

Campus Hydroscaapes:

WATERSHED AS A PLANNING PLATFORM FOR CAMPUS IMPROVEMENTS IN THE UNIVERSITY OF ARKANSAS ATHLETIC VALLEY

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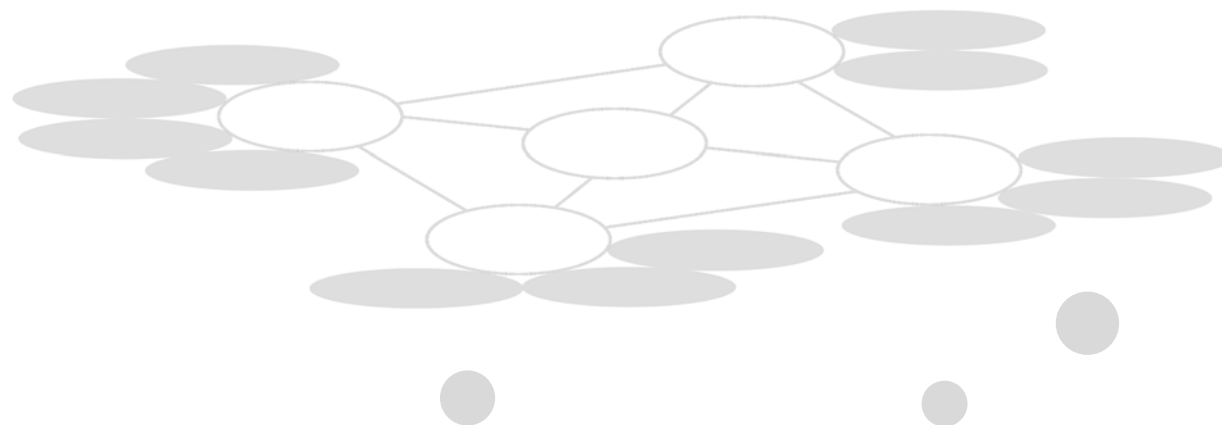
Region 6

Washington County, Arkansas

Fayetteville, Arkansas

August 2005





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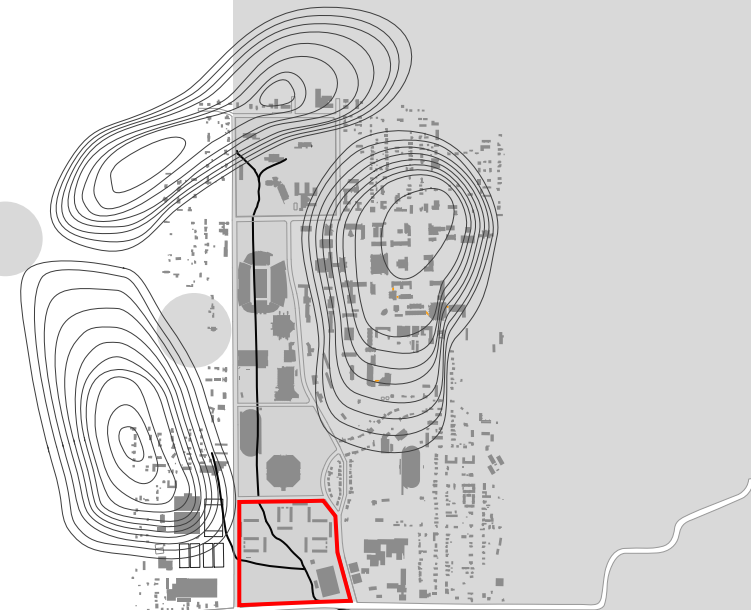
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Athletic Valley

Project Map

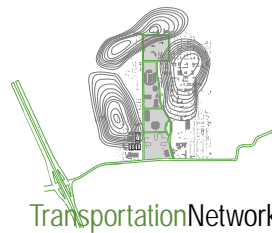
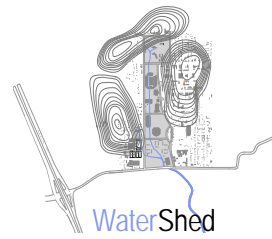
SYSTEMS

Three Campus Planning Systems,
Three UACDC Watershed-Based Solutions,
Eight Student Variations

While watershed planning serves as a platform approach to campus site design, other systems related to land use and landscape architecture are key components in this “recombinant urbanism”. Recombinant urbanism is based on interface design strategies that simultaneously solve for problems in various community and campus systems.

The eight student speculations on watershed urbanism propose an organizational and spatial vocabulary for connecting water to place. Since contemporary urban planners have never known what to do with water (it held little development potential and was seen as too dynamic), *Campus Hydroscaapes* explores planning strategies that combine the poetic and pragmatic dimensions of hydrological systems.

These eight projects serve as a foundation for the watershed planning solutions introduced in *Campus Hydroscaapes*.



Watershed

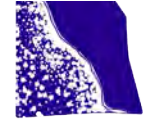
Riparian
Corridor

Parking

Vegetal
Edges

Housing

SOLUTIONS

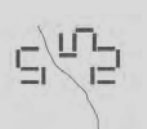
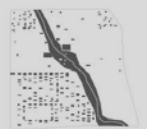


HydrologyPixelation

Existing

Pixelated Landscape

Gateway Park





RiparianBands



TotalMarsh

Riparian Digits

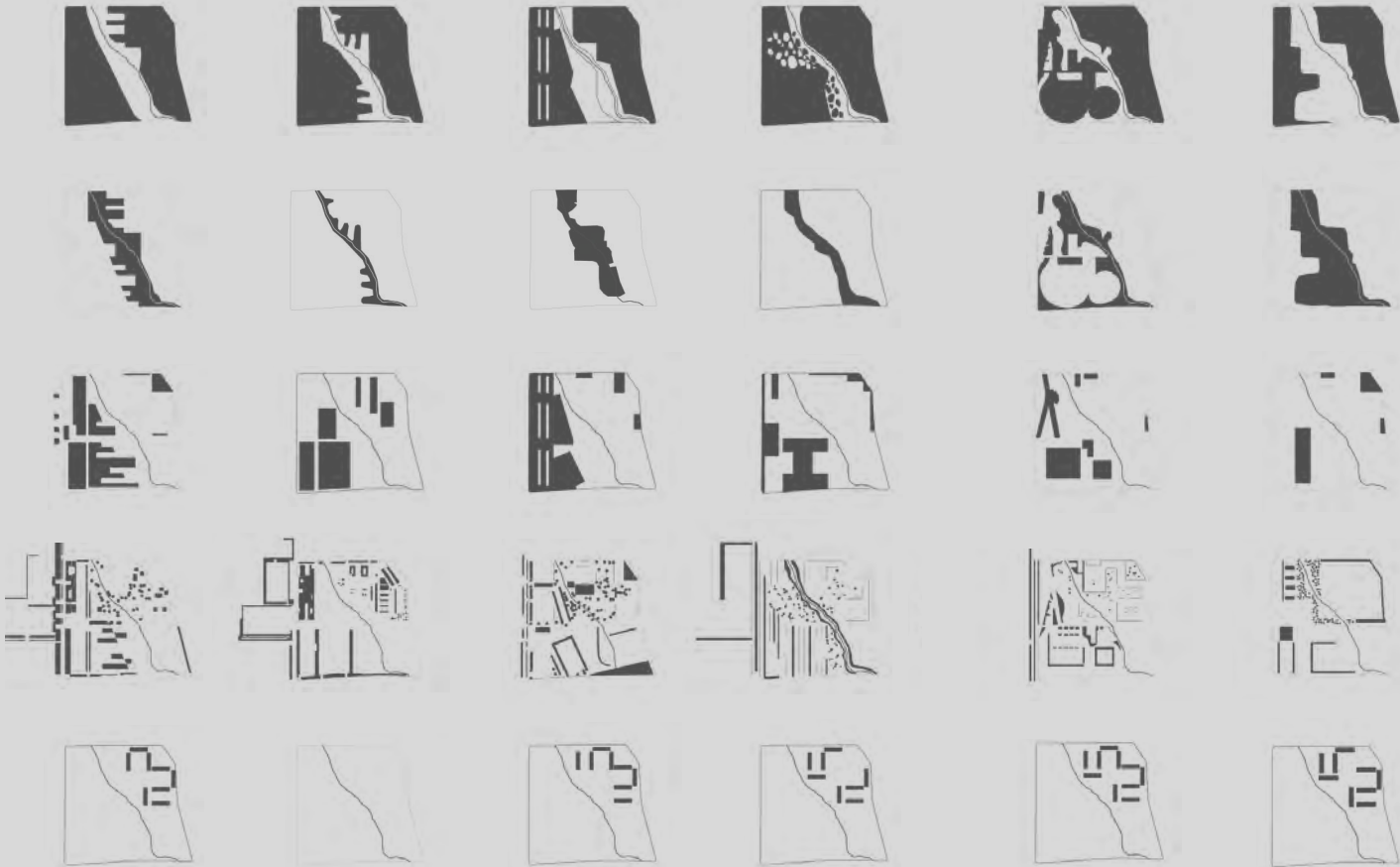
Water Park

Riparian Bands

Floodway Park

Collage City

Total Marsh



VARIATIONS

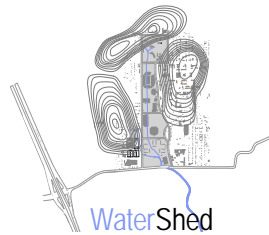
Campus Systems

Campus Systems

Watershed-Based Urbanism

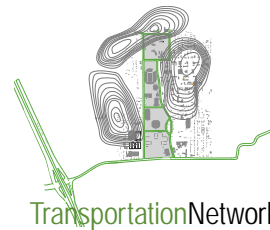
Campus Hydroscaapes is an urban stream corridor improvement study for the University of Arkansas College Branch tributary, located in the southwest quadrant of campus. Urbanized growth on campus and in the surrounding community has stressed area watershed systems, directing increased stormwater runoff and nutrient inputs into local streams. Water channelized into College Branch from additional roads, parking, buildings, and stormwater catchment infrastructure exceeds the stream's *carrying capacity*—or the ability to maintain normal ecological functions. Excessive fertilizer and other lawn maintenance agents used on local landscapes drain to the stream, altering its nutrient composition and aquatic wildlife balance. The resulting imbalance in the stream's metabolism goes beyond ecological impacts to effect urban infrastructure. Excessive flow rates and stream bank loss now threaten walks and bridges, including one on Arkansas State Highway 62. Channelization solutions only exacerbate the problems and multiply dysfunctions downstream. The goal is to provide a holistic stream remediation plan using ecological principles governing healthy riparian systems rather than hard engineering strategies that promote channelization.

An ecological approach to stream management—keeping in mind that everything is connected to everything else—entails study of other urban systems impacting the stream. While *Campus Hydroscaapes* also addresses these intersecting campus systems related to transportation and housing, the watershed remains the regulating structure for this study. The watershed restoration and management models presented in this study should serve as a planning platform for further campus development in the Athletic Valley. Interface solutions among watershed, transportation, and housing systems should solve for multiple problems, enhancing ecological and campus services simultaneously. In the tradition of American campus planning, it was often the campus as an integrated environment that served as a model for the city.



WaterShed

College Branch is a first order stream originating on campus in one of the area's most significant urban sub-basins. The stream expresses the classic dysfunctions of urbanization effects: flash flooding, stream bank erosion, sediment migration, habitat loss, and degraded water quality. Watershed-based planning approaches using ecological engineering strategies will serve as a platform for smart campus development.



TransportationNetwork

Parking, roads, bus stops, pedestrian and bicycle facilities as a transit system constitute the single largest programmatic element of campus. Athletic and service facility developments along the southwest campus edge project a "back door" impression to this popular campus entry. Inter-modal-based planning approaches employing landscape architectural and architectural design strategies will provide a wayfinding structure for the Athletic Valley.



HousingFabric

Carlson Terrace Housing, designed by the renowned architect Edward Durell Stone in 1958, is a legacy development in need of modernization. Near to surrounding commercial businesses, the housing is popular with international students and is the only on-campus housing for married students. Renovation strategies will explore improved livability in this masonry-constructed housing that challenges affordable upgrades.

WaterShed



Typical storm conditions



The first hour of stormwater runoff has a pollution index greater than that of raw sewage.

Flooding occurs during every significant rain event: the change in water level shown above occurred in approximately ten minutes.

Transportation Network



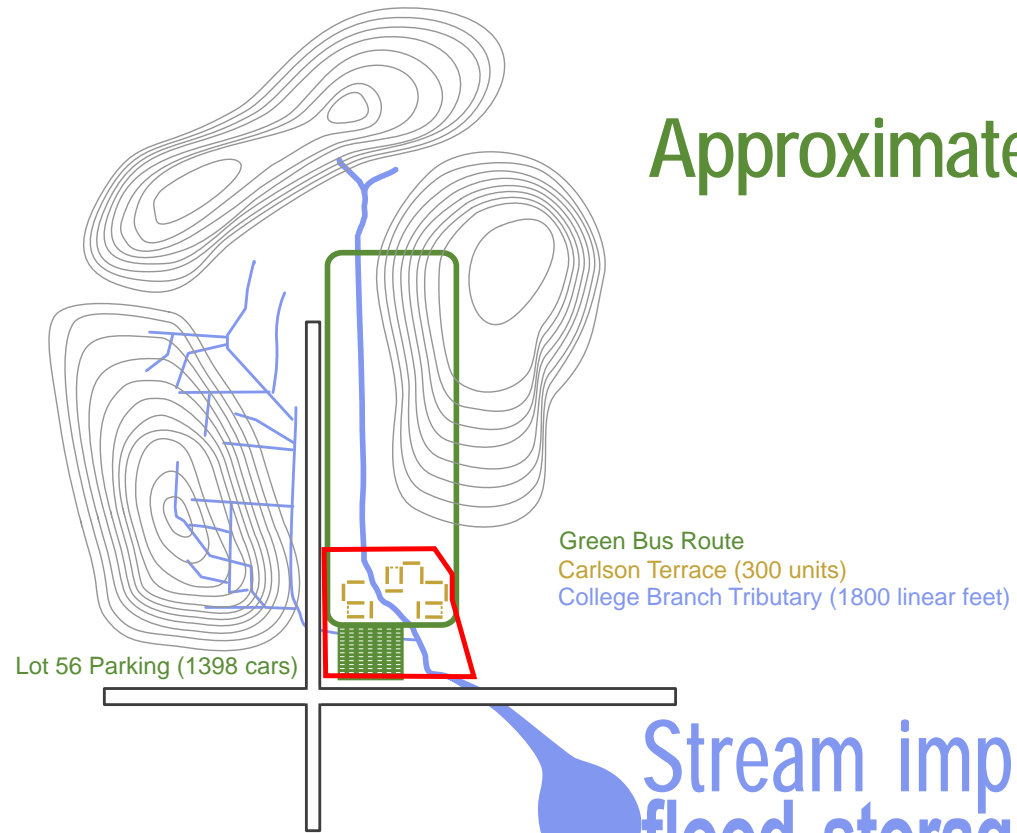


HousingFabric





PROJECT_SITE and ISSUES



Approximately 80,000



Green Bus Route
Carlson Terrace (300 units)
College Branch Tributary (1800 linear feet)

Lot 56 Parking (1398 cars)

Stream improvements
flood storage to correct



Carlson Terrace Housing is the only on-campus married student housing, yet renovation of this 45-year old architectural legacy by the renowned architect, Edward Durrell Stone, poses a feasibility challenge.

people descend upon the Athletic Valley during home football games.

Rainwater from surrounding community and campus development drains into College Branch tributary, resulting in frequent flooding on South Campus.

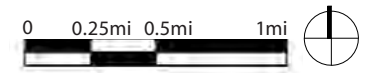
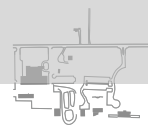


The Athletic Association owns Lot 56 and revenues from parking rentals generate scholarship funding; decrease in parking capacity diminishes scholarship funding.

need the entire site for retention and on-site and downstream dysfunctions.



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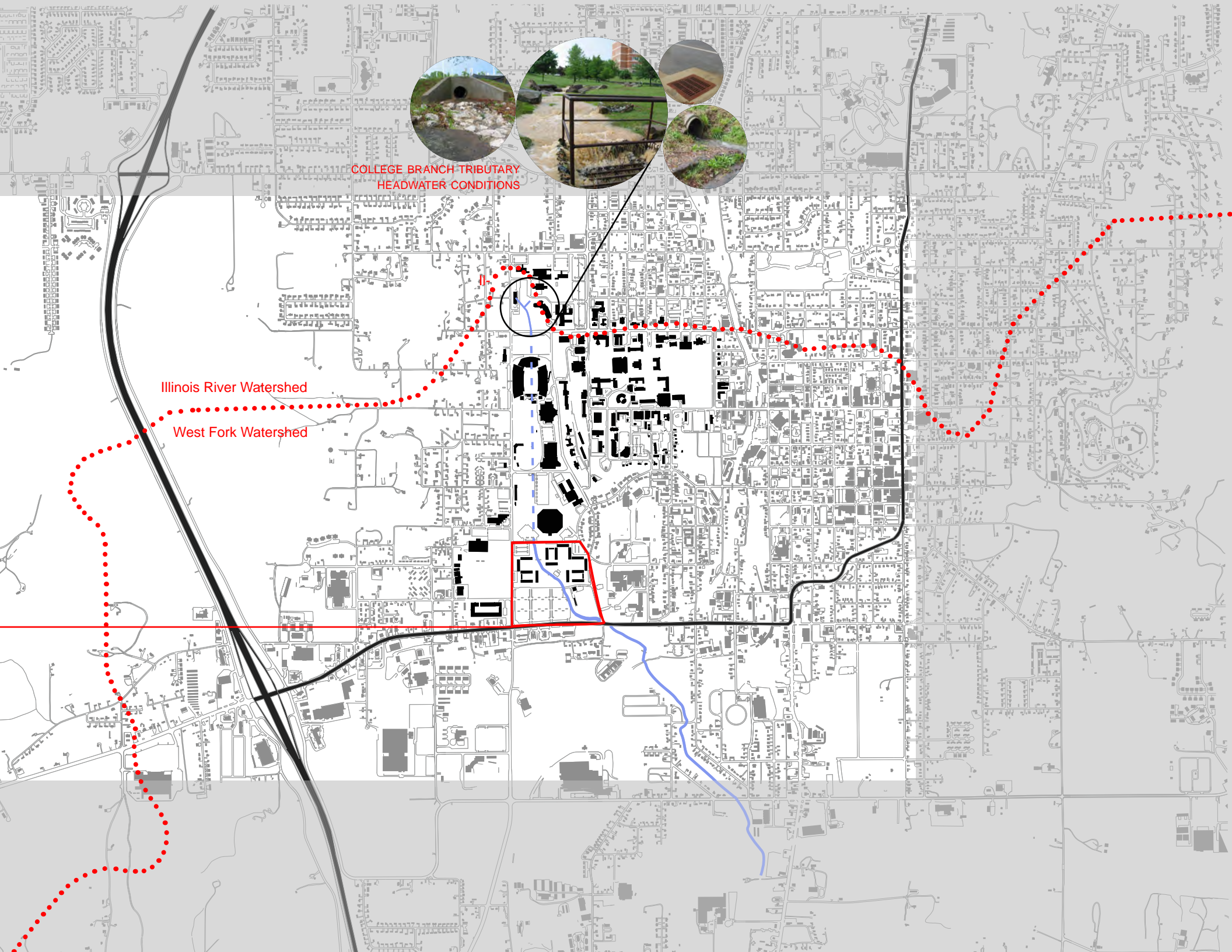


COLLEGE BRANCH TRIBUTARY
HEADWATER CONDITIONS



Illinois River Watershed

West Fork Watershed



CAMPUS_DISTRICTS

Old Main Lawn
1909

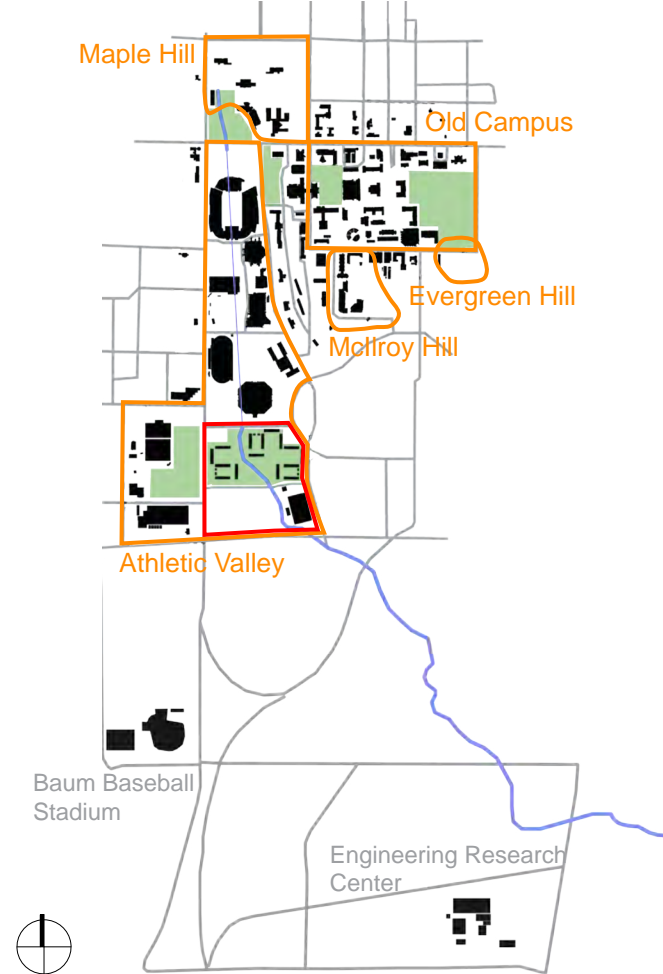
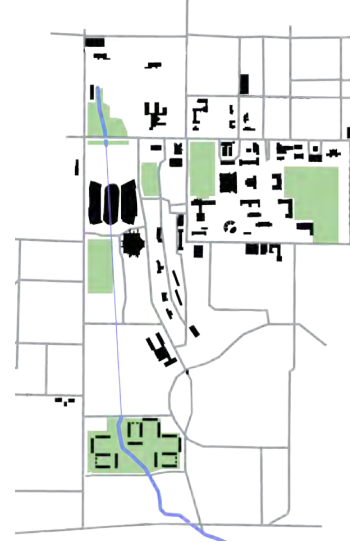
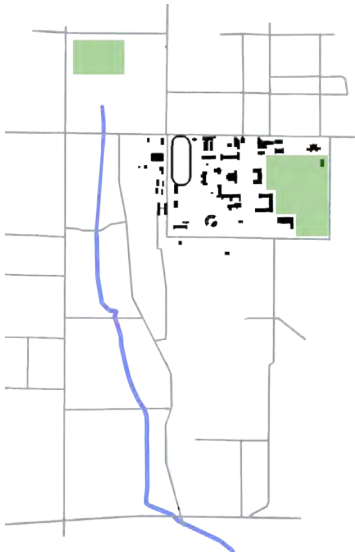


Old Campus Expansion
1939

GI Housing
1949

Hillside Edge Development
1969

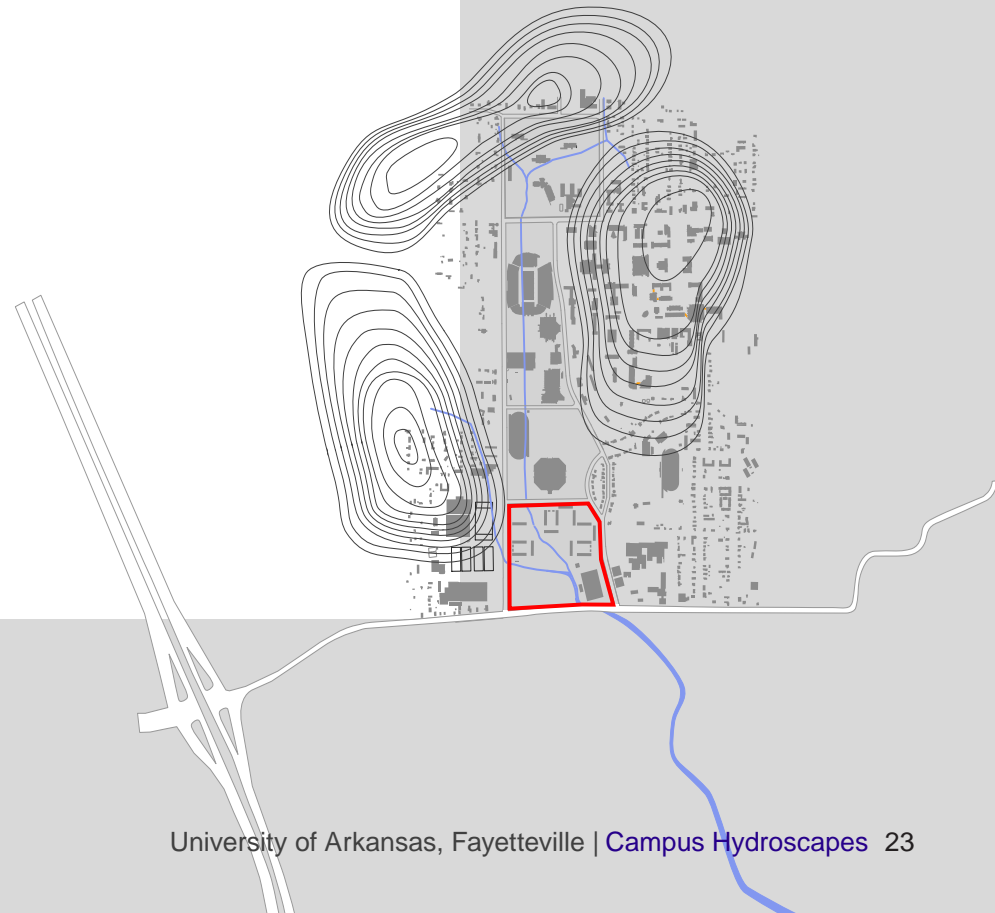
Edge Expansion
2005

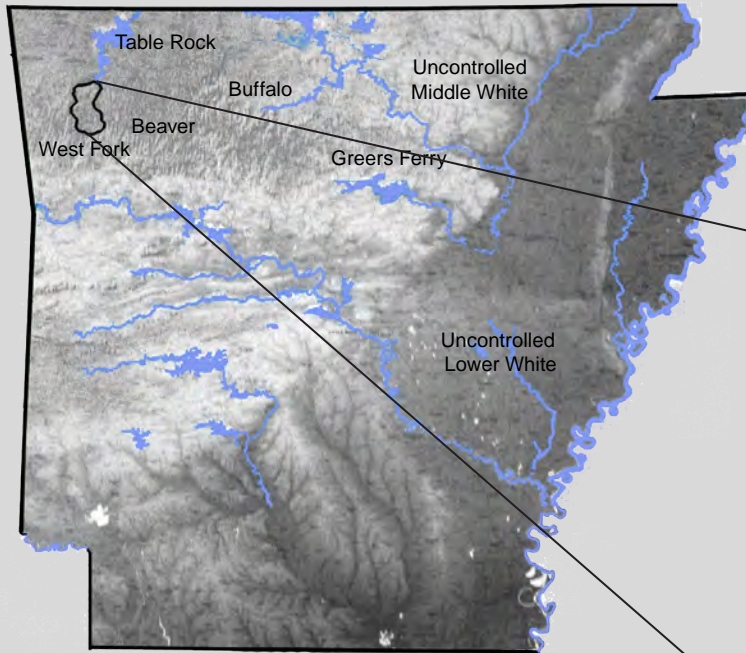




WaterShed

Existing Conditions. Watershed-based planning approaches using ecological engineering strategies will serve as a platform for smart campus development.



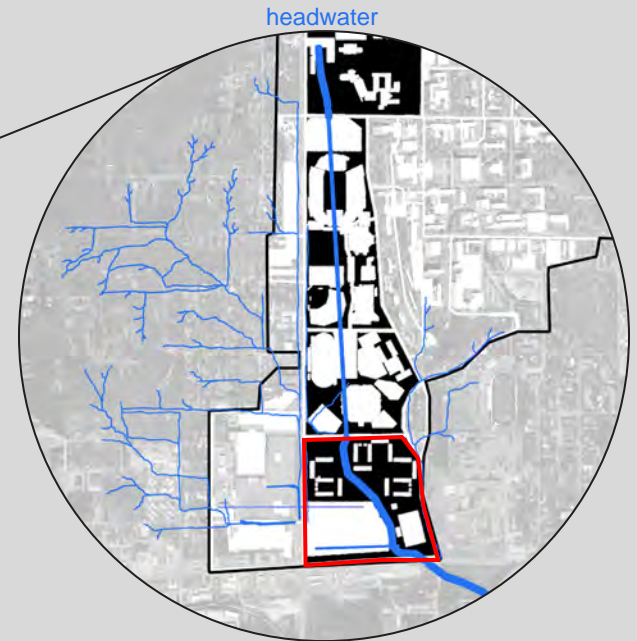





Arkansas Watersheds

West Fork of the White River (WF-WR) Watershed



College Branch Tributary



-  University boundary
-  pervious surfaces = 3.0 million square feet
-  University impervious surfaces = 2.5 million square feet

Stream Dysfunctions: College Branch Tributary



Watershed Problem Statement

Headwater conditions are critical to the health of a watershed. Near its headwaters, College Branch loses ecological capacity, running underground beneath the football stadium, practice fields, and adjacent parking lot before “daylighting” at the project site. College Branch is a tributary of Town Branch Creek, a major urban tributary of the West Fork of the White River (WF-WR) Watershed in the Beaver Lake Water District.

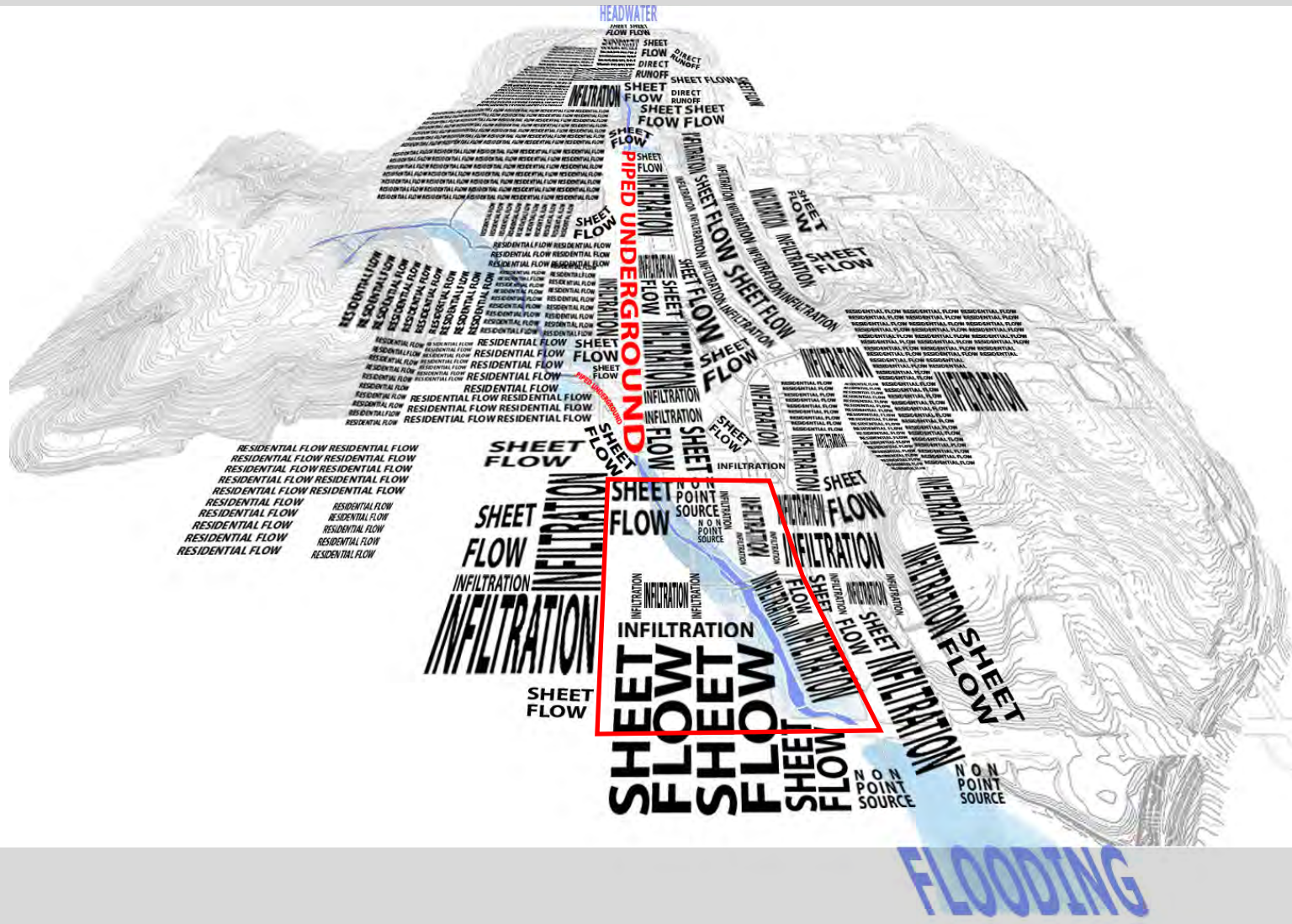
Arkansas Department of Environmental Quality (ADEQ) assessments determined that **College Branch had the highest sediment load in the entire WF-WR Watershed**. ADEQ recently cited the Beaver Lake Water District for sediment deposition problems and classified WF-WR as an impaired stream, placing it on the 303(d) list in 1998. The 303(d) list is directed by the EPA and lists all waters within the United States that are impaired by point and/or non-point source pollution.

Fish of the White River Watershed





Of the sixty-three fish types historically listed to be present in the West Fork Watershed only one, the Central Stoneroller, has been documented in the Carlson Terrace reach of the College Branch tributary.



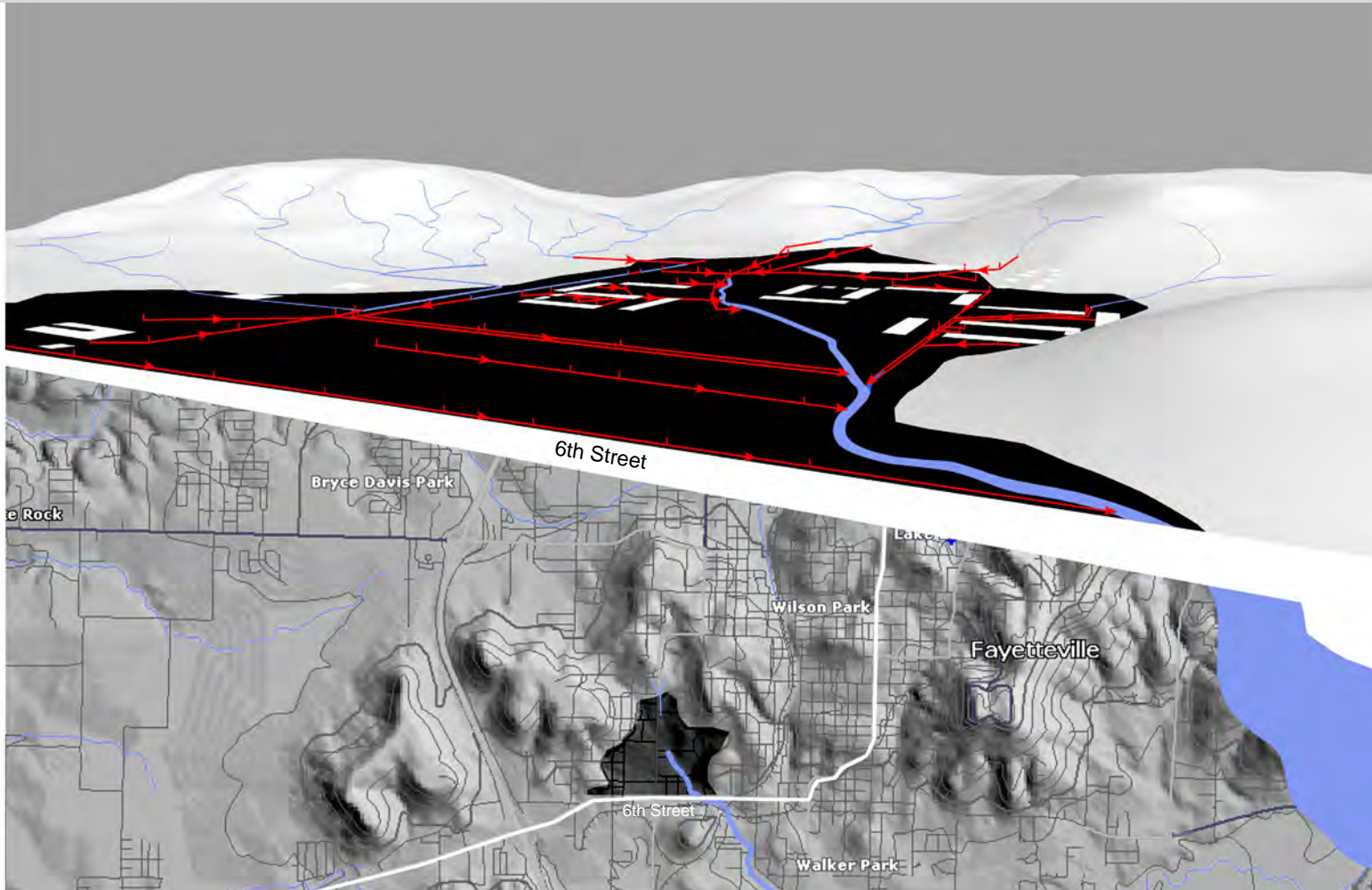
Sheet Flow: Flow that occurs in places where there are no defined channels, allowing water to spread over a large area at a uniform depth

Infiltration: The physical process of water movement into the soil to create ground water or aquifer recharge

Non-Point Source: Pollutants detected in a concentrated water source such as a stream, river or lake, that come from a wide range of sources

Point Source: Pollutants that are coming from a concentrated and identifiable source

Surface & Channelized



The watershed's natural ability to absorb, filter and transport the natural hydrologic flow has been replaced by hard catchment infrastructure of storm drains and impervious surfaces.



Natural Channel Design

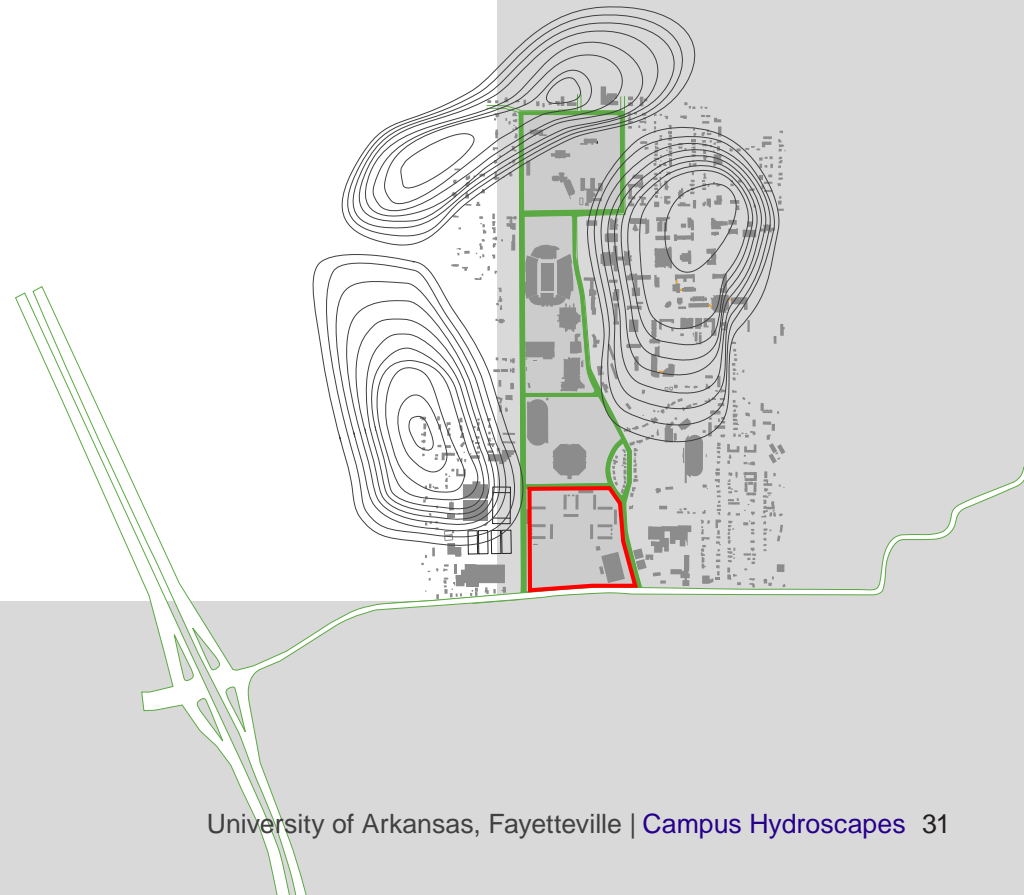
The goal is to provide a holistic stream remediation plan using a natural channel design rather than hard engineering strategies that promote channelization. Ecological engineering strategies will create reach patterns, dimensions and profiles fitting of this first order stream. Natural channel design entails the following:

- Remediation of the stream's natural floodplain for flood retention and water quality improvement. The floodplain should be a minimum of three bankfull widths and preferably five for urban reaches.
- Regrading of stream banks to acceptable riparian incline levels to reduce erosion and bed scouring.
- Remediation of stream sinuosity to dampen flow rates and increase aquatic habitat.
- Planting of riparian vegetation along stream bank to reduce erosion, bank loss and excessive sediment loading.
- Installation of natural bank armoring and slope toe protection for bank stability on steep slopes.
- Reduction of channelized water inputs from surrounding land uses.



Transportation Network

Existing Conditions. Intermodal-based planning approaches employing landscape architectural and architectural design strategies will provide a wayfinding structure for the Athletic Valley.



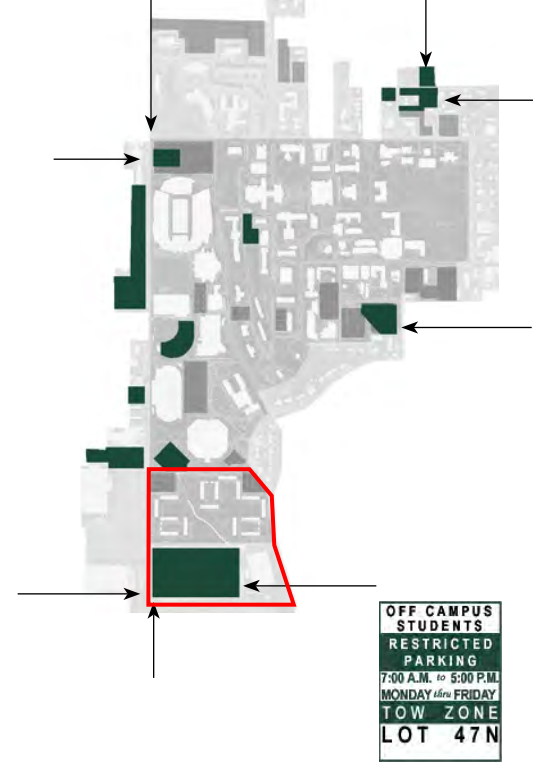
Transportation Network

CAMPUS_GATEWAYS_AND_PEDESTRIAN_PATHS





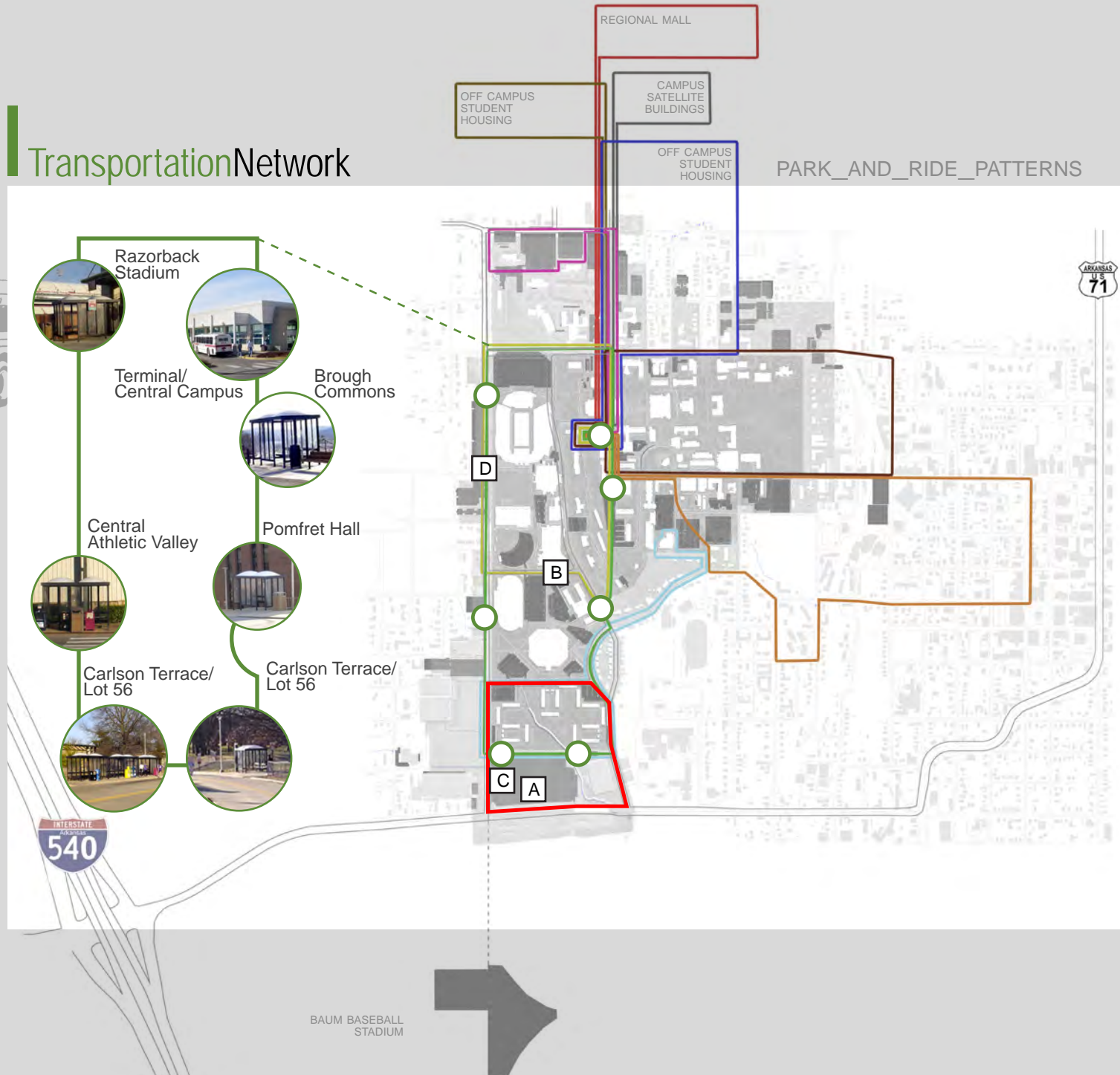
PARKING_SERVICE_PATTERNS



Transportation Network



The green bus route is the primary transportation between campus and Carlson Terrace.







HousingFabric



Existing Conditions. Renovation strategies will explore improved livability in this masonry-constructed housing that challenges affordable upgrades.

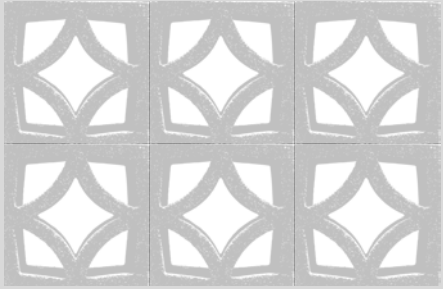


Carlson Terrace is the home to many international and/or married students. *Picking Up the Pace: A Report by The University of Arkansas 2010 Commission* is emphatic about increasing the diversity and quality of the student body. The university's mission to build the state's research capacity is tied to attracting "high-ability" students from other nations, particularly in the sciences. Peer universities competing to attract these same students offer quality housing as one incentive to secure their enrollment. A significant gap exists between the university's mission to attract talented students and the quality of campus facilities provided to house these students.



HousingFabric

EDWARD_DURELL_STONE Screen Works



A Fayetteville native, the renowned 20th century architect, Edward Durell Stone, designed Carlson Terrace, employing his signature masonry screens. Carlson Terrace manifests important attributes of mid-century modern design as practiced by one of its key authors.



US Pavilion Brussels 1957



Bruno Graf House



Palm Beach Apartment Complex

1958



Bruno Graf House



Peninsula Hospital



Palm Beach Apartment Complex



Bruno Graf House



Of his screenwork, Stone states that it “serves not only to satisfy a wistful yearning on the part of everyone for pattern, warmth and interest, but also serves the desperately utilitarian purpose of keeping the sun off glass and giving privacy.”

EDWARD_DURELL_STONE Carlson Terrace Fine Arts Building Sigma Nu House



Carlson Terrace



HousingFabric

CARLSON_TERRACE_AMENITIES



Perimeter



Courtyard Types

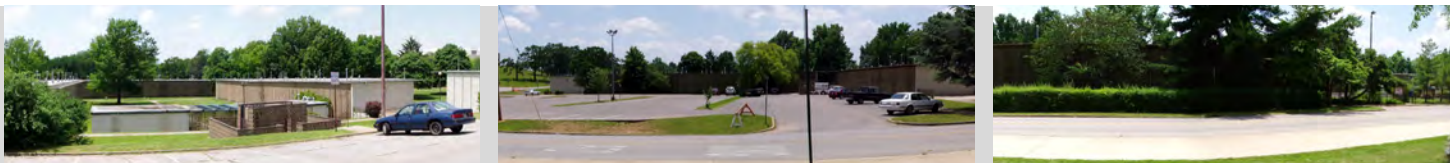
Unit Entry Courtyard



Rear Courtyard



Common Courtyard



Courtyard as a Planning Strategy

The courtyard is a time honored planning strategy for aggregating large-scale development around a shared landscape. Successful residential courtyard developments simultaneously provide great public spaces that extend the street's public space while securing the privacy of residents. To accommodate these multiple interests, good courtyard design for housing entails the development of semi-private spaces within the larger public frameworks of courtyard spaces.

Carlson Terrace was planned as a courtyard development with a common court connecting three smaller entry courtyards lined with unit entrances. Three rear courtyards are connected to campus streets, but do not provide access to units.

The Carlson Terrace courtyards are undifferentiated spaces, lacking the necessary spatial transitions between public and private uses. The weak linkages between the mid-block entry courtyards and surrounding streets compound this territorial confusion. The absence of territorial gradations accommodating public, semi-public, semi-private, and private spaces create wayfinding problems for visitors and residents alike. Visitors are often lost, and residents do not assume ownership of surrounding spaces since courtyard design is not responsive to the social or physical needs in housing.





Green Infrastructure: •Water Quality Protection •Flood and Erosion Control •Ecological Diversity

Watershed-Based Solutions

A 20-year Plan

Stream Remediation Goals

Immediate stream remediation goals include reduction of erosion rates and bank failure by 90%, and improved in-stream water quality as measured by sediment load reduction and biotic sampling. Long-term goals include expansion of the floodplain and new vegetation strategies to curb stream flows.

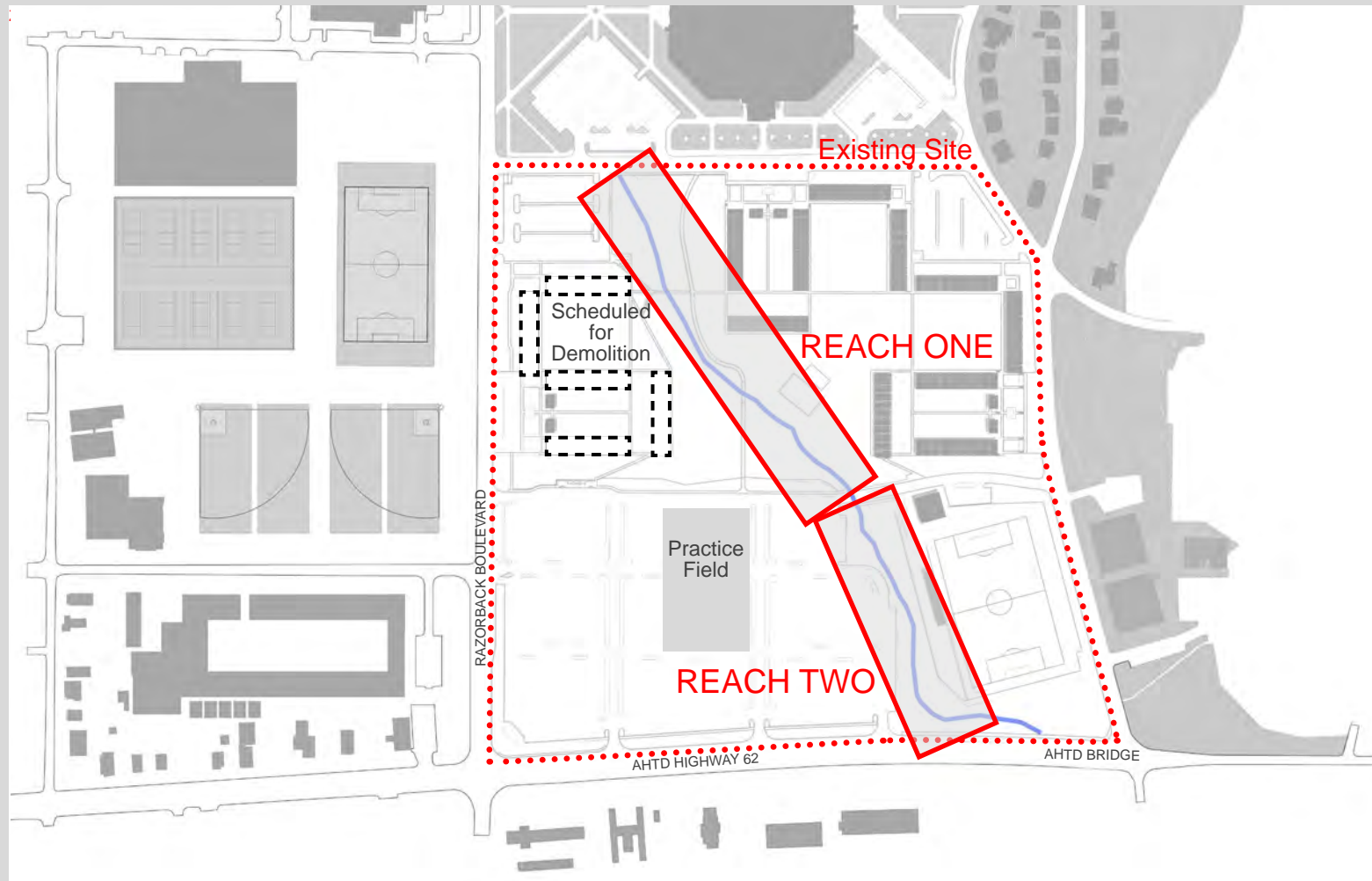
•Wildlife Habitat Development •Operation and Maintenance Efficiencies •Campus Aesthetics •Recreational Developments

Stream Restoration Design

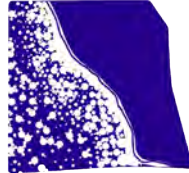
Reach One: Carlson Terrace. The current condition of Reach One expresses flash flooding, stream bank failure, excessive erosion and sediment transport to College Branch and the WF-WR watershed. The design for this 1000-foot reach will stabilize banks, restore aquatic habitat, and curb stream flow rate.

Reach Two: Field House. The current condition of Reach Two expresses even more instability, posing a structural threat to the Women's Soccer Field House and to AHTD Highway 62. Large channelized stormwater inputs from surrounding streets cause bank failure and scouring of stream bed. The design for this 800-foot reach will stabilize banks and expand floodplain.

Watershed-Based Solutions



The Challenge: to preserve hydrological system integrity in human-dominated ecosystems.



Hydrology Pixelation

Level of Service I
This modest planning approach decentralizes stormwater and flood retention through local vegetated systems equally distributed across the site, minimizing alterations to existing land uses. The entire site operates as a large sieve for groundwater recharge as it diverts untreated inputs away from College Branch and sequesters floodwaters within an expanded stream corridor.



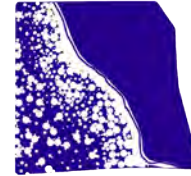
Riparian Bands

Level of Service II
This banded approach stratifies east-west land uses from most natural (College Branch) to the most developed (Razorback Boulevard). Stormwater retention bands for treatment and recharge alternate with parking bands throughout, creating a “green parking lot” supportive of watershed management functions.



Total Marsh

Level of Service III
This watershed planning approach maximizes the area devoted to the construction of new wetlands for floodplain and stormwater retention. Program related to parking, visitors center, and housing is removed from west side of the riparian corridor or relocated to the edge of Razorback Blvd.



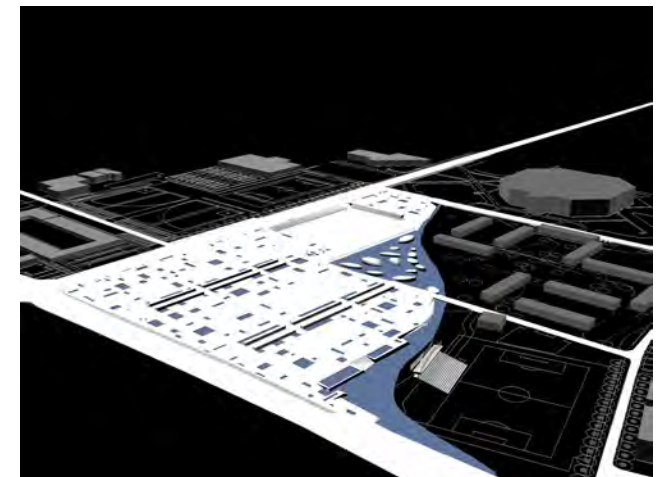
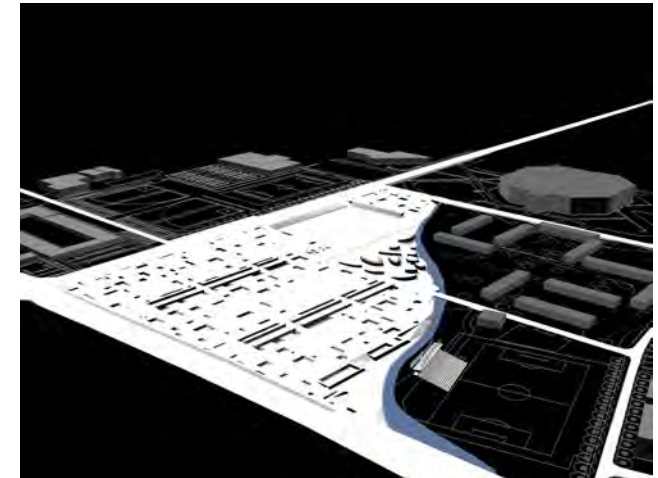
HydrologyPixelation

Ecological Problems Require Ecological Solutions Recommendations

Water is an especially powerful and underestimated force. The hazards of ignoring persistent stream dysfunctions in College Branch include increased threats to heavy infrastructure like campus bridges, the AHTD Sixth Street bridge, and Lady Back Field. Flash flooding, which attends every significant rain event, poses a serious human hazard and compromises stream bank stability. The effects are compounded downstream, particularly as headwater conditions imprint the general health of a watershed.

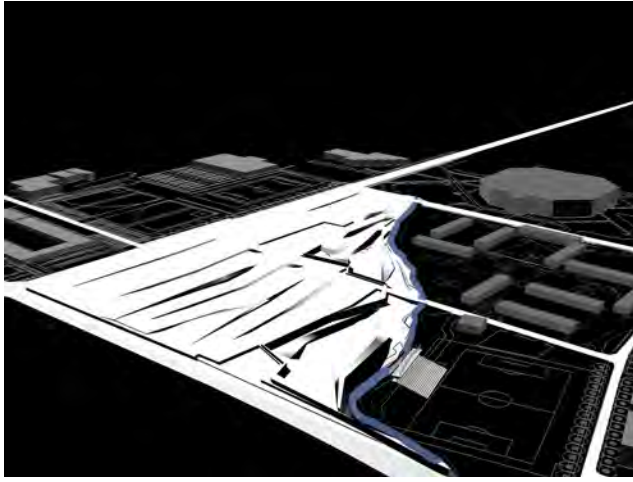
Command-and-control engineering solutions to stream management (i.e. channelization, piping or paving of stream), as opposed to ecological engineering solutions, are now widely considered to exacerbate stream dysfunction. Hard engineering approaches merely transport the problem elsewhere rather than devise corrective solutions. If economic bottom line is a key factor in campus planning decisions, then neither hard engineering solutions nor the lack of solutions are acceptable options given their life cycle costs. *Campus Hydroscaapes* presents three ecologically based watershed management approaches with combined economic, environmental, and social benefits. *Campus Hydroscaapes* offers multiplier solutions for campus transportation and housing concerns in addition to watershed management.

- Incorporate an ecologically based watershed approach for the Athletic Valley, increasing land area for stormwater treatment gardens, groundwater recharge, and floodplain storage in the riparian corridor. Improving the stream's ecological services offers self-corrective water management solutions, which eliminates substantial capital and maintenance costs.
- *Campus Hydroscaapes* offers watershed management approaches ranging from the very moderate (HydrologyPixelation) to the ambitious (TotalMarsh). One solution may be implemented or all three may be successively implemented in an evolutionary process as opportunities arise.
- Watershed solutions should be designed to demonstrate best environmental planning practices and serve as a statewide teaching asset. Integrated watershed solutions can readily incorporate recreational program and enhanced campus aesthetics into its ecological services.
- Combine miscellaneous Athletic Valley building proposals currently under consideration into one structure housing a campus visitor center, intermodal transit facility for bicycle and bus, and an athletic visitor facility. Combined architectural solutions that share resources, staff, and facilities create a vital public realm and a wayfinding anchor for this major campus gateway.
- Avoid single-use planning solutions that lack multiplier benefits, like in conventional parking lot design. They are deficient in practicality, cost benefits, wise land use, and imagination.

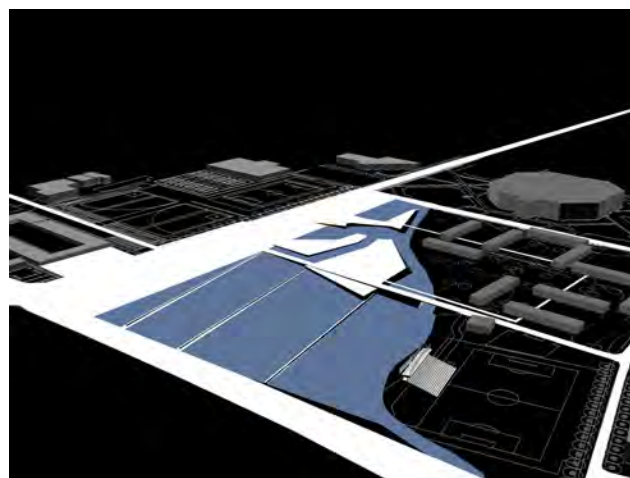
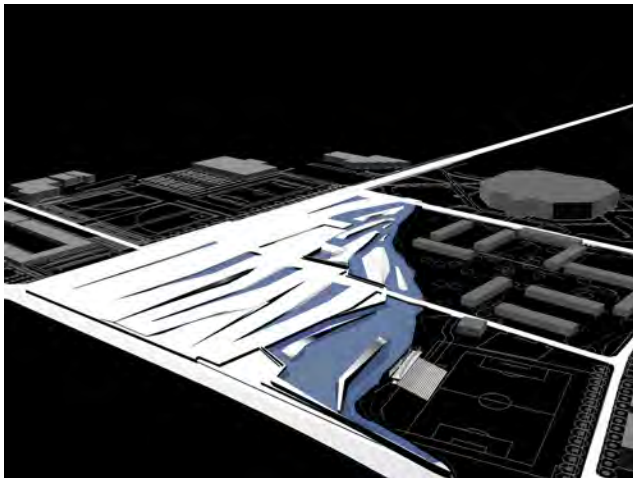
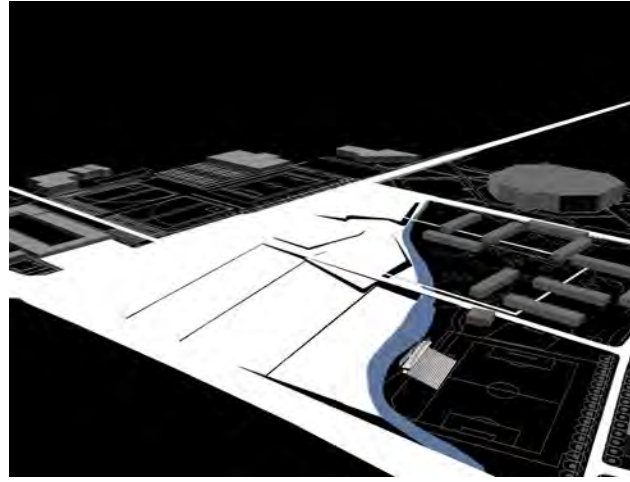




RiparianBands



TotalMarsh

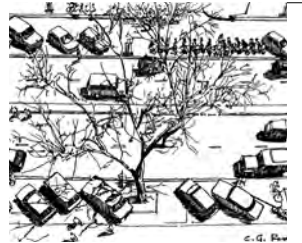


One solution may be implemented immediately, or, as opportunities arise all three may be phased successively in an evolutionary process



③ **Visitor Center and Transit Station.**
A new campus visitor center is combined with bus transit and bicycle service (parking and repair) facilities, accommodating additional functions related to wayfinding, visitor services, heritage displays, and special event functions. Visitor Center options may be integrated in a larger facility, or a freestanding pavilion, opened or enclosed.

⑤ **Multiway Boulevard.**
Expanding upon the proposed Razorback Boulevard, a multiway tree-lined street with separate corridors for through traffic and slow-moving vehicle and pedestrian movement creates a practical and aesthetic connection between boulevard and parking.



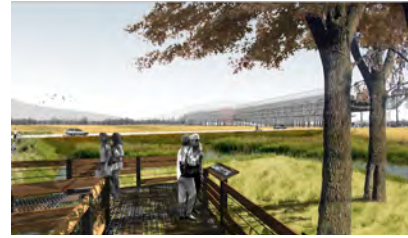
⑥ **College Branch Floodplain.**
A new grass-based floodwater retention system is reclaimed from existing parking to normalize stream flow rates. This Reach of College Branch experiences the greatest channelized water inputs and threatens existing highway infrastructure.

⑦ Band Practice Field.

Hard practice surface is accommodated throughout the three schemes. HydrologyPixelation preserves the existing field, while the TotalMarsh proposal places the practice field on top of the parking garage.

① Carlson Terrace Pedestrian Loop.

A pedestrian walk perpendicular to College Branch creates a new development module for future construction along the loop's exterior perimeter. The loop's interior zone, dedicated to riparian corridor enhancement, protects the stream and its flood plain from development while allowing access to College Branch. The pedestrian loop organizes public and private uses around the improved riparian corridor.



② Carlson Terrace Floodplain.

A new floodplain is reclaimed to facilitate normalize stream function related to flood storage, bank sinuosity enhancement, provision of riparian vegetation and new habitat. Healthy urban streams require a floodplain width 3-5 times bankfull width and 3:1 bank slopes or shallower. The existing hardwood tree stand is preserved on earthen mounds within the new floodplain.



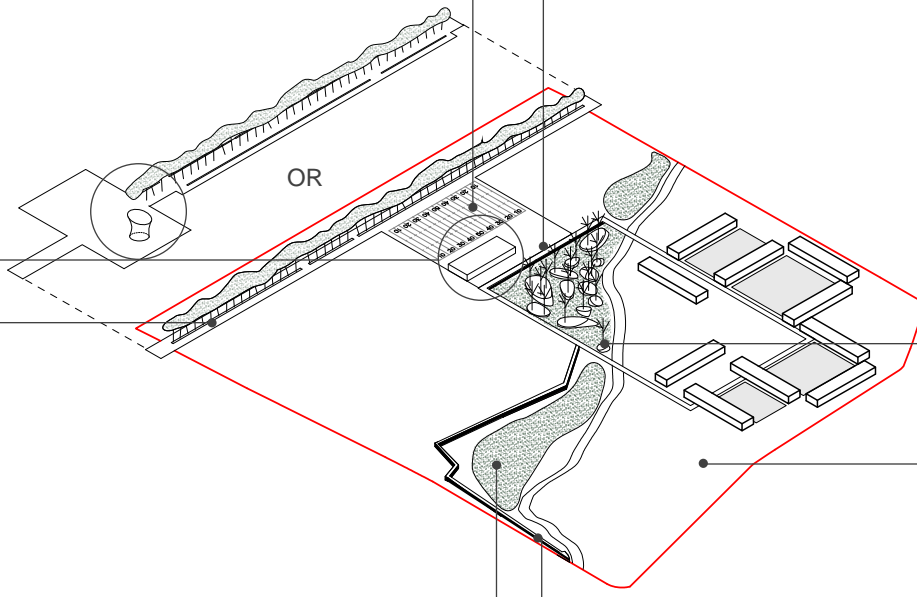
④ Carlson Terrace Housing.

Three planning options for the eastern portion of Carlson Terrace illustrate redevelopment possibilities, while the western portion will be razed. See *Housing Redevelopment Strategies*, pp 73-95.



⑧ Gabion Wall System.

Stacked native stone walls in wire mesh to be used when extensive stream bank armoring is necessary, such as for steep slopes. This prevents erosion and curbs excessive sediment depositing.



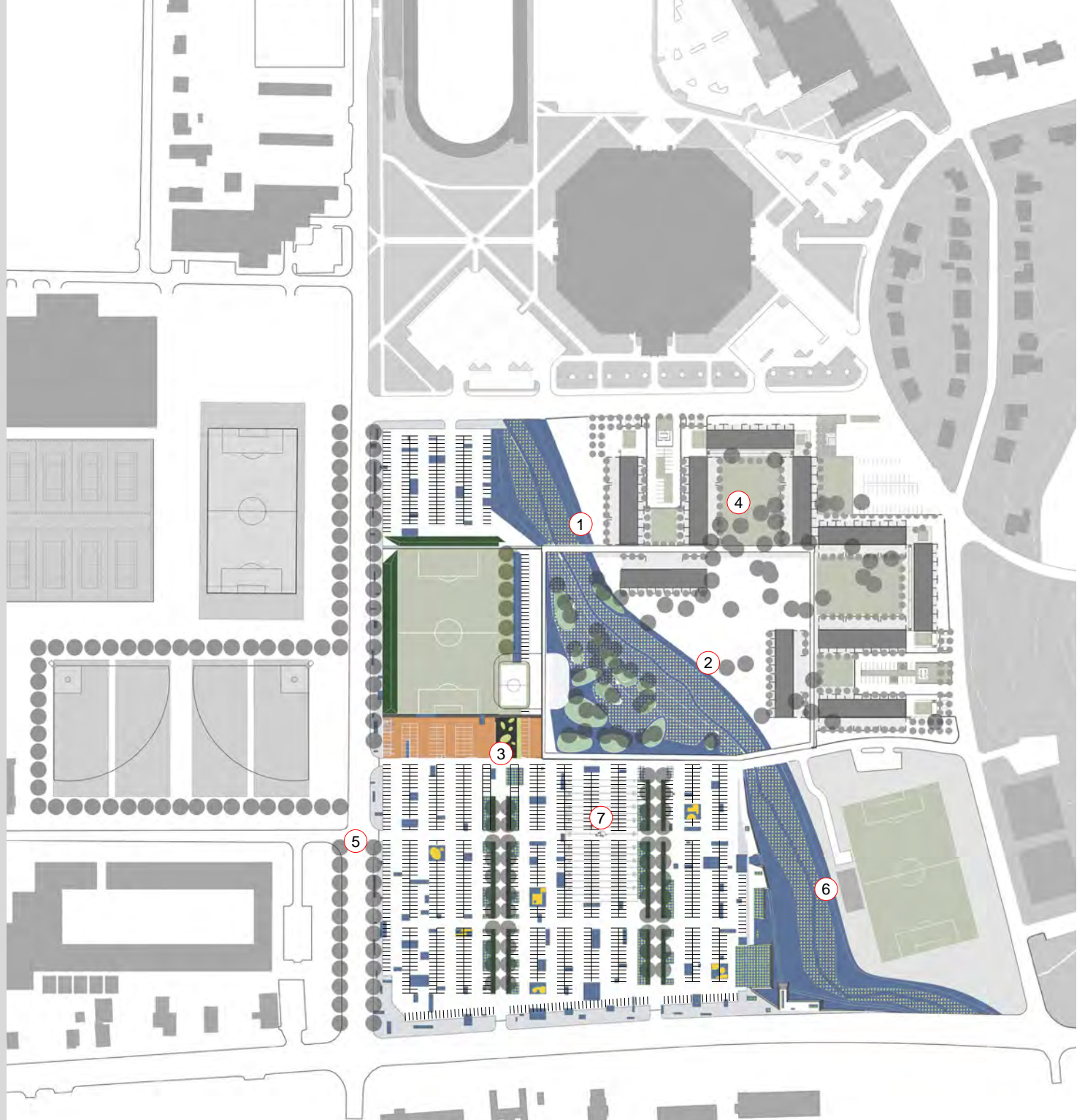
HydrologyPixelation



1. Carlson Terrace Pedestrian Loop
2. Carlson Terrace Floodplain
3. Visitor Center and Transit Station
4. Carlson Terrace Housing
5. Multiway Boulevard
6. College Branch Floodplain
7. Band Practice Field

Parking Space Yield:

1398 existing
+102 new
= 1500 total



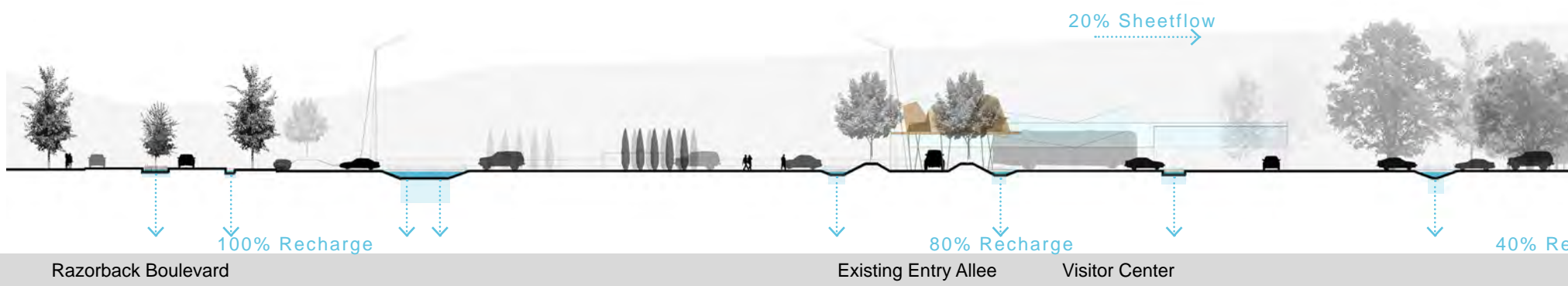
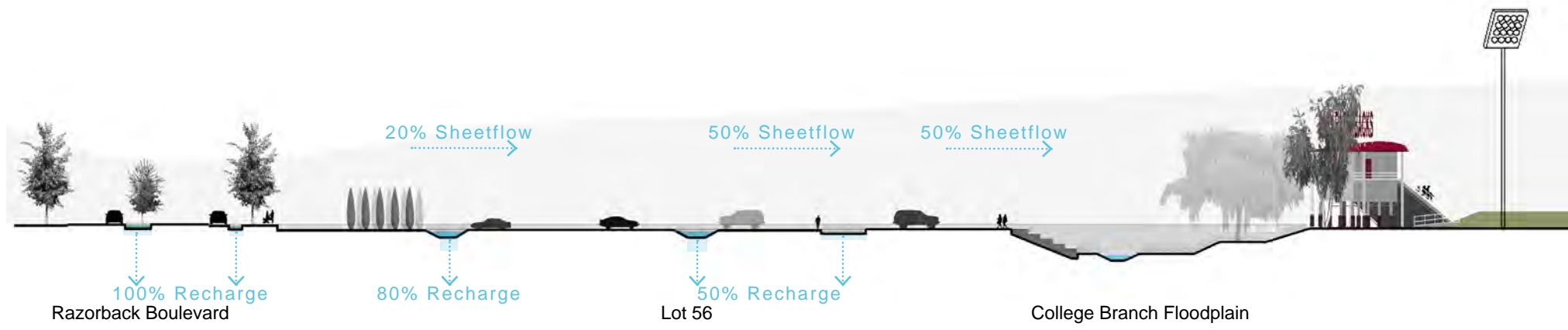




Parking Lot as a stormwater treatment system



Looking from Carlson Terrace Floodplain toward Visitor Center

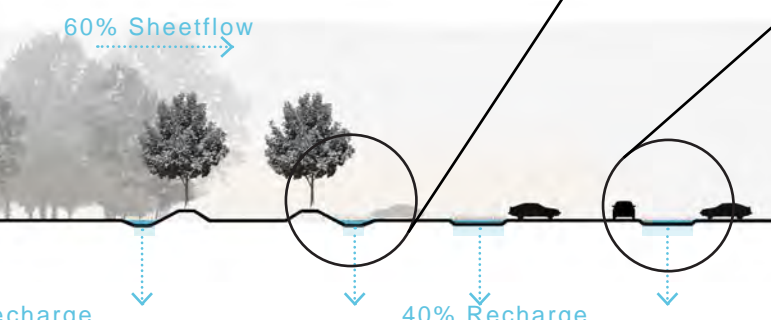




Lady'Back Field



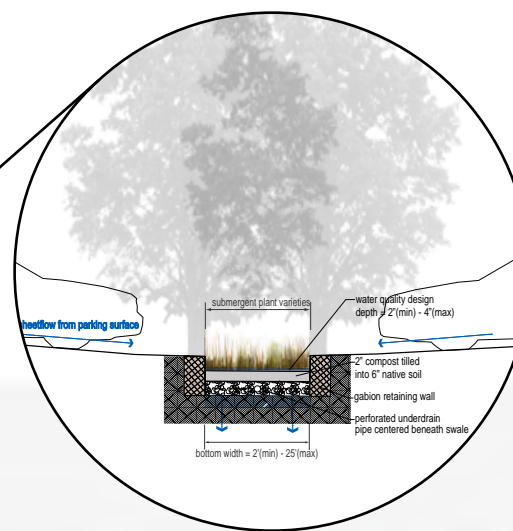
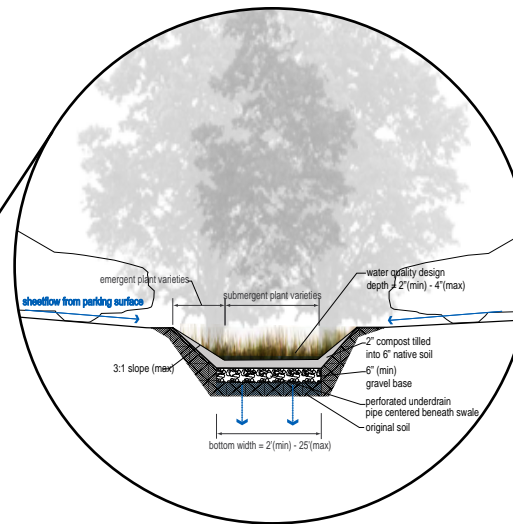
College Branch Floodplain



Existing Entry Allee



College Branch Floodplain



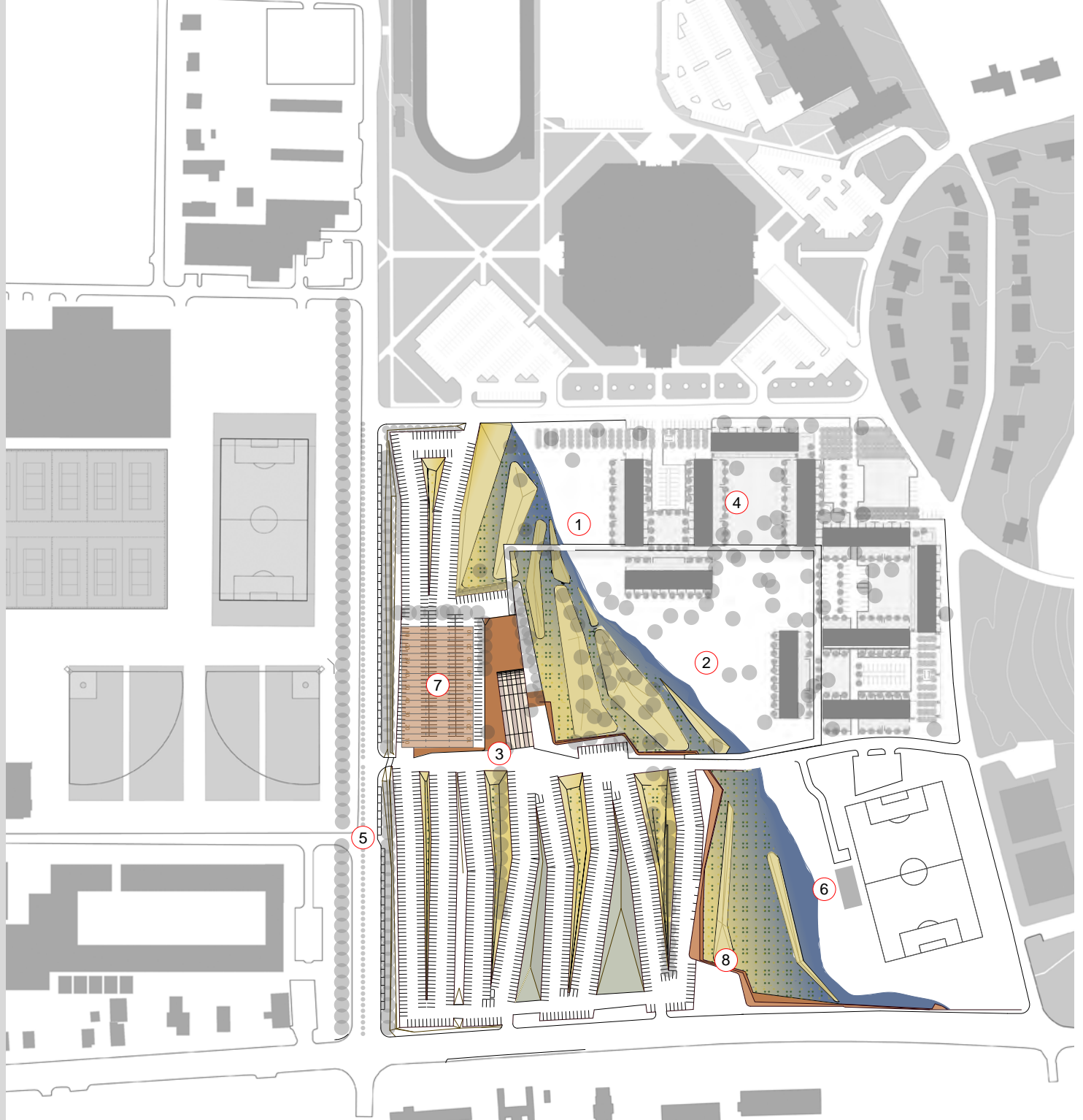
RiparianBands



1. Carlson Terrace Pedestrian Loop
2. Carlson Terrace Floodplain
3. Visitor Center and Transit Station
4. Carlson Terrace Housing
5. Multiway Boulevard
6. College Branch Floodplain
7. Band Practice Field
8. Gabion Wall System

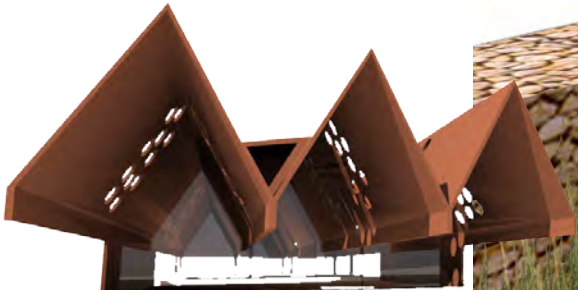
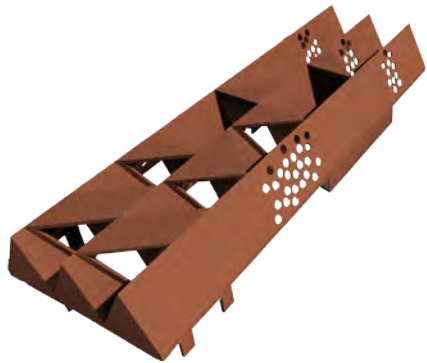
Parking Space Yield:

1398 existing
+222 new
= 1620 total

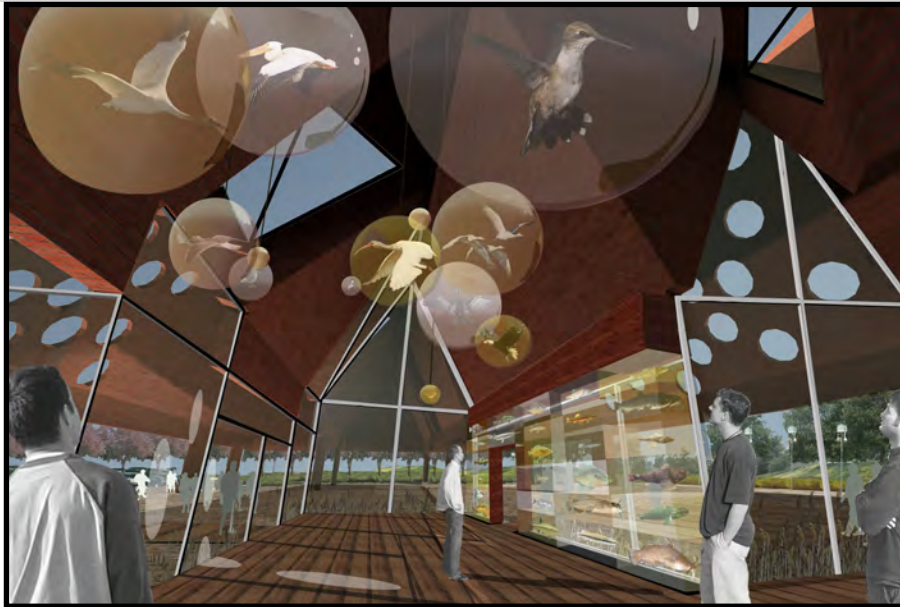




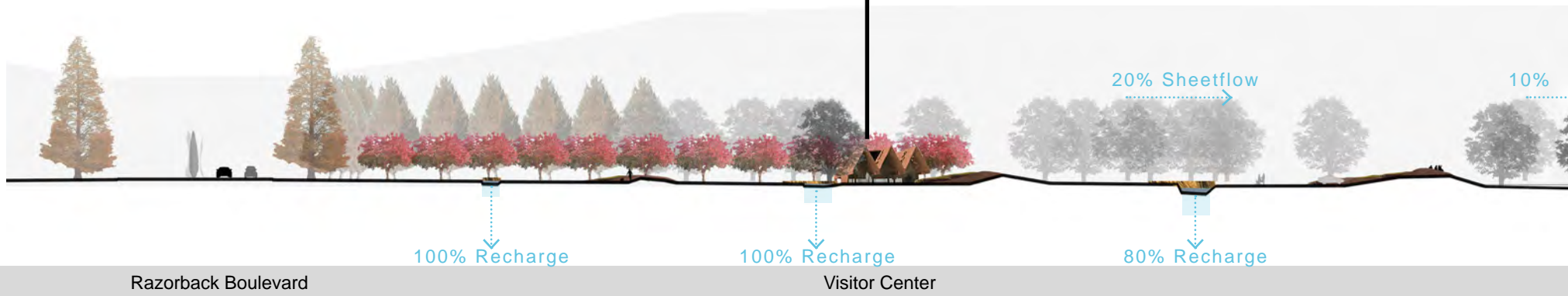
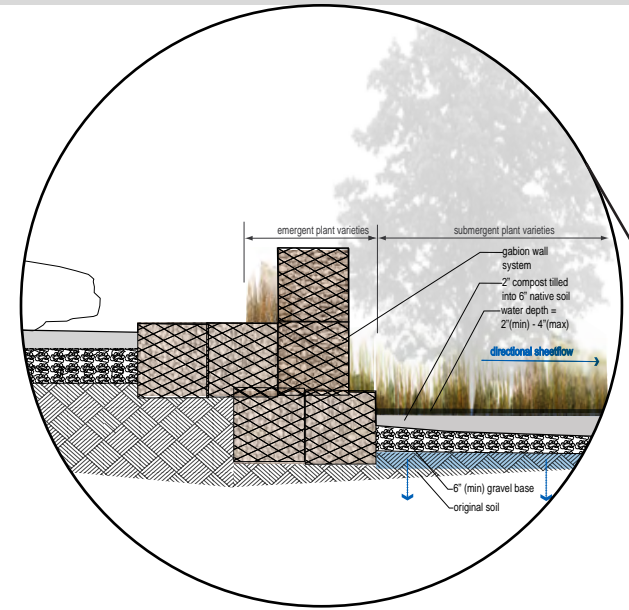
RiparianBands stratifies east-west land uses from most natural to the most developed. A new visitor/transit center with frontages on College Branch Floodplain and a parking plaza expresses this intersection between natural and developed realms. The architecture recalls the traditional roof forms and materials of the historic campus.







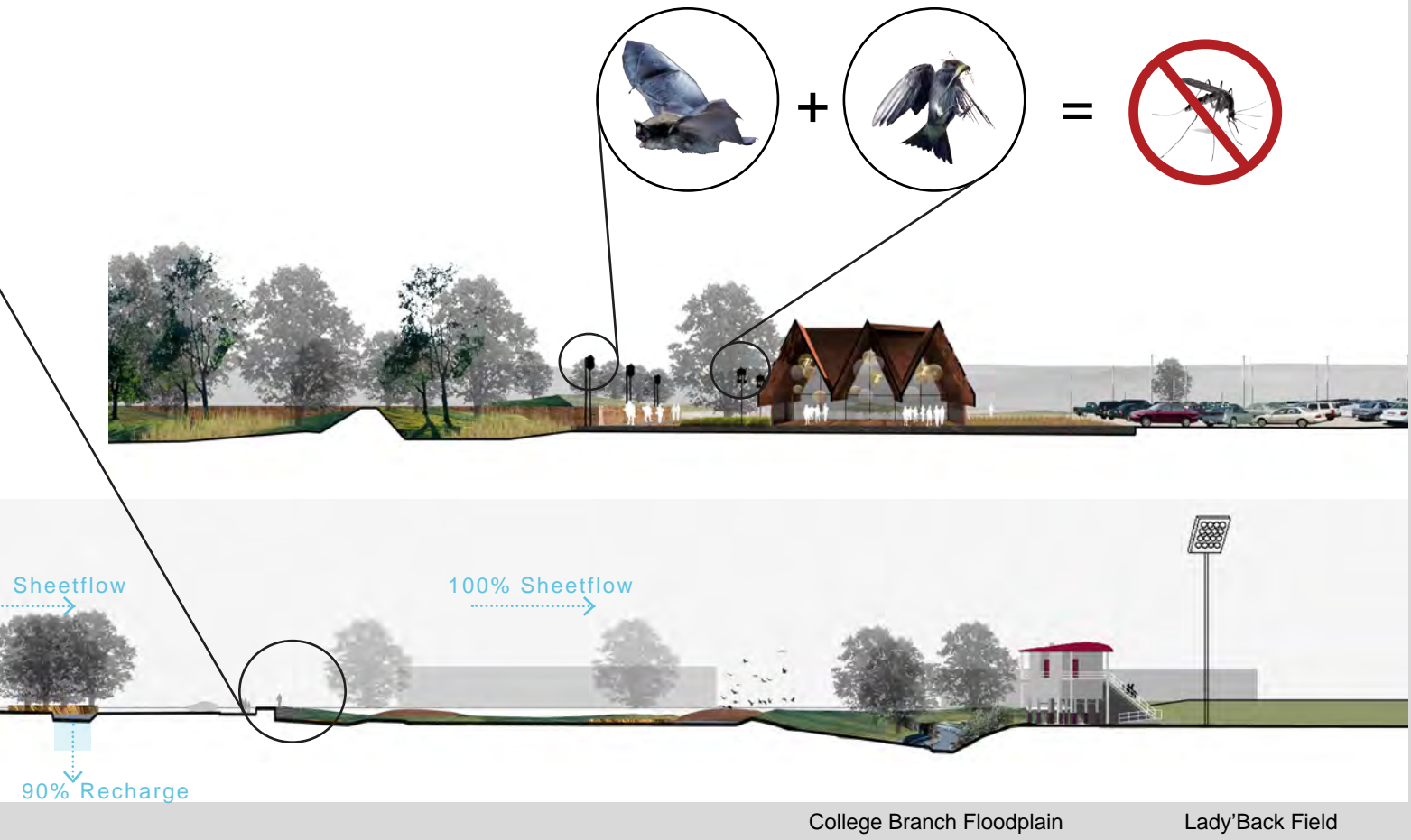
Visitor Center as Ecological Interpretive Center



Razorback Boulevard

Visitor Center

Ecological Insect Control: Purple Martins and bats, can eat anywhere from 200-300 mosquitoes an hour. Greater predators such as dragonflies and fish eliminate larvae in water.



College Branch Floodplain

Lady'Back Field

TotalMarsh

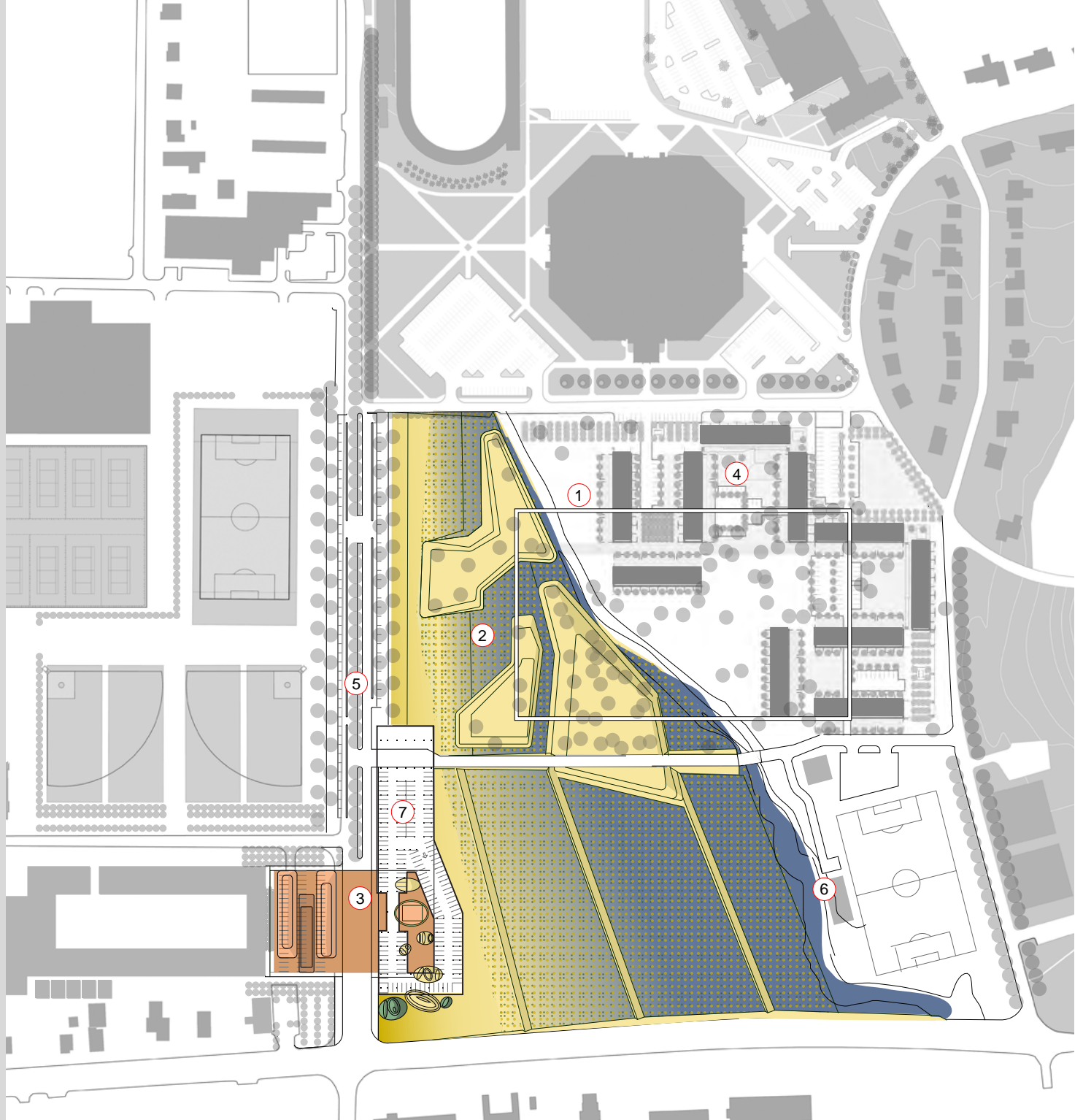


1. Carlson Terrace Pedestrian Loop
2. Carlson Terrace Floodplain
3. Visitor Center and Transit Station
4. Carlson Terrace Housing
5. Multiway Boulevard
6. College Branch Floodplain
7. Band Practice Field

Parking Space Yield:

1398 existing
-285 new
= 1113 total

note: Each level on the new parking garage accommodates 200 parking spaces. Parking space yield could be increased by building more levels.

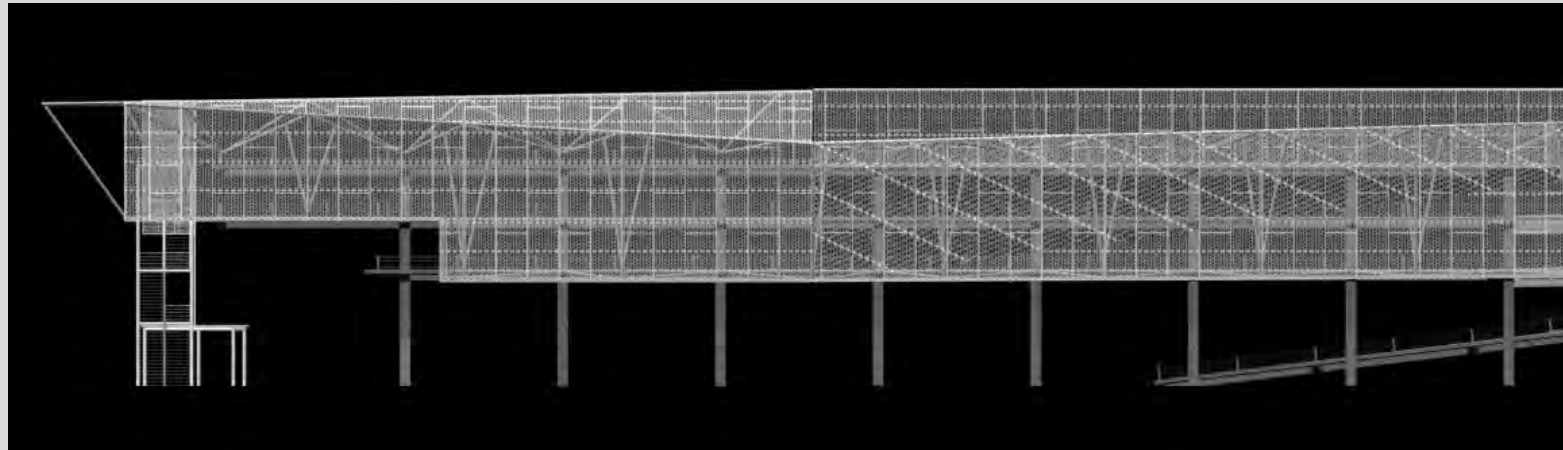
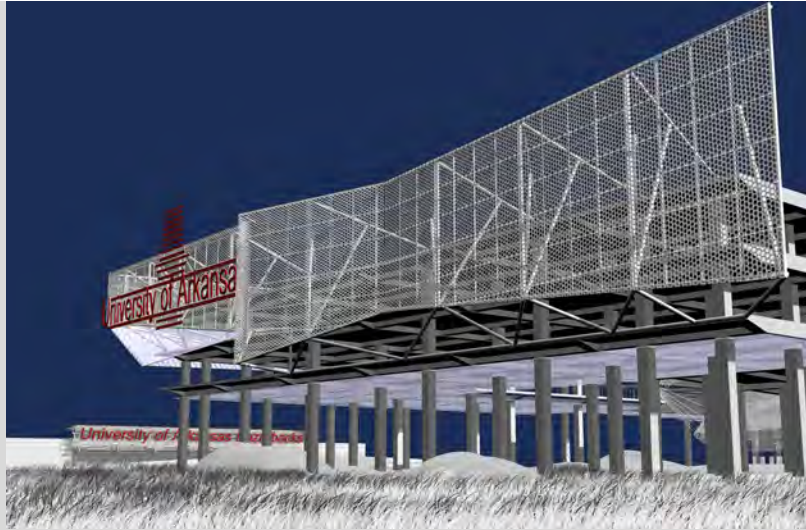






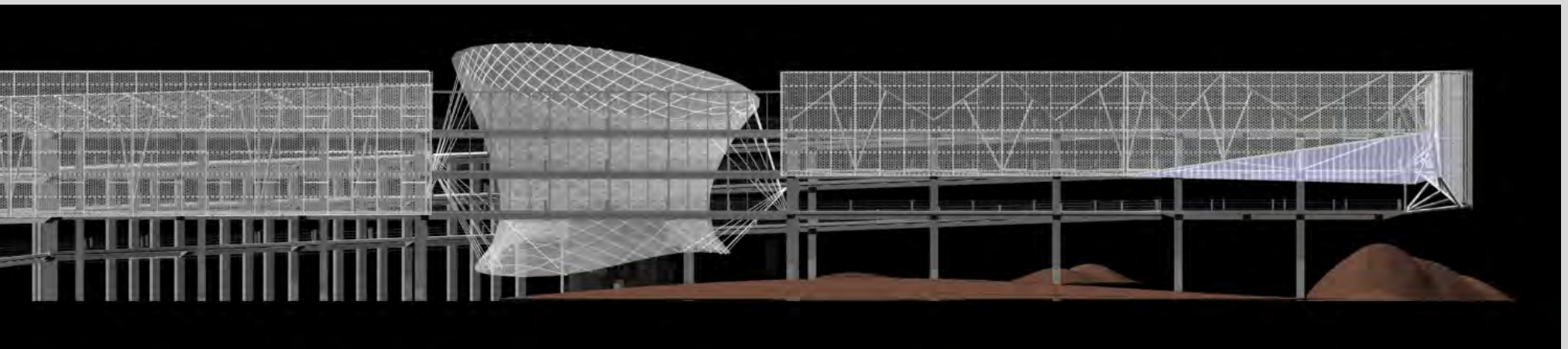
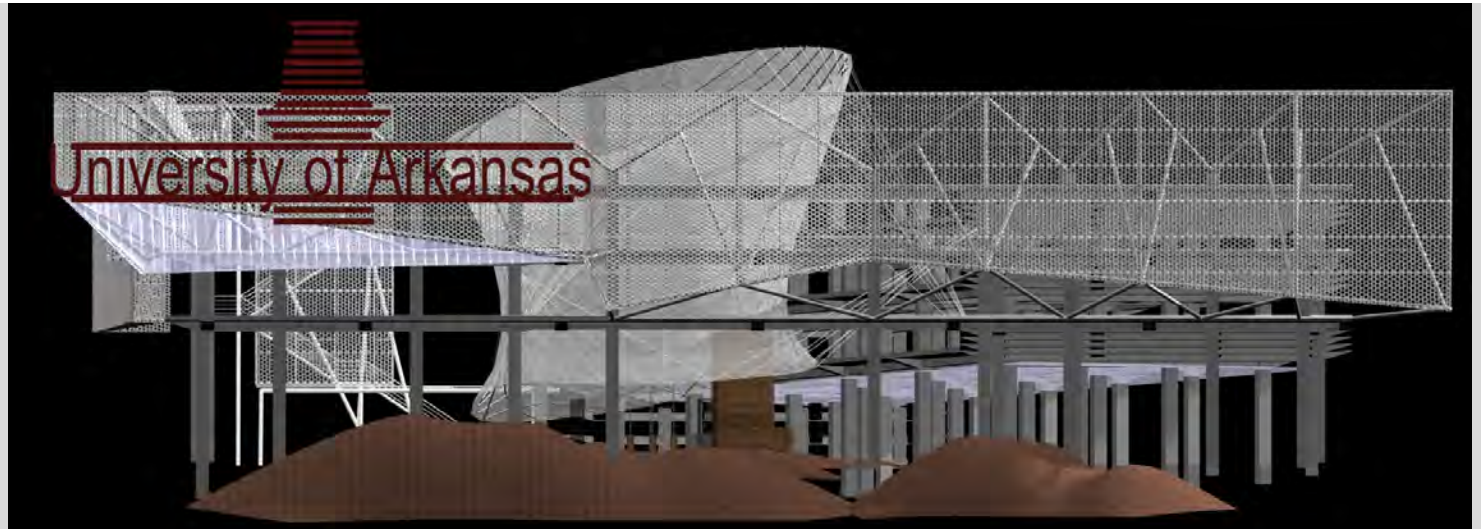


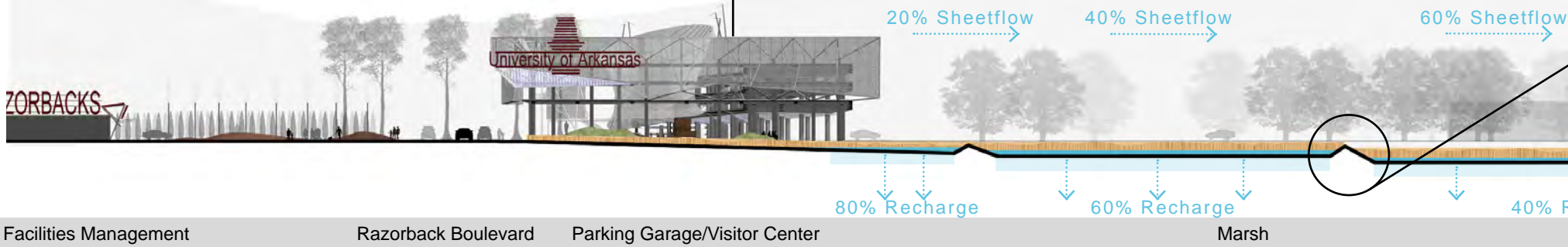
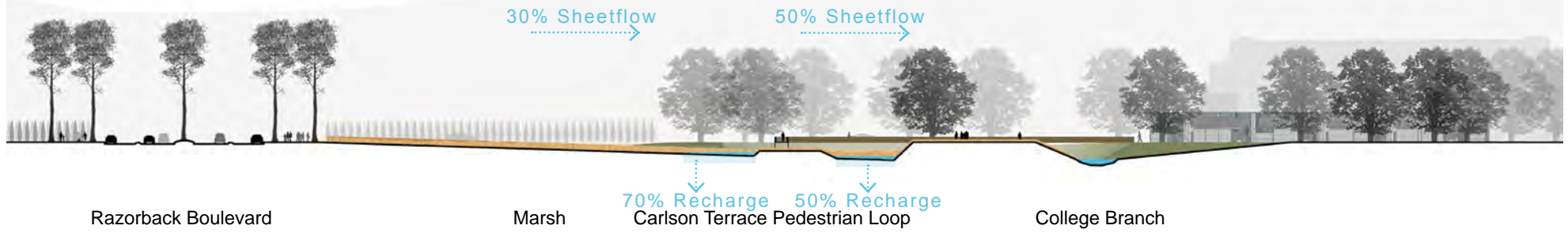
Since TotalMarsh maximizes the area devoted to floodplain and stormwater retention, program related to the visitor center, parking, and band practice is stacked along the edge of Razorback Blvd. A parking structure with an ornamental screen is conceived as a civic landscape housing signage, a public plaza, and other pedestrian amenities to become a gateway structure marking the edge of campus. The continuous lit soffit under the first deck sheds ambient light on Razorback Blvd to create a nighttime gateway effect.

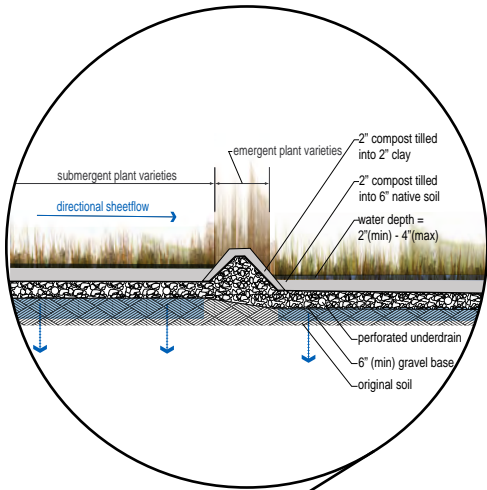


West elevation of the parking garage

South elevation of the parking garage







View from the Pedestrian Loop



College Branch

Lady'Back Field

Housing Redevelopment Strategies

Redevelopment Goals

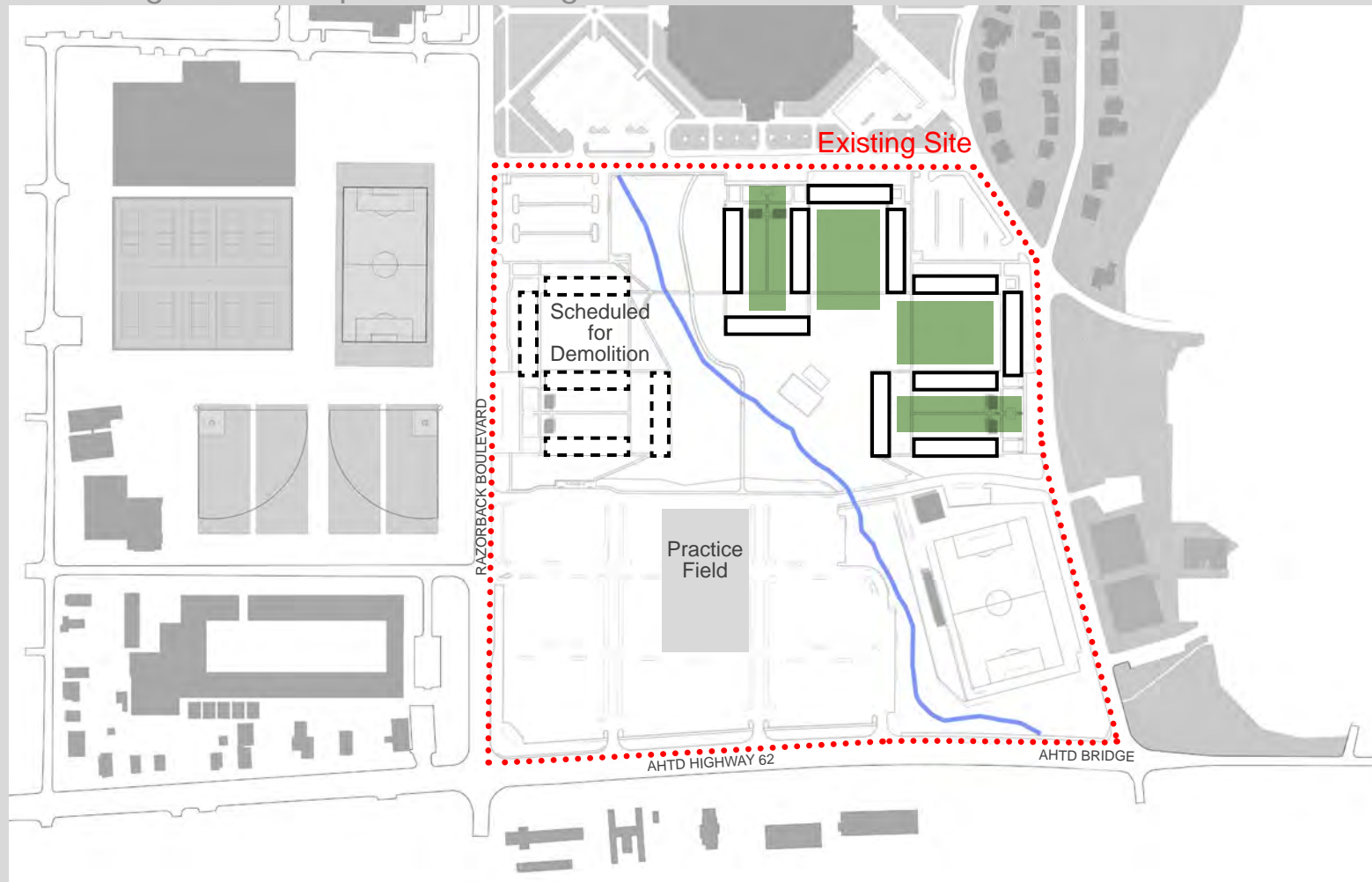
Housing redevelopment strategies for Carlson Terrace include landscape architecture improvements for the courtyards to address unmet environmental and social needs. Architectural improvements include renovation of building edges and select units to improve livability. The goal is to position Carlson Terrace as an option of choice in the university's housing portfolio.

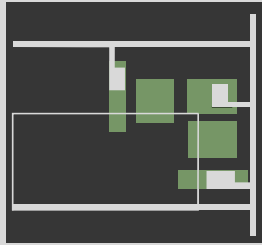
Approaches

Planning Approach. The goal to re-connect housing units to a more vital open space system is addressed through three options that promote pedestrian connectivity. All options propose new semi-private landscape spaces—patios, terraces, and porches—for each unit. These outdoor unit spaces are connected to semi-public courtyard spaces for larger gatherings. The new Carlson Terrace Pedestrian Loop connects residential courtyards with surrounding streets and adjacent campus development. The more ambitious options integrate automobile parking and pedestrian amenities into a new “shared street” system connecting all courtyards.

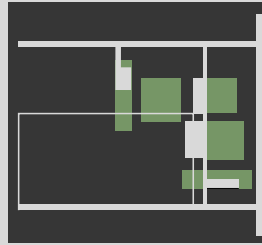
Architectural Approach. The goal to enhance unit livability is addressed through the redevelopment of the exterior screenwork covering the glass curtainwalls. All options re-configure the screen to allow additional natural light and views for unit interiors. Select units can be converted into two story apartments for families and those students seeking market rate accommodations.

Housing Redevelopment Strategies

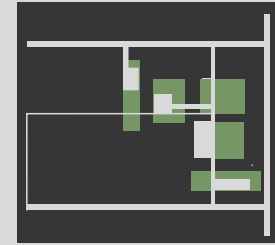




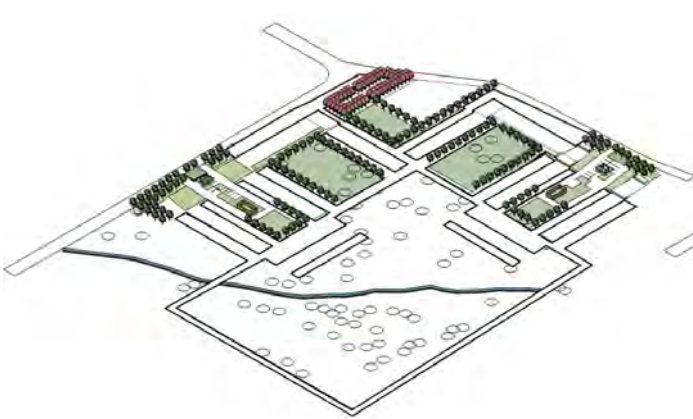
Nodal Parking



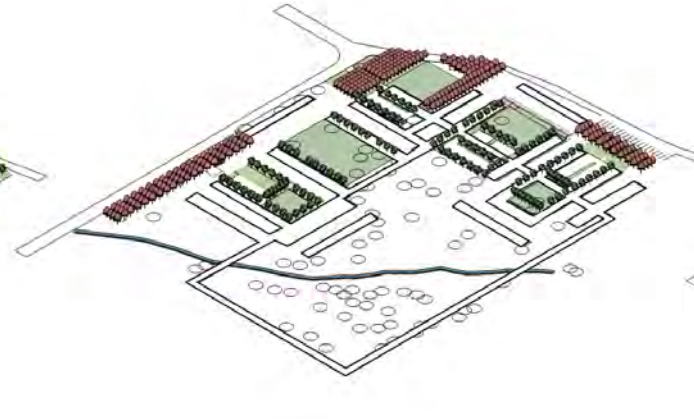
Axial Throughway



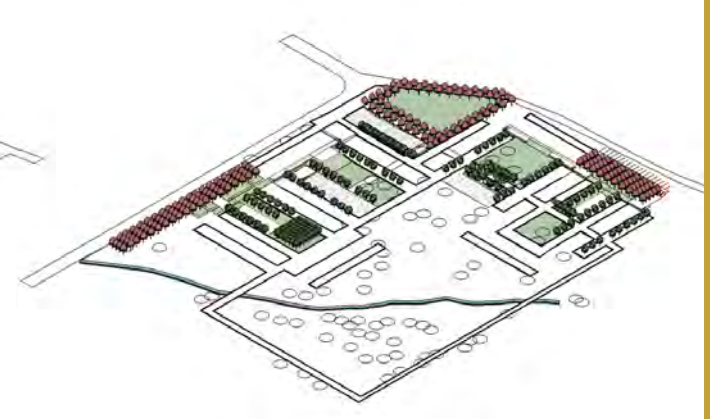
Elbow Throughway



This modest planning approach converts rear courtyards into car parks, connecting streets with interior entry courts. New landscaping for car parks improves the pedestrian environment of adjacent streets and links neighborhood amenities to proposed rear unit entrances.

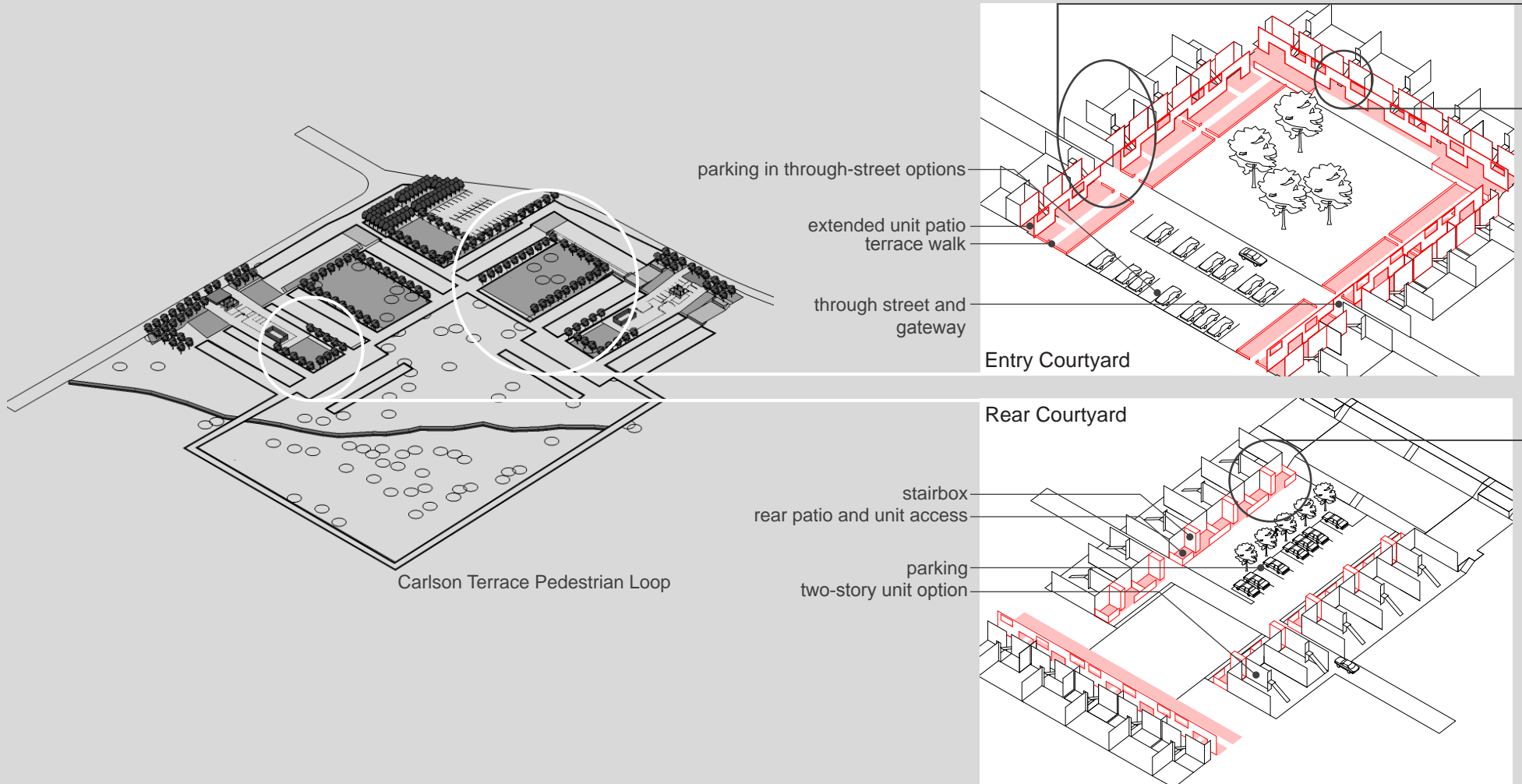


The Throughway approach introduces a “shared street” into Carlson Terrace, connecting units with parking and new landscape systems. The shared street enhances connectivity, clarifies public-private realms, and introduces a collegiate framework to an otherwise generic housing environment.

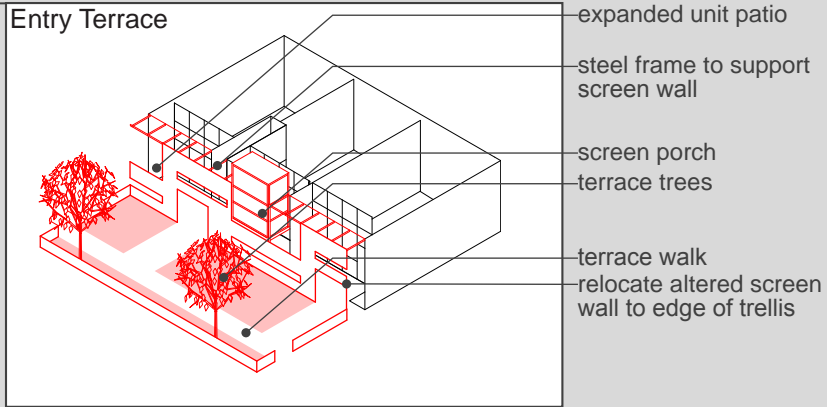


An expansion upon the Axial Throughway scheme, this approach introduces two shared streets along the new Carlson Terrace Pedestrian Loop. Parking is integrated into pedestrian passages and auto courts. One unit in each respective building is removed to create a gateway for automobile and pedestrian passage between courtyards.

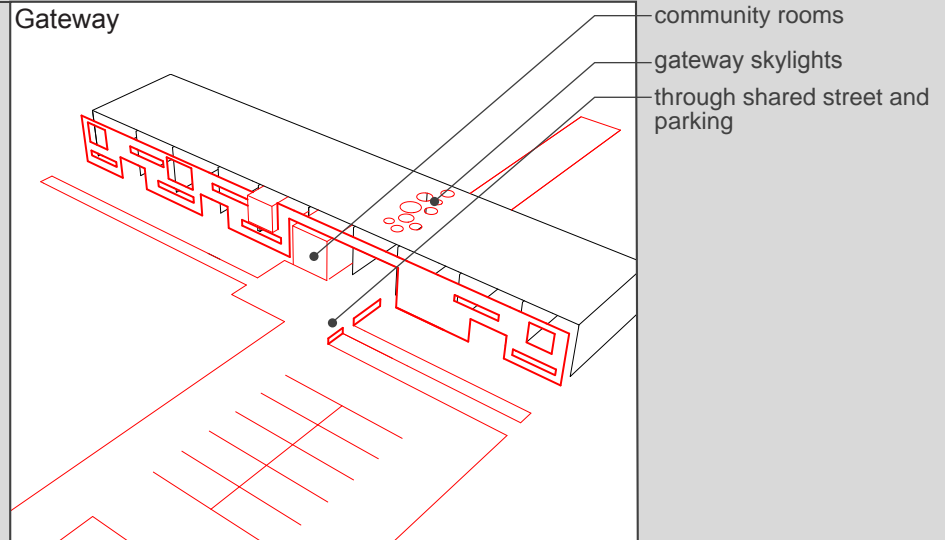
Housing Redevelopment Components



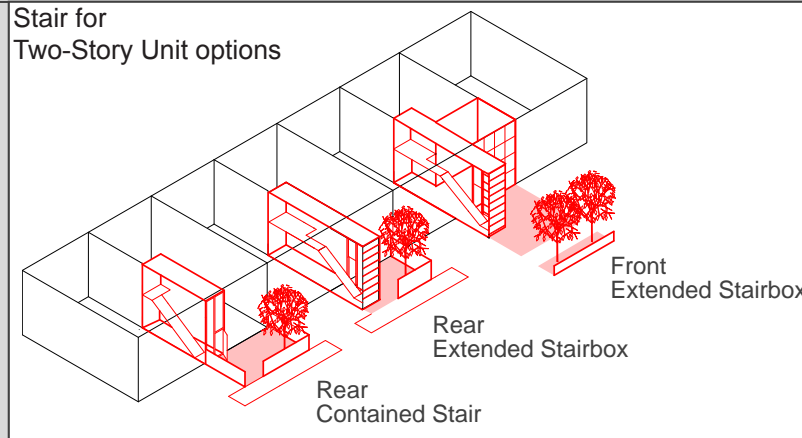
Entry Terrace



Gateway



Stair for Two-Story Unit options



Unit Renovation Typologies

While unit renovation options range from minor facade adjustments to development of a two-story loft unit, renovations leave party walls, utility cores, and stairs intact. All units gain access to rear walled patios.

Unit A

Minor renovations for this unit occur along the exterior edges through the addition of a porch and/or walled patio. While no additional square footage is added, interior spaces will feel more expansive with the introduction of views, natural light, and new exterior private spaces.

Unit B

Two existing units vertically stacked are combined into one unit affording two large bedrooms and a second level loft study. A new staircase within the unit's existing footprint is added, creating loft space and a double-height living room.

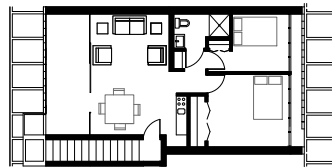
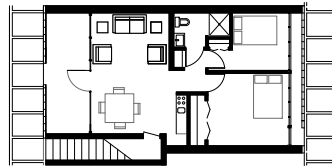
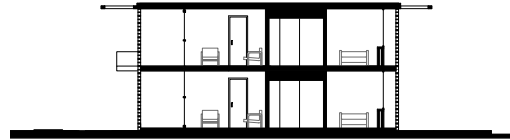
Unit C

Similar to Unit B combination of two stacked units, Unit C extends a new stair box into the rear patio, allowing for a larger kitchen, expanded first floor bath, and additional study space on the second level.

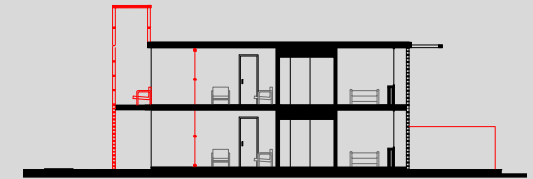
Units D & E

These units located in the two buildings terminating rear courtyard vistas, reverse their front and rear sides as per the site plan proposal. New unit fronts will face the restored College Branch riparian corridor. Their floor plans approximate Units A & C plans.

Existing Unit

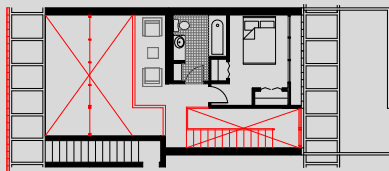
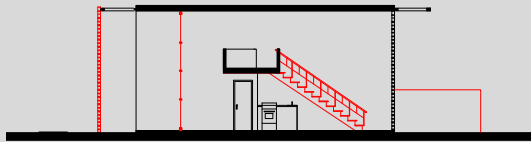


Unit A: 1 Story Unit (with Porch option)

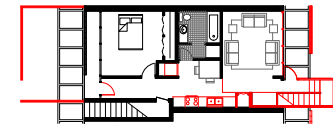
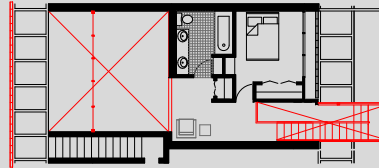
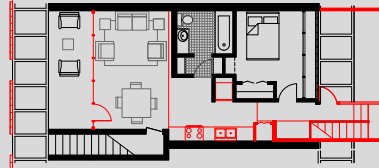
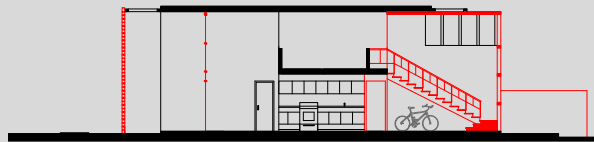


Porch Living Kitchen

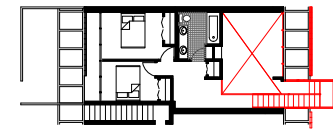
Unit B: 2 Story Unit with Contained Stair



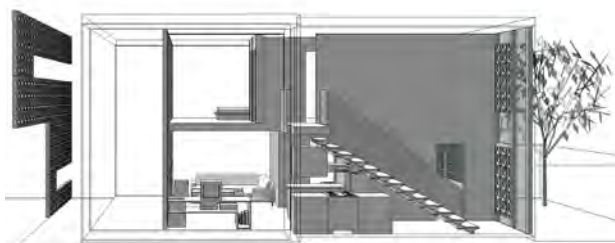
Unit C: 2 Story Unit with Extended Stairbox



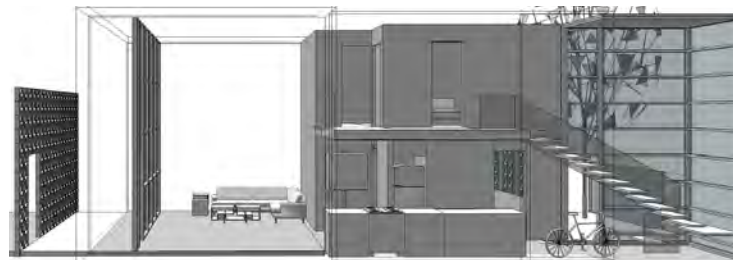
Unit D : 2 Story Reversed



Unit E : 1 Story Reversed

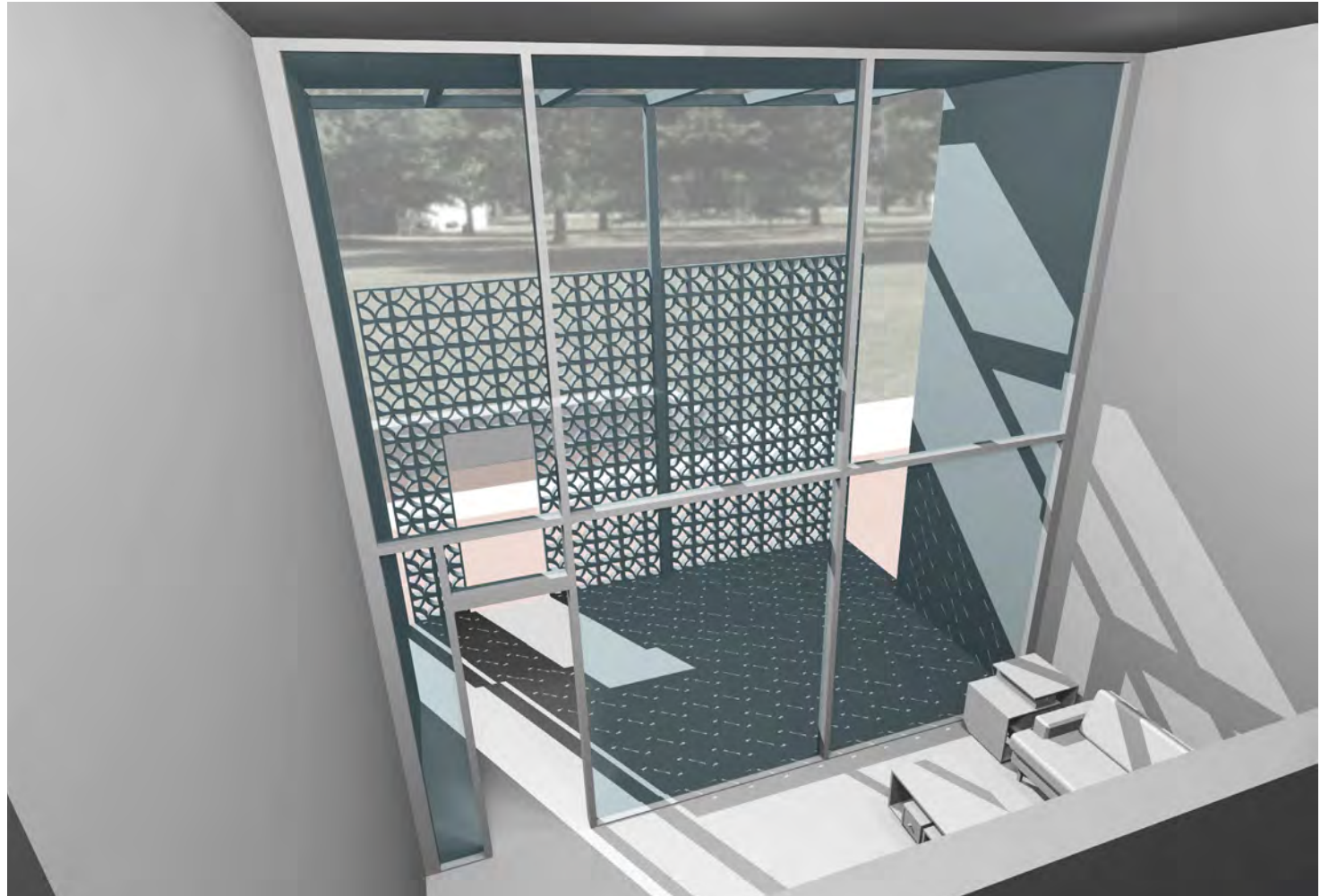
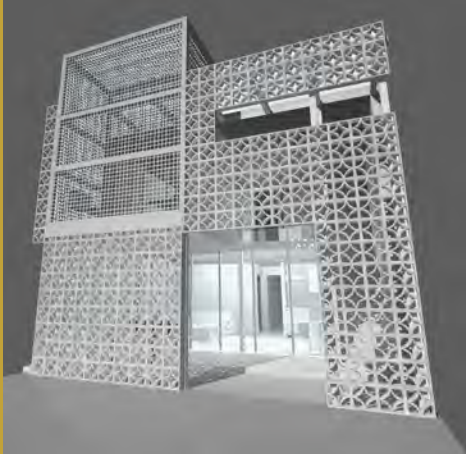


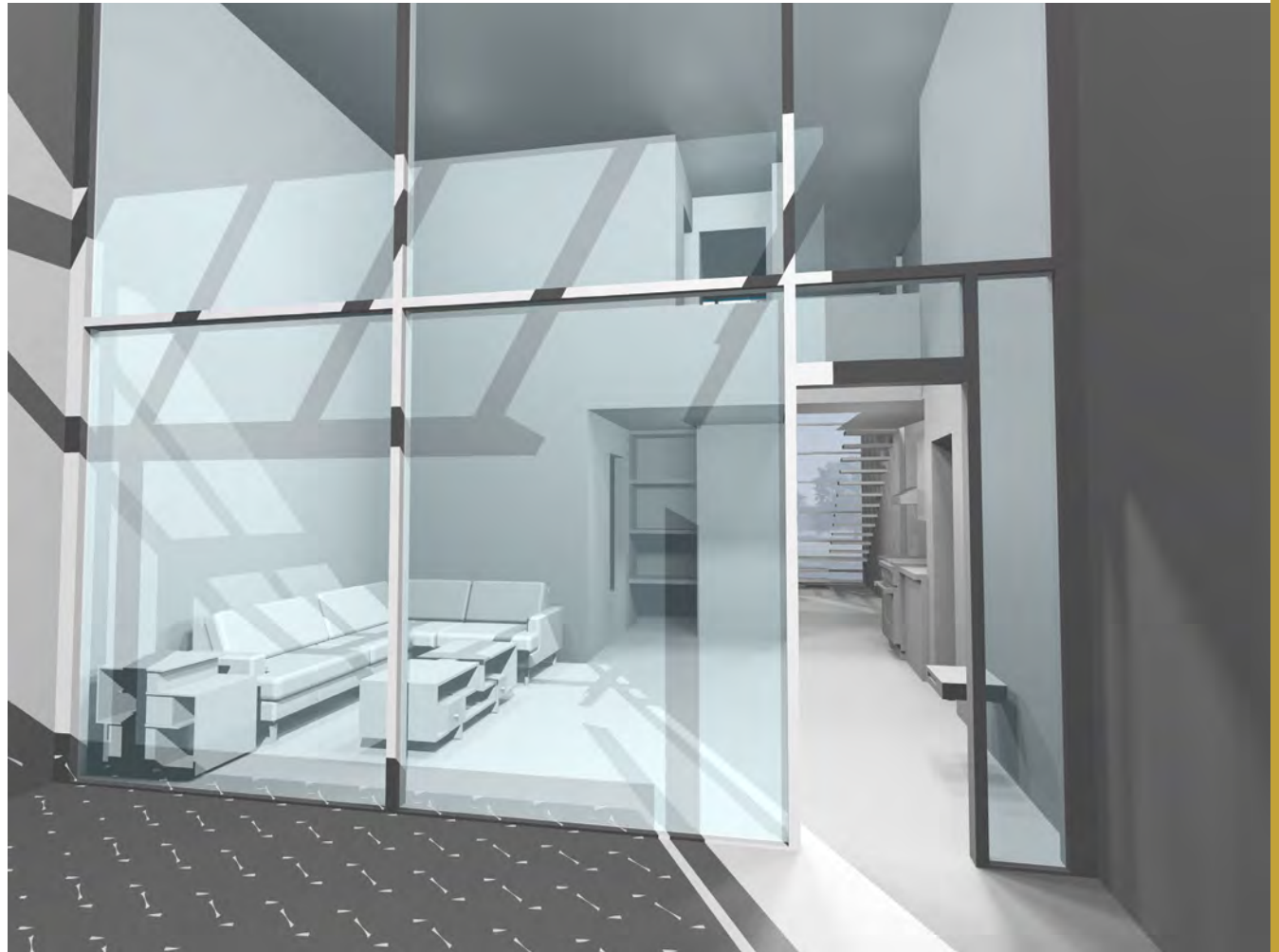
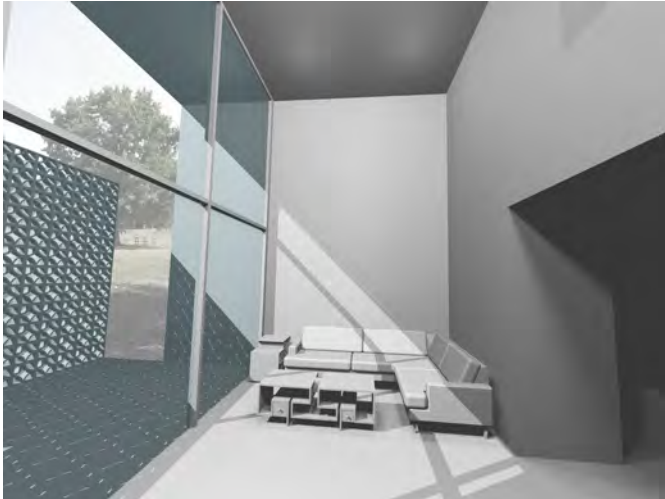
Porch Living/Loft Kitchen Contained Patio Stair



Porch Living Kitchen Extended Stair

Two-Story Loft Unit





Screen Strategies

Building interiors and exteriors would benefit substantially from modifications in the masonry decorative screen. Interiors would gain visual and physical accessibility to outdoor private spaces while building facades would become more inviting.

Three options range from simple removal of the second level screen to the provision of new openings. All options involve relocation of the screen wall to the outer edge of the roofline trellis supported by a steel frame behind. The Punched Wall and Ribbon Wall options allow for the introduction of porch elements. All strategies propose new patios for ground level units.

The screen wall is transformed from an icon to an architectural and urban element sponsoring greater levels of residential activity.



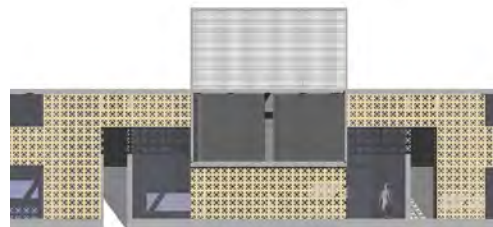
Existing



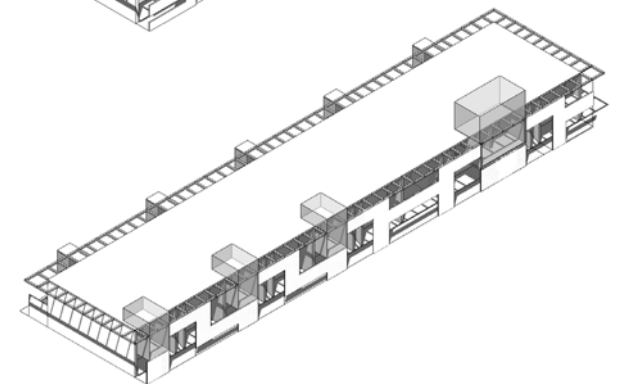
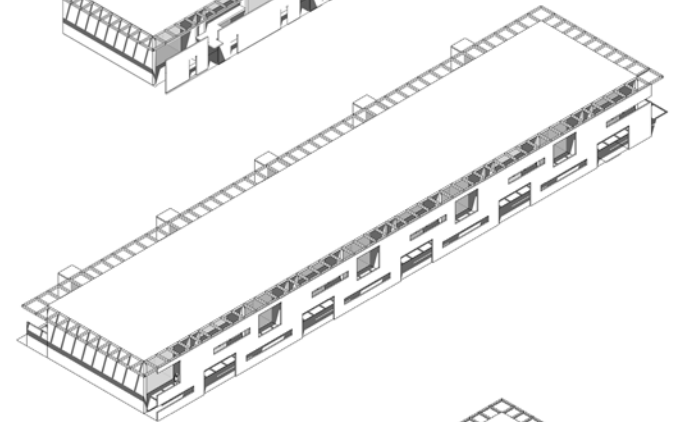
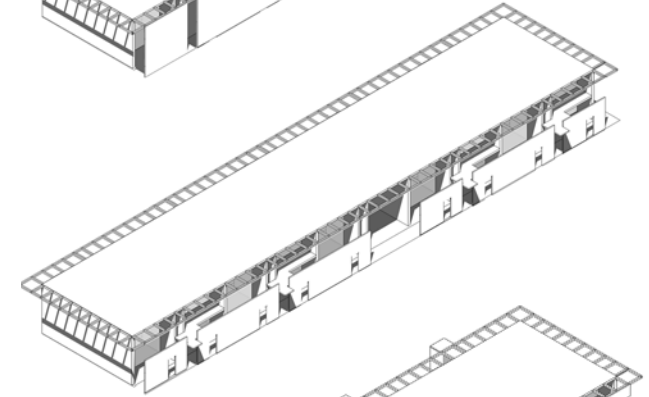
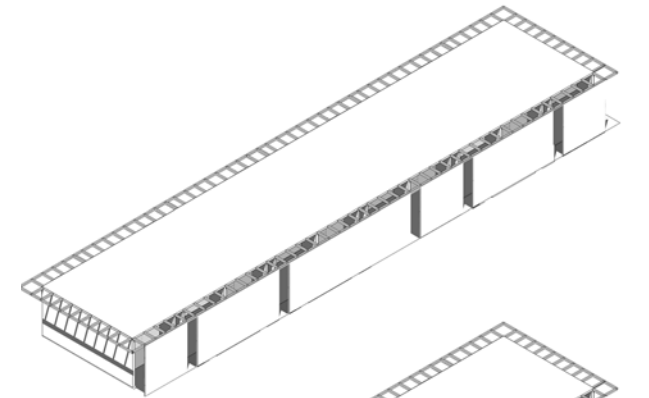
Partial Wall



Punched Wall

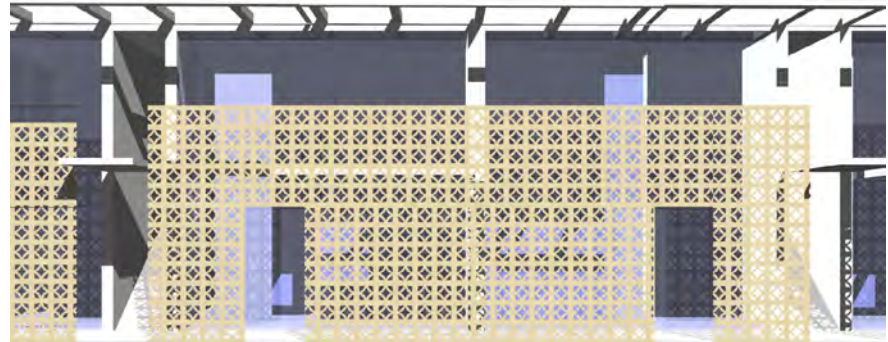


Ribbon Wall

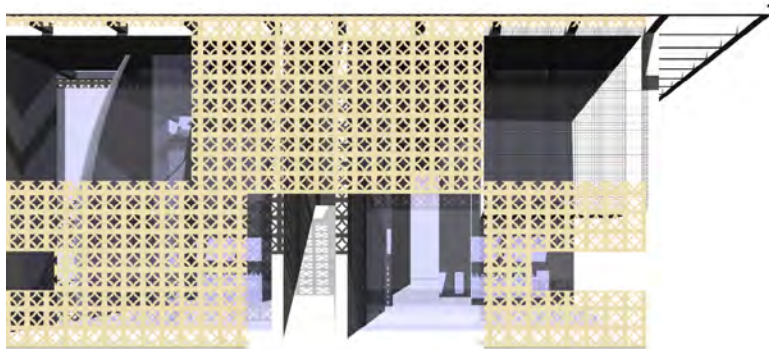




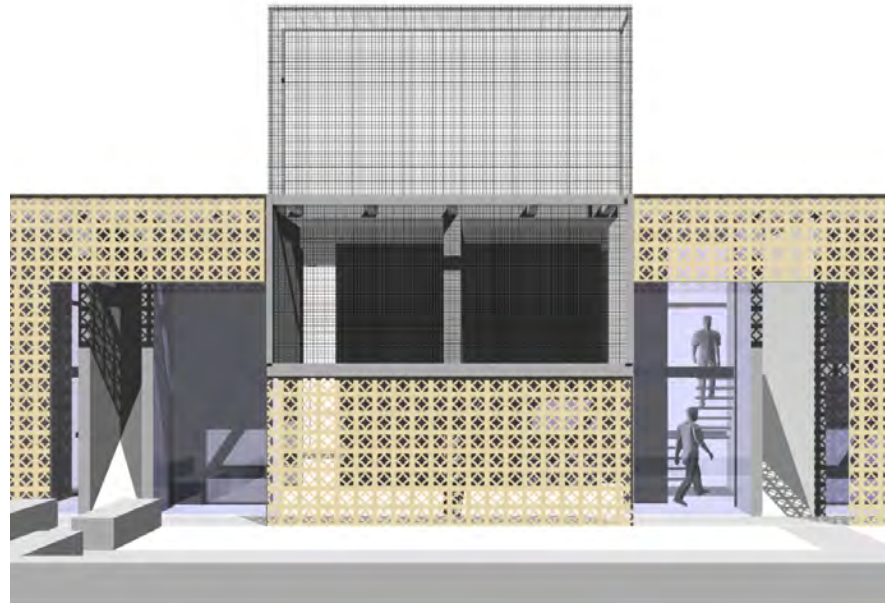
Existing



Partial Wall



Punched Wall



Ribbon Wall

Nodal Parking

1. Entry Courtyard
2. Rear Courtyard
3. On-site Parking
4. Terrace Walk
5. Unit Patios
6. Carlson Terrace Pedestrian Loop
7. Carlson Terrace Floodplain
8. College Branch Tributary
9. Red Maple Street Groves







Rear Courtyard with Gateway Unit



Rear Courtyard looking toward street



Axial Throughway

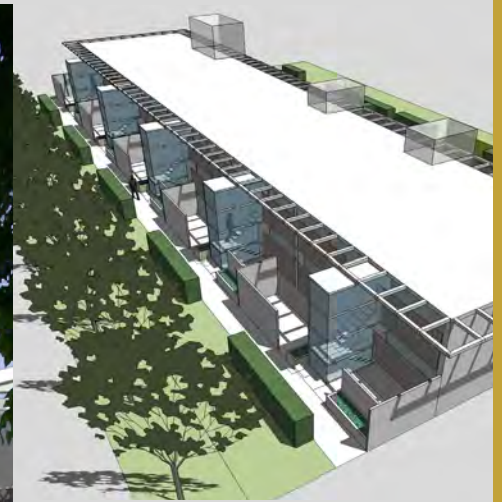
- 1. Entry Courtyard
- 2. Rear Courtyard
- 3. On-site Parking
- 4. Terrace Walk
- 5. Unit Patios
- 6. Carlson Terrace Pedestrian Loop
- 7. Carlson Terrace Floodplain
- 8. College Branch Tributary
- 9. Red Maple Street Groves
- 10. Shared Street
- 11. Automobile and Pedestrian Gateway







Unit porches, patios and terrace walk



Rear walled patios

Elbow Throughway

1. Entry Courtyard
2. Rear Courtyard
3. On-site Parking
4. Terrace Walk
5. Unit Patios
6. Carlson Terrace Pedestrian Loop
7. Carlson Terrace Floodplain
8. College Branch Tributary
9. Red Maple Street Groves
10. Shared Street
11. Automobile Court





Housing Recommendations

Exemplary university campuses were always great residential environments. Indeed, competitive universities seeking the best students have retooled their on-campus housing and student services buildings to be choice destination spaces.

Carlson Terrace is a paradox in that it once projected important mid-century modern ideas about living, yet the original design concept was never fully realized or well stewarded. The current landscape neither reflects good campus planning nor competent residential planning. *Campus Hydroscaapes* presents three redevelopment options focused on extending some unfinished design matters.

- Develop a landscape that is layered with public, semi-public, semi-private, and private spaces. This principle is common in quality residential environments and particularly important in endowing quality when the architecture is aesthetically challenging.
- Complementing a more structured residential landscape, provide an area pedestrian loop to connect various campus, private, and community interests. This negotiates residents' need for privacy, campus pedestrian traffic flows through the



Gateway Unit and Shared Street



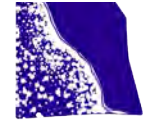


area, and the community's interest in protecting the riparian corridor.

- Consider introduction of a shared street system into Carlson Terrace, connecting parking, landscape systems, and communal areas. This socially and physically reconnects the housing with the surrounding campus while providing additional residential amenities.
- Either relocate or remove portions of the masonry screen to achieve greater porosity between the interior and exterior. This more than anything will enhance unit quality, compensating for unit size. Extension of screen wall to the building eave edge will facilitate the introduction of patios and porches.
- Consider feasibility for converting housing units to two-story lofts, accommodating a more diverse student population. Carlson Terrace could easily become signature housing for the university and a recruitment tool to attract select graduate students.

Student Variations

Student Variations



Hydrology Pixelation

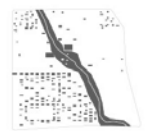
Pixelated Landscape

Gateway Park

Watershed



Riparian Corridor



Parking



Vegetal Edges



Housing





RiparianBands



TotalMarsh

Riparian Digits

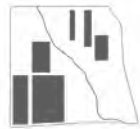
Water Park

Riparian Bands

Floodway Park

Collage City

Total Marsh



PixelatedLandscape



Localized stormwater gardens organize parking clusters and create a more amenable pedestrian and ecological environment. Larger exterior rooms are created by allees. The parking lot becomes a garden.



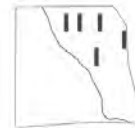
The entire site becomes a water management solution as parking and water treatment strategies are integrated.



Parking has been significantly increased, with nearly 2200 available permanent spaces.

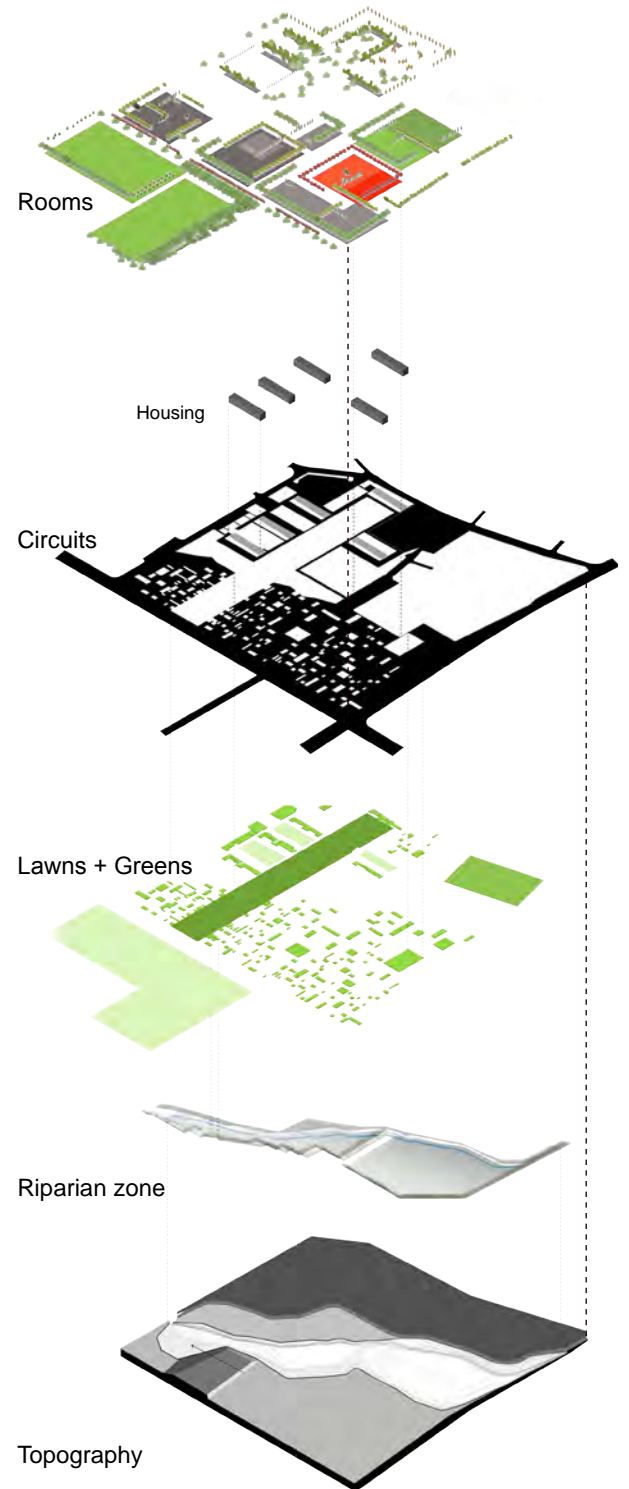
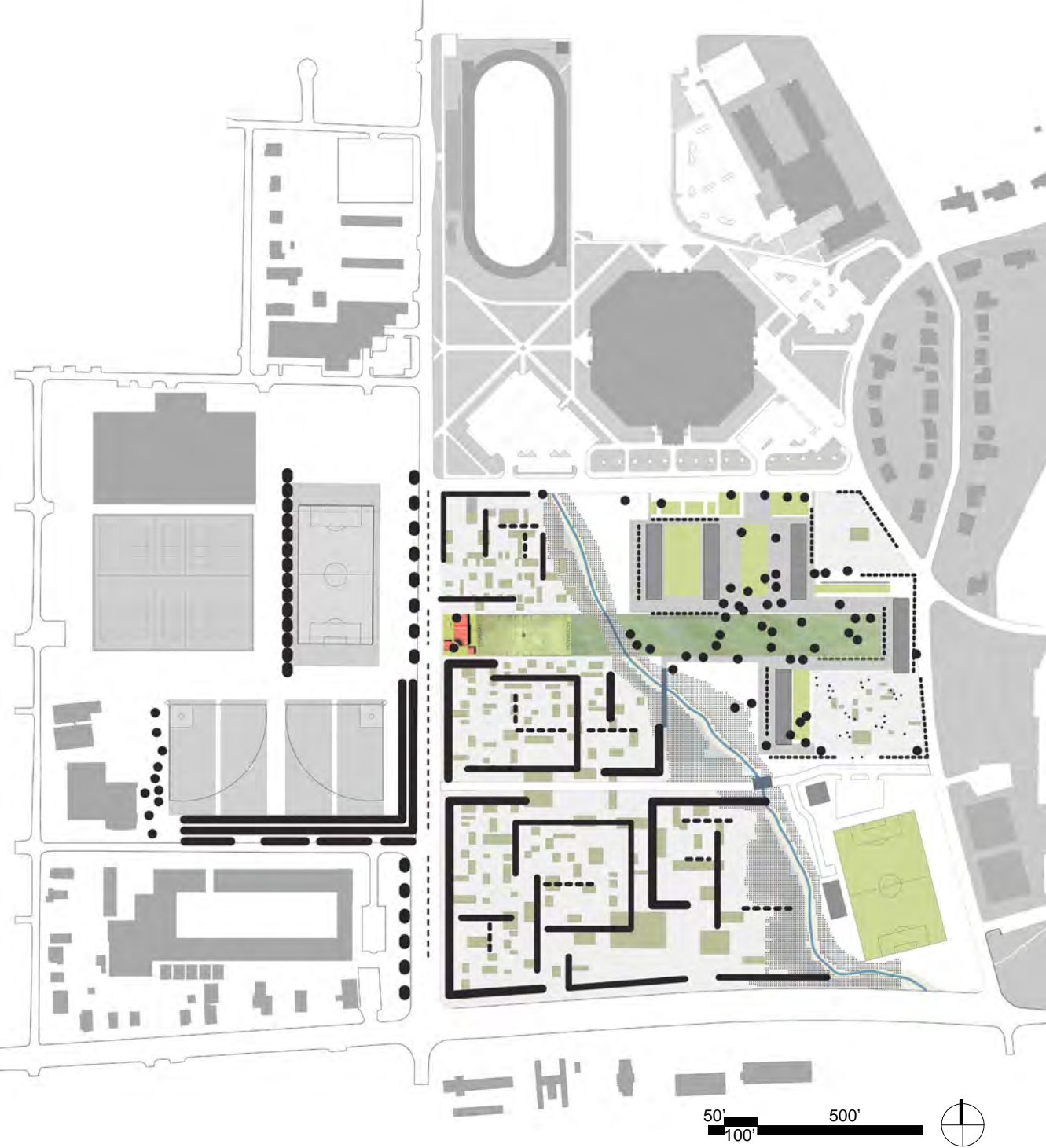


Vegetation forms a field of rooms, partitioning the large parking lot into a series of smaller spaces.



Housing is preserved on the eastern side with north-south oriented housing remaining. New courtyards and terraces provide a new residential context.

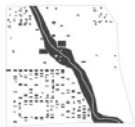




GatewayPark



Parking stall dimensions serve as a new ecological module for reclamation of small stormwater gardens throughout the parking lot.



A thick riparian corridor of tall grasses and shrubs is installed along the stream, creating a meadow for filtration and habitat.



Parking is increased to 1700 permanent spaces, with several areas for overflow parking, adding an additional 300 spaces.

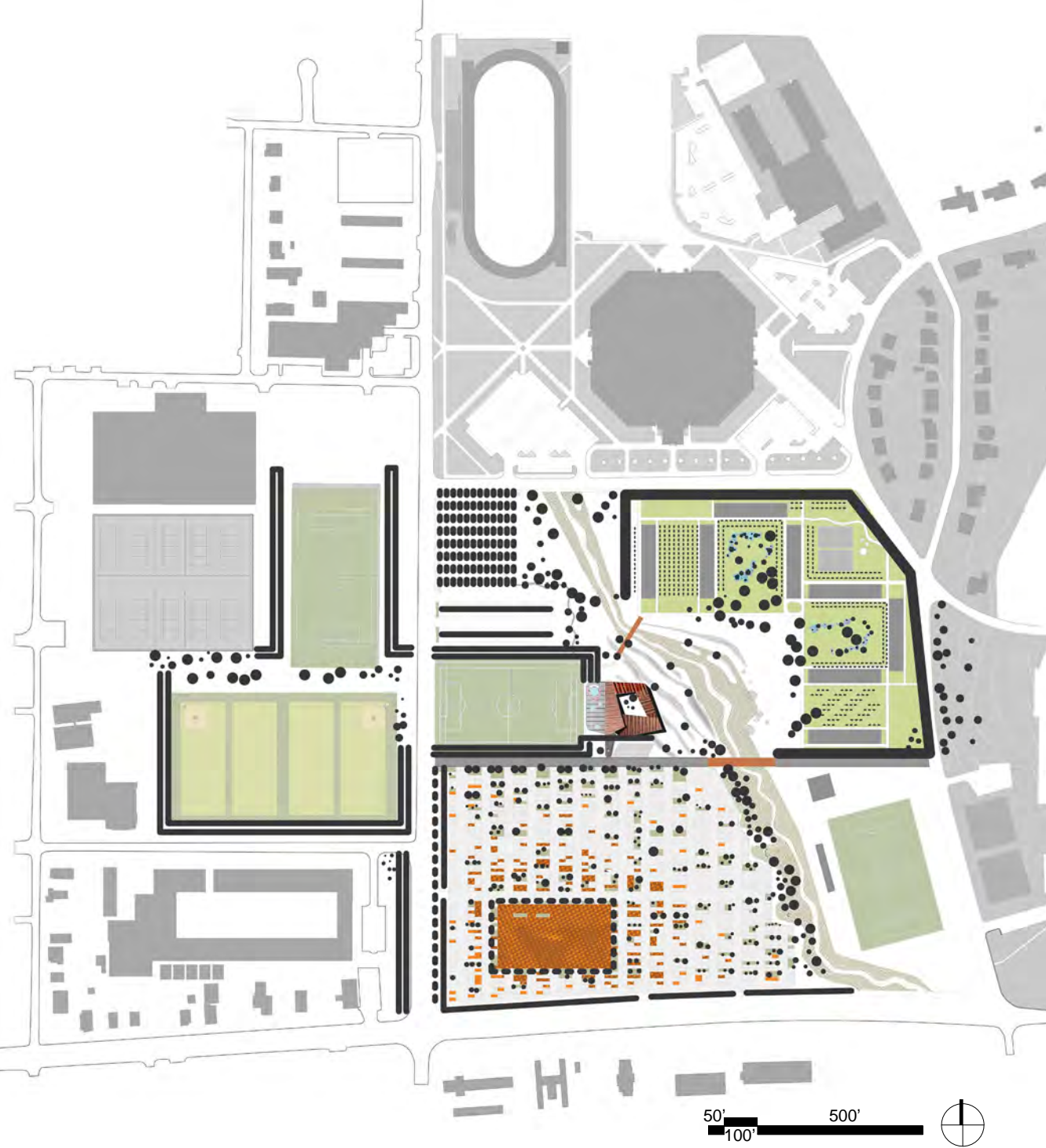


Vegetal edges play an important role in creating exterior rooms. Housing units, the parking lot and a new visitors center become anchors in larger site enclaves.

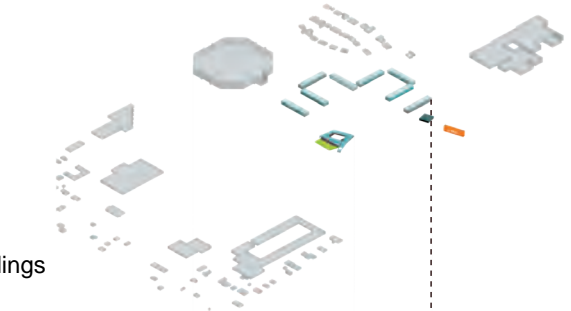


Housing on the west side has been removed in order to accommodate additional parking and a new watershed. The remaining units are preserved within a new landscape of intimate public and private spaces.





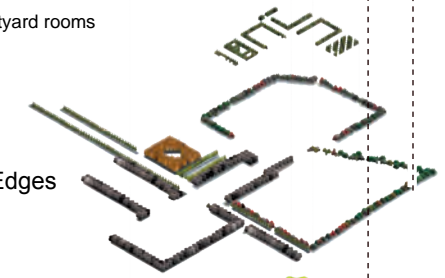
Buildings



Infill trees



Courtyard rooms



Rooms + Edges



Green programs



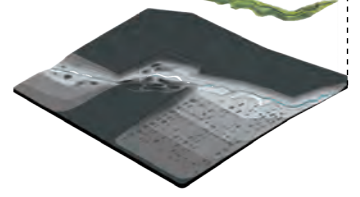
Paved programs + Circuits



Riparian zone



Topography



RiparianDigits



The major topographical move consists of a significant extension of the floodplain, resulting in a wide meadow in the center of the site.



The riparian corridor is widened and populated with tall grasses. During a flood event the meadow changes into wetlands and serves as a wildlife habitat.



Parking occupies the western edge of the site, significantly increasing the capacity while utilizing its edges as pedestrian areas. The total capacity is 1700 spaces with an additional 250 as overflow.

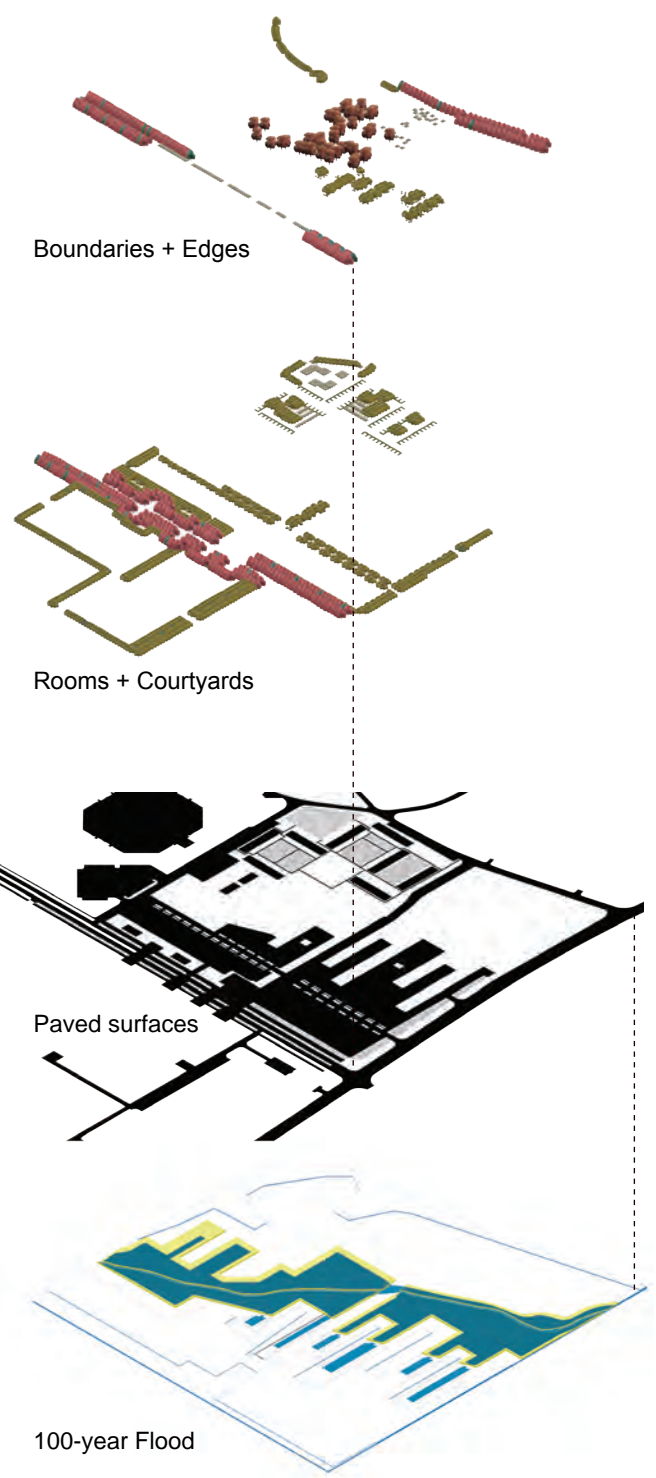
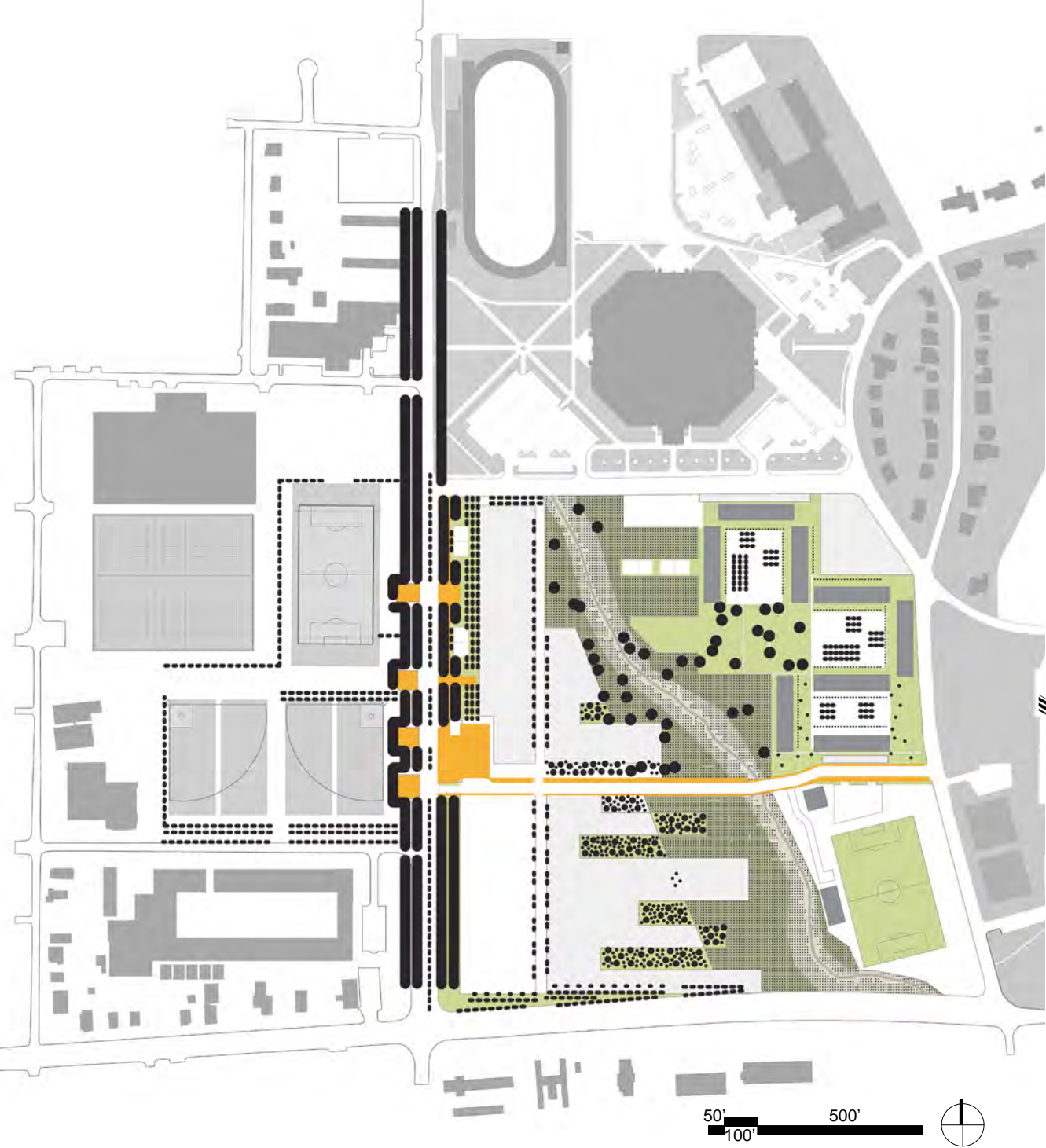


Vegetation forms a wide, multi-layered boulevard as a campus entrance. Along its edge, a series of rooms provide additional parking, as well as spaces for sports and leisure.



Housing will be preserved on the eastern side to be surrounded by a central meadow.





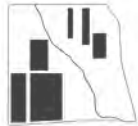
WaterPark



Watershed strategy is to maximize the floodplain through extended fingers which help in direct treated stormwater to the riparian zone.



Riparian corridor is extended to create grass-based flood retention basins.



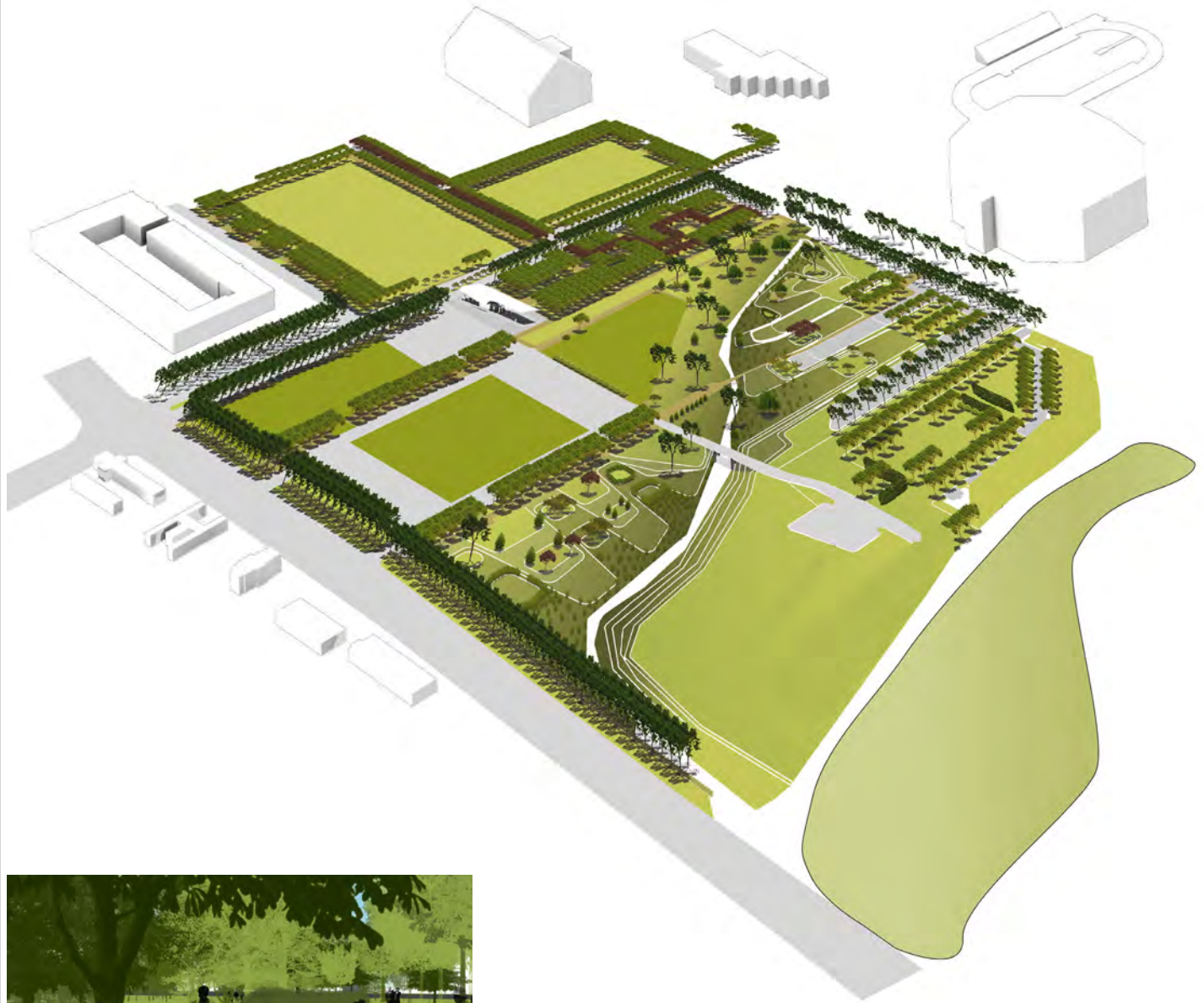
Parking has been increased with the removal of Carlson Terrace housing. Parking lots are surrounded with storm water treatment gardens.

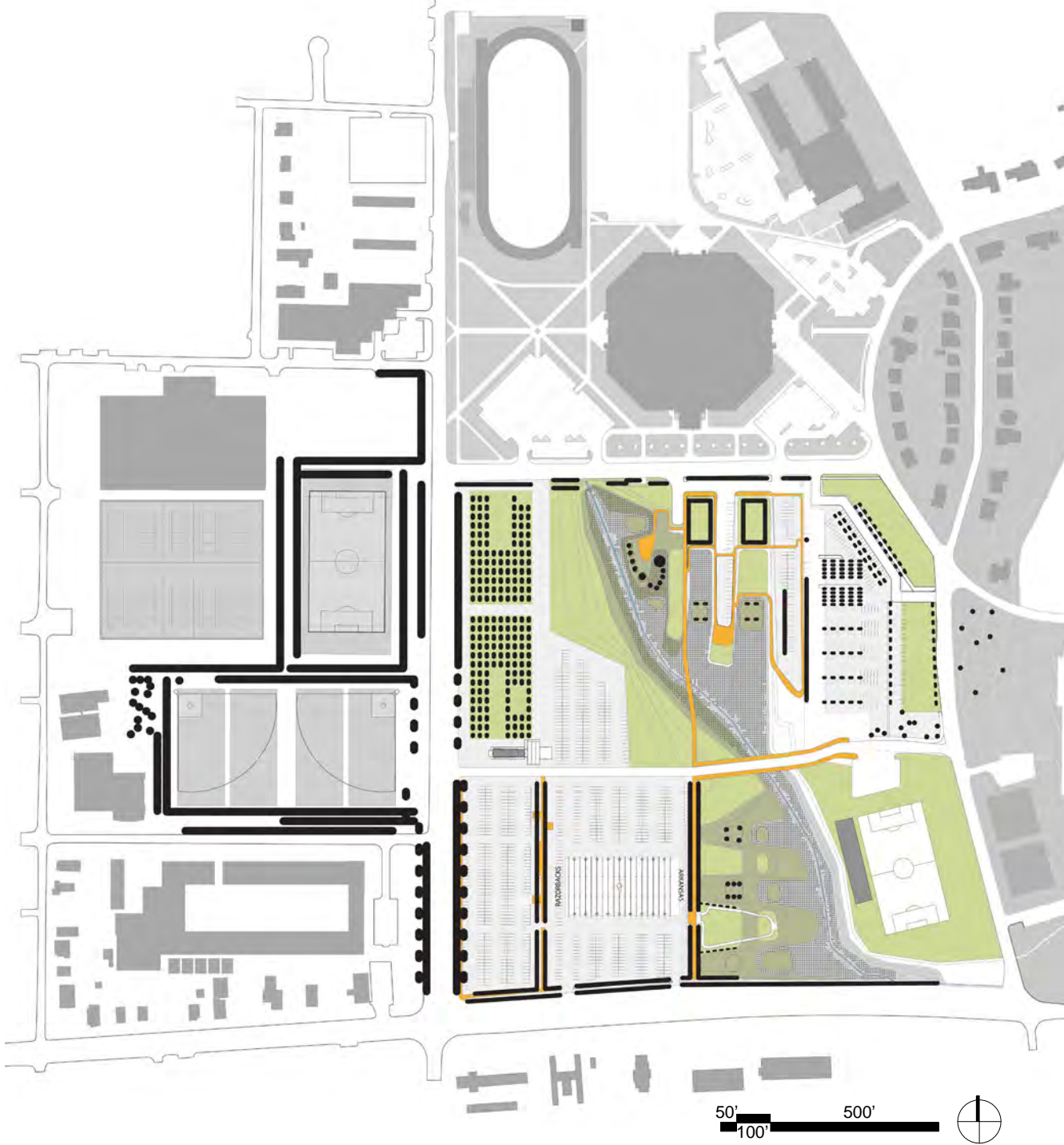


Vegetation defines parking rooms and street edges.

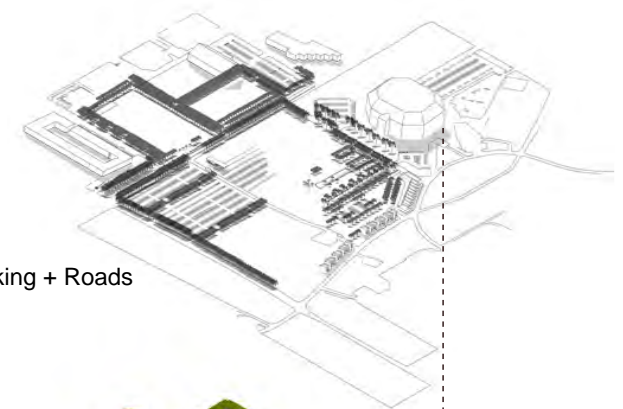


The original housing has been removed to accommodate for additional green space.





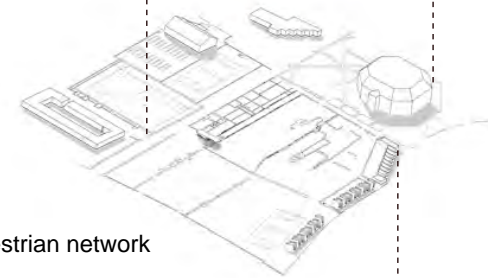
Parking + Roads



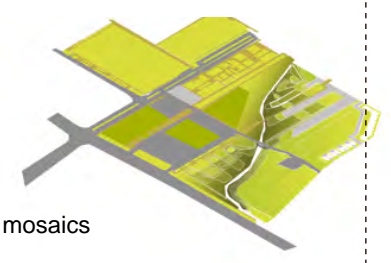
Park district



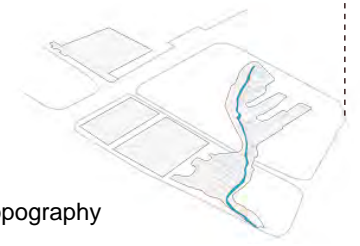
Pedestrian network



Surface mosaics



Surface topography



RiparianBands



The watershed solution widens floodplain and forms a continuous band of riparian vegetation along the stream. An adjacent band consists of a boulevard with bioswales for water treatment.



The riparian zone is originally planted in lines, which subsequently get denser as the vegetation grows.



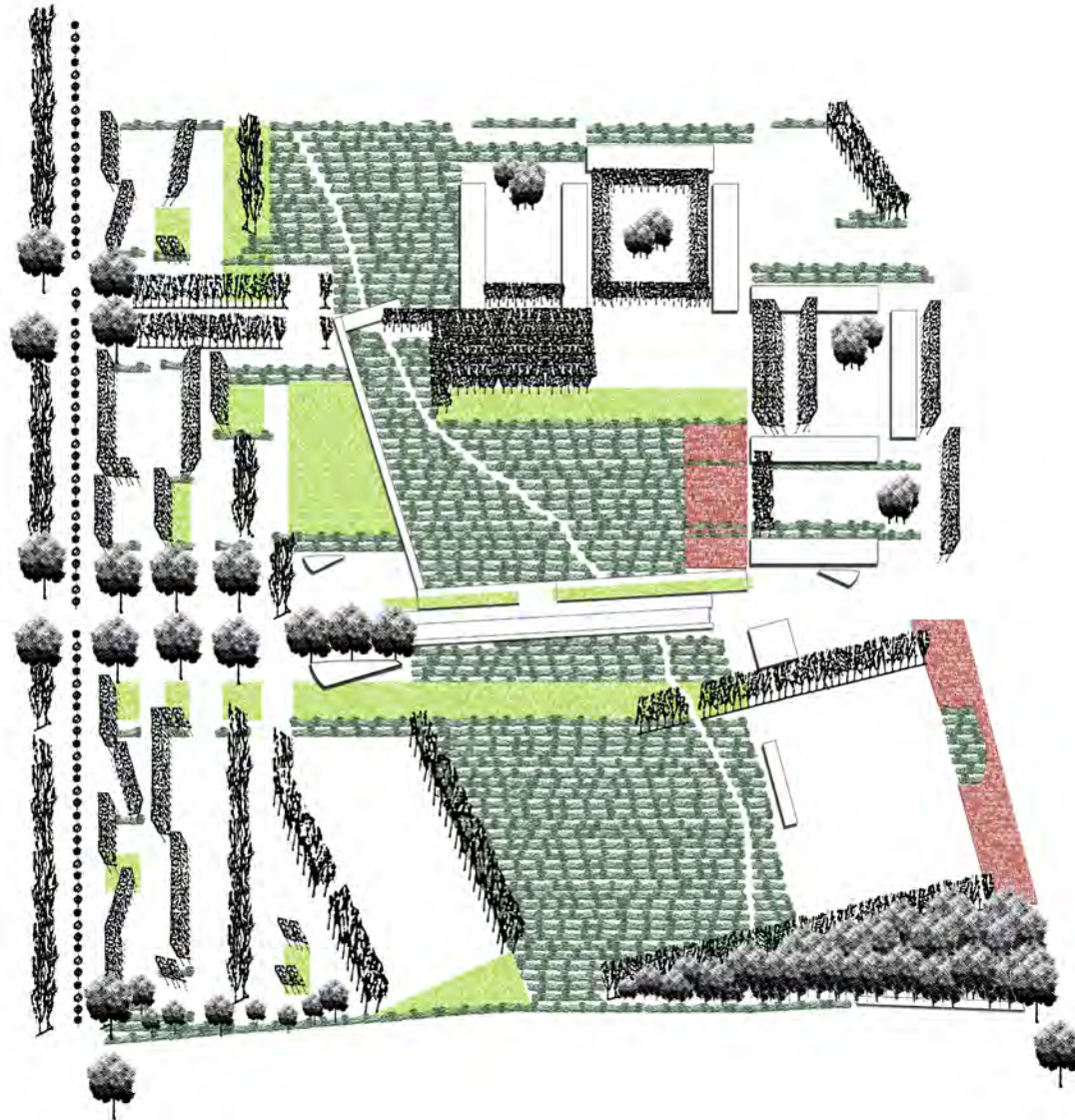
Majority of parking is located along the boulevard and western portion of the site. While the capacity has been decreased to 1000 spaces, the overflow capacity is significant—almost 500 additional spaces.

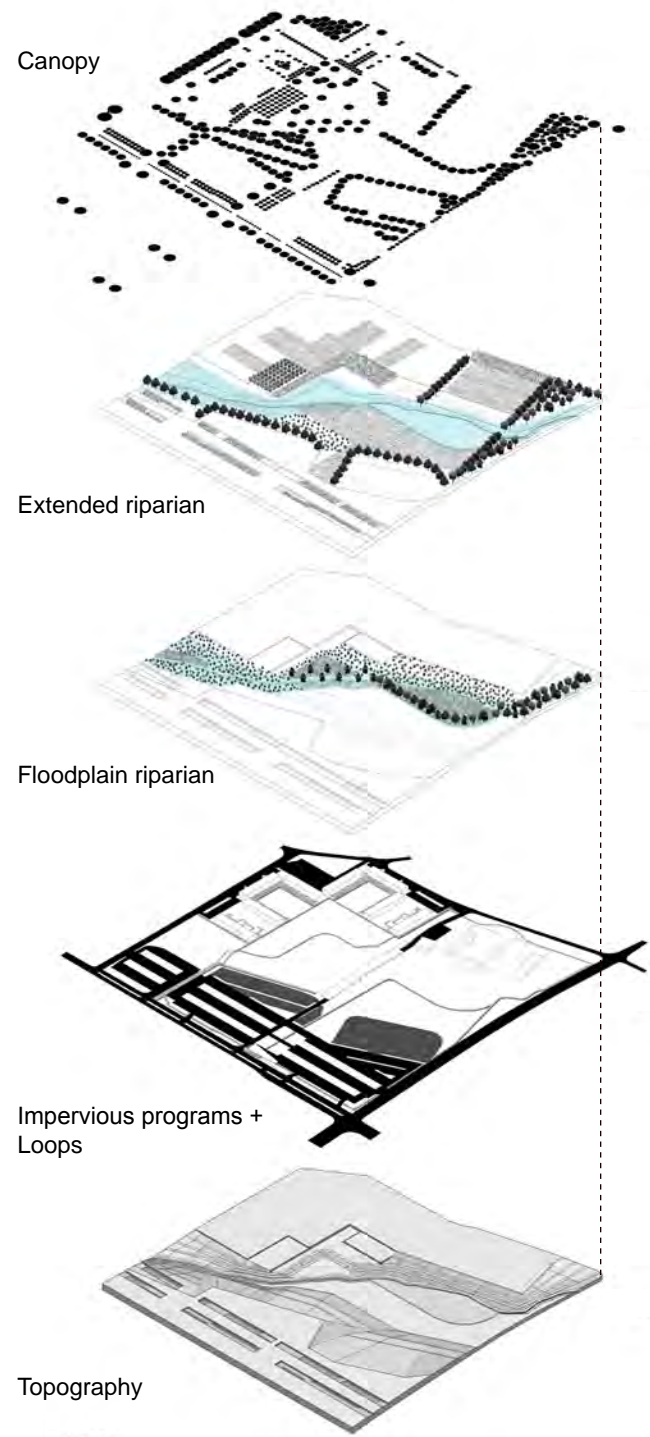
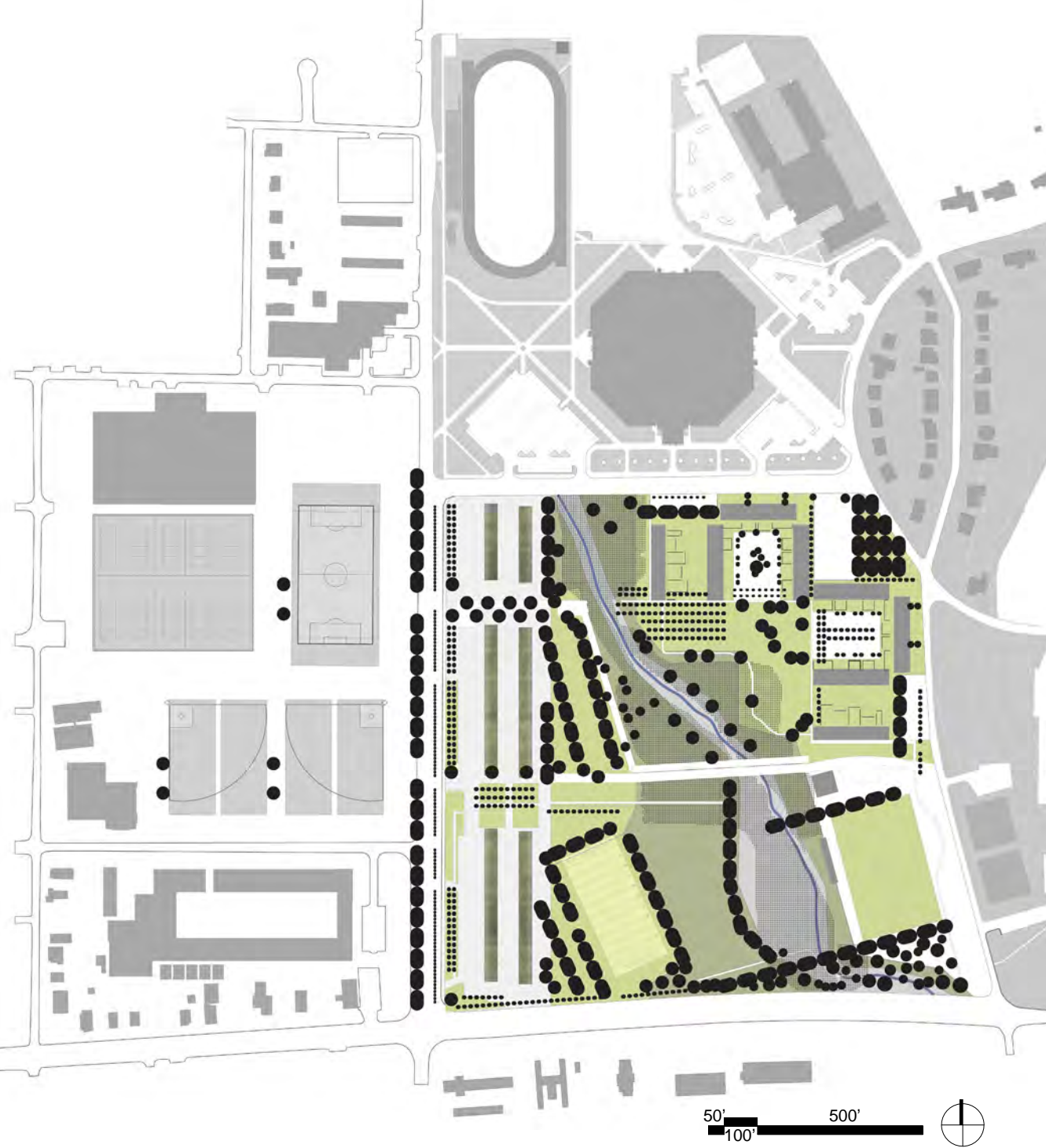


Vegetation encloses space according to program. The stratified boulevard provides parking, pedestrian amenities and pedestrian loops along the edges.



Housing is preserved along the eastern portion of the site. Two additional buildings are removed to add floodplain units.





FloodwayPark



The entire site—including parking lot—is designed to be a stormwater recovery and flood retention system.



The riparian corridor is expanded to accommodate greater flood retention while saving existing mature trees along the western stream edge.



Parking is organized into striated lanes, flanked by vegetation for stormwater retention. The capacity of hard-surfaced parking has been slightly decreased to approx. 1200 spaces. An additional 500 spaces are provided in the overflow parking areas.

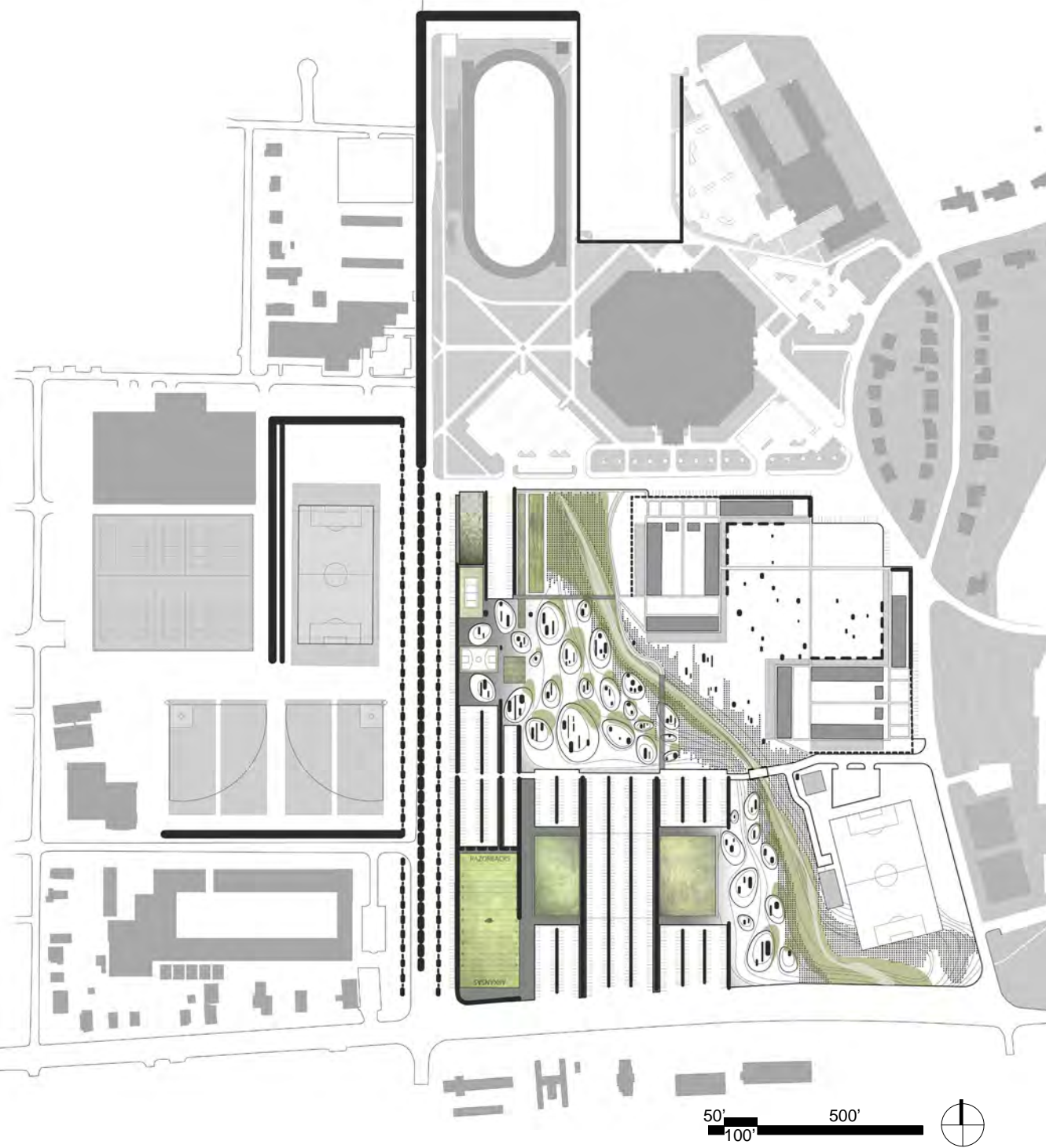


Vegetation follows the established topography and parking, forming edges around the boulevard and parking areas while mounds form vegetal clusters.

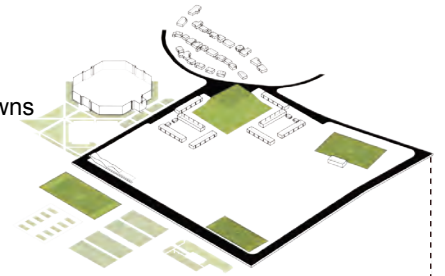


Housing is preserved on the eastern side. Two corner buildings are removed to reconnect the corner of the site with neighborhood residential fabric and the street.





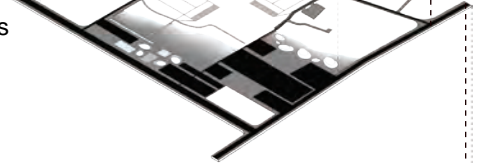
Interfacing lawns



Vegetation grains



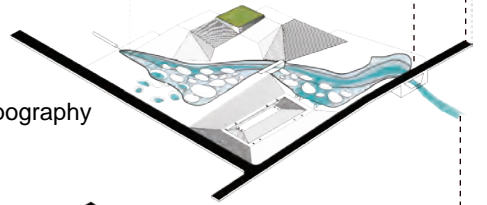
Surface grains



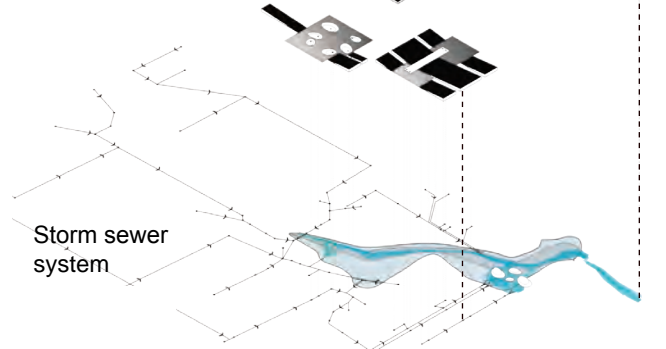
Riparian corridor



Floodplain topography



Storm sewer system



CollageCity



New pedestrian walks encircle various landscaped automobile parking rooms. Interstitial space between rooms serves as stormwater retention and treatment connected to a widened riparian corridor.



Riparian corridor is widened for a water flood retention, while defining new circular parking landscapes.



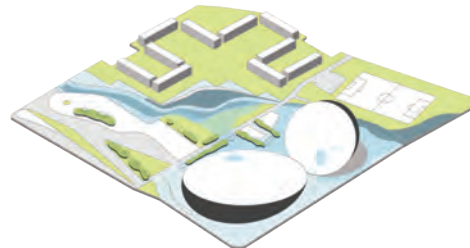
Parking is confined to well-defined rooms surrounded by stormwater and flood retention basins.

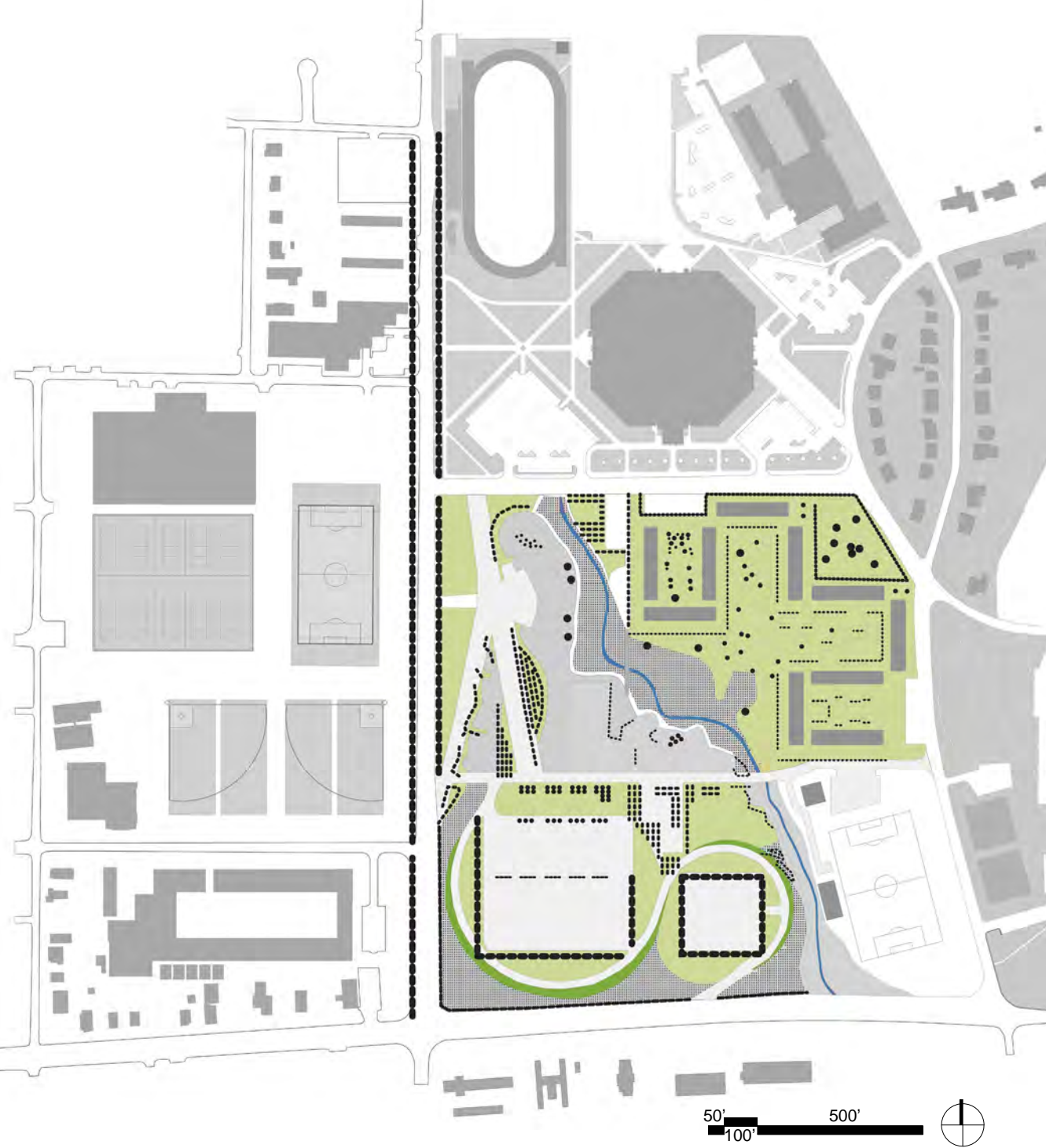


Vegetation defines the exterior rooms for automobile parking.

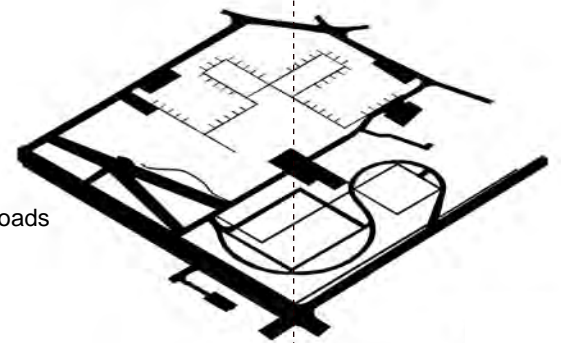


Housing will be preserved on the eastern part of the site, with a variety of vegetation helping to define courtyard spaces.

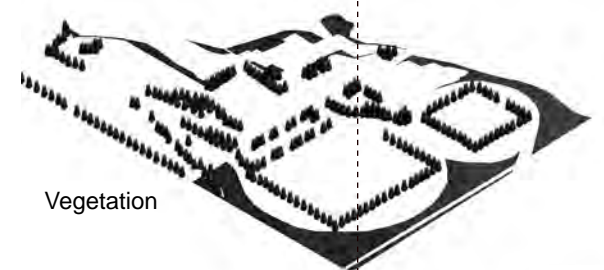




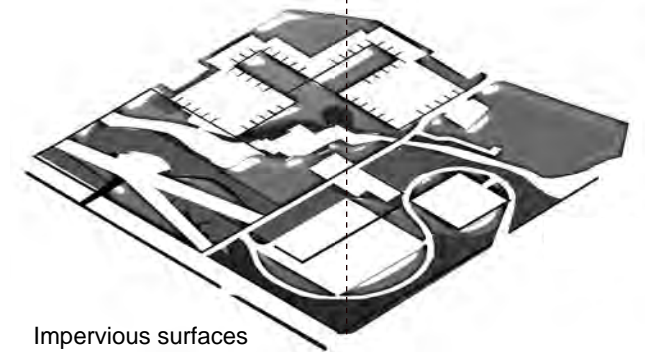
Water retention and treatment



Roads



Vegetation



Impervious surfaces

TotalMarsh



The primary hydrological strategy maximizes the floodplain and riparian zone, creating a continuous marsh throughout the site.



Riparian zone covers most of the site.



Parking is located into a parking garage with capacity of 1300 spaces. The building is densely programmed, housing a visitors area and smaller amenities related to band practice storage, bus stop and media lab.

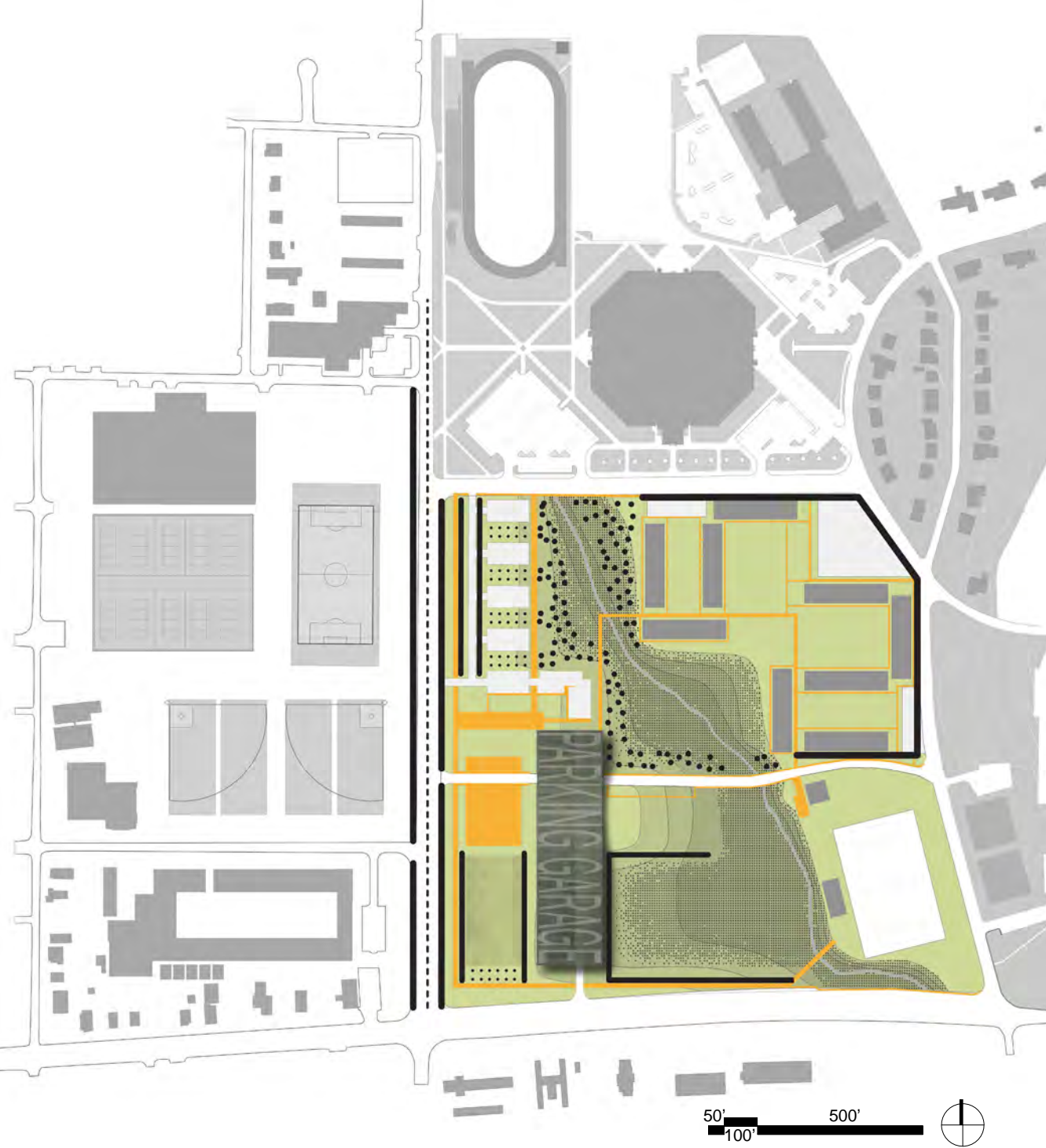


Trees are used to define primary spaces and form a memorial walk along Razorback Blvd. This walk consists of smaller rooms dedicated to memorable events and figures in the university's athletic programs.

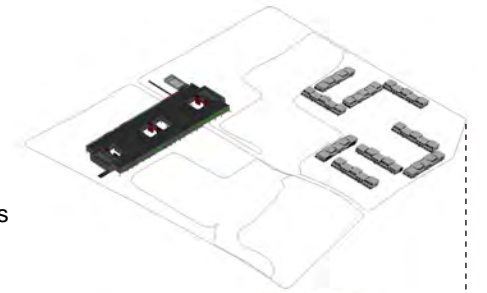


Most of the housing will be preserved on the eastern side of the site.

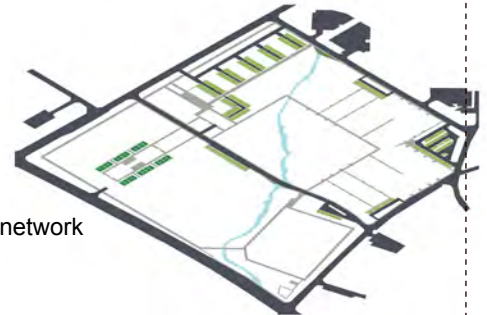




Buildings



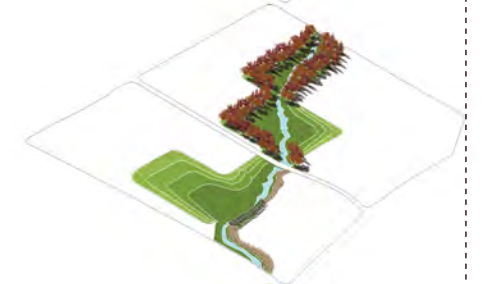
Mobility network



Tree rooms



Marsh



Topography



MISSION

The mission of the University of Arkansas Community Design Center is to advance creative development in Arkansas through education, research, and design solutions that enhance the physical environment.

VISION

As an outreach center of the School of Architecture, UACDC is developing a repertoire of new design methodologies applicable to community development issues in Arkansas, with currency at the national level.

UACDC design solutions introduce a multiple bottom line, integrating social and environmental measures into economic development. Integrative design solutions add long-term value and offer collateral benefits related to sustained economic capacity, enhanced ecologies, and improved public health—the foundations of creative development.



Expanding the Consideration of Civic Space

The contemporary public domain has shifted to an expanded urban field that includes suburban and other non-urban environments—a geography of sprawl. Compounded by the decline of traditional downtowns, this shift poses new planning challenges for which no adequate civic development models exist.

Our planning approaches are tailored for historic downtowns, rural sites, watersheds, highway/rail infrastructure, the college campus, retail environments, and the office/residential/retail subdivision.

Developing New Models of Design

Through meta-disciplinary research and design principles, UACDC combines ecological, architectural, landscape architectural, and urban design solutions to address emerging planning challenges. Our research maps the unique economic, political, and cultural processes that have shaped the Arkansas landscape.

Our work addresses new challenges in affordable housing, urban sprawl, environmental planning, and management of regional growth or decline.

Constructing Discourse

Design professionals, educators, and students seeking civic design experience staff the UACDC. We collaborate with other agencies such as the Biological and Agricultural Engineering Department, the Center for Business and Economic Research, the Delta Research and Design Center, and the Arkansas Forestry Commission. Through work with our clients and collaborators, we initiate learning networks that facilitate creative development.

UACDC was founded in 1995 and has provided design and planning services to over 30 communities across Arkansas. Our planning has helped Arkansas communities to secure nearly \$64 million in grant funding to enact suggested improvements.

APPROACH

IMPACT