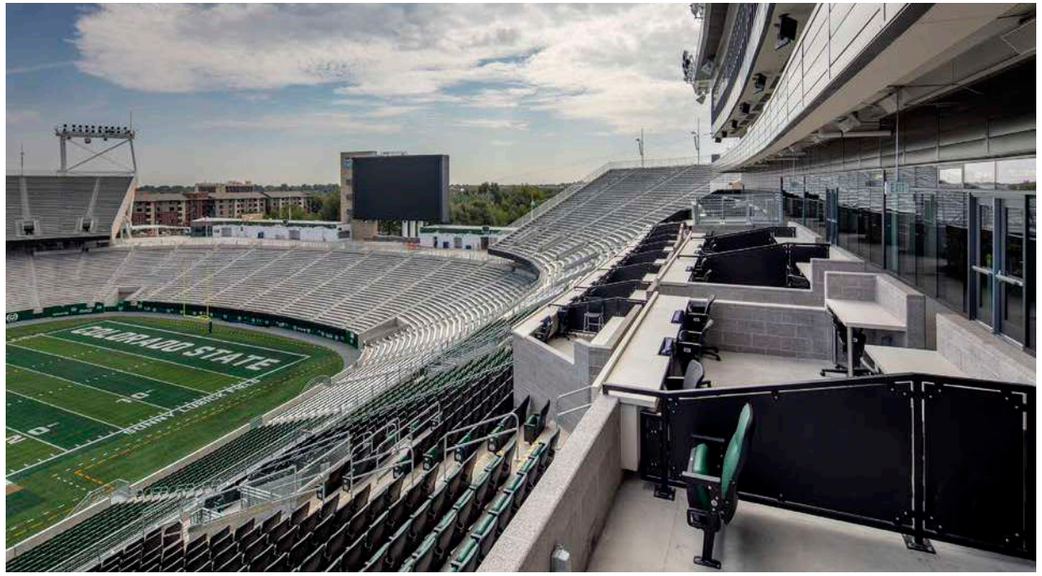


Colorado State University - Canvas Stadium

CAPACITY
40,000

PREMIUM SEATING
+ Suites
+ Club Seats
+ Loge Boxes

STADIUM FEATURES
+ Sideline Field Club
+ New Belgium North Endzone Bar
+ Coaches Terrace
+ Football Training Facility
+ Football Recrutiting Room
+ East Side Academic Spaces
+ Alumni Center

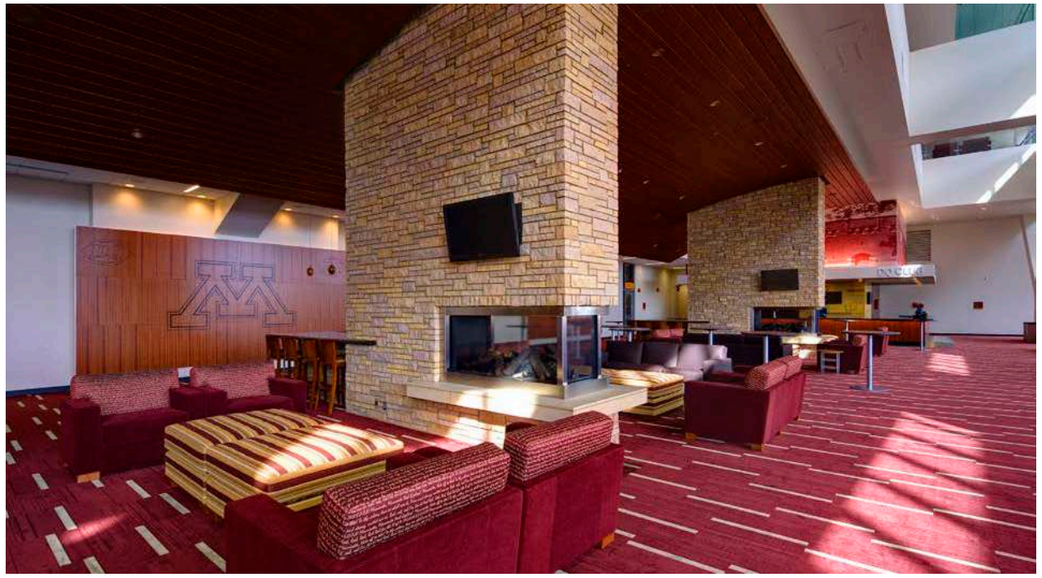


University of Minnesota - Huntington Bank Stadium

CAPACITY
50,000

PREMIUM SEATING
+ Suites
+ Outdoor Club Seats
+ Indoor Club Seats
+ Loge Boxes

STADIUM FEATURES
+ 25,000 SF club available for year-round use

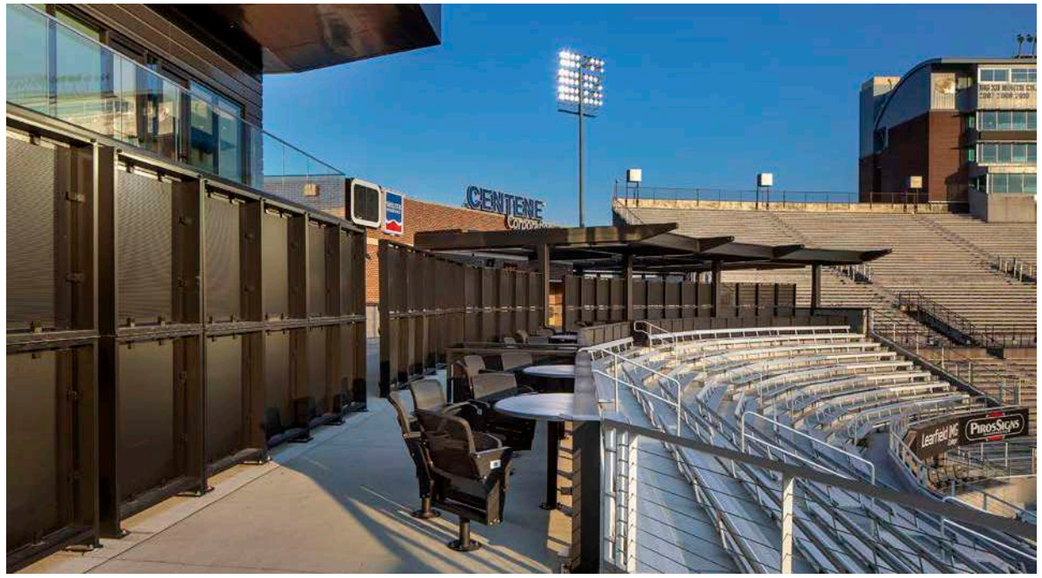


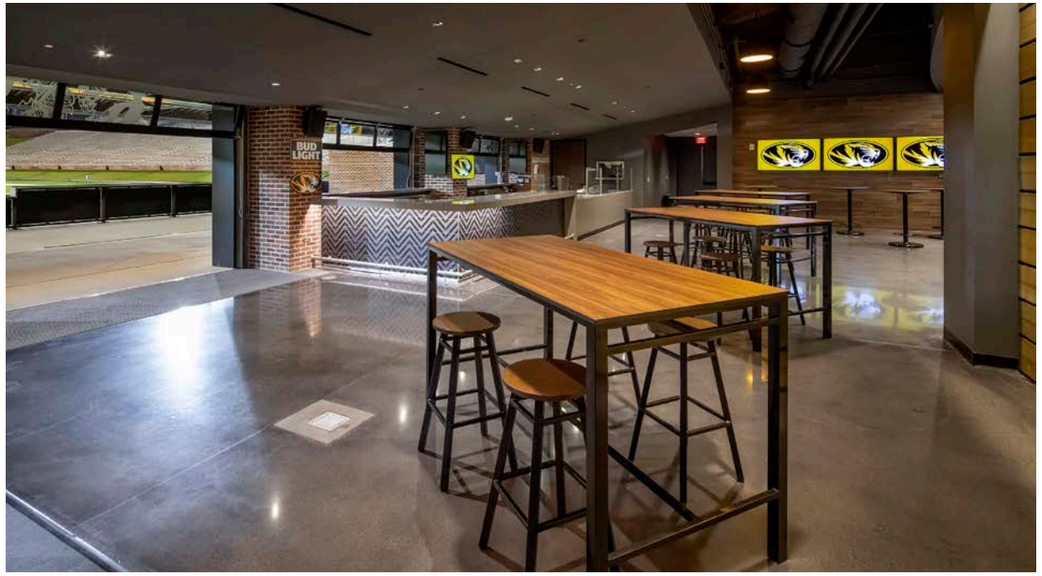
University of Missouri - Faurot Field at Memorial Stadium

CAPACITY
62,000

PREMIUM SEATING
+ Field Level Club - South Endzone
+ Exterior Club Seats - East Side Club access
+ Loge Boxes - East Side Club access
+ Lower Bowl Club Seats - Show Me Club access
+ Suites
+ Lobes Boxes - Mid Level Bowl

STADIUM FEATURES
+ SRO & Drinkrail - South Endzone
+ Football Training Facility
+ Positional Meeting Rooms
+ Interview Rooms
+ Coaches Offices
+ Recurting Room



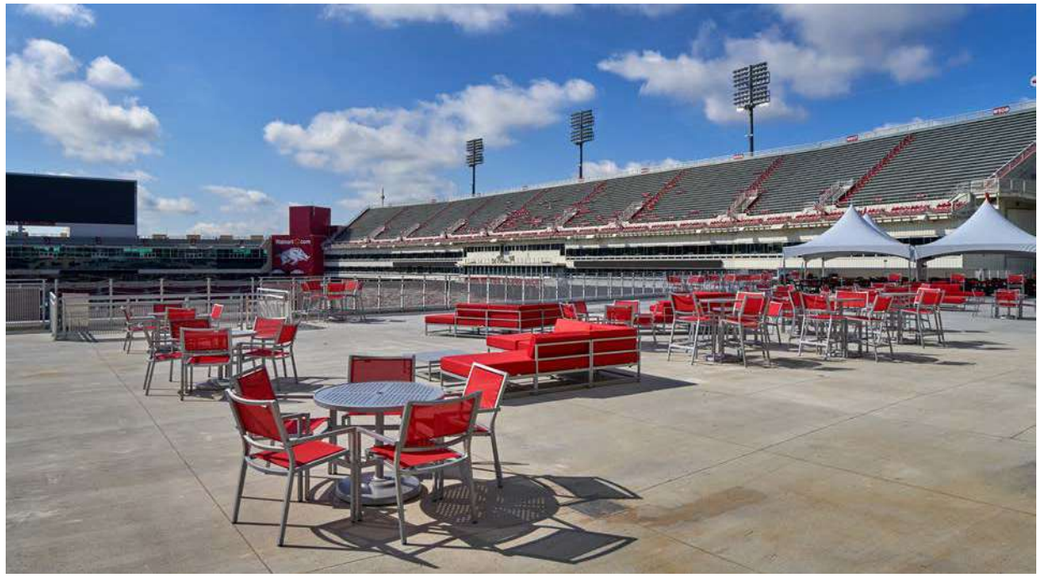


University of Arkansas - Donald W. Reynolds Razorback Stadium

CAPACITY
76,000

PREMIUM SEATING
+ Suites
+ Club Seats
+ Loge Boxes

STADIUM FEATURES
+ Rooftop Deck
+ Hog Walk - pregame area
+ Field Level Club
+ Northwest Plaza
+ Hall of Fame
+ 356 day use

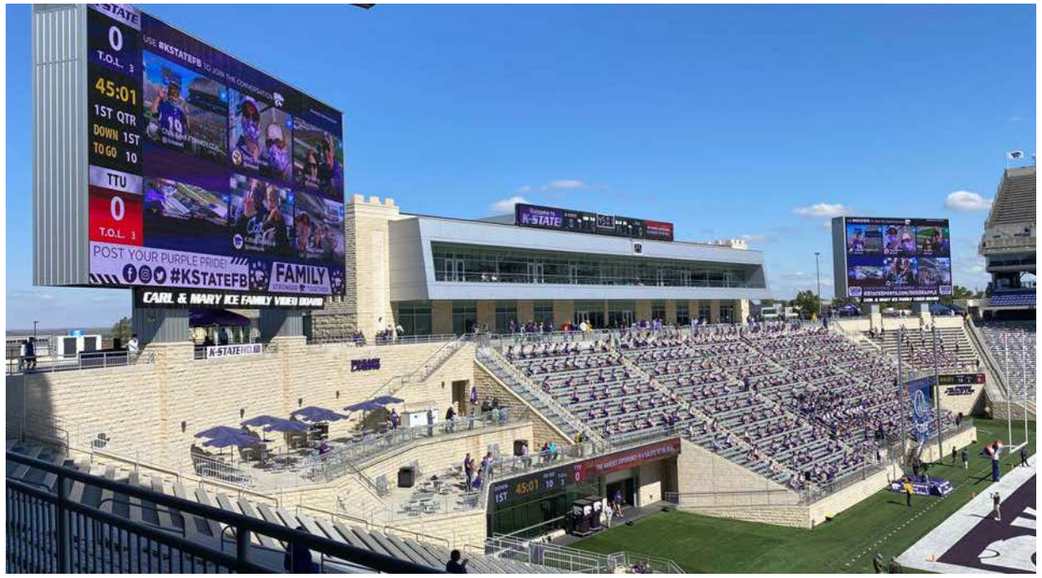


Kansas State University - Bill Snyder Family Stadium

CAPACITY
50,000

PREMIUM SEATING
+ West Side Suites
+ East Side Suites
+ South Endzone Suites
+ West Club
+ East Club
+ South Club
+ West Side Loge Boxes
+ South Side Loge Boxes

STADIUM FEATURES
+ Wabash Landing - North Endzone Terraces
+ Touchdown Terrace - South Endzone
+ Coaches Suites - North Endzone

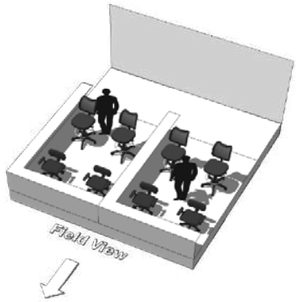


Collegiate Precedents **Premium Seating Types**

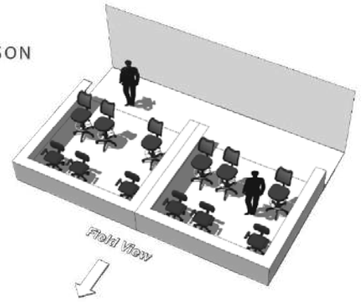
FLEXIBLE SEATING

LOGE BOX

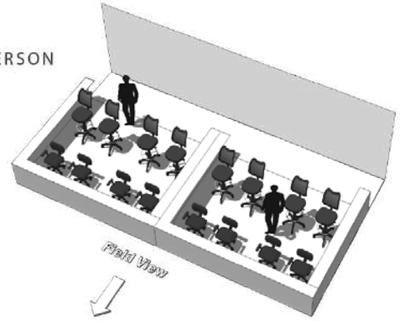
4 PERSON



6 PERSON

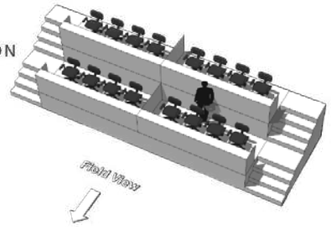


8 PERSON

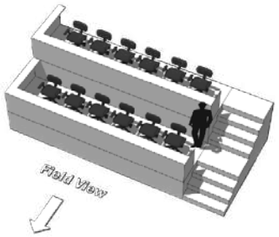


'VEGAS' STYLE

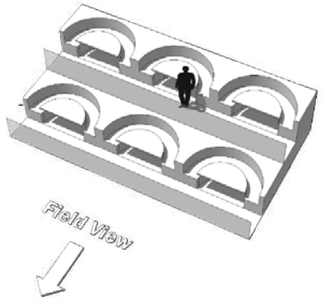
4 PERSON



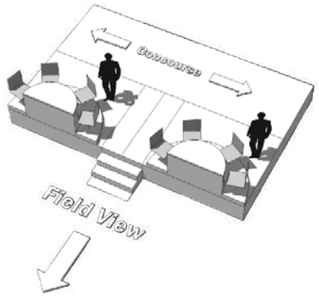
6 PERSON



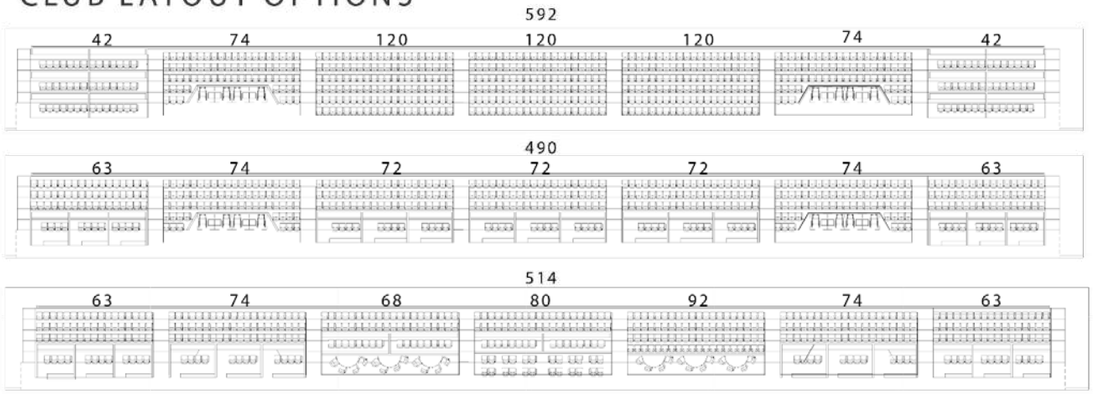
4-6 PERSON INDOOR/FULLY COVERED



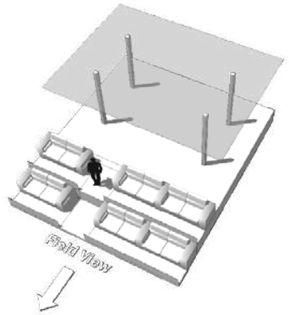
4-6 PERSON OUTDOOR



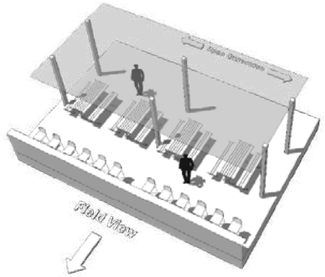
CLUB LAYOUT OPTIONS



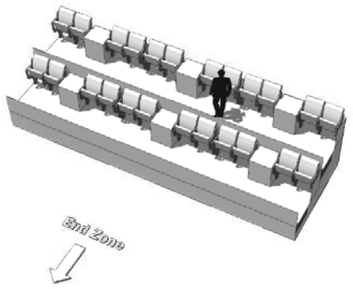
PATIO CLUB



BEERGARDEN

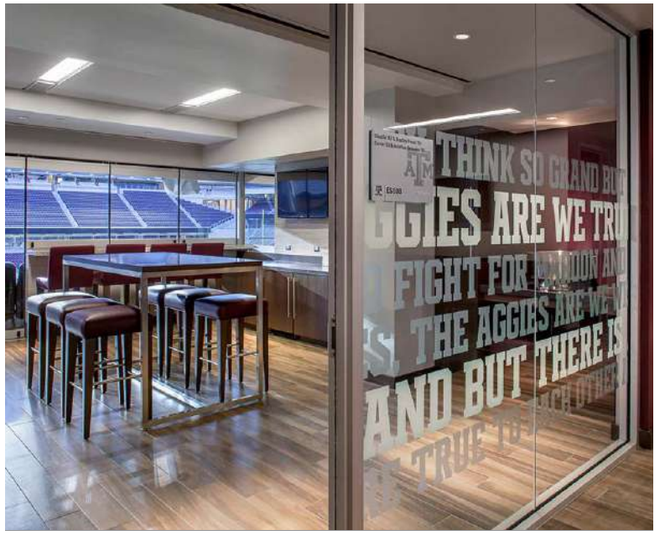


FAMILY BOX



STADIUM TRENDS

- **Multi-Event Capable Qualities**
- **Family Designed**
- **Enhanced Revenue Propensities**
- **Socially Connected Spaces**
- **Value-added Corporate Sponsorship/Brand Activation**
- **Designed with Sustainable Initiatives in Mind**
- **Diversified Seating Product**
- **Adapted Seating Capable of Evolving with Market**



STADIUM TRENDS

- **Refined to be Smaller & Smarter**
- **Improved Premium Amenities**
- **Increased General Fan Amenities**
- **Widened Seats with Deeper Treads**
- **Maximized Flexibility & Efficiency**
- **Bolstered Community Integration**
- **Increased Connection to the Outdoors**
- **Enhanced Sports Performance**

STADIUM TRENDS

WHAT CONTRIBUTES TO A GREAT ATMOSPHERE?

Parking / Access to Stadium

Tailgating / Pre-Game

Quality Food Service

Restrooms

Comfortable Seating

Sightlines

Mix of Seating Type & Price

Tradition Integration

Sound System

Videoboard / Ribbon Boards

DAS - Distributed Antenna System

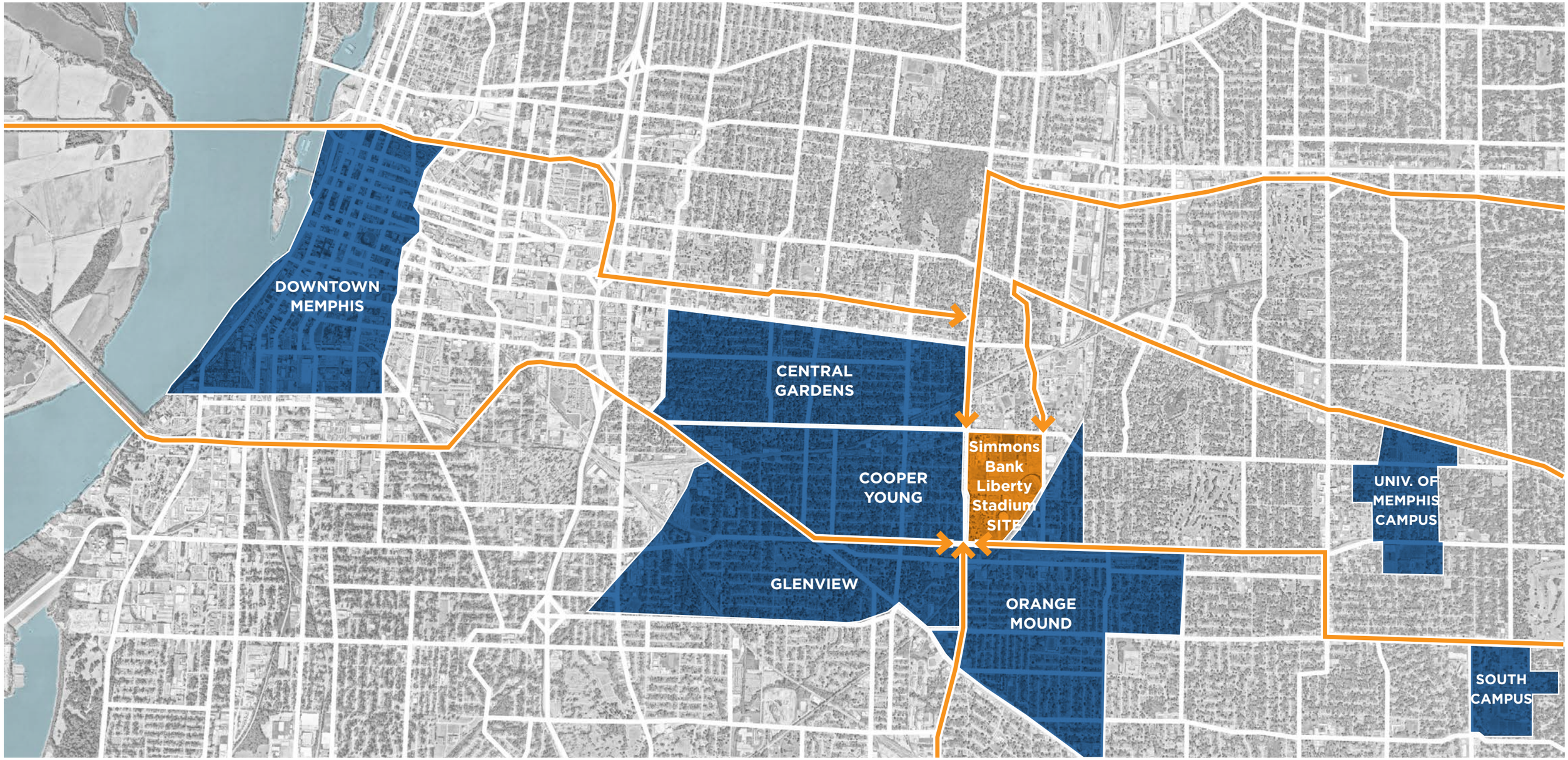
Attracting the Next Generation Fan

WiFi

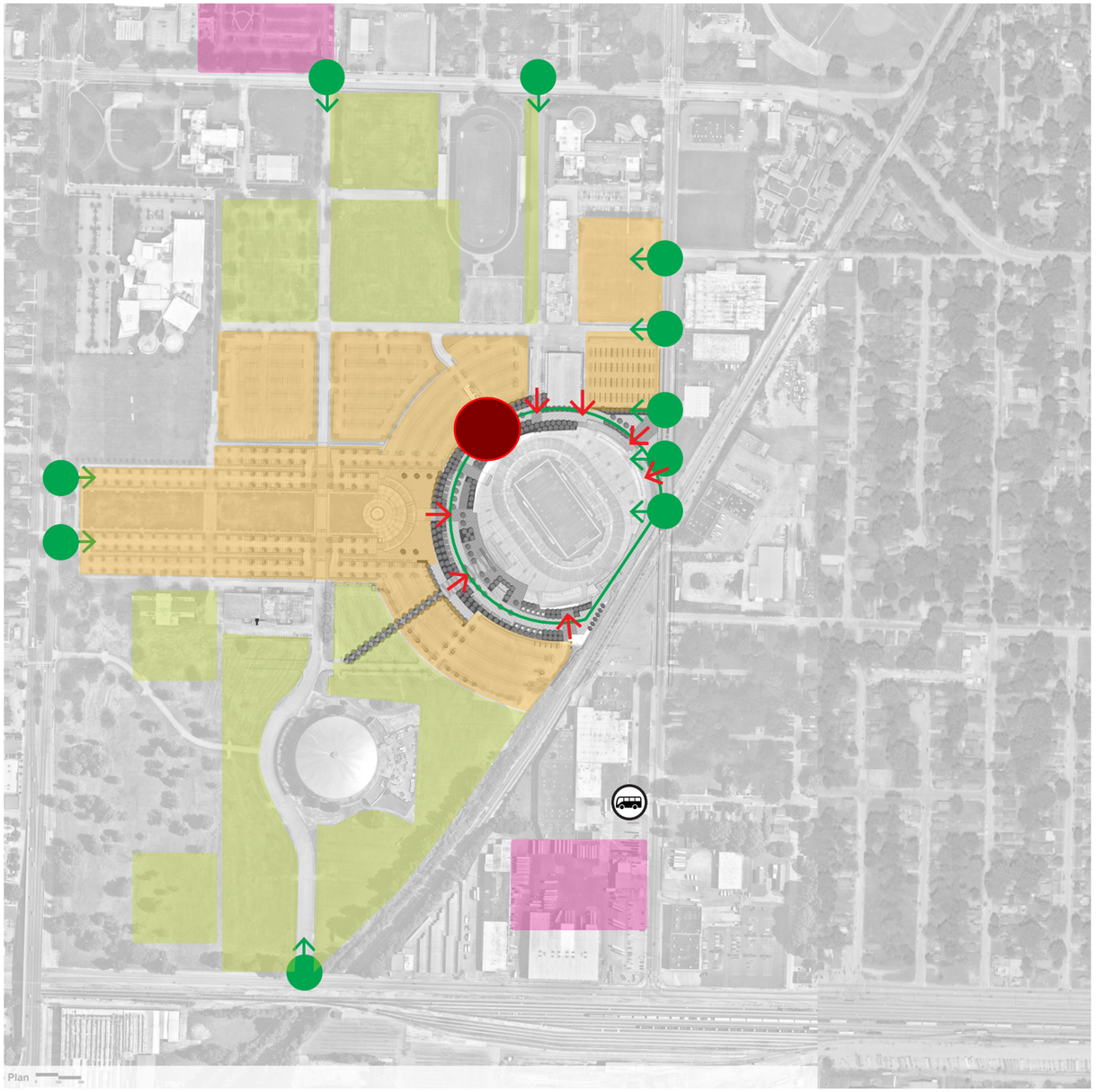
03/
Master Plan

Master Plan **Site - Context**

Master Plan **Site - Road Networks**



Master Plan **Site - Access Points**



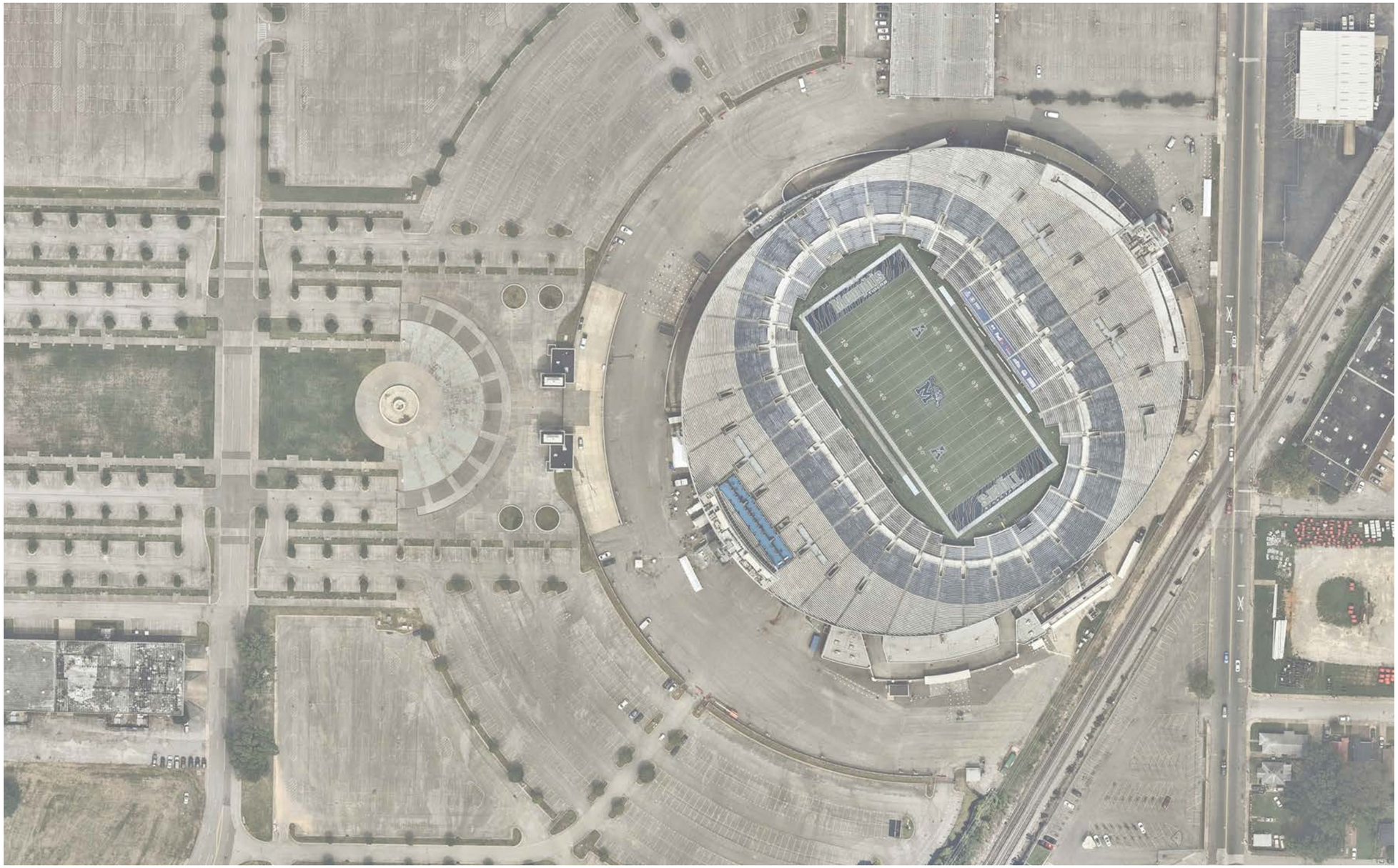
Site Access

- Site Access Points
- Pedestrian Circulation
- General Parking
- Premium Parking
- Off-Campus Parking
- Off-Site Parking Shuttle

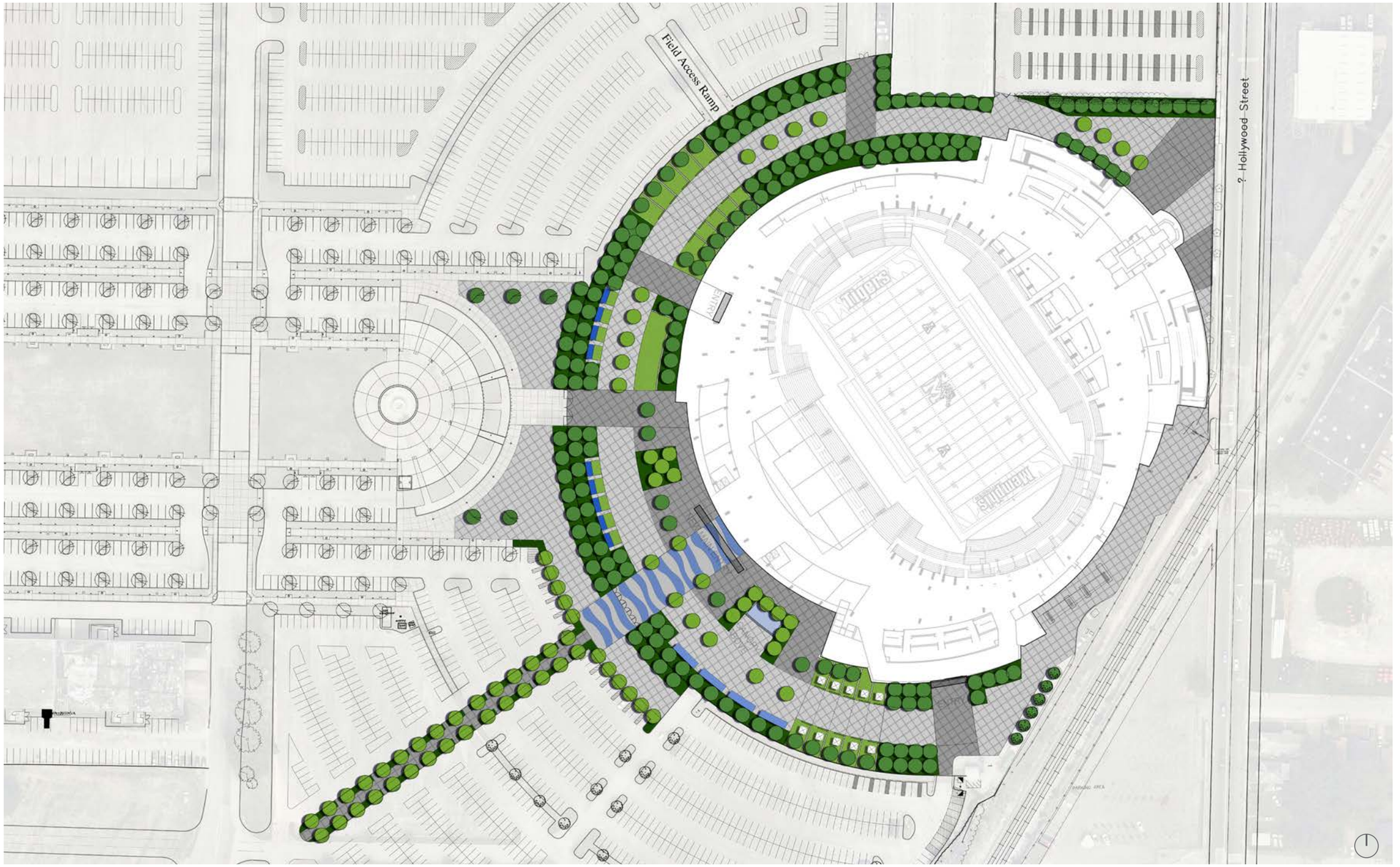
Building Access

- General Entry

Master Plan **Site - Existing Conditions**



Master Plan **Site - Improvements & Halo Activation**



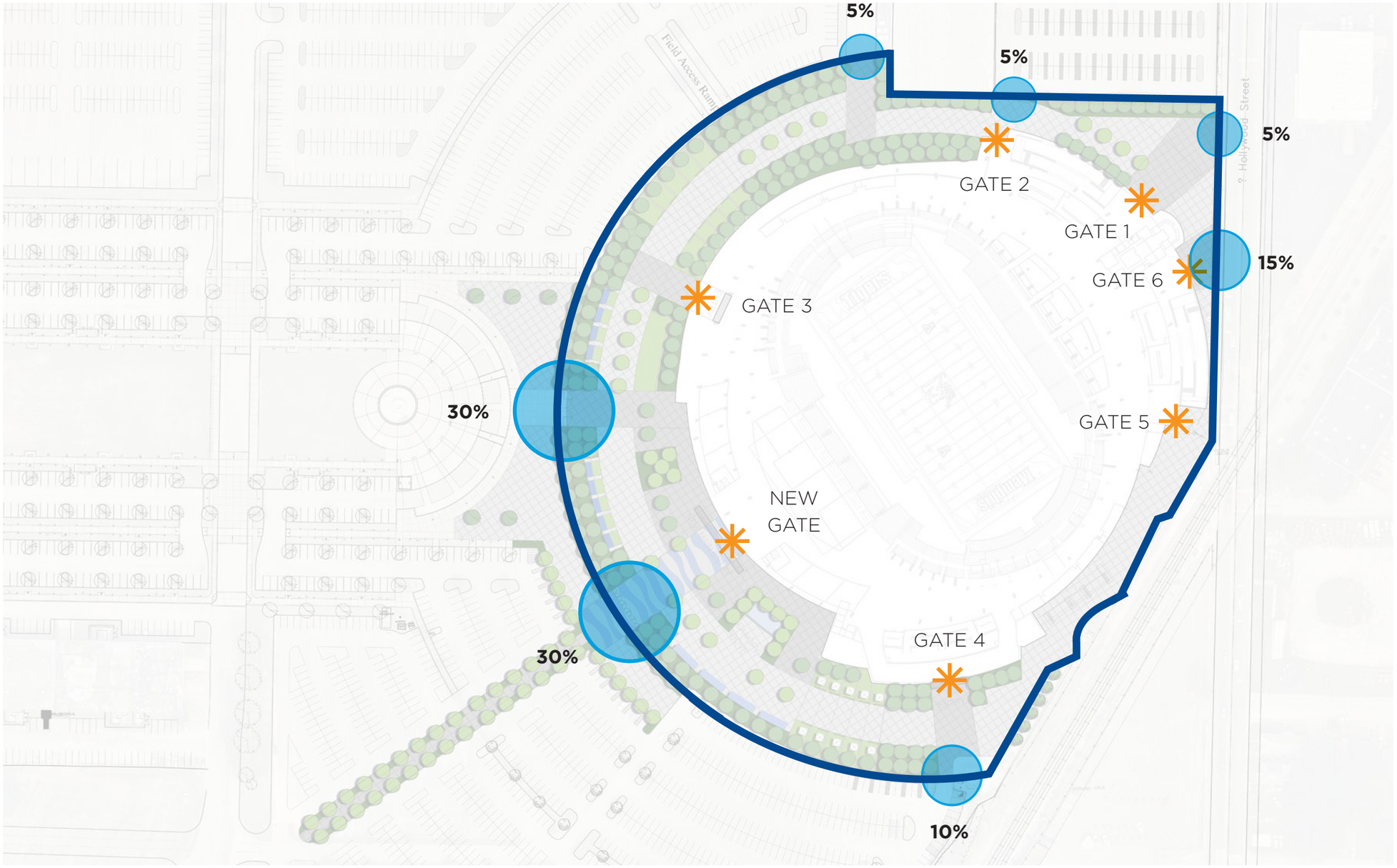
Proposed Site Improvements

+ 89, 370 sf of greenspace within Halo

+ 32% reduction in paved surfaces from Halo current conditions

+ 265 New Trees
  - 193 trees in the Halo
  - 72 outside of the Halo

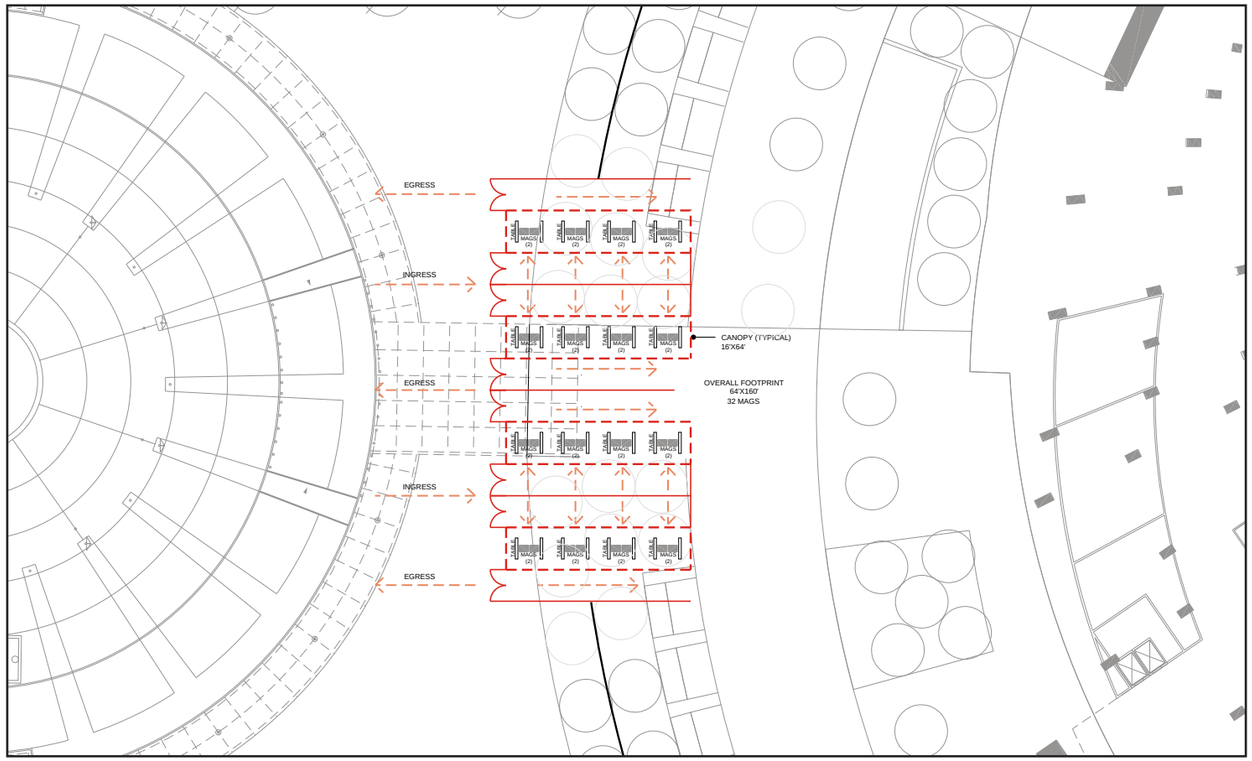
Master Plan **Site - Entry Gates & Security**



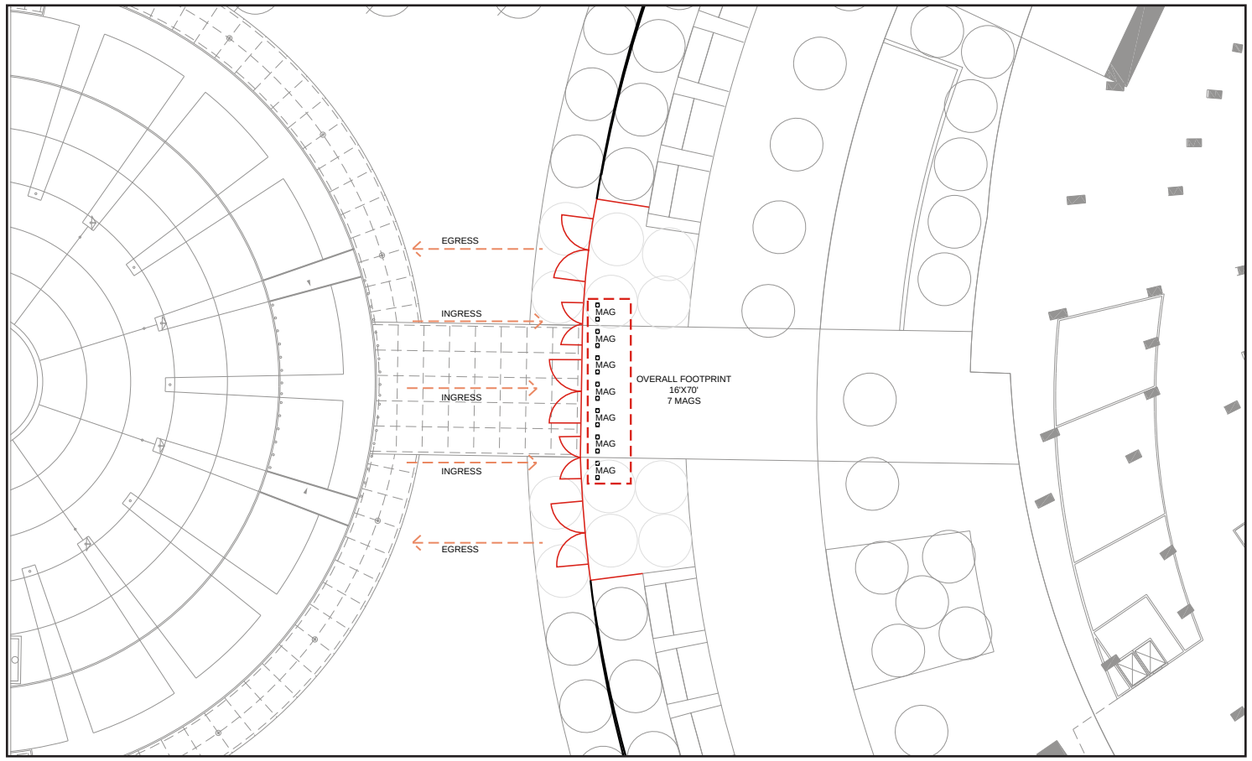
PEDESTRIAN CIRCULATION

- Secure Line
- Ticketed Entry
- Security Checkpoint

Master Plan **Site - Entry Gates & Security Diagrams**

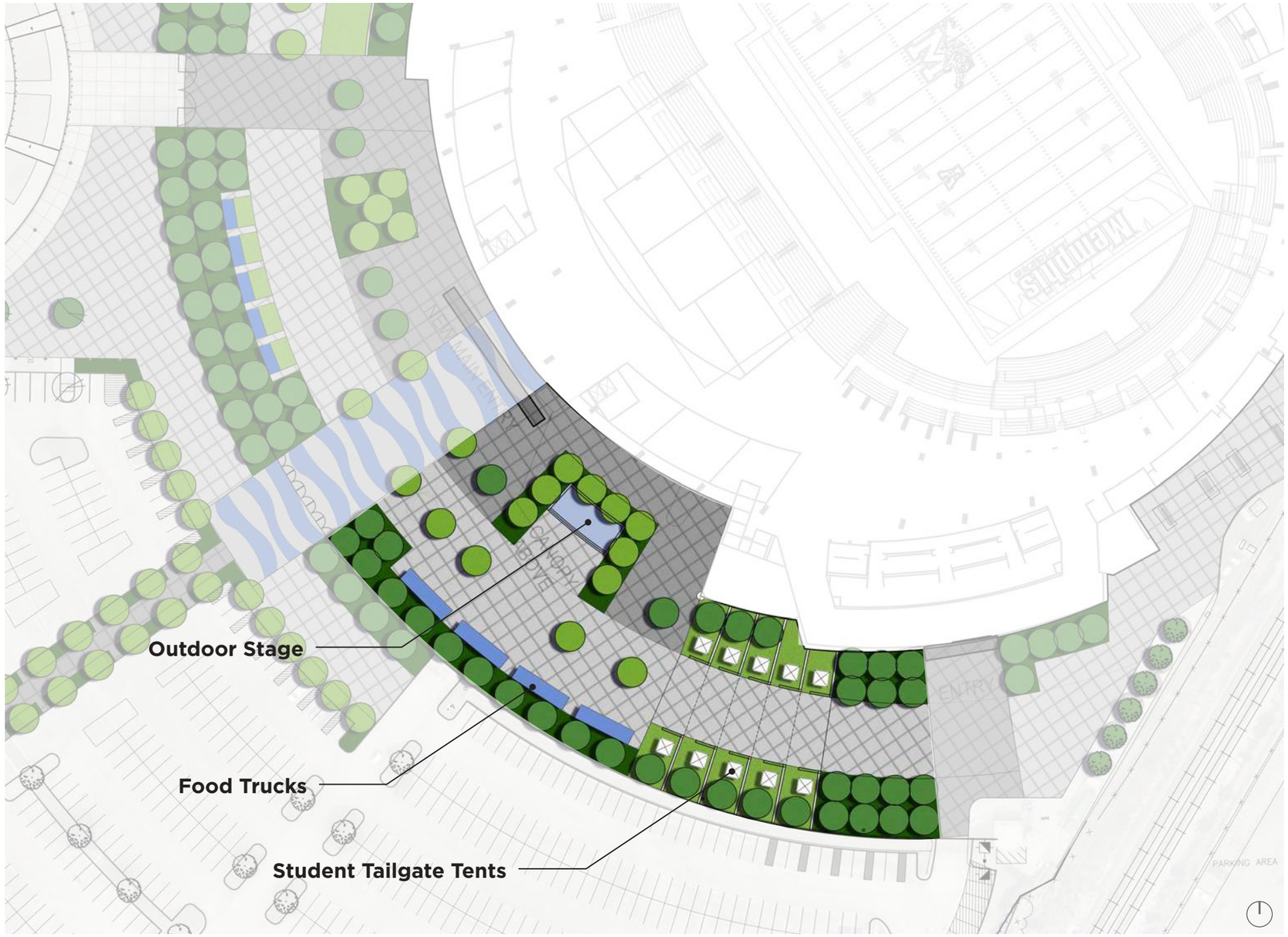


Standard Gate Layout

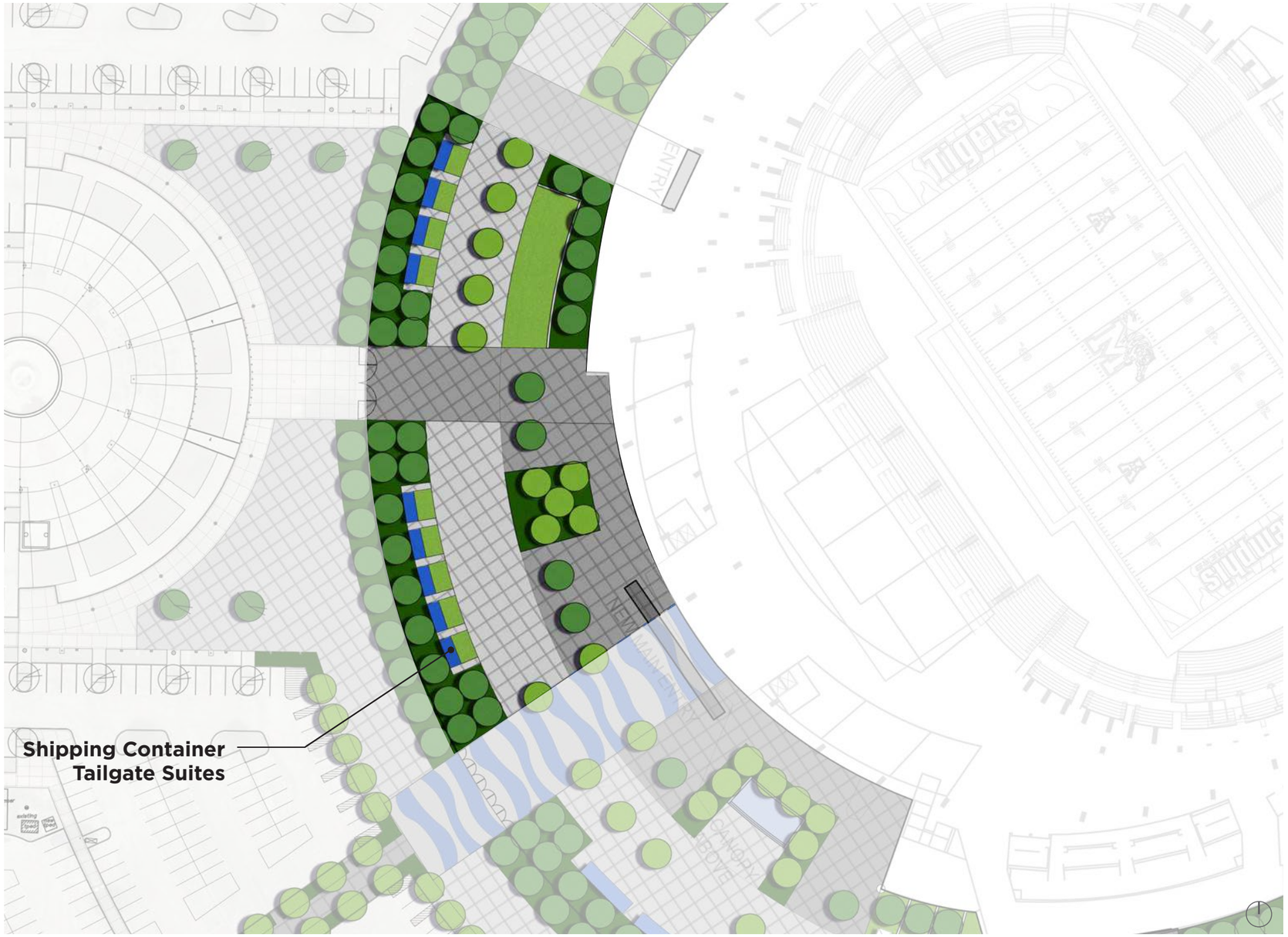


Open Gate Layout

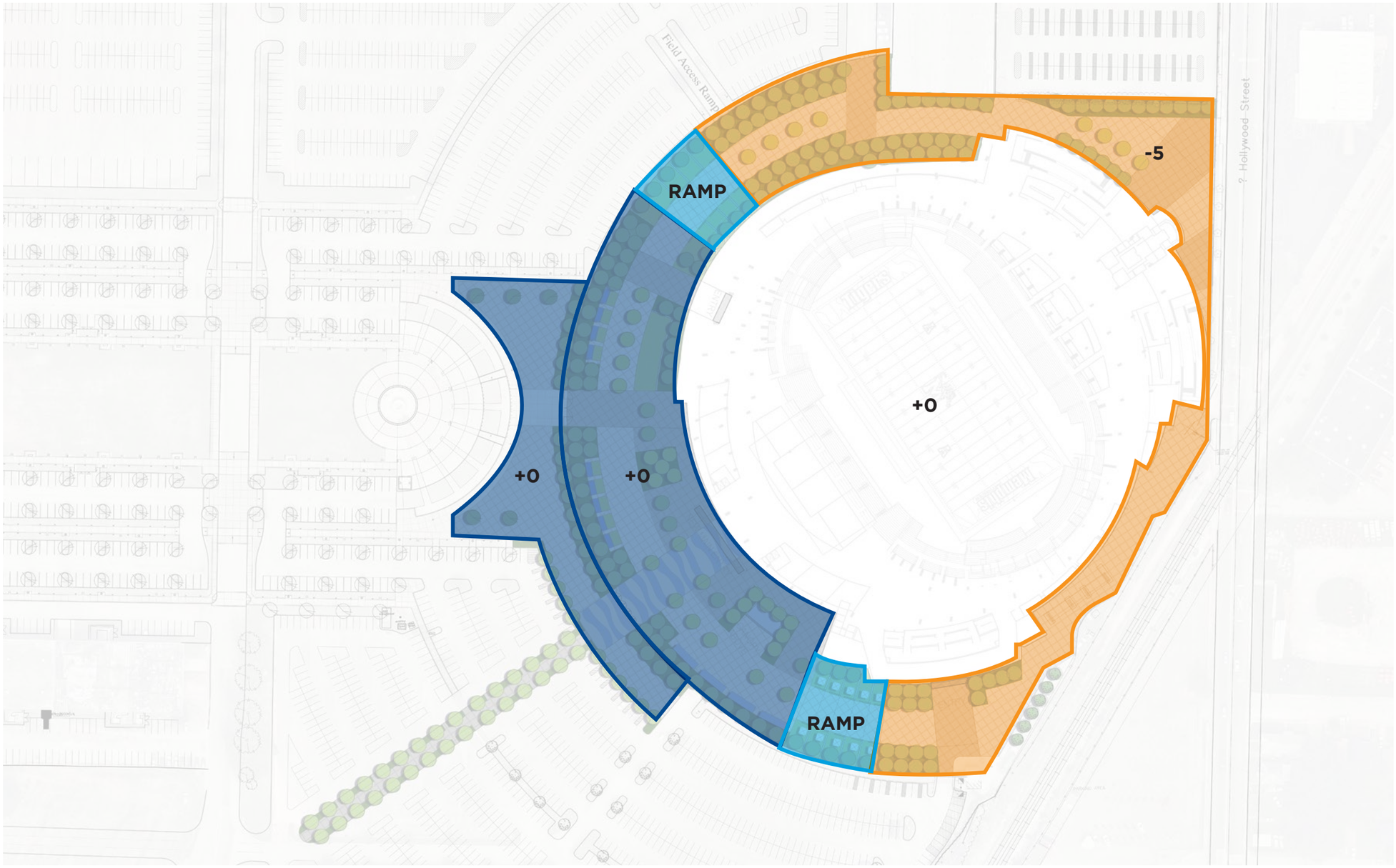
Master Plan **Site - Improvements & Halo Activation**



Master Plan **Site - Improvements & Halo Activation**



Master Plan **Site - Elevations**



ELEVATION CHANGE

- -5 Elevation (Existing)
- +0 (Proposed)
- <5% Ramp

Master Plan **Inspiration - Historic + Contemporary**

Existing Stadium Program

Field Level

Home Locker Room	7,500
Visting Locker Room	2,600
Officials Lockers	2,200
Total	**12,300**

Main Concourse East

Administration Space	4,500
Concessions	5,550
Restrooms	5,850
Total	**15,900**

West Tower

Level 1 – Club	3,900
Level 2 – Writing Press	3,600
Level 3 – Suites	3,800
Level 4 – Press Box	3,400
Total	**14,700**

Upper Bowl

Concessions	700
Restrooms	1,600
Total	**2,300**

Main Concourse West

Concessions	4,700
Restrooms	12,200
Vertical Circulation	1,200
Total	**18,100**

East Tower

Level 1 – Suites	10,900
Level 2 – Suites	10,900
Total	**21,800**

TOTAL STADIUM SF - 85,100

New Stadium Program

Field Level

(Existing Lockers)	12,300
Storage/Mechanical	8,400
Talent Dressing Rooms	6,200
Kitchen/Commissary	5,750
Field Clubs	35,800
Recruiting Lounge	5,600
Vertical Circulation	2,150
Total	**76,200**

Upper Bowl Club

Club	9,600
Restrooms	1,450
Concessions	2,450
Team Store	850
MEP	1,750
Total	**16,100**

Main Concourse East

Hall of Fame	6,600
(Existing Concessions)	5,550
(Existing Restrooms)	5,850
Admin Space - Level 2	6,600
Total	**24,600**

Main Concourse West

Concessions	3,650
(Existing Concessions)	1,000
Restrooms	4,900
(Existing Restrooms)	5,000
Vertical Circulation	1,200
Founder's Suites	7,900
Premium Circulation	5,050
Total	**28,700**

West Tower

Level 1 – Loge Boxes	13,100
Level 2 – Suites	19,000
Level 3 – Press OR Suites	26,000
Total	**58,100**

East Platforms

Level 1 – Platform	10,900
Level 2 – Platform	10,900
Horizon Level	1,050
Total	**22,850**

TOTAL STADIUM SF - 226,550

Existing - Field Level

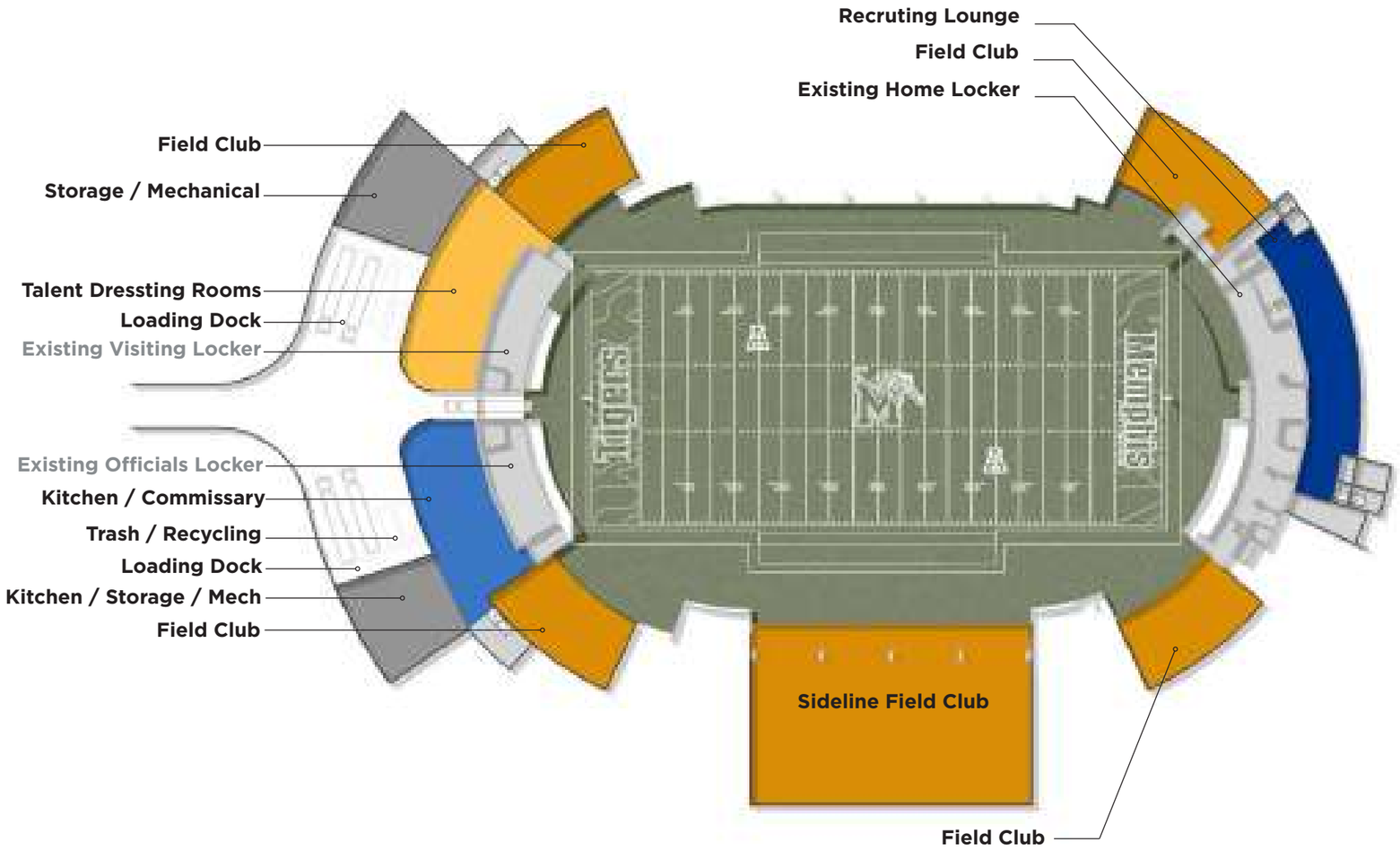
Home Locker Room
- 7,500 SF

Visiting Locker Room
- 2,600 SF

Officials Lockers
- 2,200 SF

Total SF
- 12,300 SF

New - Field Level



Storage / Mechanical
- 8,400 SF

Talent Dressing Rooms
- 6,200 SF

Kitchen / Commissary
- 5,750 SF

Field Clubs
- 35,800 SF

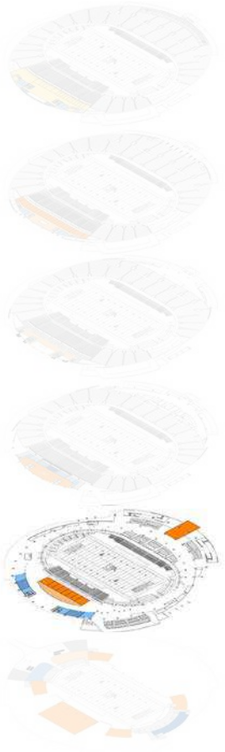
Recruiting Lounge
- 5,600 SF

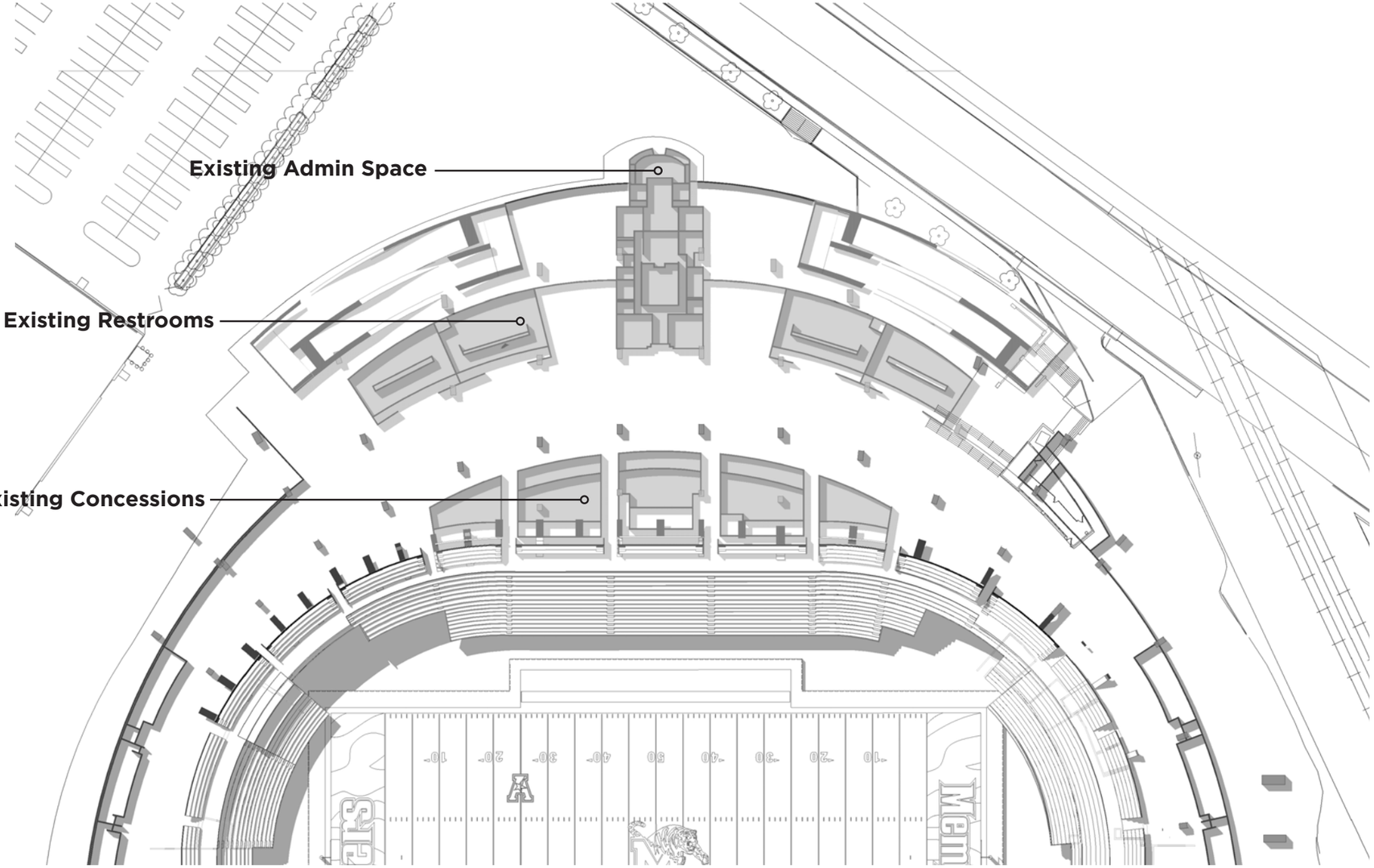
Vertical Circulation
- 2,150 SF

Existing Program
- 12,300 SF

Total SF
- 76,200 SF

Existing - East Main Concourse





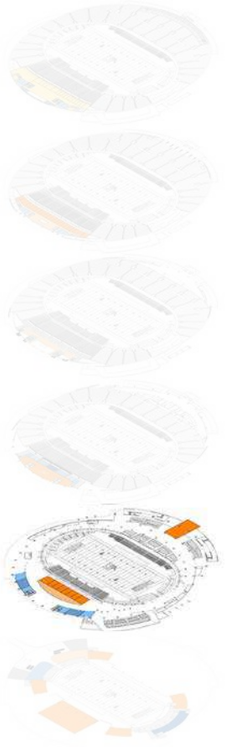
Administraion Space
- 4,500 SF

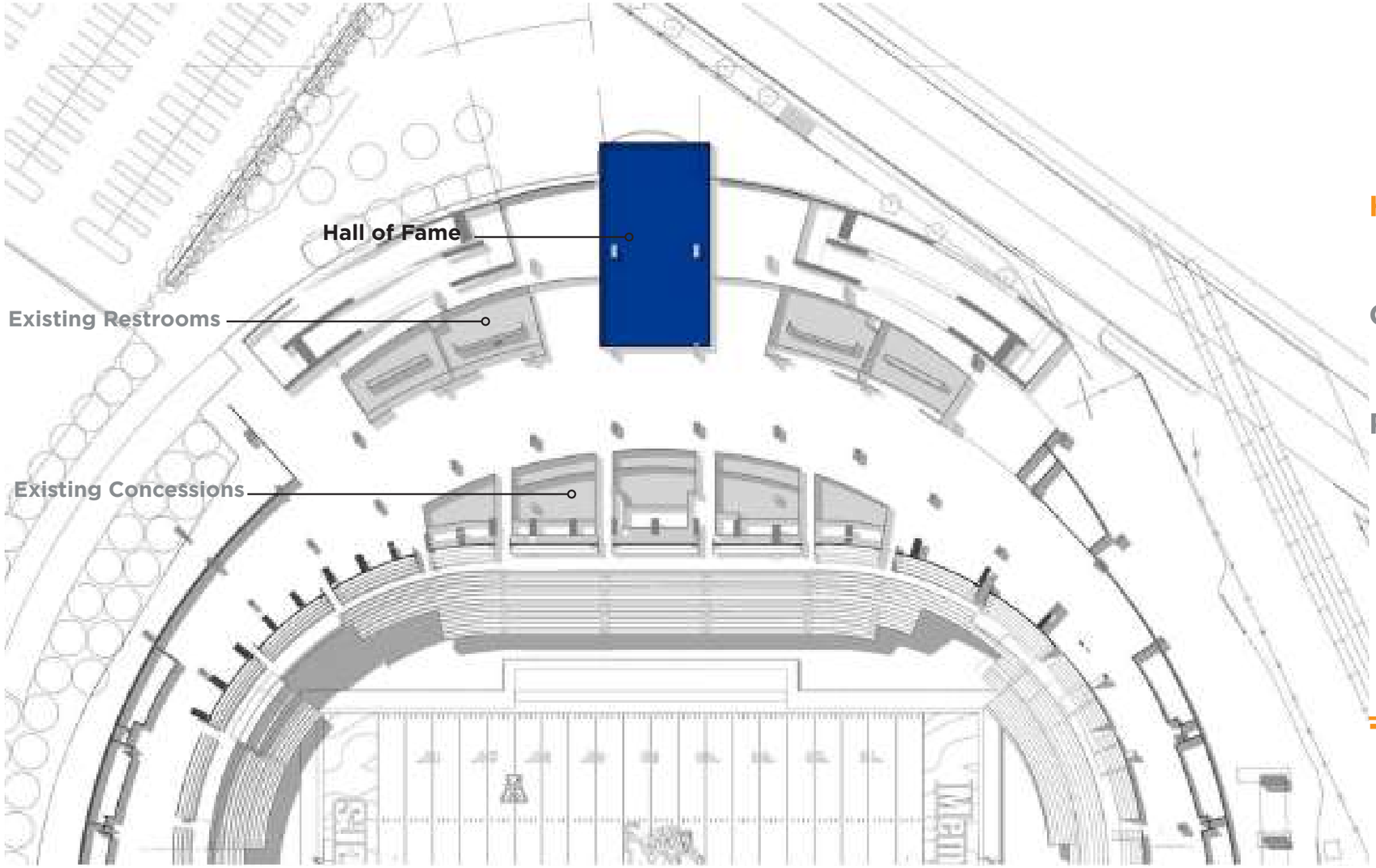
Concessions
- 5,550 SF

Restrooms
- 5,850 SF

Total SF
- 15,900 SF

New - East Main Concourse





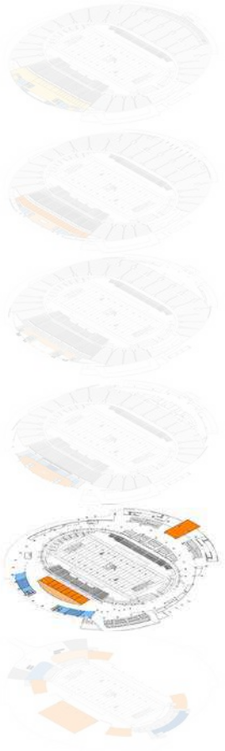
Hall of Fame
- 6,600 SF

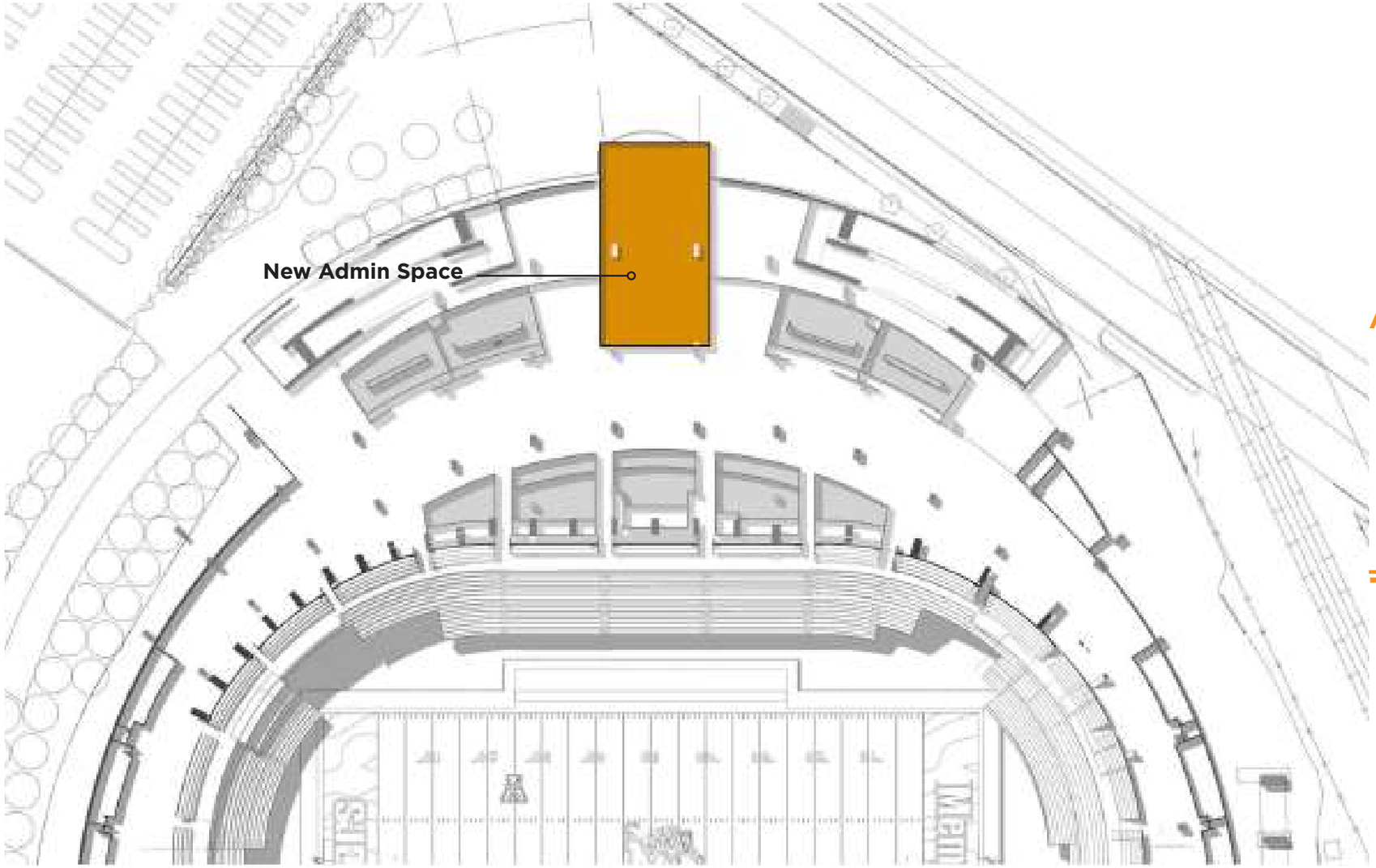
Concessions
- 5,550 SF

Restrooms
- 5,850 SF

Total SF
- 18,000 SF

New - East Level 2

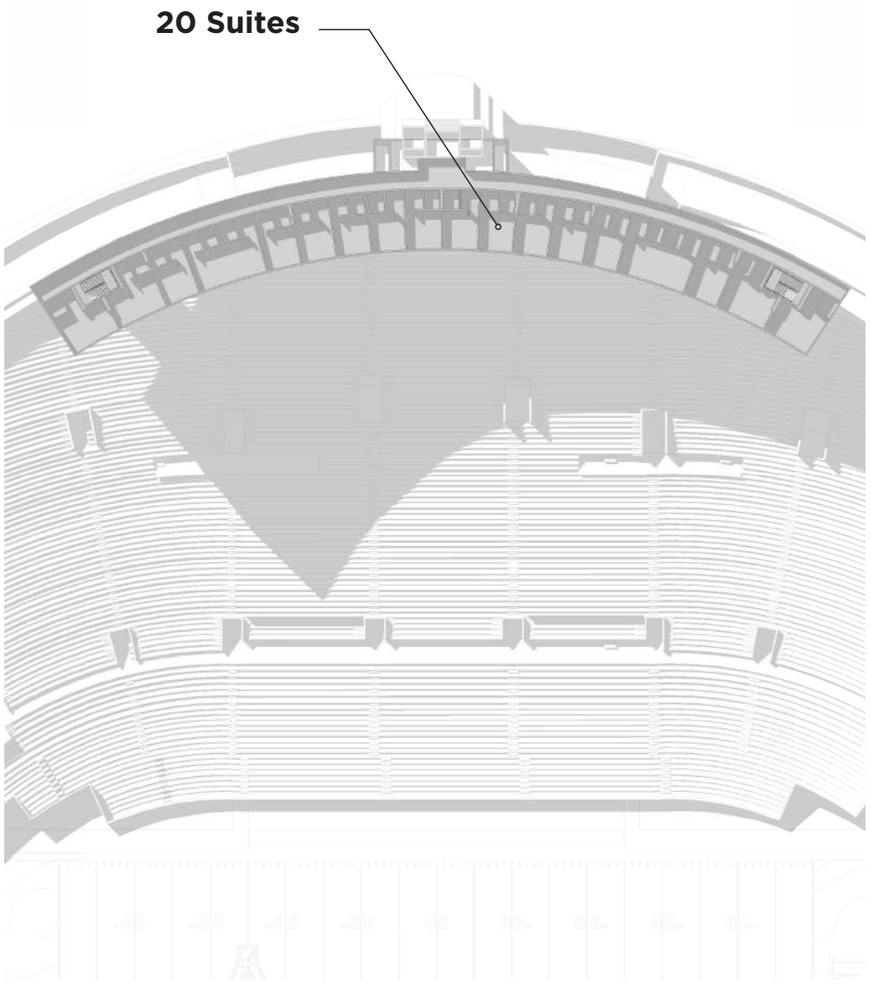




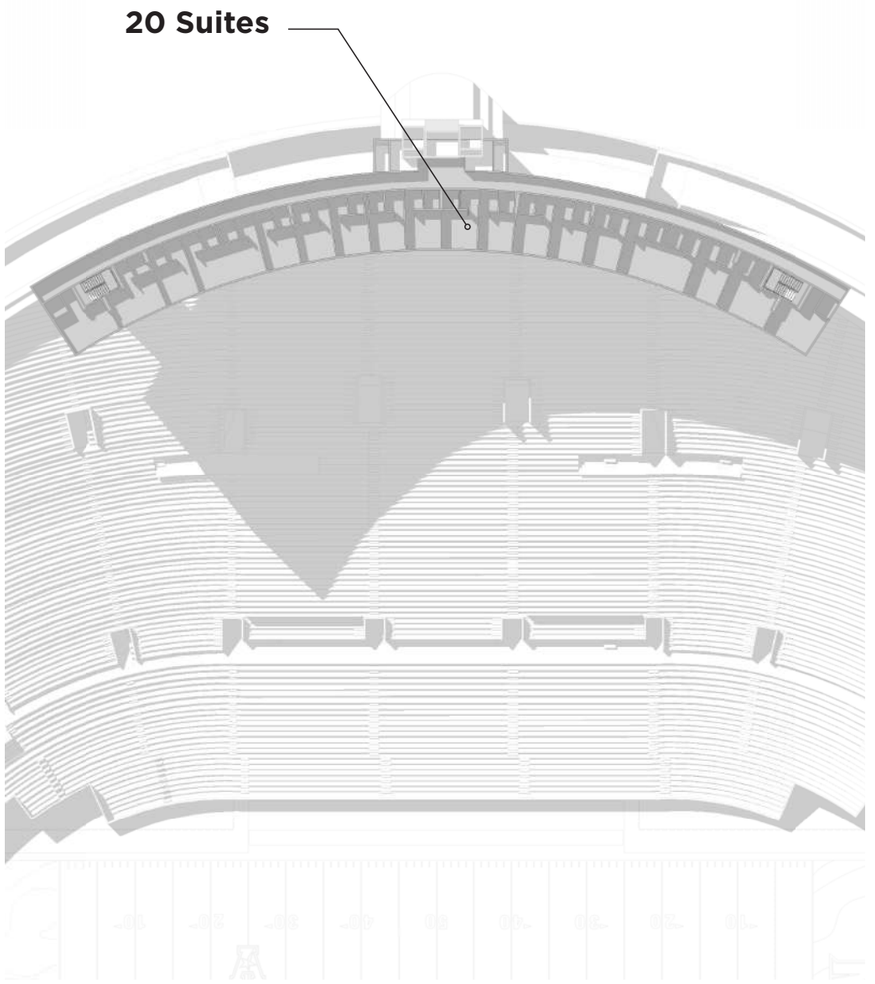
Administration Space
- 6,600 SF

Total SF
- 6,600 SF

Existing - East Tower Suites - Layout 1



Level 1 - Suites



Level 2 - Suites

Level 1 - Suites
- 20 Total Suites
- 248 Seats
- 112 Barstools

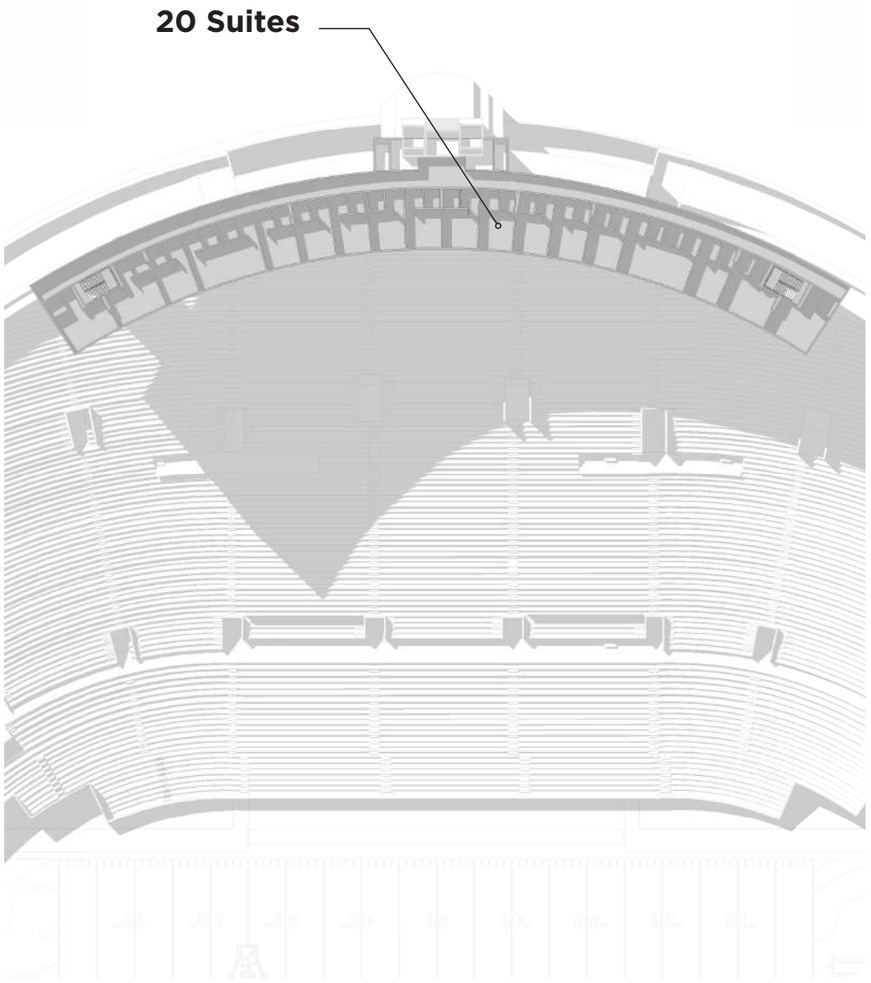
~ 10,900 SF

Level 2 - Suites
- 20 Total Suites
- 248 Seats
- 112 Barstools

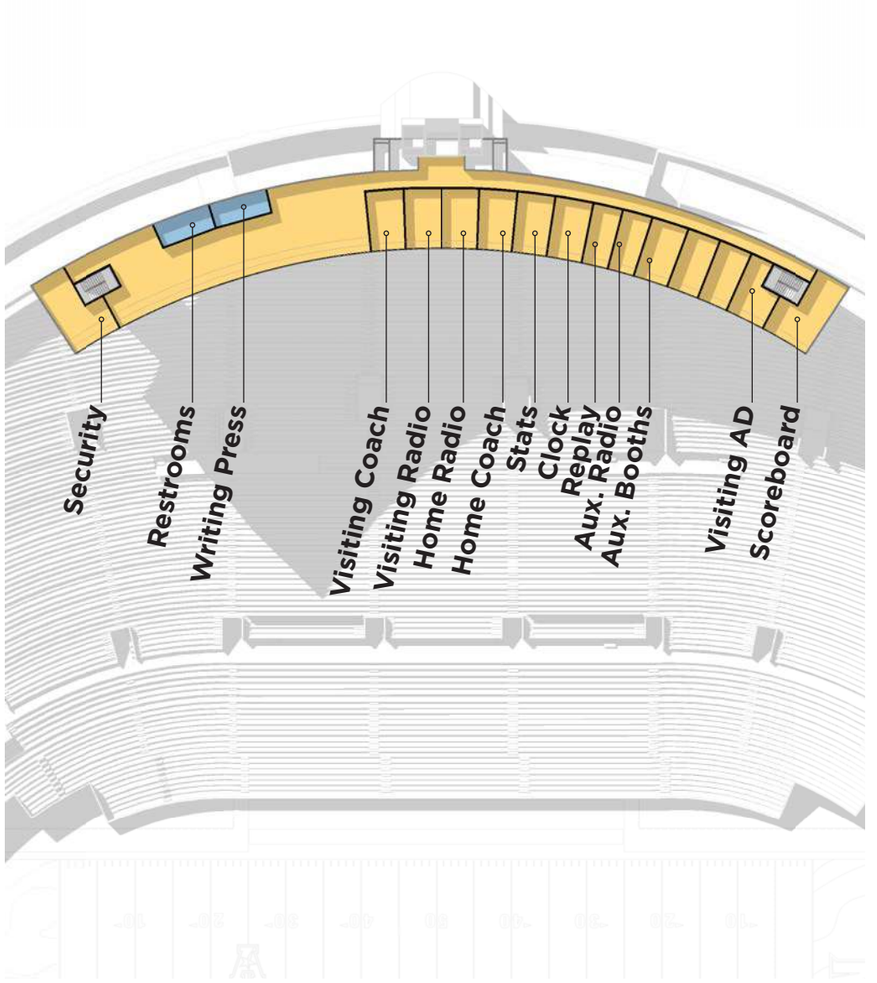
~ 10,900 SF

Total SF
- 21,800 SF

New - East Tower Press - Layout 2



Level 1 - Suites



Level 2 - Press

Level 1 - Suites

- 20 Total Suites
- 248 Seats
- 112 Barstools

~ 10,900 SF

Level 2 - Press

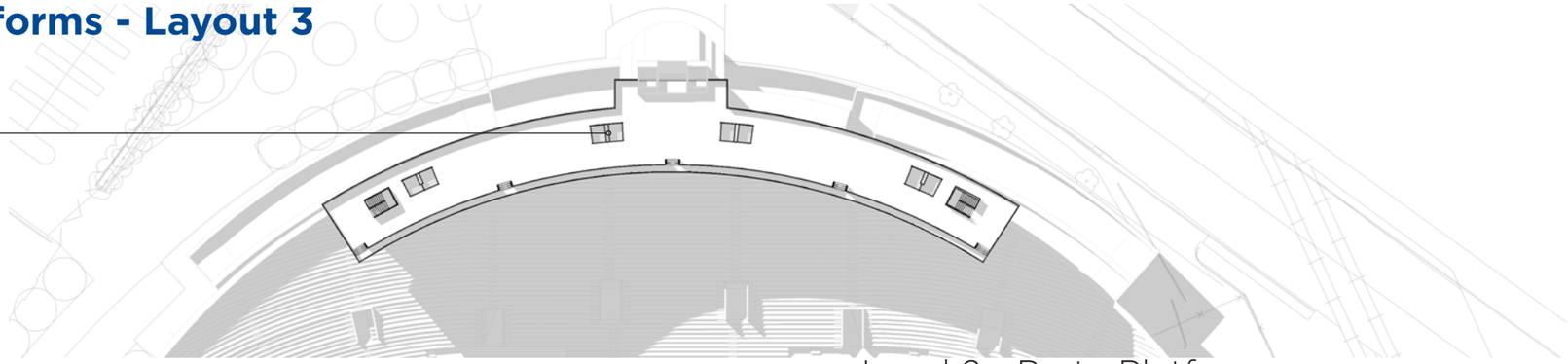
- 3 Aux. Suite/ Booths
- 11 8-Person Booths

~ 10,900 SF

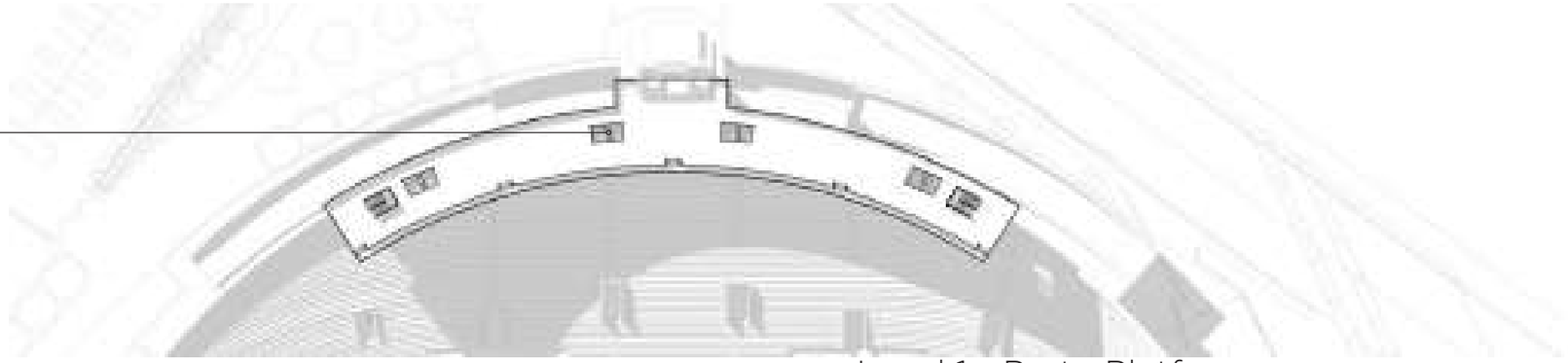
Total SF

- 21,800 SF

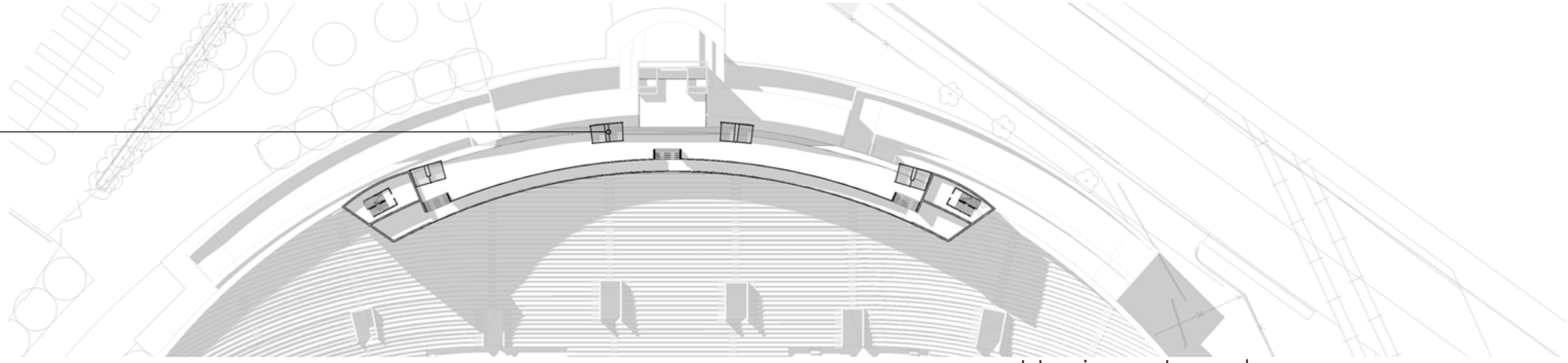
New - East Tower Platforms - Layout 3



Level 2 - Party Platform



Level 1 - Party Platform



Horizon Level

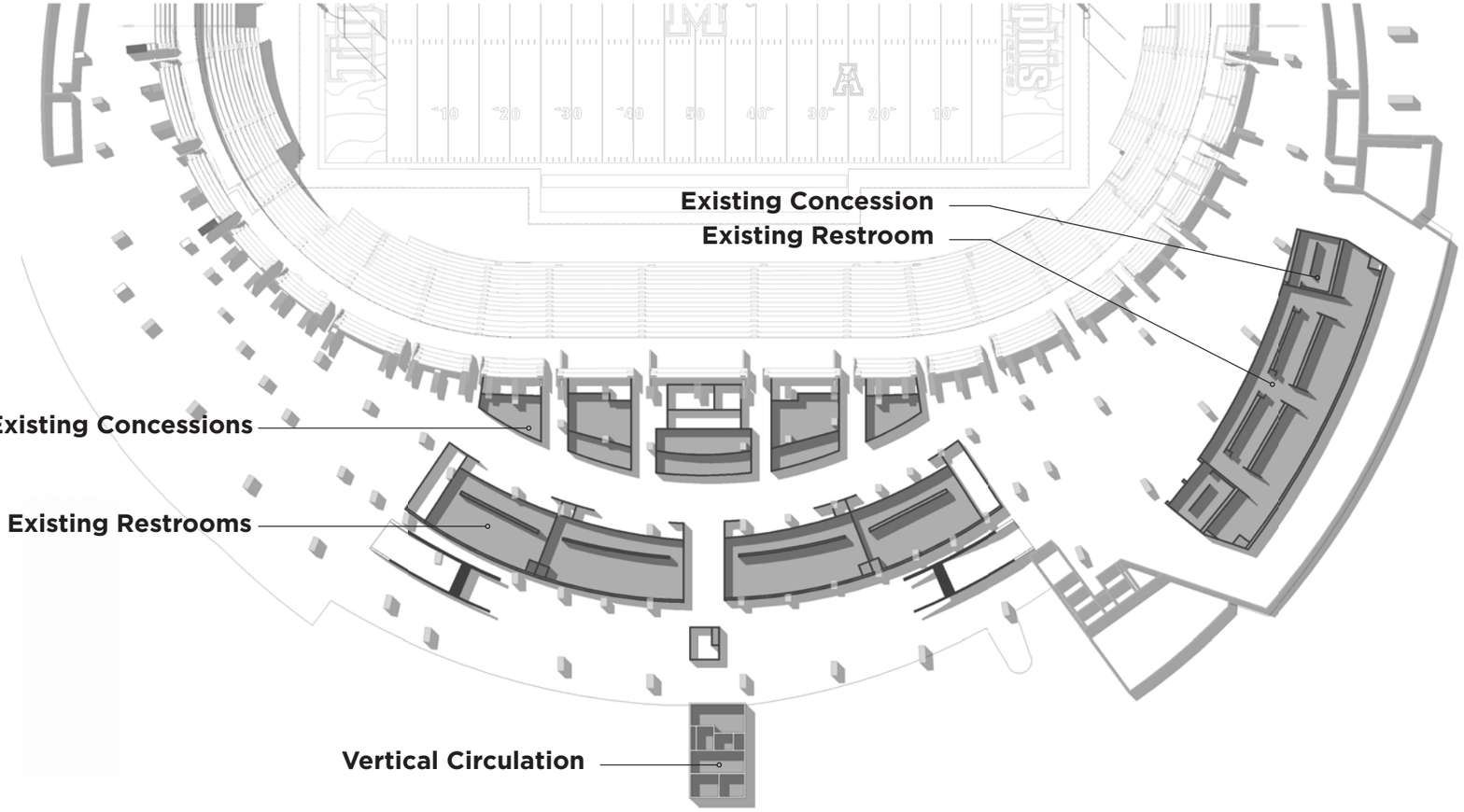
Level 1 - Platform
- 10,900 SF
- ~ 1,000 SRO

Level 2 - Platform
- 10,900 SF
- ~ 1,000 SRO

Horizon Level
- 1,050 SF
- ~ 100 SRO

Total SF
- 22,850 SF

Existing - West Main Concourse



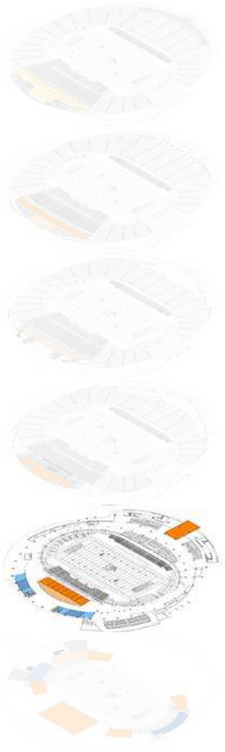
Concessions
- 4,700 SF

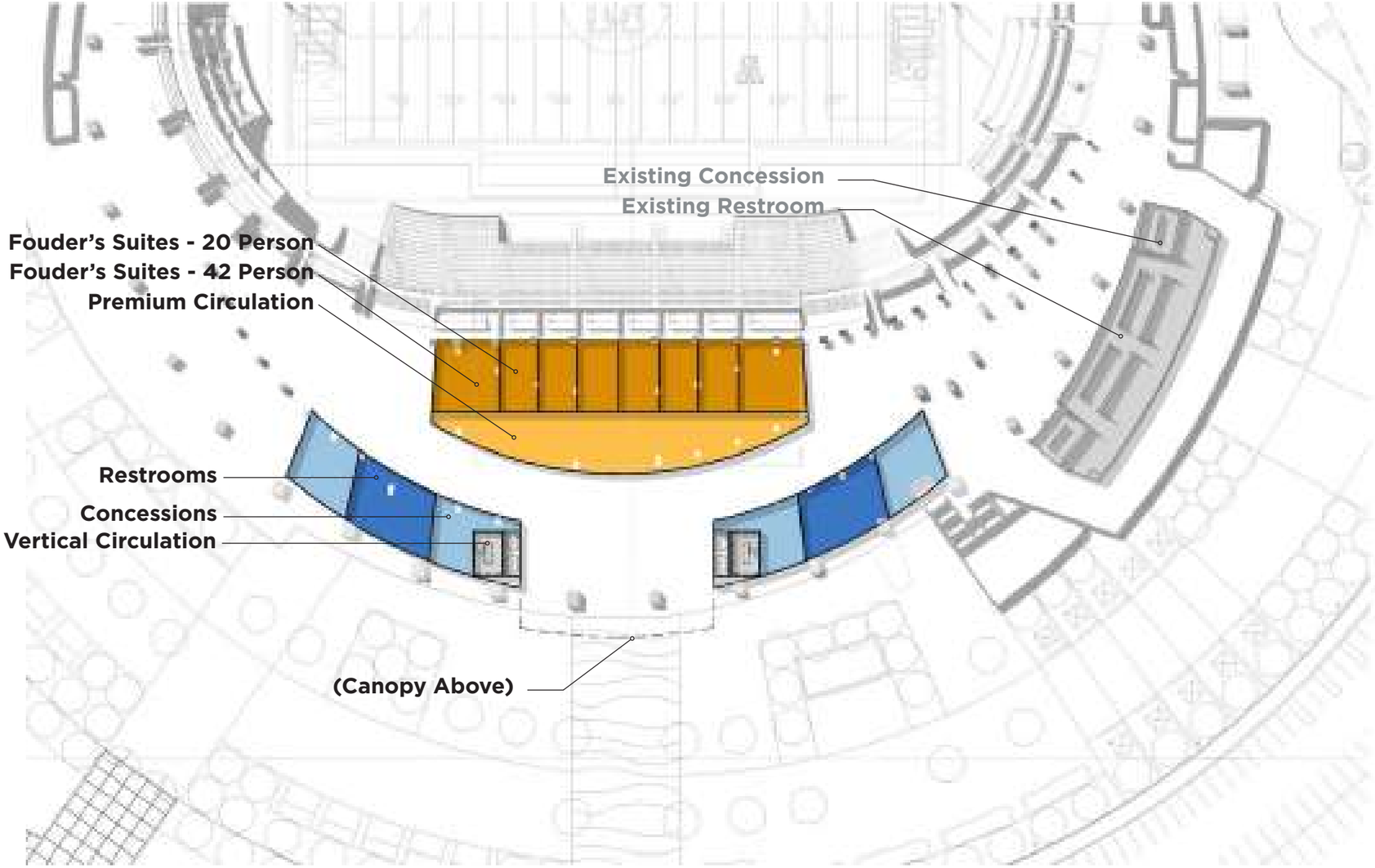
Restrooms
- 12,200 SF

Vertical Circulation
- 1,200 SF

Total SF
- 18,100 SF

New - West Main Concourse





Concessions
- 3,650 SF

Existing Concessions
- 1,000 SF

Restrooms
- 4,900 SF

Existing Restrooms
- 5,000 SF

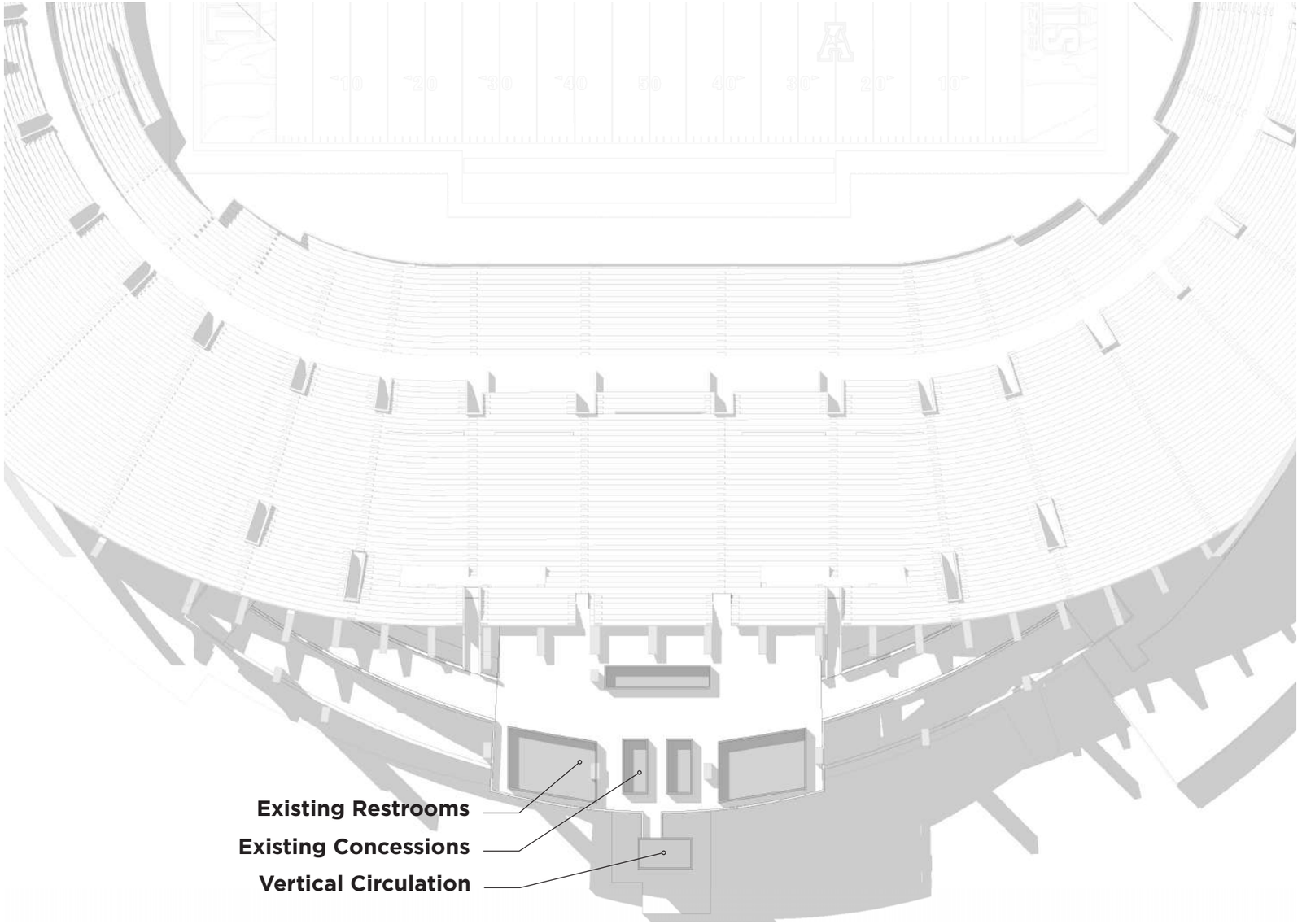
Vertical Circulation
- 1,200 SF

Founder's Suites
- 6 (20 Person)
- 2 (42 Person)
- ~ 7,900 SF

Premium Circulation
- 5,050 SF

Total SF
- 28,700 SF

Existing - West Upper Bowl

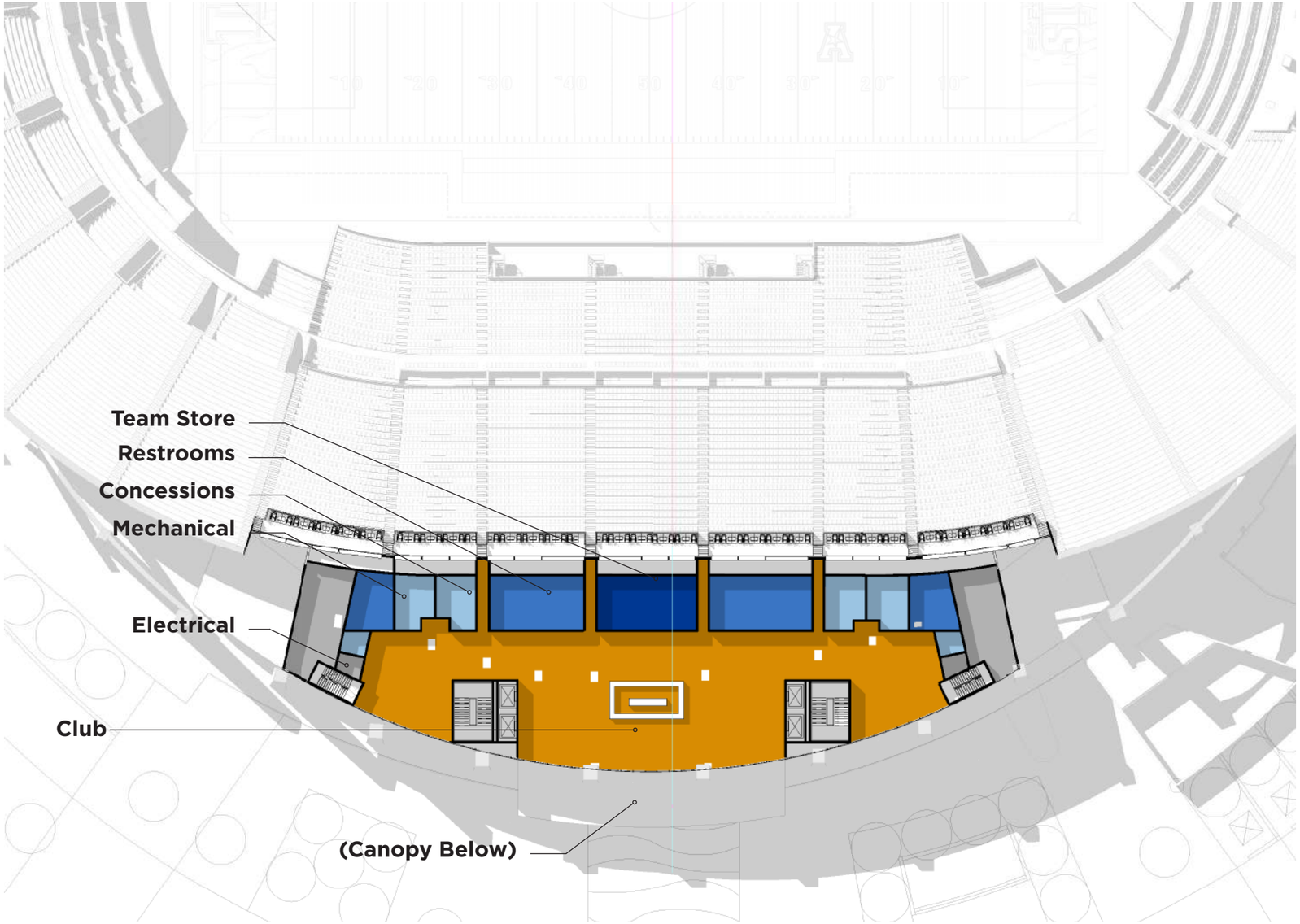


Concessions
- 700 SF

Restrooms
- 1,600 SF

Total SF
- 2,300 SF

New - West Upper Bowl Club



Club
- 9,600 SF

Restrooms
- 1,450 sf

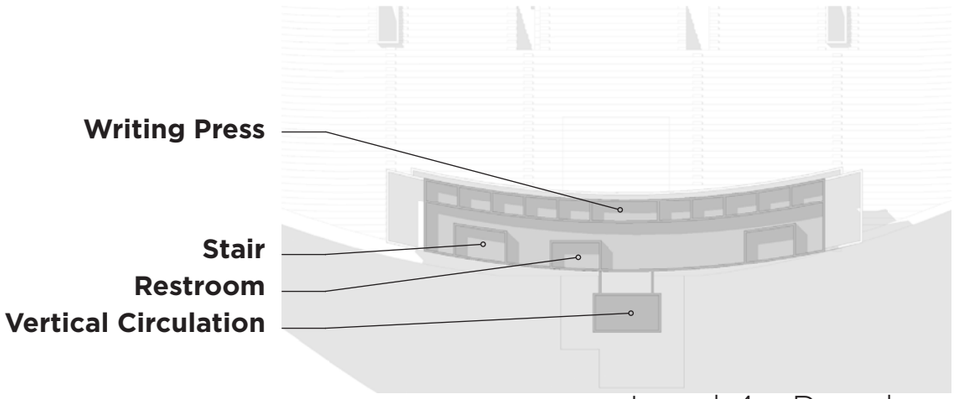
Concessions
- 2,450 SF

Team Store
- 850 SF

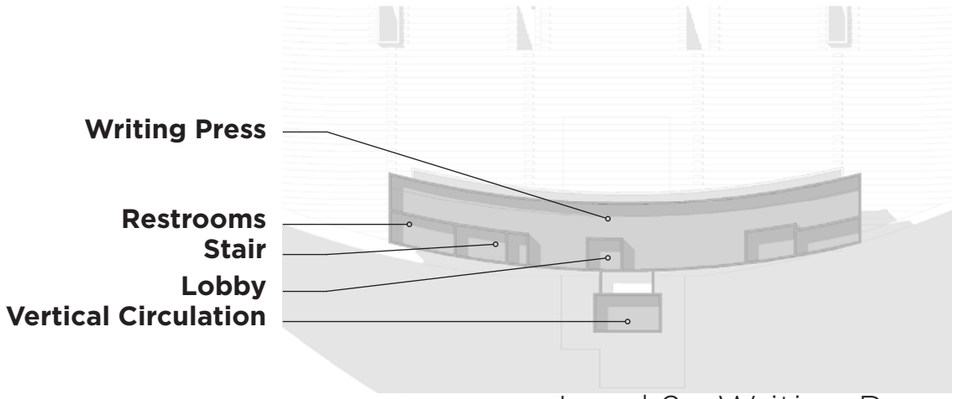
MEP
- 1,750 SF

Total SF
- 16,100 SF

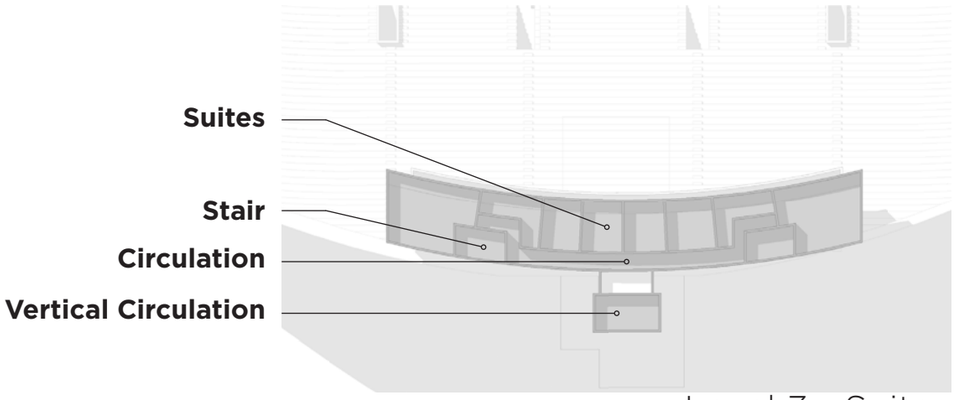
Existing - West Tower



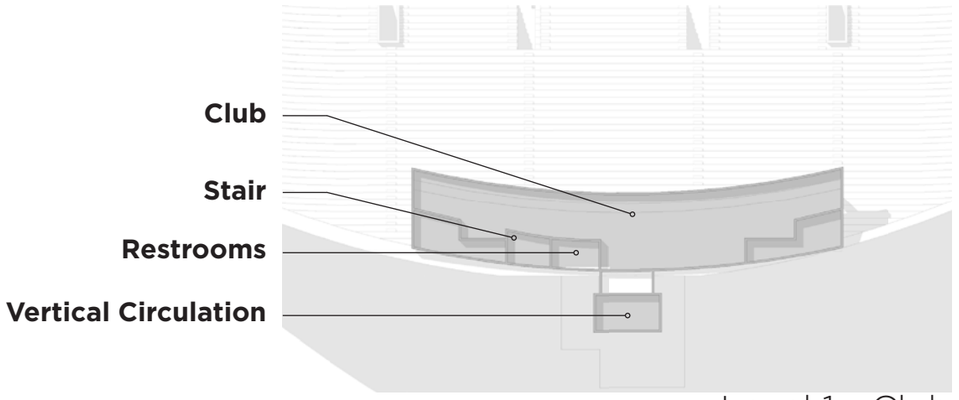
Level 4 - Pressbox



Level 2 - Writing Press



Level 3 - Suites



Level 1 - Club

Level 1 - Club
- 136 Seats
- 39 Barstools

~ 3,900 SF

Level 2 - Writing Press
- 73 Seats

~ 3,600 SF

Level 3 - Suites
- 8 Total Suites
- 66 Seats
- 39 Barstools

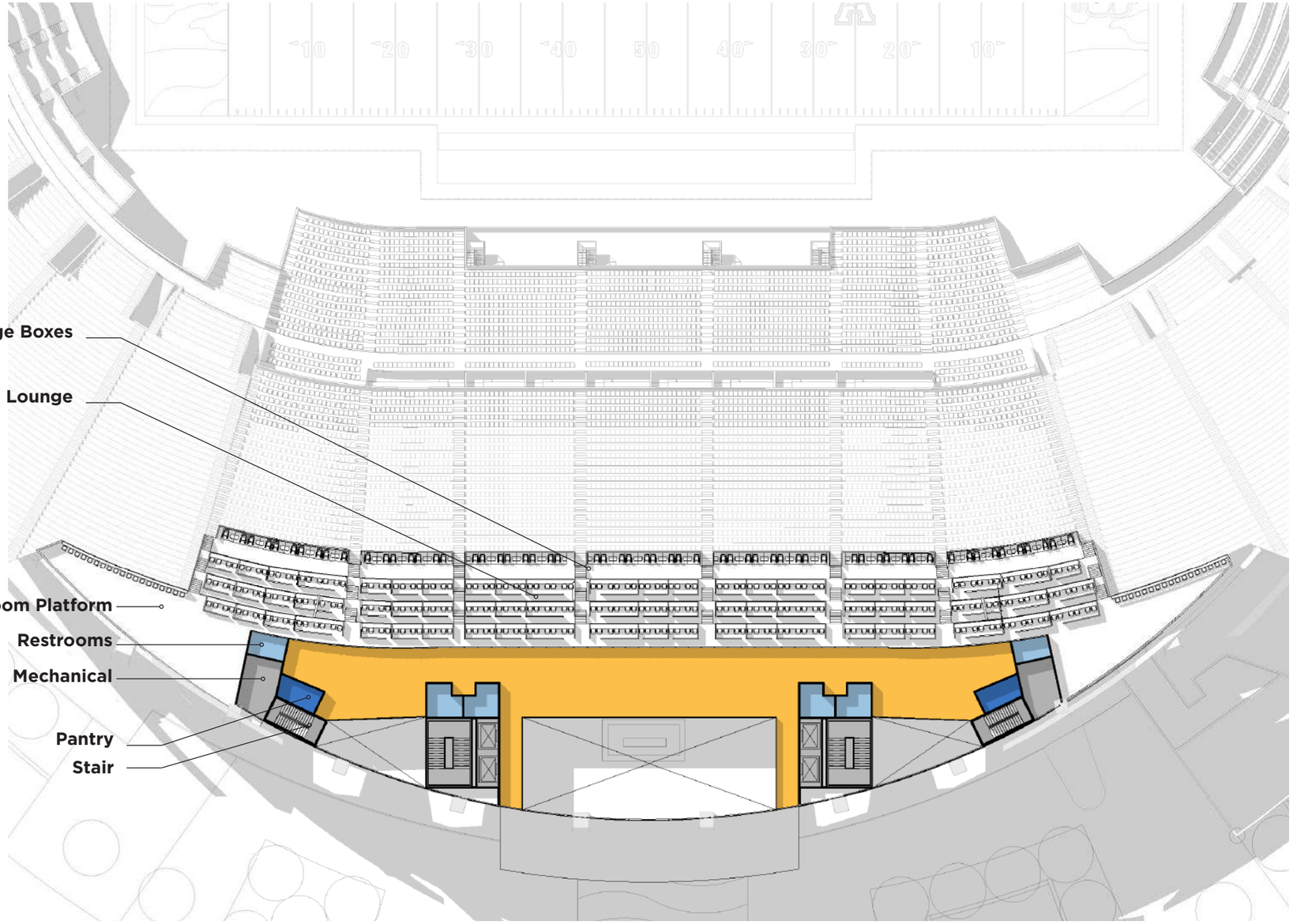
~ 3,800 SF

Level 4 - Press Box
- 37 Seats

~ 3,400 SF

Total SF
- 14,700 SF

New - West Tower Loge Boxes



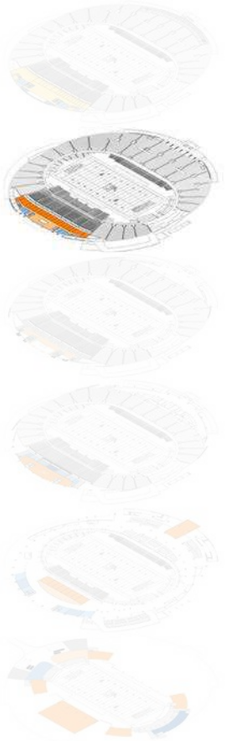
Loge Boxes:

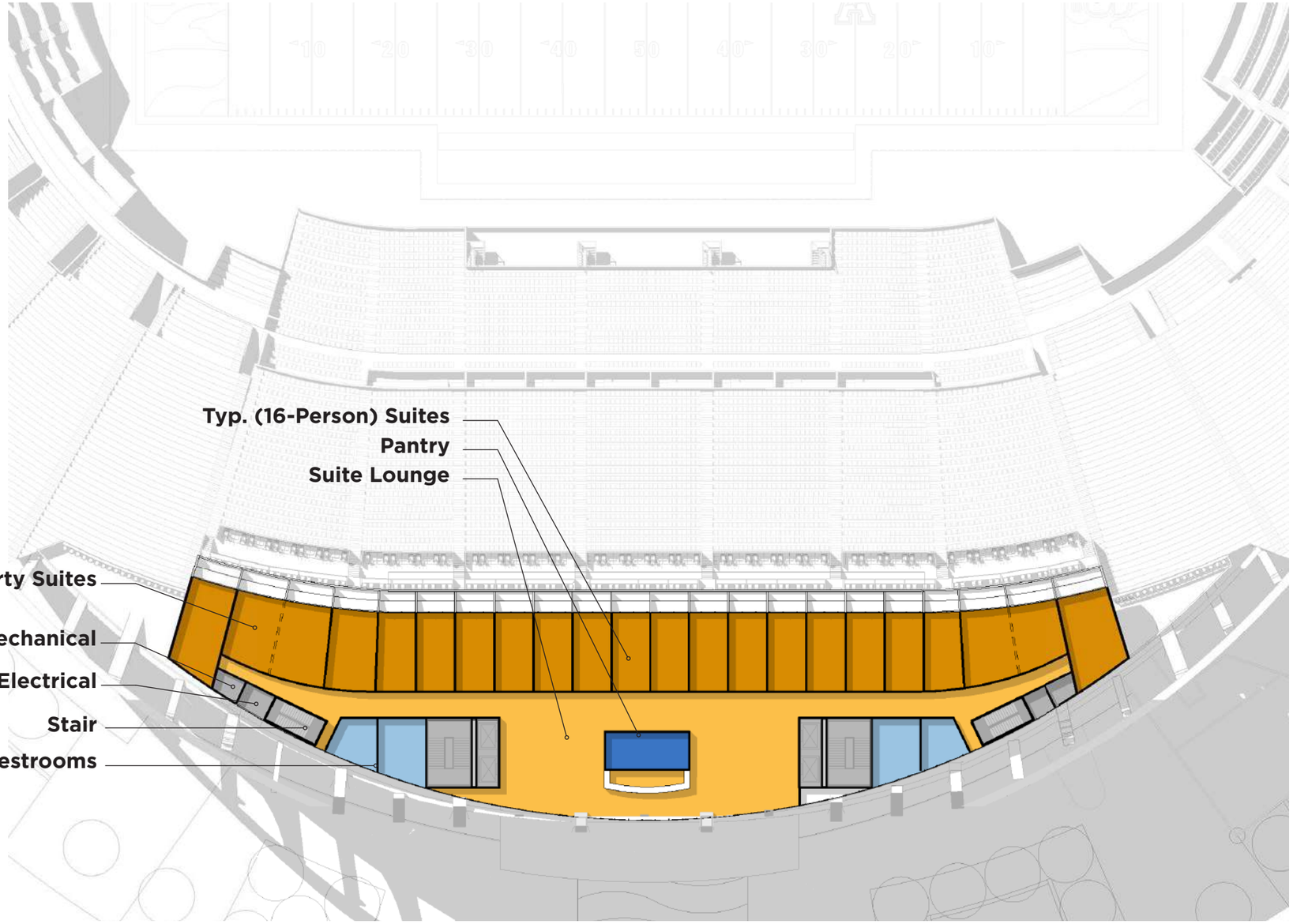
- 66 4-Seat (264 Total)
- 10 8-Seat (80 Total)
- 2 24-Person SRO (48 Total)

Total SF

- 13,100 SF

New - West Tower Club & Suites





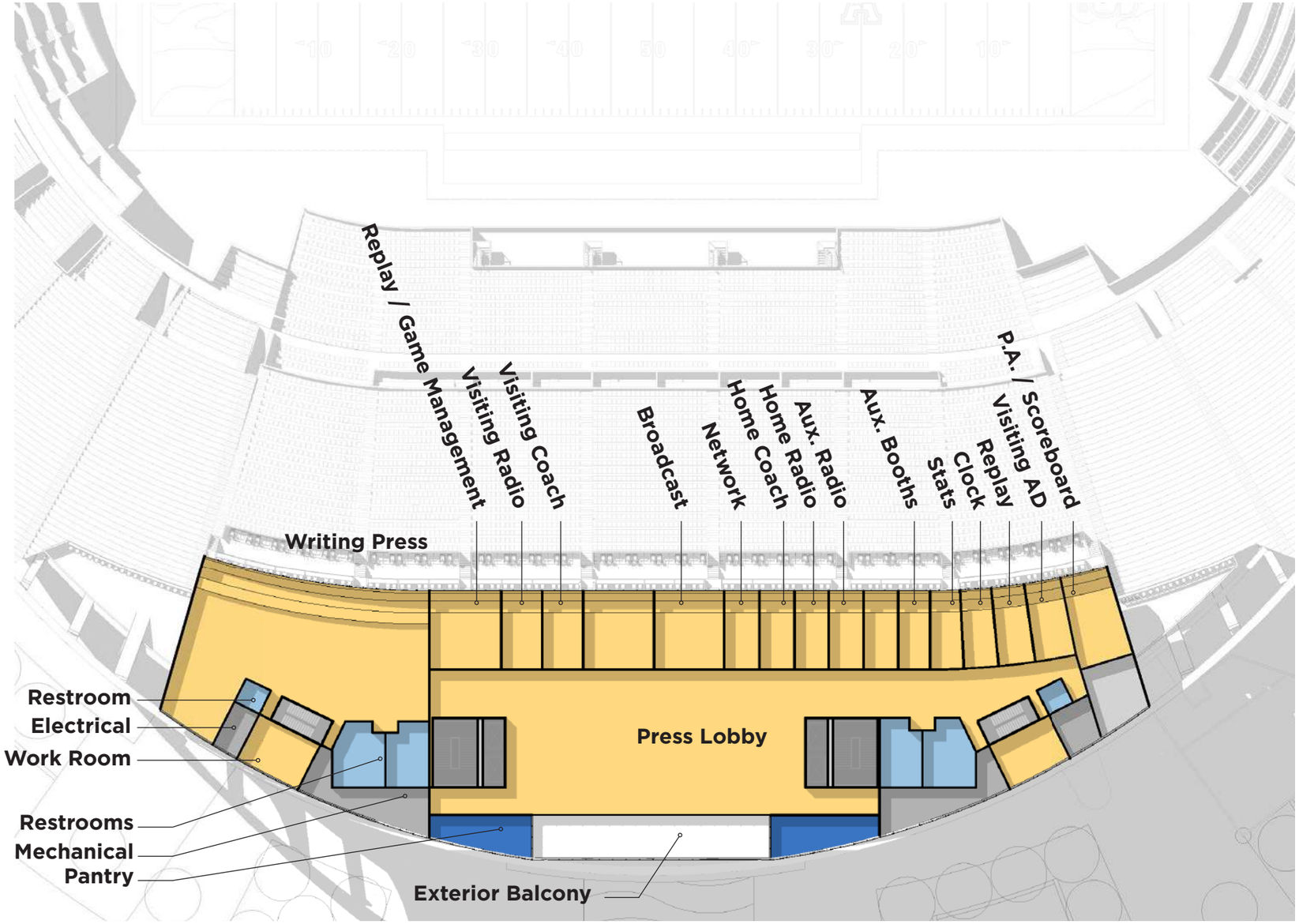
Suites:

- 6 20-Person Party Suites (120 Total)
- 16 16-Person Suites (256 Total)

Total SF

- 19,000 SF

New - West Tower Press - Layout 1



Press:

- 10 8-Person Press Booths (80 Total)
- Writting Press (124 Total)

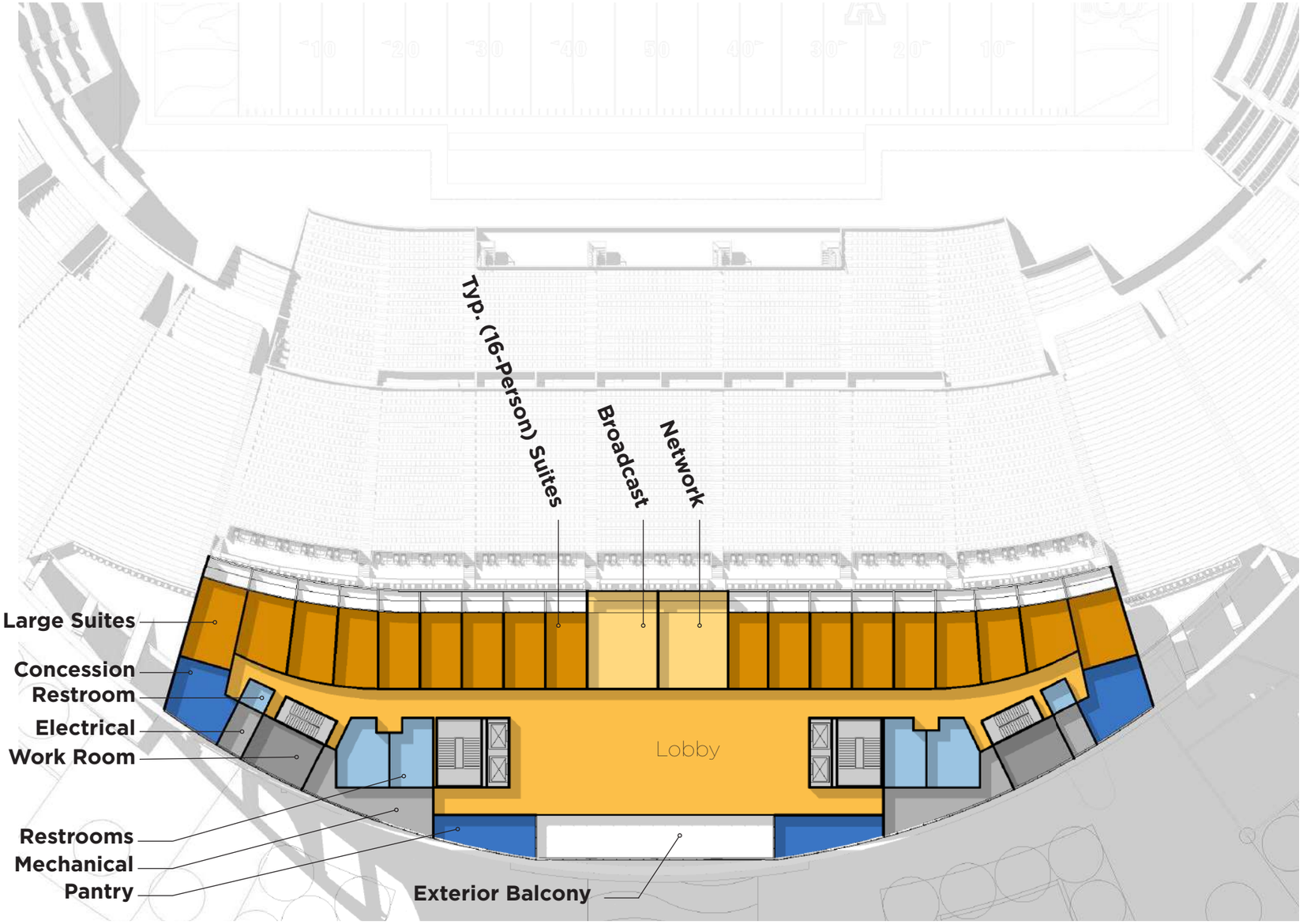
Suites:

- 3 8-Person Aux. Booth/Suite (24 Total)
- 1 Visiting AD 16-Person Suite

Total SF

- 26,000 SF

New - West Tower Press & Suites - Layout 2



Press:

- Broadcast & Network booths

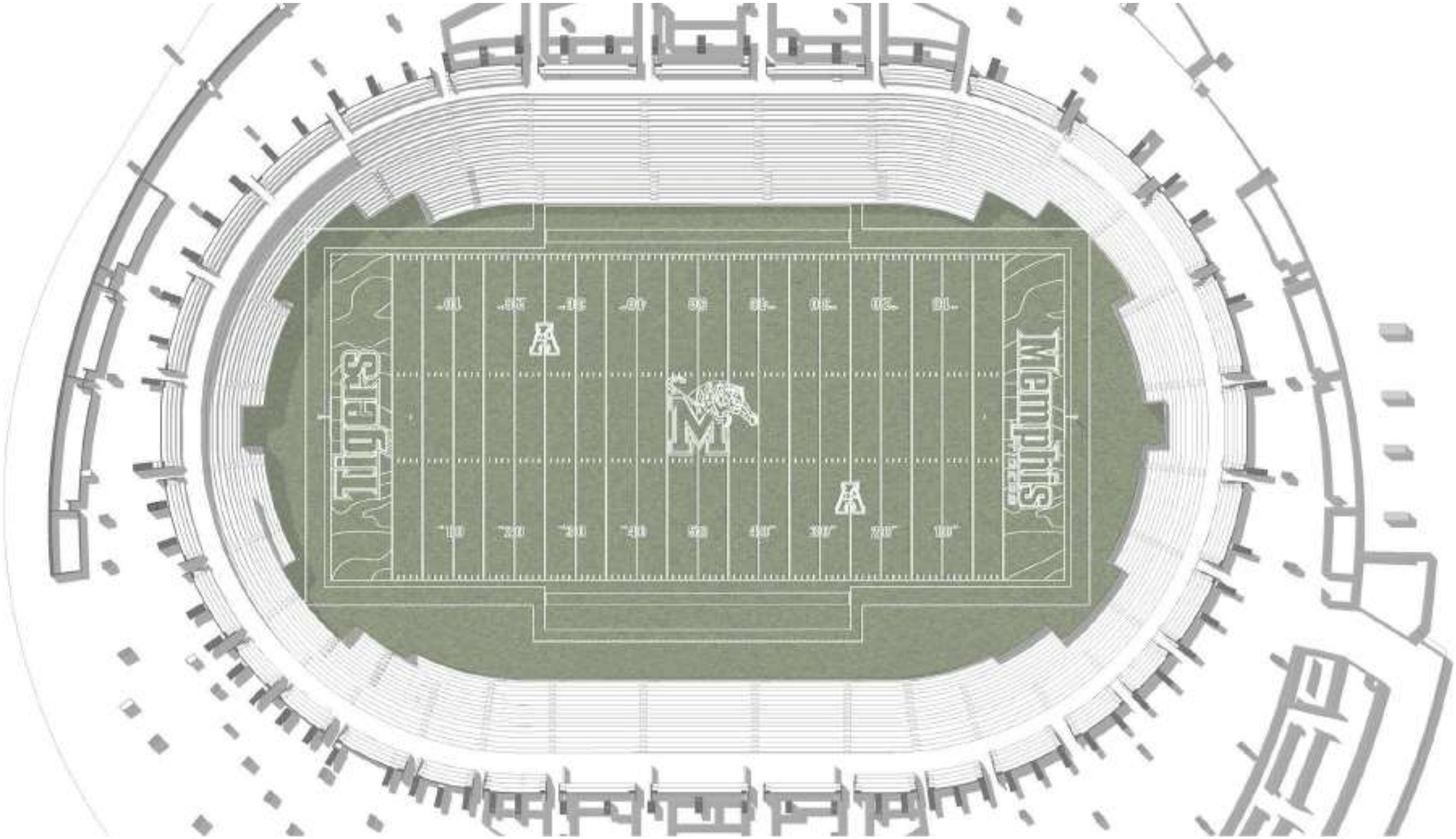
Suites:

- 16 16-Person Suites (256 Total)
- 2 20-Person Suites

Total SF

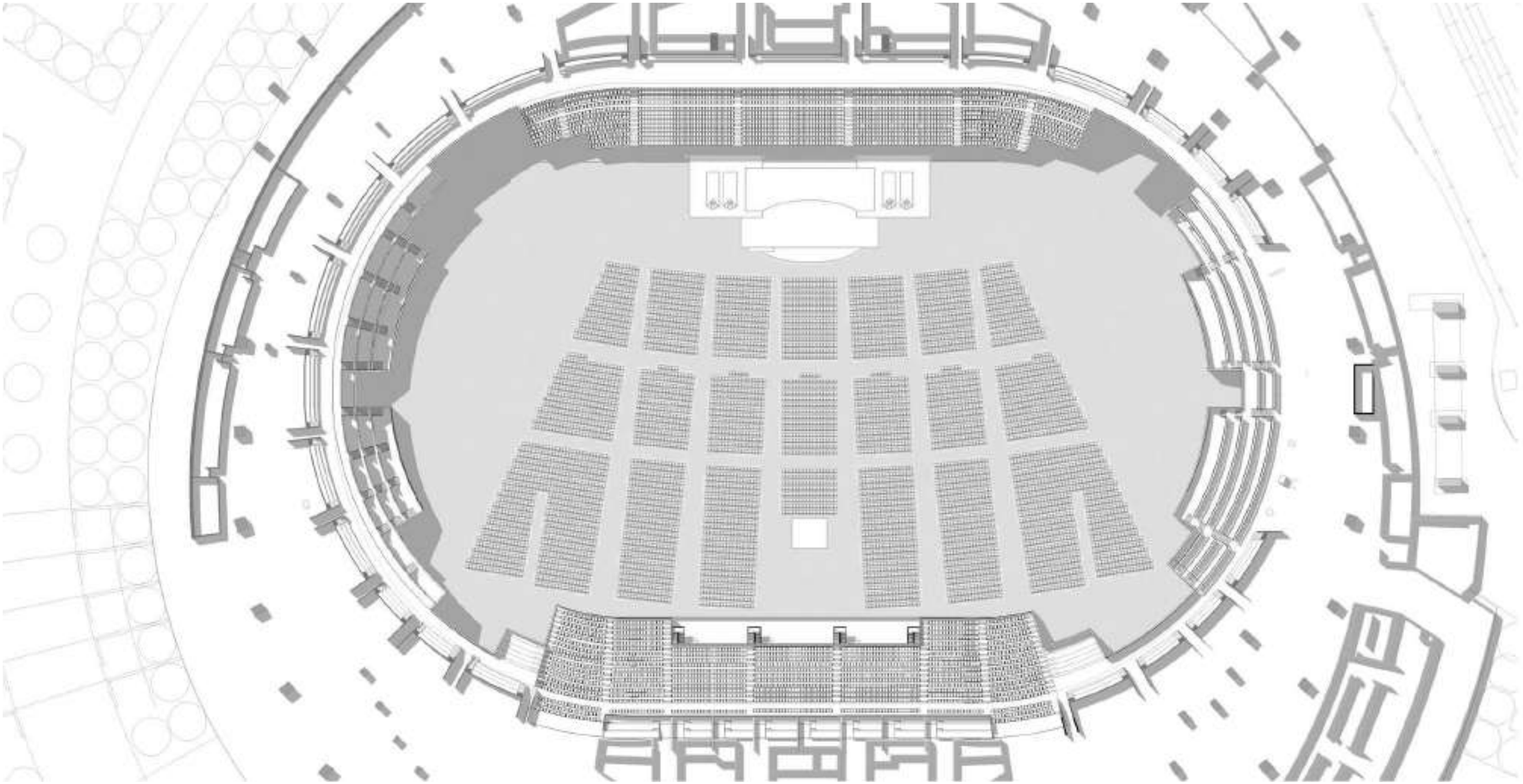
- 26,000 SF

Master Plan **Existing - Lower Bowl**

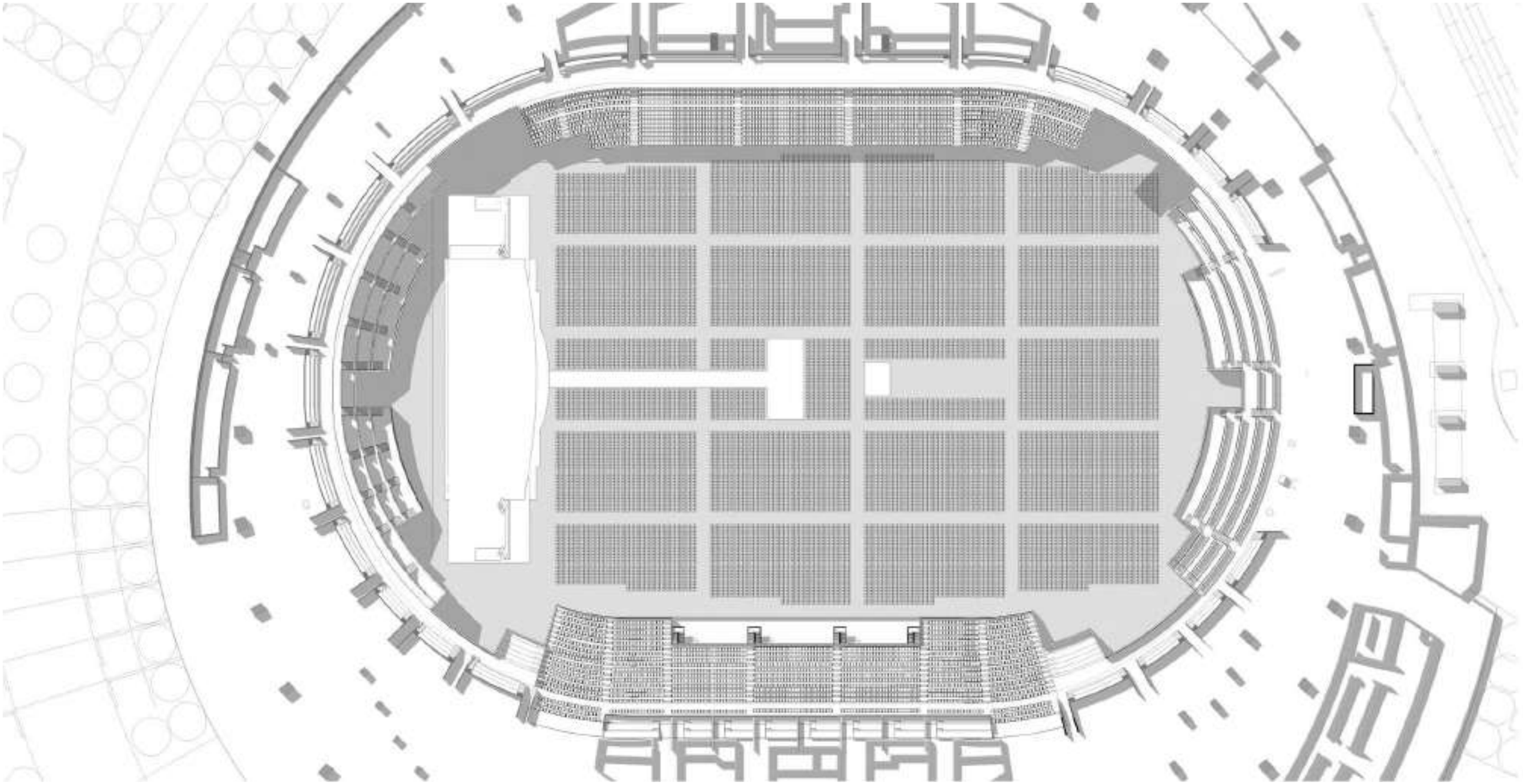


Master Plan **New - Lower Bowl with Soccer Pitch**

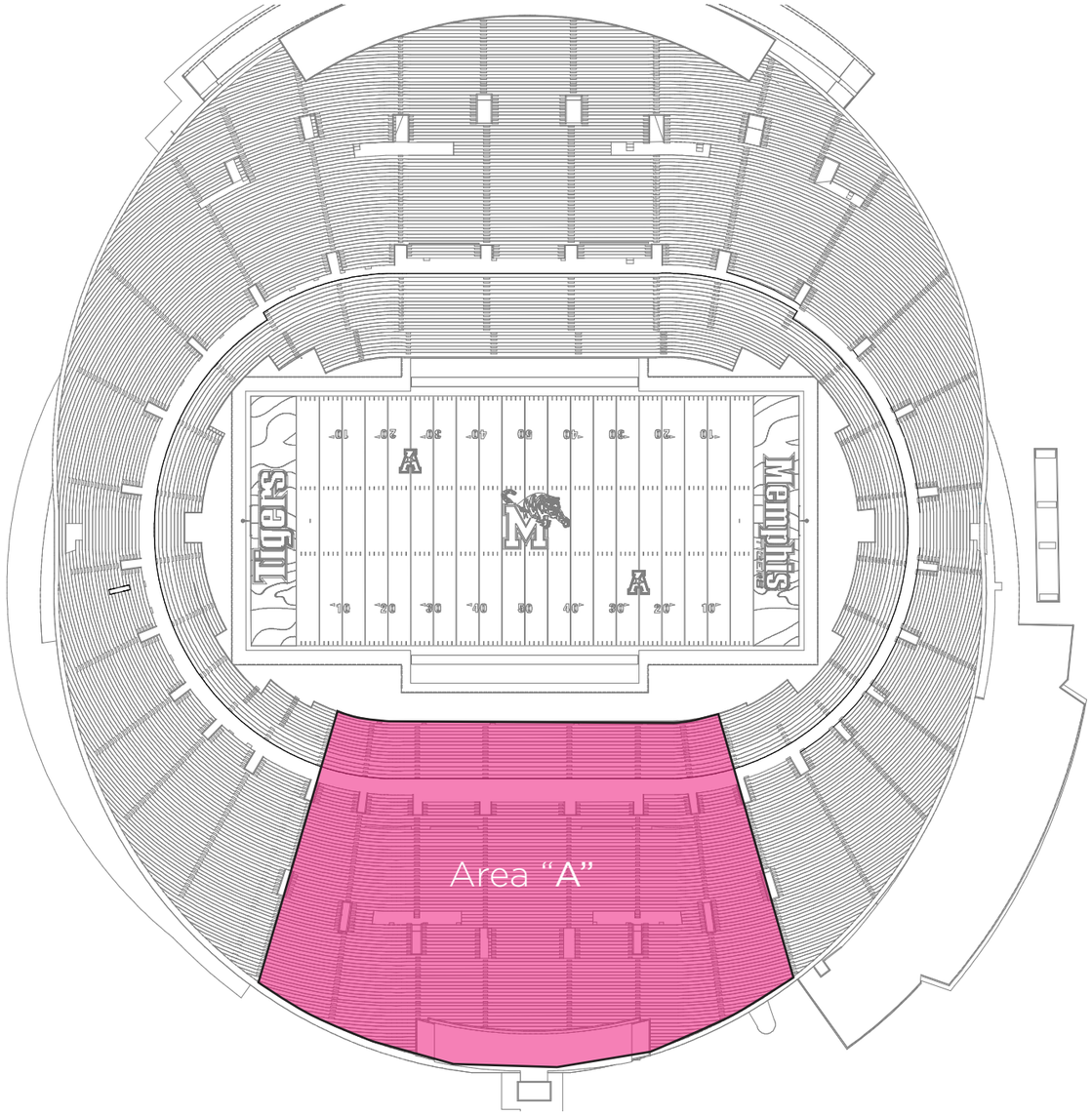
Master Plan **New - Center Stage Layout**



Master Plan **New - End Stage Layout**

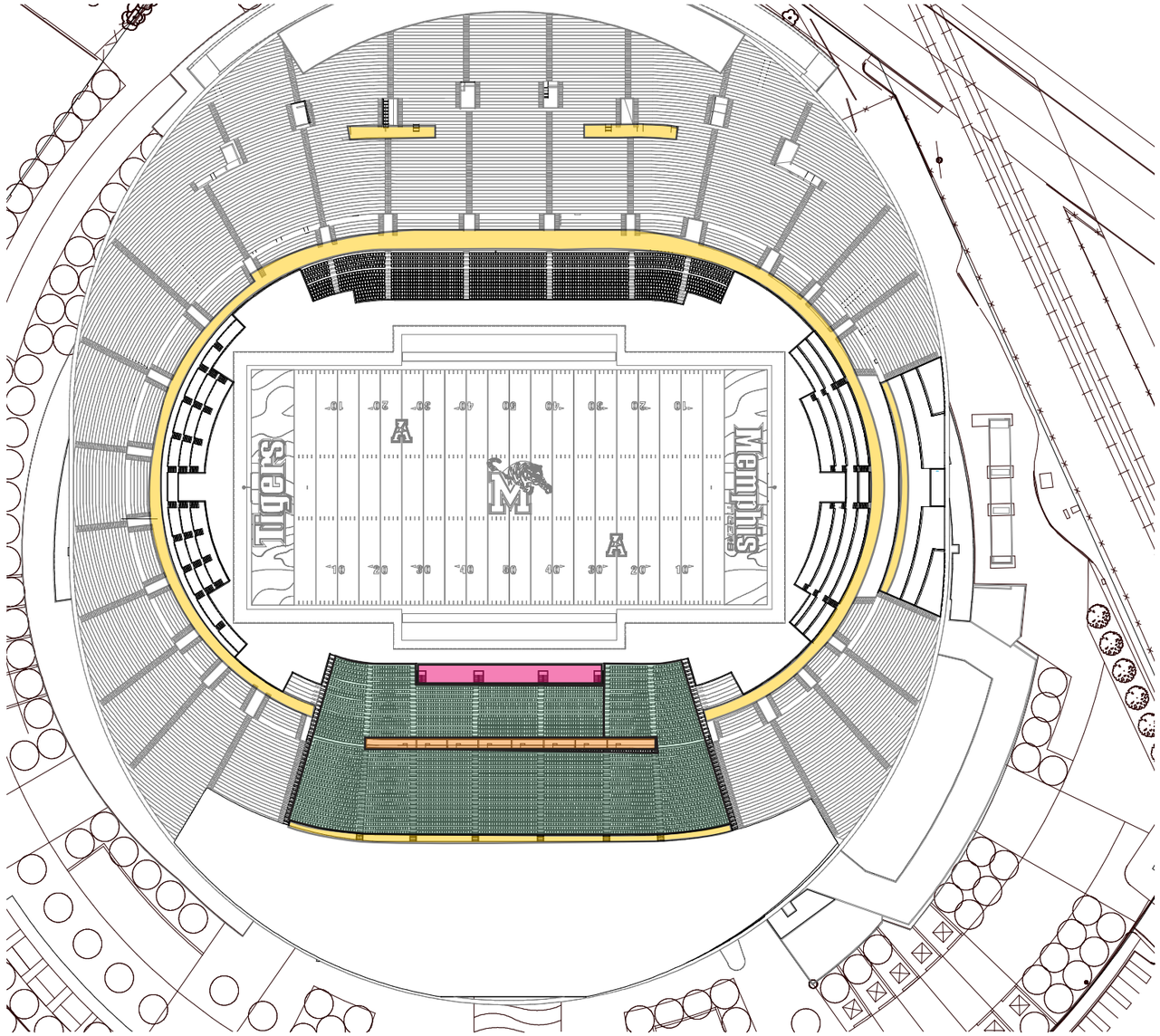


Existing - Seating



Exsting Seat Count	58,281 seats
Area “A” deduction	-7,248 seats
Area “A” ADA deduction	-76 ADA + Comp.
Total	50,937 seats

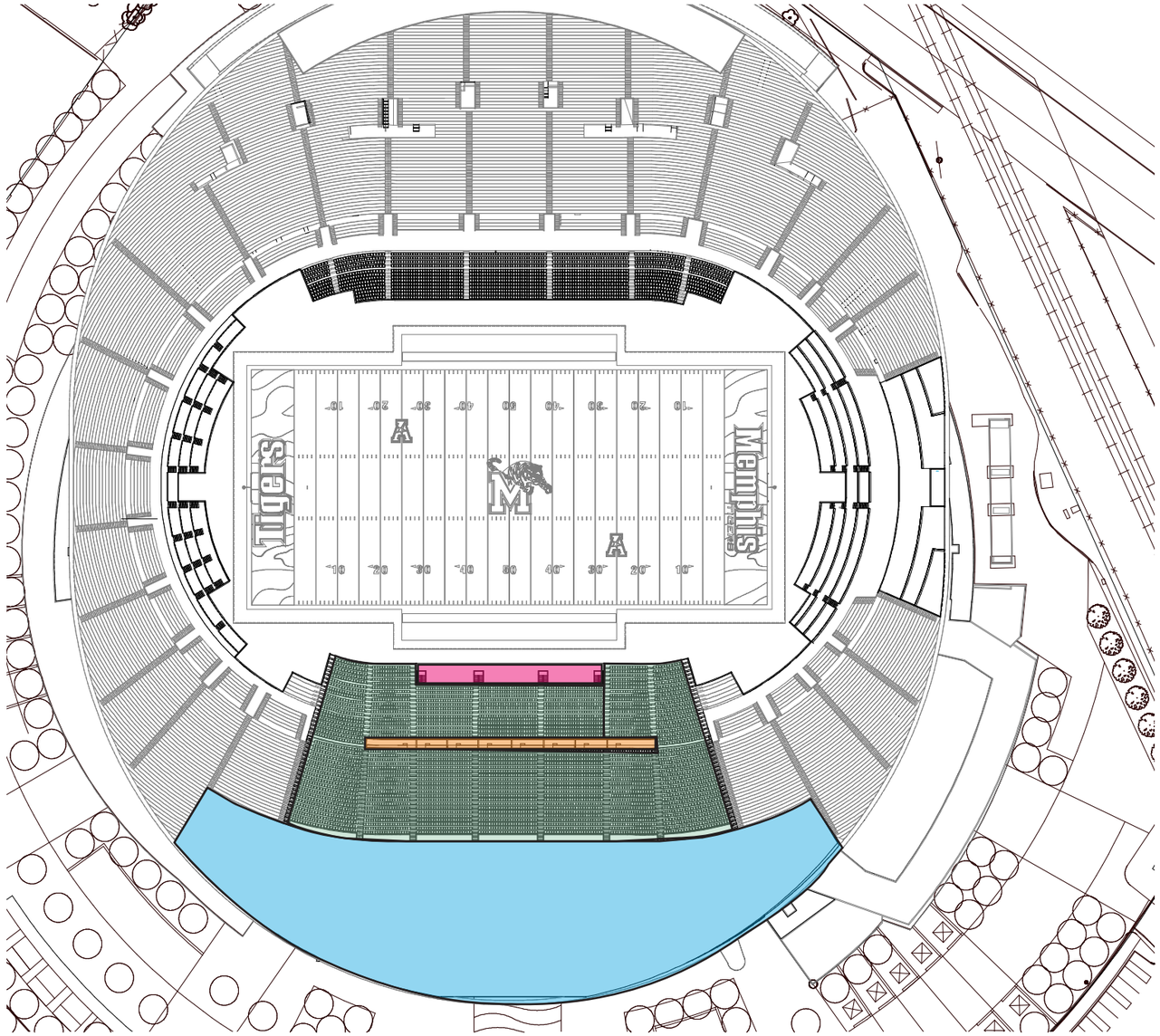
New - Seating



Seat Count after demolition	50,937 seats
Field Club	+804 seats
Founder Suite	+128 seats
Field Reserve	+3,180 seats
New Total	55,137 seats

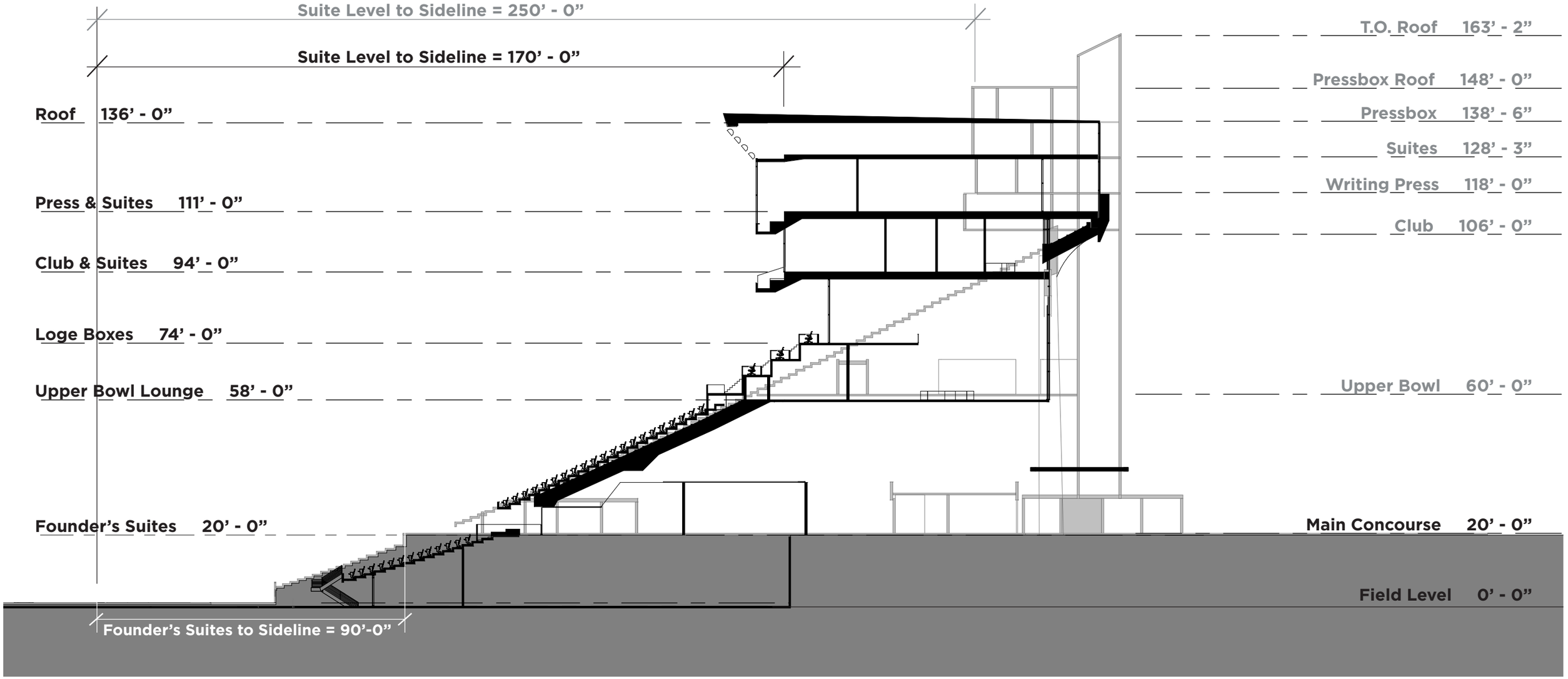
Existing ADA count	287 WC / 287 Comp.
	-76 WC/ -76 COMP. From west bowl demolition +62 WC/ +62 COMP. From new west addition +26 WC/ +26 COMP. From south SRO addition
New Total	299 WC/ 299 COMP

New - Seating

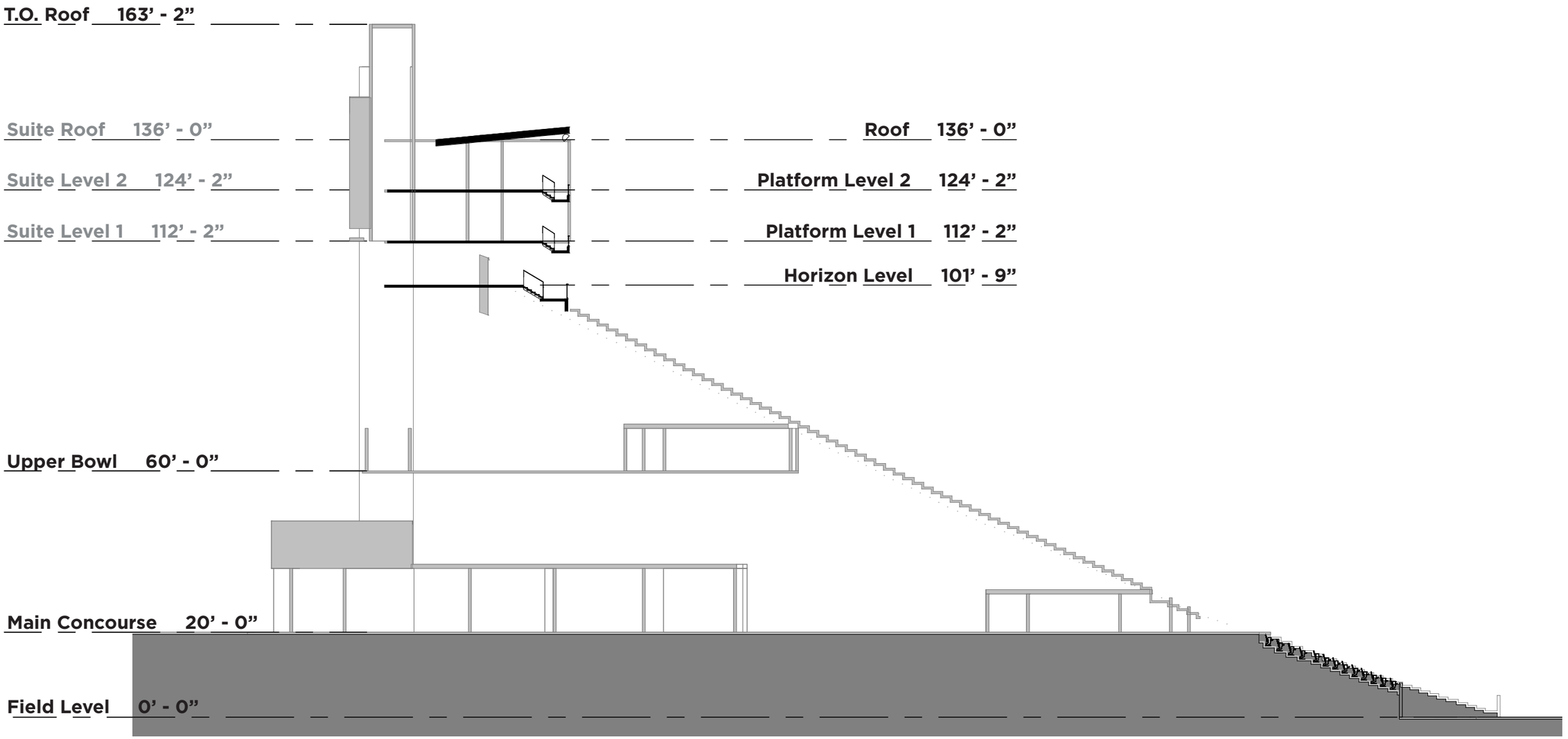


Seat Count after demolition	50,937 seats
Field Club	+804 seats
Founder Suite	+128 seats
Field Reserve	+3,180 seats +62 WC / 62 Comp.
Loges	+304 seats
Suite Level	+548 seats
Media / Suite Level	+168 seats
New Total	56,576 seats

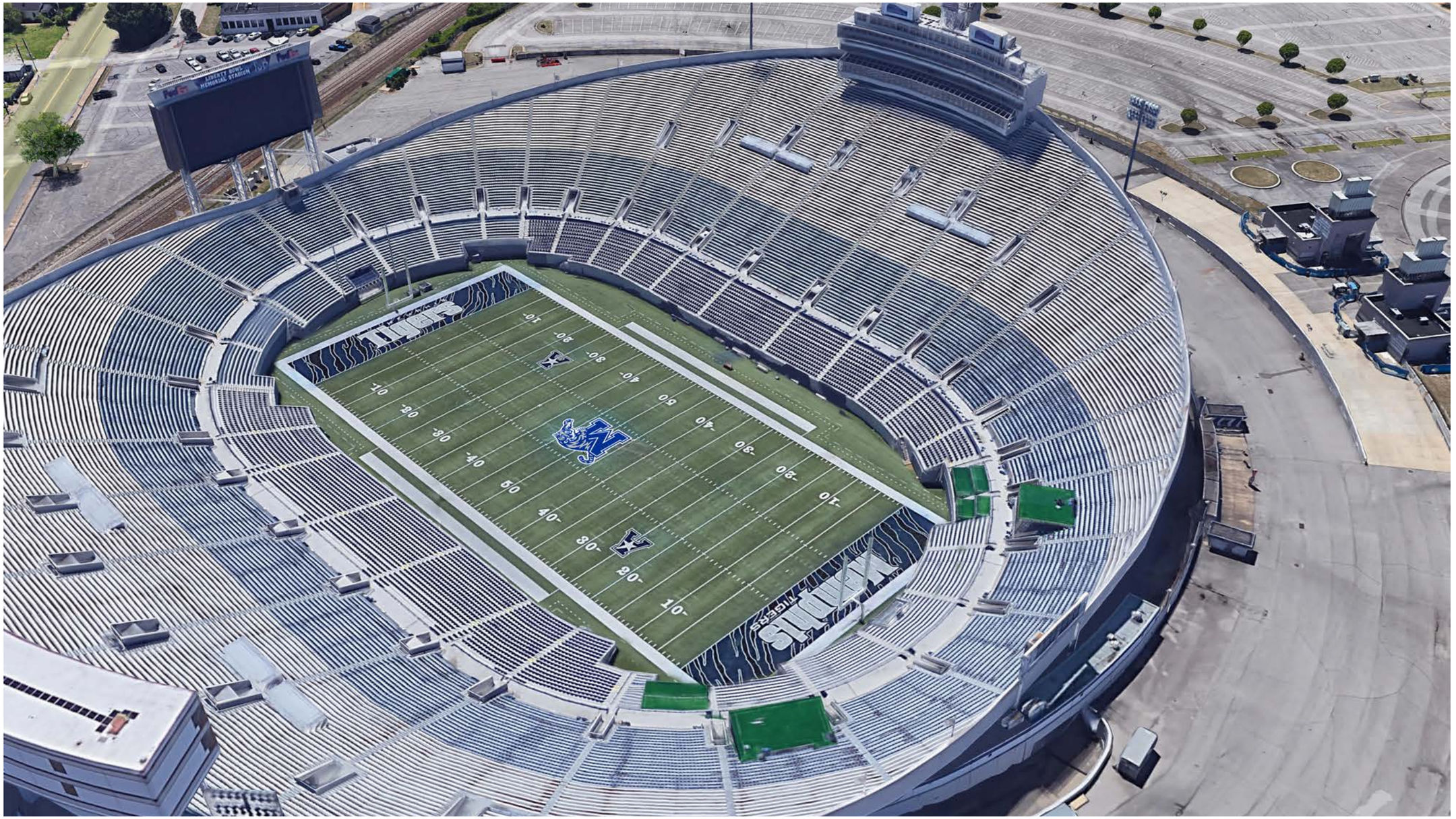
West Building Section - Existing vs. New



East Building Section - Existing vs. New



Renderings **View 1 - Existing**

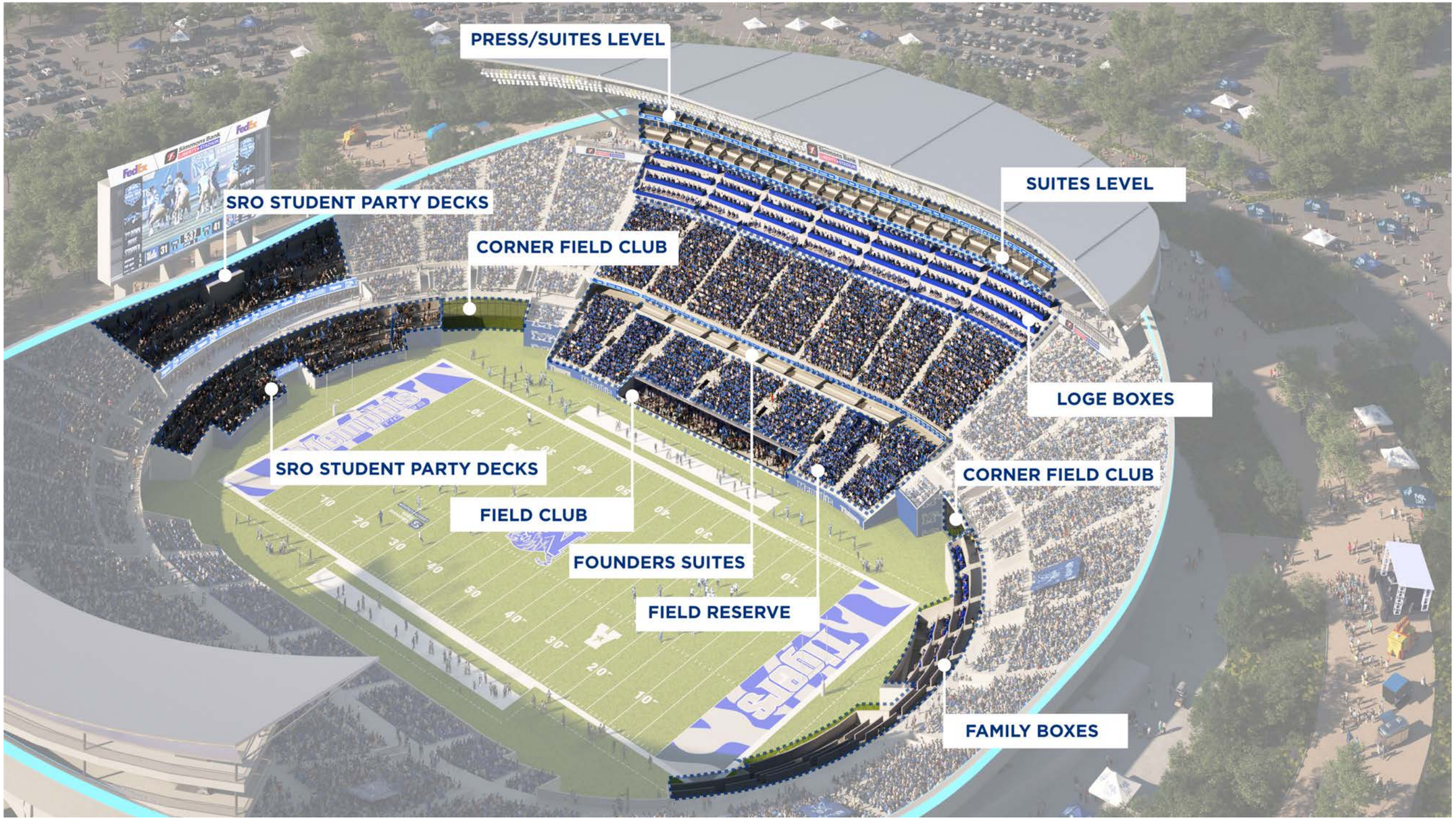


Renderings **View 1 - Game Day**

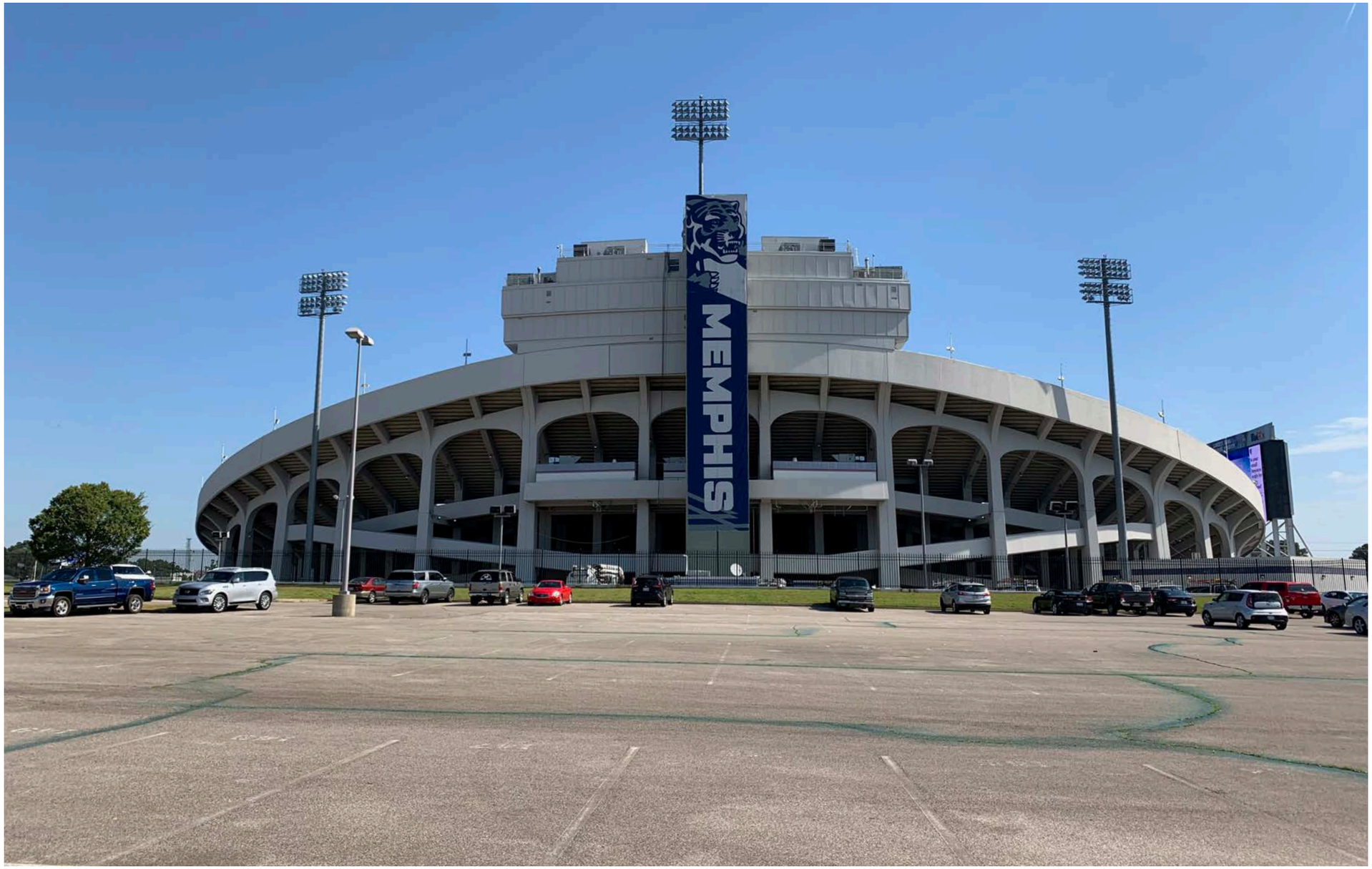
Renderings **View 1 - AutoZone Liberty Bowl**

Renderings **View 1 - Southern Classic**

Renderings **View 1 - Premium Seating**

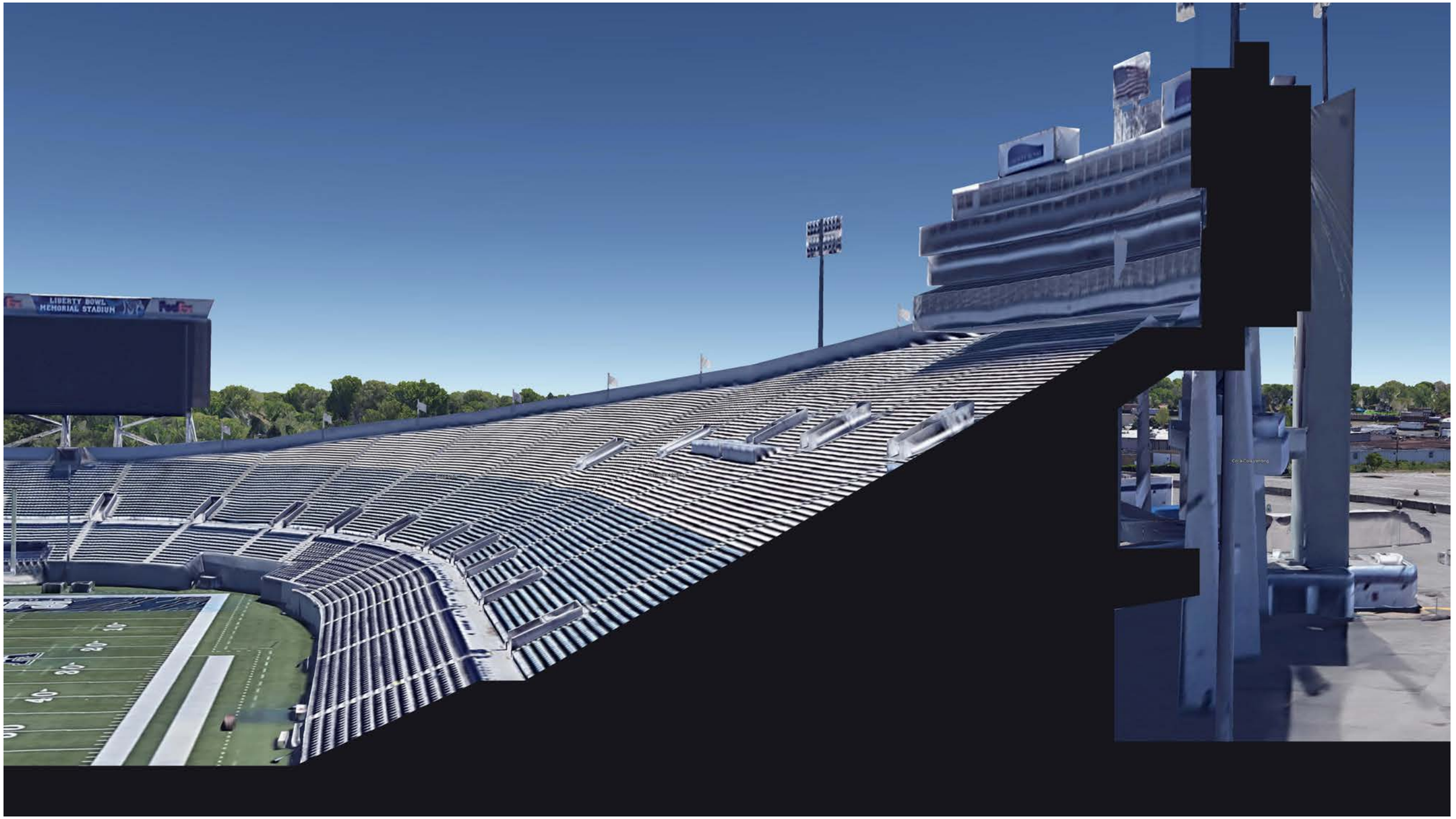


Renderings **View 2 - Existing**



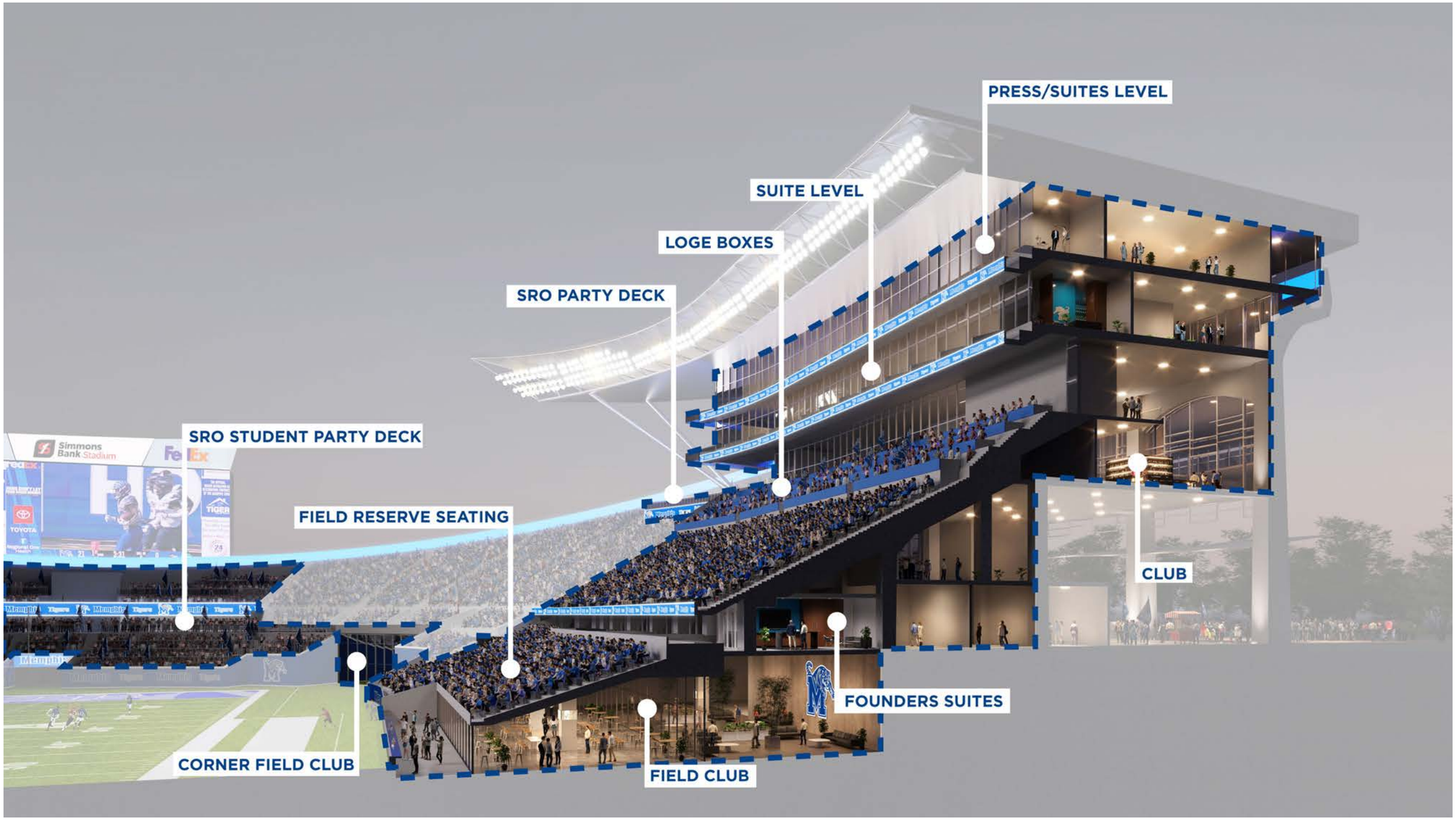
Renderings **View 2 - Tiger Tail Entry**

Renderings **View 3 - Existing**



Renderings **View 3 - 50 Yard Line West Side Section**

Renderings **View 3 - Premium Seating**

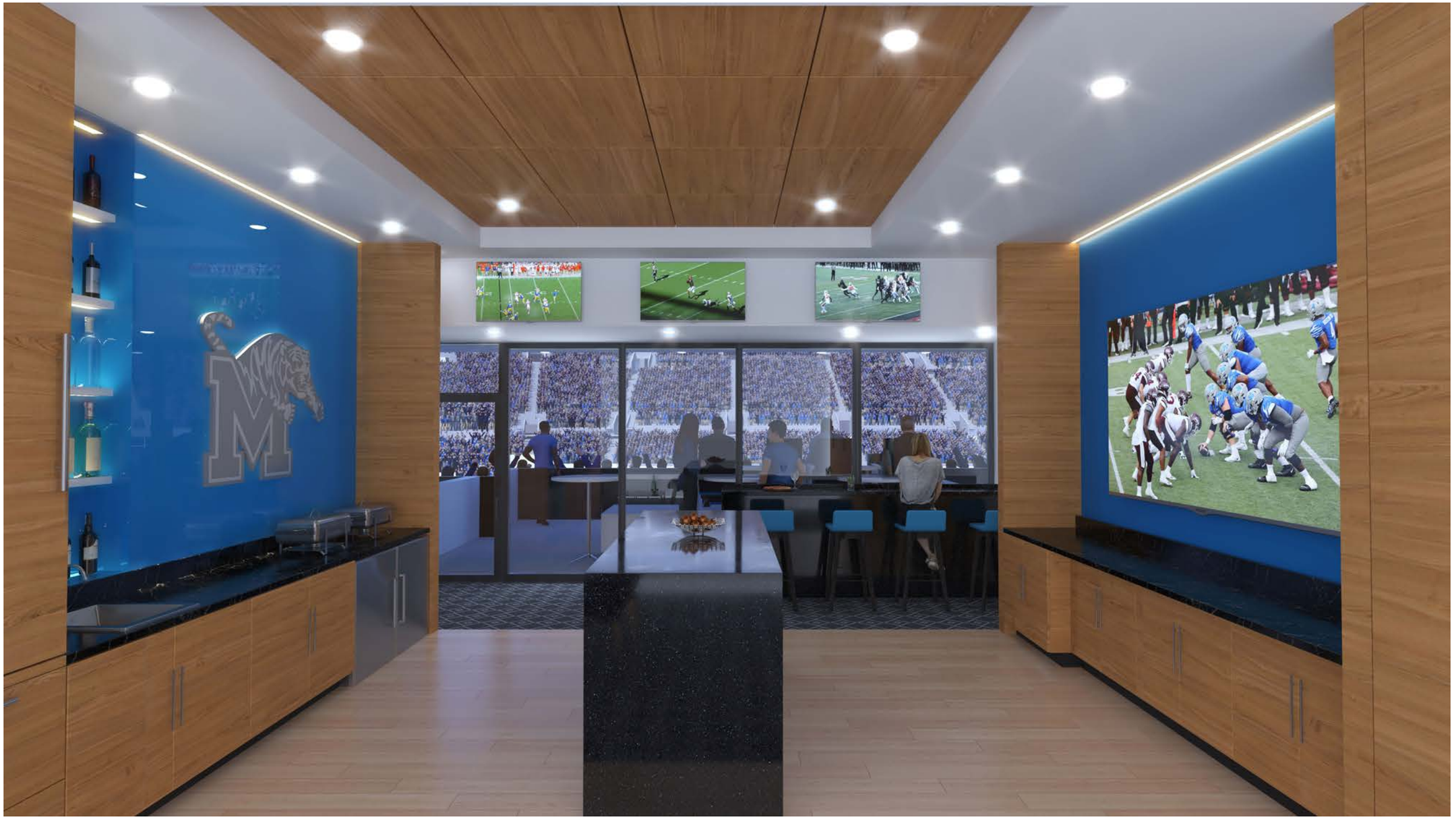


Renderings **View 4 - Existing**

Renderings **View 4 - Aerial**

Renderings **View 4 - Activated Halo**

Renderings **View 5 - Founder's Suite**



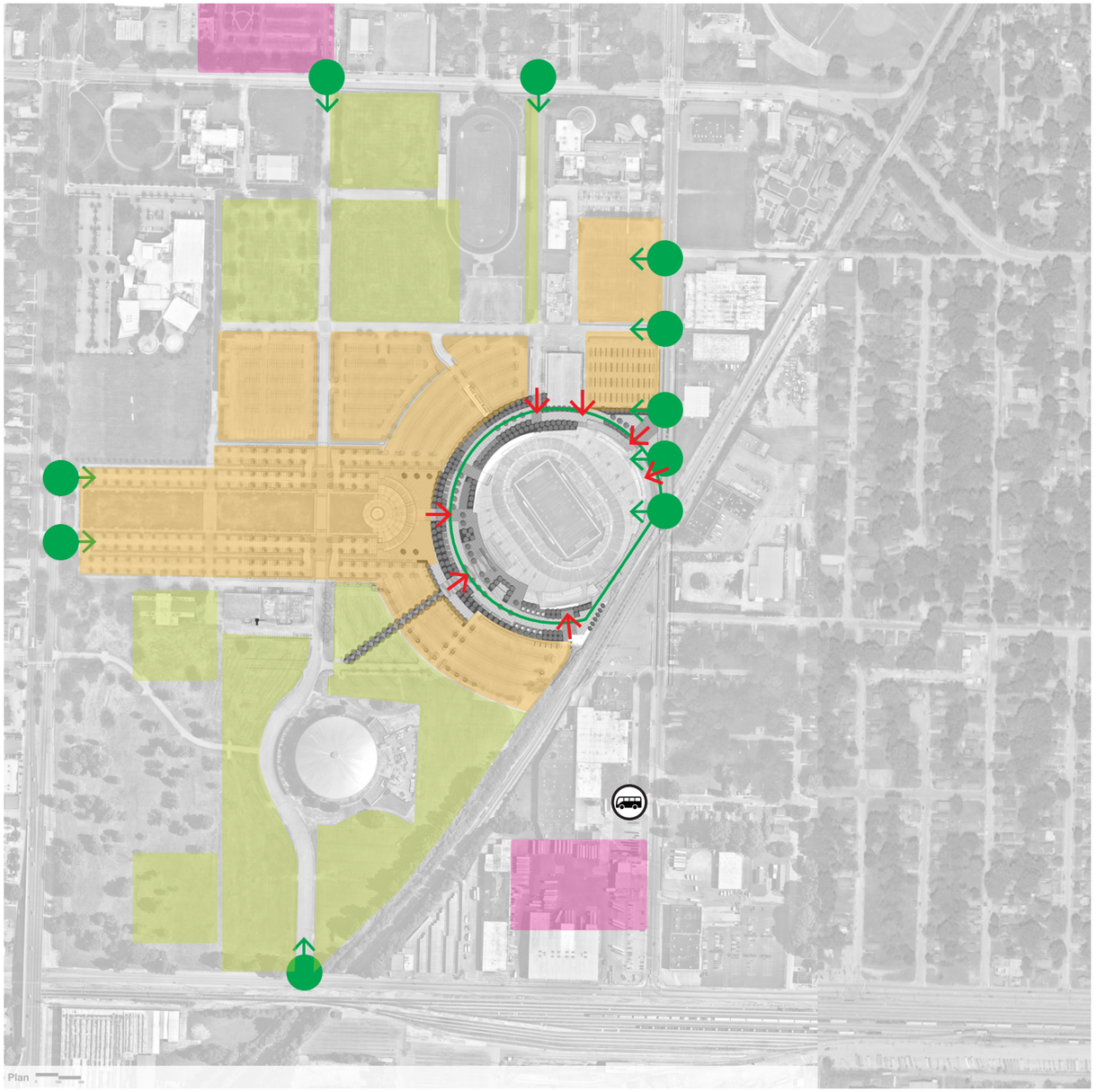
Renderings **View 5 - Sideline Field Club**

Renderings **View 5 - AutoZone Liberty Bowl**

04/

Wayfinding & Graphics

Wayfinding & Graphics **Access Points**



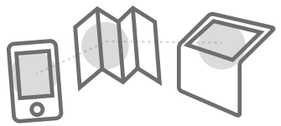
Site Access

- Site Access Points
- Pedestrian Circulation
- General Parking
- Premium Parking
- Off-Campus Parking
- Off-Site Parking Shuttle

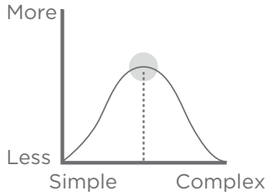
Building Access

- General Entry

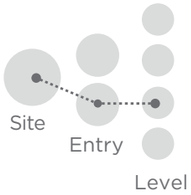
Simple Means Understandable



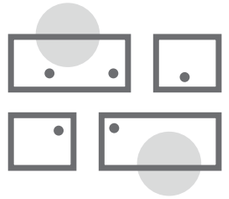
Seamless Integration Across Mediums



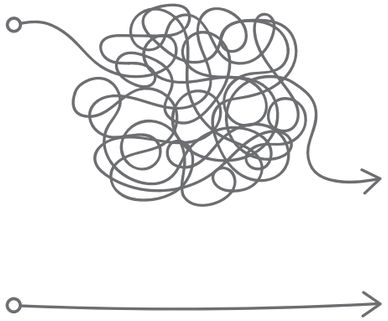
A Balance of Information



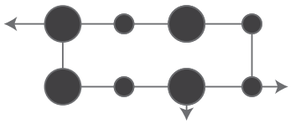
Progressive Disclosure



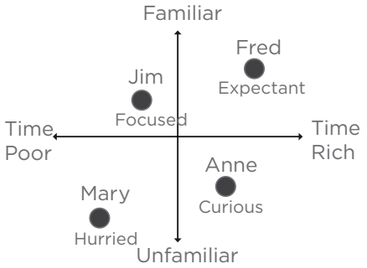
Making Navigation Predictable



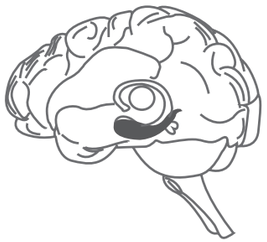
Establishing User Trust



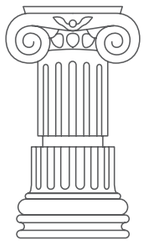
Right information at the Right Time



Understanding People's Current State of Mind

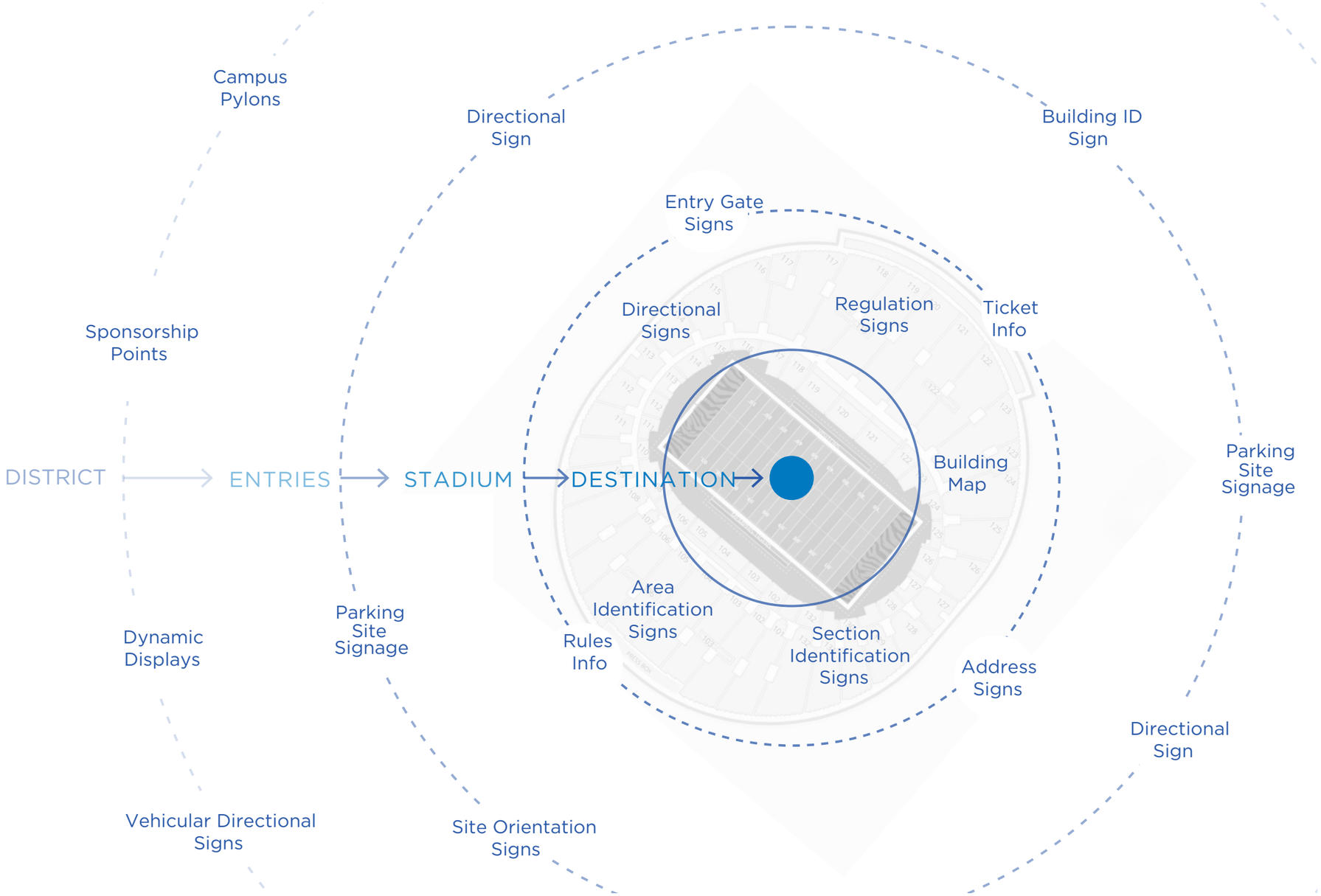


Creating a Mental Map



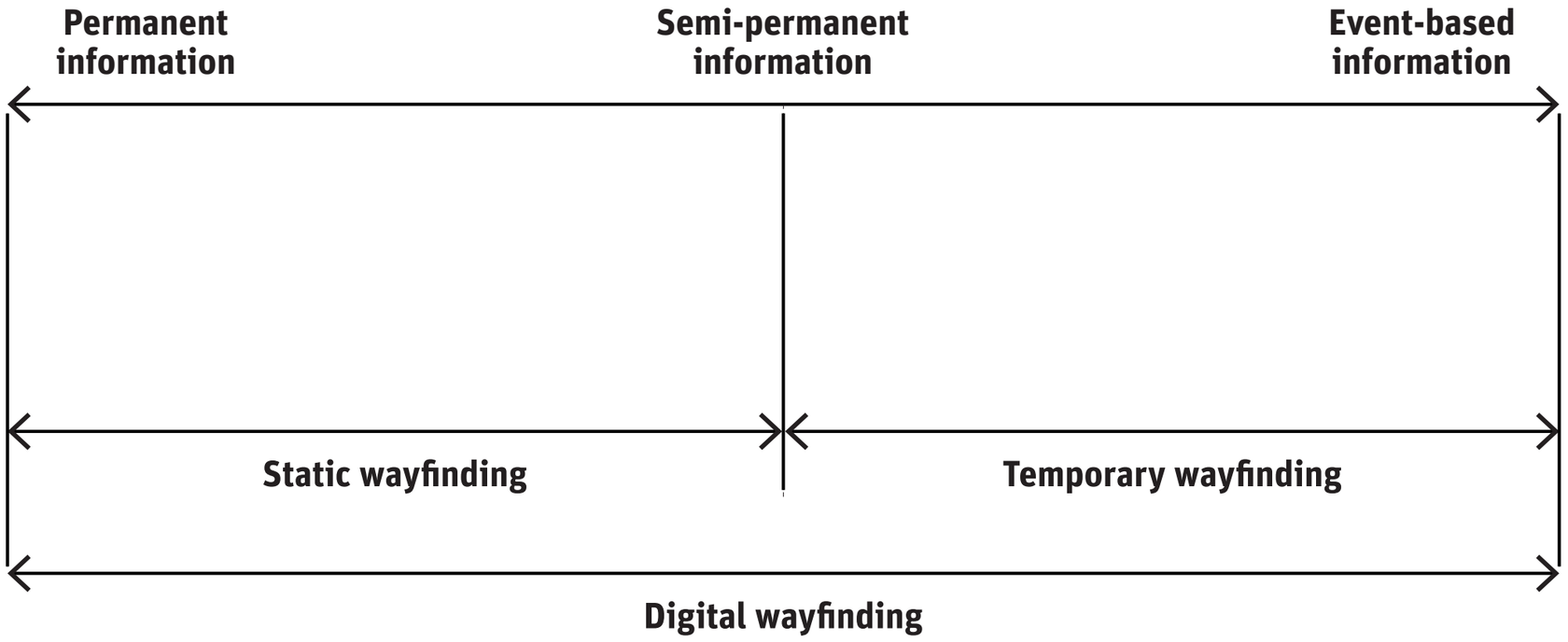
Using Landmarks or iconic elements for user orientation

Wayfinding & Graphics **Progressive Disclosure Diagram**



Provide minimum fixed information to describe a destination

Variable information dates wayfinding information quickly. Static wayfinding applications should contain as little information as possible in order to describe a destination, reducing the frequency of content updates. Digital applications are effective tools for displaying variable & temporary wayfinding information.

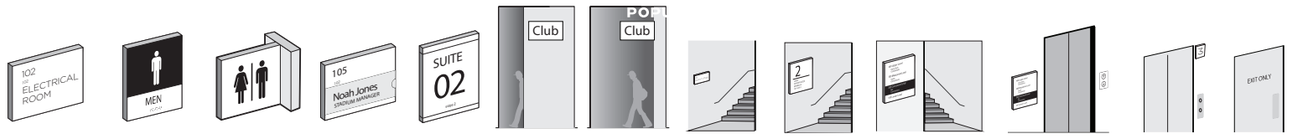


The below sign typology demonstrates the sign types that will be studied for implementation into the Liberty Memorial Stadium project. The examples as shown do not represent proposed designs of sign elements but information types needed to complete the various users wayfinding journey. The actual sign designs shall be developed as part of the next phase of work.

ID IDENTIFICATION SIGNS

Identification signs serve a regulatory purpose and provide a conformation of arrival.

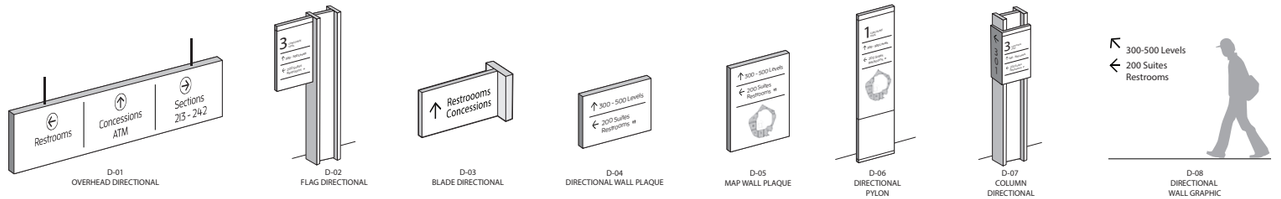
These signs inform users of assistance, arrival, egress, access and restricted areas.



ID-01A ROOM ID FRONT OF HOUSE · ID-03A PICTOGRAM ROOM ID · ID-04 PICTOGRAM BLADE ID · ID-05 OFFICE / CONFERENCE ROOM ID · ID-06 SUITE ROOM ID · ID-07 CLUB ID · ID-08 CLUB BLADE ID · ID-09 STAIR EXIT ID · ID-10 STAIR EGRESS · ID-11 STAIR LEVEL ID · ID-12 ELEVATOR LEVEL ID · ID-13 ELEVATOR # ID · ID-14 DOOR VINYL

D DIRECTIONAL SIGNS

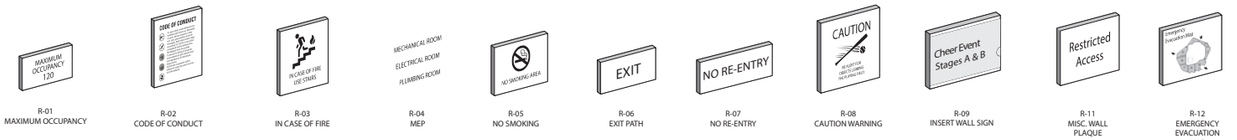
The signage elements located in and around the building/site for providing directional information to destinations desired by user, such as local amenities, gates, and exits. Such directions will include stairs, escalators, elevators, and other means of transport.



D-01 OVERHEAD DIRECTIONAL · D-02 FLAG DIRECTIONAL · D-03 BLADE DIRECTIONAL · D-04 DIRECTIONAL WALL PLAQUE · D-05 MAP WALL PLAQUE · D-06 DIRECTIONAL PYLON · D-07 COLUMN DIRECTIONAL · D-08 DIRECTIONAL WALL GRAPHIC

R REGULATION SIGNS

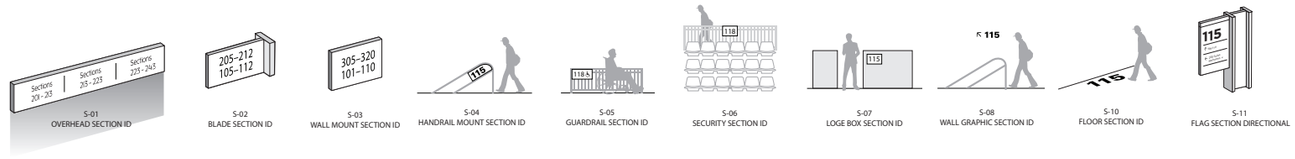
Regulatory signs cover all code requirements such as fire, life and safety, and will adhere to the ADA requirements as set per local, state and federal requirements.



R-01 MAXIMUM OCCUPANCY · R-02 CODE OF CONDUCT · R-03 IN CASE OF FIRE · R-04 MEP · R-05 NO SMOKING · R-06 EXIT PATH · R-07 NO RE-ENTRY · R-08 CAUTION WARNING · R-09 INSERT WALL SIGN · R-11 MISC. WALL PLAQUE · R-12 EMERGENCY EVACUATION MAP

S SECTION ID SIGNS

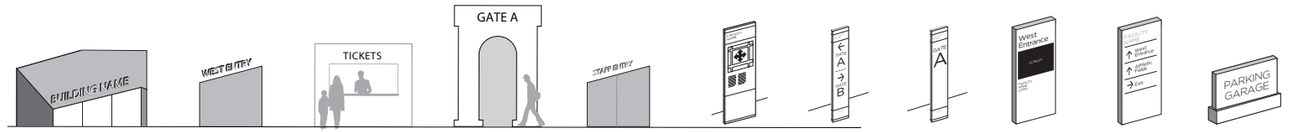
Section identification signs provide confirmation to the user of the location for an area or zone within event facilities, and should be located such as to be clearly visible even when crowds are present.



S-01 OVERHEAD SECTION ID · S-02 BLADE SECTION ID · S-03 WALL MOUNT SECTION ID · S-04 HANDRAIL MOUNT SECTION ID · S-05 GUARDRAIL SECTION ID · S-06 SECURITY SECTION ID · S-07 LOGE BOX SECTION ID · S-08 WALL GRAPHIC SECTION ID · S-10 FLOOR SECTION ID · S-11 FLAG SECTION DIRECTIONAL

X SITE EXTERIOR

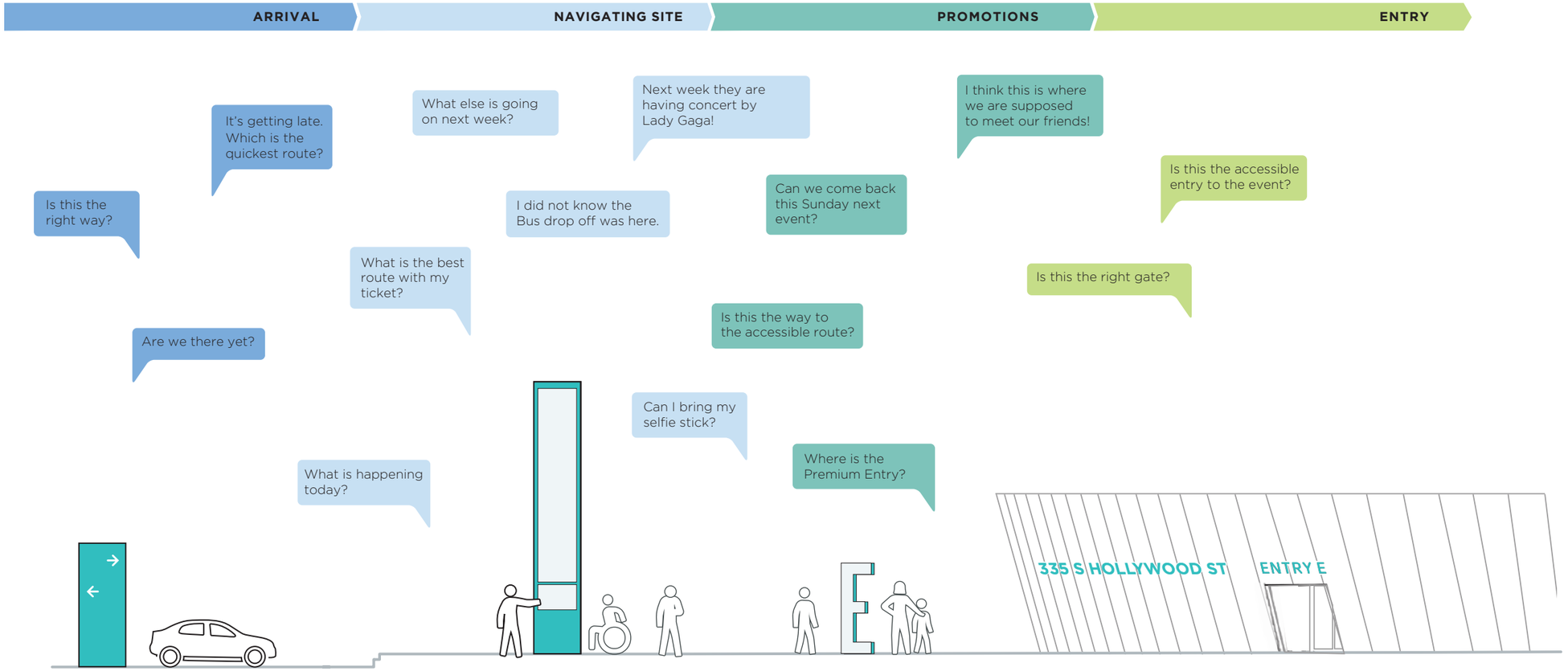
Exterior signage around building perimeter and project site that provide identification and direction for pedestrians and vehicles from a variety of distances.



X-01 BUILDING ID · X-02 PREMIUM ENTRY · X-03 TICKET OFFICE ID · X-04 GATE ID · X-05 STAFF ENTRANCE · X-07 SITE ID PYLON · X-08 SITE PYLON DIRECTIONAL · X-09 GATE ID PYLON · X-10 DYNAMIC DIRECTIONAL · X-12 VEHICULAR DIRECTIONAL PYLON · X-13 PARKING LOT ID

Wayfinding & Graphics **Wayfinding Journey**

Successful Wayfinding - Signs Function by Type



Vehicular Directional
X-12A, B & C

Provide direction to the campus at the edges with the format and scale to stand out in the urban landscape. Primary opportunities occur at points of arrival and boundary areas provide awareness for vehicular and ride-share users.

Site ID Pylon
X-07

Site ID Pylons provide information and advertising along the major pathways approaching the building entrances. They are located in the landscape or edge of sidewalk/ plaza areas. The signs have a multi-sided dynamic display to allow for changing event, wayfinding, identification and advertising-based content.

Gate ID Pylon
X-08

The Gate ID Pylon acts as a clear "sense of arrival" to the appropriate entrance based upon the ticket type for each user group. It designates primary ticketed visitor entrances serves as confirmation and as a mnemonic landmark for meeting friends or egress.

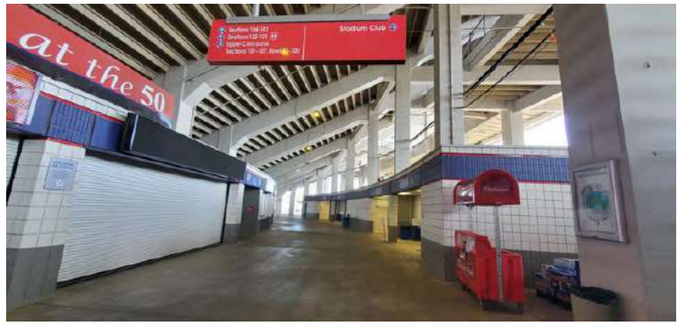
Building Address
X-06

Clear identification of building for code required information including delivery, staff and emergency response.

Entry Identification
X-02

On building identification acts as a clear "confirmation of arrival" to the appropriate entry based upon the ticket type for each user group.


MEMPHIS


at the 50
Stadium Club


WOMEN
105
104


126
125

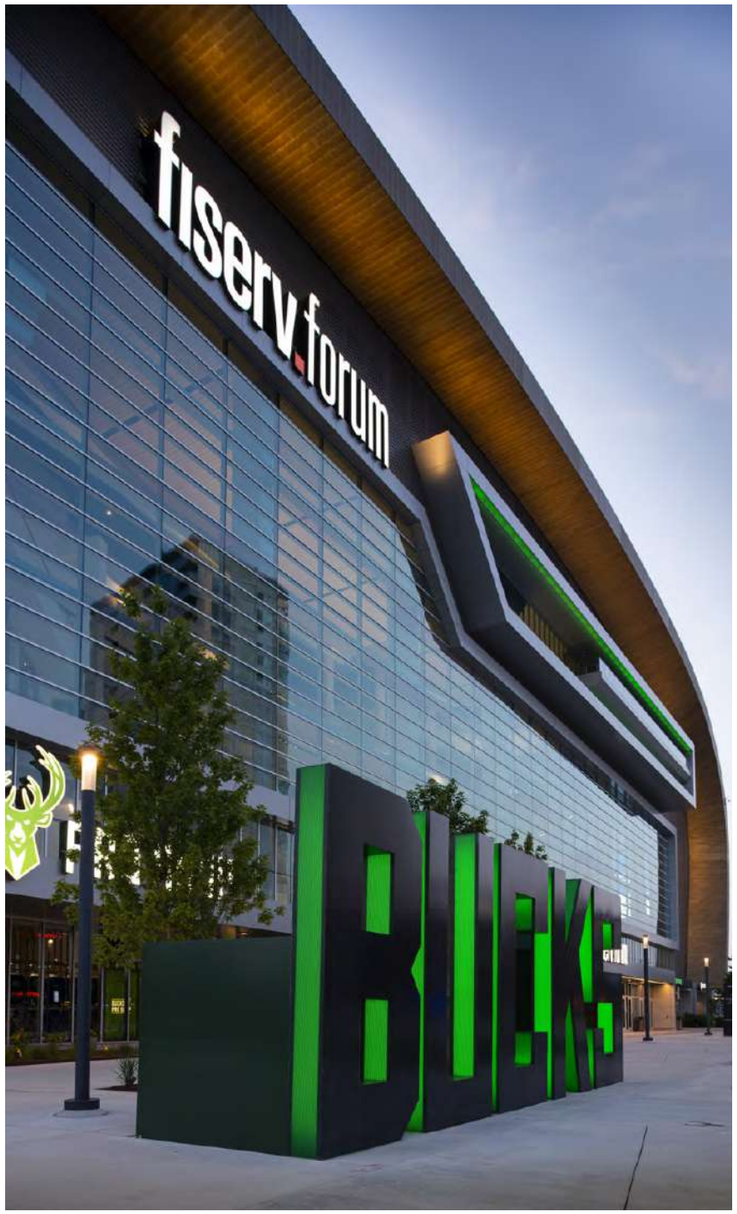

WOMEN
105
104


WOMEN


Upper Concourse
Sections 122-117
Rows 51-107


901 FAN FEST

Wayfinding & Graphics **Inspiration**



05/

Code Analysis

Code Analysis **Life Safety**

SUMMARY

This master plan study for the improvements to Simmons Bank Liberty Stadium will identify the code implications of the stadium modifications. These modifications include additional interior premium square footage while decreasing overall stadium seating capacity. The improvments to the stadium will require building code, accessibility, seismic, and historic evaluation.

Future analysis of building occupancy and construction type will need to be reviewed to establish facility requirements for fire protection, fire ratings, and exiting. The required number of exits and capacities, as well as maximum travel distances for master plan facility options will establish requirements for open air and enclosed egress stairs and exit access. Fire protection requirements including sprinklers, smoke control, and alarms will need to be reviewed for overall code compliance.

ADOPTED BUILDING CODES & ZONING

The building and construction of Simmons Bank Liberty Stadium is regulated by the City of Memphis. The following safety standards have been adtoped for use in the City of Memphis and unincorporated Shelby County:
International Building Code with Local Amendments - 2015
International Existing Building Code with Local Amendments - 2015
International Fire Code Local Amendments (City of Memphis) - 2015
International Fire Code Local Amendments (Shelby County) - 2015

Memphis is located in the New Madrid seismic zone.

USE AND OCCUPANCY

The existing Simmons Bank Liberty Stadium is an approximately 50,000 seat outdoor stadium with occupancy classifications including various Assembly (Groups A-2 & A-5), Business (Group B) and Storage (Group S) uses. These occupancy uses will not change with the facility improvments. Groups A-2, B and S will grow in square footbase based on the proposed improvments. The exterior A-5 use will be relatively unchanged.

CONSTRUCTION TYPE

The additional proposed square footage at Simmons Bank Liberty Stadium will likely require Type IB noncombustible construction except as permitted in section 603 of the 2015 International Building Code. New Type IB construciton that abuts building elements to remain, will require either occupancy separations or improvments to the protection of noncobustible components. This will need to be examped per Table 506.2. The allowalbe area for Type IB noncombustible construction is unlimited. Per Table 504.4, the allowalbe number of stories for Type IB noncombustible construction is 12.

TABLE 506.2[a, b] ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000
	SM	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000

TABLE 504.4[a, b] ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	5	3	2	3	2	3	2	1
	S	UL	6	4	3	4	3	4	3	2
A-2	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2

FIRE PROTECTION

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e, f] Interior	3 3[a]	2 2[a]	1 1	0 0	2 1	2 0	2 1/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	$1^{1/2}$[b]	1[b, c]	1[b, c]	0[c]	1[b, c]	0	HT	1[b, c]	0

Interior exit stairway and ramp enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more.

TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250[b]

The maximum common path of travel distance (100 feet), and the maximum dead end cooridor distance (50 feet), will be evaluated based on the final layout of the building.

Fire Alarm & Automatic Sprinkler Systems
Fire alarm systems and automatic sprinkler systems are requried per Chapter 9 of the 2015 International Building Code.

EXITING
Where a building contains two or more occupancies, the means of egress requirements shall apply to each portion of the building based on the occupancy of that space. Where two or more occupancies utilize portions of the same means of egress system, those egress components shall meet the more stringent requirements of all occupancies that are served.

The number of occupants are calculated based on the use per Table 1004.1.2.

Function of Space	Occupant Load Factor
+ Assembly with fixed seats	Section 1004.4
+ Concentrated (chairs only - not fixed)	7 net
+ Standing Space	5 net
+ Unconcentrated (tables and chairs)	15 net
+ Busniess Areas	100 gross
+ Locker Rooms	50 gross
+ Storage, stock, shipping areas	300 gross

1004.4 Fixed Seating
For areas having fixed seats and aisles, the occupant load shall be determined by the number of fixed seats installed therein. The occupant load for areas in which fixed seating is not installed, such as waiting spaces, shall be determined in accordance with Section 1004.1.2 and added to the number of fixed seats.

Aisle Capacities
Per section 1029.6.3, the required capacity in inches of aisles shall not be less than the total occupant load served by the egress element multiplied by 0.08 where egress is by stepped aisle and multiplied by 0.06 where egress is by level aisles and ramped aisles.

Code Analysis **Accessibility Narrative**

SUMMARY

This document is a design narrative generally describing compliance with the Memphis Building Code's Accessibility Standards and the 2010 ADA Standards for Accessible Design pertaining to Simmons Bank Liberty Stadium Master Plan. This information is for preliminary design considerations.

CODES AND ADA

The Americans with Disabilities Act (ADA) is civil rights law established to enable persons with a disability or disabilities, both physical and non-physical, to move freely within society. The ADA includes the 2010 Standards for Accessible Design (2010 ADA Standards).

The Memphis Building Code and Accessibility Standards also address accessible design and construction. To a great extent, the Memphis Building Code and Accessibility Standards have been harmonized with the 2010 ADA Standards. While there is no authority that will render interpretation proactively of the 2010 ADA Standards for a specific project the authority having jurisdiction will render interpretations of the Memphis Building Code and Accessibility Standards.

2010 ADA STANDARDS

The ADA consists of five "Titles," each addressing an important area of American life, including employment, municipal services, and public accommodations. The design and construction requirements applicable to renovations of Simmons Bank Liberty Stadium are the 2010 ADA Standards. The 2010 ADA Standards incorporate the 2004 ADA Accessibility Guidelines (ADAAG) in subpart D of both Title II (State and Local Government) and Title III (Public Accommodations). Other subparts of Title II and Title III as well as other titles of ADA are not part of the 2010 ADA Standards.

APPLICABLE CODES/STANDARDS

The current building code for renovations of Simmons Bank Liberty Stadium is the Memphis Building Code which includes the 2015 International Building Code (IBC) with local amendments along with its referenced standard the ICC/ANSI A117.1, *Accessible and Usable Buildings and Facilities.*

SPECIFIC PROVISIONS

Simmons Bank Liberty Stadium is an existing facility and this master plan anticipates renovations to portions of the facility. The city of Memphis' transition plan for Simmons Bank Liberty Stadium needs to be considered for those portions of the existing facility that would remain and not be within a renovation so that in total Simmons Bank Liberty Stadium would be readily accessible and usable by individuals with disabilities. Although not inclusive, specific requirements for new construction, requirements are followed by a reference number of the 2010 ADA Standards in parenthesis, numbers preceded with "§" refer to the regulations portion of subpart D. The Memphis Building Code is referenced where the reference number in parenthesis includes "IBC".

General Exceptions

Limited Access Spaces: Spaces accessed only by ladders, catwalks, crawl spaces or very narrow passageways shall not be required to comply with the standards or to be on an accessible route. (203.4)

Machinery Spaces: Spaces frequented only by service personnel for maintenance, repair, or occasional monitoring of equipment shall not be required to comply with the standards or to be on an accessible route. (203.5)

Employee Work Areas: Spaces and elements within employee work areas shall only be required to comply with accessible means of egress and fire alarm notification and shall be designed and constructed so that individuals with disabilities can approach, enter, and exit the employee work area. Common use circulation paths within employee work areas shall comply with 402. (203.9, 206.2.8)

Application

Additions: The extent of each addition shall comply with the requirements for new construction. (202.2)

Alterations: The extent of each alteration shall comply with the requirements for new construction. Where it is technically infeasible to fully comply the alterations shall comply to the maximum extent feasible. (202.3)

Additions/Alterations: Path of travel to each addition and/or alteration that could affect areas containing a primary function shall be made accessible to the extent that the cost for bringing them into compliance is proportional to the cost of the addition/alteration which is considered up to 20%. Existing elements in accordance with the 1991 ADA Standards are granted safe harbor and not required to be revised to comply with the 2010 ADA Standards. (202.2, 202.4, §35.150(b)(2), §36.304(d)(2))

Temporary Facilities: Temporary facilities shall comply with the requirements for new construction the same as permanent facilities. (201.3)

Code Analysis **Accessibility Narrative**

Accessible Routes

Site Arrival: At least one accessible route shall be provided within the site from accessible parking spaces, accessible passenger loading zones, public streets, sidewalks; and public transportation stops to the accessible building or facility entrance they serve. (206.2.1)

Accessible Routes: Accessible routes shall consist of one or more of the following components: walking surfaces with a running slope not steeper than 1:20, doorways, ramps, curb ramps excluding the flared sides, elevators, and platform lifts. (402.2)

Multi-Story Building: At least one accessible route shall connect each story and mezzanine in multi-story buildings and facilities. (206.2.3)

Spaces and Elements: At least one accessible route shall connect accessible building or facility entrances with all accessible spaces and elements within the building or facility which are otherwise connected by a circulation path unless exempted by 206.2.3. (206.2.4)

Performance Areas: Where a circulation path directly connects a performance area to an assembly seating area, an accessible route shall directly connect the assembly seating area with the performance area. (206.2.6)

Location: Accessible routes shall coincide with or be located in the same area as general circulation paths. (206.3)

Accessible Means of Egress: At least two accessible means of egress shall be provided where more than one means of egress is required. One accessible means of egress is permitted where it is accessible and does not exceed the common path of travel limits of 1029.8. (IBC 1009.1)

Assembly Areas

Accessible Route: Wheelchair spaces and companion seats are to be dispersed to all levels that include seating served by an accessible route. (221.2.3)

Horizontal Dispersion: In assembly areas that have seating encircling, in whole or in part, a field of play or performance, wheelchair spaces and companion seats are required to be dispersed around that field of play or performance area. (221.2.3.1)

Vertical Dispersion: Wheelchair spaces shall be dispersed vertically at varying distances from the screen, performance area, or playing field. In addition, wheelchair spaces shall be located in each balcony or mezzanine that is located on an accessible route. (221.2.3.2)

Wheelchair Seating: Wheelchair spaces and companion seats are not to be located on (or obstructed by) temporary platforms or other movable structures, except that when an entire seating section is placed on temporary platforms or other movable structures in an area where fixed seating is not provided, in order to increase seating for an event, wheelchair spaces and companion seats may be placed in that section. When wheelchair spaces and companion seats are not required to accommodate persons eligible for those spaces and seats, individual, removable seats may be placed in those spaces and seats. (§35.151(g)(3), §36.406(f)(3))

Seating Choices: Wheelchair spaces shall provide spectators with choices of seating locations and viewing angles that are substantially equivalent to, or better than, the choices of seating locations and viewing angles available to all other spectators. When the number of wheelchair spaces required by 221.2.1 has been met, further dispersion shall not be required. (221.2.3)

General Seating: The total number of wheelchair spaces and companion seats, excluding those in suites or other boxes, is to meet or exceed the amount needed for the total number of fixed seats. Existing wheelchair spaces and companion seats in a demolished seating area shall be relocated as needed to maintain the city of Memphis' transition plan for Simmons Bank Liberty Stadium. The total number of wheelchair spaces and companion seats provided does not need to exceed the number required when relocating existing wheelchair spaces. (221.2.1.1, §35.150(d))

Suites: In each luxury box, club box, and suite within arenas, stadiums, and grandstands, wheelchair spaces shall be provided in accordance with Table 221.2.1.1. (221.2.1.2)

Other Boxes: In boxes other than those required to comply with 221.2.1.2, the total number of wheelchair spaces required shall be determined in accordance with Table 221.2.1.1. Also, wheelchair spaces shall be located in not less than 20 percent of all boxes provided. (221.2.1.3)

Integration: Wheelchair spaces shall be an integral part of the seating plan. (221.2.2)

Designated Aisle Seats: At least 5 percent of the total number of aisle seats provided shall have a folding or retractable armrest on the aisle side of the seat and shall be the aisle seats located closest to accessible routes. (221.4/802.4.1)

General Seating Line of Sight: Where spectators are expected to stand during events, spectators in wheelchair spaces shall be provided similar lines of sight as other spectators standing, i.e. over heads or between heads. (802.2.2)

Suite Seating Line of Sight: Where spectators are expected to remain seated during events, spectators in wheelchair spaces shall be provided similar lines of sight as other spectators seated, i.e. over heads or between heads. (802.2.1)

Wheelchair Space: Wheelchair spaces shall adjoin accessible routes. Accessible routes shall not overlap wheelchair spaces. Wheelchair spaces shall not overlap aisle width required by applicable building or life safety codes. (802.1.4/802.1.5)

Companion Seats: In row seating, the location of companion seats shall provide shoulder alignment with adjacent wheelchair spaces. The “shoulder” of the wheelchair space shall be measured 36 inches (915 mm) from the front of the wheelchair space. The floor surface of the companion seat shall be at the same elevation as the floor surface of the wheelchair space. Companion seats shall be equivalent in size, quality, comfort, and amenities to the seating in the immediate area. Companion seats shall be permitted to be movable. (802.3.1/802.3.2)

Assistive Listening Devices: In each assembly area where audible communication is integral to the use of the space, an assistive listening system shall be provided. (219.1)

Dining Areas

Accessible Route: An accessible route shall be provided to all dining areas unless exempted by 206.2.3 and the inaccessible dining area is limited to 25% of the total dining area. Tiered dining areas in sports facilities that serve assembly seating shall have an accessible route to at least 25% of the tiers. (206.2.5)

Dining Surfaces and Work Surfaces: Where dining surfaces are provided for the consumption of food or drink, at least 5 percent of the seating spaces and standing spaces at the dining surfaces shall comply with 902. In addition, where work surfaces are provided for use by other than employees, at least 5 percent shall comply with 902. Dining surfaces and work surfaces required to comply with 902 shall be dispersed throughout the space or facility containing dining surfaces and work surfaces. (226.1/226.2)

Toilet and Bathing Facilities

Fixtures & Accessories: Each toilet room and bathing room is required to be accessible and provided with accessible plumbing fixtures and accessories. At least 50% of clustered single user toilet rooms are required to be accessible. (213.2)

Unisex Toilet Rooms and Bathing Rooms: Unisex single user toilet rooms shall not contain more than one lavatory, and two water closets without urinals or one water closet and one urinal. Unisex bathing rooms shall contain one shower or one shower and one bathtub, one lavatory, and one water closet. Doors to unisex toilet rooms and unisex bathing rooms shall have privacy latches. (213.2.1)
Accessible Toilet Compartments: At least 5% of water closet compartments are required to be a wheelchair accessible compartment. In addition, at least 5% of combined urinals and water closets are required to be an ambulatory accessible compartment where six or more combined urinals and water closets are provided. (IBC 1109.2.2)

Urinals: At least one urinal is required to be accessible where more than one urinal is provided. (213.3.3)

Lavatories: At least 5% of lavatories are required to be accessible. (IBC 1109.2.2)

Water Closet Clearance: Clearance around a water closet shall be 60 inches (1525 mm) minimum in width measured perpendicular from the side wall and 56 inches (1420 mm) minimum in depth measured perpendicular from the rear wall. (604.3.1)

Ambulatory Compartments: Ambulatory accessible compartments shall have a depth of 60 inches (1525 mm) minimum and a width of 35 inches (890 mm) minimum and 37 inches (940 mm) maximum. (604.8.2)

Drinking Fountains: 50 percent of the total number of drinking fountains provided shall be wheelchair accessible and 50 percent of the total number of drinking fountains provided shall be for standing persons. Where an odd number of drinking fountains are provided rounding up or down is permitted. (211.3)

Dressing/Locker Rooms

Dressing/Locker Rooms: Where dressing rooms, fitting rooms, or locker rooms are provided, at least 5 percent, but no fewer than one, of each type of use in each cluster provided shall comply with 803. (222.1)

Lockers: Where lockers are provided, at least 5 percent, but no fewer than one of each type, shall comply with 811. (225.2.1)

Coat Hooks and Shelves: Where coat hooks or shelves are provided in dressing, fitting or locker rooms, at least one of each type shall be accessible. (222.2/803.5)

Benches: A bench complying with 903 shall be provided within each accessible dressing room and accessible locker room. (803.4)

Operable Parts

Operable Part Height: Operable parts on accessible elements, accessible routes, and in accessible rooms and spaces shall be placed within one or more of the reach ranges specified in 308. (205.1)

Operation: Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds (22.2 N) maximum. (309.4)

Signage

Designation Signs: Interior and exterior signs identifying permanent rooms and spaces shall comply with 703.1, 703.2, and 703.5. Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with 703.6 and shall have text descriptors complying with 703.2 and 703.5. (216.2)

Designation Sign Location: Tactile characters on signs shall be located 48 inches (1220 mm) minimum and 60 inches (1525 mm) maximum above the finish floor or ground surface, measured from the baseline of the tactile characters. Tactile signs shall be located on latch side of the door, to the right side of double doors, and centered on an 18" square clear floor space beyond the arc of the door. (703.4)

Directional and Information Signs: Signs that provide direction to or information about spaces and facilities shall comply with 703.5. (216.3)

Exit Doors: Doors at exit passageways, exit discharge, and exit stairways shall be identified by tactile signs complying with 703.1, 703.2, and 703.5. (216.4.1)

Directional Signs for Assistive Listening Devices: Each assembly area required to provide assistive listening systems shall provide signs in a prominent place at the entrance to the assembly area informing patrons of the availability of the assistive listening system. Assistive listening system signs shall comply with 703.5 and shall include the International Symbol of Access for Hearing Loss complying with 703.7.2.4. (216.10)

SUMMARY

The Memphis Building Code and Accessibility Standards have been harmonized with the 2010 ADA Standards, but interpretations may vary between the two standards. Again, the Memphis Building Code and Accessibility Standards are interpreted by the local enforcing agency. The list above is not inclusive with the intent to keep the narrative brief. Other provisions for renovations of Simmons Bank Liberty Stadium would include ticket windows, concession counters and other service counters, along with others. Provisions of both the Memphis Building Code/Accessibility Standards and the 2010 ADA Standards will need to be accounted for in the design of any renovation project undertaken.

06/
Narratives

Structural **Narrative**

GENERAL DESCRIPTION

This structural narrative describes the structural design criterion for the potential renovations to Simmons Bank Liberty Stadium. The primary component of the stadium renovation consists of a major demolition and new construction of the SW sideline of the existing stadium. The sideline replacement project includes a new tower and press level.

STRUCTURAL CODES AND STANDARDS

The provisions of the following codes and references will be used for both design and construction of the proposed stadium. These documents establish the minimum structural strength and serviceability requirements to be met to safeguard the public health, safety, and general welfare.

+ International Building Code (IBC), 2018 Edition
+ American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI) 7-16, Minimum Design Loads and Associated Criteria for Buildings and Other Structures
+ American Concrete Institute (ACI) 318-14, Building Code Requirements for Structural Concrete
+ American Institute of Steel Construction (AISC) 360-16, Specification for Structural Steel Buildings
+ American Welding Society AWS D1.1/D1.1M:2020 Structural Welding Code – Steel
+ Precast/Prestressed Concrete Institute (PCI) Design Handbook, 8th Edition (MNL-120-17)
+ International Code Council/American National Standards Institute ICC 300-2017, ICC Standard for Bleachers, Folding and Telescopic Seating, and Grandstands
+ Institution of Structural Engineers (IStructE), Dynamic Performance Requirements for Permanent Grandstands Subject to Crowd Action, 2008
+ American Institute of Steel Construction Steel Design Guide 11 – Vibrations of Steel-Framed Structural Systems Due to Human Activity, Second Edition
+ American Architectural Manufacturers Association (AAMA) TIR-A11-04, Maximum Allowable Deflection of Framing Systems for Building Cladding Components at Design Wind Loads

DESIGN LOADS

Dead Loads (D)

Dead loads consist of the permanent weight of building materials and elements that will be present throughout the service life of the structure. This typically includes the weight of any concrete, steel, and masonry structures, any exterior cladding systems, such as architectural precast, glass, and light-gage metal framing and metal panel systems.

Superimposed Dead Loads (SD)

Superimposed dead loads include the weight of building materials and elements that are well understood but are subject to change over the lifetime of the structure. This type of loading includes mechanical ducts, electrical raceways, plumbing piping, architectural ceiling treatments, etc. These loads are handled by an allowance that will vary depending on the program area and type of loads in those areas.

+ Roofs, C/MEP/Roofing	15 psf
+ Bowl Seating, MEP/Chairs/Steps	15 psf
+ Floors, C/MEP, Typical	15 psf
+ Topping/Split Slabs	50 psf
+ CMU Partitions	75 psf (where occurs)
+ Cladding	TBD

Floor Live Loads (L)

Design live loads consist of variable, transient loading due to the intended use and occupancy, including loads due to movable objects and loads temporarily supported by the elevated floor structures during maintenance.

+ Floors & Concourses	100 psf
+ Kitchens & Concessions	150 psf
+ Keg Storage	150 psf
+ MEP/AHU Rooms	100 psf
+ Storage (light)	150 psf
+ Seating Areas, Fixed	60 psf
+ Seating Areas, Bench or Bleacher	100 psf
+ Seating Areas, Lateral Loads	
• Longitudinal to Riser Axis	24 plf
• Transverse to Riser Axis	10 plf
+ Catwalks	40 psf

Roof Live Loads (Lr)

Design roof live loads consist of variable, transient loading due to the intended use and occupancy and loads temporarily supported by the roof structure during maintenance.

+ Tower Roof	20 psf (reducible)
+ Concession & Restroom Roofs	20 psf

Flood Loads (F)
For structures located within flood hazard areas as established by the Federal Emergency Management Agency (FEMA) all new construction shall be designed and constructed to resist the effects of flood hazards and flood loads. Per the latest National Flood Hazard Layer FIRMette the project site does not fall within a FEMA designated flood hazard area. Flood loads are not required to be considered for this project.

Snow Loads (S)
Snow loads represent the load of snow and drifting snow that will accumulate on roofs and similar structural components. Snow loads are typically assumed to be a uniform load for relatively flat roofs with additional snow drift loads generated by an accumulation of wind-driven snow that imparts a local surcharge load on the roofs at locations such as a parapet or roof step.

+ Ground snow load, pg	10 psf
+ Flat roof snow, pf	8.5 psf
+ Minimum flat roof snow, pfmin	11 psf
+ Rain-on-snow surcharge	5 psf
+ Risk category	III
+ Exposure category	C
+ Surface Roughness	B
+ Snow exposure factor, Ce	1.0
+ Thermal factor, Ct	1.1
+ Snow load importance factor	1.1

Rain Loads (R)
Rain loads represent the load of rainwater that will accumulate if the primary drainage system for a portion of roof is blocked plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow.

Design rain loads are assumed to be 20 PSF which equates to approximately four inches of standing water. This assumption requires coordination with the elevation of the secondary drainage system as the building code requires the design to accommodate the primary drainage system being blocked. This assumption will be confirmed during the development of the design.

Ice Loads (I)
Ice loads represent atmospheric ice loads caused by freezing rain, snow, and in-cloud icing and shall be considered in the design of ice-sensitive structures. At this stage of design, we do not anticipate any portions of the structure to be ice-sensitive, however, the potential for ice loads will be re-evaluated as design progresses.

Thermal Loads (T)
Structures experience dimensional changes due to fluctuations in surrounding temperatures over the service life of the building. These dimensional changes, in-turn, result in significant internal self-straining forces that must be considered in the design. Temperature analyses are required for any portion of the project subject to these temperature swings, typically outside the building's thermal envelope, and shall be designed assuming maximum seasonal temperature changes of +75- and -90 degrees Fahrenheit.

Seismic Loads (E)
All buildings and other structures subject to earthquake ground motions shall be designed and detailed for the anticipated earthquake loads and displacements introduced by a seismic event. The Design Earthquake is estimated to be two-thirds of the corresponding Maximum Considered Earthquake effects. Seismic loads are based on the governing building code and the American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures, ASCE 7-16, as follows:

+ Short-period spectral response acceleration, SS	0.95
+ 1-second spectral response acceleration, S1	0.319
+ Site Class (assumed, to be confirmed)	D (C values given)
+ Short period site coefficient, Fa	1.2
+ 1-second period site coefficient, Fv	1.5
+ Short-period design spectral response acceleration, SDS	0.76
+ 1-second design spectral response acceleration, SD1	0.319
+ Seismic Design Category	D

The seismic force resisting system is anticipated to be a combination of systems as defined by the American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures ASCE 7-16.

Structural **Narrative**

The structural systems for the new tower will be determined in the next stage of design therefore the specific seismic design criteria cannot be determined at this time. However, the code analysis is clear that the structure will be required to be designed and detailed for a SDG D or even higher as defined by ASCE 7. *SDG D is considered "high seismic" like structures designed on the West Coast which will dramatically impact the structural systems available to the design team and related costs*.

+ Response Modification Coefficient, R TBD
+ Overstrength Factor, Ω0 TBD
+ Deflection Amplification Factor, Cd TBD

Site classification 'D' is based on previous (but not project specific) geotechnical investigations close to the stadium provided to the design team and a discussion with Geotechnology who has performed extensive geotechnical investigations around the stadium complex. Per ASCE 7 a site-specific seismic analysis is required to establish the Fv and SM1 values for design category determination. For the purposes of this preliminary study a site class 'C' was used only to determine the preliminary design criteria. The site-specific study may result in similar design criteria shown but in no case will the resulting SDC fall below D.

Wind Loads (W)

Wind loads represent transient loads applied to the structure during an extreme wind event. Wind pressures are based on the American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures, ASCE 7-16, as follows:

+ Wind Speed (3-sec gust, Vult): 112 mph
+ MRI 10-year 73 mph
+ Risk Category: III
+ Wind Exposure Category: C

A wind tunnel study maybe performed to determine the design level structural wind pressures, cladding pressures, and pedestrian wind flows if desired.

FACTORY MUTUAL GLOBAL

It is yet to be determined if the structure must be designed for the requirements of Factory Mutual Global (FM) wind and snow loading criteria. It shall be determined by the Owner if Factory Mutual Global design requirements are to be considered in the structural design.

STORM SHELTER

We presume that no portion of the new stadium tower is required to meet the requirements of Standard ICC 500-12 *ICC/NSSA Standard on the Design and Construction of Storm Shelters*. Therefore, ICC 500 will not be considered in the design of the project. If the Owner elects to require a portion of the new facility to comply with this storm shelter design standard we need confirmation as soon as possible.

BLAST AND/OR PROGRESSIVE COLLAPSE

No specific blast design or progressive collapse requirements have been established for this project. Therefore, neither blast nor progressive collapse will be considered in the design of the project.

MATERIALS

Materials for the design and construction of the primary structural frame shall comply with the governing building code, design codes and manuals noted previously, and the following:

Structural Steel

Structural steel shall be defined as that work prescribed in Section 2.1 of the AISC "Code of Standard Practice for Steel Buildings and Bridges". All structural steel shapes shall be new steel as defined by ASTM A6 unless noted otherwise. Structural steel in unconditioned spaces or exterior shall be hot-dipped galvanized or painted with a high-performance paint system. Structural steel materials shall conform to the following:

a. Wide Flange and WT Shapes ASTM A992 Grade 50
b. Channels ASTM A992 Grade 50
c. Angles ASTM A529 Grade 50
d. Box Column Plates ASTM A572 Grade 50
e. Plates and Bars ASTM A36
f. Base Plates ASTM A36
g. Hollow Structural Sections ASTM A500 Grade C
h. High Strength Bolts ASTM A325 and A490
i. Threaded Round Stock ASTM A36
j. Anchor Rods ASTM F1554 Grades 55 (1" dia) and 105 (>1" dia)

Steel Decking

Steel decking shall meet the following requirements:

a. Typical Roofs 1 ½" Type B 20 Gage Galvanized G90, ASTM A611 or A653
b. Composite Floor Deck 3" Type N 18 Gage Galvanized G90, ASTM A611 or A653

Structural Concrete

CLASSES OF CONCRETE MATRIX						
CONCRETE USAGE	MIN. f'c (psi)	CONCRETE TYPE	EXPOSURE CLASSES	MAX. W/CM RATIO	AIR CONTENT	REQUIRED CEMENT REPLACEMENT
INTERIOR GRADE BEAMS	4,000	NWC	-	N/A	N/A	40-70%
EXTERIOR GRADE BEAMS	4,500	NWC	C1, F2	0.45	6	0-50%
DRILLED PIERS	4,000	NWC	C1	N/A	N/A	40-70%
SPREAD FOOTINGS	4,000	NWC	C1	N/A	N/A	40-70%
BASEMENT WALLS	4,000	NWC	C1	N/A	N/A	25-50%
INTERIOR RETAINING WALLS	4,000	NWC	C1	N/A	N/A	25-50%
EXTERIOR RETAINING WALLS	4,500	NWC	C1, F2	0.40	6	0-50%
INTERIOR SLABS-ON-GRADE	4,000	NWC	-	0.45	N/A	0-50%
EXTERIOR SLABS-ON-GRADE	5,000	NWC	C2, F3	0.40	5.5	0-50%
INTERIOR ELEVATED FLOOR SYSTEMS	5,000	NWC	-	0.45	N/A	15-50%
EXTERIOR ELEVATOR FLOOR SYSTEMS	5,000	NWC	C2, F3	0.40	5.5	0-50%
INTERIOR STEEL DECK SLABS	4,000	NWC	-	0.45	N/A	15-50%
EXTERIOR STEEL DECK SLABS	5,000	NWC	C2, F3	0.40	5.5	0-50%
EXTERIOR TOPPING SLAB	5,000	NWC	C2, F3	0.40	5.5	0-50%
INTERIOR TOPPING SLAB	4,000	NWC	-	0.45	N/A	0-50%

Table 1: Classes of Concrete Mix

Reinforcing for Structural Concrete

Structural concrete elements shall be designed and constructed in accordance with the requirements of the governing building code and applicable American Concrete Institute standards and project durability requirements. Reinforcing materials shall conform to the following:

a. Reinforcing Steel (no epoxy coating) ASTM A615 Grade 60
b. Deformed Bar Anchors ASTM A496
c. Headed Stud Anchors ASTM A108
d. Smooth Welded Wire Reinforcement ASTM A185
e. Synthetic Macro Fibers ASTM C1116

Reinforced Masonry

Reinforced concrete masonry shall meet F'm = 1,500 PSI, comply will requirements of The Masonry Society (TMS) 402 Building Code for Masonry Structures and TMS 602 Specification for Masonry Structures and the following:

a. CMU Compressive Strength 1900 psi, ASTM C 55 or C 90 NW
b. Mortar Portland Cement/Lime, Type M or S, ASTM C 270
c. Grout Course with Compressive Strength 2000 psi, ASTM C 476

Sustainability

No predefined sustainability goals have been set for this project; however, design decisions will be influenced by sustainable design approaches. IT is unknown at the time of this narrative if formal Leadership in Energy and Environmental Design (LEED) certification is being pursued.

Servicability

Serviceability refers to various limit state requirements for a building to perform adequately during its service life, extending beyond the minimum strength requirements. These additional requirements include, but are not limited to, durability, deflection, cracking and excessive vibrations. Each of these items is considered and appropriate measures will be incorporated into the structural design.

Gravity Deflections

Deflections of horizontal framing members are limited to values generally defined within the building code and other referenced standards. For specific deflection limits, refer to IBC 2018 Table 1604.3.

Lateral Drifts due to Wind Loads
Horizontal story drifts are limited to the height of the level above grade divided by 400 (H/400). Interstory drifts, or drifts from one floor to the next, will be limited to the story height divided by 400 (h/400). These lateral drifts are evaluated under a 50-year mean recurrence interval wind load.

Lateral Drifts due to Seismic Loads
Horizontal story drifts due to seismic loads are limited to 0.015 times the story height in accordance with the American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures, ASCE 7, Table 12.12-1.

Vibrations
Dynamic response of the structure under patron activity such as dancing or stomping in rhythm is a critical design criterion for the project. The dynamics of the structure are checked in accordance with the recommendations of Institute of Structural Engineers (ISE) presented in the 2008 publication "Dynamic Performance Requirements for Permanent Grandstands Subject to Crowd Action." The design criteria relative to that standard used are as follows:

+ ISE Scenario 3: RMS acceleration < 0.075g maximum.
+ ISE Scenario 4: RMS acceleration < 0.20g maximum.
+ Maintaining the natural frequency of the combined raker/ seating unit system above 3.5 Hz

Expansion Joints
Due to temperature changes, large thermal stresses will build up in the exposed concrete and steel structure. If not accounted for, these stresses will try and pull the building apart and could lead to serviceability problems with various building systems over the lifetime of the structure. To accommodate the potential movement and to mitigate the thermal stress buildup up to two (2) expansion joints will be strategically located throughout the expansion footprint.

At each expansion joint, the structure will be framed with double columns, girders, and raker beams straddling each radial expansion joint. Typically, expansion joints are run through all levels the full height of the building, however, studies can be performed to determine if joints can be limited to lower levels only. Alternatively, the use of strategically located pour delay strips thru concrete floors may allow the number of expansion joints to be reduced but will need to be studied in further detail.

Due to the high-seismic design criteria for this expansion it is *anticipated that expansion joints between new and existing structure will be larger than a typical expansion located in lower seismic areas*. Exact expansion joint sizes will be determined as the design progresses. To potentially reduce the expansion joint sizes the design and construction team may incorporate the use of "lock-up devices" which connect adjacent building during a seismic event but allow movement during typical thermal and wind events. The use of these devices is common in high-seismic structures.

Durability
Memphis, Tennessee is in a zone of the country that experiences moderate exposure to freezing and thawing and occasional exposure to water. Therefore, it is anticipated that concrete exposed to moisture will follow ACI 318 exposure classes F2 and require corrosion protection class C1 or C2 depending on final exposure. Any concrete elements determined to be subject to deicing chemicals will be alternatively assigned to be exposure class F2 and corrosion protection class C2. Existing geotechnical reports do not indicate the presence of sulfates int eh soil to warrant concrete mixes above S0.

Corrosion
Corrosion protection for structural steel outside of the building thermal envelope is to be provided in accordance with industry recommendations and standard practices for structures exposed to temperature changes and exposed to moisture. Steel members not visible to public view may be protected by either hot-dip galvanizing or a high-performance paint system that includes an organic zinc-rich primer. Steel members visible to the public view, including steel framing within the shade canopy, shall be coated with a high-performance two- or three-part paint system that includes an organic zinc-rich primer. The high-performance coating system will be specified by the Architect.

GEOTECHNICAL AND SITE DISCUSSION

A comprehensive site-specific geotechnical investigation has not yet been performed so the following description is based on nearby soil boring investigations and discussions with Geotechnology.

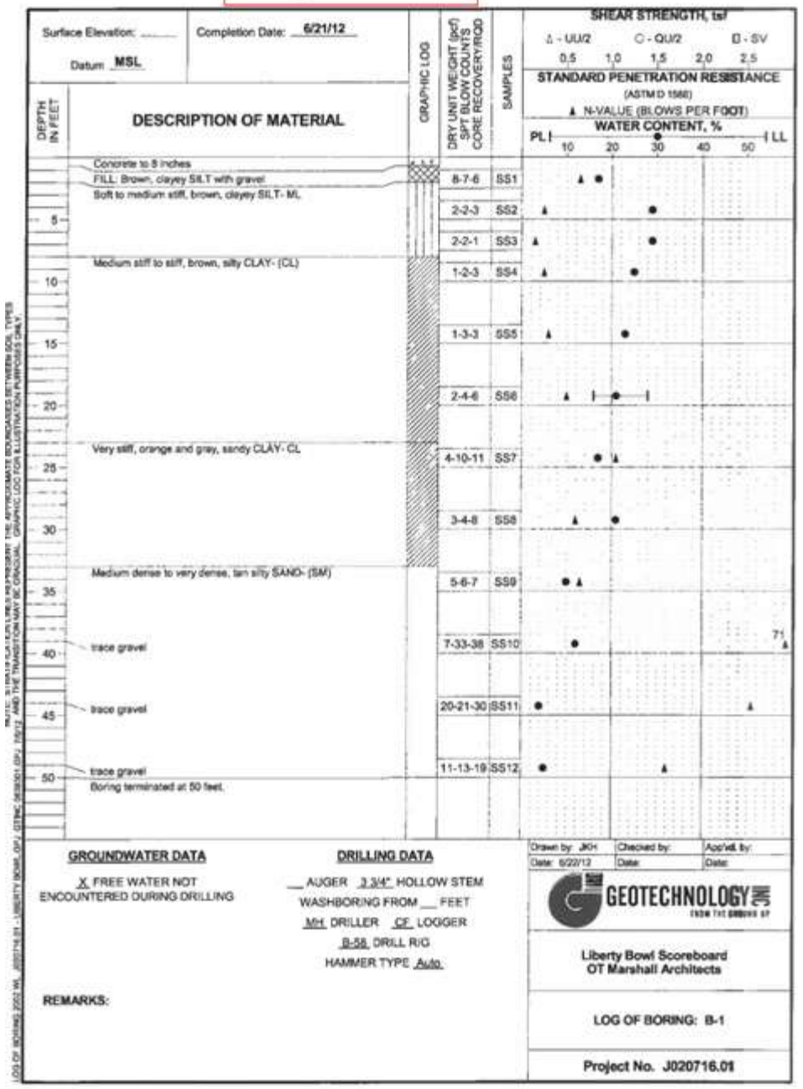
Subsurface Information
Currently there is limited subsurface geotechnical information available for the site. Walter P Moore has been provided 4 geotechnical logs that are relevant to the proposed new stadium by Geotechnology. Two of those logs are presented below.

The borings for the scoreboard extended below the surface 50 feet and indicate layers of stiff clay and dense sand. Per our conversations with Geotechnology rock is at least 2000 feet below the surface so soil improvement is not an option and all new foundations need to be founded on stiff to very stiff soils or consider significant side friction.

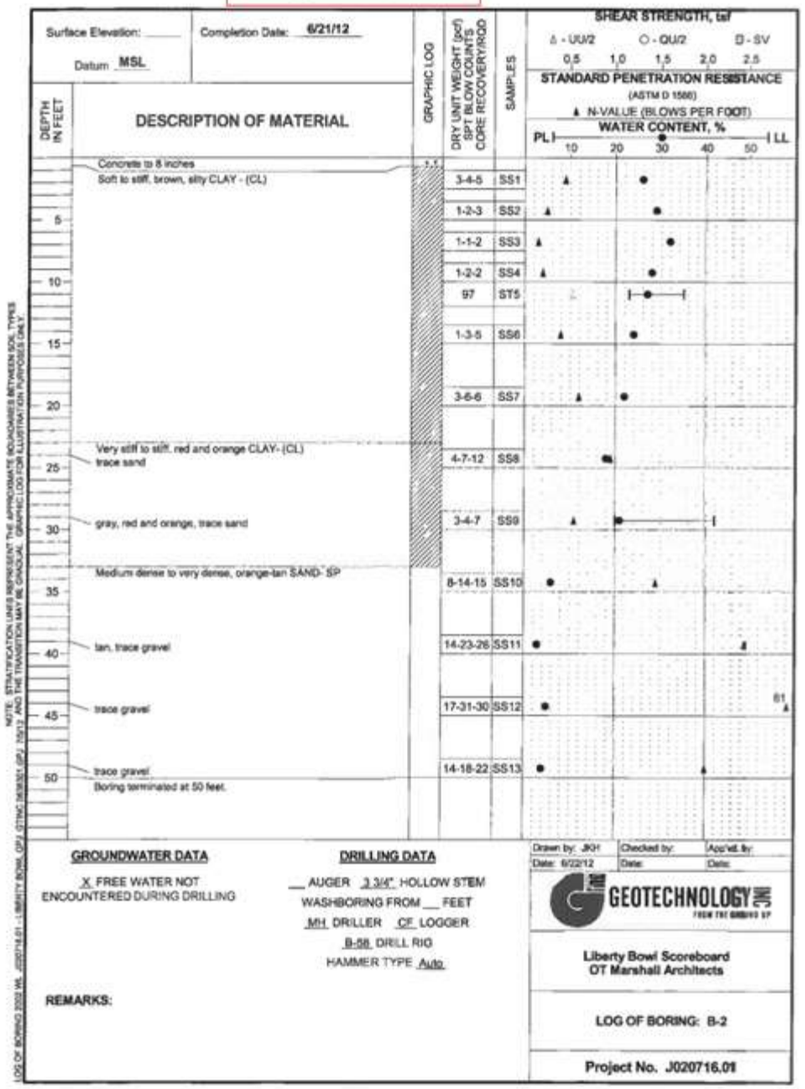
Structural **Narrative**

Per the experience of Geotechnology a site-specific seismic study is recommended and could result in up to 20% reduction in seismic loads for the structure compared to code -determined loads.

Located @ ~ 35.120°, -89.977°



Located @ ~ 35.120°, -89.977°

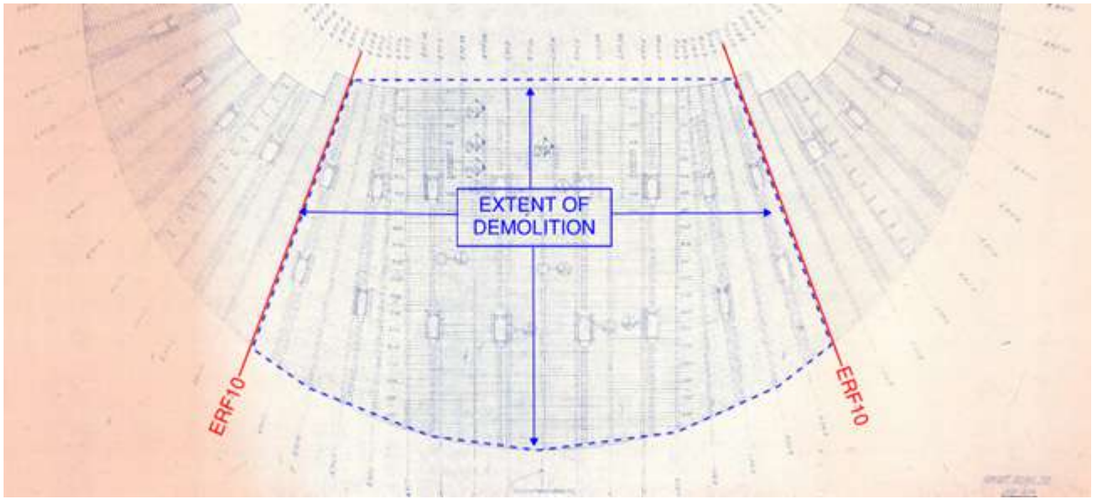


walter p moore POPULOUS

RECOMMENDED EXTENT OF NEW TOWER STRUCTURE

The existing stadium was designed in 1963 and built in 1965. The building code required by Memphis at that time did not require the new structure to be designed for any significant seismic loads or ductility. However, as noted earlier in the narrative, IBC 2018 requires this new facility to consider the very high-seismic load and ductility demands for buildings in Memphis. Due to these requirements any new design that leans on, is supported by or otherwise engages the existing concrete structure would require very expensive and significant strengthening. Further, the lateral-movement demands of any new structure or significant structural retrofit would results in required expansion joints much larger than the current joints which are 1-2" maximum. Therefore, it is our recommendation than the new sideline structure be designed and constructed as a complete stand-alone structure with expansion joints sized for the latest code requirements.

In order to realize the proposed new design and accommodate the current building code we recommend that the existing stadium structure be demolished from ERF10 TO ERF10 (expansion joint to expansion joint). See the figures below for recommended extent of demolition.



Structural **Narrative**

RETENTION SYSTEM OPTIONS AND EXCAVATION

As shown in the architectural renderings and new program it is anticipated that a significant about of excavation will be required on the SW sideline that will require new structural retention systems. Option for the new system may be a combination of conventional cast-in-place retaining walls and top-down systems such as tied-back solder piles. Any new system will need to consider the existing and adjacent structural foundations so that no new settlement or other adverse effects occur on the existing stadium structure to remain.

FOUNDATION OPTIONS

The existing stadium structure is founded on cast-in-place concrete drilled and belled piers. After discussion with Geotechnology we understand that type of foundation construction is no longer favored nor economical for heavily loaded structures in Memphis due to soil stability issues. Foundations systems for the new structure that may be considered are either uncased Auger-Cast Piles (ACP) and an intermediate soil stiffening system (i.e. rammed aggregate piers). Any new foundation will need to consider impacts to the adjacent existing foundations to remain.

SUPERSTRUCTURE FRAMING OPTIONS

Typical Seating Bowl

Since structural design of the proposed sideline structure has not started a description of the preferred structural framing system is yet to be determined. However, since the existing stadium structure is highly aesthetic and exposed cast-in-place concrete it is anticipated that any new structure will also be cast-in-place concrete up to and including the upper bowl. A transition to a structural steel system for the tower above the upper bowl will be considered due to the difficulty and costs associated in forming concrete at such a height.

MEP **Narrative**

ME Engineers provided a preliminary assessment of the MEP systems at Simmons Bank Liberty Stadium for the City of Memphis and the University of Memphis. Jeff Ewens and Scott Gerard conducted the facility assessment on 11/9/21. Below are our observations of the existing systems.

MECHANICAL OBSERVATIONS

The indoor conditioned spaces within the stadium are served by package DX air-handling equipment (i.e. rooftop units – RTU's) and by VRF and split-systems. There are no central heating or cooling systems such as boilers and chillers serving the stadium.

East Side

The east side of the stadium consists mainly of the following: Stadium Offices on the Lobby (Ground) Level, Concessions and Restrooms on the Lower and Upper Concourses, and (2) levels of Suites above the upper seating bowl.

The Stadium Offices are served by a package DX, gas-fired RTU on the roof of the office building and underneath the seating bowl above. Access to the unit was not available on the day of our facility assessment, but the age of the equipment is assumed to be in the 10-15 year range same as most of the rest of the heating and ventilating equipment on the east side of the stadium.

The concessions and restrooms on the Main and Upper Concourses are served by gas-fired roof-mounted heating ventilator units (HVU's) and local exhaust fans (EF's). The units appear to be in working order but of the same age as much of the HVAC equipment (10-15 years old) on the east side. While the equipment is in operational order, in a major stadium renovation, we would recommend replacing it with new equipment.

The (2) levels of suites in the East Tower are served by a Daiken variable refrigerant flow (VRF) heat pump system to provide both heating and cooling to the suites. The system consists of ceiling-mounted 4-way throw cassettes and wall-mounted cassette units in back-of-house spaces. The VRF systems are tied to roof-mounted condensing unit (CU) "farms" located in groups on roof curbs. Two gas-fired, DX roof-mounted makeup air units (MUA's) provide conditioned (neutral) outside air for ventilation in the suites and suite level corridors. The outside air is ducted down from the units on the roof and directly into the ceiling cassette units to blend the ventilation with the supply air at each VRF unit. All of the equipment appears to be approximately 10 years old (2012 and 2013 vintage equipment) and in decent working condition. The plastic housings on the indoor ceiling cassette units are yellowed and look aged. The refrigerant lines on the roof need new insulation, as the existing insulation is dry, cracked and falling off in many places. While the equipment is in operational order, in a major stadium renovation, we would recommend replacing it with new equipment.

North Side

The north side of the stadium consists mainly of the following: Visitors' Locker Room and Officials Locker Room.

The Officials Locker Room is served by a DX, electric heat split system with the condensing unit located in the void space above the locker room and below the seating bowl. We did not directly access the unit on the day of the assessment, but the CU was observed to be showing signs of age and wear. In a major stadium renovation, the HVAC units serving this area are recommended to be replaced.

The Visitors Locker Room is served by a Daiken package DX, electric heat RTU located in the void space above the locker room and below the seating bowl. Access to the unit is very difficult, and regular maintenance is likely reduced based on the difficult access to the unit. The unit was recently installed (it was manufactured in 2018), and it appears to be in good condition. In a major stadium renovation, it is recommended to provide a more suitable means of access to this unit for better overall maintenance and service.

West Side

The west side of the stadium consists mainly of the following: Stadium Entry, Main Concourse and West Tower consisting of a Club Level, Writing Press Level, Suites Level and Press Box Level.

The Stadium Entry consists of (2) tower buildings housing ticketing, concessions and restrooms. These areas area served by standalone single zone DX RTU's with electric heat and by electric unit heaters and roof-mounted exhaust fans. This area is planned for demolition in the stadium renovation, so no equipment would be expected to be salvaged or re-used.

The Main Concourse concessions and restrooms are served by gas-fired roof-mounted heating ventilator units (HVU's) and local exhaust fans (EF's). The units appear to be in working order but of the same age as much of the HVAC equipment (10-15 years old) on the east side. While the equipment is in operational order, in a major stadium renovation, we would recommend replacing it with new equipment.

The West Tower elevator lobby on the Ground Level is served by a Samsung 4-way throw ceiling cassette ductless split system. The unit looks dated and in need of replacement. The cassette housing was cracked and damaged in multiple locations. This unit should be replaced in any major stadium renovation project.

The (4) levels of Club, Suites and Press areas in the West Tower are served by a combination of the following:

+ (2) Carrier indoor DX split system AHU's with Carrier Gemini remote condensing units (CU's) on the roof above and with electric heat (presumably duct heaters but unable to observe location(s). Each indoor unit is located in a mechanical closet on the Club Level of the tower – one on the north end and one on the south end.
+ (4) Trane DX RTU's with gas-fired heat (two on each end of the tower).
+ (4) Trane 4-Ton DX split systems (two on each end of the tower)
+ Electric unit heaters (UH's) in the stairwells

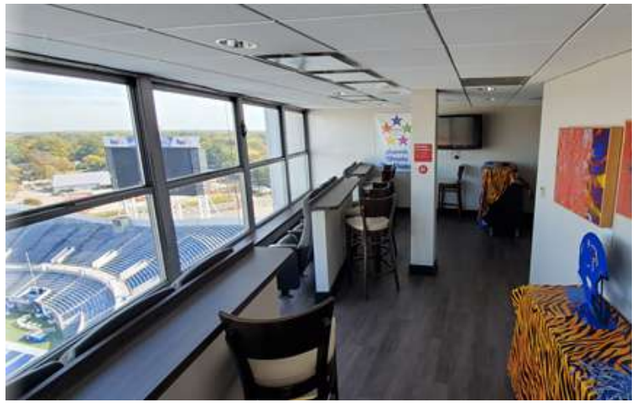
The air-handling systems are ducted throughout the West Tower to ceiling plaque style diffusers and perforated style return grilles. All of the equipment appears to be approximately 10 years old (2012 and 2013 vintage equipment) and in decent working condition. However, though the equipment is in operational order, in a major stadium renovation, none of this equipment would be expected to be salvaged or re-used.


Carrier
GEMINI


Carrier


DRAIN CLEAN
OUT UNION
Carrier


Level 1



South Side

The south side of the stadium consists solely of the recently renovated Home Team Locker Room. This locker room area was renovated in 2018, so the air-handling equipment serving the space is only a few years old.

The Home Team Locker Room is served by a DX, electric heat Daikin split system RTU located in the void space above the locker room and below the seating bowl with the condensing units located on a pad just outside of the locker room. Access to the unit is very difficult, and regular maintenance is likely reduced based on the difficult access to the unit. The unit was recently installed (it was manufactured in 2018), and it appears to be in good condition. In a major stadium renovation, it is recommended to provide a more suitable means of access to this unit for better overall maintenance and service.

Overall, the air-handling equipment serving Simmons Bank Liberty Stadium Stadium is all package DX RTU's, split-system AHU's and VRF systems. The equipment all appears to be in the 10-15 year age range and in good working condition. For areas of major renovation, we would recommend replacing all equipment and not salvaging the units for re-use. The exceptions are the Home Team Locker Room and Visitors Locker Room which are served by 2018 vintage air-handling equipment. The units are only a few years old and are serving areas not planned for demo or rework in the major renovation. Thus, we would recommend these units remain in service as-is but with better access provided to the units in the void space beneath the seating bowl.

PLUMBING OBSERVATIONS

East Side

The domestic water and fire water service to the east side of the stadium enter through the floor slab of the mechanical room just to the north of the Stadium Office entrance off the Main Concourse. The fire water service entrance appears to be a 6” pipe size that routes to a 100 HP fire pump before distributing to the building sprinkler and standpipe systems. It is assumed that this fire service entrance feeds both sides (east and west) and both ends (north and south) of the stadium, as no separate fire service entrances were observed during our assessment. The fire pump was showing signs of wear, and it was noted by Facilities staff that the pump was scheduled for replacement soon. It is recommended that the pump be replaced as part of any major renovation of the stadium.

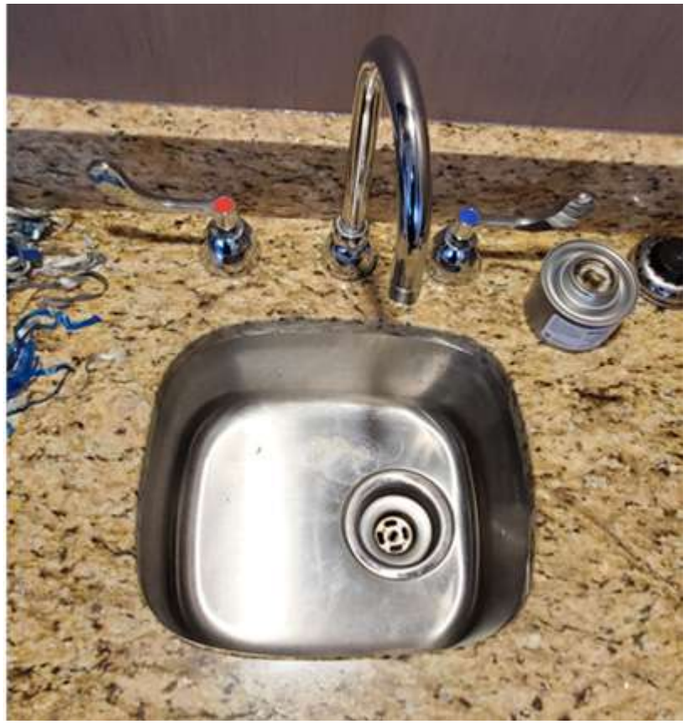
The domestic water service entrance appears to be a 4” pipe size that routes to (2) 15 HP Grundfos CR45 booster pumps before routing to the building’s domestic cold water distribution system. The Grundfos pumps were installed 8 years ago and appear to be well-maintained and in good working order. These pumps replaced the now-abandoned Systecon booster pump system. Facilities staff noted that the water meter is in a vault out by the street and that backflow preventers (BFP’s) were replaced about 5 to 6 years ago.

The insulated plumbing piping systems routed exposed in the concourses are showing signs of cracking and wear and should be re-insulated in a major renovation to maintain proper R-values and to improve aesthetics. Waste and vent systems appear to be in good condition to continue serving the stadium through a major renovation. Facilities staff noted that all of the original copper and cast iron plumbing piping has been replaced, so it is assumed that any plumbing piping left in place in a major stadium renovation has sufficient life-expectancy for the project.

Facilities staff noted that the plumbing fixtures were replaced on the east side in 2013. The fixtures appeared to be in good condition visually and operationally and could remain in service through the east side “facelift” portion of the anticipated stadium renovations. Automatic sensor-activated flush valves and manual single-lever faucets were utilized in public restrooms. Facilities noted that they prefer Sloan diaphragm type flush valves vs. piston style (both Zurn and Sloan flush valves were observed onsite). Any flush valves being replaced or added in the renovation should match existing to minimize the number of parts and supplies required on-hand. Any new floor drains added (if applicable) should be the combination drain/cleanout style to match existing. Drinking fountains are as shown below.

The concourse concessions and restrooms, as well as the suite levels above, are served by multiple individual gas-fired storage type water heaters that appear to be of 2014 vintage (7-8 years old). These units appeared to be in good working condition and could remain in service through the east side “facelift” portion of the anticipated stadium renovations. We would recommend that all of the hot water piping be completely insulated, as some was observed exposed inside the mechanical rooms/ closets in which they were installed.

The plumbing fixtures in the suite restrooms are of a more residential style (Kohler tank style toilets, undercounter lavs and manual single-lever faucets). The fixtures appeared to be in good condition visually and operationally and could remain in service through the east side “facelift” portion of the anticipated stadium renovations. Facilities noted that they prefer Kohler, American Standard and Gerber for all plumbing fixtures in the stadium. Any fixtures being replaced or added in the renovation should match existing to minimize the number of parts and supplies required on-hand. Each suite has a bar sink, as well, consisting of a deep-basin stainless steel sink with gooseneck faucet and hot and cold paddle type valves. Drinking fountains are as shown below.



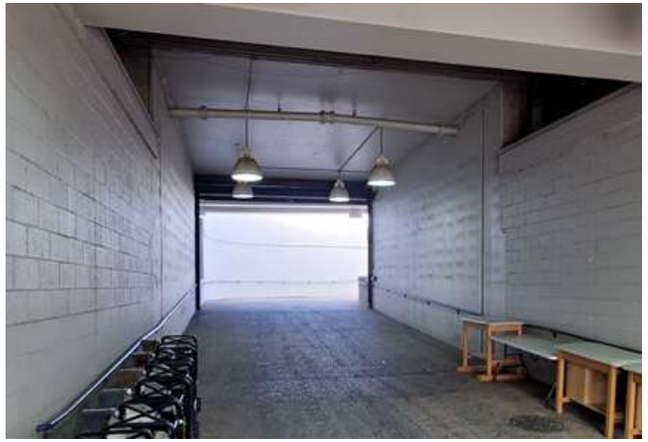
Roof hydrants are provided at the East Tower roof for cleaning and maintenance. These should be inspected and repaired, as required, as part of the east side “facelift” portion of the anticipated stadium renovations. Clean and paint piping, as well.

Only primary roof drains were observed on the roof of the East Tower during our assessment visit. These should be inspected and cleaned/repaired, as required, as part of the east side “facelift” portion of the anticipated stadium renovations. Consider providing a secondary means of storm drainage from the roof (e.g. scuppers).

Gas piping on the roof should be cleaned and painted as part of the east side “facelift” portion of the anticipated stadium renovations.

North Side

Domestic and fire water are routed to the north end of the stadium from one of the main entrances on either the east or west side (this was not observed on the day of the assessment). This piping is to remain in place and in service during the multiple phases of the stadium renovation.



Domestic hot water is provided to the north end Officials and Visitors Locker Rooms via individual storage type gas-fired water heaters that appear to be of 2010 vintage (~12 years old). These units appeared to be in good working condition and could remain in service through the east side “facelift” portion of the anticipated stadium renovations.

The plumbing fixtures appeared to be in good condition visually and operationally and could remain in service through any portion of the anticipated stadium renovations. Automatic sensor-activated flush valves and manual single-lever faucets were utilized in the locker room restrooms. Any flush valves being replaced or added in the renovation should match existing to minimize the number of parts and supplies required on-hand. The gang-style showers are a dated concept and should be considered for replacement with more individualized showers common to more modern collegiate football stadium facilities.

The north end locker rooms are served by newer model PVI electric storage type water heaters located in the void space above the locker room and below the seating bowl. Access to the units is very difficult, and regular maintenance is likely reduced based on the difficult access to the unit. The units were recently installed (they were manufactured in 2018), and they appear to be in good condition. The water heaters could remain in service through the east side “facelift” portion of the anticipated stadium renovations. Note, however, that Facilities staff noted that their eventual replacement would be difficult given their location and lack of removal path means. In a major stadium renovation, it is recommended to provide a more suitable means of access to these units for better overall maintenance and service.

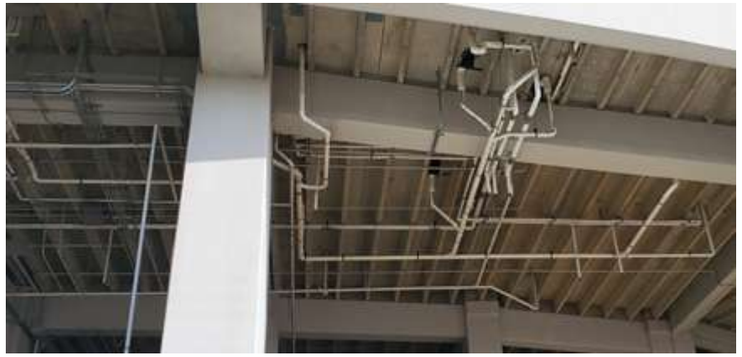
There is a sanitary sewer lift station in the north end locker room area. This system must be retained and remain in service during any phases of the anticipated stadium renovation. It is recommended that this system be thoroughly inspected and serviced with any defective part repaired or replaced as part of any “facelift” portion of the anticipated stadium renovation.

West Side

The domestic water service to the west side of the stadium enters through a doghouse structure in the parking lot to the west of the stadium. There is a 6” water line that splits into (2) 4” backflow preventers (BFP’s) and then combines back into a 6” main underground. There are multiple water lines branching off of this main underground to enter the stadium in multiple locations. Facilities indicated that these lines are fairly new and in good condition. The water then enters a booster pump room just outside of the stadium where it is boosted for the elevated pressure needed in the West Tower. The original Goulds booster pumps have been replaced with (2) 15 HP Grundfos CR45 booster pumps. It is assumed that the Grundfos pumps were installed 8 years ago, the same time as the east side pumps. They appear to be well-maintained and in good working order. It is recommended that the remainder of the cold water piping in the pump room be insulated, as portions of the piping were observed to be bare and uninsulated.

The fire water service entrance to the West Tower is through a valve closet on the ground floor of the tower elevator lobby. Note that the valve was leaking on the day of the assessment and needs to be repaired. Not much else could be observed of the fire water piping in the closet, as it was extremely congested and full of conduit, piping and wiring. Each floor of the tower is also equipped with hose reel cabinets with hoses for manual fire fighting.

Waste and vent piping systems routed exposed in the concourses appear to be in good condition. However, this portion of the stadium is anticipated to be demolished and rebuilt, so all of this piping is expected to be replaced with new.



South Side

Natural gas to the entire stadium is fed from the south side main gas meter located next to an exterior boiler building to the south of the stadium. The gas is metered and regulated and then feeds underground to the east and west sides of the stadium.

Domestic and fire water are routed to the Home Team Locker Room on the south end of the stadium from one of the main entrances on either the east or west side (this was not observed on the day of the assessment). This piping is to remain in place and in service during the multiple phases of the stadium renovation.

Domestic hot water is provided to the south end Home Team Locker Room via an instantaneous water heater located in a separate boiler building to the south of the stadium. Hot water it piped overhead to the stadium where it connects to a storage tank in a mechanical room adjacent to the locker room and serves the heating water loads there. The water heater appeared to have been serviced quite a bit and was “in pieces” to some degree on the day of our assessment. It is recommended that the water heater be replaced with a new unit during any portion of renovation to the stadium. It would be ideal to move the unit adjacent to the stadium to avoid the long runs of exposed piping between the water heater and the storage tank. The indoor tank, piping and pumps looked new and in good working condition.

The plumbing fixtures are in good condition visually and operationally and could remain in service through any portion of the anticipated stadium renovations. Automatic sensor-activated flush valves and manual single-lever faucets were utilized in the locker room restrooms. Any flush valves being replaced or added in the renovation should match existing to minimize the number of parts and supplies required on-hand.

There is a sanitary sewer lift station in the south end locker room area. This system must be retained and remain in service during any phases of the anticipated stadium renovation. It is recommended that this system be thoroughly inspected and serviced with any defective part repaired or replaced as part of any “facelift” portion of the anticipated stadium renovation.

Overall, the plumbing services to the existing stadium will need to be evaluated for appropriate capacity to serve any new loads associated with a major renovation. The domestic and fire water sizes should be adequate for the renovation, but the gas service and meter may need to be upsized depending on the amount of new heating and cooking will be added to the stadium. Storm and sanitary systems on the east and west side should be adequate for the renovation, but the lift stations on the north and south ends will need to be evaluated based on new loads placed on them in the renovation.

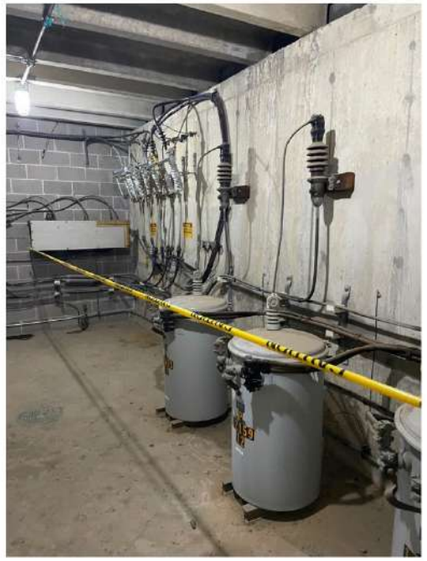
ELECTRICAL OBSERVATIONS

ME Engineers provided a preliminary assessment of the power distribution and lighting systems at Simmons Bank Liberty Stadium for the University of Memphis. Below are our observations of the existing electrical system.

Overall, the power distribution system appears to be in good working condition and is well maintained. The only item of concern is the East main electrical service that is showing signs of rust and deterioration due to water and moisture in the room. The lighting system also appears to be good working condition except for the concourse LED lights which are producing a yellow light (versus white light) due to bad LEDs and/or drivers on the fixtures.

Power Distribution System

The power distribution system is well maintained. To ensure the reliability of the system, the stadium has two incoming feeds from Memphis Light, Gas and Water (MLGW) that terminate into vaults located on the east and west sides of the stadium. These vaults feed transformers on site and service entrance switchboards in main electrical rooms



West Vault

East Vault

The stadium electrical services will consist of the following:

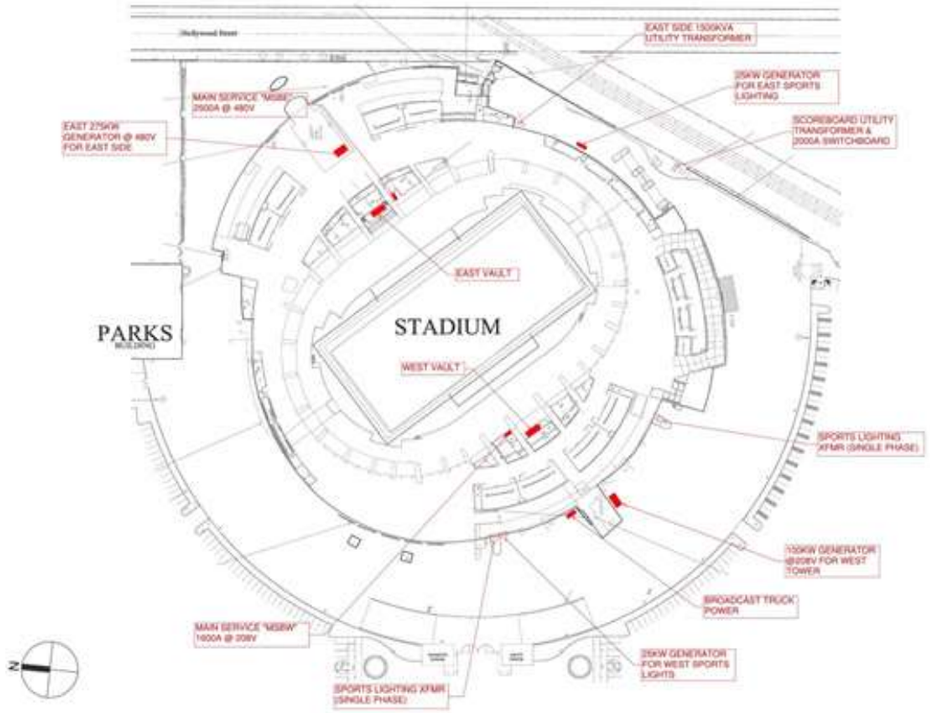
+ West Side: 1600amp @ 120/208volt fed from vault transformers
+ East Side: 2500amps @ 277/480volt fed from 1500kVA transformer
+ Scoreboard Service: 2000amp @ 120/208volt fed from adjacent transformer
+ West Sports Lighting: Fed from single phase transformer adjacent to light pole
+ East Sports Lighting: Fed from east side main service

West Electrical Room

East Electrical Room

MEP **Narrative**

The following is a map of the electrical distribution on site



The stadium emergency generation consist of four diesel generators located around the building. The following is the generators:

+ West Side Tower: 100kW generator @ 120/208volt
+ East Side Tower: 275kW generator @ 277/480volt
+ West Sports Lighting: 25kW generator @ 120/208volt
+ East Sports Lighting: 25kW generator @ 277/480volt

West Tower Generator

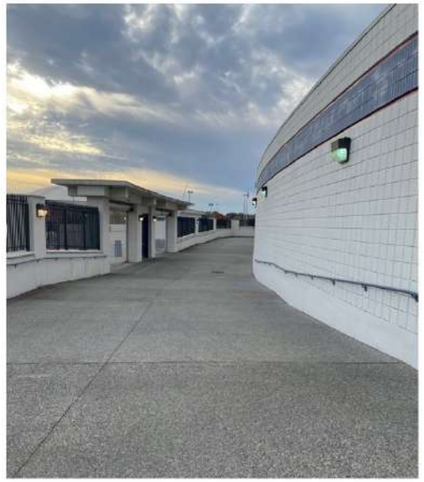
East Tower Generator

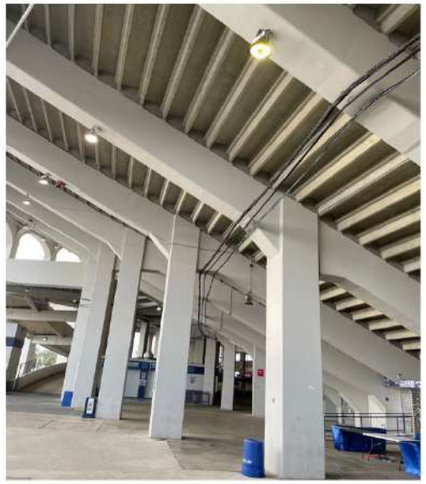
As part of a major stadium renovation, the electrical service on the west and east sides would be required to be replaced and upgraded to a 480volt service. The upgrade would include removing the west side utility vault, removal of the west generators and providing a new generator on the west side that can serve the new structure and sports lighting.

Lighting System

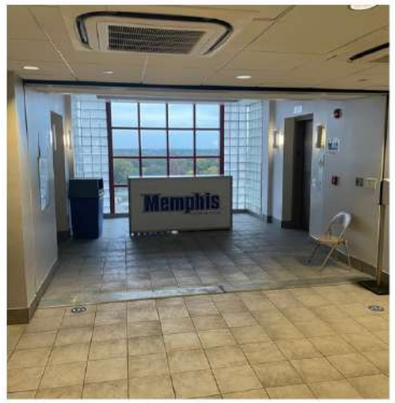
The stadium is generally illuminated by LED, fluorescent and quartz fixtures. The type of fixtures and sources vary by type of space, the level of finishes and the lighting products available at the time of construction. Overall, the lighting system is well maintained and functioning properly except for the LED lights on the public concourse and ramps. These fixtures are producing a yellow color resulting in an illumination level in concourse that is less than recommended.

The existing lighting controls was installed in 1987 as part of that renovation of the stadium. It generally, the controls consist of local wall switches and contactors to turn off and on lights. The dimming control is limited to suites and home team locker room. A Blue Box relay control system was installed as part of the 2013 renovation and controls the lighting in both the press box and suite tower.





Public Concourse Lighting



East Suite Tower Lobby

Home Team Locker Room

Concession

Public Restroom

Exterior Site & Facade Lighting

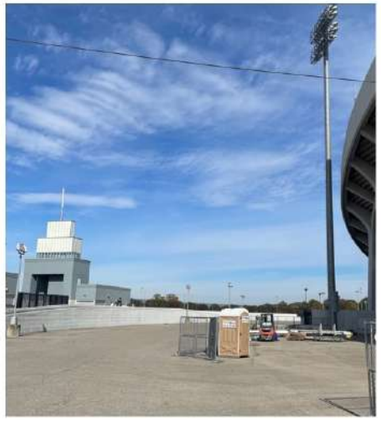
The exterior site and façade lighting consist of metal halide fixtures for direct illumination of plazas and color changing RGB fixtures to illuminated the underside to the seating bowl on the main and upper concourses. The façade system is a DMX controlled system.

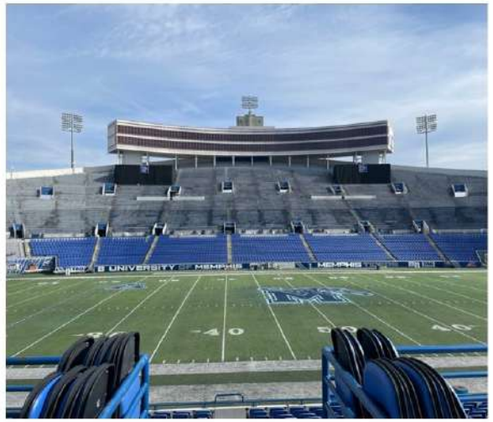
As part of any major renovation, we recommend new LED fixtures be provided in the concourse along with new controls. The renovation should include new LED lighting in the renovated areas and stadium control system that has web-based interface and local occupancy sensors to turn off and on the lighting automatically.

MEP **Narrative**

Sports Lighting System

The sports lighting for the stadium is comprised 1500watt and 2000watt metal halide fixtures manufactured by Musco lighting. The current field illumination design will produce approximately 125 footcandles horizontally and 125 footcandles vertically for the main TV camera. Each of the corner poles have emergency fixtures that illuminate the seating bowl and are connected to a diesel generator. Overall, the system appears to be good condition and working properly.





Sports Lighting

As part of a renovation, the existing fixtures should be replaced and upgrade with LED fixtures for energy efficiency and dynamic game lighting experience.

Fire Alarm System

The stadium has a Simplex 4100 addressable fire alarm system. This system provides audio/visual annunciation throughout the stadium, and we believe it can communicate audio messages to the seating bowl via PA system should an emergency arise.

The Simplex fire alarm appears to be well maintained and functioning properly. We would anticipate as part of any renovation the system could be expanded by adding additional battery storage, transponders and initiation/notification devices.

East Lobby FA Control Panel

Electrical Room FA Control Panel

Civil **Narrative**

GENERAL SITE CONDITIONS

Simmons Bank Liberty Stadium is part of the fairgrounds complex owned by the City of Memphis. The site is served with drive isles, parking and with all utilities. The site is generally flat around the stadium and impervious to storm water. The city is undertaking a storm water study to determine possible ways to detain storm water on site, and lessen the stormwater impacts to the neighborhoods. Any increase in landscape beds or pervious area will assist in this storm water runoff and should be incorporated into the global storm water management plan.

SITE DEMOLITION

It appears the site demolition should have adequate space to work on site with no existing buildings in the area with good access to the public streets. It is anticipated that access from South Hollywood Street will be utilized for construction with construction traffic using the parking lots for storage. Cost to repair the parking lots and access road should be budgeted.

PAVING IMPROVEMENTS

The onsite paving improvements consist of concrete paving at the concourse levels. The proposed concourse paving for the project should be heavy duty and consist of an 8-inch concrete over 6-inch rock base to allow for heavy vehicular traffic to unload deliveries to the stadium. All concourse paving will be graded to maintain ADA accessibility.

EARTHWORK AND GRADING

For the concourse, grading outside of the proposed building outline will generally match existing topography with slight changes to accommodate for the new building's finished floor elevation. Grading on the concourse will be sloped to maintain ADA accessibility.

UTILITIES

The sanitary sewer and stormwater are under the city public works department and the water is under Memphis Light, Gas and Water (MLGW). Those agencies will ask what the future flows will be for the expansion and then will determine if the utilities have the capacity and the capability to handle the future flows. The city does not have a public GIS website that shows the water and sanitary sewer lines within the city, but existing plans for sanitary sewer and stormwater in the area were obtained by contacting the public works department. MLGW was contacted to identify waterline line sizes around the stadium, but has not responded to the request, therefore the 1986 topographic survey will be utilized. The individual sections below will provide more insight into each utility.

Storm Sewer

The city is currently completing a comprehensive study to determine possible options for how storm water can be reduced from the fairgrounds to the surrounding neighborhoods. Due to the existing site's high percentage of impervious area, any addition to Simmons Bank Liberty Stadium complex will likely not increase the impervious area of the site and therefore will not add to the storm water issues downstream. According to the original plans and 1986 topographic survey, the stadium is wrapped with storm sewer pipes that range from 12" to 18" and collects in a 36-inch pipe that discharges across the railroad to the north. The stadium bowl storm sewer is a 36" pipe and appears to be independent of the surrounding stadium storm sewer. The bowl storm sewer crosses Hollywood Blvd. and the railroad and then drains south.

Domestic Water and Fire Line

The existing water service line from the 1986 survey appears to be 6" that wraps around the stadium. This waterline will need to be flow tested for fire protection pressure for any new additions. Future demands will likely require replacing and upsizing these waterlines.

Sanitary Sewer Main and Service Lines

The existing sanitary sewer main exiting the stadium is an 8" line that flows into a 10" line that parallels the railroad going south. This sewer line then crosses the railroad and connects to the sewer under Hollywood Blvd. The sewer under Hollywood Blvd. appears to be an 8" according to the original plans. The 1986 plans show a portion of this sewer to be a 10" line that would then again connect to an 8" line. Based on other similar style of projects with this type of expansion to the stadium, the sewer capacity will need to be checked for game day flow. It does appear from the old plans the sanitary sewer has one outlet and that is to the southeast at the bowl entrance. The improvements to the stadium should have its own sewer connection instead of running under the field.

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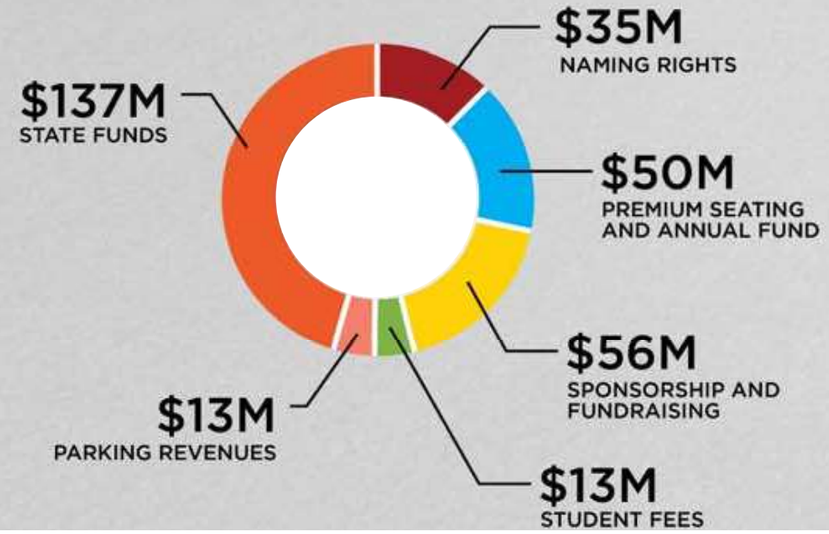
Funding Models

Funding Models

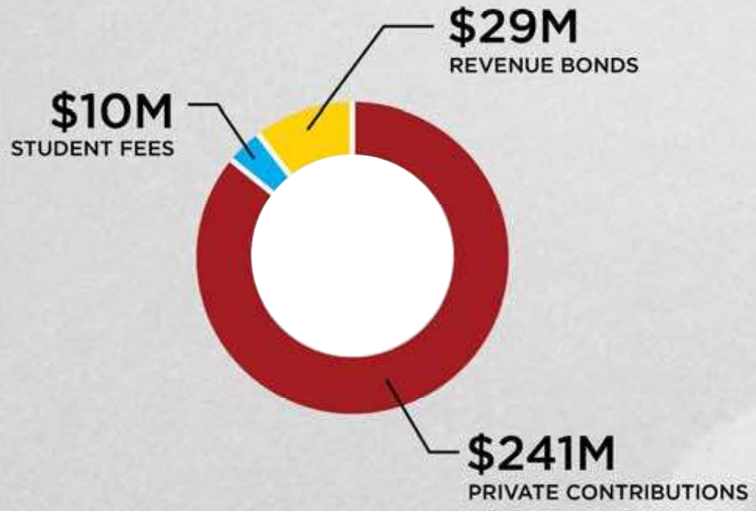
UNIVERSITY OF MINNESOTA

TCF BANK STADIUM
CAPACITY : 50,805
COST : $303M



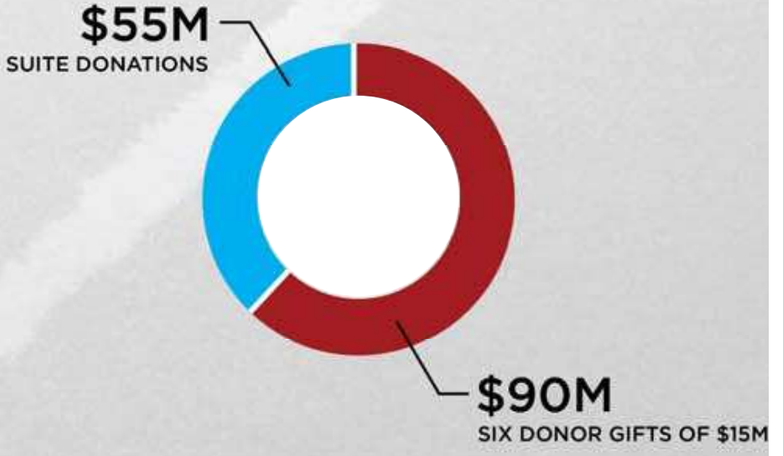
OKLAHOMA STATE UNIVERSITY

BOONE PICKENS STADIUM
CAPACITY : 60,218
COST : $280M



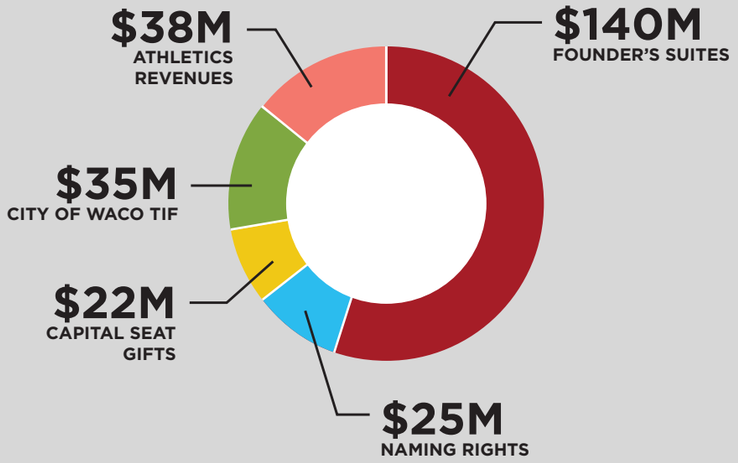
TEXAS CHRISTIAN UNIVERSITY

AMON G. CARTER STADIUM
CAPACITY : 43,000
COST : $145M



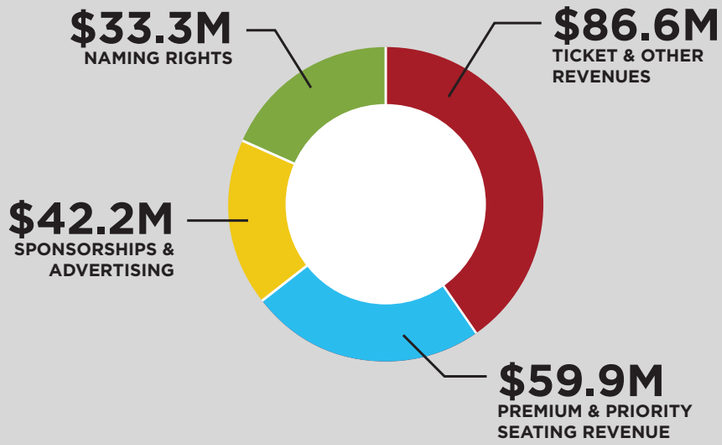
UNIVERSITY OF BAYLOR

McLANE STADIUM
CAPACITY: 45,500
COST: $260M



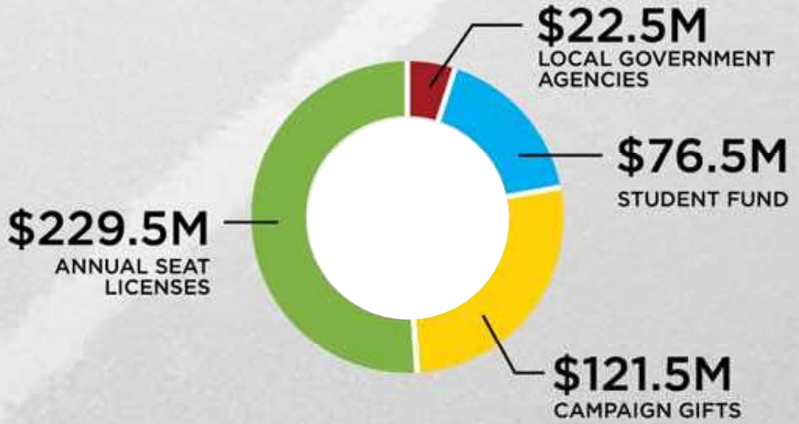
COLORADO STATE UNIVERSITY

COLORADO STATE STADIUM
CAPACITY: 40,160
COST: $222M



TEXAS A&M UNIVERSITY

KYLE FIELD
CAPACITY : 102,500
COST : $485M

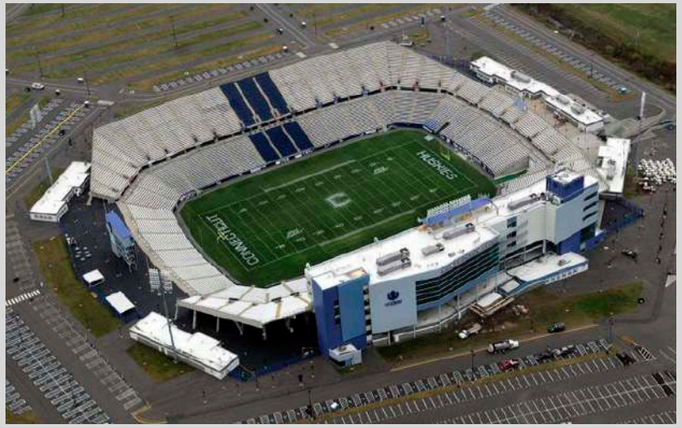


Funding Models

Pratt & Whitney Stadium at Rentschler Field

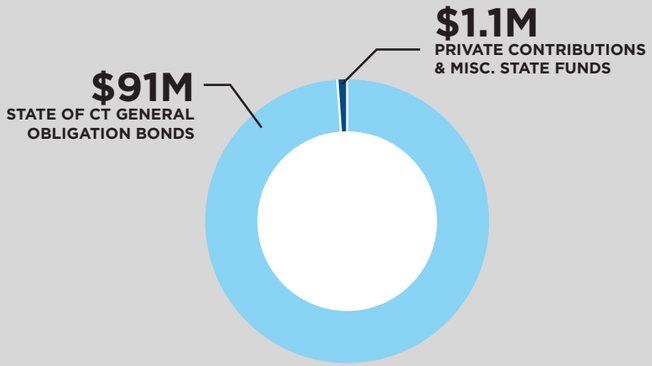
East Hartford, Connecticut

A State owned stadium and home to the University of Connecticut Huskies



Capacity: 40,000

Cost: $92M



*Ongoing capital improvements, or shortfalls in operating, are funded via the State Enterprise

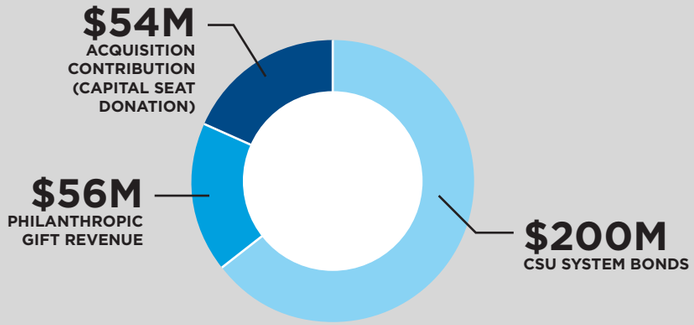
SnapDragon Stadium

San Diego, California

A community stadium on the San Diego State University campus

Capacity: 35,000

Cost: $310M



*Bonds to be paid back with revenue generated by the facility including ticket revenue, naming rights and conessions.

*Operating costs will also be supported by revenue generated by the facility including ticket revenue, facility rental revenue, naming rights, sponsorship, and donations.

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Cost Estimate

Cost Estimate

Simmons Bank Liberty Stadium
Conceptual Estimate
February 11, 2022

Barton Malow

	GSF	Direct Construction Costs	Indirect Costs	Owner Costs	Total Cost
Phase 1					
Halo Activation	**184,897**	$ 10,988,528	$ 2,758,120	$ 3,952,161	**$ 17,698,810**
West Grandstand	**182,253**	$ 85,685,400	$ 21,507,035	$ 30,817,825	**$ 138,010,261**
North End Zone Access Ramp	**6,680**	$ 2,234,731	$ 560,917	$ 803,749	**$ 3,599,397**
Wayfinding + Graphics		$ 1,500,000	$ 376,500	$ 539,494	**$ 2,415,994**
Total Project Cost (Phase 1 - Halo + West Grandstand)					**$ 161,724,461**

Simmons Bank Liberty Stadium
Conceptual Estimate
February 11, 2022

Barton Malow

	GSF	Direct Construction Costs	Indirect Costs	Owner Costs	Total Cost
Phase 1 Alternates					
West Grandstand	**28,034**		$ 3,504,250	$ 879,567	$ 1,260,347	**$ 5,644,164**
Add Alt for Suites (ILO Press)	28,034	$ 3,504,250			
Phase 2					
North End Zone Service Level	**22,074**		$ 10,495,675	$ 2,634,414	$ 3,774,901	**$ 16,904,990**
Storage	8,436	$ 3,374,400			
Kitchen + Commissary	5,870	$ 3,932,900			
Concert Talent Amenities	6,261	$ 2,660,925			
Vertical Circulation	1,507	$ 527,450			
North End Zone	**47,572**		$ 9,803,700	$ 2,460,729	$ 3,526,023	**$ 15,790,452**
North Main Concourse	25,000	$ 2,875,000			
Family Boxes	9,081	$ 2,270,250			
Corner Field Club	7,841	$ 3,528,450			
Visting Team + Official Locker Room	5,650	$ 1,130,000			
Phase 3					
East Grandstand	**61,258**		$ 15,681,100	$ 3,935,956	$ 5,639,904	**$ 25,256,960**
Horizon Level	1,050	$ 1,050,000			
Platform 1 Renovation	10,900	$ 1,635,000			
Platform 2 Renovation	10,900	$ 1,635,000			
East Main Concourse Improvements	25,000	$ 2,875,000			
Hall of Fame/Administration	13,408	$ 6,033,600			
Add Alt for Press (ILO Existing Suites to Remain)	10,900	$ 2,452,500			
Phase 4					
South End Zone	**35,446**		$ 11,043,300	$ 2,771,868	$ 3,971,861	**$ 17,787,029**
SRO Party Decks	10,892	$ 2,723,000			
Recruiting Lounge	5,564	$ 2,503,800			
Home Team Locker Room Upgrade	10,916	$ 2,183,200			
Corner Field Club	8,074	$ 3,633,300			
Optional Amenities			$ 3,055,025	$ 766,811	$ 1,098,778	**$ 4,920,614**
Soccer Field - Expansion	-	$ 500,000			
East Lower Bowl Seating	9,291	$ 2,555,025			
Video Board	-	Not Included			

POPULOUS