CU-ICAR Greenville, SC

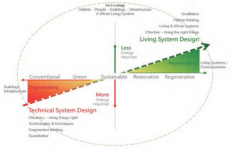
WDS world design studio

Beyond Sustainability: Regenerative Design

What is Beyond Sustainability: Regenerative Design?

Design that seeks to transform human communities into living systems enablers. They help lay foundations for the ongoing evolution of natural and social systems, enabling them to increase in viability and health as the world changes.

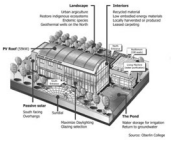
Instead of designing for sustainability with solar panels, green spaces, and the like, regenerative design designs for the entire ecosystem by taking into account the enviroment around it and providing specific programs for its users including stormwater management, native species and landscape systems by means of a connected web of systems.



The Portola High School in Irvine, California is a modern school that serves as a learning institution not only for classical education needs but also the future of regenerative design. The green roof is connected to the HVAC system so that on hot days when the air conditioning kicks in, the water generated from it is used to irrigate the green roof. When the roof is saturated, it is then able to passively cool the building for the rest of the day, and often the next as well, reducing reliance on the air conditioning system.

The Pierce College Library in Los Angeles' San Fernando Valley is a LEED Platinum-certified example of regenerative design, incorporating a high-performance building envelope, on-site water collection, and photovoltaics that produce renewable energy for the building. The result is not only a project that achieves a high level of environmental responsibility, but also a building that educates its occupants about the components that contribute to its success.

At the San Bernardino Valley College Kinesiology and Athletics Complex in San Bernardino, California, constructed wetlands capture stormwater on site and replenish the underground aquifer while simultaneously providing the site with a heat sink to offset solar heat gains. The vegetation designed into the wetlands also promotes biodiversity by attracting and supporting native flora and fauna. Designing buildings that incorporate biomimicry in such a way that they actually give back to the environment rather than solely take from it.



Source: Martin College

Principles & Strategies

Evolution:

Leave room to grow:
Dont take up the entire site, leave room for future expansion and make spaces multi-use

Create innovation spaces:
Create research spaces to further research on biofuel and other renewable resources

Provide education spaces:
Provide programming to education public for all ages

Connected Web:

Provide a connected web of circulation:
Create a system of connect trail and bike paths for users to circulate between sites

Design for an ecosystem:
Design keeping the surrounding environment in mind as well as creating programs that work off one another

Create Nodes:

Create health and wellness nodes:
Create trails for users to walk, an outdoor gym and greenroofs

Create education nodes:
Create areas of learning by community out reach programs, garden space and study areas through the site

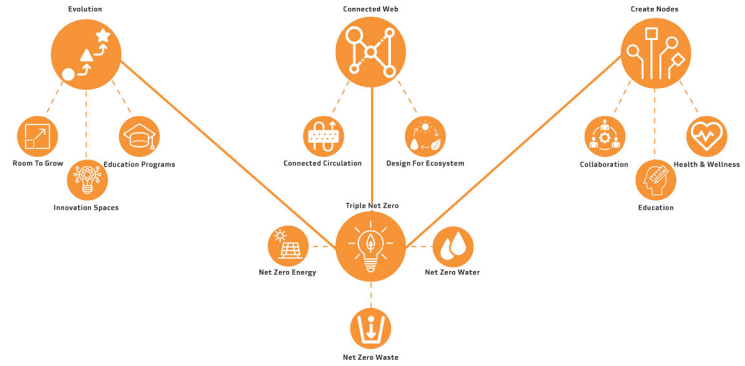
Create collaboration nodes:
Create areas for students and employees to interact and collaborate through open greenspaces and shared coworking and food services

Triple Net Zero:

Net zero energy:
Provide solar panels & geothermal energy throughout site

Net zero water:
Collect and manage storm water and grey water

Net zero waste:
Collect cooking oil and compost waste on site to be used for biofuel



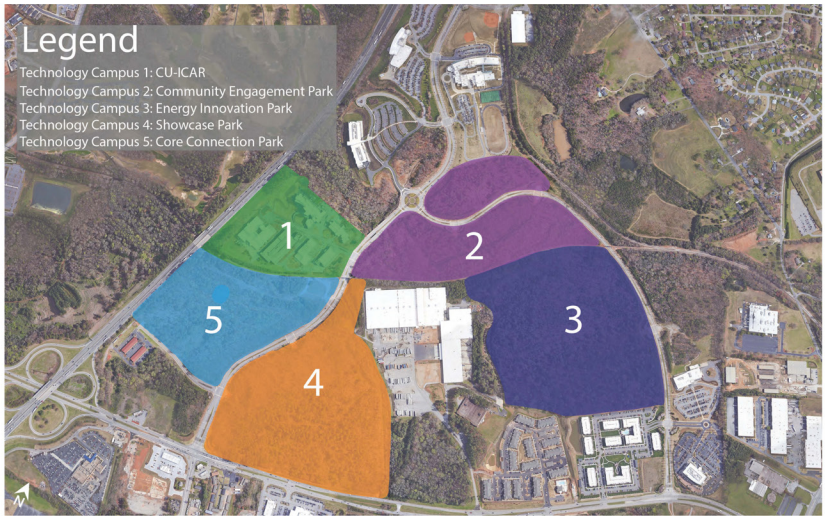

BIKE LANES


BIKE LANES


BIKE SHARE


SUSTAINABLE SHELTERED BUS STOP

SHELTERED BUS STOP



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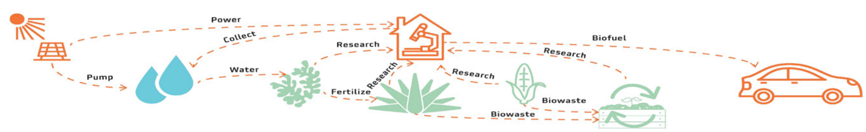
Neighborhood 2: Community Engagement Park

Technology Neighborhood 2, located in the middle of the site, will be an area that the entire community of Greenville can come and involve themselves with proposed programs. There is a large amount of space that is left unbuilt in the hopes that there will be growth on this site. A key issue that the Community Engagement Center would like to address is childcare. Afterschool programs for the children of the students, faculty, and employees of the site will be offered to help parents with their work life balance. There will also be community outreach to encourage community members to get involved and learn. Amenities that will be tied to the community center will be; a small scale urban farm to give hands on learning on how to grow and maintain food and other plants, a composting area inside of the agricultural area to tech the importance of composting and how to go about the composting process (this will take waste from the campus as a whole which will ultimately cut down on solid waste on the site), and an RC car test track. The RC car test track will be a part of the childcare program and be a direct representative of CU-ICAR in hopes to inspire young children to learn and have a small base of technological skills. A green space for activity will be added in the middle of the bus loop to offer a space for relaxation, sport, and events. An outdoor gym is offered in the middle of the CEP. This gym will be semiprivate though the use of grass berms. A multi-use office building will be placed on the other in of the park. This office building, and the community center, will host green roofs and have large glass windows to invite natural light for the mental health of the employees and cut down on electrical costs. The green roof for the community center will be an extension of the agricultural area with planting beds placed throughout the roof. The office building green roof will be a place for the users to collaborate, relax, and contemplate. The green roofs will contain a reusable water system that will take rain water and waste water, filter it, and reuse it for irrigation purposes.

Neighborhood 3: Energy Innovation Park

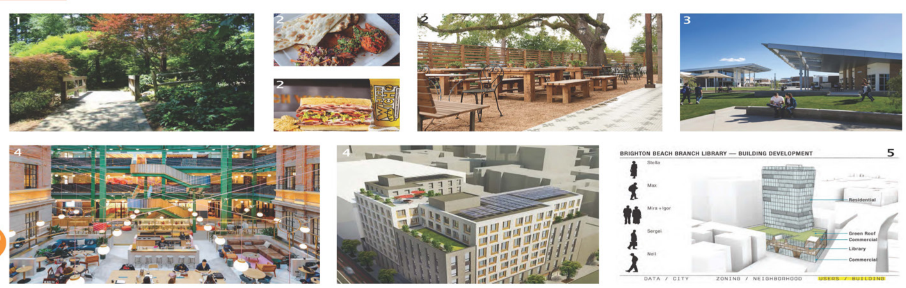
Technology Neighborhood 3: Energy Innovation Park is located furthest away from the existing campus. This neighborhood will host transportation such as a bus stop, bike share and the second parking garage. The program for this site includes: Education, office, light manufacturing, testing track, agriculture and solar farm, algae pond, green house, and restaurant connect to the swamp rabbit trail allowing visitors to over look the track. This site will focus on energy innovation and host Clemson's Chemical Engineering graduate program with a focus on bio-fuel research. The program will research solar, corn, agave, biowaste and algae as bio-fuel alternatives that will also work in a connect web together for their irragation and production on site. The track will provide testing for prototype vehicles including pass by noise, vibration and oscillation behavior, vehicle longitudinal and interior noise tests. In between the buildings will be a large open green space that allows for the chance for students and empolyees to interact and collaborate.



Neighborhood 4: Showcase Park

Technology Neighborhood 4 - The Showcase Park at CU-ICAR will include a variety of programming that encourages collaboration and an interaction between the indoors and the outdoors. The office and education space will be defined by interconnected nodes that place students and professionals in the same areas and encourage interactions between them. The outdoor showcase space will provide an event space for CU-ICAR that will be specially designed to help showcase the deep orange projects that the automotive engineering students build. The food truck park will be a place that food trucks can come in and park for lunchtime and create a gathering place between campus users, and help support local businesses and the economy. The green ribbon park will provide campus users a nice place to take a break outside. There will also be a small wetlands area that will add to the ecological diversity of the area, as well as an educational oppurtunity.

Neighborhood 5: Core Connection Park



Technology Neighborhood 5, Core Connection Park will showcase a botanical garden trail in area 1 which connects to Technology Neighborhood 1 and is modeled after the South Carolina Botanical Gardens at Clemson University. It will support non-invasive species native to the area to promote its ecology. A restaurant at location 2 will have two options for dining and a beautiful selection of outdoor seating will be easily accessed by Technology Neighborhood 1. An educational building and a coworking building will be located in area 3 and will share a common space between the buildings to promote connectivity as well as bring the users of each building together. The educational building takes precidence from the Portola High School in California and the coworking area takes precedence from a coworking space in Shanghai. An apartment complex for both students and employees shown in area 3 will have greenroofs and solar panels to promote sustainable infrastructure and reduce the urban heat island within this area. In area 5, a multi-use building is proposed to include storage for the car prototypes as well as a place to showcase them, storage for furniture, and have offices. An extensive walking trail will provide more access to this site and is connected to the other technology neighborhoods. In addition, a bus loop will be incorporated to allow pick up and drop off for students. Finally, a location for bike share will be implemented to increase modality and access to all areas within Core Connection Park.

LARC 4540 URBAN DESIGN STUDIO
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CONCEPTUAL DEVELOPMENT: SCIENCE AND INNOVATION ZONE

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March 03 2022 | Advanced/ Urban Design | Dr. Nassar | Maria Balderas, Molly Foote, Alexa Gubanich, Alexander Leonard, Joshua Steele

Design Principles: Eco Regenerative Healthy Corridor

Ecological Design

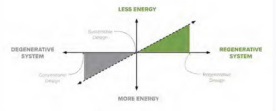
"design that minimizes environmentally destructive impacts by integrating itself with living processes." They argue that ecology "should be the basis of design: it is nature's own design strategies we find when we seek to minimize environmental impacts." (Van der Ryn and Cowan)

Ecological Design Principles

1. Solutions grow from place
2. Make nature visible
3. Design with nature
4. Ecological accounting informs design
5. Everyone is a designer

Regenerative Design

Regenerative Design is a proactive design strategy which builds upon sustainable design and utilizes ecosystem biomimicry to (1) improve human and environmental health, (2) renew and produce clean energy and materials, and (3) cultivate resilient, diverse communities



Regenerative Urban Design Principles

1. Livability
2. Equity
3. Ecology
4. Nutrition
5. Access
6. Waste
7. Water
8. Resiliency
9. Energy
10. Heritage

Healthy City

A Healthy City consists of Healthy People, Healthy Infrastructure, and Healthy Spaces. Healthy people, who have healthy social interactions and activities. Social interactions create culture and fit the general public's need for community services. Healthy infrastructure includes walkable paths, clean streets, easy transportation, and modern methods of development. Healthy Spaces are not just green spaces that act as public environments and parks, but the water and air that people interact with.

Healthy City Design Principles

1. People First Design
2. Active Transportation
3. High Sociability
4. Green Design
5. Reduce Automotive Dependance
6. Natural Recreation
7. Balance of Developed material and natural resources

Design Concept: Science and Innovation

"...new deep science based innovations are emerging in four fields life science and health, agri-food innovation, such as smart fertilizers, energy and clean technology and transport..." (WIPO)

4 Fields of Innovation

What defines a Science and Innovation City?

A city that is active in the exploration of new ideas to generate techniques, products, and processes

7 Characteristics

1. Identity: Make innovation visible and public
2. Diversity: Mix innovation with a range of other uses
3. Continuity: Start with existing people and places
4. Sociability: Bring people together through places and programming
5. Proximity: Build things close together on the ground—not just on the map
6. Mobility: Connect to the broader city and region through multiple transportation modes
7. Flexibility: Experiment, Observe, Repeat

Life Science and Health

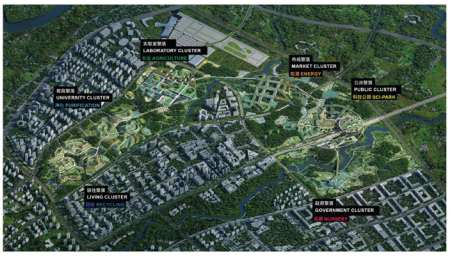
Agri-food Innovation

Energy and Clean

Transportation

Case Study: Chengdu Future Science and Technology City

The brief for this international design competition asks for a new masterplan for the innovation industry in Chengdu in Western China. While the innovation industry is high on China's economic agenda, masterplans recently developed for the industry are hardly specific. They are based on a generic urban planning model—often defined by traditional infrastructure, a regular grid, a green axis, and independent plots—also used for masterplans for any other industry. Can urbanisation in China, driven by this generic planning model, remain sustainable, given that our ways of living, commuting, and relating to nature are vastly changing? In addition to supporting the innovation industry itself, should masterplans developed for the industry also be novel enough to challenge the generic urban planning model, offering new forms of living, working, and social spaces that meet our ever-changing needs?



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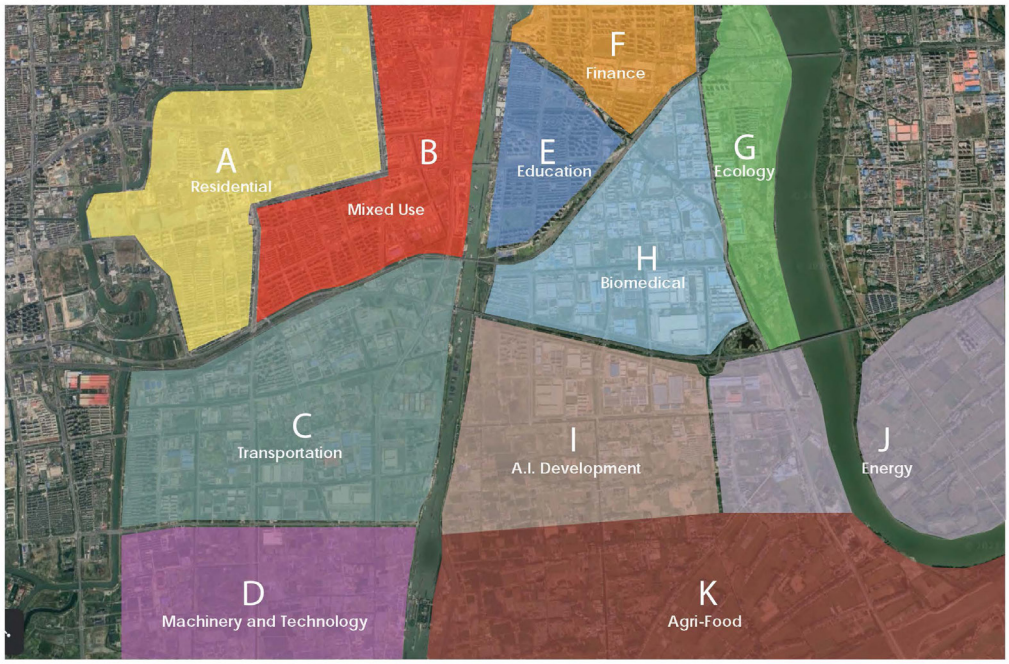
Conceptual Districts for Yangzhou Innovative Zone



District A: Residential

The residential zone surrounds the historic city center and contains existing zoning for residential use. Though there are not many changes to be made to this area, the existing structures could be retrofitted to form a healthier, regenerative urban fabric and quality of life. The residential district also corresponds to the mixed-use commercial district, putting residents within proximity to shopping, open space, and amenities.

Case Study: Dietenbach Freiburg

Set in Germany's greenest city Freiburg, Dietenbach is a new urban neighborhood set to expand the 'futuristic city in the forest'. Corridors play a big part in this design, both for connectivity to the existing city and ecological corridors of parkspace. Freiburg also has heavy emphasis on public transit and walkability over car usage.

District B: Mixed Use

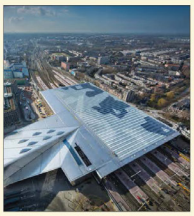
While mixed-use is a strategy which can be applied across the city, this designated district allows for walkable amenities and shopping for public clusters and the university dorms of the education district. Extensive waterfront also allows for rivertront parks and restorative riparian landscapes. The infill practices of mixed use also work well with the existing infrastructure.

Case Study: Liangjiang Collaborative Innovation Zone

"The masterplan is a fully transit-orientated development and provides railway, metro, BRT, electric bus and water taxi connections throughout the site. Sustainability is embedded in the project, which is planned to be self-sufficient in energy needs – using solar, biomass and hydroelectric power sources, resulting in a saving of over 450,000 tons of CO^2 per annum."
(Chapman Taylor)

District C: Transportation

The transportation district is focused both on the importance of the public transporation infrastructre of Yangzhou, as well as automotive research. This district houses a new public station which overlaps many modes of transport, including buses, water taxis, and bikes. Research focuses towards EV, safety, emissions, and test tracks.

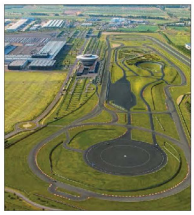


Case Study: Rotterdam Centraal

Rotterdam Centraal Station is a multi-modal transit hub that caters to the High Speed Train (HST), Randstadrail, light rail system, tram, taxi, subway and bus services. It is a transport node with high passenger flow expected to have approximately 323,000 passengers per day by 2025. The Transit Hub is in the middle of Europe with being the first stop in the Netherlands when traveling from the south side.

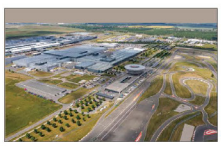
District D: Machinery and Technology Industry

This district corresponds closely to both the Transporation District, the A.I. Development District, and the Biomedical District, as well as other research-focused districts. It includes robotics research and development, industrial parks, and auto-shops.



Case Study: Porshe Leipzig

Porsche Test Track is a racing circuit located north west of the German city Leipzig, Sachsen (Saxony). The circuit serves as a test track for PORSCHE's vehicles.



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District E: Innovation Education Campus

The Innovative Education Campus brings students and future leaders into the Science and Technology Zone, with transit to major innovative industries bringing students into real work experiences. A new university focused on innovative fields and leadership would create a unique district. It is also adjacent to the river and across from the mixed-use commercial area.


School Transit


Innovative Leadership


Local Partnership


Ecological Park Restoration

Case Study: Nanyang Technological University

"Curving green roofs distinguish the building from among the other structures on campus, but the line between landscape and building is blurred. The roofs serve as informal gathering spaces, challenging linear ideas and stirring perception. The roofs create open space, insulate the building, cool the surrounding air, and harvest rainwater for landscaping irrigation. Planted grasses mix with native greenery to colonize the building and bond it to the setting."
(Inhabitat)

District F: Financial Innovation and Entrepreneurship

This district combines the rising financial and technical market in Yangzhou with the existing municipal buildings that support local communities and government. Additional efforts for green spaces, public access, and innovative design create a node of higher services available for the general public in Yangzhou.


Public Access


Public Green Space


Municipal Center


Financial and Business

Case Study: Hongqiao Business District

The Hongqiao Business District is a building heavy district that utilizes underground space for parking, and commercial stores. The variety of businesses mixed with office space and commerce creates a large social sector within a professional business environment.

District G: Ecological Restoration and Research

Ecological restoration deals with the process of aiding in the recovery of an ecosystem that has been degraded, damaged, or destroyed. Ecological research investigates scientific understanding of ecosystems, habitat restoration practices, and communities or species of interest.


Constructed Wetlands


Pollution Mitigation


Ecological Parks


Experimental Forest

Case Study: Yazhou Bay

The design of this waterfront eco-park covers 135 hectares and includes three parts: a Coastal Belt Park, an Ecological Wetland Park and a Resilient Riverfront Park. The design calls for a coastal windbreak forest, wetland water management and smart city water management systems. An important requirement is to prevent natural disasters such as seawater backwater, flooding, typhoons and sand erosion. While people-oriented, the design is also sensitive to the biodiversity of the area.

District H: Biomedical

This section focuses on the Research, Development, and Services of Biotechnology and Science. This district would support the community with medical professionals, pharmaceutical materials, and provide a medical partnership with the adjacent college. It would include programs such as hospitals, medical schools, pharmaceuticals, and material distribution. .


Biotech Research and Development


General Medical Services


Hospital Gardens and Public Spaces

Case Study: Zhengzhou Linkong Biopharmaceutical Park

The Zhengzhou Linkong Biopharmaceutical Park is a mixed use medical district that incorporates high quality medical facilities, hospitals, manufacturing, research, and teaching. It includes a public park that divides medical facilities and a residential community that includes assisted living and dormitory housing for medical professionals.

District I: AI Development

The A.I. Development District not only has the potential for cutting edge research, but also allows for a brand new branch of technology-focused tourism. Local restaurants, business, and other public spaces could showcase A.I., allowing researchers to test and implement.


A.I. and Computing Research


Autonomous Vehicles

A.I. Tourism


A.I. Education

Case Study: Shanghai World Laureates Association Artificial Intelligence Lab

Construction is underway on a new artificial intelligence research laboratory designed by PLP Architecture. Located in Shanghai, China, the building's overall form is inspired by a computer motherboard and CPU. It is divided into four quarters and includes amenities like the Super Lab, café, cafeteria, special labs, general labs, communal terraces, gardens, and the central core area. The four quarters connect along the north-south and east-west direction through the atria, the main core area. The Shanghai World Laureates Association Artificial Intelligence Lab is part of a Lingang New Area district in the city that will host research and innovation, which also happens to be where the Ring project, the anchor for the new business district, is being constructed.

District J: Clean Energy Production

This district takes advantage of open spaces on either side of the river as locations to implement clean energy technologies. Different systems such as solar panels, wind farms, hydropower dams, and geothermal wells could be implemented and researched. These technologies could also be combined with parks or ecological spaces.


Solar Fields


Wind farms


Hydropower Dams

Geothermal Wells

Case Study: Sun Dial Solar Office

The building is located in Dezhou, Shandong Province, in Northwest China, and covers an area of 75,000 square meters. The design of the new building is based on the sundial and "underlines the urgency of seeking renewable energy sources to replace fossil fuels." Aside from the obvious sustainable nature of the solar panel-clad exterior, other green features include advanced roof and wall insulation practices resulting in energy savings of 30% more than the national standard. In addition, the external structure of the building used a mere 1% of the steel used to construct the Beijing Bird's Nest.

District K: Agri-Food Agriculture

The Agri-food District bridges the new research and technology of the Science and Innovation Zone and the farming villages in Yangzhou's hinterland. It includes research into healthy, regenerative, and ecologically friendly farming techniques, as well as education and outreach for the community.

Vertical and Modular Farming

Hydroponics

Sustainable Farming

Education Center

Case Study: Sustenir

"Besides feeding Singapore, Sustenir is committed to growing its crops with sustainability in mind.Known as Nutrient Film Technique, Sustenir's farming system recirculates water for reuse, utilizing 95% less water than a traditional farm. This indoor system also doesn't require arable land, which can be employed for other earth-friendly measures like tree planting."
(sfa.gov)

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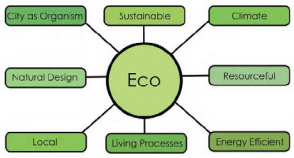
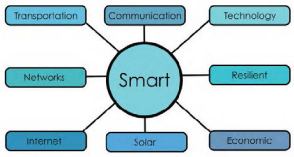
ECO

Human city modeled on self-sustaining and resilient principles with functioning natural environment and ecosystems. Looks at the city as a living, growing organism that doesn't consume more resources than it produces or more waste than it can assimilate.



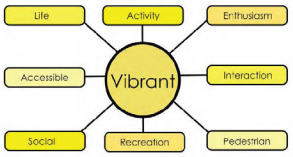
SMART

Information and communications technology used to develop, deploy, and promote sustainable strategies. Transportation and accessibility are positively affected as well as improvement of social services. Employs the use of technology to solve city problems.



VIBRANT

A vibrant city is enjoyable for people with plenty of areas to meet outside providing a sense of community. This includes diversity of places for different uses of interacting, exploring, relaxing, recreating and servicing mix of activities for different times of the day. An activated pedestrian scale is key.



Concept Narrative

An Eco Smart Vibrant City is one of which makes life more efficient and effective through designing by keeping in mind living organisms, technology, and the socialization/ recreation of humans. In order to address the natural pre existing habitat within the technological neighborhoods, we plan to respond to local conditions that are cultural and environmental. This can be done through accounting for the impact of all activity on the immediate surrounding environment and by designing with nature instead of against it. We must educate the populace about ecological issues and accepting their input and make nature visible to all. To create a smart environment that uses efficient and effective technology, we will use a combination of different technologies. These technologies are based on energy management, lighting, heating, cooling systems, communication networks, waste management, and mobility systems. Last but not least, in order to ensure the happiness of the people are at heart, we will create vibrance by making an easily accessible place with plenty of opportunities for socialization and recreation at a pedestrian scale.

Guiding Principles

1.) livables providing everyday amenities
Fresh food, health services, education, and a healthy environment
Vibrant public realm that includes streetscape and access to outdoor amenities within walking distance
2.) sustainable: focus on advancing environmental and economic sustainability
Reducing carbon footprint
Zero waste landfills
3.) efficient infrastructure and services
Diverse transportation options
Smart buildings
4.) secure: safer environment
Fire and public safety services
Cybersecurity
Real-time data for first responders
5.) resilient
Adaptable
6.) productive
Investing in economy
Job growth
7.) inclusive: equitable
Affordable
Job opportunities for all
Desiring diversity
8.) transparent: government
Collaborative

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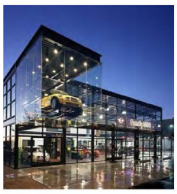
Human Factors Neighborhood



Showroom Tower

A midrise glass showroom for community engagement and better representation of the work done at CU-ICAR.

Interactive Garden

An interactive and education garden that services visiting groups. Garden areas determined and tailored for specific groups of people and utilizes smart boards for increased interaction.

SWT Restrooms

Public restrooms in a plaza area to service the visitors from the Swamp Rabbit Trail. Using amenities and further outdoor areas to draw guests in to understand CU-ICAR a bit better and utilize public space.

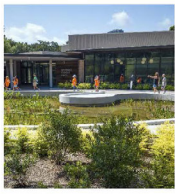
Manufacturing Neighborhood

Car House

The Mcgee House uses recycled car parts from 104 junk cars. The deckings are made from redwoods and the awnings are made from glass. The overall construction was very low cost considering how eco friendly the design is.

Play Ground

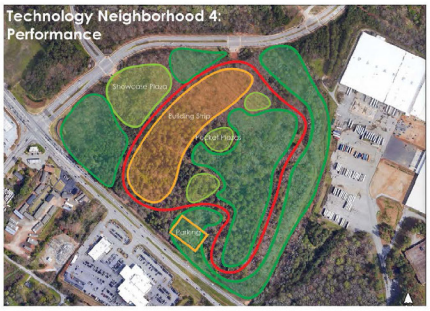
he Playground at the Analna Hou Community Park is a 100% eco friendly design made entirely from plastic and local found non toxic materials. It includes many activities for kids to explore like navigating the pacific ocean using stars as guides, mountain to ocean land themed structure, and trains. Not only is the playground a fun place for kids inspired non other than a child, but it also is a great place for learning to take place.



Wetland Garden

The Houston Zoo Cypress Circle and Wetland has a commitment to sustainability and was built around an existing stagnant pond. The pond revitalizes the exhibit into a thriving, biodiverse constructed wetland. The wetland features a striking 35' long photomural of a whooping crane in flight, setting the mood for diners in the new Cypress Circle Café

Performance Neighborhood

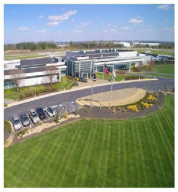


TOD

TOD- With the proposal of the city of Greenville building an autonomous light rail system, it will have a stop directly in front of the CU-ICAR campus in Tech Neighborhood 4, right off Laurens Road. This station will act as a hub on campus, offering multi-use building programming thus enriching life within the community.

Outdoor Showcase

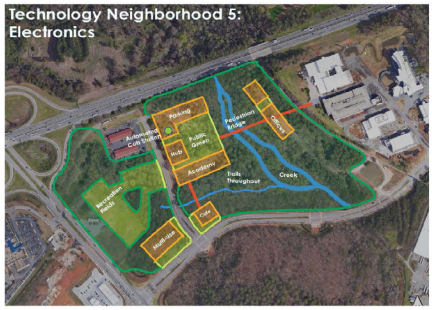
The front of the tech neighborhood will include a node that functions as both a fully functional plaza and a space where CU-ICAR can showcase their new developments, while also offering a large public space which users could use for car meets or other large gatherings.



Performance Track

The main feature of this tech neighborhood is a performance track that will be visible from almost any part within the neighborhood. It is to be used for testing cars that CU-ICAR is developing, but can also be programmed to host small race events or driving classes similar to BMW's performance driving school track.

Electronic Neighborhood



Pedestrian bridge

A pedestrian bridge, similar to Liberty bridge at Falls park, would be a necessary addition for connecting foot traffic from Neighborhood 1 to Neighborhood 5

Riverwalk

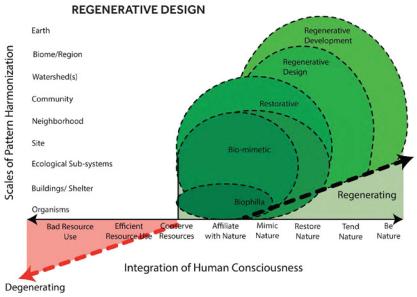
Paralell to the creek on site could be a boardwalk that rises above the wetland. These walkways could connect to other parts of trails and act as an alternate route of for either transportation, or simply as recreation.

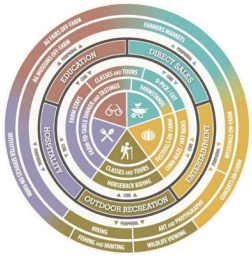
Street Fair

In the western recreational fields, there could be multi-purpose areas for special events These events could hosts market places, food trucks, firework shows, concerts, etc.

GRAND CANAL 揚州 YANGZHOU ECOTOURISM CONCEPTS

WDS world design studio

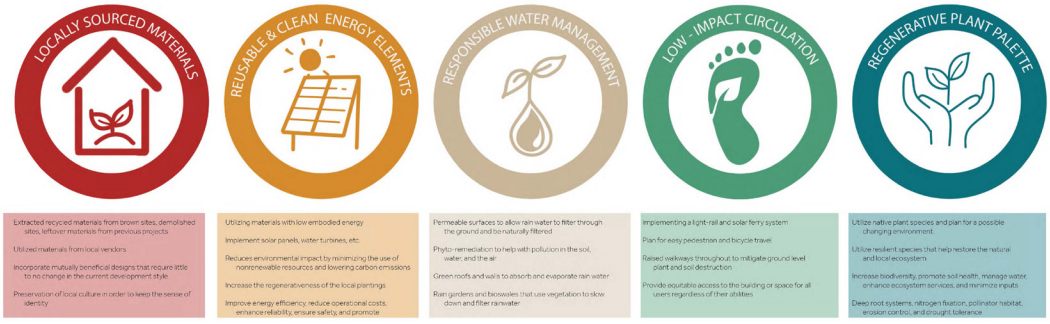




PRINCIPLES OF ECOTOURISM

MINIMIZE	BUILD	PROVIDE	GENERATE	DELIVER	DESIGN	RECOGNIZE
PHYSICAL, SOCIAL, BEHAVIORAL, AND PSYCHOLOGICAL IMPACTS	ENVIRONMENTAL AND CULTURAL AWARENESS AND RESPECT	POSITIVE EXPERIENCES FOR BOTH VISITORS AND HOSTS DIRECT FINANCIAL BENFITS FOR CONSERVATION	FINANCIAL BENEFITS FOR BOTH LOCAL PEOPLE AND PRIVATE INDUSTRY	MEMMORABLE INTERPRETATIVE EXPERIENCES TO VISITORS THAT HELP RAISE SENSITIVITY TO HOST COUNTRIES POLITICAL, ENVIRONMENTAL, AND SOCIAL CLIMATES	CONSTRUCT AND OPERATE LOW-IMPACT FACILITIES	THE RIGHTS AND SPIRITUAL BELIEF OF THE INDIGENOUS PEOPLE IN YOUR COMMUNITY AND WORK IN PARTNERSHIP WITH THEM TO CREATE EMPOWERMENT

REGENERATIVE OBJECTIVES



PROGRAM MAP

CONCEPT STATEMENT

The mission is to create an innovative landscape design that promotes ecotourism while emphasizing sustainability, upholding historical culture, and improving the existing ecology within the new city of Yangzhou. The plan seeks to mitigate and remedy current ailments plaguing the town, like poor water quality, air pollution, lack of a unified edge, and green spaces. An entertainment zone will be the center of day-time activities to night life fun and fine dining. A scientific research complex zone will house the world's leading experts in water treatment and crop studies. The agritourism zone will have a luxury resort with eco-housing, clean eating, outdoor activities like ziplining and u-pick fields. Lastly, and animal sanctuary zone across the canal will be home to native and exotic animals with and educational museum. State of the art technology, including a new mode of transportation, will assist in making the experience through the zones a tour of a greener and healthier Yangzhou. A light-rail system and a clean ferry will traverse the zones and water bodies.

EVAN LIBENSPERGER, MELISSA MORALES, NICK CEVA, RENCE O'CONNOR, TREVOR TURCOTTE
URBAN DESIGN | LARC 4540

GRAND CANAL
揚州
YANGZHOU
ECOTOURISM CONCEPTS

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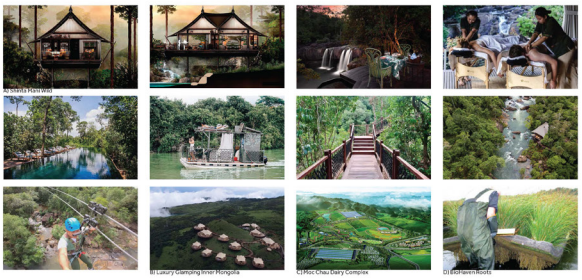
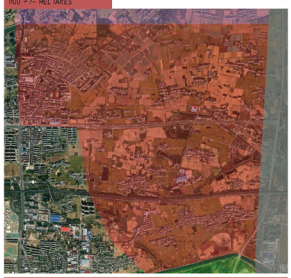
AGRITOURISM RESORT
770 +/- HECTARES

This concept aims to recreate a resort that celebrates the native subtropical forests of eastern China and can sustain the most severe weather conditions: after monsoons. The list of programming will ensure that every user will have somewhere to go and something to do while resting assured that their impact on the environment is at an all-time low. Even the restaurants will use products grown from the on-site crops. The dwellings will have water harvesting and energy-harnessing elements that will contribute to the green, low-impact, luxury vacationing mission.



SCIENTIFIC RESEARCH COMPLEX
1100 +/- HECTARES

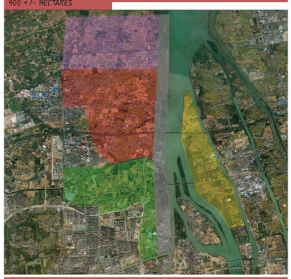


This space is a sprawling research and development center for sciences of experimentation and investigation. By utilizing a sectionalized organization system, the flow and experience of the entire space can be categorized as harmonious. By implementing state of the art facilities, innovative field designs, and regenerative wetland systems, this site aims to educate, create, and filtrate.

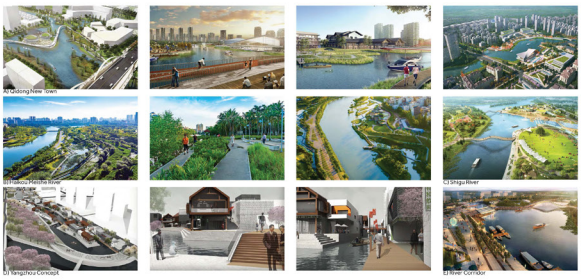
MIGRATORY BIRD SANCTUARY
900 +/- HECTARES

My project aims to create a multi-functional site that serves as a migratory bird sanctuary, a recreation area, and an educational space for visitors and local students. The site will be designed with trails and greenways that run throughout the site and along the bank of the peninsula, creating an immersive experience for visitors. The site will be divided into different zones to accommodate different bird species, which will help attract and protect various types of birds during their migration.

REGENERATIVE WATERSIDE GREENWAY
900 +/- HECTARES



My goal for this section of our project is to provide a comprehensive landscape design that will transform how the city of Yangzhou interacts with the grand canal. My vision is to create a multi-use waterfront leisure experience that will connect the other parts of our project by the use of a greenway. I want to have a strong focus on sustainability, nodes, and interactive water front activities. This green way will accomplish these goals by adding water front parks for activities, marinas for boat parking and water transportation, ecofriendly plants for phytoremediation, and energy efficient elements like solar powered holographic lighting.



ENTERTAINMENT ZONE
970 +/- HECTARES

The design concept for the entertainment zone is to transform the existing area into an immersive space that includes many activities such as dancing, martial arts, calligraphy, food vendors, chess, shopping vendors, interactive art, and much more, while maintaining ecological awareness and restoration. The idea is to implement green spaces and greenways throughout the area to create more connectivity between the people and the environment and to allow for spaces for people to gather and participate in many of the traditional activities stated. The long term goal is to implement a regenerative landscape that will spread and adapt throughout the area to increase water quality, air quality and overall quality of life while beautifying the area

S
WATERSIDE ACCESS
REESTABLISH WATERS EDGE
MITIGATE POLLUTION AND STORMWATER
PROVIDE PEDESTRIAN PATHWAYS
PROMOTING HEALTHY AND REGENERATIVE SPACES FOR LOCALS AND TOURISTS
NORTHERN SECTION HAS LARGE AMOUNT OF CURRENT AGRICULTURE FIELDS
CONTINUATION OF LOCAL CULTURE

W
PREVIOUS LAND USES
POOR LOCAL WASTER MANAGEMENT
WEAK CONNECTION TO HISTORIC CENTRAL CITY
LIMITED INTERIOR WATERWAYS

O
ECONOMICAL BENEFITS FROM TOURISM
BETTER ENVIRONMENT FOR THE FUTURE
TOURISM ACTIVITIES
INNOVATIVE IRRIGATION SYSTEMS
ANIMAL, SOIL, AND WATER REVITILIZATION
EDUCATIONAL SPACES
REMEDIATED AGRICULTURAL LAND
COMMUNITY INTERACTION WITH WATERWAY

T
UPSTREAM POLLUTION
POLLUTED LAND
WATER QUALITY
FLOODING
ANIMAL PREDATORS
BOAT TRAFFIC

LARC 4540 URBAN DESIGN STUDIO
BLA

CU ICAR
Greenville, SC

WDS world design studio

The Green New Deal

The Green New Deal is an opportunity to address the climate and inequality crises and ensure that everyone, everywhere can thrive for generations to come. We need to protect our communities and our ecosystems from climate change, secure a just transition away from fossil fuels, and build equitable, sustainable economies.

CLIMATE CRISIS

Adaptation & Water
Climate change can make it more difficult for communities to provide drinking water and wastewater services, protect water quality, and maintain healthy aquatic environments

Air Quality
Climate changes can make it more difficult for communities to maintain the air quality that protects human health and the environment.

Energy & Building
Buildings are responsible for up to 80% of emissions. The transition away from fossil fuels and into renewable energy and green buildings solutions must be an essential part of all climate action.

Food Systems
By improving how food is produced, processed, transported, and consumed, it can help foster a more sustainable and healthy lifestyle. Food marketing can be used to encourage and inform the public of the benefits while also addressing food loss and waste.

Transportation
Reducing reliance on single use automotive transport can help reduce traffic, improve air quality, and promote a sustainable way of life.

Urban Planning
Better urban planning can promotes development in transit-oriented locations and emphasize affordable housing.

Waste Management
Solid waste management practices have shown that the reduction, recycling, and reuse of wastes are essential for the sustainable management of resources.

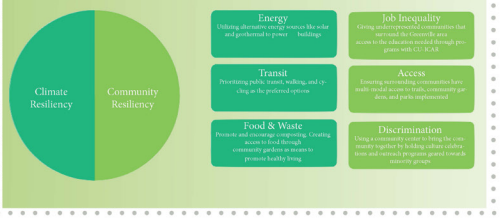
SOCIAL INEQUALITY

Job Inequality
Inequalities within the workplace include shortened work hours, poor work environment, too demanding, and no job security.

Poverty
The state or condition in which a person or community lacks the financial resources and essentials to enjoy the minimum standard of life

Racial Discrimination
Racial discrimination is the prejudiced treatment of an individual based on the color of their skin or their racial or ethnic origin.

DESIGN STRATEGIES

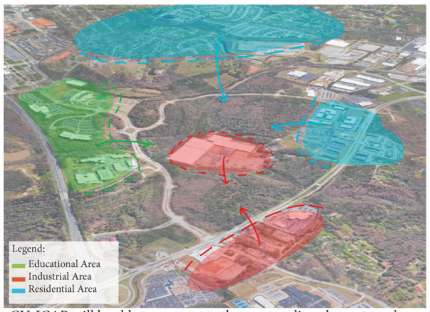


COLOR PSYCHOLOGY

Color psychology is the study of how certain colors impact human behavior. Different colors have different meanings, connotations, and psychological effects that vary across different cultures.

Each proposed neighborhood is going to fit under one of these 5 colors. The neighborhood's characteristics and programming will determine which color represents it the best. The color given will then be used physically in the design process.

SOCIAL & ECONOMIC CONNECTION



CU-ICAR will be able to connect to the surrounding elements such as residencies, schools, and commercial/industrial companies. CU-ICAR should use these elements as strengths in the design process.

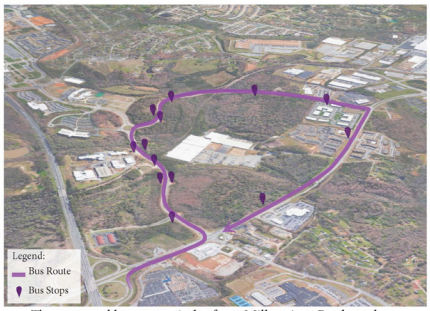
THE 5 NEIGHBORHOODS

The CU-ICAR campus is composed of five total 'neighborhoods'. Neighborhood I is the only piece of land currently completed. Neighborhoods 2 - 5 are still being developed.

PROPOSED CIRCULATION

Campus transportation will be mostly made up of multi-use trails for walking, cycling, or scooters. By pushing vehicles to the outside of the campus, it offers a more eco-friendly and eco-focused experience.

PROPOSED BUS ROUTE



The proposed bus route circles from Millennium Boulevard, to Innovation Drive, and Laurens Road. There will be no routes that cut into the neighborhoods. Bus stops will be provided at the entrance of each neighborhood.

CUICAR Greenville, SC

WDS world design studio

1 The Research Hub

This existing Hub highlights student accomplishments. This hub highlights student-student relations and student-business relations.

Success
Sociability
Confidence

Adaptation & Water · Food Systems · Transportation




PROGRAMMING:
Creating a broad variation of spaces for students and staff to interact with.

GREEN SPACE:
- Outdoor Plaza near Campbell
- Multi-use trails connecting to the Swamp Rabbit Trail
- Make the retention pond more interactive via seating, study areas, and trials

2 The Collaboration Hub

This hub focuses on building relationships between students and the community through the celebration of culture, showcasing of diversity, and by promoting outdoor engagement.

Fun
Friendly
Optimistic

Air Quality · Food Systems · Racial Discrimination




PROGRAMMING:
Creating communal spaces for students to engage and connect with the local community.

BUILDINGS:
- Collaborative Community Center
- Car Company Rental Offices
- Public Art Gallery
- Rec. Center

GREEN SPACE:
- Outdoor Plaza
- Multi-use Outdoor Space
- Outdoor Dining

3 The Green Hub

This hub showcases a series of green spaces highlighting sustainable practices, recreational activities to encourage people to interact with the surrounding environment, and promoting good mental health.

Care
Growth
Nature

Waste Management · Energy & Building · Poverty




PROGRAMMING:
Creating green spaces for students to learn more about and engage with the environment.

BUILDINGS:
- East End Market
- Material Reuse Factory
- Energy-Design Center

GREEN SPACE:
- Natural Outdoor Plaza
- Community Edible Garden
- Botanical Garden
- Outdoor Multi-use Space
- Hammock-Share

4 The Co-Tech Hub

The Co-Tech hub emphasizes students and business relations by highlighting and encouraging networking, career certainty, and education. This space will feature a more formal collaborative space while also reducing emissions through alternative energy practices.

Powerful
Daring
Determined

Urban Planning · Transportation · Job Inequality




PROGRAMMING:
Creating a formal space for students to engage with and explore businesses.

BUILDINGS:
- Student Services Building
- Business & Analytics Complex
- Computer Lab & Classrooms
- Multi-modal Transit Facility

GREEN SPACE:
- Outdoor Smart-Tech Dining
- Outdoor Plaza
- Outdoor Study Space

5 The Innovation Hub

With a focus on innovative sustainable water and energy practices, this hub works to create a healthy work-play environment through creative work spaces along with exercise spaces.

Creative
Imaginative
luxurious

Adaptation & Water · Waste Management · Poverty




PROGRAMMING:
Creating a creative space for students to collaborate, engage, and brainstorm.

BUILDINGS:
- The Learning Loft
- Creativity & Innovation Center (CIC)
- Innovative Manufacturing & Design

GREEN SPACE:
- Outdoor Plaza
- Car & Public Art Lawn
- Pavilion