The Renaissance of Worcester’s Canal District: a Post Industrial Revitalization

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Worcester, Massachusetts’ introduction into the industrial era started in the early 1800s when inventors and machine builders laid the foundation for the city’s manufacturing success. Irish immigrants helped to create the Blackstone Canal and the cities rail systems which helped tie Worcester into a nation wide marketplace. The new transportation systems led the city to an industrial peak. Shipping was made possible on The Blackstone Canal which ran from Worcester to Providence making an efficient way to ship raw material and manufactured goods. The Worcester to Boston railroad gave businessmen a cost effective way to work in a regional setting. The second largest city in New England, Worcester Massachusetts, gained its initial economic strength through industry in the early 19th century. The city fabric consisted of textile mills which was due to Worcester’s limited supply of water power therefore the industry resorted to manufacturing the machines which turned wool and cotton into cloth. Worcester was also known for making shoes, envelopes and wire which were the largest industries in the city.

In the early 20th century Worcester was a well developed industrial city booming with manufacturing. The city was looked at as one of the best manufacturing cities to work in.

The great depression of 1929 hit hard and put a stop to manufacturing as industries collapsed. In 1934 during the darkest part of the depression, textile mills and shoe factories closed and 25 percent of people were unemployed.

After manufacturing industries left in the late 20th century, many of these industrial districts were left in disrepair like many other manufacturing cities in Massachusetts. Many of these cities have not found new economies to bring them back to a thriving economic state therefore many of these abandoned buildings have untouched potential within the city that has yet to be tapped into.
Massachusetts has 11 original gateway cities which are defined as dense urban centers around the state. These cities are Brockton, Fall River, Fitchburg, Haverhill, Holyoke, Lawrence, Lowell, New Bedford, Pittsfield, Springfield and Worcester.

These cities all anchor regional economies and were built on manufacturing and industry. They were often referred to as gateway cities because they offered a gateway to the American Dream. These locations had stable jobs where residents could support their families with but as industries disappeared that become much harder.

Many Gateway cities still struggle to find a new economy after industries move out and they are left with old industrial buildings which sit in disrepair until they are either demolished or renovated. Many of these cities have great access to rail systems which are underutilized and go unnoticed because of poor the economic state.

Many of these cities have been left for so long in disrepair because they have not found a new vibrant economy or market to leverage their untapped potential. Many of these urban centers have viable infrastructure which has not been reused or reclaimed as profitable space yet.
Transit oriented development is the creation of sustainable, walkable communities centered around train and bus systems where residents can live, work and play. City revitalization, regional planning and walkability combined can offer solutions to the world's growing climate issues by decreasing energy consumption.

The idea behind transit oriented development is to make quality urban spaces that are pedestrian oriented making the use of the personal vehicle not a necessity for every day living. Creating these forms of communities is a way in which healthier lifestyles can be lived through exercising, engaging with the community and saving time by eliminating the long commute in traffic.

Transit oriented development will bring residents back into the city who currently live in the suburbs because of the convenience these urban communities will offer them.

These gateway cities have very good connections to transportation systems, such as trains or bus systems potentially making it very easy to connect to other gateway urban areas. In many cases, the industrial fabric of these cities has been supplanted by universities, good hospitals and museums which were founded in an era of industrial prosperity. These resources have remained in these gateway cities, especially in Worcester, which creates the sense that these cities are still vibrant places with good resources, and can become once again a desirable place to live and work.

Many of these cities have feasible areas for housing development right near the existing transit hubs but they are not utilized as well as they could be. Near many of these transit stops, the lots are empty and the density is nowhere as high as it potentially could be.
PROBLEM STATEMENT

The buildings of industrial infrastructure, such as factories and warehouses, in a city whose economy was formerly based on manufacturing, built with quality materials of long duration, represent a resource that can be repurposed for contemporary uses, even after long periods of neglect or disuse.

The perception that these areas within the city where abandoned factories and other support facilities exist are breeding grounds for criminal activity because of a lack of population or “eyes on the street” can be reversed through careful analysis of the current needs of the post industrial city, and a careful assessment of the architectural potential of the remaining buildings to meet those needs. This approach will avoid the loss of character that can affect a city when its past is erased, and will enable a city such as Worcester to integrate its past into its future.
PROJECT STATEMENT
If we carefully analyze what exists currently in our industrial neighborhoods, we see that they all have very close proximity to our existing transportation systems. What used to be utilized for shipping raw materials and manufactured goods can be now used for commuting to and from other cities on a public transportation system. Many of these 19th and 20th century buildings in these neighborhoods are perfect spaces which we can start to use for modern day working, living and commercial space. By looking at ways in which we can reuse and incorporate these older buildings into a 21st century development, we can start to make unique spaces in our cities that have an economic benefit based on their existing location.

By approaching these derelict sites with the mindset of using them as a location for transit oriented development, the architectural scheme can start to utilized an existing urban fabric by revitalizing the abandoned areas into thriving communities. In turn, this can increase a cities economy, making these gateway cities more relevant on the regional scale and start to create new urban communities through architectural innovation.

Project Statement
The significant buildings that define the districts character and aesthetic can be repurposed and redeveloped for a new set of users that will reinvigorate the district.
A change of use from an industrial to a commercial district will attract new businesses to the area and create rentable spaces that are easy to get to from public transit. New restaurants, retail stores, office space, and residential units will create a new mixed-use community that will enrich the neighborhood with activity.
CLIENT AND USER

The client of the project is a private or public developer who has the intentions to buy and reconfigure the city blocks.

The users of the project will be the residents who will be moving to the developed area to find new places to live, current Worcester residents, transit users and people who see the convenience of a mixed-use development.

This development is designed to be used by anyone in the city. It is meant to be an attraction and destination which will form a new sense of place and community.

The Worcester Redevelopment Authority plays a large role in initiating redevelopment and revitalization in the cities downtown area. Their mission is to create a safe and dynamic city which offers new uses to under performing and underutilized properties. Their goal is to initiate projects that are sustainable and economically beneficial to the city of Worcester.
SITE IDENTIFICATION AND RATIONALE

T.O.D. LOCATIONS | THE CANAL DISTRICT
The highlighted locations are all under utilized industrial zones which have a high potential for re-use but the circled zone is the only location within walking distance of the train station. These sites are all located off of the same railroad line making them all interconnected.

(Selected site circled)

(Train lines are highlighted in red.)
The location outlined in red is the site which will be redeveloped.

This site has very close proximity to Union Station and the WRTA which is the train and bus stations for Worcester, MA.

The train station & bus transportation terminals are outlined in blue.

The blue circle shows the ten minute walking radius that is around the chosen site.

The downtown is very walkable and is connected to many other surrounding neighborhoods.

This site shows the most potential for a transit oriented development because of its ease of walkability to public transportation.
The canal district is a dense mixed-use neighborhood. This composite map shows different uses of the Canal District.

- Housing
- Transportation
- Commercial
- Hotel
- Religious
- Institutional
- Restaurant
- Industrial

The canal district has various existing green spaces and urban plazas.
Worcester is a hub for transportation and many of the main routes pass right through the canal district.

The canal district has historic significance that can still be seen in the present day. The district is very different than it was in 1870 when comparing it to a present day map. (2019 site map overlaying 1870 historic Sanborn map.)
The main city block which is being looked at for redevelopment is the block on the north east corner of the canal district.

This block is South of Franklin Street, North of Temple Street, East of Grafton Street and West of Harding Street.

This small Industrial block adjacent to the Union Station parking garage acts as a perfect location for transit oriented development to take place due to the accessibility to the commuter rail system. The walking distance to the train and bus systems are about 2 minutes.
This small industrial block adjacent to the Union Station parking garage is made up of multiple different properties belonging to different owners. The entire city block would have to be purchased by a developer in order to completely reconfigure the buildings.

These 3 buildings will be preserved on site during the development of the city block because of their character which will enhance the district.
This 3 story brick warehouse building is one of the 3 buildings that will be saved during development due to its repetitive industrial bays and its rich brick aesthetic contributing to the neighborhoods identity.

The importance in keeping existing fabric makes each gateway city unique by keeping its historical context alive within the neighborhoods.

This building is three stories tall making it the tallest existing building on the lot. Its flat roof shows potential for future rooftop usage.

The two bay wide building site directly on the corner of Harding Street very giving it potential to activate the street front through commercial redevelopment.

This one story brick industrial building is the largest building on site. It can be utilized as an anchor point for the development.

The shell of this building has large mill window openings, currently filled in, which can opened and utilized as a way to let light in and for building users to access the space.
This small industrial style building is the furthest building north east on the site. Its similarity to its surrounding contributing structures can give the Grafton street side of the block a unique identity to its industrial past.

The 5 story mill complex site just south of the ’Harding Block’. Due to its industrial past, it is built right on the street front which will be useful for activating street front commercial redevelopment.
This property is a large mill complex which produced shoes at one point. This will be a vital part of the development because of its repetitive grid system that was used to space plan the building.

This mill has an empty lot which is adjacent to the building. A brick factory building used to stand on this street corner but was demolished to provide parking for the Canal Lofts which is further south on Harding Street.
This mill building which is directly on the street front of Water Street currently stands at 5 stories. This mill also used to produce shoes.

Across from the ‘Harding Block’ is another parking lot which can be utilized as surface parking for a future development. The corner lot currently has a small brick building located on it.
Across from the Heywood Shoe Factory is an empty parking lot which can also add to surface parking for a future development.

On the west side of Harding Street is a new ice rink which has a surface parking lot in front. This lot can provide more parking for a future development.
The Union Station parking garage is a 5 level garage which sits on the northern side of the canal district. It is just south of the railroad tracks which separate the train station and the mixed-use neighborhood. The Franklin Street frontage has existing ground floor retail designed in already but was never actually occupied. It is in hope that this redevelopment will activate this street front commercial retail space.

The rentable space is 2,700 SF total.
This city block is the main site that will be developed for this design project. Three of the brick buildings will be preserved and repurposed.

The intended program will contain:

- Market rate and affordable housing (44 units - 120,000 sf)
- A food market with vendor stalls (10,000 sf)
- A small craft brewery and pub (10,000 sf)
- A boutique restaurant and rooftop bar (8,000 sf)
- A market space to replace the active one currently on site (10,000 sf)
- A covered winter garden/beer garden space (10,000 sf)
- Shared cooperative work space (30,000 sf)
- Multiple urban plazas (10,000 sf)

This property is a large mill complex which manufactured shoes in the late 1800s.

The Heywood Shoe Factory building on the Winter Street and Harding Street side will be saved. The building is 5 stories and is currently not occupied. The intended program for this building will be market rate and affordable housing units.

The building will consist of 72,000 sf of new residential units. The ground floor is going to be designed to occupy 18,400 sf of new commercial retail space.

The 1 story existing brick building on the Temple Street front will be demolished and replaced by a 3 story parking garage. The ground floor of this garage will be designed to accommodate 20,000 sf of new commercial retail space. There will be 2 levels of parking consisting of 500 new parking spaces total.
This property is a 5 story mill building which produced shoes in the late 1800s.
The intended program for this building will be market rate and affordable housing units.
The building will consist of 15,000 sf of commercial retail space on the ground floor, 60,000 sf of new residential units on the upper floors and 60,000 sf of new urban plaza on the currently vacant site.
REGULATORY ENVIRONMENT

ZONING
The proposed site is in a BG-3.0 zone. The proposed and best use of this site is 'General Business'. It is possible to get the zoning changed in order to accommodate the new program. The request for a zoning change would have to go in front of the zoning board of appeals.

The current floor area ratio allowed for this site is a 3 to 1 FAR.
The Crown Iron Steel Works manufacturing plant produced airplane wings, bridges and pontoons during World War II.

This steel-framed building was unoccupied until Shelter Architects decided to repurpose the building into a microbrewery which also had space to accommodate offices for architecture and design firms.
The interior space was designed with inspiration from the New York City ‘highline’. Green space was introduced into the architectural scheme by repurposing and salvaging industrial items such as super sized ‘culvert section’ into raised planters and garden beds. Sections of the steel roof were removed in order to let light in and make the space inviting and cheery.

The main indoor space has garage doors that open to outdoor patio spaces where food trucks park and family and friends can dine, drink and enjoy themselves.
The Teste Block designed by prominent Providence architect Charles P. Hartshorn in 1860 stands at the corner of Weybosset and Dorrance and is one of the last narrow low-rise commercial buildings left in downtown Providence.

The building was originally used as office space on the upper floors and commercial storefront on the ground floor.

This 12ft x 40ft building was red brick, white trim and had paneled arched windows making this a striking small scaled building.

The building renovation was completed in 2015 when Studio Mesa and the building owner proposed a plan to make the ground floor into a restaurant and the upper floors into apartment space.

Part of the Providence G complex, this building was heavily restored by repointing all of the bricks, restoring the original windows and stripping the paint from the brownstone.
The addition to the Teste Building completed. The interior of the addition used both existing buildings as interior walls. Being enclosed with steel and glass exposed the rustic history and character of the existing buildings.

At the intersection of Peter Street and Richmond Street West, Sweeny and Co Architects saw an opportunity to preserve the two industrial brick and beam constructed buildings.
The approach that the architects took was to build an 11 story 302,000 square foot office building above the existing structures which would be supported on 3 large support columns.

The ground plane of the development became an atrium space stretching between the existing structures.

The incorporation of the older structures into the new development gives the building a much richer aesthetic that gives reference to Toronto’s industrial past. The integration of the new and older buildings brings a more vibrant character to the street front and surrounding neighborhood.

With careful analysis, the architects were able to preserve some of the city’s older infrastructure while still making a dense urban downtown office building.
PROPOSED ARCHITECTURAL SCHEME
EXISTING SITE MASSING

Buildings that are white are to be kept. Buildings that are grey are to be demolished.
MASSING STUDY MODELS
Various studies performed on how to redevelop the site at different densities.

FIRST SITE MASSING SOLUTION
PROPOSED SITE SCHEME

South West Corner of Building
Proposed Site Plan of Redevelopment and Program

Proposed building on site
The combination of a new restaurant, retail space, shared workspace, a craft brewery and pub, a food hall, a meat market/deli and a winter garden/beer garden will provide amenities that the canal district needs to grow and redevelop in a mixed-use neighborhood.
The second floor will tie the commercial ground floor into the upper residential units by providing unique shared work spaces and rentable office space to make this development a true transit oriented development where residents can live, work and enjoy themselves. This level has 11 town house units located on the south side of the building.

The third level is where residential units start. These 32 new apartment units are proposed as market rate and affordable housing options which are perfect for student housing.
FOURTH FLOOR PLAN
The fourth level is made up of 11 condo units.

FIFTH FLOOR PLAN
The fifth level is made up of 11 condo units.
ELEVATIONS

The building cladding system resembles the industrial red brick seen throughout the canal district.

SECTIONS

The interior winter garden/beer garden provides the community with a green/natural space that can be used for a multitude of purposes.
BUILDING ‘THROUGH-SITE’ CIRCULATION

This proposed circulation route lets visitors weave their way from one side of the site to the other which passes by the historic infrastructure.

BUILDING’S PROPOSED FEATURES

The proposed redevelopment has interior and exterior spaces in which the community can occupy and socialize in.
BUILDING EXTERIOR

View of the South West corner of the building - Proposed craft brewery and pub storefront

BUILDING EXTERIOR

View of the North East corner of the building - Proposed main entry
51 HARDING STREET ADAPTIVE REUSE RESTAURANT
Proposed restaurant at the former ‘Goldstein Scrap Metal’ building

59 HARDING STREET ADAPTIVE REUSE INTERIOR BEER GARDEN
Proposed restaurant at the former ‘Goldstein Scrap Metal’ building
51 HARDING STREET ADAPTIVE REUSE RESTAURANT

Proposed double height dining space at the restaurant at the former 'Goldstein Scrap Metal' building.

51 HARDING STREET ADAPTIVE REUSE RESTAURANT

Proposed exterior renovation at the former 'Goldstein Scrap Metal' building.
Proposed winter garden/beer garden inside the former 'Lou's Custom Exhaust of Worcester' building.
REFERENCES


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