Faculty affiliated

Transportation
Architecture
Urban Planning
Civil & Environmental Engineering
Policy
Urban risk & resilience
Resilient housing
Real estate
Technology
Environment fluid mechanics
…
Public Symposia, Books
Biennial Theme: first INFRASTRUCTURE, now THE FUTURE OF SUBURBIA
Exhibitions and Cultural Events
Research areas

CLIMATE ADAPTATION URBANISM

HEALTH + URBANISM

TECHNOLOGY + URBANISM

AUTONOMOUS URBANISM

African Urbanism, Environmental Urbanism
CLIMATE ADAPTATION URBANISM

HEALTH + URBANISM

TECHNOLOGY + URBANISM

AUTONOMOUS URBANISM
African Urbanism, Environmental Urbanism
DECADE of DESIGN

Health and Urbanism
LOS ANGELES

**POPULATION:**
3,857,799 in City of Los Angeles; 12,828,837 in metro area

**DENSITY:**
8,225 people per sq. mile; 2,615 people per sq. mile

**MAJOR HEALTH ISSUES:**
Los Angeles County ranked as having the worst air quality nationally; 14% of school-age children likely to have asthma; Four of the top ten worst congested corridors in the nation are in Los Angeles; 80% of Los Angeles workers commute by car, only 10.2% by public transit, 0.6% by bicycle, and 3.6% by walking; 12% spend more than 60 minutes commuting, average time is 29 minutes (both above national average)

**FUTURE:**
Population is expected to reach 14 million by 2025

Opposite: The ten lane highways of LA spew extensive air pollutants to adjacent areas.
Photo by Alan M. Berger

4,849
SQ MILES
(LA + Orange County Only)

12,828,837
POPULATION

$40B
IN NEW CITY TRANSIT LINES
AIR POLLUTION AND LAND USE PLANNING
LOS ANGELES METROPOLITAN REGION

TRANSIT ORIENTED DISTRICTS
INCORPORATED IN 2005 GENERAL PLAN

- "1/2 MI zones encourages infill
development, pedestrian-friendly and
community-serving uses near transit stops.
The goal is to encourage walking, bicycling,
and transit use."

DIESEL

- 0-5 ppm (national EPA standard)
- 5-20 ppm (4x EPA standard)
- 20-50 ppm (10x EPA standard)
- 50-160 ppm

PPM 2.5

- 0-12 ppm (California EPA standard)
- 12-15 ppm (national EPA standard)
- 15-21 ppm

highway
congested highway
INRIX top congested corridors 2011
highway pollution buffer 200m
LA Typology #2: Station Adjacent to Frwy

Similar to typology #1, high density development and Active Landscape (for recreation) is pushed to one side of the TOD 1/2 MI radius. In this way, residents and visitors are not clustered in high densities near freeways, but rather outside of the 300M and 500M particulate zones when spending time at public parks or residential developments.

LA Typology #3: Station Adjacent to Frwy Interchange

In this typology, the Passive Landscape strip takes an L-form to soak up harmful particulates and shield a smaller wedge of high density development from harmful air pollutants.
CLIMATE ADAPTATION URBANISM

HEALTH + URBANISM

TECHNOLOGY + URBANISM

AFRICAN / GLOBAL SOUTH URBANISM
2.5 MILLION INHABITANTS IN THE NEW YORK & NEW JERSEY METROPOLITAN AREA LIVE IN THE FLOOD ZONE
75% OF THE NET ANNUAL POWER GENERATION IS IN THE 100 YEAR FLOOD ZONE.
SOCIAL VULNERABILITY

66%

OF THE MOST VULNERABLE COMMUNITIES LIVE WITHIN A 1/2 MILE OF THE FLOOD ZONE
## MULTIPLE RISKS AND VULNERABILITIES

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- **85%** of the regional historic wetlands has been developed or lost.
- **2.5 million inhabitants** in the New York & New Jersey metropolitan area live in the flood zone.
- **66%** of the most vulnerable communities live within a 1/2 mile of the flood zone.
- **80%** of the regional fuel storage is in the flood zone.
- **75%** of the net annual power generation is in the 100 year flood zone.
TOWARDS A DELTA OF RESILIENCY DISTRICTS

MIT+ZUS+URBANISTEN
75B + DELTARES + VOLKER INFRA
1. INCREASE LANDSCAPE ABSORPTION CAPACITY
2. MULTIPLY EVACUATION ROUTES
3. CONSOLIDATE PUBLIC DISTRESS AMENITIES
4. MIX LIGHT MANUFACTURING AND LIVING
PRODUCTIVE CITY AND REGIONAL TIDAL
The proposal offers primary protection against flooding. An elongated green infrastructure 3rd generation berm with occasional gates, along the edges of the Meadowlands and most of its developed areas will protect against flooding from surges coming in from the Atlantic Ocean. Within the protected areas, several substantial fresh-water basins will absorb rainwater flooding, substantially reducing the storm water run-off into sewer lines, and therefore almost eliminating local rainwater flooding from sewer overflow.

An absolutely critical and innovative element is design integration. Designing both systems in full integration with other parts of the area (transportation, ecology, development) will bring benefits to both wildlife ecology and economic development that otherwise remain unaccounted for. Integrated design will allow for the various past and ongoing marshland restoration efforts by the Meadowlands Commission to become connected and legible as one large, regional wildlife refuge, to be made accessible at appropriate places for visitors. We propose to call this the Meadowpark. Integrated design will also allow for this large reserve to act as a major value adder and opportunity for the surrounding development areas. We propose to call the key element to this integrated design the Meadowband.

The Meadowband is a civic amenity consisting of a local street, a Bus Rapid Transit-line, and a string of public spaces, recreation zones, and wildlife reserve access points on top of the outer berm and its slopes. The Meadowband is the missing link in the Meadowlands basin: a public space that mediates between the different systems (ecology, development) and the different scales (very local to interstate). In doing so, it provides a critical connective tissue on the scale of the Meadowlands itself – literally taking on the scale of the protection infrastructure. We envision that the audience for this linear, meaning amenity consists of the inhabitants of the existing towns, the residents in new residential developments aligning the Meadowband, as well as tourists and visitors from the region, seeking access and recreation at what will be its biggest regional park.

The fundamental principle of this project is a new grand bargain. In order to be worthy of substantial federal investment in protecting land from future flooding, it is imperative to use that land more effectively. That means we propose shifting from a suburban-type land-use zoning (single story, freestanding, open-space parking around structure), to a more urban-type land-use zoning. Single-story warehouse zones should be up-zoned to become multi-story; areas around the Meadow...
Relation with existing Infrastructure and Development

The Meadowband will connect to train transit stations currently in the area and may inspire the decision-making for future locations of new ones. Along any such intersection, FAR and density should increase to establish a pedestrian-based, transit-oriented development. Substantial residential development would deserve priority to capture a portion of the residential development pressure in the area. Current stations are mostly along the western edge (Kingsland, Wood Ridge, Harrison and Meadowlands Sports Complex stations of Path), as well as West Side HBLR Station in Jersey City and Lautenberg Station in Secaucus.

Along the eastern edge, the Meadowband will occasionally run a few hundred feet west of train lines and spurs. These belong to the broad logistics and supply chain system flooding the Meadowlands. The masterplan proposal includes measures to strengthen this axis and develop the logistics and supply chain system more intensively along the eastern edge. Revisiting the New York New Jersey Port Authority study for a series of “portways” – large distribution hubs – would be appropriate. At specific points, there is conflict in space use between supply chain functions (along railroad and road) and residential needs (near mass transit stations). For these locations – e.g. Lautenberg station – a sectional solution should be investigated in which the first 60 ft. (from the ground up) are reserved for supply chain functions, but a decking solution at that line, could provide for the insertion of residential development opportunities atop these locations.

The Meadowband will also allow for almost continuous and universal access to the regional Meadowpark and its bicycle and pedestrian trails.
Exploded Axonometric showing the greater meadowlands area, the 6 areas within the Meadowlands for project definitions, and the 3 pilot areas.
The missing link
The oldest, most affordable yet most successful public space of almost any city is a street. A great street offers the most iconic views, the most important addresses—and of course also access to different neighborhoods. The Meadowlands does not have such a street. We propose that a simple street go consistently around the outer edge of the Meadowpark. Walking or driving clockwise, a resident or visitor will always have the park on the right, and a sequence of existing neighborhoods and new developments on the left. The street would provide access to both sides. It would connect currently disparate fragments and take advantage of the adjacencies and proximities between different fragments of the Meadowlands.

Streets today in the Meadowlands are either local within a municipality, or, if they exhibit continuity across towns, have been developed on both sides. As a result, the open space (park) system currently in place is rather invisible. Current open spaces in the Meadowlands abut the backsides of properties. This reduces the visibility and accessibility of the open space system and effectively removes it from public view. The current section—street—marsh, needs to be turned around. A more appropriate section is property—street—marsh/park. With this simple flip, the park is suddenly visibly, developments suddenly have a park address, the street provides a scenographic experience of ever-changing park landscape on one side, and ever different neighborhoods presenting themselves on the other side of the street.

The Meadowband would provide a form of intermediate connectivity and act as a public space on the scale of the Meadowlands, an icon that generates park access, an understanding and legibility of the basin as a whole. It would allow for adjacent towns and neighborhoods to be connected without the need to move to a higher-order transportation system; for cars, mass transit, bicycles and pedestrians. The proximate principle begins to work, and the various parts of the Meadowlands start adding value to each other: the park makes the neighborhoods more valuable; park access make the park more valued; some local circulation is taken off the major limited-access highways. A new public boardwalk starts to draw both inhabitants and visitors.

Boardwalks fail when there is not sufficient human presence, leading to a sense of insecurity to the few visitors walking, running or biking on it. The team wishes to underline that the provision of a local street along the boardwalk diminishes that risk, and increases passage, flow and visibility on the Meadowband. The street operates as a safety mechanism, guaranteeing public access and continuous visual supervision and escape routes.
Meadowband Segments

Overview of different occurrences of the Meadowband as it encircles the Meadowpark.
AUTONOMOUS URBANISM
African Urbanism, Environmental Urbanism
ENVIROMENTAL CONTEXT
Village Structure
VERTICAL INTEGRATION
Example with Meat Production

40,000 METRIC TONS OF CORN
AND
FEEDS ~4.8 MILLION PEOPLE CHICKEN
@6.8 KG OF CHICKEN PER CAPITA (projected for Ghana in 2013)
OR
300,000 PEOPLE BEEF
@10 KG OF BEEF PER CAPITA (Ghana meat consumption in 2002)

80,000 METRIC TONS CORN
ANNUALLY

50% FOR EXPORT

50% FOR MEAT PRODUCTION
1.2 LBS CORN = 1 LB CHICKEN
13 LBS CORN = 1 LB BEEF
1. Village Buffer Zone
   1km buffer for potential growth of existing community system
2. Transition Zone Plots
   Intermediate area between village and city grid
3. Settlement Grid System
   Farmstead land certificate plots
CLIMATE ADAPTATION URBANISM

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AUTONOMOUS URBANISM

African Urbanism, Environmental Urbanism
SMART MARKET
PROPOSAL FOR A CONTEMPORARY INFORMAL MARKET USING DIGITAL FEEDBACK SYSTEMS
**Shared Space**

Shared space is an important concept in urbanism. It means that one space can be used in a plurality of different ways by sets of completely different groups. Its realization has proven difficult, because until recently, every use has required its own apparatus of signs, physical elements and obstacles. These have tended to conflict with each other and made the effective sharing difficult if not impossible. The micro-rentals space concept removes this impediment. Who will build it first?
SMART MARKET
Brussels Urban Plaza

tiles 1,5m x 1,5m
SMART MARKET
Intelligent tile

- LED LIGHTS
- WEIGHT SENSOR
- ELECTRICITY

<COLOR CODE>
- RENTED
- AVAILABLE NOW
- AVAILABLE WITHIN 2H
- RESERVED FOR NEXT 3 DAYS

<ARRANGEMENT>
MICRO RENTALS: A NEW CONCEPT TO REINVENT SHOPPING IN ADVANCED ECONOMIES

Registration of space-use happens automatically with a weight-pressure sensor. Payment occurs through an app or an on-site rental screen.
ZOOM-IN

Market scenario
Parking scenario