Reconnecting The Blackstone & The City

A Project by the 2020 Sustainable Design Studio at The University of Rhode Island
Prepared for the City of Woonsocket Planning Department
Prepared By Lindsey Corse and Miranda Hulme with Direction from Professor William A. Green

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Acknowledgments

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Drone image of Downtown

Executive Summary

The Blackstone River is a New England resource which has played an important role in the industrial revolution and the rise of New England cities and towns. With its fast moving waters, it served as an ideal source for powering mills and factories located along its banks. Riverside cities and towns benefited during the 19th and early 20th centuries; however, as alternative sources of energy and transportation were developed, the mills became less important to the economic life of the region and were soon converted to other uses or abandoned. The cities in which the mills were located, were hard hit and left to consider what to do with their unwanted buildings. Woonsocket, Rhode Island is an example of a city that is still grappling with its industrial past as well as with issues such as a downtown in need of revitalization, a diverse population in need of housing and economic opportunities and a river needing to be cleaner and more accessible. This challenging environment was the focus for the URI 2020 Senior Landscape Architecture Design Studio.

The project was initiated in the summer of 2020, when Will Green (URI Professor) and Kevin Proft, (Woonsocket Planning Department) spoke about the potential for a senior studio. The intent would be to have students study and reimagine the historic downtown and its connections to the Blackstone River. The City and State of Rhode Island have made significant investments in and around Main Street, including to major intersections and the bikeway along Truman Drive, but the City still recognizes there is progress to be made to revitalize the downtown in a way that spurs economic development. Talk centered around concepts for mixed-use development, more efficient circulation and the redesign of parks abutting the river. It also touched upon improving pedestrian and bicycle connections to recreation areas and points beyond the downtown. It was thought that these and other improvements were necessary to make the city more attractive to families, businesses and visitors. Project areas mentioned included Main Street and Truman Drive, Thundermist Falls and River Island Park, as well as the Blackstone River. It seemed like a suitable project had emerged. The following report illustrates the process the students undertook and ideas and concepts they proposed. It must be noted that the project occurred during the Covid-19 pandemic, which limited face to face interactions.

The project began with a masked kick-off meeting and site walk in September. The two guides, Planning Director, Scott Gibbs and City Planner, Kevin Proft, led the students to Thunder-mist Falls, up Main Street, over to Truman Drive and to River Island Park. The group visited buildings and park spaces, walked along sidewalks, past storefronts, over infrastructure and on a new section of the bike trail. They saw a historic river and a thundering waterfall, wonderful architecture, squares and sculptures. They also saw empty parking lots, vacant buildings and a limited landscape along the streets and one that was degraded along the river. Following the site visit, the class returned to their studio and began an analysis of existing conditions and uses. Students learned of the city's history and culture, its economy and underlying resources. Later, they returned to the city and toured the cultural museum, met with a community group and examined historic and current images and plans. The students prepared analysis slides for a remote workshop at the end of October. In breakout rooms, they led a SWOT session (Strengths, Weaknesses, Opportunities and Threats) and a map activity for gathering comments about issues and places. Scribes took notes and placed pins and comments on the plans. Through the process, the students were able to identify a list of key issues and places to work on.

Over the final weeks of the semester, teams developed illustrative design concepts for their sites that included providing connections to and from each site while also improving access to the river. Focus areas included Main Street, Truman Drive, Thundermist Falls Park (along River Street) and River Island Park. A few noteworthy features included an accessible ramp with spacious overlook landings that connected Main Street to Truman Drive, an enhanced one-way Truman Drive, and a new path and possible river crossing to Costa Park. There were new gathering spaces, plantings and green infrastructure. One team suggested adding solar panels to parking areas to offset local energy costs. Final designs were presented remotely to a group representing the City, businesses and community groups.

Project Highlights

Thundermist Falls

Two schemes for a new park on a vacant site providing:

- Views of river, falls, bridge and downtown and places for gathering, sitting and relaxing.
- Colored LED lights on the bridge and parks lights make an attractive destination.
- A stormwater collection system and floating planters for aesthetics and improving water quality.
- A northern bike path to run on municipal land and across the river to Costa Park.

Main Street

Improvements intended for new commercial uses and housing:

- Change circulation for more street traffic diverted from Truman Drive.
- Reduce on-street parking and provide sidewalk, crosswalk and landscape enhancements.
- Provide green infrastructure for stormwater on street and in parking areas.
- Enhance intersections with culturally appropriate landscape designs.

Truman Drive

- Reduce number of traffic lanes and make street one-way.
- Create a buffered strip including the bike lane down to River Island Park intersection.
- Redesign steps from Main and as a hillside landscape of ramps (ADA) and landings with seating.
- Bike lane, buffer, green infrastructure and connection to river, library and community garden.

River Island Art Park

- Theme: a walk through history with paths, gardens and connection to the Museum.
- Acquisition of 2-vacant parcels insure integrity of park, defensible space and additional program.
- Accessible kayak launch, platforms and seating into the river with a boardwalk and signage.
- Gardens and river plantings, repurposed rink for multiuse recreation use, and LED lights.
- Gazebo and overlook, Art stage for movies/performance, pergola by outdoor kitchen.

Solar Energy

To offset engery needs.

- Use of parking areas for solar canopies with green infrastructure and suitable plantings.
- 2.8 acres of canopy to generate energy for 100 households.

Will Green, ASLA, Professor of Landscape Architecture, URI

Introduction

Incorporated in 1888, Woonsocket is a mid-size city in northeastern Providence County, Rhode Island, with a population of approximately 40,000 residents. The city is situated between Providence, Worcester, and Boston. Woonsocket thrived as a great industrial center in the nineteenth century. Filled with remnants of the past, Woonsocket's built and natural environment holds a rich and historically significant framework for improvement. Downtown Woonsocket's past and future are inseparably intertwined with the Blackstone River. A history of Illegal dumping and industrial pollutants plagued what was once the city's lifeline. This impacted water quality and allowed the city to turn its back on this important resource. However, with land use changes and environmental regulations that began with the 1972 Clean Water Act the River has undergone a transformation and it is safe enough for recreational activities like kayaking and canoing today. Still, more environmental remediation is necessary for swimming and direct contact to be deemed safe.

The study area for this Landscape Architecture Senior Sustainable Design Studio project is the Downtown Woonsocket area, located directly North of the Blackstone River. The studio divided their work into phases: analysis, public engagement, and design. Designs were broken into five designated segments: Main Street, Truman Drive, River Island Art Park, Thundermist Falls, and a Solar Power overlay. They focused on physical and nonphysical linkages to the other segments and the surrounding community. The purpose of this project was to address challenges in the area and highlight Woonsocket's strengths and opportunities while designing an environmentally, culturally, and economically strengthened downtown area. This report details the students' process by which these design proposals were developed.

Thundermist Falls Park

River Island Art Park

Main Street

Truman Drive

Site Visit

This project began for the students with a briefing from Kevin Proft, Woonsocket City Planner, and Scott Gibbs, President of the Economic Development Foundation of Rhode Island. This was followed by a socially distanced site visit which helped students see and experience the downtown area firsthand. Students took pictures, asked questions and observed the site's existing conditions. The studio was tasked with defining the exact site extents and creating a standard base map. This beginning to the project, coupled with independent student research, informed the site analysis, public workshop, designs, and final presentation that followed.

Kevin Proft giving students a tour of downtown.

Scott Gibs sharing information about the city.

Precedents

Design precedents can be utilized to communicate the vision of a final product. They can be powerful tools for fueling students' ideas while giving stakeholders a clearer sense of where a project is headed. The students prepared two separate presentations on built precedents selecting from local, and global. Global precedents allowed the students to show the people of Woonsocket how exciting and benifical this transformation could. Local precedents are places with which people are likely to be familiar and they help the community understand the goal and vision of the project.

Mill River Park and Greenway an exciting ecological restoration in Stamford, CT

Global

A collection of global precedents were examined first: Designs from far and wide fueled by creativily and large issues to address. These design precedents tackle global issues with respect to environmental health, economics, sustainability, and access equity. The purpose of studying global precedents is to draw from hugely successful projects and understand how and why they are successful. By learning from these precedents, students can apply big ideas to smaller scale projects like Woonsocket. Precedents show students and stakeholders what groundbreaking designs are capable of accomplishing. They allow the students to explore possibilities of implementing smaller versions of large ideas in Woonsocket.

Global projects with seemingly limitless budgets and resources can feel exciting, yet intangible due to sheer scale. Local precedents on the other hand, are studied to offset this and provide more attainable and approachable design solutions.

The Green Rivers Greenway St. Louis, MO, showing access, separation and planted areas for drainage.

Local

Local precedents are a way of showing stakeholders projects constructed on geographically and contextually similar sites. This puts design possibilities closer into perspective. Examples of local spaces that stakeholders may be familiar with makes redesigning Downtown Woonsocket feel more attainable. Students selected precedents from Rhode Island, Massachusetts, and Connecticut and presented them during class. They chose public spaces, streets, or parks they were familiar with and where pedestrians, bicyclists and narrower streets provided safety and comfort. Their objective was to find examples with a similar identity, history, and scale to Woonsocket. For each precedent chosen, students explained the location's relevancy to Woonsocket, and how each could result in functional, sustainable and aesthetic improvements.

Westminster Street , Providence, RI has adequate vegitation and street trees.

Thames Street, Newport, RI preserveing the scenery of the buildings.

A inclusive connection to the water, Slater Memorial Park, Pawtucket, RI.

Site Analysis

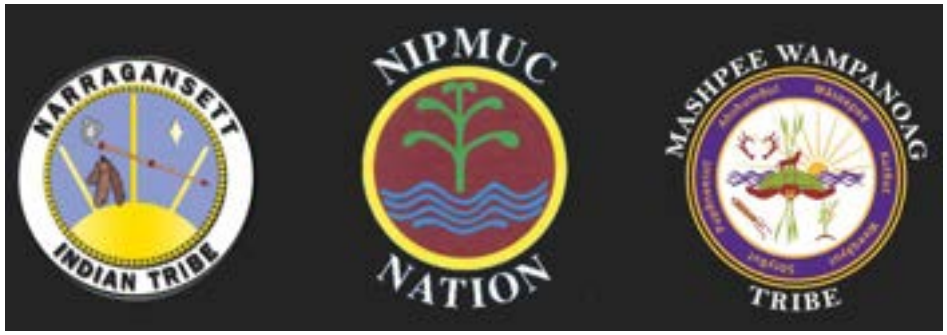
Through analysis, strengths and weaknesses of a site are assessed. The project area's features and overall functionality were evaluated during this process. The purpose of analyzing a site before design, is to recognize opportunities for change. Students distributed the site analysis into three subjects: History & Culture, Natural Environment, and Built Environment. Their work was influcended by their research, existing data, and converstations with residents and others in business. The final analysis was then virtually presented as a verbal and visual presentation.

History & Culture

The Blackstone River is over 500,000,000 years old. It is what first brought people to colonize the area known as Woonsocket today. Paleo Native Americans first settled along the river around 10,000 B.C. The three prominent Native American tribes that settled in the Woonsocket's area were the Narragansett Tribe, Nipmuc Tribe, and Wampanoag Tribe. They lived semi-nomadically, depending on food that they fished, grew, gathered, or hunted along the river corridor.

Mill Work

In 1661, Englishman Roger Williams purchased the land today known as Woonsocket. Once the Industrial Revolution began in 1790, Irish immigrants were recruited to construct the Blackstone River canals that would help power Woonsocket's mills. Soon after, French Canadian immigrants came to work in the mills and comprised the population's majority in the 1860s. Once part of Cumberland and Smithfield, Woonsocket became a separate entity in 1871, and then a city, in 1888. At the height of the Industrial Revolution, pollution created from Mill activity flooded the Blackstone. It accumulated trash, dyes, and heavy metals. By the 1990s, a period of industrialization, water quality in the Blackstone worsened.



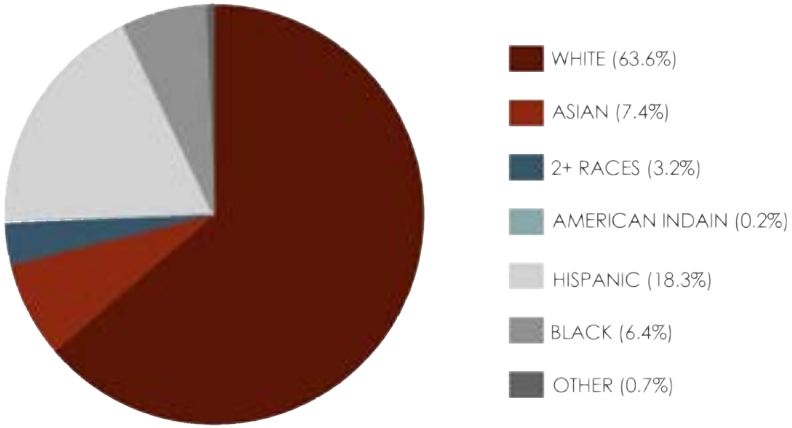
Three Prominent Native American Tribes

Model of a French Canadians Women working the mills
photo Provided by Museum of Work and History

Woonsocket is known for its river and its history as both are directly tied to the mills built during the industrial revolution. Aware of the city's pride in its past, the students decided to delve into that past and the cultures that contributed to it. Diving into the culture of downtown Woonsocket the students were able to acknowledge and appreciate the character of the city, later on, bringing this out in their designs. The students set up a virtual tour at the Museum of Work and Culture led by Sarah Carr, to learn about the influences of culture and work in Woonsocket's history. Students studied historic photos and documents. They interpreted cultural shifts and population changes in the city, and their impact on the built environment over time.

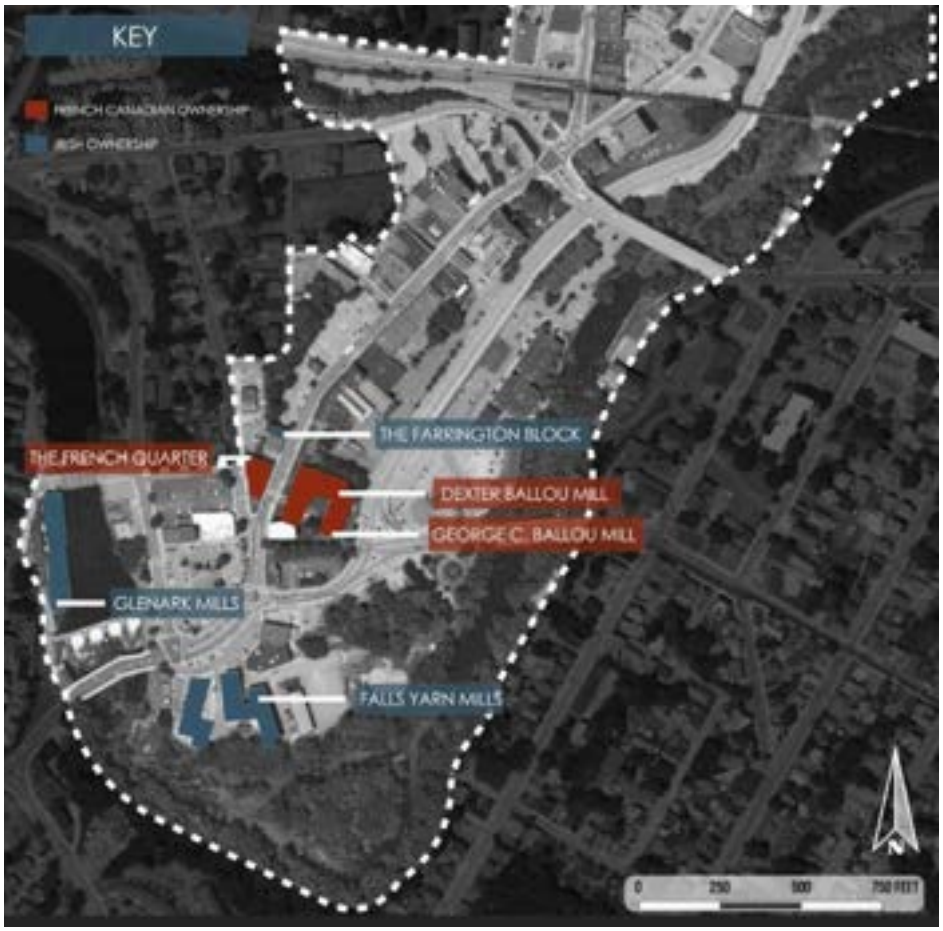
Influence

Today's demographic has changed from French Canadian dominance to a strong Latin American influenced city. This is due to the fact that once the Industrial Revolution had ended the mill owners began to recruit new immigrants from Columbia and other Latin American countries because they could not find local people who wanted to work in the textile industry.



Today's Demographics Pie Chart

The most noteworthy features within the downtown area were associated with its historic mill architecture, the river, and diverse community. The students noticed little visible emphasis being placed on these features on their walks downtown. This suggested an opportunity to highlight the history and culture through their project area designs.



Old Mill Owners

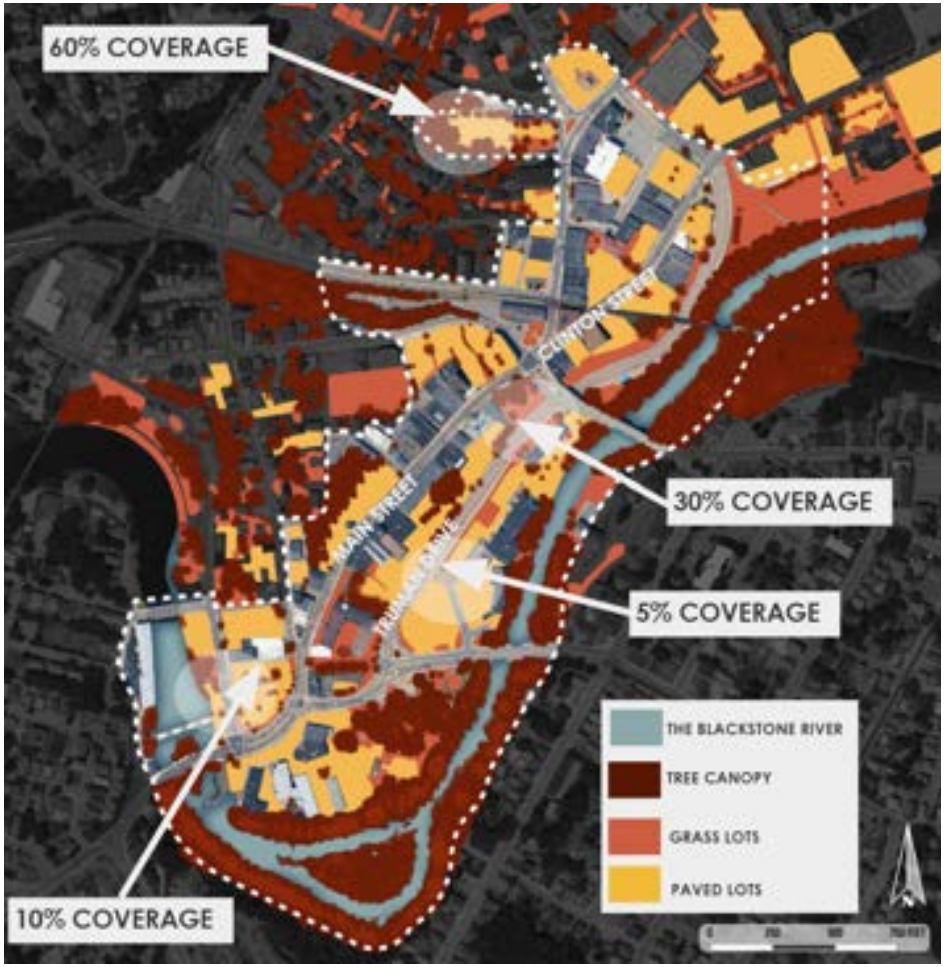
Natural Environment

The students knew that looking into ecological health along the river was extremely important. They were interested in preserving the natural environment and maintaining a balance of green spaces and hardscapes. They were also concerned about the soil conditions, given the area's extensive mill history. The group explored this by using GIS mapping tools and extensively researching the river.

The majority of Woonsocket is paved. Little room is allocated for vegetation throughout the downtown area-Naked streets and open spaces are lightly dabbled with trees, if at all. The students discovered that Thundermist Falls Park was made up of ten percent green space, River Island Art Park contained an impressive sixty percent vegetation, and Truman Drive contained only five percent green space. They also noted many vacant lots and empty parking lots in the site limits. They concluded that there is ample room within these spaces to maximize the vegetation, and doing so is vital to Woonsocket's health. Increased vegetation has the power to mitigate the urban heat island effect, connect people to nature, and treat and reduce stormwater runoff, among other benefits.

Soil Impacts

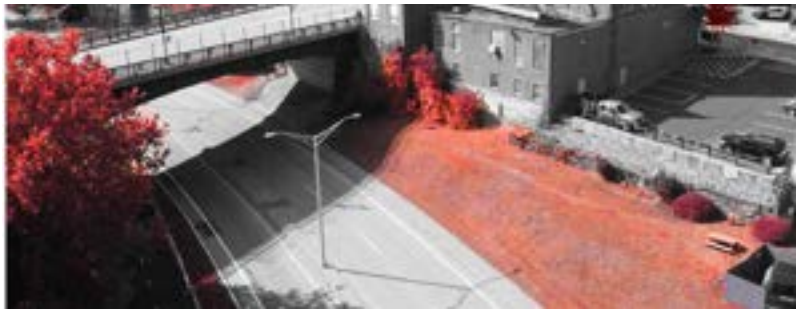
Due to Woonsocket's history as an industrial city, it has had major impacts on the landscape and surrounding environment. Illegal dumping and Industrial waste have negatively impacted soils by depleting nutrients and replacing them with numerous toxins and metals. The main contributors to this are cadmium, lead and copper. Decades of pollutants and damage have actuated as pathogens within the Blackstone River and soil, and a loss of biodiversity. Soil quality varies throughout the site. The water quality continues to be affected by runoff and other non-point sources of pollution within a large watershed (454 square miles - RI DEM). Runoff continues to negatively affect the river today and the flooding that happened in the past negatively affected the soil.



Vegetation coverage throughout downtown.

5% coverage

10% coverage



30% coverage

60% coverage

Soil quality throughout the downtown Woonsocket project area.

Through analysis, the group saw the value of the improving ecological systems and the suitability of the Blackstone River for habitat development. Some limiting factors include the general lack of vegetation throughout, the streetscapes of Woonsocket, and the unfiltered stormwater running directly into the river. There are many opportunities for improvement through the addition of street trees, as well as other green infrastructure strategies to help mitigate runoff and preserve the ecological health of the city.

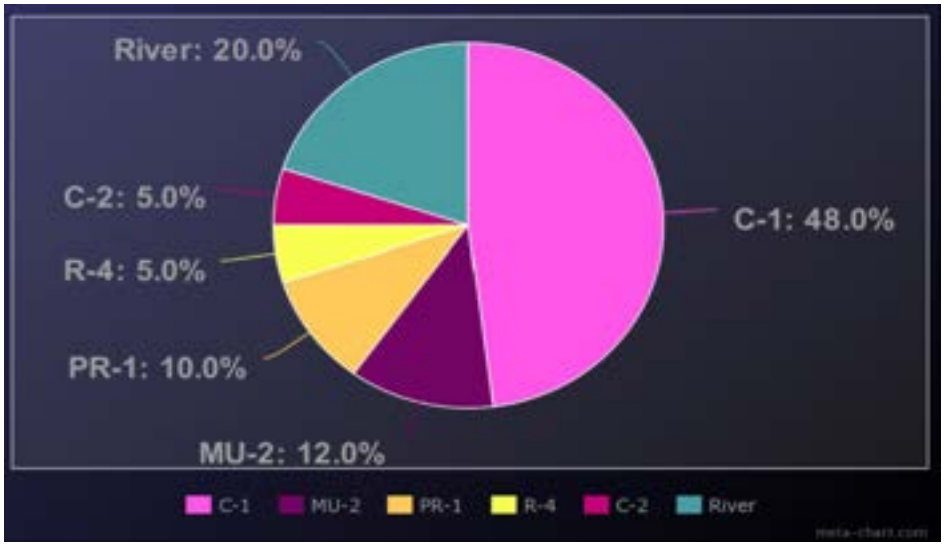
Built Environment

Woonsocket is a densely developed city with historic mills and an important river that contribute to its unique visual quality and form. In addition to the mills, Woonsocket is the location of Rhode Island's first free public library, in what is City Hall today and below the existing pavements and buildings is an impressive network of abandoned canals and pipes. Its architectural heritage is arguably its greatest asset, but its potential may be found in linking its culture, architectural history and its economy to its future. Today, over-developed land and wide-spread vacancies are left in its wake. The approximate vacant commercial space inside buildings in the study area totals 98,000 square feet, or 2.2 acres. The total land area covered by impervious surfaces, or built environment, is approximately 2,100,000 square feet, or 48 acres. This leaves 32 acres of unpaved space, including a portion of the Blackstone River that lies within the site limits. This means 39.8% of 80 acres of land is unpaved or undeveloped, river included. A majority of the site, about 60.2%, is covered by pavement which is a problem if these unpaved surfaces are creating runoff that drains into the river.

Existing Zoning

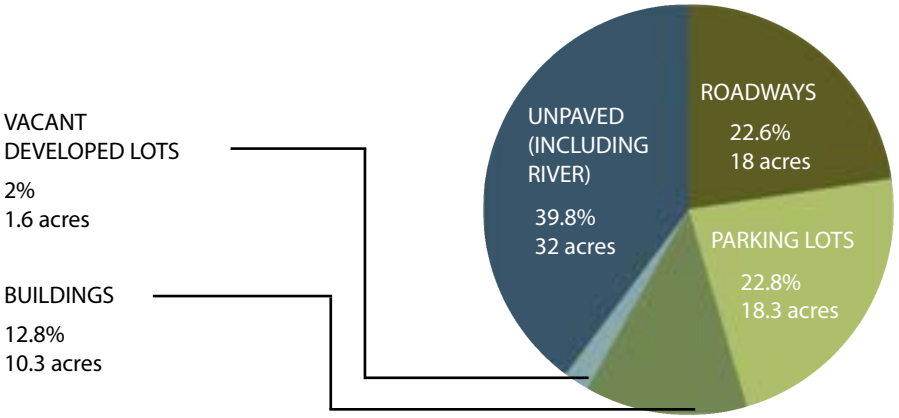
Zoning and Landuse

Woonsocket serves as the headquarters for the CVS Corporation and Landmark Medical Center. Downtown is home to local restaurants, businesses, parks, art, and museums that provide the foundation for further economic development. 48% of the site area falls within the Urban Commercial District (C-1), which allows for retail trade and public services. This area is located along the site's stretch of Main Street and Truman Drive. The second largest district, making up 12% of the site, East of Truman Drive, is Mixed-Use Commercial/Industrial (MU-2). The Active Public Recreation District (PR-1), is a 10% area fragmented along the Easternmost edge of the site. A small 5% northern portion of the site is zoned for Major



Break-down of zone distribution within the site area.

Use (C-2), solely designated for retail trade. Equally sized is the High Density Single and Multi-Family Residential District, (R-4), in several areas along the Western edge. Despite being a mere 80 acres, the Downtown study area alone could provide opportunities for living, working, shopping, recreation, and public services. The bike trail and future trails are able to connect these pieces of the city. If this .125 square mile area could serve all those needs, Downtown Woonsocket would be a desirable, extremely livable and walkable community.



Land Coverage Pie Chart

Drainage

One of many side effects of urban developed land is the inability of precipitation to properly infiltrate the ground. Instead, it pools on the surface of pavement and runs off to lower points of elevation. A larger surface area of pavement means that there is a higher volume of precipitation accumulating on the pavement's surface during precipitation events. This contributes to a higher velocity of precipitation runoff. Large volumes of this fast-traveling, unfiltered stormwater, causes erosion and carries pollutants from paved areas with it. Pollutants eventually find their way to the Blackstone as a result of too much pavement and inadequate infrastructure to manage the runoff.

Architectural Styles

Impervious Surfaces

Remote Public Engagement

This Sustainable Design Studio class took place in the Fall of 2020, in the midst of a global pandemic. This hindered the students' ability to engage with the public in-person. Interacting with, building relationships with, and learning from the community were instead carried out via video calls and emails. Ensuring the safety of everyone involved in the project posed new challenges to the normal process. However, new challenges present the opportunity for innovative and creative solutions. The students organized and orchestrated a remote public workshop to help gain knowledge from the stakeholders of Woonsocket. This took place on Wednesday, November 4, 2020 from 5:00 - 8:00 PM. The goal of this workshop was to draw attention to the strengths, weaknesses, opportunities, and threats (SWOT) of the study area: downtown Woonsocket. This meeting happened over Zoom, where the students presented their site analysis and findings pertaining to the downtown Woonsocket area. After the analysis was presented, three breakout rooms were formed to interact with the public in a more intimate setting. Breaking into groups gave the public the opportunity to be able to speak out in small groups and give their opinions.

Site extents of the project as determined by the students. The four main focus areas for discussion at the workshop.

The remote nature of the workshop limited the activities that could be performed. The students decided to conduct the same activity in each breakout room to make it easier to compare responses and reduce confusion with individuals switching rooms. The activity included a map of Downtown Woonsocket with the project limits. Students were able to mark the map using different symbols to represent areas of interest or concern that individuals spoke about. Students were asking questions and engaging the chat for those who could not express their opinions vocally. The breakout sessions lasted forty minutes. Once the discussions had ended, all groups came back together to hear reporting by each group, comments offered by individuals, and final remarks.

The information gathered at this meeting was essential for moving forward in this process. It provided students with an enhanced perspective gained from individuals who are very familiar with the area. Students obtained insider knowledge they could not have learned through research alone. Not only did the workshop give students guidance on where to focus, but the students were able to strengthen their connection to community members who were able to voice their concerns and desires. After the remote public workshop, the students compared notes from stakeholder meetings and identified areas that needed focused design efforts.

Group 1 Group 2 Group 3

Maps generated from the remote public workshop.

Designs

The students decided to divide Downtown Woonsocket into five project groups in order to take a deep dive into each. They found the most design potential in Thundermist Falls, River Island Art Park, Truman Drive, Main Street and an option to use the area for generating solar energy. The students intertwined physical and symbolic connections between each of these five subjects to complement each team's design and fortify Woonsocket's fabric. Creating a stronger cultural connection to these sites and between them was the studio class's collective objective. Within this, the students hoped to achieve many more targeted goals, including increased economic benefits, attracting businesses, improved river health, strengthened identity, historic preservation, and an increased sense of community pride and activity. Students' designs were presented to stakeholders: Representatives and community members of Woonsocket at an end of the semester presentation.

Thundermist Park Master Plan

Thundermist Falls

This project area in Woonsocket is located on the southern end of River Street, adjacent to the bridge on Sayles Street. The design was broken up into two sections; section A consists of a vacant parcel and the existing Phyllis Thomas Park. These lie south of the bridge that crosses the Blackstone on Sayles Street, and east of the river. Section B is a long, narrow strip of land north of the bridge, running north and east of the river's bend. This strip running alongside the river is currently an unpaved access path. In order to realize the final design, the ownership of the numerous parcels within sections A and B were analyzed. Only two parcels are privately owned and the rest belong to the City. Behind one of these parcels is an access road, granting the students access to

Bird's Eye View Perspective

Bird's Eye View Lighting Perspective

design within this area behind the building. For the other parcel, the design group was hopeful the landowner could be convinced to partner with the city to create the envisioned design. During the public workshop, participants expressed concerns of flooding or erosion and unappealing visuals. However, visually significant assets already exist at the site in question. The site offers clear vantage points of Sayles Bridge, the Blackstone River, and historic Glenark Mills across the river. The challenge of this design was to create a space that highlights these assets and ties them to the site. Luckily, strengths and opportunities outlined in the public workshop outnumbered the public's concerns. Proximity to restaurants and multiple points of access were noted as strengths of the site. Interest in water access, education, boat access, and views of the river were expressed. Taking these public comments into careful consideration, the students found it imperative to use the site as a centerpiece for Downtown that people could enjoy walking or driving past. Ideally, a theme and sense of place created here could be replicated throughout the rest of the Downtown. In doing this, a stronger semblance of identity and "Arrival" into Woonsocket could be made. Strong physical and intangible connections to existing places near Thundermist Falls were necessary to accomplish this. The final design took form as a viewing area that connects to its directly adjacent assets as well as other landmarks in the Downtown area.

Lighting Plan

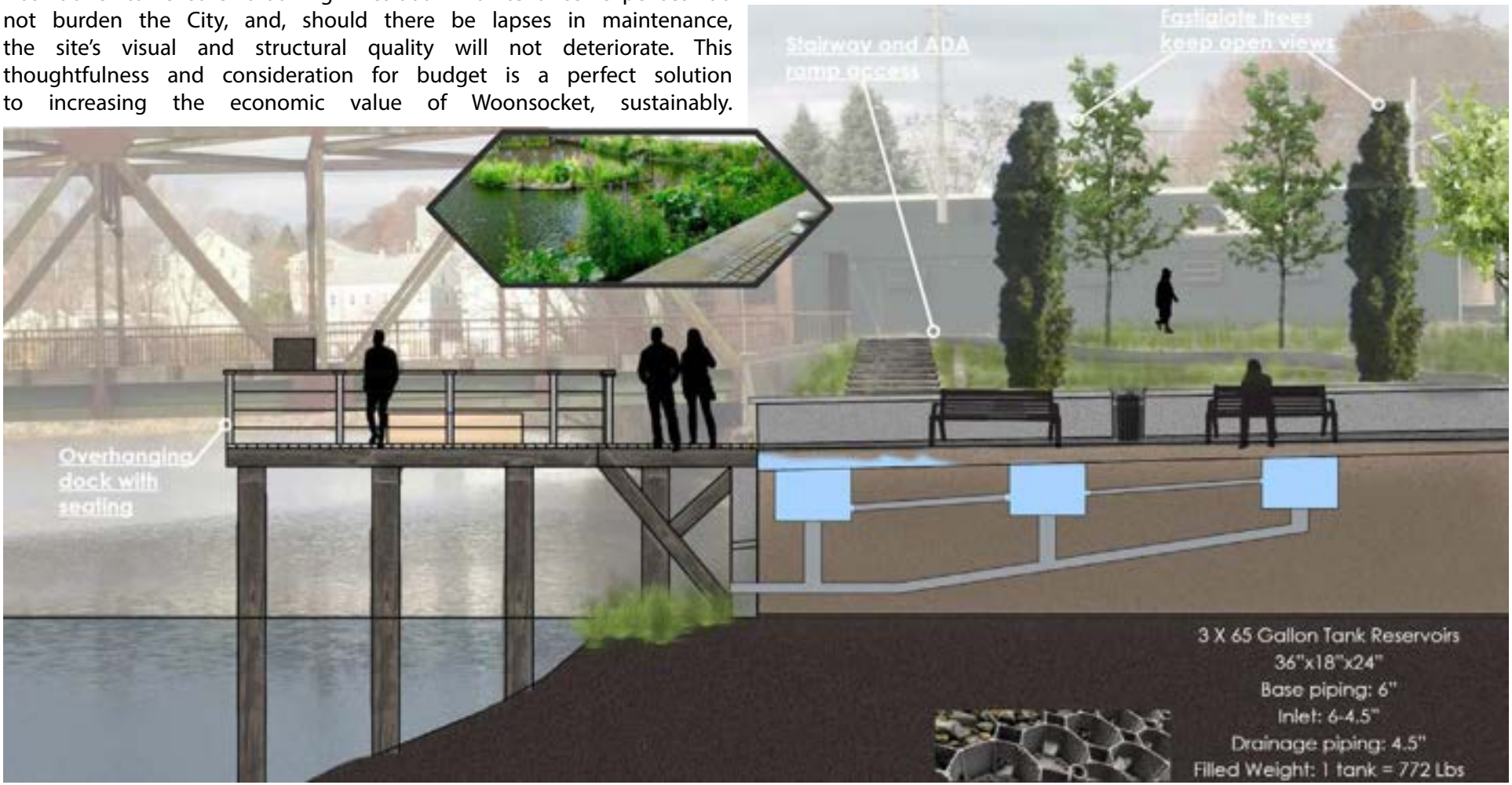
Aerial of Sayles Bridge

Cross section of park 8' elevation change

Sustainable Landscape

In this design, the Blackstone itself was essential and a key component. Anchored, floating river plantings serve as an extension of Thundermist Falls. These floating planters attract pollinators, various animals, and fish. They support the local habitat and remediate pollutants, while creating a beautiful and unique extension of the landscape. Thought was invested into the sustainability and future of this park. The students balanced beautification and increased function with low maintenance. This was done to ensure that high residual maintenance expenses do not burden the City, and, should there be lapses in maintenance, the site's visual and structural quality will not deteriorate. This thoughtfulness and consideration for budget is a perfect solution to increasing the economic value of Woonsocket, sustainably.

Environmental sustainability is accounted for here as well. Shielded LED lamp posts and small light fixtures illuminate the park at night. Along the water's edge and lining the Sayles bridge, however, are blue LEDs. The purpose of this differentiation is to illuminate the river's edge, while being sensitive to the local fauna. Dim blue light mimics moonlight, and rather than disrupting the river's fish, it attracts them and may even allow for them to be visible at night during feedings or other activity. Any unique additions to Downtown Woonsocket, such as these, strengthen the value of its character and identity.



Drainage, Dock and Patio Section

River Island Art Park

The existing Downtown area surrounding River Island Art Park provided a rich framework for design. The redesign of this park tells a story of history and art. River Island Art Park is essentially the backyard of the Museum of Work and Culture. Reconnecting people to the river through their long history of interacting with the river served to inform their design. The Blackstone abuts and cradles the entire southern edge of the park. The park is juxtaposed between repurposed textile mills, the historic Blackstone, the museum and downtown. Creating a new park, making connections between the present and important historic sites and artifacts was pertinent to the design. To achieve their objectives, the students chose to create a stronger, inclusive link to the community, increase user safety and comfort, and create opportunities for interacting with the river while enriching and promoting the local ecology. The students saw the opportunity to utilize the museum and create a continuous experience between the museum and its backyard: River Island Art Park. Historic, educational and ecological elements of the park will allow users to experience Woonsocket's history.

KEY:
1. The highlighted area are vacant parcels of land, which we are proposing the town purchase.
2. Parking lot with bioswales
3. Community Garden
4. Stage redesign to be more accessible, appealing, and versatile
5. Outdoor Kitchen
6. Gazebo relocated to get better views over the river
7. Kayak launch redesign for easier access to the river
8. Boardwalk over the river with a platform for educational opportunities

Obtaining More Land

Two privately-owned parcels in front of the park are currently vacant. Before examining Woonsocket's parcel map, the students believed them to be part of the park itself. Seeing that there is value in acquiring these parcels, the students created a plan and cost estimate for doing so. Part of what makes these parcels so desirable for the city to purchase, is that they border the street and main entrance to the park. Enhancing curb appeal is one lucrative means of accomplishing multiple goals: enticing visitors to enter an improved dvvvvestination, encouraging usage, enhancing comfort and safety, increasing the park's economic value, building a sense of pride in the community, and establishing a stronger sense of place.

River Island Master Plan

Inclusive River Access

During the students' site visits, they noticed a kayak launch that is no longer functional. At its lowest elevation, there is a drop-off several feet above the ground below. It is not easily recognizable or accessible, especially if one was to carry their kayak down the launch. As the students prioritized creating a link to the river, they decided to redesign the launch as an accessible, inviting, and resilient space. The newly designed launch enables wheelchair access to the river, which was previously not feasible. A platform links an existing paved pathway to the river bank. This allows for accessible fishing and river access. Between the platform and the river, lie several seating steps. These allow for direct river access and interaction regardless of the river's elevation at any given time. Even in extreme flooding conditions, or as elevation rises due to climate change, the river's maximum height would not rise above all of these steps. The space is adaptable to fluctuating river height for the foreseeable future, or at least the next hundred years. It achieves a greater opportunity for river interaction. A river walk connected to the platform runs the length of the park's southern perimeter. Educational signage takes advantage of the walkway's position on the river.

Regenerated Amenities

In order to preserve the existing site and utilize its assets, the students decided to keep the existing ice rink. This space no longer functions as a rink and is too costly to restore to its original purpose. However, community members remember it fondly. Rather than demolish this sentimental cornerstone of the park, the team refurbished it. They envisioned a multi-use active recreational basketball and hockey space. The space has multifunctional capabilities, for hosting art exhibits, existing holiday festivities, and other community events

Redesigned Kayak Launch

that currently occur there. This cost-effective reuse encourages and creates opportunities for creative new usage of the space. After all, fostering creativity in the existing River Island Art Park only seems reasonable. This group moved an existing gazebo to a new location that overlooks the river. An existing stage obstructs a view of the river and is disconnected from the rest of the park. A new stage was proposed, with a stationary water wheel as the backdrop. Centuries of industrial activity have contaminated the site's soil. As a response, the students suggested phytoremediation: the addition of plants that absorb toxins and improve soil quality over time. This would allow for the addition of a community garden in a later phase of the design. To accommodate all levels of physical ability, the students created a raised brick garden bed that also functions as a seating wall.

New Stage Water Wheel Backdrop

Raised Brick Garden Bed & Seating Wall

Gathering Spaces

An existing structure houses food vendors during events. However, the surrounding landscape does not capitalize on this opportunity for increased revenue. A pergola was added to the side of the building and removable tables and chairs beneath it. A seating wall, rain garden, and benches increase the visual quality and functionality of the space. Food is a huge part of community activities and brings people together. Eating in public is often a group activity. Creating the space for this is crucial to increasing the park's value. Increased lighting throughout the park creates an environment that is safe, visible, and comfortable at night. This increases the window for usage and opportunity for a strengthened night-time economy. Proximity to restaurants and the anticipation of nighttime community events make this a priority. The elements of the park's redesign create opportunities for a multitude of programmatic uses for the community which were suggested in the final presentation. This park's redesign ultimately creates a space that sparks creativity, learning, urban agriculture, environmental restoration, recreation, and community activities. It also provides links to adjacent parcels along the river and across the street.

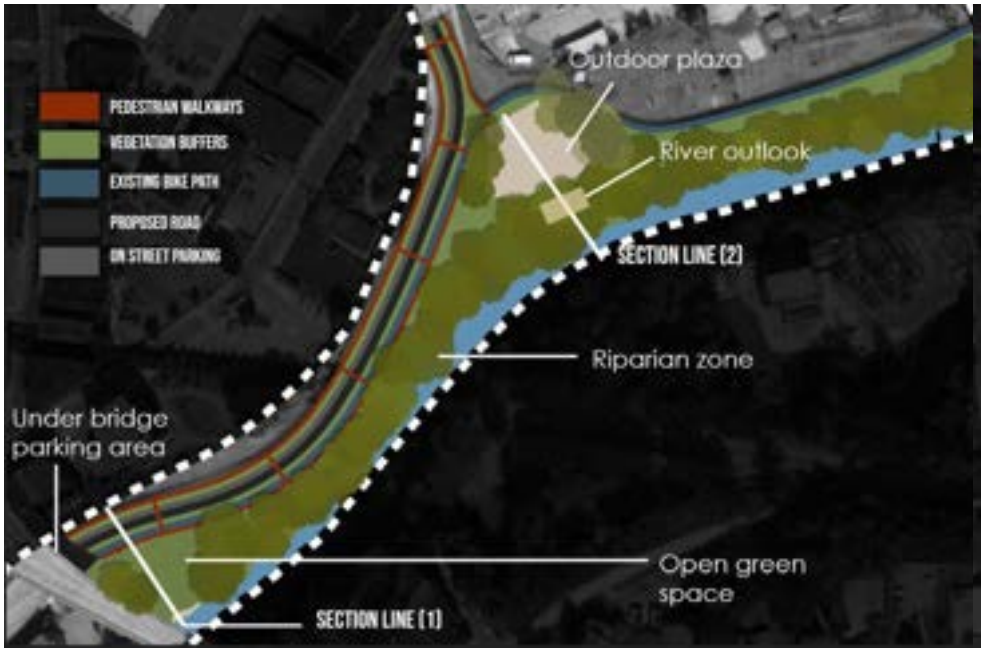
Outdoor Kitchen

Truman Drive

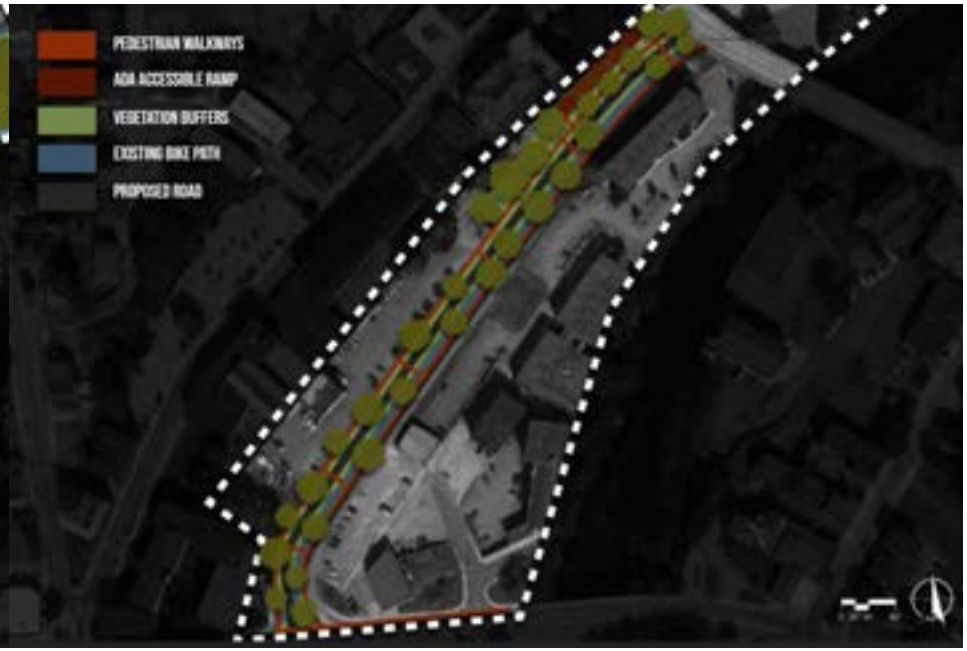
Truman Drive is a highly trafficked road that transports people from Main Street. However, the two streets are isolated by extreme elevation differences, a lack of non-vehicular access points, and Truman Drive being a high-speed, multi-lane highway. This design group aimed to redirect circulation toward Main Street, where Downtown's local businesses lie. Truman Drive and Main Street run north to south, and parallel to each other. They form a .25 mile loop in Downtown, where they connect to each other on either end. In this part of the city, it is not necessary for Truman Drive to function as a three-lane road. If anything, it discourages the usage of Main Street and according to individuals familiar with the city, its growth has negatively impacted the commercial development on Main Street. As a response, the students decided to make Truman drive a single-lane, one-way road, directed south. Reducing the traffic lanes would not contribute to greater congestion, except perhaps at rush hour. It would redirect traffic to Main Street, rather than bypassing it. The speed of vehicular traffic would naturally slow, creating a safer avenue for all users, which could also yield economic benefits. Condensing Truman Drive to one lane provides opportunities to surround it with a pedestrian and cyclist infrastructure. Creating a greenway along the street allows pedestrians and cyclists to travel comfortably separated from traffic.

Vegetation Barriers

The proposed greenway would run parallel to one lane, on either side of the road. Vegetative buffers situated between the roadway and greenway on either side, would protect pedestrians and provide a buffer from the cars. As is, crossing Truman Drive is extremely dangerous and impractical. To allow pedestrian access to Main Street from Truman Drive, crosswalks are proposed. In lieu of the extremely steep existing stairway connecting to Main Street,



Truman Drive Northern Section Master Plan

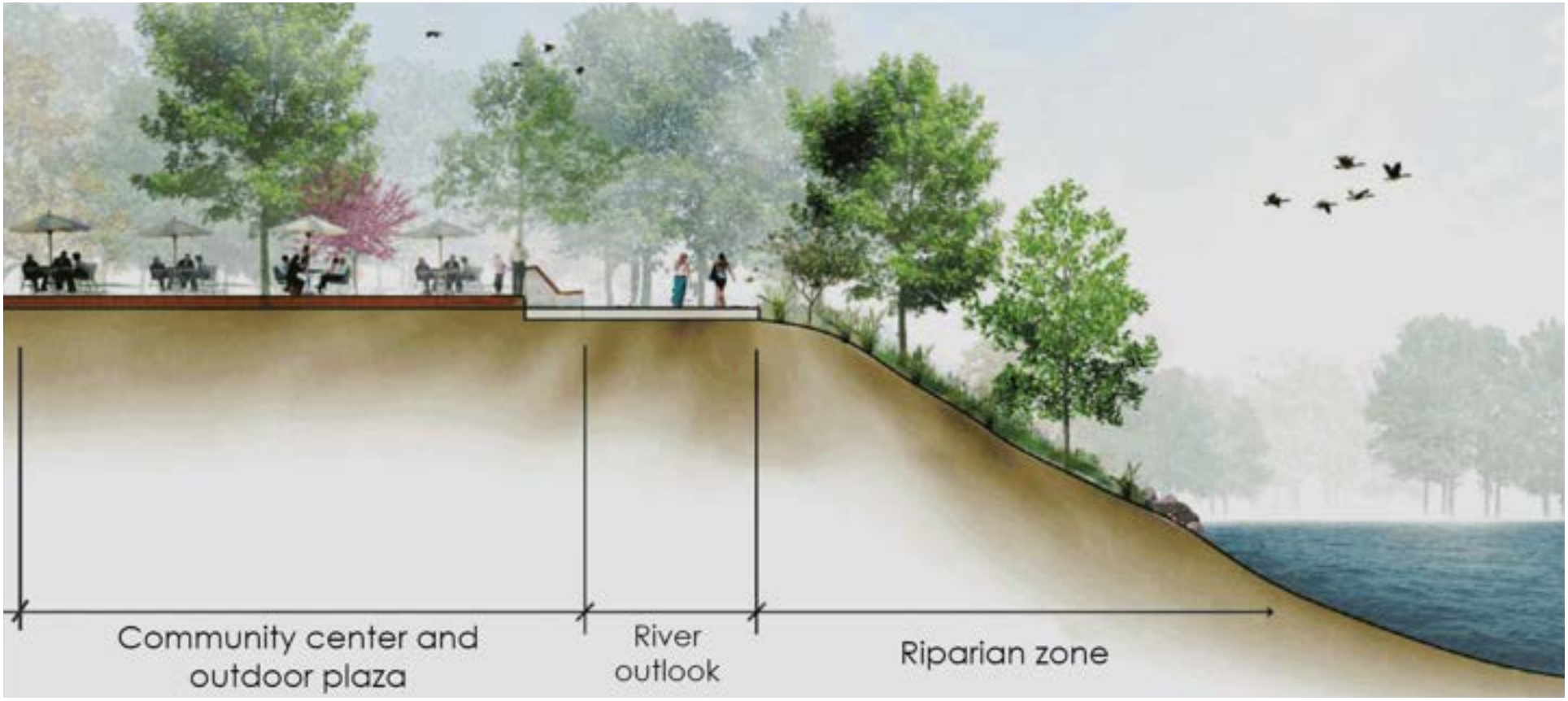


Truman Drive Southern Section Master Plan

an ADA accessible ramp is proposed. This ramp has frequent landing patios with tables and benches, allowing people to take breaks throughout the day with views across Truman Drive to the river. In the northern section of the project site, a river outlook, open park area, and outdoor plaza are proposed along the greenway. These ideas suggest new opportunities for passive recreation, kayak access, and picnicking, as well as for linkage to a farmer's market and potentially to the library and community garden. A stormwater infiltration area (barrier) of plants for treating stormwater runoff seeks to improve water quality of the river as well.

Proposed Greenway

ADA Ramp Connection To Main Street



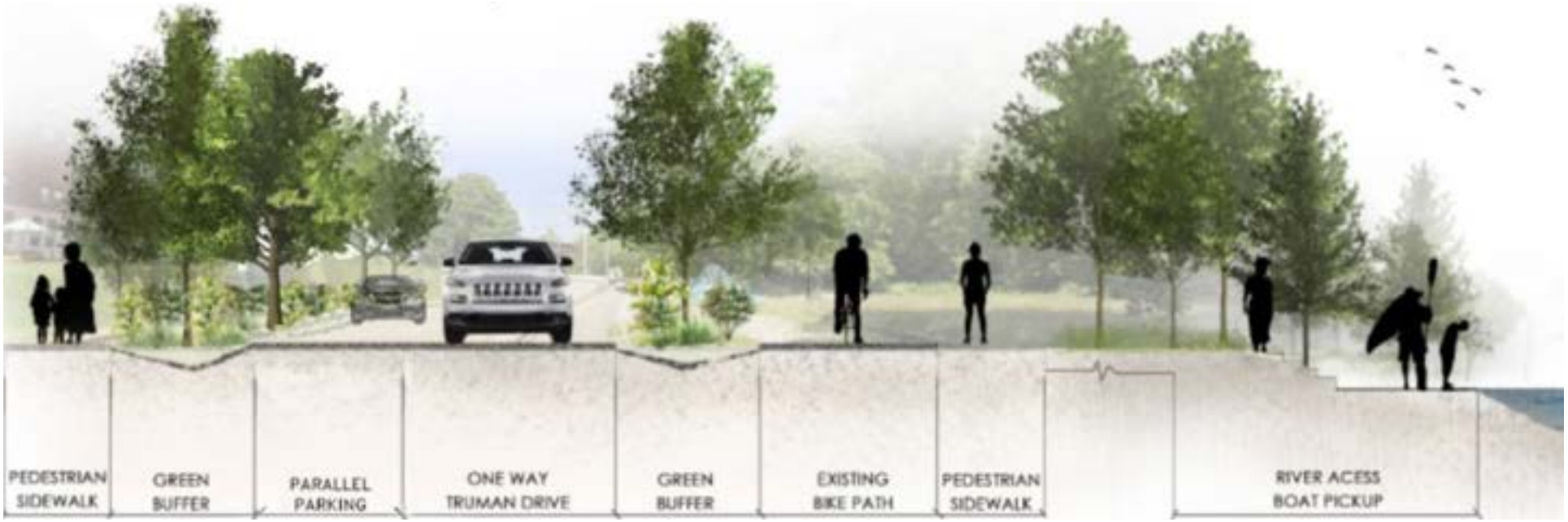
Community Center & River Outlook Section

Truman Drive At Night

Pedestrian Connectivity

A reimagined Truman Drive would allow for people to travel alongside the river in a pedestrian-prioritized space. Currently, the river is 'out of sight, out of mind' along Truman Drive. Being able to visually and physically be close to the river could increase awareness and consciousness of its existence. People would be able to hear and in turn, begin to help heal the river by caring for it. This would create a greater connection for the people living in the area. The implementation of a greenway opens doors for more bicycle and pedestrian activity with fewer cars on Truman Drive. Residents in the area could use the paved path to bike or walk to work, and actively recreate. Visitors could use it to navigate Downtown, explore, and shop more easily. With less pavement and vehicular traffic, less nonpoint source pollution would make its way into the river. An enormously more accessible and walkable area would make building a Downtown economy that much more feasible. Re-orienting Truman Drive as a space for people and nature to co-exist and interact, improves the wellbeing of the city's people, economy, and environment.

ADA Ramp Outlook



Truman Drive Section

Main Street

Part of the objective for Main Street's design was to present the sheer quantity of opportunities for small businesses to flourish. Main Street, and most of the entire study area, is located within a Downtown Overlay District that was established in 2015. The overlay district is blanketed over the existing zoning distances. It provisions special additional regulations for an area. Changes to zoning ordinances in this district include less stringent parking requirements, specific zoning aimed towards art, and transitional use of vacant commercial space. This flexible zoning district markets Downtown as a place for hotels, arts, entertainment, shops, restaurants, mixed-use spaces, residences, and workplaces. It reflects the city's commitment to breathing new life into Downtown and Main Street. This encourages developers to be creative as they work to improve the urban environment.

Main Street Master Plan

Pedestrian Connectivity

Threats outlined in the public workshop were mostly traffic-related: Speeding, unsafe intersections, and collisions. Empty storefronts, the possibility of a commuter rail, and lack of vegetation were all perceived opportunities by the public. The design group cited design ideas from local precedents, including Thames Street in Newport and Westminster Street in Providence. Street trees, lighting, mixed-use, electric car charging stations, multi-use roads, and vegetative buffers were features that the design team believed could be successful on Main Street. These ideas were presented to provide a sense of direction for the design.

Main Street Bus Stop

Historic Characteristics

Historic and unique features are memorable to visitors. Located at the intersection of Monument Square and Main Street is a Civil War Monument erected in 1870. The monument memorializes the thirty-nine Woonsocket men killed during the Battle of Bull Run in 1861. This is one of the many historic landmarks in Woonsocket. As part of the overall design concept, attention was paid to highlighting this monument. Native plant species were added around the monument to make it more attractive and highly visible to passersby. Drawing attention to the events and structures that make Woonsocket historic will encourage visitors to take interest in them, and residents to take pride in their home.

Economy Improvements

The students decided to implement a green infrastructure initiative to revitalize Main Street while leveraging economic incentives for the local businesses and developers. Many of the green infrastructure incentives available to the city pay for themselves immediately or over time. Grants and incentive programs through the Small Business Association or stormwater fee discounts are a few examples of options. These are ways for businesses to apply for funding that will fill vacant storefronts and improve the Downtown economy as well as help control and treat stormwater.

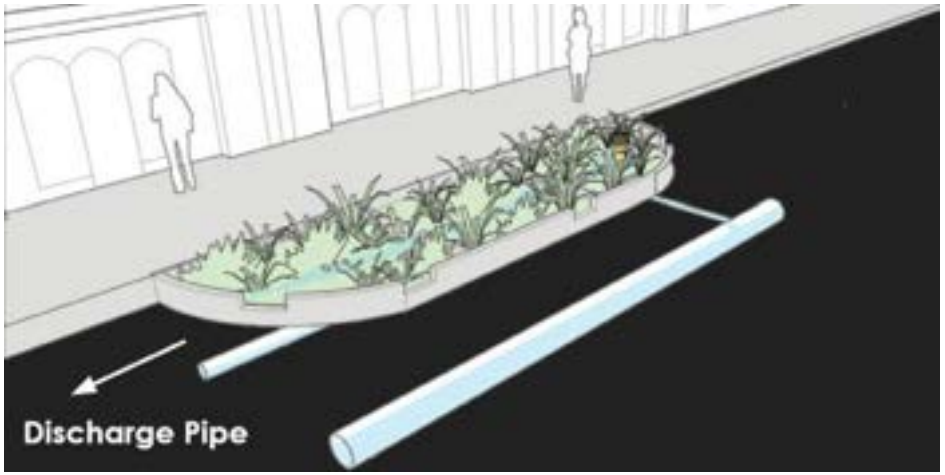
Main Street Monument Square

Water Runoff Mitigation

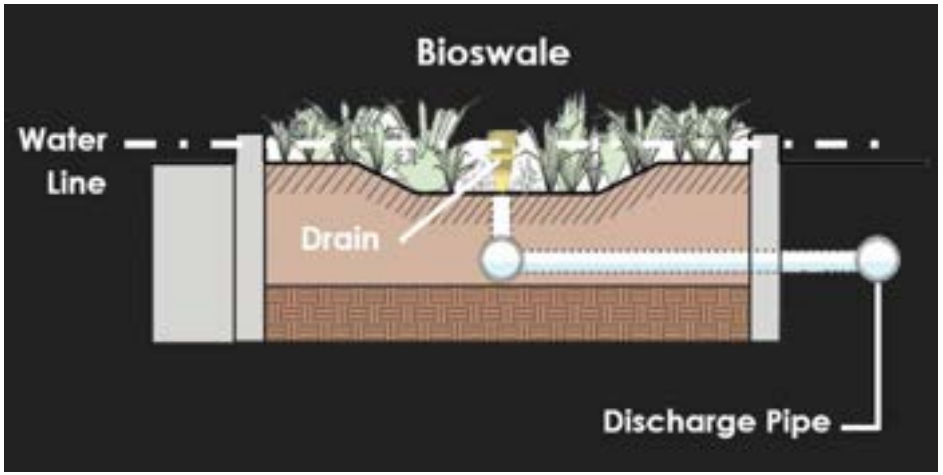
The design group for Main Street pointed out that green infrastructure provides a chance to not only manage stormwater, but enhance the streetscape's visual quality while calming traffic. The roadway could be narrowed at intersections, bus stops, and crosswalks to improve safety and pedestrian circulation. These "Pinch points," where roadways can be narrowed, could also lead to road space with wider sidewalks or bioswales placed between the road and sidewalk. These vegetated basins can remove and filter excess stormwater and pollutants directly from the road. Less stagnant surface water accumulation on the road or sidewalk would make Main Street more pleasant. Increased vegetation with bioswales would enhance the street's visual quality for pedestrians and motorists as well. Pinch points allow walkable space to be prioritized over cars. Street trees where space permits, would provide overhead shade, frame the roadway, lower the pavement temperature, and calm traffic. Utilizing crosswalks as speed tables is another way to clearly define pedestrian space, slow traffic, and improve safety. Green infrastructure triples as a strategy for

Clinton Street and Bus Stop

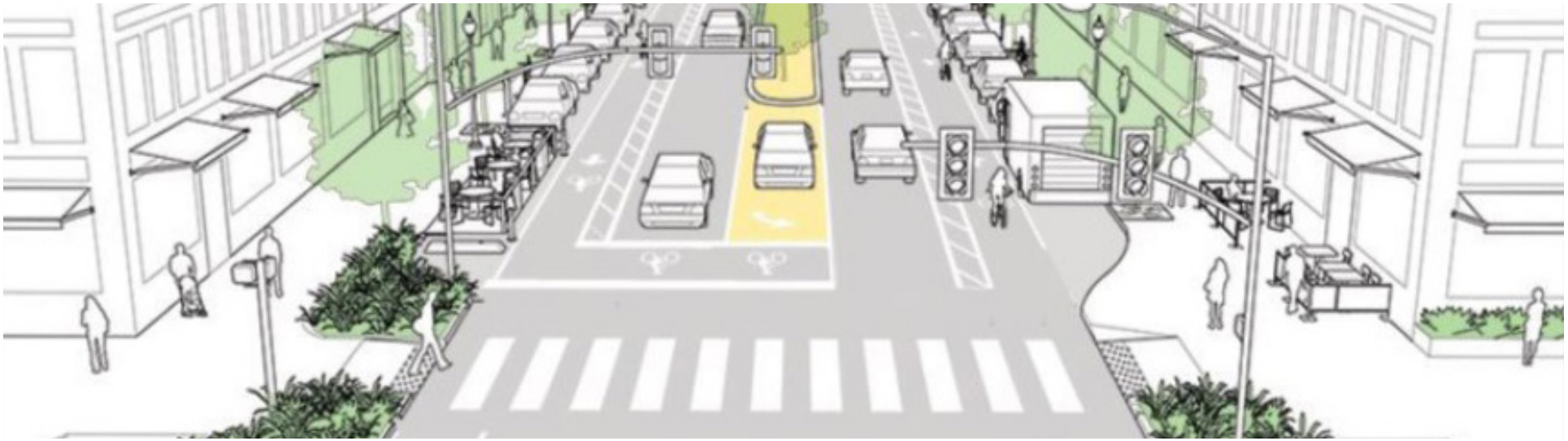
beautification, stormwater management, and traffic-calming. A bike lane could connect to the bikeway on Truman Drive as well. The greenway proposed in the Truman Drive redesign will allow pedestrians to travel more freely between Truman Drive and Main Street. A walkable streetscape does not have to be exclusive to Main Street. It can radiate outward with green infrastructure and pedestrian and bicycle amenities. More opportunities for people to live, work, and shop within Downtown will necessitate fewer parking lots and multilane roads. Improving the pedestrian environment will provide greater connections to the rest of Downtown. With less need for them, parking lots, multi-lane roads, and cars become obsolete. So much of the area is designated for cars; These spaces could be repurposed for people-centric uses that improve residents' quality of life and enhance economic opportunity.



Rain Garden Stormwater Management



Bioswale Stormwater Management



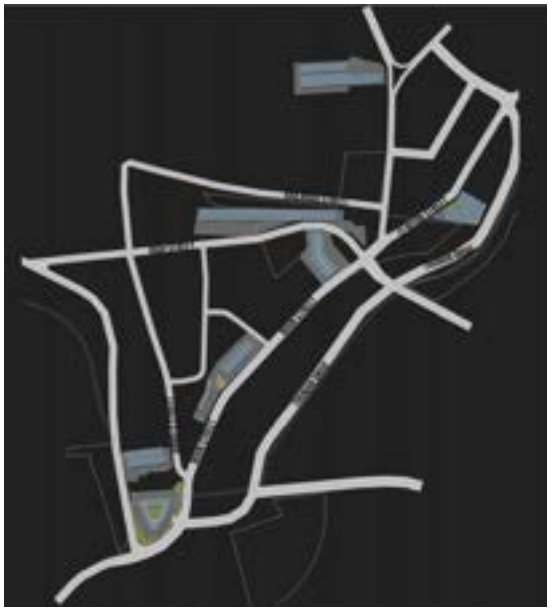
Main Street Green Infrastructure

Solar Energy

During the students' initial public engagement meeting, interest in solar power was expressed by the public. The study area is largely composed of parking lots. These parking lots are almost never full, and oversized for the current needs of the area. From this observation, a design group was formed with the goal of reimagining these lots to provide sustainable solar power to Main Street. Parking lots were selected to be redesigned based on a number of criteria. Lots where overhead solar canopies would be less visually intrusive were selected by the design team. Those which were particularly oversized, under-used, and sufficient for new construction, were prioritized as well. Demonstrating the ability to implement affordable solar infrastructure without degrading the visual quality of the Downtown area was the goal of this design team. The team was careful to spread out selected parking lots across the site, to limit immense visual obstructions. An AutoCAD base map was created, and six ideal parking lot locations were overlaid onto the base. The students calculated the square footage of solar panels necessary to provide electricity to the area. They also produced an estimate of how much electricity in kilowatt hour (kWh) could be realistically generated in these parking lots. Using Autodesk Fusion, the students modeled their solar canopy designs in a 3D environment. The final design of solar arrays throughout the site's suitable parking lots totaled a 2.8 acre canopy. The students estimated that these canopy solar structures could produce the equivalent of a year's worth of electricity for 100 households. Investing in renewable energy such as solar is not only cost-effective, but demonstrates a commitment to the environment.

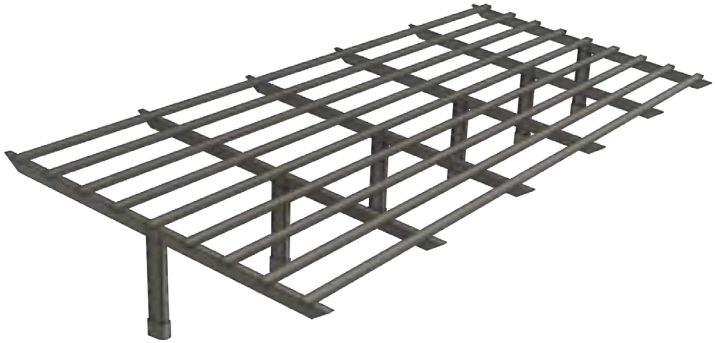
Parking lots within project area

Seven chosen lots



Aerial of Solar Parking Structures

Perspective of Main Street Lot with canopy design one



Solar Canopy Design One

Section of canopy design one

Solar Canopy Design One

Section of canopy design two

Solar Canopy Design Two

Remote Final Presentation

The Final Design Presentation took place over Zoom on Thursday, December 17th at 5:15 PM. Stakeholders, local representative officials, and community members of Woonsocket were all invited to this presentation by the senior Sustainable Design Studio to observe and provide feedback. The presentation by the students started out with an abbreviated version of their site analysis to help provide contents. While students were presenting their proposals, viewers were encouraged to comment on the presentation using the chat option in Zoom. Once the entire presentation was over, the floor was open to questions and comments about the range of the projects. Kevin Proft, City Planner, had broken the ice by commending the students who were challenged to design solutions amidst the pandemic. He noted their adaptability and persistence while working remotely for the semester. Their ideas focused on reconnecting the city to the river, redesigning parks, and enhancing bicycle and pedestrian environments. One attendee remarked on how the students created designs that were inclusive, incorporated art and culture, and told the history of Woonsocket. Another comment was that the students were able to capture the heart and soul of Woonsocket and present their recommendations well. The final designs pleased the City of Woonsocket. Overall, the students were pleasantly surprised by the public's response to their final presentation. The public responded with optimism and interest in figuring out a means of implementing the designs in the near future.

Slide Opening Discussion With The City

Final Presentation Agenda

Closing Remarks

The Blackstone River is the history, life, and livelihood of Downtown Woonsocket. Since humans have lived here, they have been innately connected to, and reliant on, the river. Today, the river's needs, and the need to create avenues for peoples' reconnection to it, drove the creative process of this design studio. The students designed in ways that consider the longevity of environmental, social, and economic benefits. They imagined designs that will create lasting change and serve the community. Woonsocket is deserving of a physical landscape that reflects its history, character, and beauty. Once an ecologically rich location, Woonsocket was ravaged by fast-paced development fueled by the Industrial Revolution. Now, after the fall of the mill industry, it is time to look to the future of Woonsocket. What could be, is informed by what has been. Through Woonsocket's redesign, it can be reborn and remarketed as a beautiful place to live and work. Its residents deserve to feel valued by having access to beautiful, green, shaded spaces that celebrate Woonsocket's history. It is time to create a truly thriving downtown that invokes pride and inspiration. The students are hopeful that the redesigned spaces in Downtown will pique the interest of investors and developers who will look to reinvest in Woonsocket. They are proud to have been able to envision a future that may ignite excitement and imagination in others. The senior landscape architecture class of 2021 is humbled by the opportunity to work with such a remarkable city. They are thankful for the experience of designing a regenerated Downtown Woonsocket.

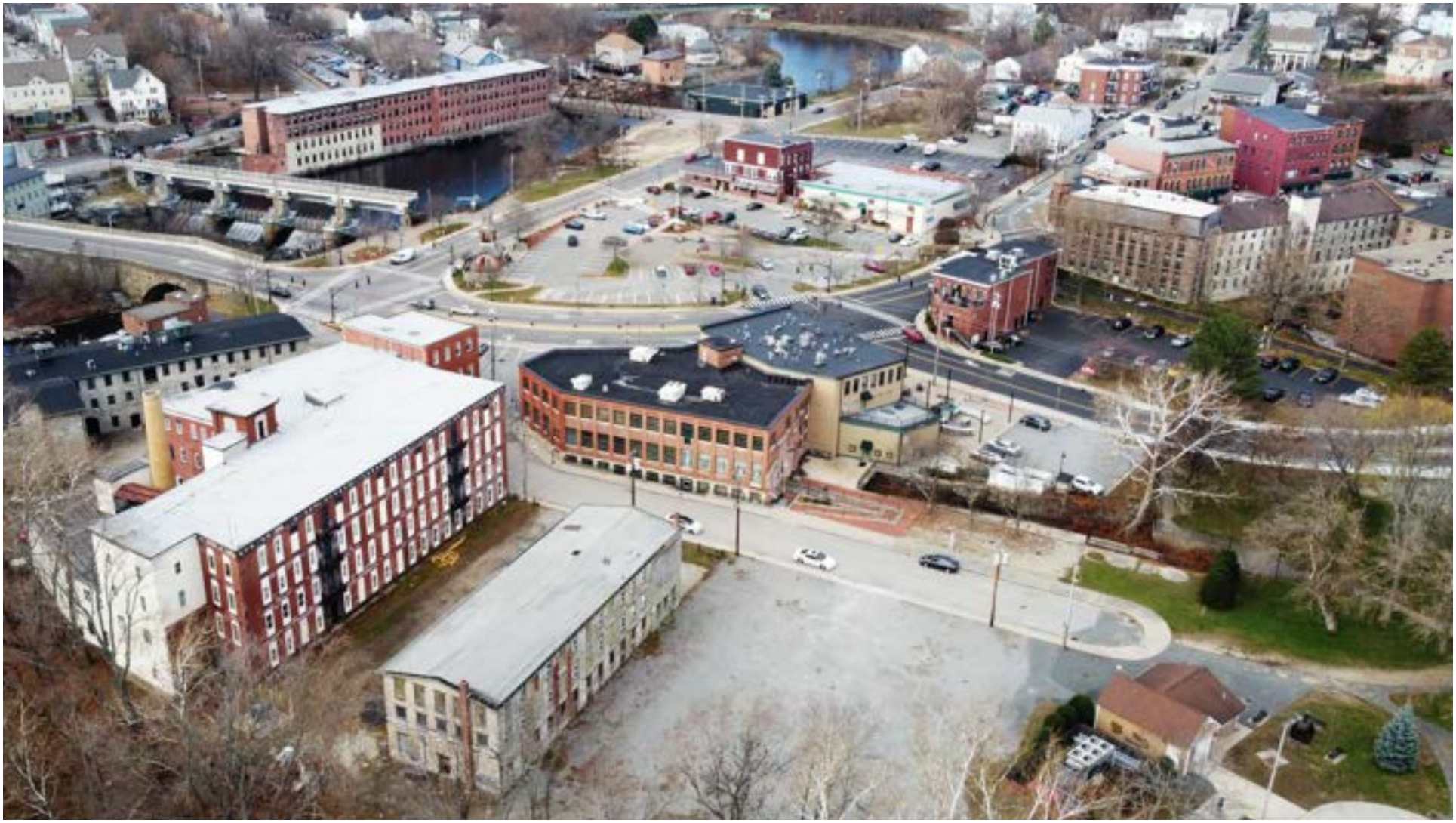
Thundermist Falls Park

River Island Art Park

Main Street

Solar Energy

Truman Drive



Drone Image Downtown Woonsocket

For more information or questions please contact Professor William A. Green @wagre@uri.edu, (401) 874 - 2142.