

*This Lecture has been divided into three parts:
This file is Part 2 of 3*



ARCH 1250 APPLIED ENVIRONMENTAL STUDIES

CLASS SIX SITE BIOLOGY

John Seitz, RA, LEED AP
Adjunct Assistant Professor

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SITE BIOLOGY

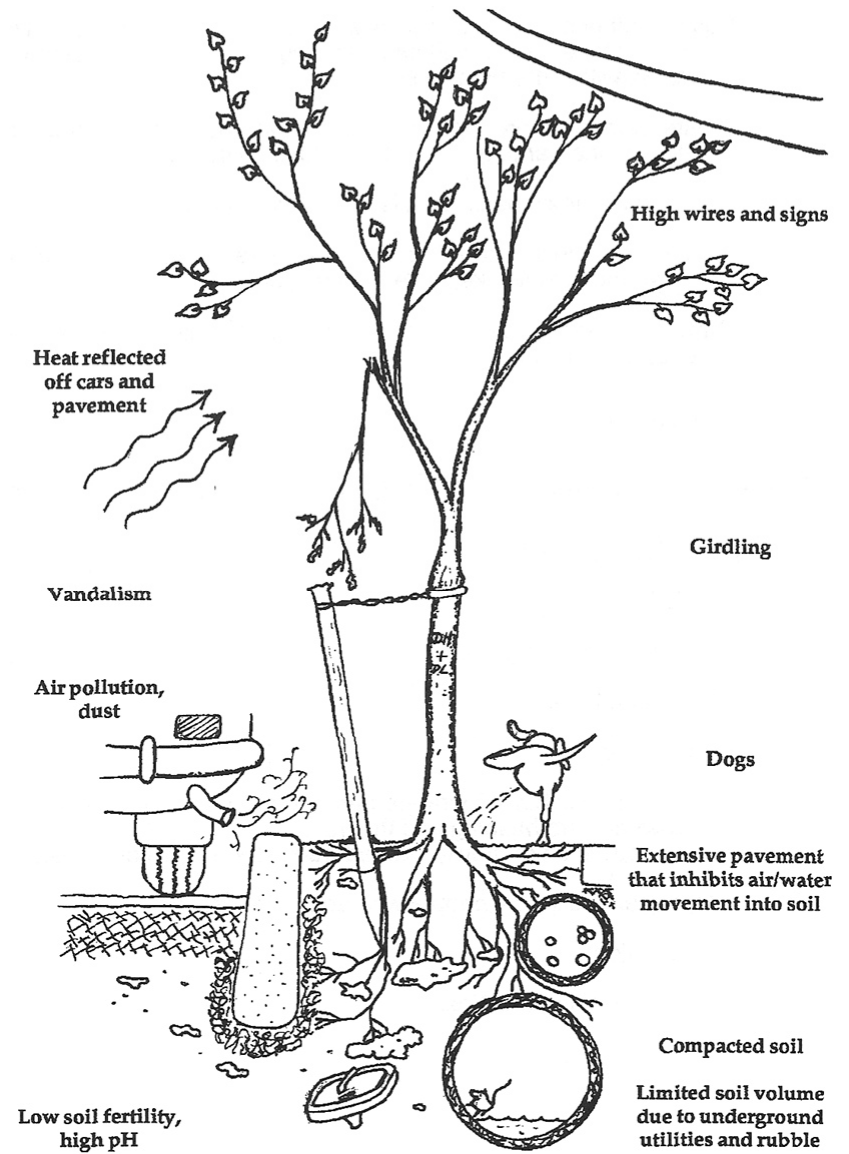
- OVERVIEW
- VEGETATIVE
STRUCTURE
- UNBUILT
- BUILT
- CHALLENGES**
- STRATEGIES

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Challenges

Urban heat island, pollution, competition, invasive plants, habitat fragmentation



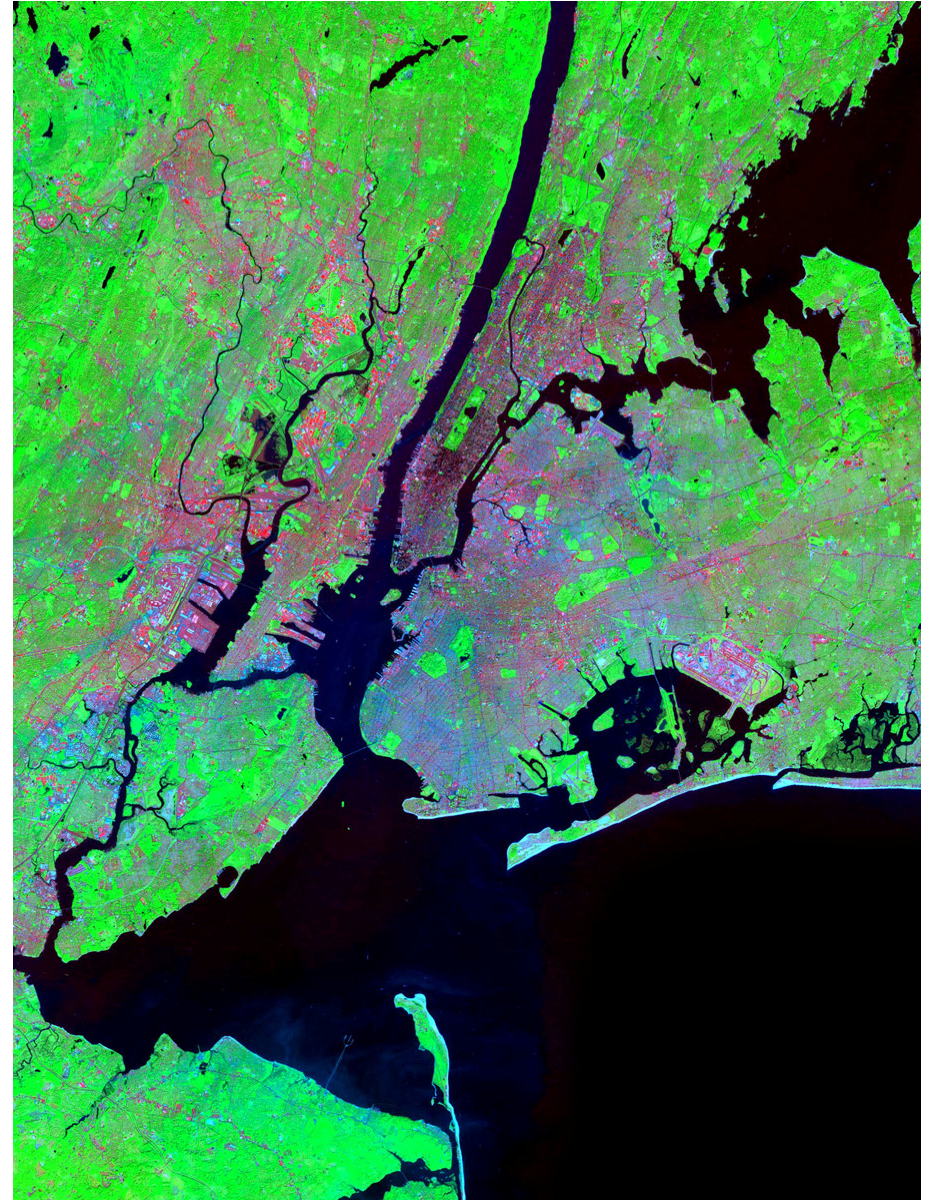
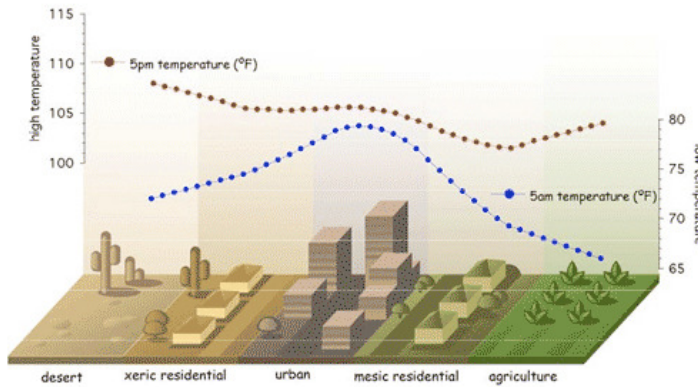
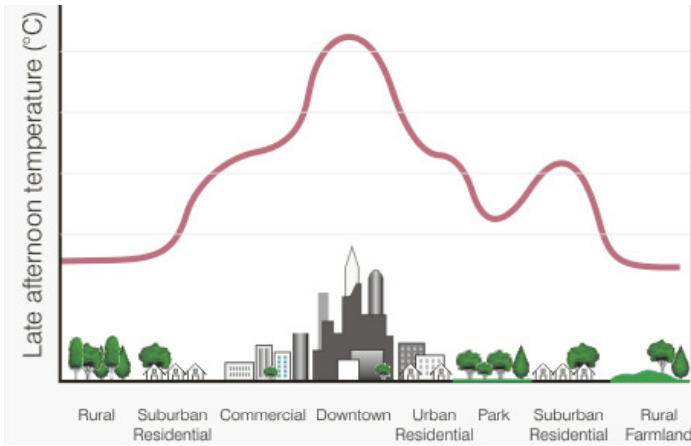
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Urban Heat Islands

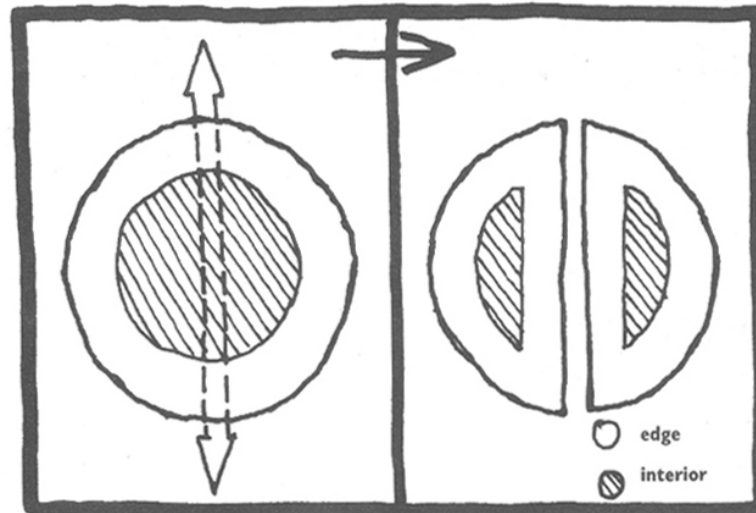


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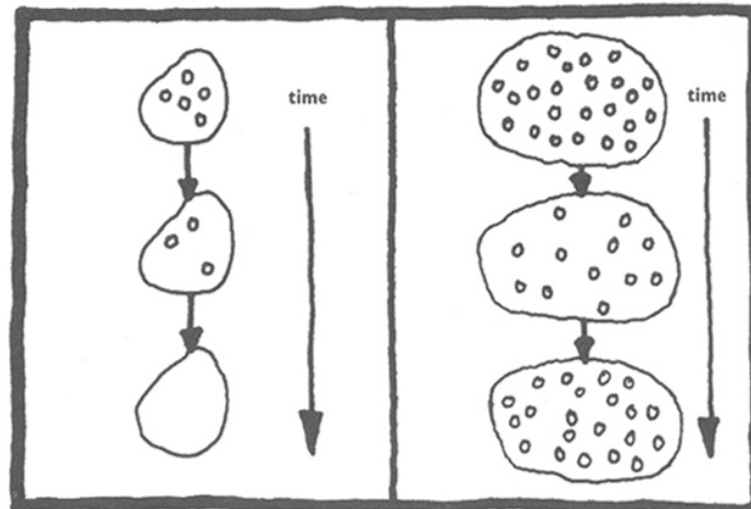
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P2. Interior habitat and species

Dividing a large patch into two smaller ones removes interior habitat, leading to reduced population sizes and number of interior species, which are often of conservation importance.



P3. Local extinction probability

A larger patch normally has a larger population size for a given species than a smaller patch, making it less likely that the species (which fluctuates in population size) will go locally extinct in the larger patch.

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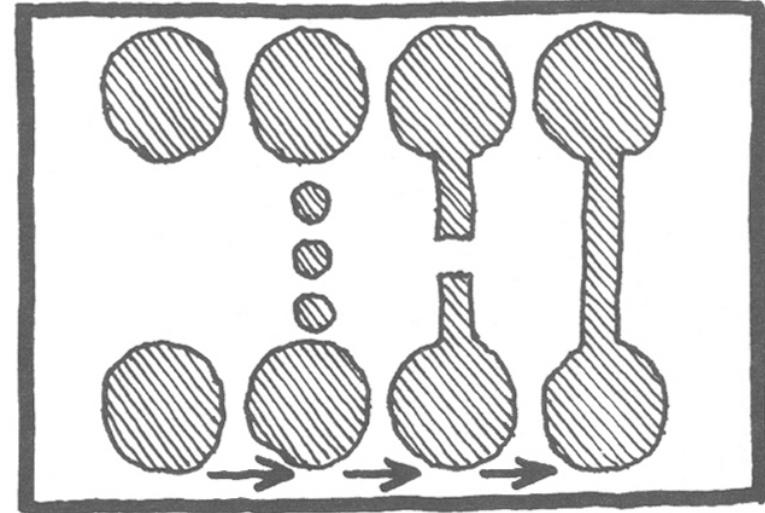
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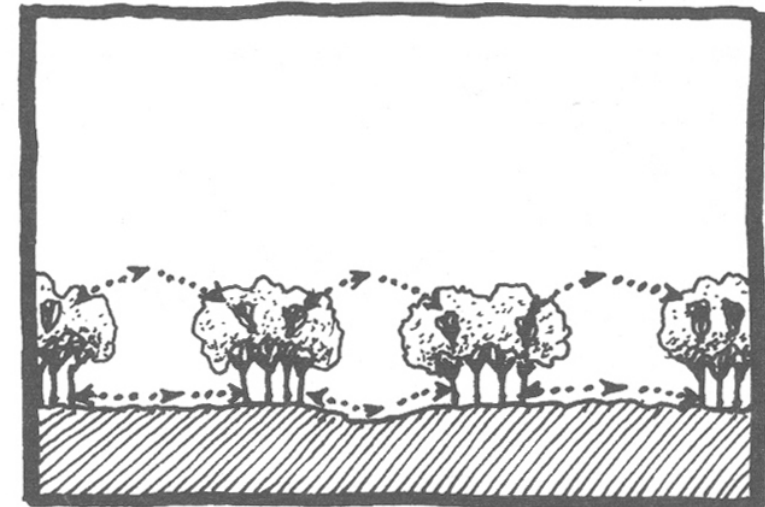
C4. Stepping stone connectivity

A row of stepping stones (small patches) is intermediate in connectivity between a corridor and no corridor, and hence intermediate in providing for movement of interior species between patches.



C5. Distance between stepping stones

For highly visually-oriented species, the effective distance for movement between stepping stones is determined by the ability to see each successive stepping stone.



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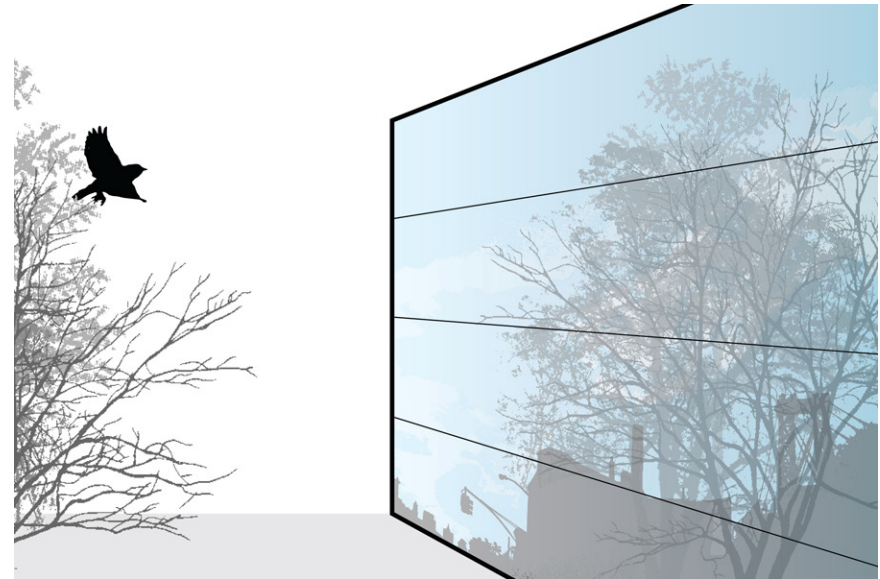
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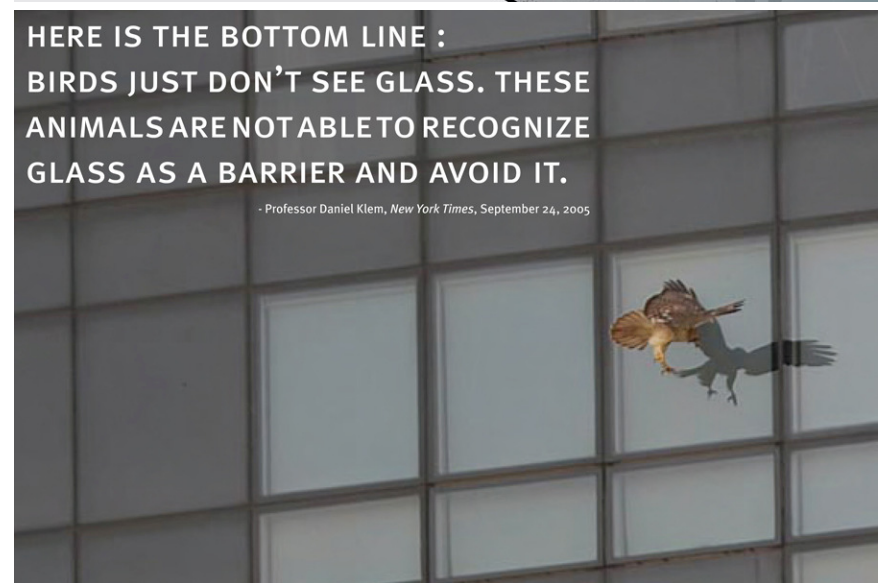
Birds and Buildings

After habitat loss, collisions with buildings are the 2nd largest cause of bird mortality. It is estimated that glass and reflective facades and illuminated interiors kill billions of birds annually. Some strategies that have been successful in making glass more visible include patterning, more mullions, reduced reflectivity, reduced night lighting and UV strips in glass, visible to birds, not people.



HERE IS THE BOTTOM LINE :
BIRDS JUST DON'T SEE GLASS. THESE
ANIMALS ARE NOT ABLE TO RECOGNIZE
GLASS AS A BARRIER AND AVOID IT.

- Professor Daniel Klem, *New York Times*, September 24, 2005



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Energy intensive, biologically poor, ecologically unproductive



Solar driven, biologically rich, ecologically productive

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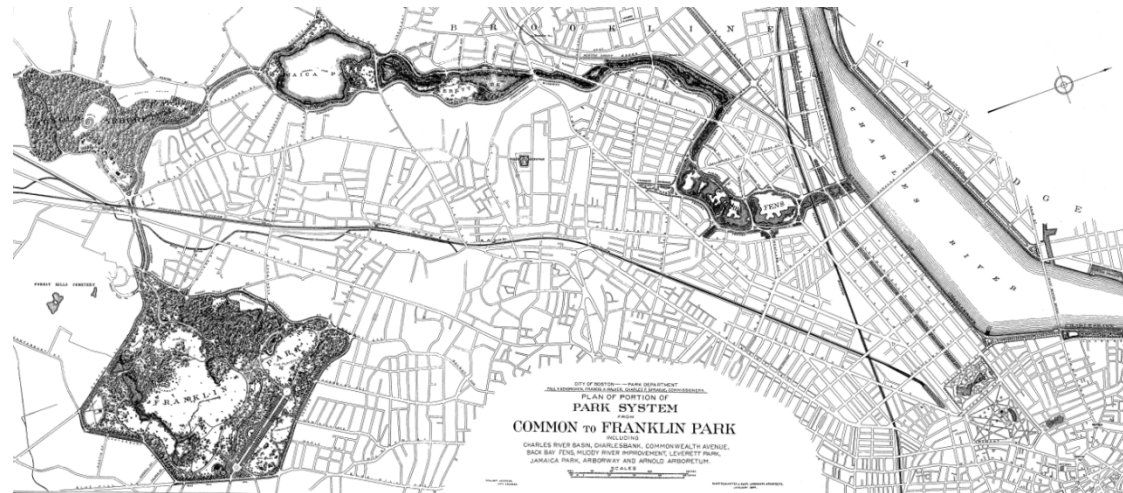
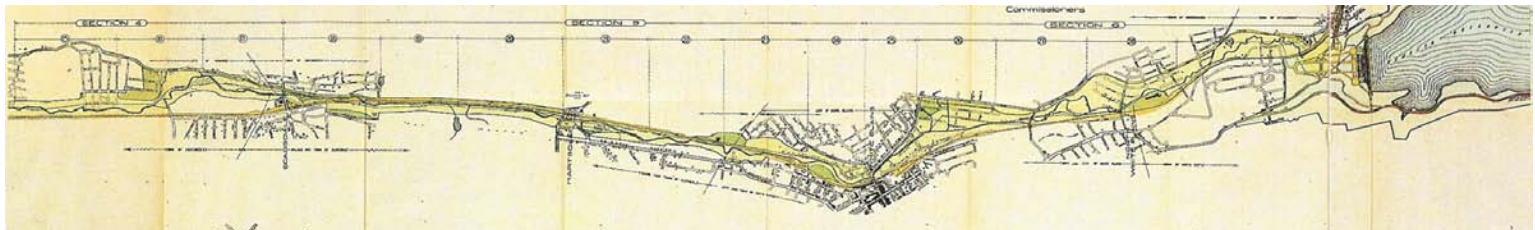
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Strategies

Green corridors, green belts, mosaics, native plants, habitat creation, reduced use of pesticides and herbicides, reduce use of glass (or create glass visible to birds) along flyways in particular (NYC)



Green corridors in NYC

PlaNYC has established two Parks and Public Open Space initiatives that prioritize green corridors and ecological connectivity.

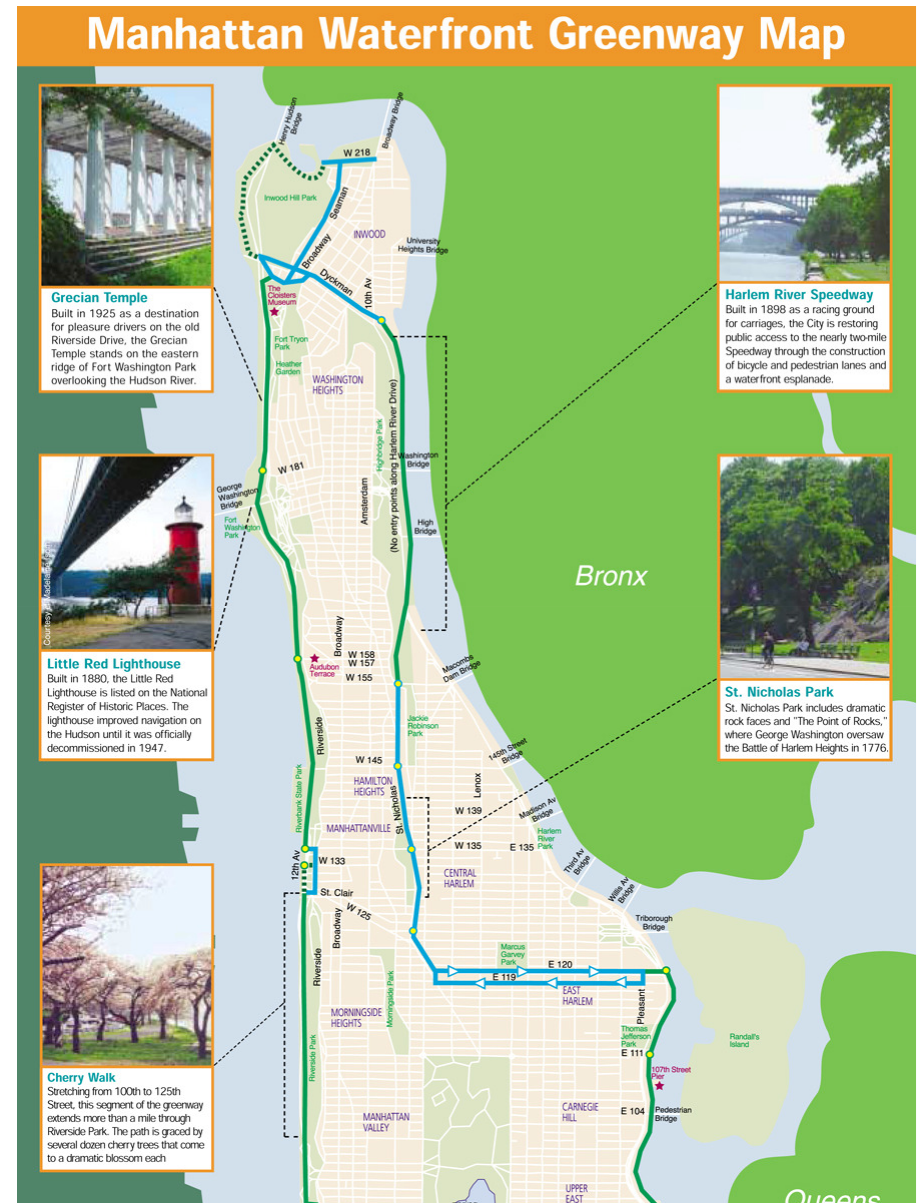
Initiative 10 - Create a network of green corridors

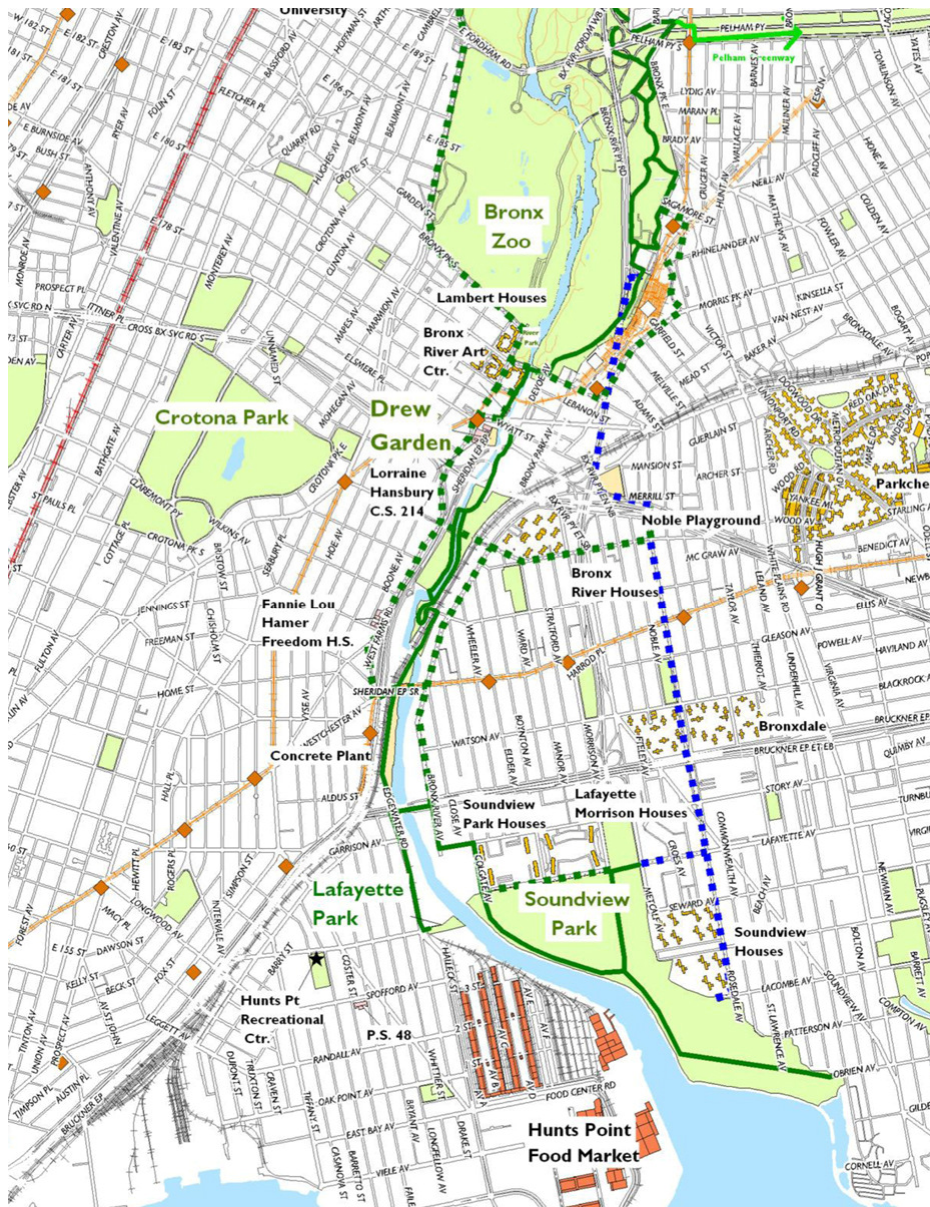
Streets and other dedicated paths perform multiple functions, including promoting recreation, capturing stormwater, and cleaning our air. We will seek opportunities to create a network of green corridors.

Initiative 13 - Support ecological connectivity

We will also seek to promote ecological connectivity, closely linked green spaces that increase opportunities for people, flora, and wildlife to transition more easily between fragmented natural spaces.

Building sites represent nearly half the land area in the city and have a great potential to mitigate the urban heat island effect, increase biodiversity, retain stormwater, and perform other critical ecological functions





- Bronx River Greenway Route**
- Greenway Route
 - - - Feeder Route
 - · - · - On-Street Route
 - Park Pathways
 - Cemeteries
 - Parks
 - ◆ Subway Stations
 - Subway Routes
 - Metro North Routes
 - Metro North Stations
- ▲ NORTH

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NYC, Highline Park



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Local Food Production



Eagle Street Rooftop Farm (middle image), New Vision Garden, East New York (right, left) © 2010 John Seitz)

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Local Food Markets



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Native Meadow Rooftop Garden, Linda Tool and Die, Red Hook (image © 2010 John Seitz)



Eagle Street Rooftop Farm, Greenpoint (image © 2010 John Seitz)