Envisioning Resilience & Revitalization in the Apremont Triangle Neighborhood

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ENVISIONING RESILIENCE AND REVITALIZATION IN THE APREMONT TRIANGLE NEIGHBORHOOD

University of Massachusetts, Amherst Department of Landscape Architecture & Regional Planning
Graduate Urban Design Studio, Spring 2017
In Collaboration with the City of Springfield Office of Planning and Economic Development

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This book presents the work of the Master of Landscape Architecture Urban Design Studio in the Department of Landscape Architecture and Regional Planning at the University of Massachusetts Amherst – Spring 2017.

The studio received major financial support from the City of Springfield and the U.S. Department of Housing and Urban Development. We are grateful to Mayor Dominic Sarno and the Armoury Quadrangle Civic Association of Springfield for their commitment to our work.

Special thanks to Scott Hanson, Principal Planner at the Springfield Office of Planning and Economic Development for his tireless support of our efforts.

We are also grateful to the UMass Amherst Department of Landscape Architecture and Regional Planning and to the UMass Center for Agriculture, Food and the Environment - UMass Extension for their support.

Finally we are grateful to our students for the creative work they produced, in particular Doug Serril for the design of this inspiring publication and taking on the responsibility.

Michael DiPasquale,  
Executive Director, UMass Design Center in Springfield

Frank Sleegers,  
Associate Professor for Urban Design and Landscape Architecture
Acknowledgments

Special Thanks to:
Scott Hanson, Principal Planner
City of Springfield, Department of Planning and Economic Development
Brian Connors, Deputy Director of Economic Development
City of Springfield, Department of Planning and Economic Development
Leon Charkoudian, Neighborhood property owner, Advocate
Charlie Knight, Armoury Quadrangle Civic Association
Laura Masulis, Mass Development
Thomas Smith, Professor Springfield Community College
Bob McCarrol, Resident
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Table of Contents

9 **Introduction**

17 **Understanding the Apremont Triangle**
   - History
   - Neighborhood Demographics
   - Community Engagement
   - Natural Factors
   - Streets, Transportation and Street Character
   - Land Use and Zoning
   - Buildings and Character

43 **Design Proposals**
   - Made in Springfield: Shifting Gears Towards Circulatory Systems
   - What We Talk About When We Talk About Food?
   - Apres Apremont Triangle: Creating Stormwater Opportunities

85 **References**
Introduction
The University of Massachusetts, Amherst Department of Landscape Architecture and Regional Planning graduate studio partnered with the City of Springfield to investigate the complexity of issues facing the Apremont Triangle neighborhood within the metro district and develop a range of conceptual designs. The studio is focused on developing ideas that improve the livability of the neighborhoods, walkability of streets, and improve the environmental and economic health of the neighborhood.

The Studio began by conducting an inventory and analysis of cultural, economic, and ecological factors that influence the neighborhood. A series of community engagement strategies were employed to gather input and perspective of neighborhood needs. These included an online survey, meetings with neighborhood organizations and key stakeholders, a storefront gallery display on Chestnut street, and a findings presentation to the community.

The proposed conceptual designs aim to revitalize and improve the neighborhood in a myriad of ways including, walkability and connectivity of the neighborhood, employing green stormwater management practices, expanding the Apremont Triangle into a park and plaza, and increasing urban agriculture.
Apremont Triangle Neighborhood Landmarks

The Apremont Triangle Neighborhood Project Site is 74 acres of land within the Metro District of the City of Springfield. The Site contains a diverse range of historic and modern landmarks. The Amtrak Station is located just outside the project boundary to the northwest. Expanded services to Hartford and New Haven make this a significant transportation hub for future growth in the neighborhood. The site of the 2015 natural gas disaster is one block to the north of the Apremont Triangle along Worthington street. Mattoon Street, one of the most famous residential streets in Springfield, is one block to the south of the Triangle. The Springfield Museum and Public Library is located on Edwards Street, Chestnut and State streets. Chestnut Towers, a residential apartment complex along Dwight street, defines the southwestern edge of the site. There is only one market where fresh food is available for local neighborhood residents.

Apremont Triangle Neighborhood Area Boundary

The Apremont Triangle Neighborhood project site is bounded by Lyman street to the north, String street to the east, State street to the south, and Dwight street to the west. The range of land uses, cultural history, and current economic challenges contribute to the complex character of the neighborhood. The site includes 74 acres of urban development including, residential, commercial, industrial, and civic land uses. The historic Apremont Triangle is located at the intersection of Pearl, Bridge, and Chestnut streets near the center of the study site.
Understanding the Apremont Triangle
The Agawam and Nonotuck tribes were the first native American tribes to have occupied the lands of present day Springfield and lived in the region for nearly 10,000 years. William Pynchon and his puritan followers first arrived in May of 1636 from Boston. Tensions grew between the English settlers and Native American tribes and culminated in the King Phillips War of 1675-1677, considered to be the bloodiest war per capita in American history. The English continued expansion of their settlement into what is the present-day Springfield.

Located at the confluence of the Westfield, Chicopee, and Mill Rivers along the Connecticut River, Springfield has always been a pioneer. In 1697, John Pynchon established an iron works on the Mill River. The region quickly became known for its metal workers, blacksmiths or foundry men, and craftsmen, particularly gunsmiths. In 1794, the first armory of the United States was established in Springfield. In 1818, Thomas Blanchard invented interchangeable parts which set in motion the assembly line of parts and thus mass production was born in Springfield, triggering the industrial revolution. In 1895, the automobile industry was created with the invention of the first gas-driven car in Northern America, the Duryea automobile. In 1901 the Indian Motorcycle Company started the first industrial motorcycle production.

All Historic Images: Courtesy of the Springfield Preservation Trust.
The Harris Block, at Bridge Street in Springfield, around 1938-1939 (right) and in 2016 (top). This block is part of an architectural ensemble that was designed by architect Samuel M. Green in 1925. All three had similar designs as two-floor buildings. The first floor of the Willys-Overland Block was a show room. The upper stories housed a 1000-car garage. More recently the building had been used for a number of community churches until the gas explosion in the winter of 2012. In 2015 the building was established as a one-building historic district to protect it from demolition.

Willy-Overland Block at the corner of Chestnut and Winter Streets around 1938-1939 (left) and in 2016 (top). This area was the center of an early 20th century automotive industry with car manufacturers and services around the automobile. In the first floor of the Willys-Overland Block was a show room. The upper stories housed a 1000-car garage. More recently the building had been used for a number of community churches until the gas explosion in the winter of 2012. In 2015 the building was established as a one-building historic district to protect it from demolition.

Source: http://lostnewengland.com/category/massachusetts/springfield-massachusetts/page/37/, accessed February 6, 2018

All Historic Images: Courtesy of the Springfield Preservation Trust.
Demographics in the Downtown Area

Downtown Springfield has challenging demographics: The resident population is relatively small. Only 6% of Springfields residents live downtown - over 50% of them are poor - 20% are unemployed. The goal as designers and planners is to sensitively plan for new development while fostering initiatives and activities that are inclusive and do not displace people.

Outside the immediate Apremont Triangle area, there are numerous other high-occupancy buildings. These residents are also likely users of designed amenities and public space and may be considered as well 1-3 family homes clustered on Mattoon and Elliot Streets. Three apartment buildings of 40 units or more contain 61% of the total housing units in the area. Three of these buildings, clustered along the site’s southern boundary, contain 100+ units. The majority of Apremont Triangle residents live in a relatively small geographic area, so public services and/or design proposals may be concentrated here.
Community Engagement

We accessed a user survey about Apremont Triangle Park that was executed through Mass Development. It informed us about elements residents would love to see in the Park and the surrounding area. This information was important for us to develop a design program. Apremont Triangle should fulfill basic needs such as sitting opportunities that are just lacking there.

In the beginning of our studio we also held a conversation with stakeholders of the area such as current planners and owners. They informed us about the significant role, the area played in the 1920’s and the challenges it has today. Owners reported a lack of demand for office space that keep the rents on a very low level and discourage investment. They also articulated the potential of the unique architecture and the role this could play in the future.

Below are some quotes from the survey.

“Some benches are needed in Apremont Park. It looks nice now but no place to sit”
“I would spend more time in Apremont Park if there was a bench or two there…”
“Ideally some shade trees and something to look at, like a fountain or statue”
“I am at the park at Pearl and Chestnut. It would be nice if there were a bench or two or a picnic table”
“A bench to sit on”
“…adding seating areas, concrete tables, and a fountain or statue to encourage visitors to linger and relax in the beautiful Triangle across from historic Kimball Towers.”

We participated at the regular Art Night at Make-It Springfield on Worthington Street to learn more about the downtown community. The Maker Space on Worthington Street offers a variety of activities every day including the weekends and is in high demand since the opening in the summer of 2015. The Maker Space created a new home for downtown residents of any age. We also reached out to other community organizations and developed new relationships. For revitalization efforts surrounding the neighborhood around Apremont Triangle it is necessary to embrace the diversity of cultures in the area.
We presented our final design proposals to the Armory Quadrangle Civic Association and the residents of the area. Property owner Leon Charkoudian hosted the event at Chestnut Street Apartments.

We were also invited to exhibit our work in the windows of three vacant storefronts on Chestnut Street to display our visions, show the assets of the area and change perception.
Impervious Area am Surficial Geology

Impervious areas contribute to water quality degradation by reducing groundwater infiltration, and increasing surface run-off which concentrates many pollutants on the surface and conveys them to waterbodies down stream. “Research shows that areas with greater than 10% impervious surface can start to show signs of stream quality degradation and above 30%, it can cause severe, possible irreversible damage” (2010, LID Manual). The City as a whole contains approximately 40% impervious surface. The Apremont Triangle neighborhood study area has a much more significant volume of nearly 85% impervious surface. There are small patches of non-paved surfaces in the form of lawns, street tree root zones, and undeveloped, or abandoned lands. Likely, all of these remnant patches have been highly modified and compacted. Developing pervious areas that promote water infiltration and vegetation is critical to improve water quality.

Combined Sewer Overflow and Public Open Space

The City of Springfield, along with nearly 800 cities throughout the United States, constructed sewer systems that combine sewage wastewater and stormwater run-off from impervious areas. During rain events, treatment facilities cannot handle the surplus flows from stormwater run-off and excess contaminated waters bypass treatment and dump directly into waterways. The effect is large scale water pollution. The EPA estimates that over 850 billion gallons of Combined Sewer Overflow (CSO) are discharged into waterways throughout the U.S. every year. Springfield’s discharge permit estimates that 397,440,000 gallons of CSO are released untreated each year through 46 distinct outfall locations into the Chicopee, Mill, and Connecticut rivers. There are several identified hazardous waste sites within the Apremont Triangle Neighborhood that need to be taken into consideration when developing green stormwater management solutions.

Springfield is located along the banks of the Connecticut River and the former banks of Glacial lake Hitchcock which existed here between 10-15,000 years ago. Fertile alluvial soils along the low-sloping banks of the Connecticut river are the remnants of a former lake bed sediments. The materials referred to as alluvial fill, is composed of larger gravel and cobble that was once the embankments of the lake’s edge. This steeper ridge runs through the western edge of Springfield just east of the downtown district. This alluvial fill is a porous material, indicating that this section of the city could be used to promote infiltration of surface run-off by the use of various vegetative stormwater management tactics to improve water quality.

Springfield currently contains 296 parks and open spaces, comprising 15.2% of the city. There are also a number of ponds and reservoirs throughout the city. Although there is an increased density of residents in the downtown district, there are a disproportionately low number of parks and open spaces. Further, urban development along the western side of Springfield has led to a high proportion of impervious surface. The lack of pervious areas to promote infiltration may contribute to water quality degradation of the Connecticut River. Increasing parks could provide more opportunities for local residents to be outside and improve water quality along the Mill, Chicopee and Connecticut Rivers.
Public Transportation Around the Apremont Triangle

Springfield offers a range of multi-modal transportation opportunities throughout the city, including connectivity to a regional bus and rail network, and locally, sidewalks for pedestrians, and some bike lanes. The Amtrak Station is located north of the Apremont Triangle neighborhood and is increasing access to Hartford and New Haven, Connecticut. Within the neighborhood, there are limited points of connection. There is one bus stop along Worthington Street and one stop along State Street at Spring Street. There are no designated bike lanes within the neighborhood. The neighborhood includes a range of housing and contains higher population density than the City as a whole. As this neighborhood develops through revitalization, increasing multi-modal transportation is critical to providing safe, functional, efficient, and healthy alternatives to an automobile dominated system.

Street Network and Vacant Building Inventory

A dense street network runs through the area around Apremont Triangle. Dwight, Chestnut and State Street are city arteries. Arteries connect neighborhoods with each other. Dwight and Chestnut are multiple-lane one-way streets. They create barriers for pedestrians as they reinforce high-speed traffic velocity. Taylor, Worthington and Pearl Street are neighborhood connectors that create primary corridors. Neighborhood roads connect important destinations within the neighborhood while residential streets are small-scale connectors. There are 7 fully vacant buildings in the northern, industrial end of the Apremont Triangle Neighborhood. They are located along a range of street types and provide opportunities for significant re-investment and re-organization of this section of the city.
Street Characterization

DOWNTOWN COMMERCIAL: CHESTNUT STREET

- One-way traffic
- Wide street: two travel lanes, two parking lanes, 30'-45' wide
- Street trees: some
- Storefronts: in use, vacant

DOWNTOWN CROSS STREET: WORTHINGTON STREET

- Two-way traffic
- Wide street: two travel lanes, two parking lanes
- Street trees: none
- Adjacent to vacant lots and abandoned buildings

DOWNTOWN COMMERCIAL: CHESTNUT STREET

- Two-way traffic
- Wide street: two travel lanes, one parking lane
- Sidewalks: Narrow
- Residential neighborhood
- Entrance to museum quad

RESIDENTIAL STREET: MATTOON STREET

- One-way traffic
- Street lanes: one travel lane, two parking lanes
- Sidewalks: Narrow
- Street Trees: Many
- Residential neighborhood
Apremont Triangle Neighborhood Land Use

Land uses follow zoning patterns and historic development patterns upslope and away from the river and from downtown. The oldest residences in the neighborhood are located on Mattoon Street and newer, multifamily residential established initially to accommodate a growing population, but have shifted to provide subsidized housing options to accommodate an urban population challenged by economic recession. The industrial/commercial zone to the north once supported a thriving auto industry, but has increased in vacancy due to local economic decline.

The neighborhood has a unique combination of multiple land uses in close proximity and this provides opportunity for community revitalization and economic development strategies that will improve the quality of life in the neighborhood over the long term.

Apremont Triangle Neighborhood Zoning

In the north of Apremont Triangle Neighborhood (upper left) the zoning reflects the land use patterns of the early 20th century. “Industrial” or “Business B” allows for manufacturing or highway-related businesses such as auto repair shops. With an abundance of vacant lots in this area there is the chance to rezone these areas including “Open Space” or “Residential”. Extending “Business A” that allows for neighborhood-oriented commercial activities and residential uses on the second floor should be considered. This is also applicable for the corridor on Chestnut Street to allow for more diversity.

Rezoning with this focus in mind would offer opportunities to combine work and live spaces, to increase density of uses that promote walkability and community development. Reductions in impervious surface to promote infiltration and increase green spaces, will promote water quality and improve the livability and aesthetic of this neighborhood.
The Kimball Tower is a ten-story residential apartment complex containing 132 one and two-bedroom units. It was originally constructed as a hotel at the turn of the century and was considered to be one of the finest hotels in the nation at the time.

The first floor entrance and lobby has raised ceilings and much of the original interior architecture detail remains, though is in need of repair.

The residents would be the primary beneficiaries of improvements to the Apremont Triangle Park.
Design Proposals
Supporting healthy communities involves a multi-faceted approach. This design intends to provide neighborhood residents with a network of spaces that fulfill various needs and address a variety of cultural, economic, and ecological issues currently facing Springfield residents. These spaces will allow people to connect with other residents, increase employment opportunities, learn new skills, and stimulate economic growth in the area.
MADE IN SPRINGFIELD: Shifting Gears towards Circulatory Systems

ENHANCE REGIONAL LINKS
BY CREATING A HUB OF GREEN SPACE IN APREMONT TRIANGLE NEIGHBORHOOD, THIS AREA WILL CONNECT OTHER GREEN NODES ON A LOCAL AND REGIONAL SCALE, EMPLOYING LINKAGES FOR PEDESTRIAN AND BICYCLE CIRCULATION, WILDLIFE CONNECTIVITY, AND INNOVATIVE STORMWATER MANAGEMENT SOLUTIONS IN THE CITY’S URBAN CENTER.

ESTABLISH NEIGHBORHOOD CONNECTIONS
CONNECTING TO EXISTING NEIGHBORHOOD PARKS SERVES TO ENHANCE WALKABILITY AND CONTINUITY TO THE

~60% PEOPLE IN NEIGHBORHOOD HAVE LESS THAN A 15 MINUTE COMMUTE TO WORK
~60% HOUSEHOLDS IN NEIGHBORHOOD DO NOT OWN A CAR
~20% PEOPLE IN NEIGHBORHOOD WALK TO WORK
~0% PEOPLE IN NEIGHBORHOOD BIKE TO WORK

PUBLIC TRANSPORTATION
DESPITE HAMPDEN COUNTY’S WIDE-REACHING BUS SERVICE, LIMITED HOURS OF OPERATION PRESENT CHALLENGES FOR THOSE WHO DEPEND ON PUBLIC TRANSPORTATION.

LAND USE
THE APREMONT TRIANGLE NEIGHBORHOOD IS A PRIME LOCATION TO DEVELOP COMMUNITY SPACE AND RECREATIONAL OPPORTUNITIES.
- HIGHLY RESIDENTIAL AREA ADJACENT TO CULTURAL AND EDUCATIONAL AMENITIES, AND THE DOWNTOWN BUSINESS DISTRICT.
- VACANT SPACE LEFT FROM NATURAL GAS EXPLOSION

- 60% PEOPLE IN NEIGHBORHOOD HAVE LESS THAN A 15 MINUTE COMMUTE TO WORK
- 60% HOUSEHOLDS IN NEIGHBORHOOD DO NOT OWN A CAR
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MADE IN SPRINGFIELD: Shifting Gears towards Circulatory Systems

- Stormwater Remediation Target Zones + Circulation:
  - Multi-Purposed Stormwater Management and Pedestrian/Bicycle Routes
  - Stormwater Management Target Zones located along the river and upslope from ridgelines
  - Utilize integrative bioremediation methods
  - Aesthetically pleasing and educational, highlight the importance of stormwater management

- Stormwater Remediation Pond + Dog Park Waste powers Park Lamps (Project Park Spark)
  - Fungi, plants + microbes process stormwater
  - Native Poplar trees lining stormwater remediation trail: quivering leaves suggestive of water
  - Effective phytoremediators: rapid growth rate, high transpiration, deep-reaching root systems enhance microbial growth
  - Harvested for community craftmaking businesses
WILLY’S OVERLAND BUILDING RENOVATION:

- 15,000 SQUARE FEET
- THREE FLOORS OF HOUSING: HOUSING FOR TEACH FOR AMERICA TEACHERS PLUS MIXED-INCOME HOUSING
- CLASSROOM FOR ACCELERATED TEACHING DEGREE PROGRAM IN PARTNERSHIP WITH STCC
- MULTI-FUNCTIONAL EVENT SPACE
- AFTER-SCHOOL PROGRAMS, ARTS + CRAFTS WORKSHOPS IN COLLABORATION WITH MAKE-IT SPRINGFIELD

66% OF STUDENTS WITH ENGAGED TEACHERS AND MENTORS MAKE A DIFFERENCE

80% OF STUDENTS WENT UP BY 6-9%

GRADUATION RATES WENT UP BY 6-9%

ARREST RATES WENT DOWN 28 33%

11,000 CHILDREN UNDER 5 LIVE IN SPRINGFIELD MAKING UP 7.5% OF ITS TOTAL POPULATION

A GREATER PERCENTAGE THAN BOSTON OR THE STATE

AMOUNT OF DAILY RECOMMENDED UNSTRUCTURED PLAY BY THE AMERICAN ACADEMY OF PEDIATRICS

schools within a half mile of Apremont Triangle have a playground

60 MINUTES:

THERE ARE FEW PLACES FOR THE NEIGHBORHOOD’S CHILDREN TO PLAY AND LITTLE PUBLIC OUTDOOR SPACE. THE NEW WILLY’S OVERLAND PLAYGROUND IS A HUB FOR CHILDREN IN THE NEIGHBORHOOD, WITH COLORFUL AND SENSORY PLAY FEATURES KIDS OF ALL ABILITIES CAN ENJOY.

LEARN + PLAY

There are few places for the neighborhood’s children to play and little public outdoor space. The New Willy’s Overland Playground is a hub for children in the neighborhood, with colorful and sensory play features kids of all abilities can enjoy.

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MADE IN SPRINGFIELD: Shifting Gears towards Circulatory Systems

- Bike Lanes on Pearl Street
- Repurposed Materials for Walkways
- Gathering Area
- Outside Playspace
- Storefront Parking for Pick-Up and Drop-Off
- Vibrant Interior Space for Programming and Events
- Recreation and Seating

Winter St: Street Fair + Farmer’s Market

Community Bike Shop

Super Laundromat |
- Creating Opportunities to Gather in the Triangle
- Play Space for Children and Families
- Community Programming in Laundry Facility
- Stormwater and Remediation Solutions Along Sidewalks

Allison Gramolini • Maggie Kraus • Alysha Thompson
COMMUNITY GARDEN + GREENHOUSE

- Hub for connecting community garden organizations
- Youth leadership development, education, and job training
- South-facing greenhouse for year-round production
- Building on north side insulates and provides meeting space, kitchen, intern housing

- The Apremont Triangle neighborhood has food insecurity rates more than three times those of the state as a whole
- Nearest full-service grocery store over a mile away with limited bus access

~35% Food insecurity rate within BTS
~11% Rate statewide

MADE IN SPRINGFIELD: Shifting Gears towards Circulatory Systems

Allison Gramolini • Maggie Kraus • Alysha Thompson
“What We Talk About When We Talk About Food”
Andrew Capelluti • Mimi Lo • Dianca Tian
Through several meetings with community members, we learned that increased places to buy food, sit and eat outside were a priority. This is a diverse neighborhood and food is a common program enjoyed by all. The area surrounding the Apremont Triangle has a rich history as a gathering space, and would benefit from increased pedestrian connections, complete streets, rain water infiltration, urban agriculture, as well as places to eat and sit outside. We met with the owner of several properties and designed cafe spaces in the spaces in which he envisioned them. Through our meetings with the community, we learned that the Apremont Triangle historically served as a gathering space for public speeches, and we proposed revitalizing this civic space use. We also proposed converting vacant lots into food forest gardens in order to localize resource production and provide walkable access to nutritional plants.

The goal of our proposal is to address food insecurity and the need for increased public open spaces. The data were collected through several meetings with community members. We employed in person discussions, went on guided tours of the neighborhood and important establishments, ate in the local restaurants, analyzed surveys, and conducted many draft presentations with feedback and review sessions from community members. We analyzed GIS maps to consider the amount of urban impervious surface, parking lots, tree canopy cover and walking distance to nearest grocery stores. We considered the walkability of the neighborhood by walking around, measuring street crossing widths, noting the amount of vehicular traffic, speed, and character of the store-front interfaces between the streets and the buildings. Our design was used to connect the diversity of people and spaces, using food as a common thread between public and private spaces for all levels of income and ethnicities. Our recommendations expand on the existing use by facilitating a cafe in the courtyard, food truck spaces adjacent to the Triangle, as well as a perennial edible garden behind the Willy’s Overland Building.

WHAT WE TALK ABOUT WHEN WE TALK ABOUT FOOD ?

Andrew Capelluti • Mimi Lo • Diance Tian
Our plant palette consists of edible species which serve multiple functions, such as full season bird and pollinator forage, attractive blooms or as medicine. Our garden design is inspired by the multi-layered structure of forest ecosystems.

We propose the tallest trees, Sassafras, be located on the northern section of the garden. This would prevent tall trees from casting shade on the vegetable and herb gardens. Shrub species could include Sambucus, Amelanchia, Aronia melanocarpa, Lycium barbarum, Ribes, Rubus and Corylus avellana.

Vegetable species conducive to perennial polycultures include Sium sisarum, Tragopogon porrifolius, Scorzonera hispanica, Rheum, Alium, Levisticum officinale and Asparagus officinalis. Examples of herb species include Artemisia dracunculus, Mentha, Melissa officinalis, Valeriana officinalis, Symphytum officinale and Origanum vulgare.

We propose that a rain garden be located adjacent to the building and the parking lot, to absorb surface run off from these spaces and reduce pressure of municipal storm water systems. The rain garden would be surrounded by a path which includes places to sit and view the garden. The rain garden would be planted with diverse species which bloom at different times to provide full season pollinator forage. Examples include Salvia, Hyssop, Thymus, Trifolium, Nepeta, Echinacea, and Asclepias syriaca.
The Apremont Triangle is currently characterized by a mix of urban residential, commercial and institutional spaces. The existing connections between the Triangle and the commercial spaces are restricted by streets on all sides. In our proposal, Pearl and Winter St. are closed to vehicles in order to create pedestrian pathways and enhance the connection between the commercial private spaces and the public places to gather.

The width of Pearl and Bridge St. ranges from forty-two feet wide to thirty-five feet wide. Our proposal suggests two-way traffic on Bridge St. which would require twenty feet of travel lane width. The wide street crossings separate the triangle from the businesses. Pedestrian traffic is inhibited by narrow side walks and wide street crossings. There are no outdoor spaces to sit and eat neither in front of the restaurants on the sidewalk nor in the park. We recommend bump-outs be located at the sidewalk intersection corners to reduce the crossing space and match the space required for vehicles. Similarly, the width of Chestnut Street ranges from thirty five feet to forty five feet and we would install bump outs to reduce the crossing space and match the requirements of two vehicle travel lanes.

On Pearl Street the sidewalk will be 10’ wide to provide outdoor sitting areas for the existing restaurant.

This section diagrams demonstrate the application of complete street. From left to the right are:

- **8’ sidewalk**
- **2.5’ amenity zone**
- **5’ bike lane**
- **3’ planted division**
- **two vehicular lanes (11’ each)**
- **8’ street parking**
- **3’ planted division**
- **5’ bike lanes**
- **2.5’ amenity zone**
- **sidewalk**

On Pearl Street the sidewalk will be 10’ wide to provide outdoor sitting areas for the existing restaurant.
Rainwater is a natural fertilizer. It contains sulfur which is important for the formation of amino acids. It collects dust in the air which contains beneficial microorganisms, minerals and nutrients that are important for plant growth. During storms, lightning strikes enable atmospheric nitrogen to combine with hydrogen and oxygen to form ammonium and nitrate, which are soluble in atmospheric moisture and usable by plants. It is critical to consider the site’s relationship to larger water flows in order to determine the amount which can be harvested. Earthwork techniques which maximize the potential of on-site water resources. Beneficial relationships are formed through the integration of harvested rainwater, sun, shade and vegetation. Designing with water enables beneficial relationships throughout the site.

The cost of extensive vehicle infrastructure is increased surface temperatures, storm-water run-off, and reduced walkability. Our site is greater than ninety five percent impervious. The triangle itself is the only impervious surface in our site. The park surface is more than ninety percent grass with small mulched beds around three trees. There are no rain gardens or retention features. We propose converting the parking lot behind the Willy’s Overland building into a public garden with edible plants.
Food forest gardens are composed of trees, shrubs, herbs, ground covers, soil organic matter and fungi. In order to increase the beneficial network effects between species, these gardens are scientifically designed to mimic vegetation patterns observed in reference ecosystems. Forests consist of interacting layers, including the soil and subsoil ecosystems, ground covers, vines, herbs, shrubs, sub-canopy trees, canopy trees and animals. Designers who recognize successful patterns of nutrient flows between these layers can increase yields while decreasing external inputs. These gardens provide sources of nutrition, vitamins, medicine, soil organic matter, habitat, and environmental awareness. When designing plant communities, it is important to consider a diverse array of plants which may not be available as commercial garden center stock. However, multi-functional perennial vegetables for polycultures in cold climates do exist. There are species which function as nitrogen fixers, dynamic nutrient accumulators, insect nectaries, soil protecting ground covers and organic soil amendments.

Parking lots are prolific in the neighborhood. Our proposal maintains three parking lots, one adjacent to each of the buildings. Existing on street parking is available on both sides of Chestnut, Pearl, and Bridge St. Our proposal calls for the closing of a section of Pearl St., but the installation of new on street parking between Bridge and Mattoon Street. Our design proposal enhances the existing transportation network by incorporating protected bike lanes on both sides of the streets. The neighborhood streets, such as Chestnut or Worthington Street, facilitate commuter traffic to downtown and the museums, while Pearl Street services Springfield Technical Community College and small commercial spaces.

WHAT WE TALK ABOUT WHEN WE TALK ABOUT FOOD?
WHAT WE TALK ABOUT WHEN WE TALK ABOUT FOOD?
A network of green infrastructure acts as placemaking and wayfinding to improve walkability, encourage economic development, and improve ecological and hydrological integrity of the Apremont Triangle neighborhood in Springfield, Massachusetts.

Initial site analysis of history, street conditions, overflow volumes, and land use inspired our concept of using stormwater as an interactive method for improving urban environment and creating pedestrian destinations, pathways, and connections.
To create a walkable street network, we identified destinations and places of interest in Springfield which became opportunities for creating new, and reinforcing existing, pedestrian connections.
APRES APREMONT TRIANGLE: CREATING STORMWATER OPPORTUNITIES

EXISTING
- Wide street corridors
- Wide sidewalks
- Busy, fast streets
- No crosswalk
- 1-way traffic

TACTICAL
- Paint out lines for crossings, bike lanes, and planting beds
- Place temporary seating at gathering spaces
- Convert roads to 2-way traffic

FUTURE
- Planted bump outs
- Protected bike lanes
- Corner bus stops
- Shorter, safer pedestrian crossings
- Calmer, slower traffic

A Stormwater Toolkit for street application of green infrastructure informed the design of Chestnut Street as a pilot, but can be applied to other streets throughout Springfield as well.
A multi-modal street design of Chestnut Street manages stormwater through green infrastructure while encouraging walkability by making Chestnut an enjoyable promenade with seating, street trees, and safe sidewalks and street crossings.

This section of Chestnut Street shows two infiltration planters and the multi-modal street design which includes: two-way vehicular traffic, bike lanes, and sidewalks.
Apremont Place utilizes daylighted stormwater management in the form of bioswales and rain gardens to define spaces within a public plaza including: an amphitheater, outdoor restaurant seating, and grassy gathering spaces on the corner of Chestnut and Pearl Streets.

Apremont Place offers different spaces for people to gather and enjoy the amenities of the park. A bioswale connects the spaces together through rain gardens, stormwater, and native flora.
This perspective view of Apremont Place from Chestnut Street highlights the tiered gathering areas of the main plaza and the rain gardens and bioswale that define the edges through interactive stormwater features.

Revitalization of Willys Overland Building and surrounding area focuses on creating mixed-use outdoors spaces that provide for many activities while infiltrating stormwater in interactive, ecologic, and engaging ways.
The roof of an underutilized industrial building offers structural stability for greenroofs and rooftop seating while offering a beautiful view of the urban forest, gardens, and public activity space between Winter and Worthington Streets.
References


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