Spring 2017

Stitching Together the Urban Fabric

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STITCHING TOGETHER THE URBAN FABRIC
WALK, BIKE, SOCIALIZE AND PLAY - MAKE IT YOUR DOWNTOWN SPRINGFIELD

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UMass Amherst Design Center in Springfield
Department of Landscape Architecture & Regional Planning
Senior Urban Design Studio Fall 2016
Professor Frank Sleegers

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STITCHING TOGETHER THE URBAN FABRIC: WALK, BIKE, SOCIALIZE AND PLAY
- MAKE IT YOUR DOWNTOWN SPRINGFIELD

The Department of Landscape Architecture and Regional Planning, UMass Amherst, continued the successful and long-term collaboration with the Office of Planning and Economic Development of the City of Springfield in the fall of 2016. Our graduate and undergraduate urban design studios have been a crucial part of this partnership and created strong bonds with the local planning administration, stakeholders, residents, entrepreneurs and activists. This studio is coordinated and supported through an agreement between the City of Springfield and the UMass Amherst Design Center in Springfield.

Our Senior Urban Design Studio focused on six overlapping urban systems that mutually relate and to each other: Music and Art, Food and Retail, Working Opportunities, Public Green, Education and Learning, and Housing. We applied these systems to four real but overlooked streets in downtown Springfield and their immediate context: Worthington Street, Dwight Street, Willow Street and the stilted Interstate 91 viaduct. Incremental yet systematic change at these specific places would considerably improve the quality of the everyday life in downtown within a reasonable budget.

We are most grateful to Mayor Dominic Sarno for his ongoing support of our Urban Design Studios.

We sincerely thank Scott Hanson, Principal Planner from the Springfield Office of Planning and Economic Development for his untried enthusiasm through all stages of this project.

We thank Guy McInern, Director of the History Museum for his great and enthusiastic introduction into Downtown’s innovative history of manufacturing; we thank all our guests people for their time providing most specific feedback on our Design Charrette: Laura Massulis - MassDevelopment Transformative Development Fellow, Mikki Lessard and Nancy Feth - Owners Simply Grace, The Shops at Market Place, residents Austin Sanders and Louis Fiero, Simone Alter-Muni - Art Professor Springfield College.

We are especially thankful to Daniel Montagna, Assistant Manager of Operations, UMass Center at Springfield for his hospitality hosting our Charrette.

We thank everybody who came to our final presentation at Make-it-Springfield to engage in a discussion with our students: resident and ecology activist Bill Malloy, Morgan Drewniak - Executive Director Springfield Central Cultural District, Brian Connors - Deputy Director of Economic Development, Chris Russe - Springfield Business Improvement District, Joy Minkarah - President Develop Springfield, Daniel Montagna - UMass Center Springfield, Anja Ryan Duffy - Landscape Architect at GZA GeoEnvironmental, Michael D. Tully - Senior Parks Project.

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Finally, I thank all our students of the Urban Design Studio for their great and well-grounded visions for the heart of Downtown Springfield.

I am especially thankful to John Haryasz and Keira Lee for their creativity compiling and editing this exciting report.

We believe that discovering the little notes and in-betweens is as important as looking for the big players. Improving and fostering these will make Springfield green and beautiful, will increase diversity, will creates jobs and bring vitality back without breaking the bank. Our concept of sustainability encompasses aesthetics and perception, ecology, culture and economy.

Let’s stitch it together!

Frank Sleegers
Professor, Associate Director UMass Amherst Design Center in Springfield

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INTRODUCTION

Downtown Springfield is currently undergoing a substantial change of the physical urban fabric. The most prominent examples are the renovation of the Union Station into a multi-modal transportation hub, the construction of the MGM Casino Resort, and another extension of the Quadrangle Museums with the new Dr. Seuss Museum. While these projects create larger-scale hubs at the edges of downtown, there is the necessity of stitching these together with amenities and activities that can be experienced on the street level to foster cultural and everyday life. How can we bridge the gaps and create stepping stones that make downtown streets a more walkable and bicycle-friendly experience? How can we create new economic opportunities and possibilities to serve needs for informal adult education, gathering and small-scale entertainment?

Most recently, several new pop-up cultural and social activities have arisen and significantly improved urban livability in downtown Springfield. The Make-It Springfield pop-up community ‘makerspace’ on Worthington Street opened in June 2016 and downtown Springfield offers new and diverse activities for the local community every day. This includes a bicycle repair clinic, poetry readings, art, workshops, sewing and knitting courses. Three pop-up beer gardens on Wednesday afternoons are taking over underutilized downtown spaces and promote social gatherings after work. The Holiday Market at Market Place activated underutilized floor space during the Holiday season in 2015 and will reopen in the winter of 2016. Other activities on Market Street were initiated through enthusiastic small entrepreneurs including a farmers market on Thursdays and yoga courses.

Drivers for the changes are made possible through collaborative effort: the Springfield Office of Planning and Economic Development, the Springfield Business Improvement District (BID), Mass Development’s Transformative Development Initiative (TDI) and University of Massachusetts Design Center in Springfield. A diverse group of mid and small-size entrepreneurs and enthusiastic local residents add significant support.

Lastly public art is more and more visible on the streets. UMass Professor John Simpson uses blank walls of empty storefronts as an outside gallery and paints oversized portrayals together with his students, artist Robert Markey has created numerous mosaics on blank walls. The Springfield Central Cultural District (SCCD) initiated a Utility Box Mural Program in May 2016 and supported 19 local artists to transform utility boxes in downtown through art to create a diverse outdoor gallery.

Other initiatives are on the way: The Pioneer Valley Planning Commission (PVPC) will shortly launch a regional bike share program for Northampton, Amherst, the University of Massachusetts, Pioneer Valley Planning Commission, Springfield and Holyoke. The City of Springfield is testing out a way-finding program “Park and Walk” that encourages people to walk instead of using the automobile.

Our larger study area is the center of the Metro Center Neighborhood: to the east the boundary is defined by Dwight Street and the Quadrangle Museums; to the south State Street at the MGM Casino Resort; to the west the Connecticut River and Riverfront Park; to the north Lyman Street around Union Station.
The goal of this studio is the creation of an enticing and engaging street and public space experience for residents, workers and visitors in Downtown Springfield through design and temporary interventions.

**OBJECTIVES**

Specific design and policy objectives transform this goal into the cultural, physical and economic objectives to shape the environment of the project area:

- Develop a design that reflects the discussion and dialogue with the community members.
- Engage residents and community members through a design charrette to discuss and develop possible future activities.
- Use surveys and informal interviews to better understand place and people.
- Envision interventions include streetscapes, parks and underutilized architecture creating a walkable and vibrant urban environment.
- Understand the current streetscape as physical and social space: Aesthetic experience, land uses, demographics at day and night, assets and opportunities.
- Improve the physical appearance on major corridors for day and nighttime. Propose design proposals that engage sitting, gathering and eating.
- Facilitate circulation for pedestrians and bicyclists.
- Search for opportunities to engage people of all age and ethnicities to encompass the cultural diversity in Springfield.
- Present and discuss the evolving design concepts with experts and stakeholders.

**GOAL**

**STUDIO PROCESS**

**September**
- Walking tour with Urban Planner Scott Hanson
- Photographic and video studies of streetscapes
- Hosted Design Charrette with residents and workers of Springfield to gain valuable information to guide our design decisions

**October**
- Site analysis and assessment
- Precedent studies and conceptual development
- Ongoing feedback and critical refinement
- Midterm department presentation: UMASS LARP

**November**
- On-site visits and material preparations
- Critique by guest professor
- Walking tour and gallery gathering

**December**
- Final department presentation: UMASS LARP
- Video presentation and discussion with city officials.
The design charrette hosted at the UMass Center at Tower Square was invaluable to our design processes as well as helping us determine our studio goals and objectives. Six expert teams were formed consisting of separate topics. Each team researched existing opportunities in Springfield and gathered case studies for their respective topics that represent important urban systems. This information was then synthesized into boards and posters to be presented and discussed with our guests at six specific tables. The round-table discussions were complemented by a questionnaire.
Music and Art
The Art and Music team investigated cultural assets. They found out that there should be more live music venues, local culture should be considered, and color needs to be added throughout the cities’ underpasses and alleyways.

Food and Retail
The Food and Retail team wanted to know more about opportunities to shop and eat. They found that there should be more independent retail establishments, more trendy food options, a supermarket, and options should be reasonable for multiple economic classes.

Work
The Work team discussed working opportunities in downtown. They found out that it is necessary to occupy unused spaces, promote local business and events, and attract more diverse communities outside Springfield.

Green
The Green team investigated the quality of public open space. Our guests thought that night events feel unsafe due to poor lighting. They also thought that mid-level plantings encourage trash and can create at some times a feeling of insecurity. The same is applicable to some of the fences that surround parking lots and businesses are unwelcoming and very often unpleasing to the eye.

Learn
The Learning team investigated educational opportunities. They found that the new maker space on Worthington Street is very popular, and there should be more opportunities like that in the downtown area. Furthermore, they found that more work skills and art opportunities should be introduced, outreach programs to local schools would be beneficial, and that the availability of opportunities should be better communicated.

Live
The Live team talked about housing opportunities. They found that it is important to attract the middle class, there is a need for more market rate competition, and residents also thought that downtown has to be more dog-friendly and should offer places like dog parks.
Cultural Milieu: Cultural, Social & Economic Context

THEN:

In the past, downtown Springfield was a lively city with an active street life. Most of building were multi-purpose in the sense that businesses were on the street level, and apartments or office were above. Manufacturing places offered places for work close-by and created a city that was compact and dense. Street cars connected to the outlying neighborhoods such as Forest Park and the North End. The introduction of the automobile changed the urban landscape in downtown after the Second World War.

NOW:

Today, downtown Springfield is quite different. There are little to no active street front stores. There are some mixed-use buildings in downtown; most of them have offices rather than apartments on the upper levels. The high traffic volume is a result of commuting in and out of the city. Many people still work in downtown while a majority live in the more suburban neighborhoods or towns. Downtown feels empty at night and on the weekends. A majority of downtown streets are wide, one-way arteries which leaves the impression of a city that is dominated the automobile.
There is a housing problem in Springfield. 90% of downtown housing is subsidized (as of 2012). This results in very little opportunities for people to own or rent at market-rate prices. This problem has caused market-rate median rental price to increase to $999-1,750 per month. When the MGM Casino is introduced in the spring of 2018, it will include 56 units of market-rate housing. It is hoped that more diverse market-rate housing opportunities are created in the future.

Tower Plaza
Silverbrick Lofts

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Only 10,000 people live in downtown while 30,000 commute in and out of the city every day. A majority of residents are poor and facing challenges such as unemployment. Downtown has a large population of Latinos - only 27% of the residents are female.

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Tower Plaza
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The City has been doing a lot to create more activities in underutilized or vacant storefronts. The Shops at Market Place have a small boutique that offers also yoga classes, concerts or readings at night, a cafe, a restaurant, a flower shop and the seasonal holiday shops. These stores host events for the community which encourages shopping locally and they have resulted in an increase in revenue for small businesses in Springfield. The BID district in Springfield has also been introducing public events that rouse community involvement. Such as the Pop-Up Beer Gardens on Thursdays in the summer, and The City Block Concert Series. Over all these are important investment to help create a more comfortable active urban environment.

We think that is important to more fully embrace and support the cultural diversity in downtown Springfield. The majority of recent efforts target the white, median class population while we think that mixing up the population would be beneficial for everybody.

Another way the city of Springfield has been creating a more active community is through new public art programs. In the summer of 2016 local artists were invited by the Cultural District to paint utility boxes in Downtown. This brings different people together; provides local artists with an opportunity to display their art, gives residents an outlet to express their culture, and overall creates a more visually appealing downtown.
Springfield’s downtown is part of the Connecticut River watershed. The Connecticut River system creates a framework for regional connections for biking and walking trails. The city is currently using CSO’s to handle large storm events that happen several times throughout the year. CSO’s are Combined Sewer Overflows that discharge the excess polluted water from the city’s surface runoff into the Connecticut River. There are six overflows located in the larger downtown area. They that pollute the River during heavy rainfalls. Storm water management methods used within our sites will reduce the city’s runoff to the Connecticut river.

Springfield’s topography was formerly created by glacial Lake Hitchcock and created two terraces. Most of the downtown area is located on the lower terrace and defined by steeper slopes of the upper terrace. The flat terraces provide opportunities to use infiltration for mitigating serious storm water events.

While the terraces are a product of glacial activities, the earthworks that support I-291 and I-91 highway are a product of human activities. They create a serious barrier for connections by foot or bike. In the core, downtown area, I-91 is built as a viaduct with opportunities to create better connection to pass underneath and to walk to the riverfront.

Natural Systems:

Hydrology, Topography, Parks and Vegetation
Springfield’s largest concentration of vegetation exists along the city’s waterfront on the Connecticut River. The city’s major arteries of Chestnut Street and East Columbus Avenue lack a coherent tree planting pattern, incomplete canopies and declining trees. There are specimen trees scattered around the city’s parks and financial district areas. Adding street trees will provide shade while reducing heat, create opportunities for storm water reduction, and increase surrounding property values, and make the city more beautiful.

To better understand our site, we investigated how our project area is embedded within the larger context of public parks. Very close to the heart of downtown are The Springfield Armory Park, Springfield Cemetery, and Riverfront Park. We can facilitate connections to these parks through green streets and trails. A priority is providing connections to Riverfront Park and the Connecticut River Walk and Bikeway. More distant to downtown are Atwater Park, Van Horn Park, East Forest Park, and Springfield’s most prominent Forest Park. Springfield’s parks are a great asset, Springfield features over 2400 acres of parkland distributed among 35 urban parks. 735 of those acres belong to Forest Park.
There are some major public open spaces that lie in our project area. The primary spaces in dark green are public parks or plazas that are open all the time to the public, such as Stearns Square, which is used for live music and New England’s largest Bike Night. Center Square hosts the Farmers market, frequent art exhibits, and offers a Beer garden every Wednesday. Court Square lies in the heart of the historic district downtown; it offers many historical monuments and history about the city. The Museum Quadrangle is a sculpture garden made to honor Dr. Seuss who was born in Springfield. Riverfront park is connected to the Connecticut River Walk and Bikeway and offers impressive views of the Connecticut River and Memorial Bridge. The Serpentine Path is an old path that will soon serve as a gateway to the future casino. Secondary spaces are streets or plazas that are lightly used, or mostly used during a seasonal event that is taking place there. Some notable examples are Pynchon Plaza, located on Dwight street, the plaza is in the heart of downtown but is now hardly used. Mattoon Street turns into an annual arts festival every September, celebrating its 44th edition this year. Overall, the parks and plazas are well maintained while they lack more activities in the surrounding buildings. Most importantly, they lack attractive connections to each other. Our goal as designers is to connect these existing spaces to each other in a safe, walkable, and pleasant way.
Downtown Springfield’s street system consists of city arteries, secondary streets and tertiary streets. The city arteries, shown in blue, move in the east-west and north-south directions, and connect outside areas to downtown Springfield. The most notable observation from looking at the street network is that the new MGM casino will extinguish two formerly existing streets. This will challenge walkability as it will create a super block in downtown. Also notable is the fact that there are several on and off ramp for I-91. These ramps are a major reason for a lack of connection to the riverfront. Bikeways and bike lanes are nonexistent in the downtown area. The only defined bicycle path runs along the Connecticut River Walk and Bikeway and ends 500 ft before reaching the South End Bridge.

Downtown Springfield offers public transportation at both the regional and local level. Amtrak and Peter Pan offer trips to Boston, New York, and other cities in the Northeast region. Locally, the Pioneer Valley Transit Authority offers local public transportation, though the routes only run until 7 p.m. on weekdays, and limited routes on weekends. The PVTA schedule discourages travel by bus and makes people dependent on the automobile. If we want to increase the number of people living in downtown, bus service has to be improved substantially. This will also be relevant for future employees of the casino resort. Another issue with the bus system is that it lacks any presence in the western side of Downtown Springfield, which makes for an incomplete system that does not accommodate everyone’s needs. A bike share program has been proposed within the city to allow an alternative to the bus, consisting of two stations on Main Street, and one on Dwight Street. The bike share, similar to the bus stops, lacks properly displaced stations throughout the city. Bus stops and bike share stations spread throughout all of downtown Springfield would offer a variety of options for getting around the city, and a more consistent and later schedule would encourage nightlife.
Walking down Main Street in downtown Springfield, it is clear that the city is both accessible and walkable. Walking times to popular destinations around the city usually remain under ten minutes. Though this is true, many of these walks, such as down Dwight and Chestnut Street, are quite unpleasant, consisting of vacant storefronts and large parking lots.

Wayfinding is a problem once leaving Main Street. No clear direction from the Amtrak station provides wayfinding for visitors looking to navigate the city. Chestnut and Dwight Street are wide, one-way city arteries that promote speeding which is dangerous to bicyclist and pedestrians. Restricted access from Chestnut Street to the Museum District makes it inconvenient for visitors to access the museums from certain directions. Some pedestrian corridors are not clearly defined, resulting in most circulation being along streets, which is not always the most efficient route. East Columbus Avenue and the presence of I-91 make accessing the riverfront unsafe and unfriendly. These conflicts, as well as the issues regarding walkability, were identified and improved by the different design teams.
Street Typologies

- Main Street: two, one-way lanes
- East Columbus Ave.: two, one-way lanes
- Worthington Street: two, one-way lanes
- Dwight Street: two, one-way lanes

- I-91: No On Street Parking
- Median Strip: On Street Parking
- East Columbus Ave.: Minimal street trees.
Urban Grain and Land Use: Urban Grain, Land Use, Zoning and Parking

Urban Grain is describing the scale and morphology of a city. We assessed the balance of building sizes that are visible in pure figure-ground drawings. In downtown Springfield large buildings are legible in these drawings (in red): Mass Mutual Center, Tower Square and the future MGM Casino. Moving away from downtown the scale of buildings is smaller and indicates residential uses while a majority of mid-size structures are smaller commercial and old manufacturing buildings. Overall the urban grain of downtown Springfield creates a mix of different scales and building morphologies that reflect different eras in the history of downtown Springfield. The grain is not cohesive and there are some significant gaps that are not locations of public parks or plazas (page 26) and identify vacant lots or surface parking areas (page 36).
Our project area is dominated by mixed use (office and retail) and institutional. The ground plane does not depict the vacancies on the upper floors of many downtown buildings. These vacancies could be used for residential uses.

A majority of the downtown area is used for parking. Most of this is a result of the 30,000 commuters that come into downtown every morning. The surface lots may serve as potential intervention sites for temporary uses, green parking lots that promote infiltration or future building infill sites.

The majority of our project area is zoned “Business C”. In the Zoning Ordinance from December 9, 2013 the purpose of this district is described as “Accommodates a wide range of high intensity business, cultural and governmental uses appropriate for a downtown location and for this special area of the City.”
In order to gain a better understanding of our site, our studio split up into five groups to survey the city. Each group was assigned a walk that began at the new Union Station and they were required to inventory assets and assess the existing conditions. These round included: the trolley route north side on Worthington Street, Main Street, the trolley route south side on East Columbus Avenue, the intricate pathways, and lastly the north south route. Each of these pathways had things to offer visitors of Springfield, as well as many challenges that we needed to address.

Trolley Route East along Worthington Street
This route goes along the eastern portion of our area along a path on the future trolley route that will travel through Springfield from the MGM casino. Worthington Street is dominated by cars with three lanes of one way traffic. There are also many unactivated store fronts along this road discouraging pedestrian activity. In photo number 1, the exit of Union Station is shown. There is little to no single to show tourists where to go which shows a lack of way-finding throughout the city. Photo 2 is Phynchon plaza, this is an inaccessible plaza that has been close due to the stairs being too steep. This open area poses a great opportunity to be revitalized. Lastly photo 3 is a picture of the Serpentine Path in Springfield. This is a landmark to the people of Springfield, however maintenance requirements have been over looked and it does not function the way it was imagined.
Main Street
This route goes through the center of our focus area. Main Street is a car-dominated road and it can at times feel unsafe to walk along. Many of these storefronts are either vacant, or have an unactivated first floor business that discourages activity along the road. Photo number 1 on this route is the Hippodrome. This is a historic venue where movies and concerts were once held. This venue is in the process of being restored and will be a great attraction to those visiting the city. The second photo is of City Stage. This is another venue that hosts a variety of shows from musicals to concerts and orchestras. Lastly, the third photo is of Center Square Park. This is a small active park right off Main Street. Throughout the year there are many events in this park including pop-up beer gardens, craft fairs, and farmers markets in the center of the city.

Trolley Route South along East Columbus Avenue
This route leads us to the western side of our area along the western portion of the future trolley route. The route runs along the Connecticut River which offers boating and stunning views. However, East Columbus Avenue is a struggling area. It is unsafe for pedestrians to walk along or cross to get to the river side. This lack of safety is attributed to highway on and off ramps. In the first photo we see an underpass that pedestrians must use in order to walk along Main Street. This underpass is dark and scattered with litter, evoking the feeling of unease for those that go through. The second picture is along Gridiron Street looking towards East Columbus Avenue. Here we can see the highway overpass and how unpleasant the aesthetics in this area are. Lastly, the third photo is along East Columbus Avenue and it shows the need for pedestrian-focused way finding along this road.
Intricate Pathways
This route focuses on the intricate back alleys and narrow streets throughout the city. These passageways have little way-finding guidance and make it difficult for new visitors to utilize the short cuts. They were also either dark or unpleasant to travel through. Photo one is of Duryea Way. This pathway connects people exciting Union Station to Worthington Street. This passage is lined with tall fences that make the space feel narrow and unsafe. The second photo is of Stearns Square. This historic park is used for a concert series in the summer time. Although this park is active, many of the stores surrounding it are vacant which is a problem when attempting to activate the entire space. Lastly, the third photo is of Market Street. This through-way has undergone a change and now is a very active place in Springfield, especially during lunch hours.

East-West Route
This route begins the easternmost portion of our area to Riverfront Park in the west. This is a quick walk along many landmarks in Springfield including the museums and the City Hall at Court Square. The first photo is, again of Pynchon Plaza, this place has much potential to be utilized as it is currently vacant and unusable as a passageway connecting the Quadrangle Museums to downtown. The second photo taken under I-91 on East Columbus Avenue. The last portion of the route to reach the River contains some rather unpleasant views and challenging street crossings. Photo number three is looking west underneath the train tracks with the Riverfront Park in the distance.
Design Proposals

Heart of the City: Designing Arteries for the People
James Goode • Keira Lee • Yifei Yan
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Dwight Street Revival: A Green Artery
John Haryasz • Eric Kadziolka • Devon Vendetti
60 - 71

Stockbridge Court: A Village in the City
Samantha Hampton • William Jurczyk • Matthew Pilis
72 - 83

Ecology Vision
Tyler Gaudreau • Daniel Kossack • Preston Rowan • Chinda Samms
84 - 97

Green roofs act as an insulator for a building, reducing heating and cooling demands. Green roofs can beautify an environment, as well as become a habitat for many creatures. Green roofs can reduce and slow stormwater runoff. Green Roofs retain 70 - 90% of precipitation.

The living part of the roof is water's entry point into a complex, multilayered storm water treatment system. A layer of fleexe-like material under the sedum holds enough water to provide nourishment. The third layer drains any water not used to sustain the living layer and will filtered to nearby drains and storm basins. The final layer protects underlying roof from water, root and other damage.

Cooling
Green Roofs reduce cooling loads on buildings by 50 - 90%.

Traditional black roofs can reach 158 in the summer. CO2
A 10 foot x 10 foot green roof consumes as much CO2 as a 13 foot tree. One Tree can produce up to 250 pounds of oxygen per year.
HEART OF THE CITY
Designing Arteries for the People

James Goode • Keira Lee • Yifei Yan
Worthington Street is the epicenter of our design. This street will be reclaimed for pedestrians by removing the curb and using cobble stone paver. Cars will only be allowed on the road at certain times of the day.

Alleyways are the arteries of Springfield. These pedestrian corridors are often overlooked but they have the potential to be active spaces. With the addition of lights and artistic murals they can become a valuable part of Springfield’s downtown.

District Roads are streets that are shared between pedestrians and vehicles. Currently they are motor vehicle dominated and are unpleasant to walk. By expanding the sidewalks to a generous ten feet, adding more lighting, trees and parklets in key destinations, we can make Springfield a more pleasant place to walk.

Due to the high commuter population in Springfield, Parking lots have taken over a majority of the city’s square footage. These lots have the potential to be active, multipurpose spaces for special events, sports, and markets. By including events we can utilize these spaces while maintaining the needed parking.

This team focused on the core of downtown Springfield with the vision of creating a more pedestrian friendly and walkable city. Streets and spaces are categorized into distinct typologies to create identities. Alleyways play an important role in the design; they should be more inviting and usable for pedestrians. Worthington Street will be the spine and center piece and will be transformed into a pedestrian friendly road for the whole neighborhood. These strategies would reclaim and make use of these underutilized spaces in Springfield and would encourage people to come and walk the city.

Heart of the City: Designing Arteries for the People

Typologies

Multi-Purpose Lots
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Alleyways
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Worthington Street
Worthington Street is the epicenter of our design. This street will be reclaimed for pedestrians by removing the curb and using cobble stone paver. Cars will only be allowed on the road at certain times of the day.
This schedule shows just how flexible these parking lots can be. Rather than just an impervious surface filled with cars, they can be transformed to host a number of different uses. These events include markets, pick up sporting games, concerts, and even ice skating in the winter. We believe that in a city like Springfield no space should go underutilized which will result in a more active and complete city at all times of the day and year.
Multipurpose Lot on Worthington Street

This is a view from Stearns Square into the adjacent parking lot and down the Church Avenue Alleyway. This alleyway is inviting with the colorful art on the ground and the historic murals lining the walls, they are also illuminated with string lights strung up overhead. The lot shows one example of flexible use: this scenario demonstrates that it can be used for parking and pick up games of basketball between the neighborhood kids at the same time.
Worthington Street at Night

Once night falls on Worthington Street, the city comes to live. Overhead string lights are turned on and illuminate the streets. Overhead projectors display colorful designs on the ground. These designs send a message to everybody that the street is closed off to cars and allows pedestrians to freely roam the street. The projected displays can respond to seasonal change and occasion. The parking lot has now transformed to a night market. Street vendors and food trucks gather. On some other nights, the lot is a drive-in movie theatre or stage for an evening concert. The restaurants and bars along the street bring out chairs and tables for their customers to enjoy all the activities happening along the street.
Heart of the City: Designing Arteries for the People

City Stage Lot

District Road
Heart of the City: Designing Arteries for the People

Detail Plan: Worthington Street around Duryea Way and Stearns Square

Bird’s Eye View Facing East
Section Elevation along Worthington Street from east to west with newly planted street trees.
This proposal transforms Dwight Street from a fast, unsafe and unpleasant through-way, into a lively and engaging street that is catered to the pedestrian. This is accomplished through the following actions:

- Slowing the overall speed of Dwight Street to make it more pedestrian-friendly and accessible to cyclists.
- Change Dwight Street from a one-way street into a two-way street.
- Filling in the missing "teeth" along the street edge through the use of infill and re-purposing of existing buildings.
- Incorporating storm-water management in an effective and aesthetically pleasing way. Include a central bicycle avenue.
- Enliven the streetscape through street art on the ground and facades and, as light objects or sculptures.

Dwight Street in the Context of Downtown Parks

Dwight Street in the Context of Downtown Parks

Dwight Street Revival: A Green Spine for the City
Infill Phases

We walked up and down the cracked sidewalks of Dwight Street past boarded up windows and vacant parking lots. It soon became evident that we needed to “fill in the missing teeth” of this street edge in order to bring life back to the ground level storefronts. In our design charrette we learned that retail on the ground floor of apartments is desired by tenants, and attracts people from the street. We transformed unused buildings and created multi-level market rate apartments with stores on the ground floor. Now there will be more diverse possibilities to work, learn, shop and live along Dwight Street. The design proposal includes a new pub on the lower terrace of Pynchon Plaza, professional development center at the Tower Place high-rise apartments, a bike shop, a brand new “make it space”, and many more retail options to fill in the “missing teeth” of the streetscape. The redesigned Dwight Street becomes a place for new and old residents, visitors and employees.
This design re-purposes Pynchon Plaza to support outdoor activities. The addition of improved lighting will make the plaza a great place for outdoor nighttime gatherings. These improvements will include re-purpose buildings such as a pub with live-music events. The refurbished plaza is ideal to host outdoor events and concerts. This area is in close proximity to the Mass Mutual Center and will attract people that come from large events. More activity at night will increase the safety of the area while supporting local businesses.
Currently one of the most noticeable and problematic aspects of Dwight Street are the three, one-way lanes of high speed traffic. Dwight Street is currently a fast paced and dangerous through-way that is threatening to pedestrians and cyclists. To remedy this, we added a mid-lane bike artery and bike boxes and changed the street from one-way traffic to two way. We converted it from a vehicle dominant corridor to a street that is designed for a balanced use between vehicles, cyclists and pedestrians. Two-way traffic and the mid lane bike artery help to reduce the speed of the street. Additionally, raised painted crosswalks slow down vehicles and make pedestrians more visible. It also will provide a greater sense of safety while it make the street beautiful.

Small local businesses serve the population and create new jobs.

Dwight Street is Transformed into a Green Spine to Live, Work and Play.
Dwight Street Revival: A Green Spine for the City

Section Elevation along Dwight Street Facing East: Mixed Use Infill with Green Facades and Rooftop Gardens

Shops and Services on the First Floor - Residential on the Upper Floors.
Welcome to Stockbridge Square; a village in the city! Positioned in the heart of Downtown Springfield, the mixed use precinct is adjacent to the MGM casino resort and the Mass Mutual center, and is defined by Main Street, State Street, and Union Street. The goals of this design are to provide the residents of Downtown Springfield with a comfortable and beautiful urban area that appeals to a wide demographic, to create a diverse community that provides a variety of working and housing opportunities, and to create connections between major destinations. In order to fulfill these goals, Stockbridge Square is designed to provide open space for the community, instituted mixed use buildings and sustainable street systems, provided ground level retail, limited surface parking lots and parking underground, and provided multiple housing options for downtown.
The existing site offers ample opportunities for residential development: market rate housing has already a presence here and could expand and existing apartments in the area are being renovated right now. Our proposal builds on these trends and adds a wide diversity of housing options. Stockbridge Quarter offers market rate and high end apartment rentals, as well as row houses and single detached duplexes for sale.
Another noticeable aspect of the existing site was a heavy presence of parking lots. It was important to make sure that residents and visitors had the parking they needed, so we optimized parking through analysis and design thinking, resulting in much reduced surface parking, and the addition of an above and below ground garage. With this change, we added over one hundred parking spots, allotting almost every residential unit one spot, while providing ample parking for visitors and ALDI shoppers.
Stockbridge Square: A Village in the City

The center of Stockbridge Square is designed as a main gathering space for the block, offering recreation, food, and retail. The new neighborhood park caters to the needs of the residents within Stockbridge Square, while also inviting to guests coming from other parts of the city. The large Green offers the potential for weekend markets and performances, and presents a variety of seating on its edges. A small dog park and playground invites families and brings dog owners together. Cross Street and Crosset Lanes are pedestrianized and are important green connections to walk to the Quadrangle Museums.

This design proposal almost doubles the residential units in the area. New retail could be sustained and would serve the needs of the residents. An Aldi Market on the corner of State and Willow Street would offer an affordable downtown grocery store for present and future residents. Other first floor retail units welcome businesses such as Cafes, restaurants and bars, and necessity shops.
Willow Street will be converted into a tree-planted two-way street and becomes the primary north-south circulation axis for Stockbridge Square. Park Street is designed to develop varied housing types at the southern edge of our area and would blend in with the context one and two-family mansions. All streets will have significant street trees, proper lane widths, and buffered or shared bike lanes to promote safe traveling in and around Stockbridge Quarter.
This team designed a "toolbox" around the creation of a healthy environment in downtown Springfield: dry detention basins, stormwater planters, urban forests, green parking lots, green roofs and facades, walkable streets and public transportation. These features are combined creatively and reconstruct new natural systems in an urban environment to make Springfield more beautiful and healthy for residents and visitors. One centerpiece of the ecological vision is the demolition of obstructive parking structures under I-91. This will be a great stormwater park and serve other cities in the United States and the world as a model to redesign dilapidated landscapes underneath elevated highways.

This team explored a system of shared trolley and bus loops that connect residents and visitors to the whole downtown area while showcasing a restored city with a focus on high-performance ecological landscapes.

Major interventions

1. Riverfront and Highway Stormwater Park
2. East Columbus Boulevard
3. Green Streets and Parking Lots
4. Green Roofs and Facades
If just one driver per household switched to taking public transportation for a daily commute of 10 miles each way, this would save 4,627 pounds of carbon dioxide per household per year—equivalent to an 8.1% reduction in the annual carbon footprint.

PVTA on average produces 25% less CO2 than private automobiles.

Springfield electric trolley produces 0 CO2 emissions.

Adapted Major Buildings in Downtown would Cover an Area of Almost 222,000 sqft with Green Roofs.

Switching to Public Transportation in Downtown Reduces CO2 Emissions and Contributes Significantly to the Healthiness of the City.
Combined Sewer Overflow Analysis

- Combined Sewer Overflows (CSO’s) are sewer systems designed to collect storm water runoff, domestic sewerage and industrial drain water, in a collective piping system.
- The city of Springfield’s sewer system contains 24 CSO’s, 13 of which discharge into the Connecticut river, 4 to the Chicopee river, and 7 into the Mill River.
- The combined volume of these sewers overflow value is 141.3 million gallons of waste. Our 7 detention ponds can hold 4,769,203 gallons of water.
- We propose the city of Springfield to divert these four CSO’s to our seven detention basins.

Rainfall and Detention Pond Analysis

- Springfield has an average rainfall of 48 inches of rainfall or 27,694,473,216 gallons of rainfall per year.
- 34% of Springfield contains impervious surface which creates 9,416,120,893 gallons of runoff per year.
- Our 7 detention ponds can hold 35,673,638 gallons of water.
- That means all if all the water runoff water treated in the detention ponds, they would need to be fully filled 263 times to treat the average runoff per year.

\[
\begin{align*}
35 \text{ Million Gallons of Water} &= \text{1 Billion Gallons of Water} \\
&= \text{Amount of Rainwater produced per year} \\
&= \text{Amount of water held in detention basins}
\end{align*}
\]

Dry Detention Ponds Underneath Interstate 91 Retain a Maximum of Polluted Water and Cleanse it.

Dry Detention Ponds Hold back 1/4 of the Polluted Water in Springfield.
The walk along East Columbus Boulevard continues our vision for ecology along the elevated I-91 Highway. The boulevard features allayed trees that include Oak, London Plane tree, Pine and Maples. The widths of the travel lanes are reduced to 10 feet. Therefore it is possible to have ample sidewalks and bike lanes on both sides of the street. The experience for pedestrians and cyclists is pleasant, while vehicular traffic has been slowed down.

The Urban forest of Springfield’s waterfront area serves as a pedestrian-friendly area populated with clusters of native trees such as the Red Oak, Pitch Pine and Sugar Maple. The depressed playing fields serve as both a large area for recreation as well as a retention area for storm-water-cleaning before it enters the Connecticut River. The pedestrian-friendly walking area creates a circulation pattern that is reinforced with mass plantings of Phragmites and stretches the urban forest to the waterfront park.
The study model allowed us to better understand the complex spatial situation underneath I-91 highway and develop the design of East Columbus Boulevard. The space underneath the elevated I-91 is currently used as a massive two-story parking structure that block any potential visual access to the River and make it very hard to get there. This team decided to implement a system of dry detention basins to collect storm-water and existing combined sewer overflows (CSO’s) to manage storm-water on site. The seven basins hold a combined 4.7 million gallons of water and, if filled 263 times, could handle all of Springfield’s average rainfall per year.

The team also proposed four existing CSO’s to be filtered through our seven basins. The total volume of waste expended from these four CSO’s is about 141.3 million gallons of fluid and if filtered by all seven basins, would have to be filled thirty times per year to achieve 100% filtration.

Dwight Street has one of the highest traffic volumes in Springfield and is in need of major design changes. The proposal seeks to introduce two-way traffic lanes and a centralized bike lane. This will slow traffic down and will make it safer for pedestrians and bicyclists. Buffering the bike lane with large trees will allow for safe travel between lanes. This expansive tree canopy provides the sensation of enclosure and shade during the hot summers. On the left we see a combined trolley and bus stop. Dwight Street has generous sidewalks that encourage walking in the city.
A half mile long dry retention pond will turn the two-story parking decks into a performing ecological landscape. This also gives room for creating East Columbus Park Boulevard - a green, multipurpose corridor with multiple rows of trees for biking, walking running. Vehicular lanes for East Columbus Boulevard have been narrowed to slow traffic down. The new bus and trolley system will run along both sides of the highway to improve public transportation.

This transect shows how the urban landscape along the riverfront can be transformed into a place for playing, walking and biking while introducing actions to capture and infiltrate stormwater from the streets. The new Urban Forest will not only function as a retention area for stormwater but create a new habitat for wildlife to increase biodiversity in the city.
Relevant Previous Urban Design Studio Work and Publications Sponsored through the UMass Amherst Design Center:

- “Redefining America’s Postwar Urban Renewal at the Northgate of Springfield, MA”, UMASS Amherst Design Center, LARP, Graduate Urban Design Studio, Spring 2014. [http://scholarworks.umass.edu/larp_grad_research/37/]
- “Springfield’s ‘X’: From Crossroads to Center”, UMASS Amherst Design Center, LARP, Senior Urban Design Studio, Fall 2012/2013. [http://scholarworks.umass.edu/larp_grad_research/33/]
- “Reconnecting People to Springfield’s Riverfront: from the South End to Forest Park”, UMASS Amherst Design Center, LARP, Urban Design Studio Fall 2011. [http://scholarworks.umass.edu/larp_grad_research/20/]
- “Creating Livable ‘Neighborhoods in Old Hill and Six Corners”, UMASS Amherst Design Center, LARP, Graduate Urban Design Studio, Spring 2011. [http://scholarworks.umass.edu/larp_grad_research/24/]
- “Springfield’s Upper Lyman Warehouse District Visions for Revitalization”, UMass Amherst Design Center, Senior Urban Design Studio, Fall 2010. [http://scholarworks.umass.edu/larp_grad_research/19/]
- “From the Quadrangle to the River”, Graduate Urban Design Studio, Spring 2010. [http://scholarworks.umass.edu/larp_grad_research/17/]
- “Making Connections – Envisioning Springfield’s North End”, Senior Urban Design Studio, Fall 2009. [http://scholarworks.umass.edu/larp_grad_research/4/]
- “Revitalizing the South End – The Gateway for Downtown Springfield”, UMass - LARP, Graduate Urban Design Studio, Fall 2008. [http://scholarworks.umass.edu/larp_grad_research/5/]
- “Designing The ARC OF RECREATION – The Railroad Corridor from Armory Street to State Street”, UMass, Senior Urban Design Studio, Fall 2008.
- “Population 7 - Lyman Street Art Intervention”, UMASS Amherst Design Center, LARP, 2012. [http://scholarworks.umass.edu/larp_grad_research/18/]

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