The Space Between Cities: Redefining Urbanization in The Hudson Valley

Fall 2018





URBAN DESIGN PROGRAM Kate Orff, Director David Smiley, Assistant Director

FALL SEMESTER STUDIO Lee Altman, Justin G. Moore, Studio Coordinators Wendy Andringa, Jerome Haferd, Christopher Kroner, David Smiley, Studio Faculty Michael Murphy, Liz McEnaney, Nans Voron, Expert Advisors Niharika Kannan, Sofia Valdivieso, Research Assistants

THE HUDSON VALLEY INITIATIVE Kaja Kühl, Director

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THE SPACE BETWEEN CITIES: REDEFINING URBANIZATION IN THE HUDSON VALLEY

Narratives of the Hudson River Valley often begin with the histories of pioneering European settlers that started making their marks on that landscape over 400 years ago, supplanting indigenous peoples, or of the American revolutionaries who did the same 175 years later. In the early 19th century waterpower from tributary streams yielded new factories with new residents and dramatically changed life in the Valley. Transportation infrastructures – the Erie Canal in 1812, the Hudson River Railroad in 1849, and the ever-growing network of roads and bridges, brought industry and economic prosperity to the region and to the Empire State. Each of the region's resources is in some way marked by its proximity and accessibility - or lack thereof - to New York City, a global "capital of capital" and the undisputed core of the American Northeast "Bos-Wash" megalopolis.

The prosperity of the region and its small cities, however, was and remains precarious. After decades of industrial growth in the Valley, early and mid-20th century changes to transport, industry, and demographics have decimated Main Streets and farming districts. Cities such as Newburgh, Kingston, and Poughkeepsie slowly shed population, jobs, investment, and the social networks necessary for community well-being. Mid-century responses to change were often equally destructive, when struggling neighborhoods – typically low-income and minority communities – were subject to demolition in the name of "renewal". At the same time, local farms struggled to compete with factory farms and nationally scaled agribusiness. While some places have managed to stage "comebacks," income, employment, education, and real estate data show that disparities continue to increase, both in the Valley, and nationally.

Today new "pioneers", often white and middleclass, are finding their way up the Hudson River to cities like Beacon and Hudson, looking for places of opportunity: access to resources, the promise for growth, and a higher quality of life at lower costs. At the same time, people who have lived in the Valley and its cities for generations and those who live there by necessity rather than by choice, are also striving to make their cities better places to live, work, and thrive. This variety of people, purpose, and perspectives makes the region both diverse



and dynamic, but can also manifest itself in challenging inequalities. A place's identity can shift quickly from high-crime inner city to a postcard picture of "sustainable" pastoral life, local organic farm-to-table bliss, within commuting distance of New York City.

The Hudson Valley region and the city of Hudson were the subject of the urban design studio at Columbia University Graduate School of Architecture, Planning, and Preservation in the 2018 fall semester. This publication shows a summary of the students' designs, each proposing a new way of approaching questions of urbanization, community investment, and long-term change. Working in the city of Hudson and Columbia County, student teams have developed proposals for urban design strategies that draw on a range of topics and illustrate visions for improved spaces, places, services, and opportunities for the region's residents, economy, and environment. The semester-long studio's research and design work engaged with the multiple and often conflicting voices, communities, and agencies that make up any social agglomeration.

Central to the studio is the idea of a situated practice, building on the knowledge and expertise shared by local actors and stakeholders, as part of an effort to build lasting partnerships. We hope these projects can contribute to ongoing conversations, and that the work can promote more collaboration and communication between all those seeking equitable change in their community and across the Hudson Valley region.

With gratitude,

Columbia University Urban Design Fall Semester Studio Faculty Team

Site visit and workshops, September 2018

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Site interaction: student-designed street engagement activity, October 2018

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Exhibition and video screening at Hudson Hall, December 2018

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APPLETOPIA





Student Projects

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ROOM TO GROW FARM



ROOM TO E

A model for affordable urban and agricultural development in the Hudson Valley

Alexandra Burkhardt, Greg LeMaire, Bohong Zhang, Wenjun Zhang

Room to Grow questions traditional land value models and proposes an alternative that values land based on affordability and access for local residents.

In Columbia County and the City of Hudson, rising land value and increased tourism have put economic and social pressures on local farmers and residents. As a result, farmers are struggling to access high-quality, affordable land and residents are being priced out of the city and surrounding area.

Our project addresses these issues of displacement and access by establishing a symbiotic ecosystem between farmers and locals that strengthens the agricultural economy and improves access to food and housing.As the catalyst for a new urban-rural development model, we propose two initial sites - a one block span along Prison Alley in Downtown Hudson and a 75-acre farm two miles outside of the city physically connected by an existing underutilized rail line.

By activating underutilized spaces at the urban, rural, and corridor scales and establishing a direct connection between them, Room to Grow creates new spaces for housing, farming, and food access, and improves the connection between the City of Hudson and Columbia County.



ALLEY-GATOR Modules -UNDADA COLUMBIA PRODUCE PREPARATION & STORAGE EDUCATION CENTER & RESTAURANT FARM FLEXIBLE FARMBNBs POLICY + PROGRAMMING PARTNERSHIPS ALLEY-GATOR DISTRIBUTION NETWORK Ets Ba.A al

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HUDSON Food Hall & Market

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THE ALLEY AG DISTRICT Accessory farming unit typologies

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AMPLIFY HUDSON

MEDIA PLATFORM AS A CATALYST FOR AN INCLUSIVE COMMUNITY

BY MARIAM HATTAB, BERKE KALEMOGLU, ASHLEY LOUIE, DAVID MAURICIO & RYAN PRYANDANA Columbia University / Graduate School of Architecture, Planning & Preservation / Urban Design

The City of Hudson needs an equitable strategy to communicate with and represent its people. Residents deserve the right to greater transparency in decisionmaking and improved access to community resources. Participatory journalism provides a vehicle for citizens to democratically voice their opinions and to exercise their first amendment rights to the freedom of speech, press, assembly, and petition.

On Saturday, October 13th, 2018, we interviewed passersby on Warren Street, the main street of Hudson, and at Providence Hall, a low-income apartment complex. Although only a few blocks apart, the social life of the two places is very different: Warren Street has active and leisurely weekend foot traffic, while the open spaces outside Providence Hall generates little activity.

Out of the 36 people interviewed in Hudson, 52% of respondents were visitors, 28% recently moved to the area, and 19% were long-standing residents. As the City of Hudson continues to evolve, development brings unequal benefits, facilitating easier access to land and amenities for some, while compounding challenges for others. Many current residents advocated for more affordable housing as well as improved sidewalks. A



Bard College alumnus and recent arrival, stressed the need for more public conversation, where participation could allow citizens' voices to be heard: "I think there's been anger in the community here, that [sic] the development plans are kept away from the community."

"development plans are kept away from the community"

While the City of Hudson received a \$10 million New York state grant in 2018, and the Hudson Housing Authority plans to build new affordable housing units, residents still feel excluded. A Providence Hall resident noted that people visiting Warren Street "don't even know we exist," and even worse, added, "you don't feel like you're part of [the changes]."

"you don't feel like you're part of it"

In response to what many residents see as poor communication, *Amplify Hudson* uses media as a platform to catalyze and create spaces for community engagement that unite people with each other and to the waterfront. Amplify Hudson partners with consists of a Media Workshop, a Civic Platform, and a waterfront reflection overlook.



At the west end of Warren Street, where a 1960s shopping mall now sits, the new Media Workshop will provide opportunities for people to share their opinions, stories, and ideas with each other and with the public. The Media Workshop is comprised of a collection of input spaces, including a writing center, a computer lab, radio and audio studios, arts studios, maker and fabrication spaces, and classroom learning spaces. These publicly accessible spaces are located on the ground level and lower floors of the center, with affordable multifamily units above. A public path that winds through the building connects these spaces with Warren Street. Everyday media production is integrated with educational opportunities to empower resident advocacy and skill set improvement.

To the west of Front Street, the Civic Platform is a place where government, citizens, and local organizations can meet. A stage, a digital screen, an audio-visual archive, and a broadcast studio amplifies outputs of the locally created participatory journalism. The elevated meeting room and public gathering space invites the public into the decision-making conversation and process, while also reestablishing access to the waterfront.

Amplify Hudson celebrates the diverse voices of the city and the valley and envisions a democratic space which empowers individuals and encourages inclusive community.



The *Growth Corridor* better connects the region, and provides better services through mobile programs, while creating civic spaces along the hamlets. It strengthens the Upper Hudson Valley counties by connecting to Albany metropolitan region.

- Amtrak (represent Public Transportation)
- O Hospitals (represent Health Care Services)
- Walmarts (represent Market Areas)
- Catchment Areas

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Big Box Retails

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- + Post Offices
- Amenities
- Significant Blodiversity Areas
- Flood Zone by 2100 (6lt Sea Level Rise)

ALBANY-HUDSON GROWTH CORRIDOR

A new pattern of regional development.

Richard Chou (hc3039@columbia.edu), Lorena Galvao (lbg2137@columbia.edu), Jinsook Lee (jl5221@columbia.edu), Pei-jou Shih (ps3054@columbia.edu)

Our team proposes a Growth Corridor to concentrate the future and currently dispersed growth in the Upper Hudson Valley, including Albany, Rensselaer, Columbia, and Greene counties.

Today, the Hudson Valley is losing farmland, forests and open space that support the regional food systems as well as its value as a rural and pastoral landscape. This is primarily caused by suburban development. Sprawl creates substantial challenges for public amenities, services and equitable transportation. The growing and expanding population in the Albany metropolitan region threatens to worsen land use pattern cause by sprawl. The Upper Hudson Valley must adopt effective ways to protect its ecosystem while strengthening existing communities. We ask: "How do we create a balance between healthy and productive growth and healthy and productive communities?"

ALBANY

HUDSON

The *Growth Corridor* projects a sustainable development over the next 100 years; this growth will be focused yet flexible, connected to transportation and services, and allow access to recreation and open space. The corridor consists of two armatures: Route 9, a regional commercial route, and the historic, and now abandoned, Albany Hudson Electric Rail line and right-of-way that once joined many small towns in the region. Existing roads will link the two routes.

Route 9 will be re-platted to address emerging shopping patterns based on smaller and more diverse stores and plazas but the new primary infrastructure of the *Albany-Hudson Growth Corridor* is the converted old trolley line. The right of way is converted into a new civic greenway programmed as both a recreational connector and a mobile service delivery route. The greenway is made of pedestrian and bike routes, connecting local public spaces, parks and institutions but, as the same time, also providing spaces for a new system of service delivery vehicles – from mobile health services, to mobile Wal-Mart vans, to mobile libraries. Along the greenway, vehicle hubs will become new temporary service sites as well as civic and recreational gathering spaces.

With the *Growth Corridor* in place, the Upper Hudson Valley region will grow sustainably in the next few decades, concentrating new housing and social life along the corridors while preserving open space and farmland outside the Corridor. The *Albany-Hudson Growth Corridor* enables better connections to the Albany metropolitan region, focusing development, and maintaining the rural character of the region.









4. stopping at new civic centers to provide services





"Post-Box Urbanism" is a speculative investigation about rethinking the concept of civic spaces along the suburban big box corridor of Fairview Avenue just north of Hudson. Civic space is not necessarily just public space. Private spaces often performs as civic spaces. Big Box typology, for instance, provides a high level of free access, but lacks space for interaction. The Fairview Avenue corridor is a car dependent landscape surrounded by vast asphalt and underutilized surfaces.

We propose a network of civic spaces created by reshaping and connecting the array of big box and strip mall complexes along the corridor. We see an opportunity to implement several strategies to maximize the potential of the corridor. We propose an increase in mobility options by introducing a shuttle bus, shared car system and a network of pedestrian paths. Each complex will have a designated multi-modal stop where these services will be clustered. Within walking distance of each stop will be a primary anchor program along with access to a food markets, healthcare, and civic spaces. Our objective is to shrink the footprints of the existing big boxes, strip malls and parking lots through the introduction of several site specific techniques.

We are intervening Big Box typology through the three 'Ps': Part, Peel and Puncture. The purpose is transform Big Box complexes into vibrant urban spaces by reacting to site specific conditions.

Corridors like Fairview Avenue are common place country wide and serve a large percentage of the United States population. This strategy aims to reshape big boxes to provide community oriented services and civic spaces. The US is covered in these careless suburban design patterns and "Post-Box Urbanism" can begin to repair this broken system.





















FoodBay

A new food infrastructure for the Hudson Valley

Huiwon Hong, Jianqi Li, Tanaya Kadam, Zeyi Jiang

FOOD BAY is a new model for the regional foodshed, joining small-scale farms with local and regional markets. Since more and more farms in the Hudson Valley suffer from insufficient or obsolete infrastructure as well as lack of affordable access to marketing opportunities, the HUDSON CITY FOOD-BAY proposes a new sharing economy, sited along the historic waterfront, to enhance and join farming, production, and distribution. A new food hub benefits local residents and farmers, as well as tourists, enhances waterfront viability and, at the regional scale, sets up a distribution system using the Hudson River once again as useful infrastructure.

Historically, agriculture was central to many communities in the Hudson Valley, and supported many sub-sector infrastructures such as storage, processing, distribution, equipment and even banking. In recent years, however, food deserts have emerged as part of the long-term disinvestment that has made life in the Valley hard for many residents. Part of this decline has been the declining profitability of the region's many small farms, and the disappearance its necessary infrastructures. So too have Hudson Valley waterfronts declined. Once home to commercial markets, warehouses and docks, the waterfronts were eclipsed by railway, and then highway, systems.

The Hudson City Food-Bay creates a new hub or node in the regional food system. It connects individual growers with distribution operations at the waterfront. More broadly, the Hub opens up the bottleneck between farmers and markets by creating shared processing and distribution operations, enabling micro-food businesses, teaching new food-related skills, and offering locals and visitors access to healthy, locally-produced food. The Food-Bay dramatically activates the Hudson City waterfront and reconnects the city with the river.

At the regional scale, the FOOD-BAY "Floating Farmers Market" connects Columbia County farmers to other cities in the Valley and even to New York City, creating a more diverse and sustainable HV food system.









APPLETOPIA

REVITALIZING APPLE INDUSTRY IN HUDSON VALLEY

DIAN YU, PEIQING WANG, SHUYUAN LI, YINZHE ZHANG

Apples form one of the most iconic industries of the Hudson Valley. However, apple orchards have experienced a drastic decrease of 26% in the past 20 years due to increasingly unaffordable operating costs, labor shortage, a lack of facilities, waste disposal, etc. For the remaining orchards in the valley, two existing models promise economic sustainability: "pick-your-own" farms and hard cider tours.

Based on these trends, we propose to build upon the apple industry's more public aspects, taking advantage of existing infrastructures. Our proposal consists of (i) a series of multi-functional "hubs", constructing for making apple processing and added value products and providing professional training; (ii) an expanded hard cider company allowing the apple picking participates the public in the cider making process; (iii) a trail system tying together these two components plus apple follies celebrating the apple culture.

By adapting to contemporary models that combine agricultural production with experiential participation and recreation, the Hudson Valley's iconic apple industry can reinvent itself as an economically viable, environmentally sustainable, and socially engaging, while remaining an integral part of the valley's identity.





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RAIL

RENOVATION



DAIRYSCAPE REVERSING THE NET NEGATIVE ENVIRONMENTAL IMPACT OF THE DAIRY INDUSTRY

Shivani Agarwal I Hsin Yi Chao I Huang Qiu I Shouta Kanehira

Dairyscape envisions a new dairy industry in the Hudson Valley that manages livestock, land, processing, waste, and distribution in ways that are healthy, equitable and sustainable over the long-term.

Dairy has historically been a key industry in the Hudson Valley Region. For the past several decades, however, the number of dairy farms in the region has been in steep decline. Many of the small and medium sized dairy farms cannot remain profitable due to land development and urbanization and, at the industry scale, to the low milk prices set by the federal government for what is called the North-eastern Milkshed. Equally problematic, the industry contributes to environmental pollution from manure and methane.

The Dairyscape is based on a new processing geography centered on a system of Hubs that join farms, processors and distribution. The new system manages dairy operations, processes waste for re-use, and enables marketing that upsells and cross-sells products. More specifically, the Dairyscape infrastructure uses methane and manure as the basis for new industries: biogas, fertilizer, cow pots and, more broadly, to develop new landscape management methods, while also delighting cows and people. Through this new organization, Dairyscape will reverse the net negative environmental impact of the industry and improve the long-term viability of dairy in the Valley.

We hope to give new life to the dairy industry, and thus the Hudson Valley's contribution to the region, by reshaping its footprint and enriching its productive and profit-making capacities.

Fading Away

FACTORY FARMS

Transport Pollution

FACTORY FARMS







CONCEPTUAL IDEA BEHIND THE HUB

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A regulated milk price in the North eastern Milkshed critically affects the dairy farms.

MILKSHED PRICE

Methane _____ The dairy industry is a major contributor to pollution due to the methane and manure produced by the

DAIRY F

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Urban Design Tools and Conditions for Community Intervention

Angela Crisostomo / Junyu Cao / Shuo Yang / Yanli Zhao

This project explores **biodiversity** as a central theme in developing **ecosystem resilience**. According to the **2018 WWF Living Planet Report**, the population of known living species have **declined by 60% in the last 50 years**. This massive and continuing loss of **species diversity** threatens vital **ecosystem services** including food security, medical treatments, coastal flooding and sea level rise mitigation, among many others.

The biggest threats to biodiversity are **land conversion** and **habitat fragmentation**. Two **global policy initiatives** are underway in 2020 to address biodiversity challenges – the UN Sustainable **Development Goals** and the **Convention on Biological Diversity**. But to create real **impact**, issues of **land conversion** and **habitat fragmentation** need to be addressed at **regional** and **local scales**.

This project addresses a **global condition** of **destructive urbanization** by providing **locally applicable tools**. Co-habit creates a **planning and design toolkit** called **Biodiversity [+]** to help local communities understand **local conditions** and **take action**. The **toolkit** consists of an array of **design interventions** deployable at **various scales**, **site conditions**, and **contexts**. It serves as a resource for local governments, civic groups, and individuals to **create change** in their farms, waterfronts, cities, and regions.

As a case study, we deployed these **design interventions** in **Hudson City** to envision a more biodiverse scenario for the **Year 2030**. While the design interventions are deployed as **tactical solutions** for **site specific conditions**, the greater **strategy** of integrating **corridors** and **co-habitats** in the urban fabric is meant to go beyond **Hudson City** as part of a larger and more **resilient network** of **healthy ecosystems**.

SCRUDE

From Right-of-Way to Trailway

Alexandros Hadjistyllis, An Donghanyu, Devaki Handa, Sharvi Jain

Over 65% of the world's oil pipelines run through the United States – one of many metrics demonstrating the country's dependency on the oil industry.

In the Hudson Valley, a new two-way pipeline is being planned – called the Pilgrim Pipeline – to carry fracked North Dakota crude oil from Albany to refineries in Linden, New Jersey, across the Arthur Kill from Staten Island and, in the other direction, sending refined petroleum for distribution to the North-East region.

The pipeline runs three feet below the surface and almost 80% of the easement runs along the NY State Thruway, running parallel to, and sometimes near, the Hudson River. The pipeline runs through various sites and ecological conditions along its length, creating a 50-foot cleared right-of way. Such sites include forests, agricultural lands, utility corridors, water bodies, urban areas, and pump stations. For each one of these typologies we came up with strategies to identify, mitigate, and expose the risks of potential oil spills. For example, in the case of water bodies we use pneumatic tubes, also called a bubble curtain. During the process, air bubbling through a perforated pipe causes an upward water flow that contains the spread of oil.

Our project envisions the cleared corridor as an ecological and recreational trail, allowing new uses and new users; the trail becomes a landscape asset in the Valley rather than a nuisance to cope with or endure.

The new trail system explores the aforementioned six land uses through which the pipeline crosses. We show alternative and additional uses for these sites, using recreational, environmental and ecological methods, while helping raise awareness about the pipeline.

GREEN INFRASTRUCTURE TOOLKIT

RAIN GARDENS WITH DETENTION TANKS

PERMEABLE PAVERS

GREEN ROOFS

RAIN BARRELS

STREET TREES WITH ENHANCED TREE PITS

SITE OUTDOOR INSTALLATIONS

GREEN READING ROOM HUDSON LIBRARY SITE

GREEN EDUCATION ROOM JOHN.L.EDWARDS ELEMENTARY SCHOOL

GREEN ENTERTAINMENT ROOM

COMBINING STEWARDSHIP AND OVERFLOWS

CONVERTING THE PRACTICE OF STORMWATER MANAGEMENT TO A COMMUNITY BUILDING EXERCISE

Alaa Marrawi, Amanpreet Duggal, Aniket Dikshit

Most major cities in the Hudson Valley region have an outdated sewer system that combines sewage and storm water in a single pipe. These pipes are prone to overflow during times of heavy rainfall. Consequently, it caused uncontrolled discharges of raw sewage and runoffs into the Hudson River. . During a typical year, the City of Hudson experiences 86 Combined Sewer Overflow (CSO) events, rendering large areas of the river unusable for recreation and causing habitat impairment in parts of the protected wetlands along its riverfront.

The City of Hudson has already started implementing a Long Term Control Plan (LTCP) as a requirement from the Federal Environmental Protection Agency and the State's Department of Environmental Conservation for the cities that have the CSO issue. The strategy is targeting to upgrade the greywater infrastructure, however, these improvements will likely result in increased volumes of surface runoff flowing into the wetlands and river.

To augment the city's LTCP we propose a Resilient Long Term Control Plan (RLTCP) which will be an environmentally conscious alternative to the LTCP. Our mission is to create a resilient community integrated plan to reduce stormwater runoffs and combined sewer overflows in the Hudson River. The project will create a network of active green public spaces in the city that will link its urban fabric to the proposed trail in the North Bay as per the North Bay Conservancy plan and will be implemented through a community stewardship program. The program will be tested in three pilot sites: Edwards Elementary School, Hudson Public Library, and the Hudson Farmers Market. The key to this process is public participation. The process can eventually be scaled up as a resilient social strategy for storm water management in the larger Hudson Valley region.

ENERGY BLOOM

The City of Hudson - The New Energy Pioneer

An Urban Template for a Local Power Culture

ENERGY BLOOM

A New Local Renewable Infrastructure... Algae Carolina Godinho, Adi Laho, Keju Liu, Maria Palomares Samper

What if we told you there was an alternative renewable source that could make energy FREE in **Hudson Valley?**

What if you found out your backyard could be part of a new power system supplying the City of Hudson?

Our project, Energy Bloom, taps into algae, a simple plant-like photosynthetic organism that can create fuel and help build an independent grid. Through industrial sites, new infrastructure, wetland conservation, and public space integration we can reconnect people to their Hudson; redefining what industry looks like.

We are all dependent on energy and when our supply is cut off, we are vulnerable. Every year, thousands of New Yorkers experience electricity outages due to an obsolete infrastructures, distant management, predatory pricing and now more evident than ever, climate change.

While much of New York's electricity is produced in-state, most is purchased from Canada's vast hydropower network. When it reaches our state, an aging infrastructure and outmoded regulations perpetuates this unequal system: a downstate region massively consuming and an upstate region overproducing renewable energy. Worse, the central Hudson Valley region has, on average, the nation's highest electricity bills. Energy Bloom looks elsewhere for a reliable, sustainable energy supply ... in algae.

Typically, algae and algae blooms are considered a problem, and when unmanaged, a serious liability. The same algae however has unique qualities that can be exploited affordably and locally. New technologies for cultivation, processing and creation of biomass energy offer new possibilities for energy.

Energy Bloom consists of a series of new and reused industrial sites. Many of these sites, along with a new algae infrastructure, create a new system of energy for the City of Hudson. An algae Trail links waterfront wetlands to cultivation and handling stations across the city, and create new public spaces at various locations. In particular, photo-bioreactor structures, in different sites and under different conditions, seasonally transform into a range of new uses, from playgrounds to streetlights.

The Energy Bloom network, over time, will nurture local action and self-reliance, create a social infrastructure alongside a physical system; complementing a larger system at regional and state levels. The energy industry will be transformed to become a full part of community life. Reconnecting people more directly to their vital resources will redefine the energy industry and become part of a vibrant local community power culture.

WE WOULD LIKE TO THANK:

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Stay in touch with us on social media Twitter | @ColumbiaUD Instagram | @columbia_hvi

Columbia GSAPP Urban Design class of 2019

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