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

Tyler Gaudreau • James Goode • Samantha Hampton • John Haryasz • William Jurczyk • Eric Kadziolka
Daniel Kossack • Keira Lee • Matthew Pilis • Preston Rowan • Chinda Samms • Devon Vendetti • Yifei Yan
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UMass Amherst Design Center in Springfield
Department of Landscape Architecture & Regional Planning
Senior Urban Design Studio Fall 2016
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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. The 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 but 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 untiring enthusiasm through all stages of this project.

We thank Guy Mclain, 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 Masulis - 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-Muri - 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 Drewniany - Executive Director Springfield Central Cultural District, Brian Connors - Deputy Director of Economic Development, Chris Russel - Springfield Business Improvement District, Jay Minkarah - President Develop Springfield, Daniel Montagna - UMass Center Springfield, Anja Ryan Duffy - Landscape Architect at GZA GeoEnvironmental, Michael D. Tully - Senior Parks Project.

We thank landscape architect Peter Flinker from Dodson & Flinker for sharing his experiences on community participation and engagement.
We thank landscape architects Dan Shaw and Alyson Taylor, architect Mohamed Ibrahim, landscape designer Stephen Roberts for providing great feedback during our studio reviews; we thank Design Center Director Michael DiPasquale for providing constructive desk critiques in studio.

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 create 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
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 portrays 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 the Union Station.
GOAL
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.
STUDIO PROCESS

September
- Walking tour with Urban Planner Scott Hanson
- Photographic and video studies of street-scapes
- 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.
Design Charrette:
Music and Art, Food and Retail, Green, Learn, Live, Work
The design charrette hosted at the UMass Center at Tower Square was invaluable to our design processes as well as helping us achieve our set studio goals and objectives. Six teams were formed consisting of separate topics. Each team researched existing opportunities in Springfield and gathered case studies for their respective topics. This information was then synthesized into boards and posters to be presented and discussed with our guests at six specific tables.
Music and Art

The Art and Music team investigated cultural assets. They found: 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 here 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. Mid-level plantings encourage trash and can make some feel unsafe fences that surround parking lots and businesses are ugly and unwelcoming.

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, reach out 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, Springfield was a lively city with an active street life. Most of building were multi-purpose in the sense that business were on the street level, and apartments were above. Also, street cars were the main form of transportation for the residents and visitors. As cars were not popular.

NOW:

Today, Springfield is far from what it once was. There are little to no active street front stores for fear of safety. Also There are mixed use buildings in the city. most of the buildings have offices rather than apartments on the upper levels. The high traffic, one way roads, also result in a motor vehicle dominated city.
**Resident Population**
10,000

**Gender**
- Female: 27%
- Male: 73%

**Race**
- White: 13%
- Black: 15%
- Latino: 70%
- Other: 6%

**Household Income**
- Less than $10,000: 38%
- $10,000-$19,999: 25%
- $20,000-$29,999: 16%
- $30,000-$39,999: 8%
- $40,000-$49,999: 5%
- $50,000-$74,999: 6%
- $75,000-$124,999: 3%
- More than $125,000: 1%

**Language at Home**
- English: 55%
- Spanish: 39%
- Other: 6%

- 20% of residents are unemployed.

- Over 30,000 commute for work.
- Approx 7,500 tourists come to museums.
- Thousands of casino visitors anticipated.
There is a housing problem in Springfield. 90% of downtown housing is subsidized (as of 2012). Resulting in very little opportunities for people to own, rather than rent housing downtown. This problem has also 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.
The city has been doing a lot to create more active community members. The Market Place Shops has a small boutique, cafe, and 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. Overall it is evident that investment to help create a more comfortable active urban environment are important.
Another way the City of Springfield has been creating a more active community is through a new program in which they enlist local artists to decorate utility boxes throughout the city. This 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.
Natural Systems:
Hydrology, Topography, Parking, and Vegetation
The History of Springfield’s watershed formation is Part of Glacial lake Hitchcock, and now leaves the city with river front access to the Connecticut river. This river system around the city 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 cities surface runoff into the Connecticut river. There are six overflows located in the larger downtown area. They that pollute the Connecticut 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 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.
The parking garages in the city are highlighted in dark blue and the surface parking lots are highlighted in light blue. The opportunity of these lots may serve as potential intervention sites, green parking lots that promote infiltration, and revitalizing the underused lots.

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 lack a coherent tree planting pattern, incomplete canopy’s, 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.

- Existing Trees
- Declining trees
- Mixed, dense vegetation
  - (Trees, shrubs and under-story)

The parking garages in the city are highlighted in dark blue and the surface parking lots are highlighted in light blue. The opportunity of these lots may serve as potential intervention sites, green parking lots that promote infiltration, and revitalizing the underused lots.
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. Tower 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 St 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.
Street Network and Hierarchy:
Public Transportation, Walking, Assessment
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 extinct two formerly existing streets. This will challenge walkability as it will create a super block in downtown. Also notable is the fact that there is an 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 River 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 no 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 Ave 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.
The Springfield Complete Streets Implementation Guide was prepared by Utile Inc. and a working committee of LiveWell Springfield with guided intentions of design recommendations for new streets and the reconfiguring of existing streets in Springfield. This ideal street is one that adds daily life to a city and accommodates all modes of transportation. The guide offers design strategies for roadways, sidewalks, transit & bicycles, landscape & storm water management, and street furniture & street management, catering to each street typology within Springfield.
Street Typologies

- **Main Street**
  - Two, one-way lanes
  - Average sidewalk = 8 feet - not wide enough for heavy circulation.
  - No bike lanes.
  - On street parking on most streets.
  - Minimal street trees.

- **East Columbus Ave.**
  - One & two-way streets.
Urban Grain:
Urban Grain, Land Use and Zoning
Urban Grain is reading the size of buildings within a certain district to allow a balance in design to fit the existing scale. Downtown has major buildings such as The Mass Mutual Center, Tower Square and the soon to be MGM Casino. Moving outside the core of downtown, the scale of buildings is getting smaller - the perception changes.
Land Uses in Downtown Springfield

Commercial
Mixed Use
Institutional
Residential
Open Space
Industrial
Vacant Buildings
Parking
Business B: Main street and pedestrian oriented shopping districts with residential allowed
Business C: Public transportation. 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.
Residential B: Medium density residential, primarily single family, and two family
Riverfront: Intended to accommodate and control the development of the riverfront land so as to promote and protect the nature and aesthetic qualities of the river for the general public
General industrial: Industrial zoning is for manufacturing and warehousing operation
Street Experience
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 Worthing 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 North Side along Worthington Street**

This route goes along the northern portion of our site, and it is along a path of the future trolley route that will travel through Springfield from the MGM casino. Worthington street was a vehicular dominated road, 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 singe to show tourists where to go which shows a lack of way-finding throughout the city. Photo 2 is Pynchon plaza, this is an unaccessible 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 very vehicular dominated road and it can at times feel unsafe to walk along. Many of these store fronts 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 where 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 Tower 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 Side along East Columbus Avenue
This route goes to the southern side of our site along the southern portion of the future trolley route. This part of our site suns 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 unsafely 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 goes focuses on the back roads throughout the city. These are routes that are seldom traveled by car or pedestrians. These passageways were show to have little way-finding guidance, making it difficult for new visitors to utilize the short cuts, and they were also either dark or unpleasant to travel through. Photo one is of Duryea Way. This pathway connects people exiting union station to Worthington street. However is lined with tall fences that make the space feel out of proportion and unsafe. The second photo is of Sterns 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 under gone a change and now is a very active place in Springfield.
North South Route
This route goes from the northern most portion of our site to the southern most portion of the site. This is a quick walk it passes by many important places in Springfield including the museums and the waterfront. 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 passage way connecting the north south axis. The second photo is under the under pass on East Columbus Avenue this is the main way to reach the river front, and it is offers very unpleasant views. Lastly the this photo is looking under the train tracts to the riverfront. However this is not currently ADA accessible and has many issues with flooding.
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 be 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°F 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.
We focused on the core of downtown Springfield with the vision of creating a more pedestrian friendly and walkable city. To do this we divided streets and spaces into separate categories with distinct typologies to create identities. There was an emphasis on making alleyways inviting and usable for pedestrians. As well as making Worthington street a centerpiece and culmination of these ideas. These strategies would reclaim and make use of these underutilized spaces in Springfield and would encourage people to come and walk the city.
Worthington Street is the epicenter of our design. This street will be reclaimed for pedestrians by removing the curb and using cobblestone pavers. 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 in the alleyways, they can become a valuable part of Springfield.

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.

Typologies

Multi-Purpose Lots
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Heart of the City: Designing Arteries for the People

Multi-Purpose Lots

### Summer

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<td>Tues</td>
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<td>Pickup Hockey</td>
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<td>Wed</td>
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<td>Pickup Hockey</td>
<td>Winter Market</td>
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<td>Thur</td>
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<td>Winter Market</td>
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<td>Sat</td>
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<td>Winter Market</td>
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<tr>
<td>Sun</td>
<td></td>
<td></td>
<td>Winter Market</td>
<td></td>
</tr>
</tbody>
</table>

Winter Special Events:
- Snow Sculpting Competition
- Ice Sculpting Competition
- Holiday Sale
- Winter Market
- Morning Market
- Winter Market
- Market
- Pickup Basketball
- Pickup Soccer
- Beach Volleyball
- Movie Night
- Dog Training Competition
- Beer Festival
- Wine Tasting
- Frozen Yogurt
- Art Exhibition
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.
Heart of the City: Designing Arteries for the People
Multipurpose Lot on Worthington Street

This is a view from Stearns Square into the adjacent parking lot and down the church ave alleyway. The 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 over head. Here we can see the flexibility of the lots. In this scenario is it used for a combination of parking and holding some pick up games of basketball. The lot is being used for a combination of parking and for a pick-up game of basketball between the neighborhood kids. This is a
Heart of the City: Designing Arteries for the People
Worthington Street at Night

Once night falls on Worthington Street, the city comes alive. String lights overhead turn on and illuminate the streets, and projectors overhead project colorful designs on the ground. These designs signal that the street is closed off to cars, allowing pedestrians to freely roam the street. The parking lot is transformed to a night market, where street vendors and food trucks gather for people to shop. On some other nights, it is a drive in movie theatre, or an evening concert. The restaurants and bars along the street bring out chairs and tables to the streets 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
Heart of the City: Designing Arteries for the People
Project Statement
The goal is to transform Dwight Street from a fast unsafe and unpleasant throughway, into a lively and engaging street that is catered to the pedestrian.
We accomplished this by slowing the overall speed of the street and making it more pedestrian friendly and accessible to cyclists, filling in the missing “teeth” along the street edge through the use of infill and re-purposing of existing buildings, and by incorporating storm-water management and street art in an effective and aesthetically pleasing way.
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 possibilities for a new pub, professional development center, a bike shop, a brand new “make it space”, and many more retail options to fill in the “missing teeth” of the streetscape. All of which are included in the redesigned Dwight Street a street made for the shopper, the passerby, and the resident.
Existing

Phase One: Traffic Reorganization

Phase Two: Infill and Re-purposing

Phase Three: Ecology
In our design we have re-purposed Pynchon plaza so that it can support outdoor activities. The addition of improved lighting will make the plaza a great place for outdoor nighttime gatherings. These improvements will include infilling nearby buildings with bars that can use the renovated plaza to host outdoor events and concerts. The fact that this area is in close proximity to the Mass Mutual Center means it will attract more use when large events are held there. More activity at night will increase the safety of the area while supporting local businesses.
Dwight Street Revival
Currently one of the most noticeable and problematic aspects of Dwight st are the three, one-way lanes of high speed traffic. Dwight st 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, but we also incorporated the use of raised painted crosswalks to slow down vehicles and make pedestrians more visible and to give them a greater sense of safety.
Dwight Street Revival:
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 our design were to provide the residents of Downtown Springfield with a comfortable & beautiful urban area that appeals to a wide demographic; to create a diverse community that provides a variety of working & housing opportunities; and to create connections between major destinations. In order to fulfill these goals, we designed our site to provide open space for the community, instituted mixed use buildings & sustainable street systems, provided ground level retail, limited surface parking lots, and provided multiple housing options for downtown.
The existing site offered ample opportunities for residential development, as market rate housing was already present, as well as in progress apartment renovations. Working off of that, we continued that successful language, and added other forms of housing as well. Stockbridge Quarter offers market rate and high end apartment rentals, as well as row houses and single detached houses 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.
Precedents

Section B-B
The open space of Stockbridge Square is designed as the central hub, offering recreation, food, and retail in the form of elegant beauty. The open space caters to the needs of the residents within Stockbridge Square, while also being inviting to guests coming from other parts of the city. The large green space offers the potential for weekend markets and performances, and presents a variety of seating on its edges. Also within the central area is a small dog park and playground, catering to any family or individual. The edges of the space also acts as a clear through-way for those going to the Museum District, MGM casino Resort, and other destinations within Springfield. This was made successful through the removal of Cross street, as well of other circulation changes.
Supplementing this increase in housing is food and retail to support the needs of the residents. An Aldi Market on the Northern edge of the site offers an affordable Downtown grocery store, and first floor retail units welcome businesses such as Cafes, restaurants & bars, and necessity shops.
Stockbridge Square: A Village in the City

Willow Street, which consisted of both one and two way segments has been fully converted to a two-way street, becoming the primary north-south through-ways of the site. Park street was also extended adjacent to Stockbridge Court, which provided the opportunity to develop varied housing types at the southern edge of our site. Pleasant street improvements include street trees, proper lane widths, and buffered & shared bike lanes promote safe traveling in and around Stockbridge Quarter.
Evening Events
While designing downtown Springfield we maintained a constant vision of creating a healthy environment, both literally and figuratively. We implemented a series of features that we designated our “toolbox” to help us reach our goal. These features include dry detention basins, stormwater planters, urban forests, green parking lots, green roofs and facades, public transportation, and improved circulation. Our goal as a team was to incorporate each of these features throughout the design and reconstruct the natural systems of the urban environment, while beautifying a more connected downtown.
One of our main focuses as a team was to direct traffic from downtown as far as Dwight Street, through the arteries of Springfield and invite them to experience a redesigned waterfront. By strategically screening circulation, we allowed pedestrians a view into our urban forest to give them a sense of where they are going, whereas before they would have been met with large parking structures. The introduction of a trolley route allowed us the ability to remove the parking structures, and create a more sustainable transportation system for people downtown.
GREEN ROOFS

THE LIVING ROOF
The living part of the roof is water’s entry point into a complex, multilayered storm water treatment system.

NOURISHMENT
A layer of flaxlike material under the sedum holds enough water to provide nourishment.

DRAIN LAYER
The third layer drains any water not used to sustain the living layer and will filtered to nearby drains and storm basins.

SPECIAL MEMBRANE
The final layer protects underlying roof from water, root and other damage.

BUILDINGS

Tower Square  City Stage  LA Fitness  Mass Mutual Center
Peter Pan Station  Peter Pan Garage  Berkshire Bank  Gerna Middle School

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.

Cooling
Green roofs reduce cooling loads on buildings by 50 - 90%.
Traditional black roofs can reach 158 in the summer.

Ecology Vision

<table>
<thead>
<tr>
<th>Building</th>
<th>Area of Green Roof (sq ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tower Square</td>
<td>38,325 sq ft</td>
</tr>
<tr>
<td>City Stage</td>
<td>25,010 sq ft</td>
</tr>
<tr>
<td>LA Fitness</td>
<td>7729 sq ft</td>
</tr>
<tr>
<td>Mass Mutual Center</td>
<td>100,161 sq ft</td>
</tr>
<tr>
<td>Peter Pan Station</td>
<td>38,325 sq ft</td>
</tr>
<tr>
<td>Peter Pan Garage</td>
<td>38,325 sq ft</td>
</tr>
<tr>
<td>Berkshire Bank</td>
<td>7,664 sq ft</td>
</tr>
<tr>
<td>Gerna Middle School</td>
<td>4,785 sq ft</td>
</tr>
<tr>
<td><strong>Total Area</strong></td>
<td><strong>221,949 sq ft</strong></td>
</tr>
</tbody>
</table>
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.

**US GREENHOUSE GAS EMISSIONS**

Average car produces 20 lbs of CO2 are produced from a gallon of gasoline.

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

Springfield electric trolley produces 0 CO2 emissions.
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.

\[
\begin{align*}
35\text{ Million Gallons of Water} & = 1\text{ Billion Gallons of Water} \\
\end{align*}
\]
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.

- If the CSO’s were diverted into our seven detention ponds, the

\[
\text{Combined Volume of CSO's} = 35 \text{ Million Gallons of Water}
\]

= Amount of water held in detention basins

= Amount of waste released into CSO's
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. By pulling the sidewalk out, and narrowing the road lanes, we were able to improve the experience of pedestrians and cyclists, while simultaneously slowing down vehicular traffic. Sharing the extended sidewalk is the bike path that runs throughout Springfield.
Riverfront and Urban Forest

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 storm-water 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.
Dwight Street/Harrison Avenue Intersection

As one of the highest traffic areas in the downtown—for both vehicles and pedestrians—Dwight St was in need of major design changes. By combining two-way traffic and a centralized bike lane, we were able to assimilate safer vehicular traffic with an introduced bike lane. Buffering this bike lane with vegetation allows for safe travel in between lanes. With a strong tree canopy overhead, it will feel as if it is completely detached from the road. The area on the left also gives a view of a trolley stop, with the green parking lot behind it, as well as the extended sidewalks.
By building a working model, we were able to get a hands-on point of view of the design on East Columbus Boulevard. The space underneath the elevated I-91 highway is currently used as a massive parking structure, with two stories available for use. This obstructs what could be beautiful lanes of the Connecticut River—both visually and circulatory. We 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. We 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.
Climbing elevation from the river bank featuring a buffer with rejuvenated vegetation and a stairway for sitting, to the elevated area of the riverfront features large, open lawn space. Above the existing retaining wall and across the train tracks the current parking lot is maintained, followed by the urban forest with the various species of trees for diversity. Before reaching the detention basin under the overpass, space is reserved for pedestrians as well as bicycles.
Under the overpass, an artery is created coming from Court Street, for easy pedestrian flow down to the riverfront. In between the overpass and East Columbus Boulevard lies a pocket park, with various tree plantings that add patches for shade and wildlife to inhabit. As previously mentioned, the lanes that make up East Columbus Boulevard have been narrowed to slow traffic, and the new trolley system can be seen, as well as the trolley stop that we designed--featuring a green roof and bench with a storm-water planter behind.
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