

CAMPUS AS FOREST
REGENERATIVE CAMPUS LANDSCAPE PLAN

ACKNOWLEDGMENTS

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CATAWBA COLLEGE

REGENERATIVE CAMPUS LANDSCAPE PLAN

Catawba College's Regenerative Campus Landscape Plan establishes the foundation for a transformative vision that unites the College's academic mission with ecological regeneration and community resilience. The plan synthesizes campus and community stakeholder insights to frame a comprehensive approach rooted in eco-systems and place-based design.

The Campus as Forest vision aims to cultivate a campus that functions as a living-learning laboratory, integrating community, ecology, education and innovation. Rooted through foundational Principles, Goals, and Strategies, **the Catawba Canopy plan** incorporates three overarching frameworks: campus experience, natural regeneration, and academic research to achieve nature-positive impact. Integrating a regenerative tool kit and Fully Integrated Thinking framework structures a **Regenerative Roadmap** for Catawba, employing data-driven feedback loops to guide adaptive and measurable progress.

Drawing from the Piedmont's distinct landscape, the plan translates regional ecology into actionable programmatic elements that advance learning and environmental stewardship. Integrated frameworks, programming and phasing strategies create achievable pathways toward implementation. Campus zones are defined by thematic characteristics that bridge landscape, culture and curriculum, demonstrating how regeneration can be both practical and inspirational.

Ultimately, this Conceptual Plan serves as the blueprint for creating a regenerative campus: one that restores natural systems, enriches the student experience, and positions Catawba College as a national leader in environmental stewardship.





REGENERATIVE DESIGN PROCESS

REGENERATIVE DESIGN PROCESS

ECOSYSTEMS THINKING

Regenerative Design *brings new life to something that has been depleted. A regenerative development enhances an ecosystem beyond the conditions of nearby healthy habitats. Ultimately, the environment thrives as a result of human interaction, enabling mutual conditions for each to co-evolve as one.*

Regenerative Design follows an integrative design process that is derived from holistic ecosystems thinking: a **Positive Performance Methodology**. The approach below demonstrates the overall methodology applied to bring Catawba College's "Campus as Forest" Vision into reality, integrating the goals of regenerative landscape with the genius of the environment and engagement with Catawba's students, staff and community. Built upon a spirit of collaboration, the design team, campus leadership, academic scholars and students holistically integrated the expertise and input from all stakeholders to deliver a regenerative campus landscape plan for Catawba College.

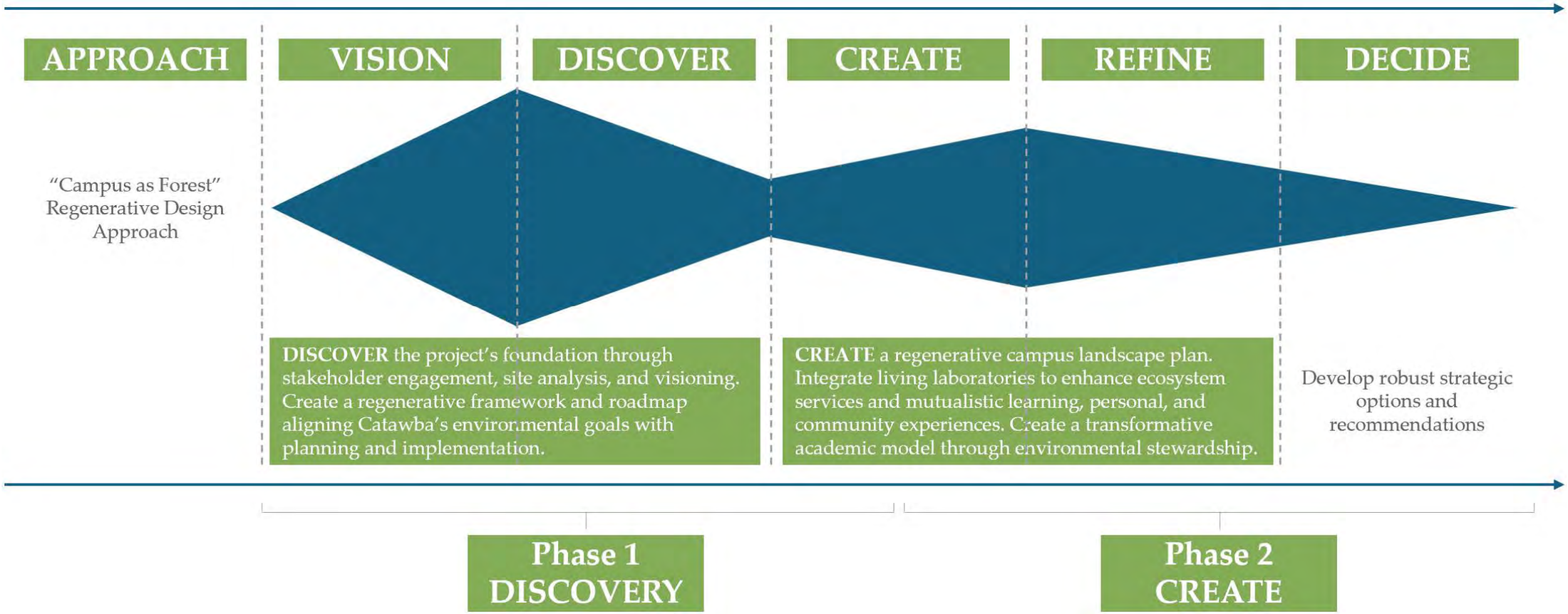
The Positive Performance Methodology galvanized the design team comprised of HOK's Regenerative Design and Landscape Planning teams, to facilitate visioning, the regenerative framework and regenerative campus landscape plan. Ecologists and ecosystems modeling specialists from EcoMetrix Solutions Group (EMX) and biomimicry strategic thinkers from Biomimicry 3.8 (B3.8) worked to unify the genius of place, ecological systems, and regenerative campus practices. The design team worked with Catawba College's leadership, faculty, staff, students and other stakeholders to ensure that all attributes of the design of the landscape supported the central driver: *"creating a living-learning laboratory that is a national leader in sustainable practices and operations."*



Leading to Regenerative Development

REGENERATIVE DESIGN PROCESS

CAMPUS PLAN APPROACH



Source: Adapted from The Copenhagen Method®

REGENERATIVE DESIGN PROCESS

CAMPUS PLAN APPROACH - DISCOVERY

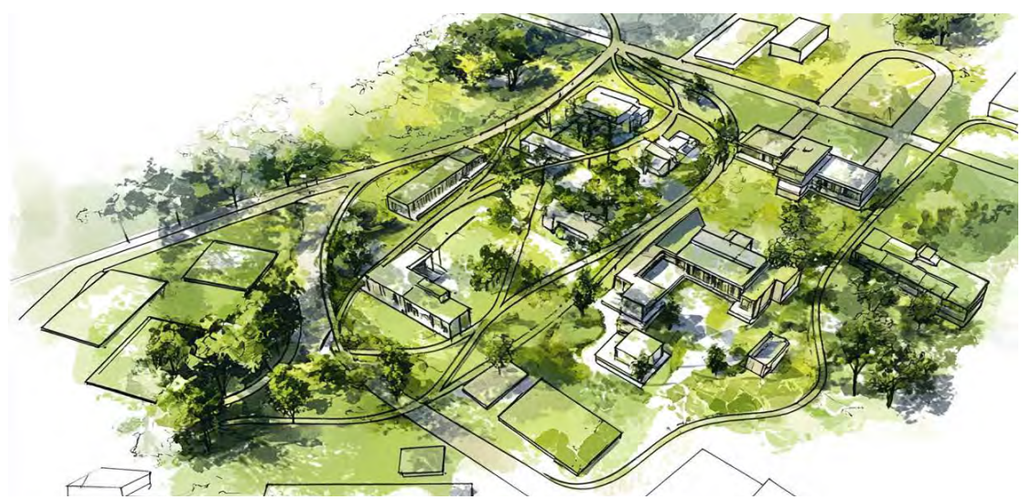
Regenerative design considers the interrelationship of the campus landscape, ecological preserve, built environment, and community, to create a unique sense of place and a campus that functions as a living system: “Campus as Forest”. The team studied the land and how to support its role as a unifying force, restoring ecological function, strengthening community relationships, expanding learning opportunities, and enhancing health and wellbeing. Through research, engagement, and design exploration, the team sought to reveal and strengthen the reciprocal relationship between people and place, positioning the campus landscape as both critical infrastructure and a living-learning environment.

Phase 1 — Discovery established the project’s regenerative foundation through analysis, stakeholder engagement and visioning. The team evaluated climatic, geological, hydrological, cultural, historical, and operational conditions to understand the campus within its broader environmental and social context. Ecometrix Solutions Group conducted an ecological baseline assessment to evaluate ecosystem services such as biodiversity, habitat connectivity, stormwater performance, carbon sequestration potential and ecosystem health, providing a science-based understanding of opportunities for regeneration.

Phase 2 — Create translated principles, goals, strategies and vision into scenarios rooted in a regenerative toolkit. Through collaborative workshops and iterative studies, campus and community stakeholders evaluated multiple frameworks for the future of campus experience, regenerative ecology, and learning environments. The frameworks and concepts were synthesized into a singular vision to embody the “Campus as Forest” vision. The Regenerative Campus Landscape Plan integrates ecological restoration, experiential landscapes, living-learning laboratories, outdoor classrooms, and student-centered gathering spaces into one cohesive campus plan.



Discovery: Site Analysis


Create: Ecological Sketch



REGENERATIVE VISION & PRINCIPLES


CAMPUS AS FOREST
REGENERATIVE SYSTEM FLOWS
To Franklin
COUNTRY CLUB HILLS
Shared Road
Existing Greenway
Jump and Run Branch
MILFORD KNOLL
Grants Creek
Grants Creek Riparian Forest
Stanback Ecological Preserve
Catawba College Recreational Fields
MEADOWBROOK
Catawba College
Lake Barankski
Center for the Environment
Mocksville Ave
Statesville Blvd
Mahaley Branch
COUNTRY C
OF SALISBU
Salisbury VA Medical Center
BELMONT
W Innes St
To Downtown Salisbury

VISIONING WORKSHOP SUMMARY

SITE DISCOVERY & COMMUNITY VISIONING

As part of **Phase 1: Discovery,** HOK facilitated a series of Site Discovery and Community Visioning activities on September 3-5, 2025, with the following goals:

- Gather stakeholder input and identify opportunities, constraints and issues of the campus and surrounding communities, and
- Establish the Regenerative Vision, Principles, and Goals for the campus

The Team met with Catawba College Executives, Faculty, Staff and Students, and leaders and members of the Salisbury and Spencer communities across eleven (11) Community Engagement Sessions, two Campus Tours and a Tour of Downtown Salisbury. The Team also explored both the Stanback Ecological Preserve and sections of the Greenway along Grants Creek.



Site Discovery and Community Visioning Workshops | September 3-5, 2025

As part of **Phase 2: Create**, HOK facilitated a series of Site Design and Community Engagement activities, on October 27-28, 2025, with the following goals:

- Gather stakeholder input and identify key site differentiators, opportunities for open space programs and ecological systems
- Initiate Concept Design and
- Outline a roadmap for advancing the regenerative landscape framework

The Team met with Catawba College Leadership, Faculty, Staff and Students, and both leaders and members of the Salisbury and Spencer communities across five (5) Community Engagement Sessions. The Team also met with Catawba College's Capital Projects Consultants Little Design Co., LandDesign and Brailsford & Dunlevy Inc. and toured portions of the campus and sections of the Greenway along Grants Creek.



Site Design and Community Engagement Workshops | October 27-28, 2025

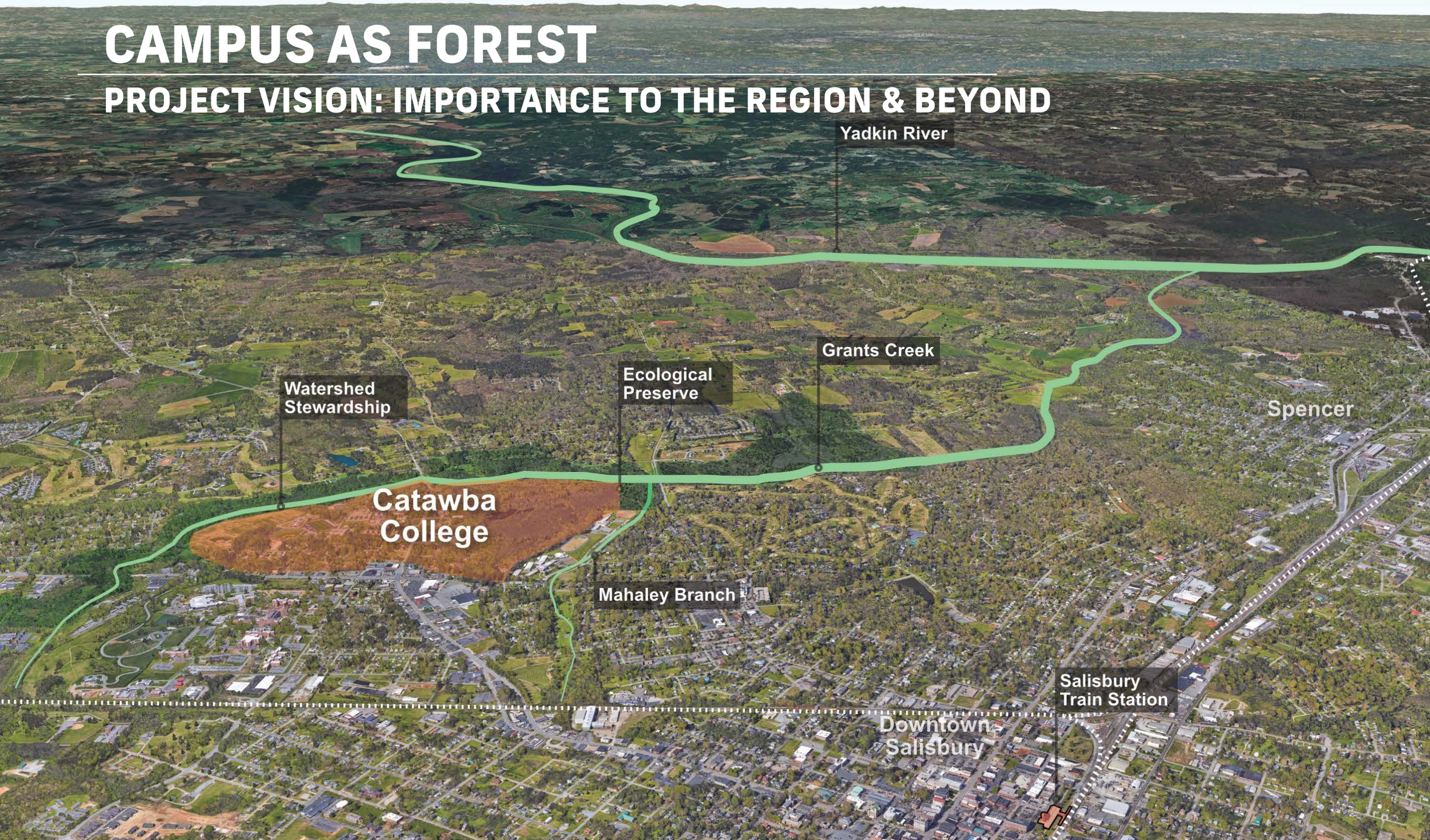


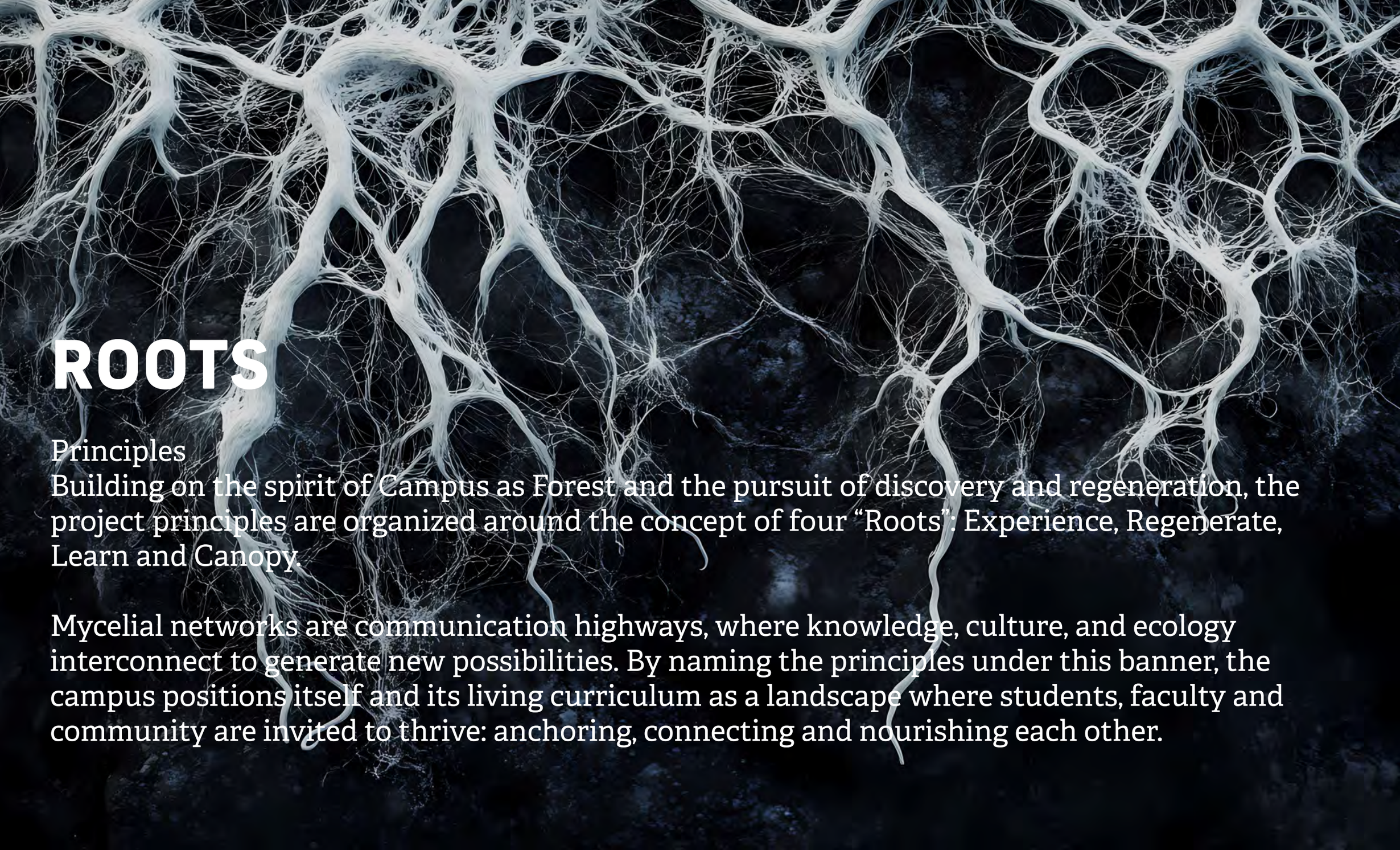
VISION

By 2051, Catawba College will be the model for regeneration and the new standard for higher education sustainability, revolutionizing education, environmental stewardship, and campus life.

CAMPUS AS FOREST

PROJECT VISION: IMPORTANCE TO THE REGION & BEYOND

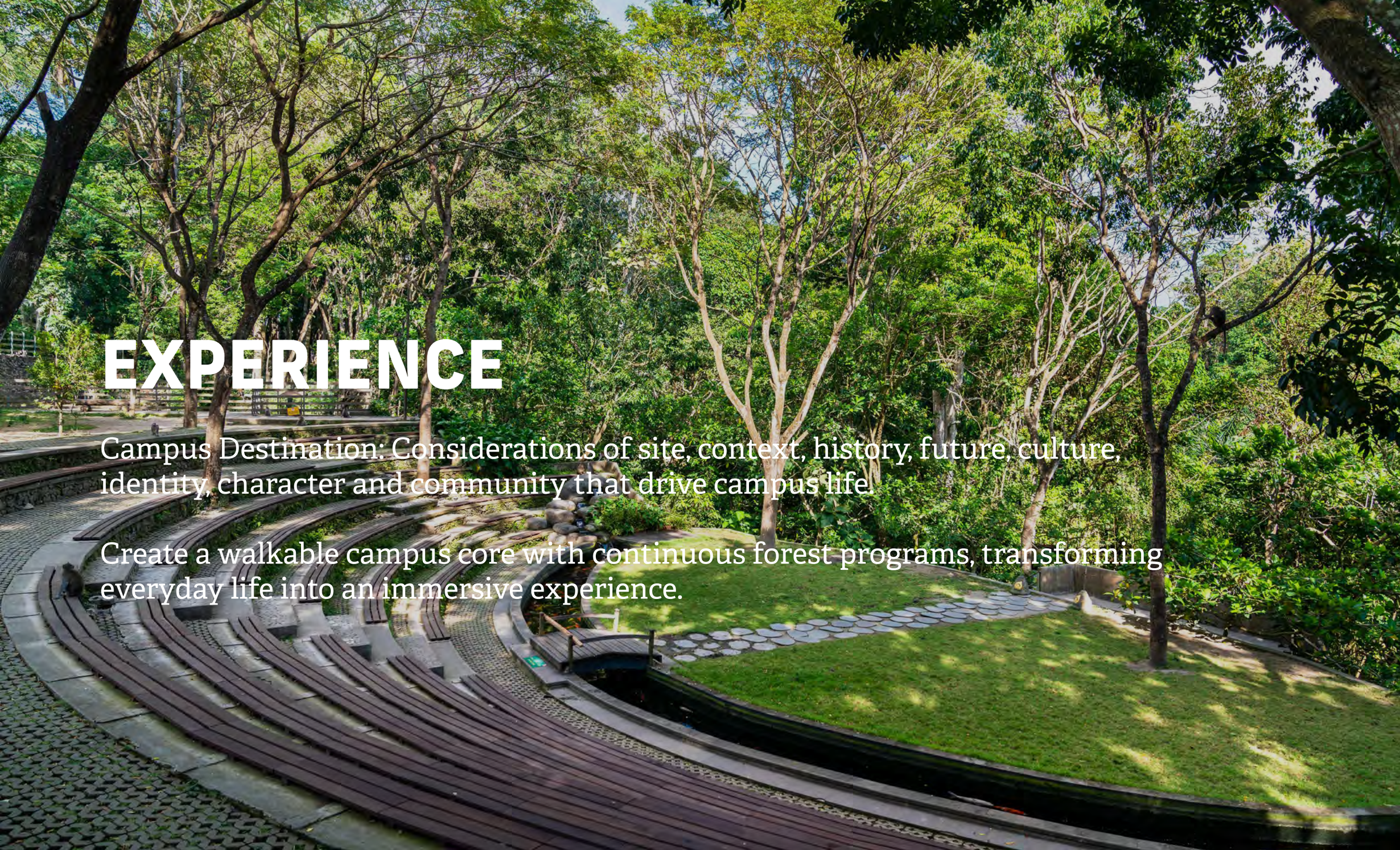




ROOTS

Principles
Building on the spirit of Campus as Forest and the pursuit of discovery and regeneration, the project principles are organized around the concept of four “Roots”: Experience, Regenerate, Learn and Canopy.

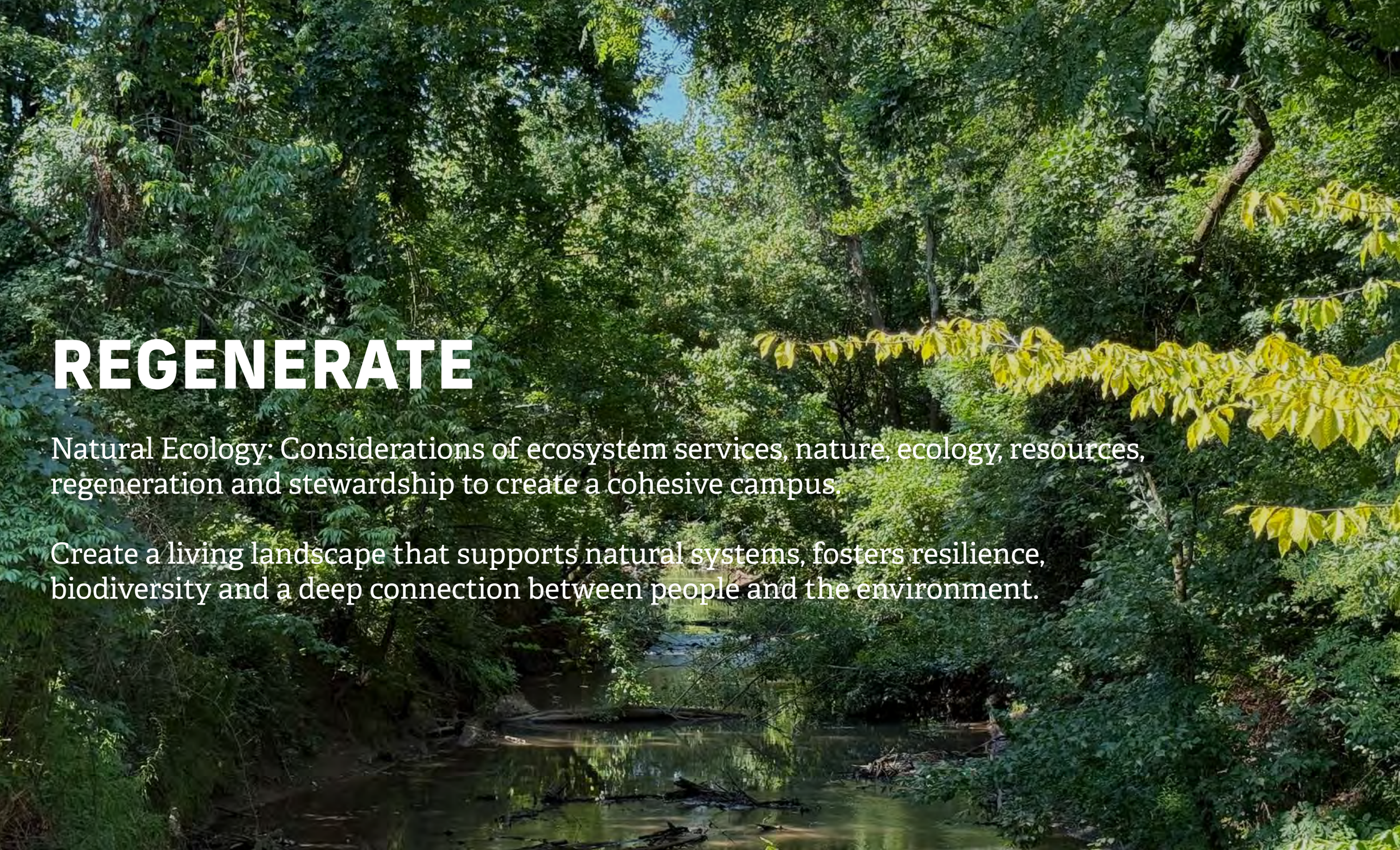
Mycelial networks are communication highways, where knowledge, culture, and ecology interconnect to generate new possibilities. By naming the principles under this banner, the campus positions itself and its living curriculum as a landscape where students, faculty and community are invited to thrive: anchoring, connecting and nourishing each other.



EXPERIENCE

Campus Destination: Considerations of site, context, history, future, culture, identity, character and community that drive campus life.

Create a walkable campus core with continuous forest programs, transforming everyday life into an immersive experience.



REGENERATE

Natural Ecology: Considerations of ecosystem services, nature, ecology, resources, regeneration and stewardship to create a cohesive campus.

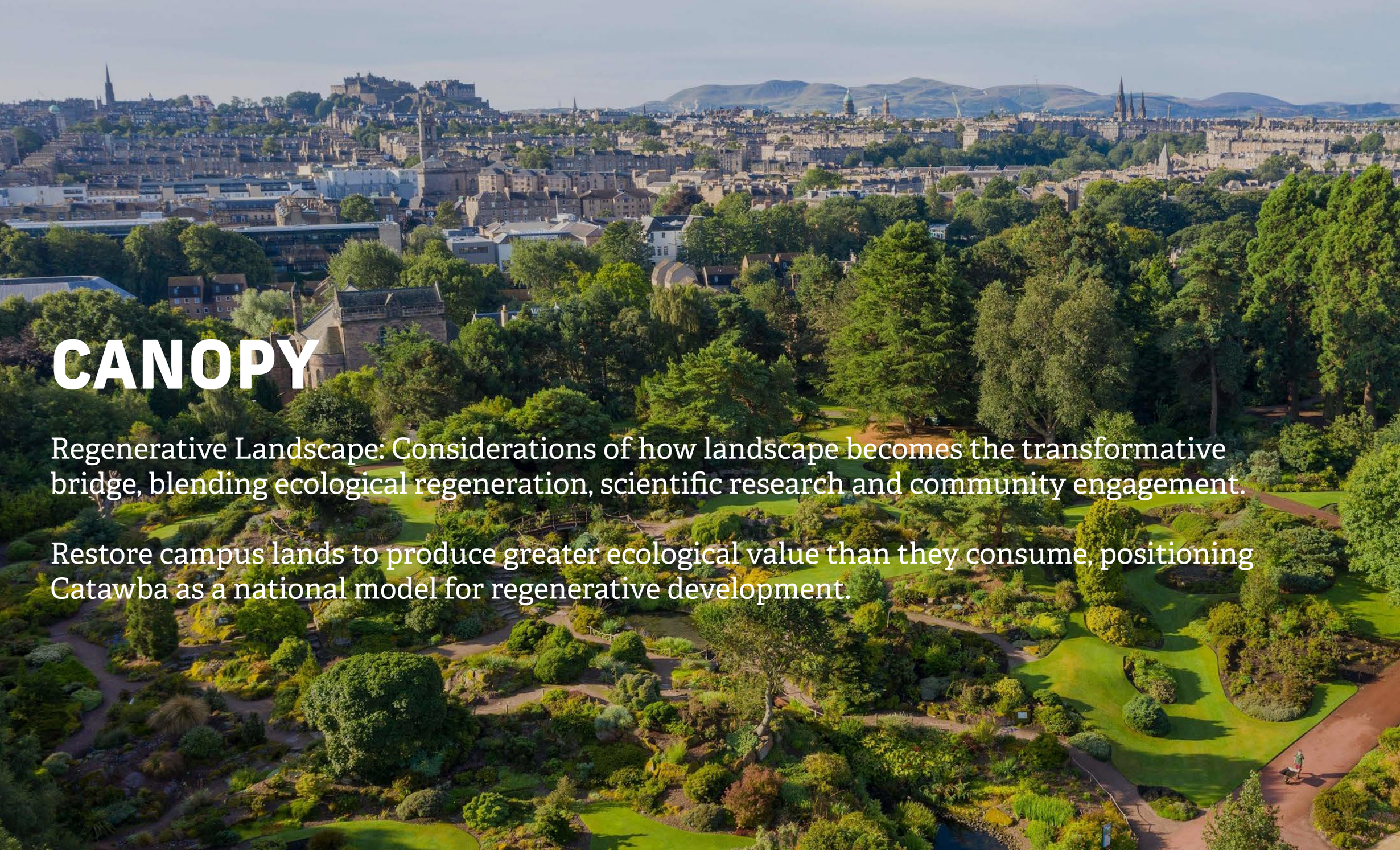
Create a living landscape that supports natural systems, fosters resilience, biodiversity and a deep connection between people and the environment.



LEARN

Academia & Research: Considerations of hands-on experiences, nature-based learning environments and living-learning laboratories within the campus environment.

Foster a collegial campus atmosphere that cultivates collaboration, dialogue and shared experience alongside research, teaching and experimentation to solve complex challenges.



CANOPY

Regenerative Landscape: Considerations of how landscape becomes the transformative bridge, blending ecological regeneration, scientific research and community engagement.

Restore campus lands to produce greater ecological value than they consume, positioning Catawba as a national model for regenerative development.



REGENERATIVE TOOLKIT

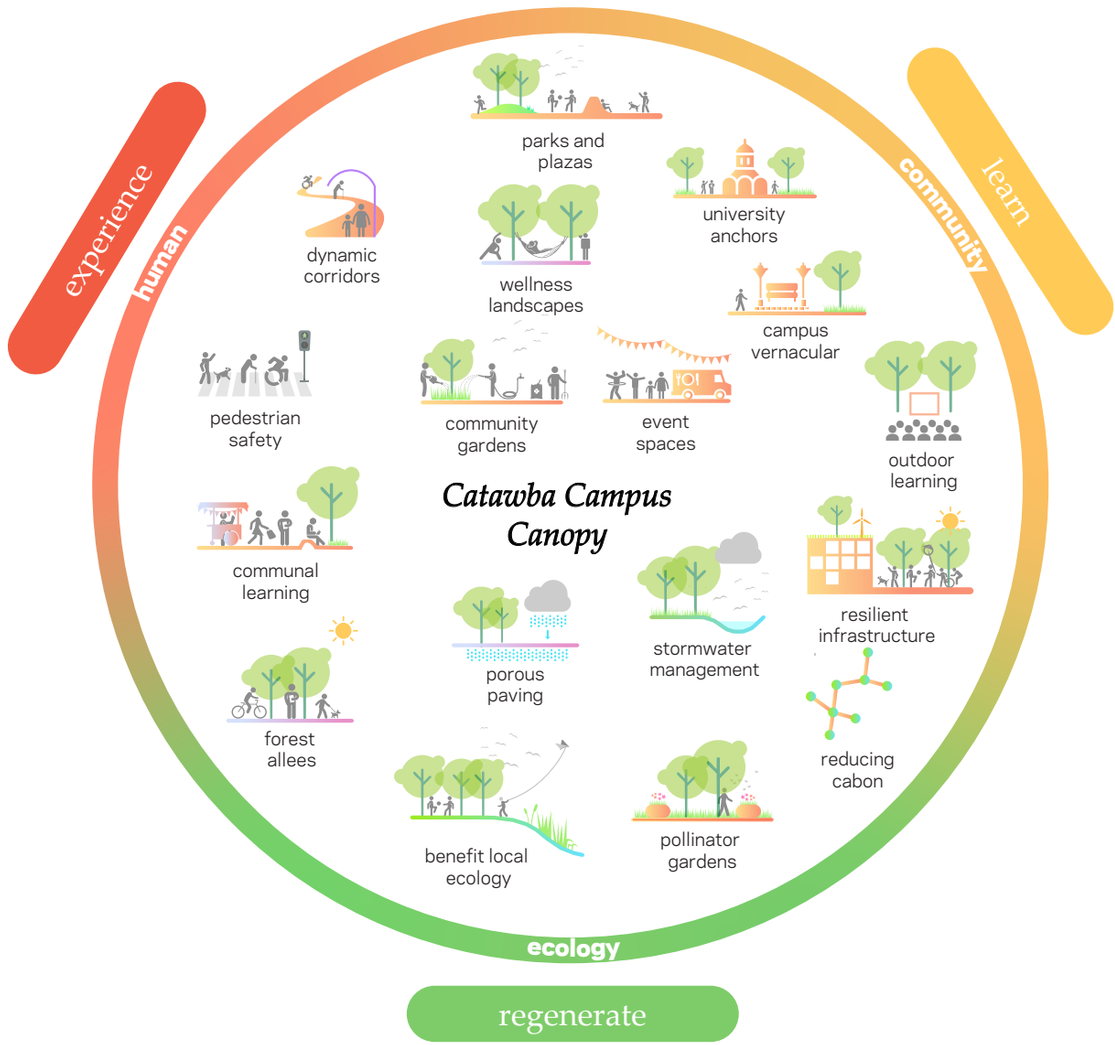
REGENERATIVE TOOLKIT

CATAWBA CANOPY

Regenerative landscapes, human-centered design, and outdoor learning environments shape the future of Catawba College as a living campus that nurtures people and the planet. Rooted in the Campus as Forest vision, **the Regenerative Toolkit** turns aspiration into action through scalable strategies that unite community, ecology, and academia. It supports a campus as a true living laboratory, translating the Piedmont's ecology into an environment where nature enriches daily life, learning, and identity.

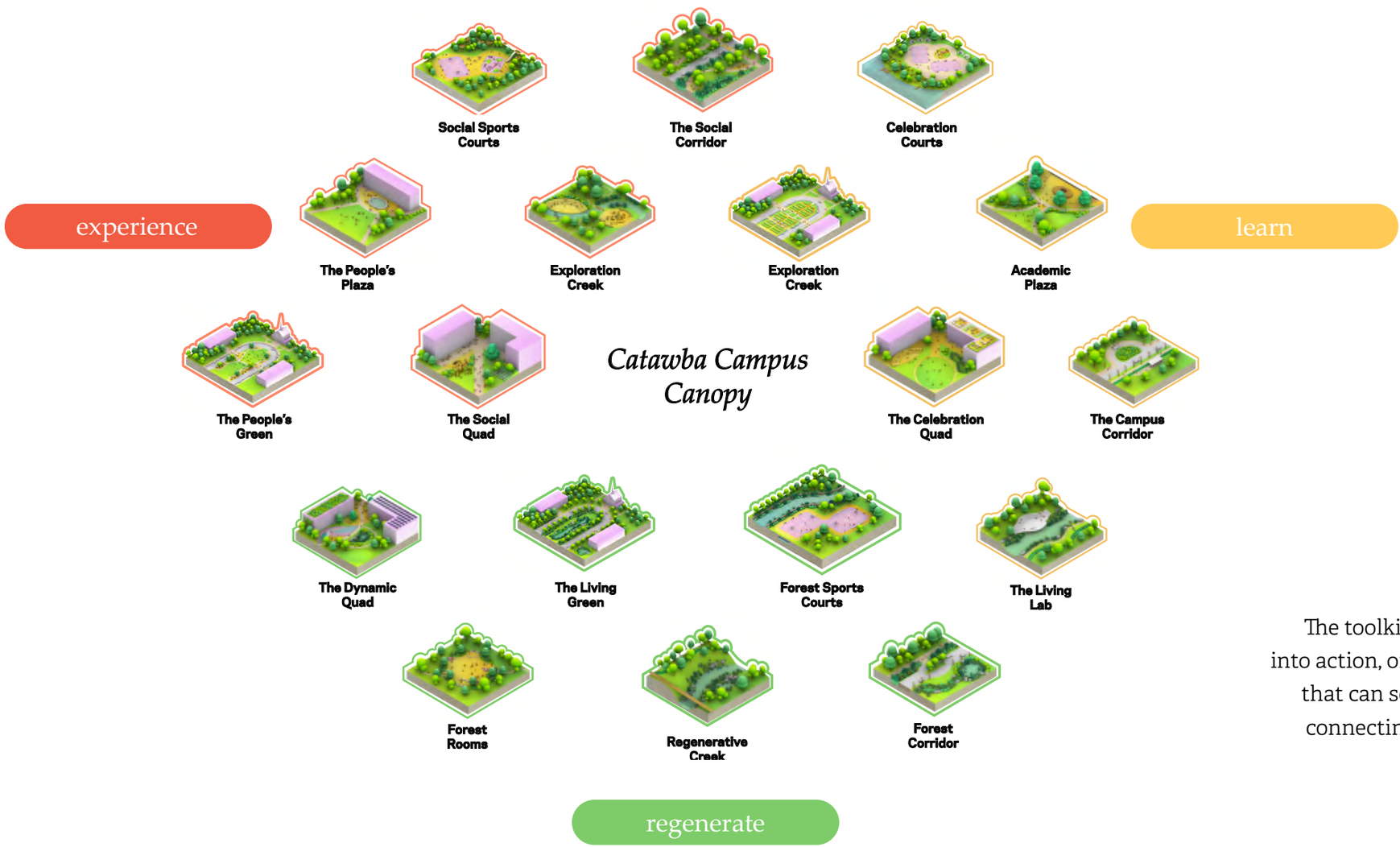
The Toolkit is guided by the principles and gives rise to organizing frameworks. **Prioritizing campus experiences** emphasizes a walkable, welcoming core with forested paths, recreation opportunities, and spaces that promote comfort, mindfulness, and wellbeing. **Regenerating surrounding ecosystems** focuses on restoring hydrology, expanding native plant communities, and rewilding the landscape to enhance biodiversity and resilience. **Creating a living-learning laboratory** integrates academics into the outdoors through interactive, interpretive, and nature-based spaces that support collaboration and hands-on inquiry.

Together, the toolkit shapes holistic frameworks for the campus, elevating student experience, restoring natural systems, and providing an adaptive pathway toward net-positive development. Through the Regenerative Toolkit, Catawba College strengthens its role as a leader in sustainability and environmental stewardship.



REGENERATIVE TOOLKIT

PROJECT PHILOSOPHY



The toolkit transforms vision into action, offering design ideas that can scale across campus, connecting people, place and purpose.

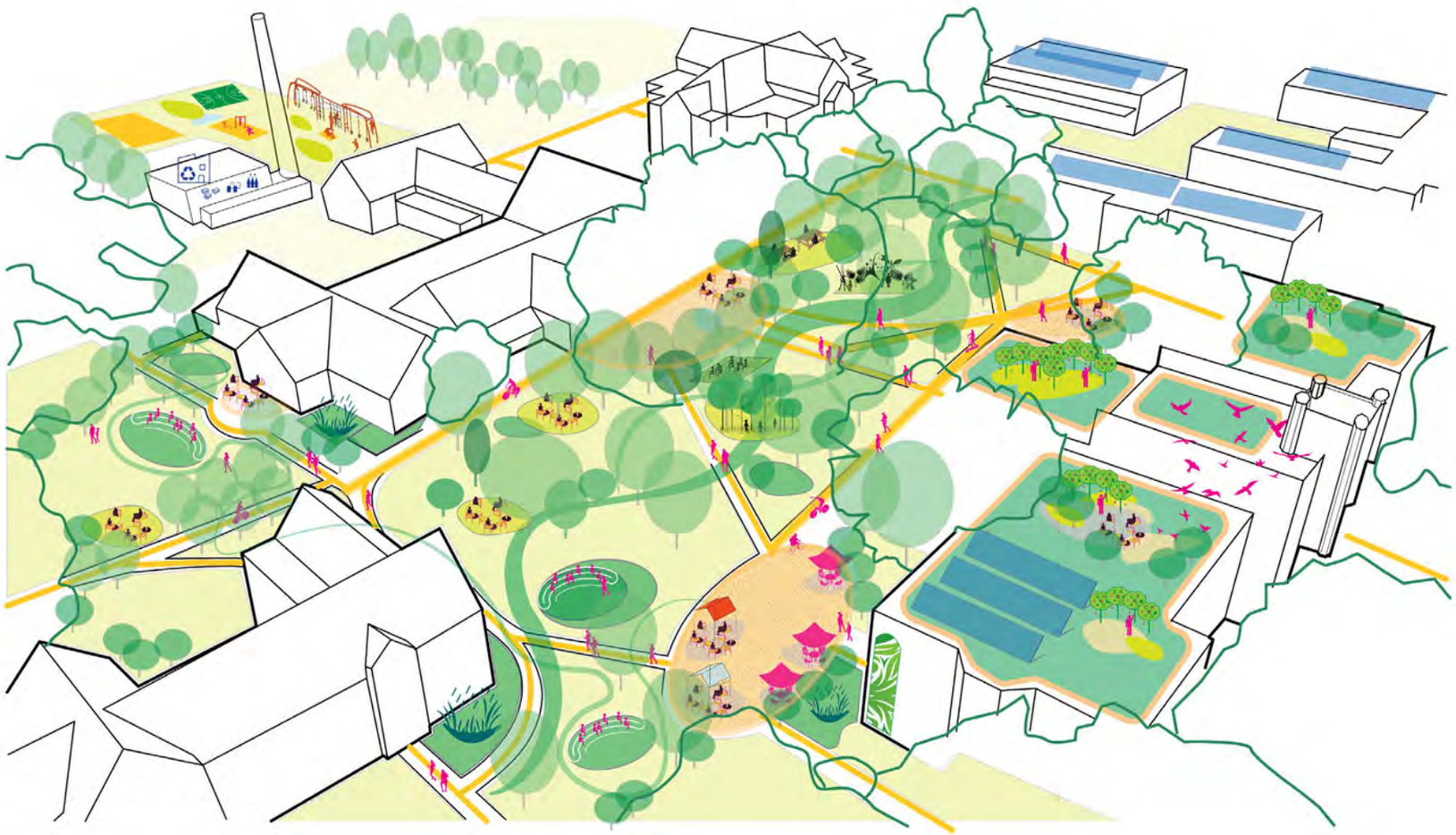
CAMPUS PLANNING FRAMEWORKS

PLANNING APPROACH

The Campus as Forest Vision aspires to cultivate a model for regeneration and the new standard for higher education sustainability, revolutionizing education, environmental stewardship, and campus life.

Catawba's core value, Scholarship with Character and Culture for Service, guides the establishment of missions to realize such a vision:

- Connect campus life and the community to nature daily
- Regenerate ecosystem services and celebrate the Piedmont ecology
- Create a living-learning laboratory that provides nature-based education and research and
- Instill within every graduate the capacity to be stewards of the world



CAMPUS PLANNING FRAMEWORKS

PLANNING APPROACH

Design Approach

The Regenerative Landscape Campus Plan's overall design approach comprehensively considers a variety of elements and processes to create a complete ecological approach to the campus landscape, blending nature, the built environment and people's interactions to create a unique and positive experience. Our goal is to create landscapes that integrate nature into the everyday life of students, faculty, staff and visitors. Here, nature will shape the experience, education and identity of Catawba College. The Team developed three guiding frameworks—Campus Experience, Regenerative Ecology and Academic Environment—to shape campus improvements. Each identifies scalable interventions that enhance ecological impact and integrate sustainability into the College's identity and daily life.

EXPERIENCE



The Experience Framework organizes the campus around a central pedestrian axis, seamlessly linking the forest landscape to academic and social cores

REGENERATE



Rooted in the idea of Campus as Forest, the Regenerative Framework redefines the College's character through restoration, balance and belonging to the land

LEARN

The Learning Framework establishes a pedestrian loop, linking diverse destinations that blend learning, community and nature into a seamless campus experience

CAMPUS PLANNING FRAMEWORKS

PLANNING APPROACH

EXPERIENCE



Campus Destinations: The Experience Framework centers on the human scale, shaping how people move through, interact with, and feel within the Catawba College landscape.

REGENERATE



Natural Ecology: The Regenerative Framework focuses on the comprehensive consideration of what landscape projects can do to help restore and regenerate the natural ecosystem.

LEARN



Academia & Research: The Learning Framework strengthens the academic core of Catawba College by transforming the campus into a living-learning laboratory.



REGENERATIVE CAMPUS LANDSCAPE PLAN

REGENERATIVE CAMPUS LANDSCAPE PLAN

CATAWBA CANOPY

The campus plan illustrates the **Catawba Canopy** as the unifying expression of a regenerative campus: an integrative landscape where experience, ecology and learning come together as a thriving environment and community. Integrating the frameworks of Experience, Regenerate, and Learn, the canopy weaves together dynamic landscapes, forests, outdoor classrooms and research spaces to shape a campus that nurtures both people and the planet.

As this canopy grows, it forms a dynamic ecology that links the academic core to the nature preserve, restoring biodiversity and strengthening resilience, while defining Catawba College's evolving identity. As the Greenway branches through campus, **Catawba Corridors** emerge as dynamic linear sequences of gardens, micro-forests and vernal pools to connect daily destinations, transforming movement into an immersive experience with nature. Courtyards and clearings become adaptable environments for student life and learning, while the establishment of the **Catawba College Botanical Garden** offers a native landscape celebrating Piedmont ecology, community gathering and place-based discovery.

The Catawba Canopy lays the foundations for a regenerative roadmap. By integrating hydrology, habitat, culture and academic life, the Catawba Canopy grows into a living campus where nature is both teacher and host, positioning Catawba College as a model of stewardship, experiential education and ecological belonging.

Frameworks Integration




















CAMPUS LEGEND
COLOR
LANDSCAPE CHARACTERISTIC
Managed Landscape
Sports Field
Prairie
Woodland Understory
New Woodland Canopy
Existing Woodland Canopy
Flowering & Fruit Trees
Wildflowers
Garden
Riparian Corridor
Stream Channel / Thalweg
Activity Area
Courtyard / Primary Pathways
Secondary Pathways
Pedestrian Priority Road
Pervious Paved Road
Asphalt Road
Building
Solar Canopy
Trellis
0'
80'
160'
320'
640'

REGENERATIVE CAMPUS LANDSCAPE PLAN

KEY AREAS

The Catawba College's "Campus as Forest" vision into place-based strategies across seven key campus development zones, each with a distinct programmatic theme.

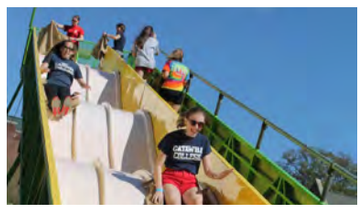
1. Campus Green
2. Performing Arts
3. Hoke Village
4. Campus Heart
5. Abernethy Village
6. Grants Camp
7. Athletics



REGENERATIVE CAMPUS LANDSCAPE PLAN

STRATEGIES

EXPERIENCE


Swings, Slides & Play Areas


Hammocks & Tree Nets


Fire Pits


Terraced Seating


Outdoor Dining


Summer / Winter Gardens


Meditation / Reflection Areas


Hydrological Respite

REGENERATE


Rain Gardens


Bioswales

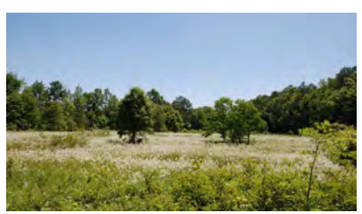

Beehives & Insect Hotels


Pollinator Gardens


Edible Gardens


Tiny Forests


Ecological Preserve Ecotone


Rewilding Piedmont Prairies

LEARN

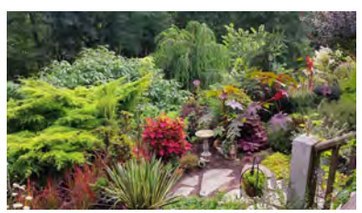

Bird Blinds

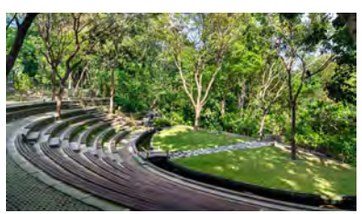

Nurse Logs


Nature Classrooms


Formal Outdoor Classrooms


Study / Social Nooks


Biome Exhibition Areas


Outdoor Amphitheater


Outdoor Performance Venue

CAMPUS GREEN

PROGRAMMATIC THEME

THE BOTANICAL GARDEN

The Campus Green celebrates the natural beauty and biodiversity of the Piedmont Region.

Through the establishment of a formal Botanical Garden and the rewilding of Piedmont forests, prairies, uplands and lowlands, the Campus Green is transformed into a vibrant and verdant ecosystem where the Catawba community can gather, learn from and experience the native flora and fauna of the region. The Campus Plan restores and enhances the ecotone along the eastern edge of campus, connecting the Campus Green with the adjoining ecological preserve. This creates habitat and migration corridors for fauna and pollinators.





PERFORMING ARTS

PROGRAMMATIC THEME

THE AMPHITHEATER

The Performing Arts District invites the Catawba Community to gather and celebrate in nature.

Nestled between the Center for the Environment and Keppel Auditorium, a lush outdoor amphitheater offers a formal setting for ceremonies, performances, and shared cultural moments. This expressive landscape blends art and ecology through native plantings, sculpted landforms and integrated water-management features, supported by an edible garden, moonlight garden and flexible performance spaces.

As the southern gateway to campus, strengthened pathways and visual connections create a cultural corridor that supports daily creativity, spontaneous gathering and programmed events. Together, these elements cultivate a dynamic environment where performance and nature harmonize with the preserve.





HOKE VILLAGE

PROGRAMMATIC THEME

THE PATIO

Hoke Village serves as Catawba's outdoor living room, a welcoming, flexible landscape extending the comfort of residential life into the open air.

The Patio anchors the northern residential zone as a lively hub for learning, wellness and tradition, offering shaded seating, hammocks and restorative niches that invite reflection and unhurried downtime. Tiny forests define the northwest edge, while a northern grove opens into a rolling native landscape threaded with an alluvial stream and meditation garden, enriching the rewilded understory.

Outdoor kitchens, fire pits and communal spaces strengthen daily connection, while adjacency to the Greenway and Grant's Creek nature preserve deepens walkability, ecological engagement and the harmony of residential life.





CAMPUS HEART

PROGRAMMATIC THEME

THE SOCIAL PLAZA

The Campus Heart is the social, academic and cultural crossroads of Catawba College: a dynamic, people-centered landscape that celebrates community life and the vitality of the student experience.

Transforming Stanback Plaza creates a welcoming commons where nourishment, collaboration, celebration and daily rhythms converge. Terraced lawns, shaded plazas, and flexible gathering spaces invite students, faculty, and visitors to meet, share meals, study outdoors, and engage in campus traditions.

Strengthened pedestrian connections link academic, residential and student-life districts, creating seamless movement through a human-scaled environment. Native plantings, restored understories and vernal water features embed the Campus Heart within the broader regenerative landscape framework.





ABERNETHY VILLAGE

PROGRAMMATIC THEME

THE BACKYARD

Abernethy Village is Catawba's backyard: an inviting, nature-rich living landscape where the community can feel at home within nature.

Native plantings, shaded courtyards, community gardens and rewilded understories create a vibrant residential ecosystem that supports daily life. Open lawns host informal recreation, from lawn games to yoga, while woodland edges and quiet niches offer respite with hammocks and shaded seating. Social lawns, outdoor study terraces and flexible gathering spaces knit residence halls together, fostering comfort and belonging. Enhanced ecological edges and pedestrian corridors link Abernethy Village to surrounding landscapes, creating a welcoming residential zone where nature supports wellbeing, community and everyday campus life.





GRANTS CAMP

PROGRAMMATIC THEME

THE FRONTIER

Grants Camp creates an immersive nature experience for the Catawba Community, celebrating the rugged and ecological richness of the Grant's Creek corridor.

The Campus Plan establishes a campground along Grants Creek on the edge of campus dedicated to outdoor recreation and engagement with the natural world. Grants Camp invites the Catawba Community to foster meaningful relationships with nature, develop their confidence and skills in navigating the outdoors and support environmental stewardship and advocacy.

Rehabilitating the riparian buffer along Grants Creek provides opportunities for water recreation, hydrological respite, wildlife observation and foraging. By reconnecting the creek corridor to surrounding forests and meadows, the Campus Plan strengthens habitat continuity and links greenway, preserve, and campus.





ATHLETICS

PROGRAMMATIC THEME

FOREST-FRAMED FIELDS

Forest-Framed Fields create an immersive nature experience for the Catawba Community, celebrating the rugged and ecological richness of the Grant's Creek corridor.

Restored woodlands, native meadows, uplands, and creekside buffers create a living ecological framework around fields, courts and training areas. Recreation, celebration and competition, including pep rallies, tailgating and concerts, unfold within a landscape that highlights regional biodiversity and strengthens connections between sport, wellness and nature.

The Campus Plan enhances wooded edges and the riparian corridor along Grant's Creek, improving water quality, expanding habitat and linking the Forest-Framed Fields to the greenway and ecological preserve. This continuous ecotone supports wildlife movement and reinforces the regenerative campus network.





PHASING

OVERARCHING PLANNING DIRECTION

Catawba College's Regenerative Campus Landscape Plan is guided by a long-term vision rooted in ecological restoration, community engagement, and educational transformation. The plan unfolds across four interconnected phases.

PHASE 1
FOUNDATIONAL ROOTS
(0-4 YEARS '25-'29)

Phase 1: Foundation Roots establishes core ecological systems and pilot projects.

Focus: Establish the ecological foundation for the Campus as Forest vision through implementation of catalytic projects within the campus core. Initial developments focus on Hoke Village, Abernethy Village, Stanback Plaza, and complementary landscape improvements associated with ongoing capital projects and the Athletics Master Plan, through regenerative design guidance. Priority initiatives include visible ecological enhancements, stormwater integration, canopy expansion, habitat creation, and campuswide student engagement opportunities that create momentum and demonstrate success, while developing the tools, standards, and stewardship practices needed to guide future phases.

PHASE 2:
CONNECTIVE CANOPY
(4-8 YEARS '29-'33)

Phase 2: Connective Canopy strengthens campus-wide connections between nature, people, and infrastructure.

Focus: Expand regenerative systems across the campus through initiation of a botanical garden and a network of connected ecological corridors linking academic, residential, recreational, and civic spaces. Native plant collections, interpretive landscapes, outdoor classrooms, and green infrastructure strengthen relationships between ecology, education, and campus life. New pathways, habitat connections, and integrated landscape improvements support larger capital investments while creating a cohesive campus identity rooted in environmental stewardship, experiential learning, and community engagement.

PHASING

OVERARCHING PLANNING DIRECTION

Together, these phases create a dynamic roadmap for embedding regeneration into the college's identity and everyday experience.

PHASE 3: CAMPUS AS FOREST (8-15 YEARS '33-'40)

Phase 3: Campus as Forest envisions the campus as a living, adaptive ecosystem that supports biodiversity and learning.

Focus: Realize the Campus as Forest vision through expansion into the ecological preserve and establishment of a comprehensive botanical garden and arboretum network. Ecological restoration, preserve enhancements, research infrastructure, and expanded trail systems support biodiversity, habitat connectivity, and ecosystem resilience while creating immersive opportunities for learning and discovery. Together, the campus core, preserve, botanical garden, and arboretum function as a living learning laboratory and resilience hub, demonstrating how ecological stewardship can advance environmental performance, education, and community wellbeing.

PHASE 4: REGENERATIVE FUTURE (15-25 YEARS '40-'50)

Phase 4: Regenerative Futures projects a resilient, climate-positive landscape that continuously evolves through innovation and stewardship.

Focus: Position Catawba College as a national model for regenerative innovation, adaptive stewardship, and nature-positive campus development. Long-term monitoring, ecosystem intelligence, research partnerships, and emerging technologies continuously inform management decisions and ecological performance. As natural systems mature, the campus evolves into a dynamic platform for experimentation, learning, and leadership, demonstrating how institutions can adapt alongside environmental change while regenerating biodiversity, resilience, human wellbeing, and measurable nature-positive impact for generations to come.



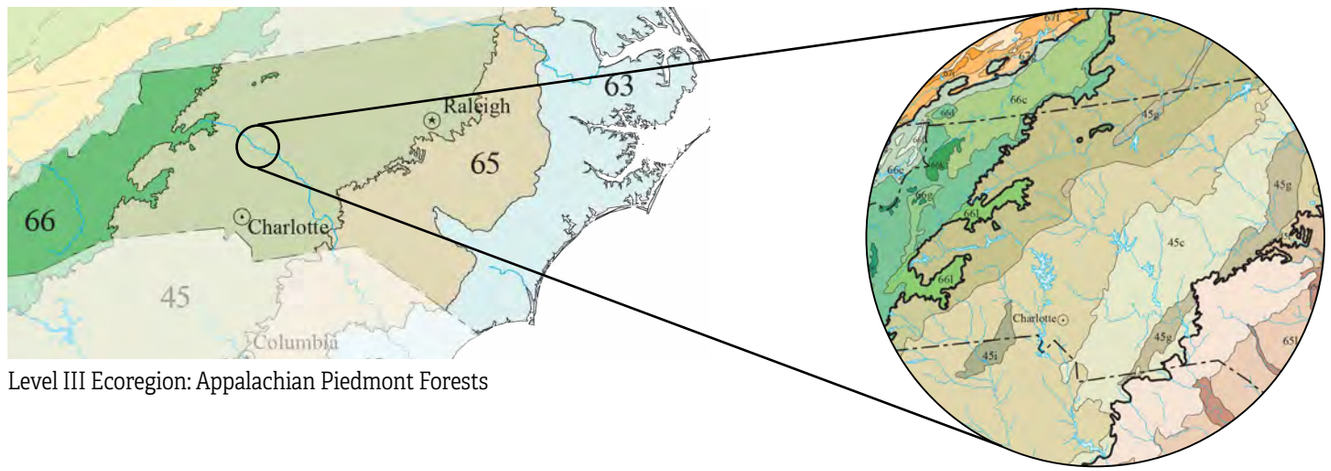
KEY LANDSCAPE CHARACTERISTICS & CONCEPTUAL LANDSCAPE PLANTING PALETTE

KEY LANDSCAPE CHARACTERISTICS

PIEDMONT REGION

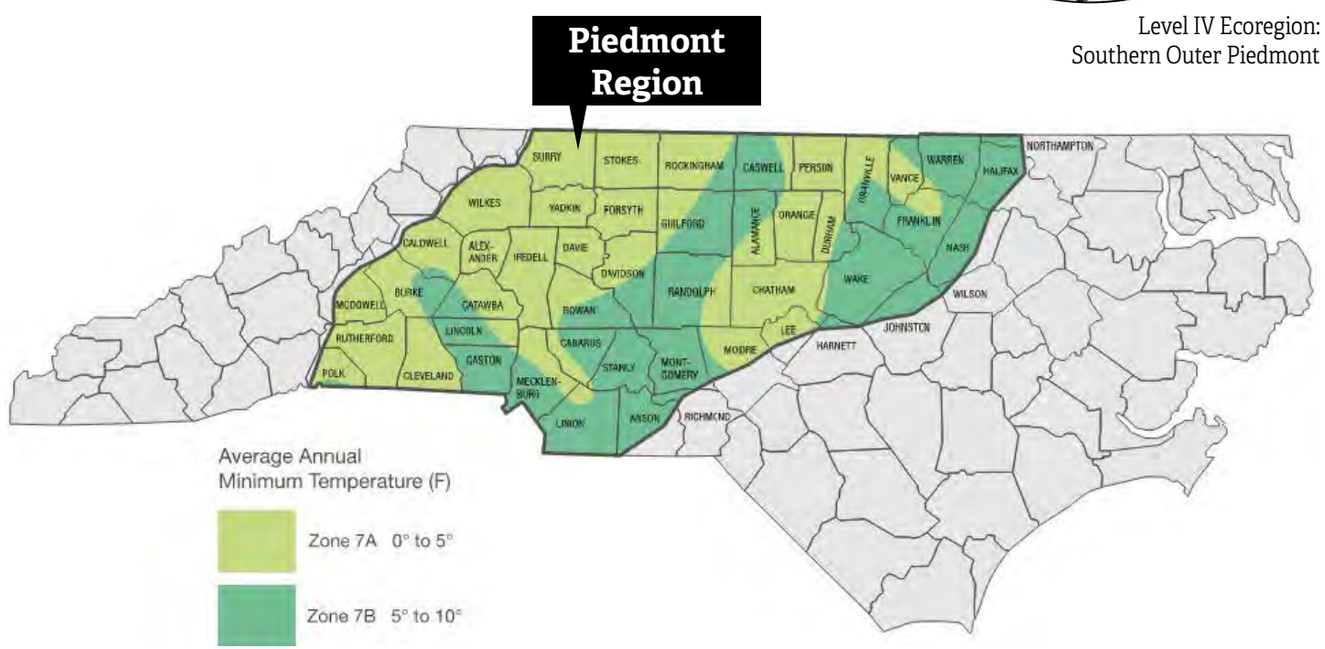
North Carolina's Piedmont Ecoregion offers a rich ecological foundation that deeply informs and inspires Catawba College's Regenerative Campus Landscape Plan. Situated between the Coastal Plain and the Appalachian Mountains, the Piedmont is characterized by **warm-temperate climate, rolling topography, and deeply weathered clay soils** that support resilient and diverse ecosystems. Catawba College lies within the Appalachian Piedmont Forests Ecoregion, specifically the **Southern Outer Piedmont**, where native vegetation historically included **oak-hickory and pine woodlands interspersed with prairies, savannas, and diverse understory habitats**.

These landscape characteristics provide a clear **ecological blueprint** for regeneration on campus. The structure of Piedmont forests, the hydrology of upland streams, and the adaptability of native plant communities guide strategies for reforestation, water management, and habitat enhancement. By aligning campus design with these **natural patterns**, the regenerative plan seeks to restore ecosystem services, strengthen biodiversity, and ensure that Catawba's landscape becomes a living expression of its surrounding regional ecology.



Level III Ecoregion: Appalachian Piedmont Forests

Level IV Ecoregion: Southern Outer Piedmont



Sources: U.S. Environmental Protection Agency, 2013, Level III and IV ecoregions of the Continental United States: Corvallis, Oregon, U.S. EPA, National Health and Environmental Effects Research Laboratory, map scale: 1:3,000,000 Level III and IV Ecoregions of the Continental United States | US EPA

NC Piedmont Landscaping, A Native Plant Guide Provided by the North Carolina Native Plant Society. Used with Permission from The North Carolina Native Plant Society.

LANDSCAPE PLANTING PALETTE

INTRODUCTION

The Landscape Planting Palette provides a strategic plant selection framework that celebrates the key landscape characteristics of the Piedmont Region and contributes to the overall ecological, aesthetic and functional performance of the Catawba College Campus.

This Palette features a curated list of plant species that are native to the region, categorized across five (5) Landscape Zones:

1. Piedmont Woodland Canopy
2. Piedmont Woodland Understory
3. Riparian / Alluvial Zones
4. Piedmont Prairie / Wildflowers
5. Managed Landscape (Turf / Lawn)

Each plant species responds to the specific site conditions on campus, supports ecological function, provides wildlife habitat, establishes visual cohesion, and improves maintenance efficiency and long-term performance.

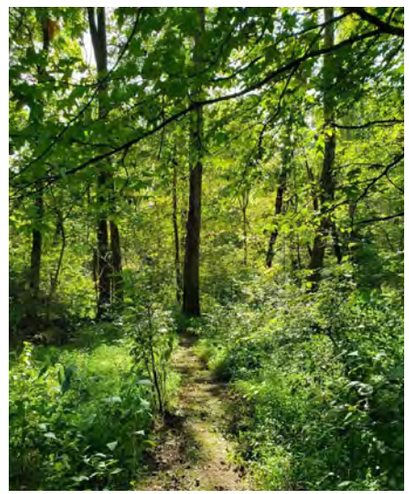
The palette serves as a decision-making framework that guides plant selection based on key criteria and helps guide design and construction coordination for landscape projects across the campus.



Piedmont Woodland Canopy



Piedmont Woodland Understory



Riparian / Alluvial



Piedmont Prairie / Wildflowers



Managed Landscape

LANDSCAPE PLANTING PALETTE

PLANTING PALETTE

Plant Layer	Common Name	Botanical Name	Native (N) /Adapted (A)	Piedmont Woodland / Silviculture	Piedmont Woodland Understory	Riparian / Alluvial	Piedmont Prairie / Wildflowers	Managed Landscape
CANOPY LAYER								
Large Trees	American Beech	*Fagus grandifolia*	N					
Large Trees	White Oak	*Quercus alba*	N					
Large Trees	Southern Red Oak	*Quercus falcata*	N					
Large Trees	Virginia Pine	*Pinus virginiana*	N					
Large Trees	Loblolly Pine	*Pinus taeda*	N					
Large Trees	Shortleaf pine	*Pinus echinata*	N					
Large Trees	American sycamore	*Platanus occidentalis*	N					
Large Trees	Sugar maple	*Acer saccharum*	N					
Large Trees	Tulip Poplar	*Liriodendron tulipifera*	N					
MID-UNDERSTORY LAYER								
Small to Medium Trees	White Hickory	*Carya tomentosa*	N					
Small to Medium Trees	Pignut Hickory	*Carya glabra*	N					
Small to Medium Trees	River Birch	*Betula nigra*	N					
Small to Medium Trees	Wildfire tupelo	*Nyssa sylvatica 'Wildfire'*	N					
Small to Medium Trees	Sweetgum	*Liquidambar styraciflua*	N					
Small to Medium Trees	Sweetbay magnolia	*Magnolia virginiana*	N					
Small to Medium Trees	Sourhthern magnolia	*Magnolia grandiflora*	N					
Small to Medium Trees	American Hornbeam	*Carpinus caroliniana*	N					
Small to Medium Trees	Eastern Redbud	*Cercis canadiensis*	N					
SHRUB - GROUND COVER LAYER								
Shrubs	Red Chokeberry	*Aronia arbutifolia*	N					
Shrubs	Dwarf Fothergilla	*Fothergilla gardenii*	N					
Shrubs	Black Chokeberry	*Aronia melanocarpa*	N					
Shrubs	American Beautyberry	*Callicarpa americana*	N					
Shrubs	Hummingbird Summersweet	*Clethra alnifolia 'hummingbird'*	N					
Shrubs	Catawba Rhododendron	*Rhododendron catawbiense*	N					
Shrubs	Northern Spicebush	*Lindera benzoin*	N					
Shrubs	Pinxterbloom azalea	*Rhododendron periclymenoides*	N					
Shrubs	Smooth black haw viburnum	*Viburnum prunifolium*	N					
Flowering Perennials	Hollow Joe-Pye Weed	*Eutrochium fistulosum*	N					
Flowering Perennials	Smooth Oxeye	*Heliopsis helianthoides*	N					

LANDSCAPE PLANTING PALETTE

PLANTING PALETTE

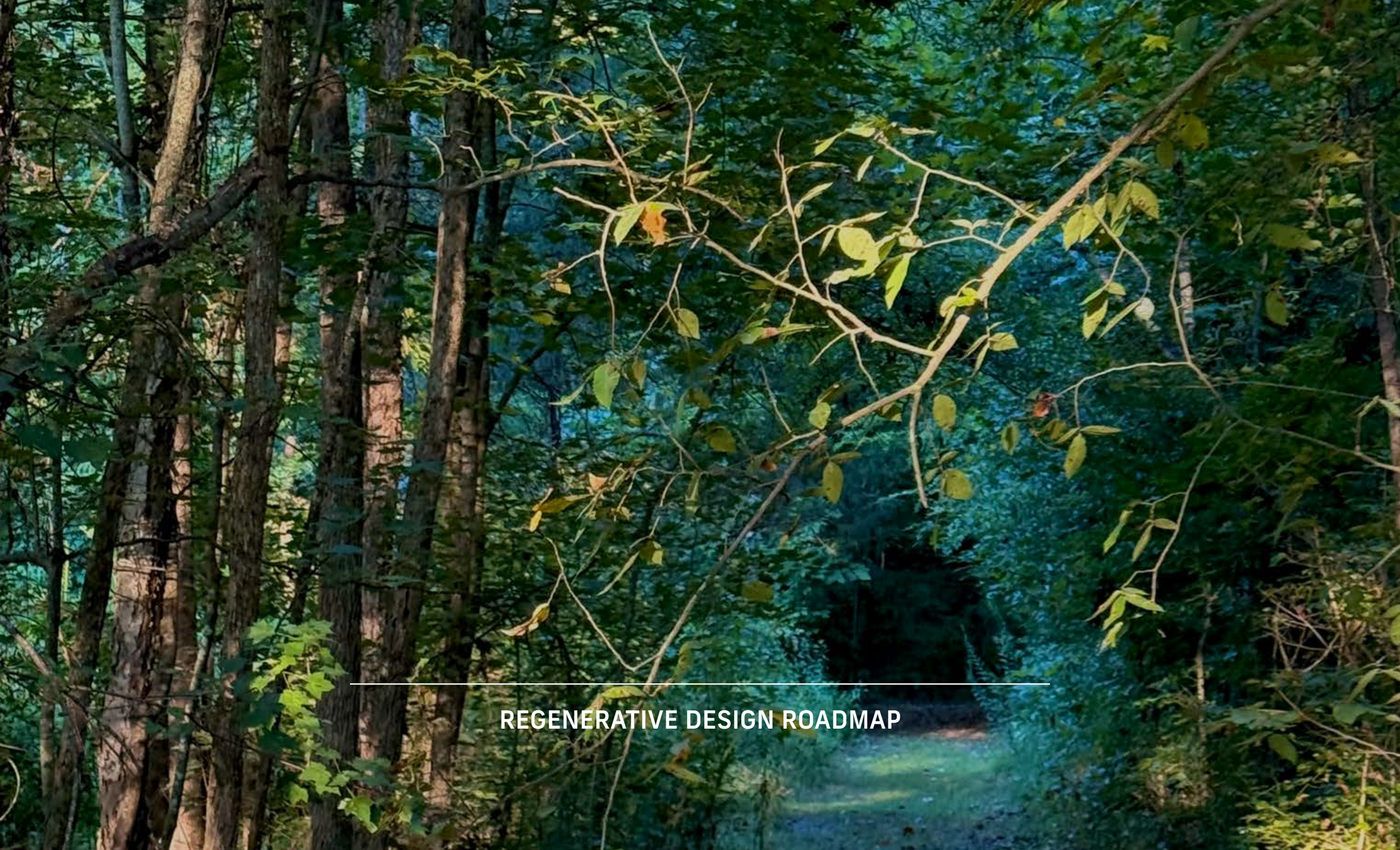
Plant Layer	Common Name	Botanical Name	Native (N) /Adapted (A)	Piedmont Woodland / Silviculture	Piedmont Woodland Understory	Riparian / Alluvial	Piedmont Prairie / Wildflowers	Managed Landscape
Flowering Perennials	Carolina Phlox	*Phlox carolina*	N					
Flowering Perennials	Eastern bluestar	*Amsonia tabernaemontana*	N					
Grasses & Sedges	Splitbeard Bluestem	*Andropogon ternarius*	N					
Ferns	Cinnamon Fern	*Osmundastrum cinnamomeum*	N					
Ferns	Christmas Fern	*Polystichum acrostichoides*	N					
Flowering Perennials	Gaillardia	*Gaillardia pulchella*	N					
Flowering Perennials	Blue cardinal flower	*Lobelia siphilitica*	N					
Flowering Perennials	Meadow Sage	*Salvia x sylvestris*	A					
Grasses & Sedges	Prairie Dropseed	*Sporobolus heterolepis*	N					
Grasses & Sedges	Northern Seat Oats	*Chasmanthium latifolium*	N					
Flowering Perennials	Yarrow	*Achillea millefolium*	N					
Flowering Perennials	Orange Coneflower	*Rudbeckia fulgida*	N					
Flowering Perennials	Black-eyed Susan	*Rudbeckia hirta*	N					
Grasses & Sedges	Zoysiagrass	*Zoysia spp.*	A					
Grasses & Sedges	Pink Muhly grass	*Muhlenbergia capillaris*	N					
Grasses & Sedges	Carex Sedge	*Carex cherokeensis*	N					

Consistent with LandDesign's palette for the New Residence Hall
Present in the Fred Stanback Jr. Ecological Preserve/Catawba College Campus Grounds
All recommended plants are native or adapted to the Piedmont Region

LANDSCAPE PLANTING PALETTE

PLANTING PALETTE





REGENERATIVE DESIGN ROADMAP

REGENERATIVE DESIGN ROADMAP

INTRODUCTION

The Regenerative Campus Landscape Plan establishes the foundation for a **Regenerative Design Roadmap** that is both actionable and measurable. Grounded in the Campus as Forest vision, the positive performance methodology has been applied using rigorous ecological assessment to understand current ecosystem services, project their restoration, and chart a path toward mutual growth between Catawba College, the community and the environment.

The roadmap translates planning into action through a cyclical, feedback-driven sequence.

- **Identify:** Benchmark ecosystem metrics by identifying the context and conditions of the site; understand the biocapacity of the site where a project is being designed.
- **Quantify:** Use a relatively health ecosystem nearby to serve as a reference to understand the contrasting conditions of those two systems: nature that is untouched versus current site conditions. Quantify performance standards to identify and learn how to close the gap.
- **Create:** Design using nature's guidance and create design strategies intended to match ecosystem performance metrics.
- **Implement:** Create an implementation roadmap, partnering with developers, contractors and suppliers to enable those strategies to move to positive performance.

By coupling design with ecosystem analysis, through collaboration with EcoMetrix Solutions Group, the roadmap ensures each intervention measurably restores ecosystem services, while enhancing experience, wellbeing, and learning. Over time, this adaptive process aligns campus development with ecological regeneration, enabling Catawba College and its landscapes to thrive together.



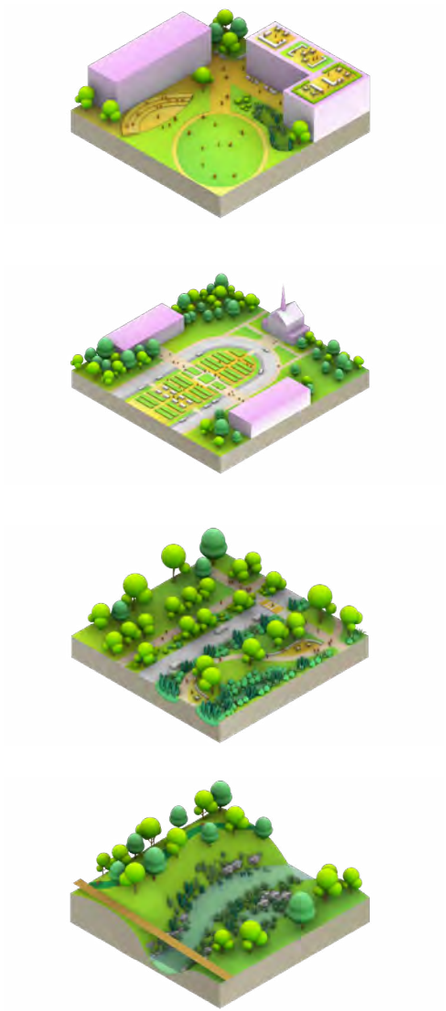
Main Campus - Baseline (2025)



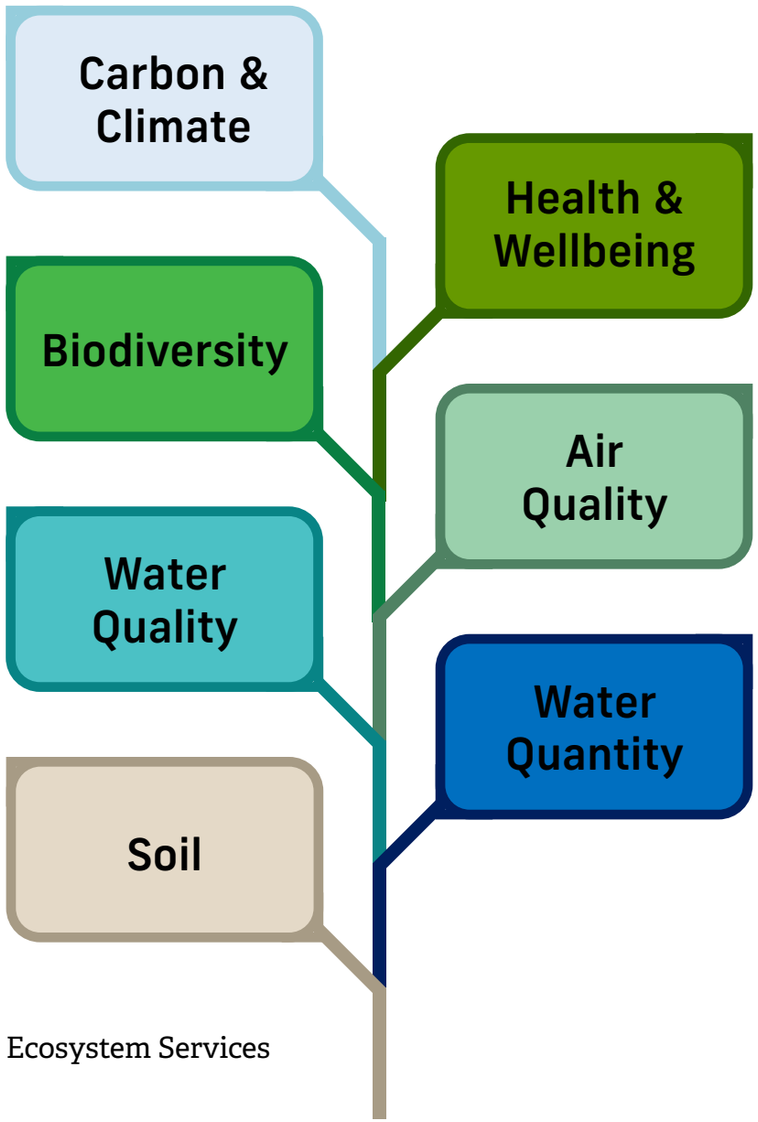
Regenerative Campus Landscape Plan (2050)

REGENERATIVE DESIGN ROADMAP

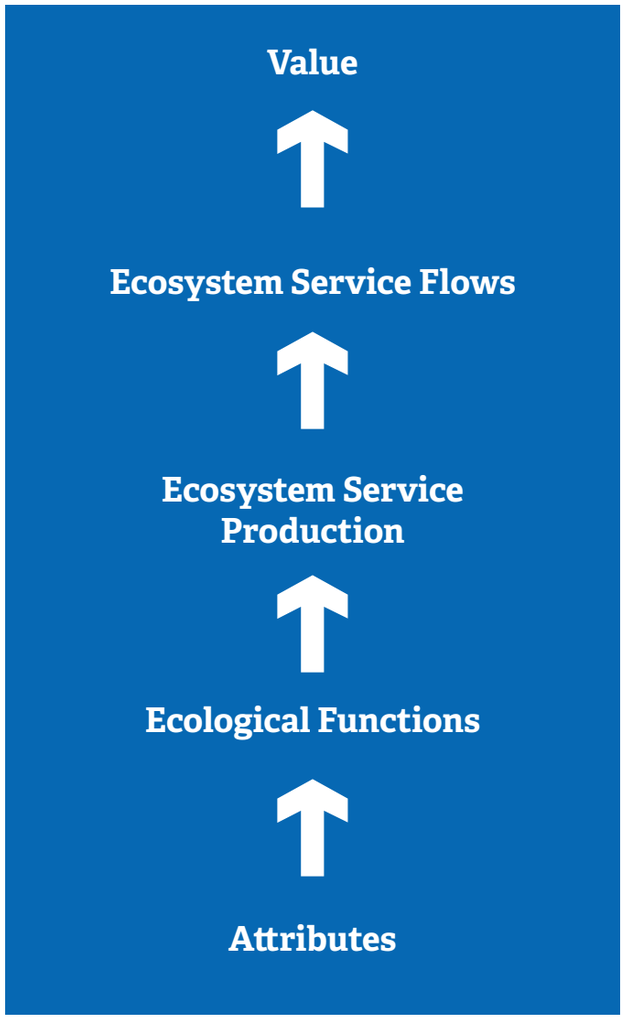
ECOSYSTEM SERVICE CASCADE



Regenerative Strategies



Ecosystem Services



Ecosystem Service Cascade

REGENERATIVE ROADMAP

ECOSYSTEM BENCHMARKING & TARGETING

By combining historic records with artificial intelligence, current ecological assessment, and artificial-intelligence-assisted projections, the campus can be evaluated across time to establish historic ecosystem benchmarks, understand present day ecological baseline performance, and scope the long-term ecological potential for the campus and preserve.



1980

The 1980 condition represents an AI-assisted reconstruction of the historic campus landscape, developed using aerial photography, historic drawings, maps, and archival photographs. This reconstruction establishes a pre-development ecological benchmark, helping define the site's historic vegetation structure, land cover, and ecosystem service capacity. It serves as a reference condition against which current and future ecological performance can be measured.



2025

The 2025 condition illustrates the current ecological performance of the campus and surrounding preserve based on existing land cover, vegetation, and ecosystem conditions. This assessment quantifies present ecosystem services, revealing areas of ecological strength as well as opportunities for restoration and enhancement. Together, it establishes the baseline from which regenerative progress can be tracked and measured over time.



2050

The 2050 condition is an AI-generated projection that visualizes the maximum ecological potential of the campus under an exaggerated Campus as Forest vision. By modeling extensive reforestation and canopy expansion throughout the campus core, the projection illustrates how ecological functions could be enhanced. Rather than a literal forecast, it serves as an aspirational target that defines the upper range of ecosystem performance achievable through long-term stewardship

REGENERATIVE ROADMAP

ECOLOGICAL PRESERVE PERFORMANCE (1980-2025)



Ecological Preserve: Historic Condition (1980)

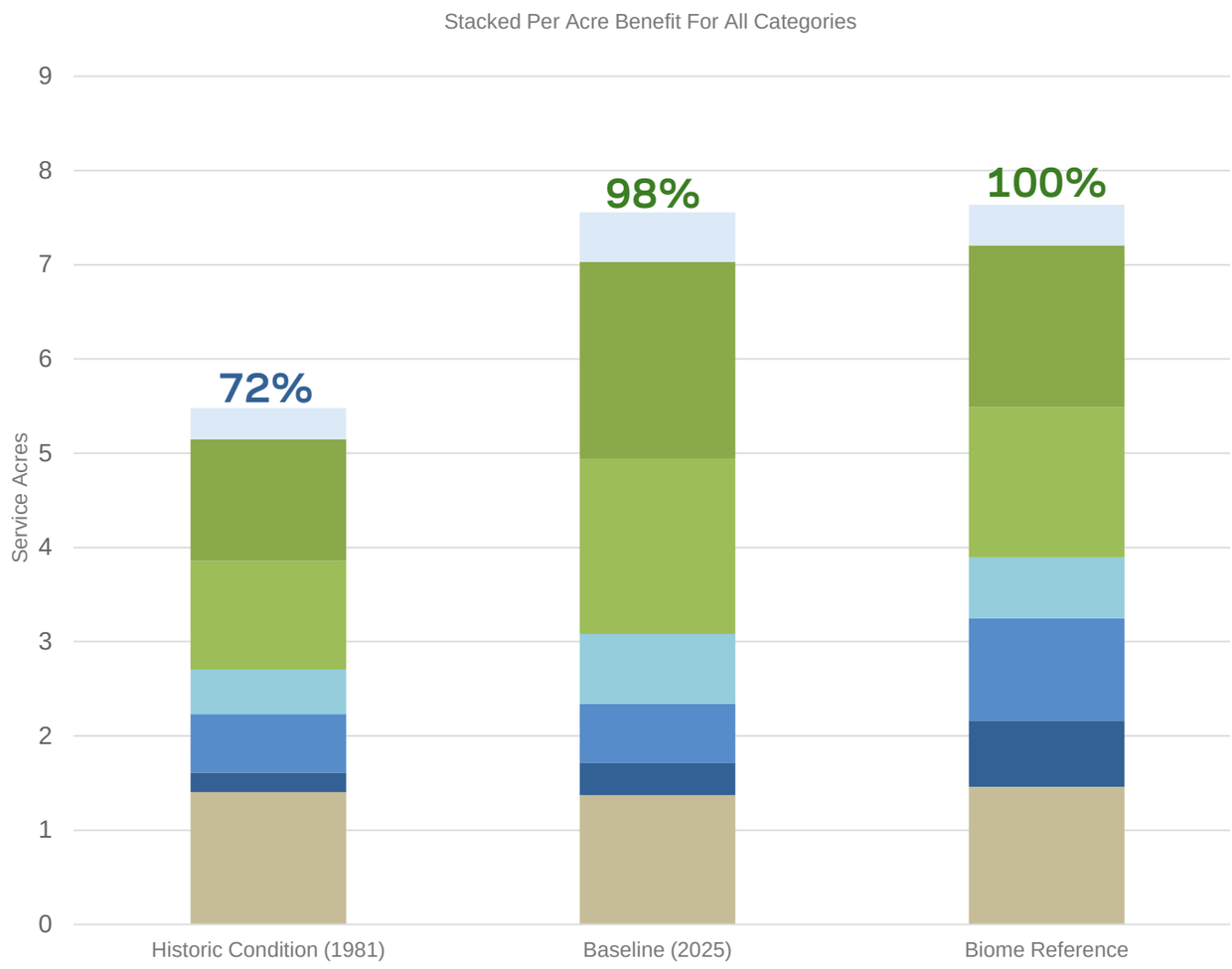
Combining historic imagery, archival records and aerial photography (with AI), the team reconstructed the historic condition of the farm, and demonstrated the ecological restoration occurring over 45 years. The preserve's ecosystem performance is approaching ecological parity with the Temperate Broadleaf Forest Biome reference. This benchmark provides a foundation for measuring future generative gains.



Ecological Preserve: Present Day Baseline (2025)



Reference Biome: Temperate Broadleaf Forest



REGENERATIVE ROADMAP

CAMPUS & PRESERVE COMBINED RESULTS



Campus & Preserve: Baseline Condition (2025)

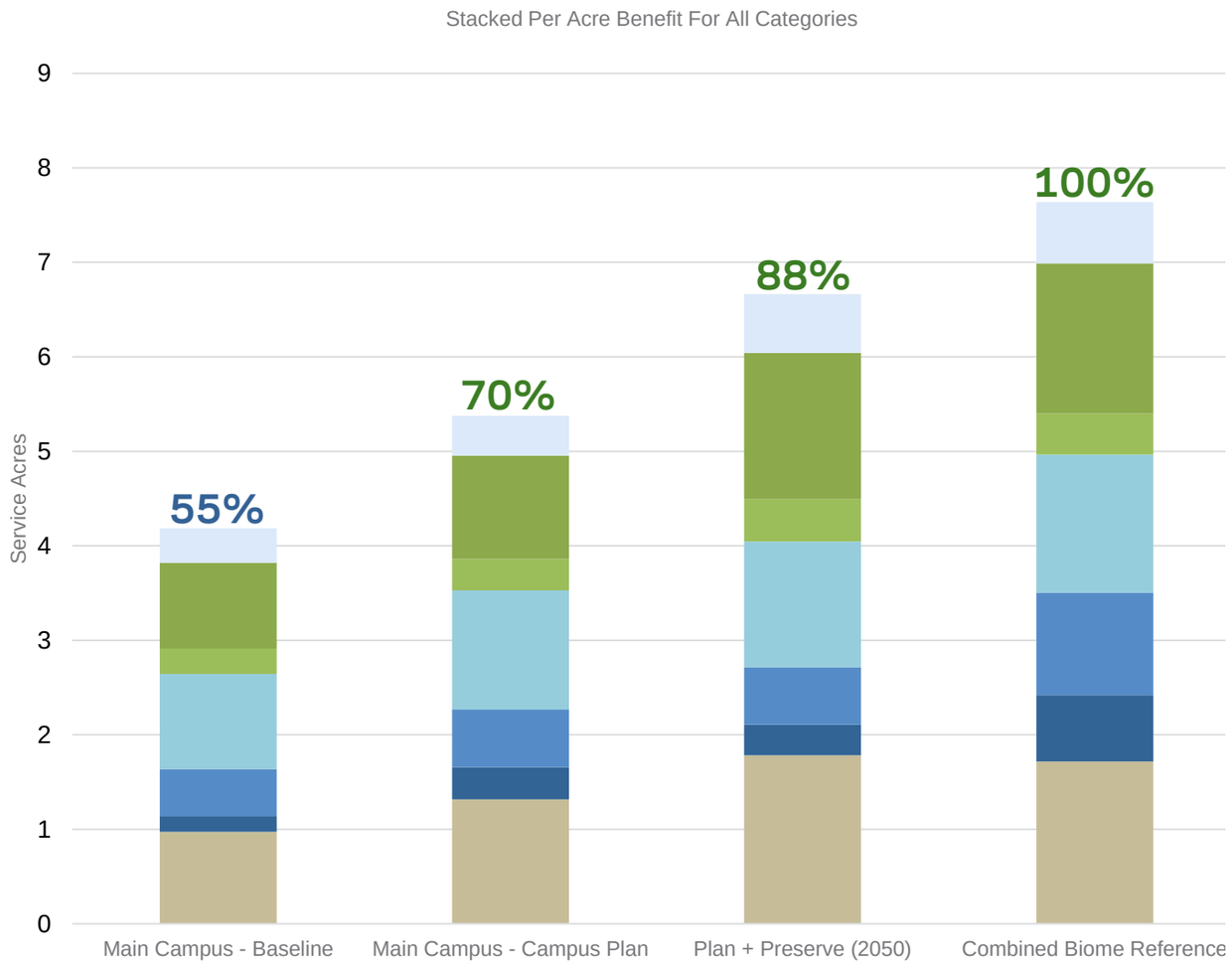
A unified main campus and nature preserve form a resilient, biodiverse landscape that optimizes habitat connectivity, strengthens ecological functions, and delivers exceptional long-term ecosystem performance. As restoration strategies mature, the ecology may thrive toward reference conditions, reducing the ecosystem performance gap. Improvements to hydrology, soils, and habitat can further advance the campus toward nature-positive performance.



Regenerative Campus & Preserve (2050)



Reference Biome: Temperate Broadleaf



REGENERATIVE DESIGN ROADMAP

CAMPUS & PRESERVE PERFORMANCE RESULTS

The Regenerative Campus Landscape Plan for Catawba College creates a strong ecological foundation that naturally extends into the adjacent ecological preserve, allowing the entire extended campus to function as one interconnected living system. By restoring soils, increasing native plant diversity, expanding tree canopy, and improving hydrologic processes on the core campus, these interventions set the stage for healthier ecological flows: cleaner water entering the preserve, richer habitat connections for wildlife, and more resilient vegetation communities that emulate the dynamics of the surrounding natural areas. As these restored zones mature, they begin to act as ecological "corridors" and "bridges," carrying functional benefits, like improved pollinator movement, expanded forest edge habitat, and stabilized hydrology, directly into the preserve.

Long-term stewardship of the preserve further strengthens this relationship. Thoughtful management practices such as invasive species management, understory growth, and adaptive trail maintenance may ensure that the preserve can continue to evolve in response to shifting environmental conditions. Over time, the combined effect of an ecologically restored campus core and a managed preserve helps close the performance gap with the Temperate Broadleaf Forest biome's reference conditions and achieve nature positive impact. Ultimately, this fully integrated campus ecosystem creates the conditions for a regenerative state, where the college community and the natural systems surrounding it continually shape and strengthen one another. In this model, campus life, ecological vitality, and stewardship, become inseparable, illustrating how the community can co-evolve with the living systems it depends on, and create conditions for both to thrive.



Regenerative System Flows


Fully Integrated Campus Ecosystem

GLOSSARY

A

Alluvial stream – a river or stream that flows through and shapes a channel made entirely of loose, mobile sediment (alluvium) like sand, gravel, and silt, which it has deposited over time

Aquaponics – a system of growing plants in the water that has been used to cultivate aquatic organisms

B

Bio generator – a device or system that uses living organisms, biological components or organic matter to create energy or produce useful substances

Biochar – a form of charcoal that is produced by exposing organic waste matter to heat in a low-oxygen environment and that is used especially as a soil amendment

Biodiversity – biological diversity in an environment as indicated by numbers of different species of plants and animals

Biome – a major ecological community type (such as tropical rainforest, grassland, or desert)

Bioretention – a nature-based stormwater management technique that uses soil, mulch, and vegetation to treat water runoff

Bioswale channel – a channeled depression or trench that receives rainwater runoff and has vegetation such as grasses, flowering herbs, and shrubs and organic matter to slow water infiltration and filter out pollutants

Botanical garden – a garden often with greenhouses for the culture, study, and exhibition of special plants

C

Canopy – the top layer of leaves, branches, and stems that creates shade and acts as a complex habitat

Carbon Sequestration – a method or process for capturing and storing carbon dioxide from the atmosphere by natural or artificial means

Carbon uptake – a natural process of permanently sequestering CO_2 from the atmosphere

Check dam – an improvised barrier in a channel to retard the flow of water especially for controlling soil erosion

Climate-adaptive – the process of adjusting natural or human systems to actual or expected climate change impacts, such as sea-level rise, extreme heat, or floods, to moderate harm or exploit beneficial opportunities

Commons – land or resources belonging to or affecting the whole of a community

E

Ecology – the totality or pattern of relations between organisms and their environment

Ecosystem Integrity (EI) Score – a single measure of how well a site mirrors the ecosystem service production of a high-functioning reference habitat

Ecosystem service cascade – the production and flow of ecosystem service benefits across a landscape

E

Ecosystem service(s) – the direct and indirect life-sustaining benefits humans receive from nature, including clean air and water, pollination, and food production

Ecotone – a region of transition between two biological communities

Ethnobotany garden – a cultivated space that showcases the relationships between plants and people, featuring plant species used by specific cultures for medicine, food, shelter, clothing, and rituals

F

Forest bathing – a Japanese practice of immersing oneself in nature to improve health, reduce stress, and boost immunity

Forest permaculture – a holistic design system for creating sustainable, regenerative human settlements by mimicking the patterns, relationships, and resilience of natural ecosystems such as forests

Fully Integrated Thinking (FIT) – a living systems framework that establishes shared goals and strategies while continuously adapting to the factors that influence development pace, priorities, and opportunities

G

Greenway – a corridor of undeveloped land preserved for recreational use or environmental protection

Groundcover – a planting of low plants that covers the ground in place of turf

H

Hydrological respite – the psychological, physical, and environmental relief provided by interacting with or restoring water-based ecosystems

Hydrology – the properties, distribution and circulation of water on or below the earth's surface and in the atmosphere

I

Interpretive ecological areas – educational landscapes featuring curated plants, often native, accompanied by signage or storytelling elements that explain ecological, cultural, or historical context

Interpretive plantings – curated plants, often native, accompanied by signage or storytelling elements that explain ecological, cultural, or historical context

L

Living wall – a vertical structure featuring living plants grown in panels attached to interior or exterior walls, often using hydroponics or modular systems

Living-Learning Laboratory – an educational or research approach that turns physical spaces like university campuses, city districts, or buildings into real-world testbeds for innovation and sustainability

GLOSSARY

M

Managed landscapes – an intentionally designed, installed, and maintained outdoor area, such as a garden, park, or commercial property

Mindfulness – the practice of maintaining a nonjudgmental state of heightened or complete awareness of one's thoughts, emotions, or experiences on a moment-to-moment basis

Moonlight garden – a specialized, sensory garden designed to be enjoyed from dusk through the night

Mycelial network – a vast, underground web of fungal filaments (hyphae) that connects plant roots, acting as a natural, symbiotic communication and nutrient-sharing system

Mycelium – a mass of interwoven fungal filaments (hyphae) that is often submerged in another body of soil, organic matter or the tissues of a host

N

Nature-based – the use of nature and natural processes to address diverse socio-environmental issues such as climate change, water security and disaster risk mitigation

Nature-Positive – a measurable increase in the health, abundance, diversity, and resilience of species, populations, and ecosystems

Night sky access – ability of the public to experience a dark night sky, free from significant artificial light pollution, to observe celestial phenomena like the Milky Way, stars, and planets

P

Pedestrian corridor – a designated pathway designed for safe, convenient, and unobstructed foot traffic, connecting various urban, commercial, or residential areas

Permaculture – an agricultural system or method that seeks to integrate human activity with natural surroundings to create highly efficient self-sustaining ecosystems

Permeable pavement – a sustainable surface material that allows stormwater to infiltrate through to the soil below, reducing runoff, filtering pollutants, and mitigating flooding

Placemaking – a people-centered approach to planning, designing, and managing public spaces that strengthens the connection between people and the places they share

Plant Hardiness Zone – U.S. Department of Agriculture-defined Hardiness Zones that set the standard for determining which perennial plants can survive winter in a specific location

Positive Performance Methodology – science-based framework designed to align business goals with ecological health, aiming for "nature-positive" outcomes developed by the Project Positive collective

R

Rain garden – a depressed area in the landscape that collects rainwater from a roof, driveway or street and allows it to soak into the ground

Regeneration – the process of renewal or restoration of a biological system after injury or as a normal process

Rewilding - to return to a more natural or wild state

Riparian buffer – a vegetated area of trees, shrubs, and grasses along a waterbody (stream, lake, or river) designed to protect water quality, stabilize banks, and provide wildlife habitat

S

Sense of Place – environments that foster deep emotional, social, and cultural connections between people and their surroundings

Service Acre – unit of measure of ecosystem services

Subsurface infiltration gallery – an underground stormwater management system that captures runoff, temporarily stores it in void spaces (rock, plastic chambers, or pipes), and allows it to percolate into the soil to recharge groundwater

T

Tiny forest – small-scale, densely planted, native urban forests consisting of trees and shrubs

U

Understory / Understories – the vegetative layer and especially the trees and shrubs between the forest canopy and the ground cover

V

Vermiculture – the cultivation of annelid worms (such as red worms or bloodworms) especially for use as bait or in vermicomposting

W

Watershed – a region or area bounded peripherally by a divide and draining ultimately to a particular watercourse or body of water

Wayfinding node – information system that guides people through a physical environment and enhances their understanding and experience of the space



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