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Reclaiming the Miracle Mile: A Greenway Park Design & Land Use Strategy for Springfield's Lower Mill River

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Reclaiming the Miracle Mile: A Greenway Park Design & Land Use Strategy for Springfield's Lower Mill River



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Master of Landscape Architecture
University of Massachusetts, Amherst
December 9, 2009**

**Reclaiming the Miracle Mile:
A Greenway Park Design & Land Use Strategy
for Springfield's Lower Mill River**

Submitted for Terminal Project
Master of Landscape Architecture

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December 9, 2009

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1. PROJECT INTRODUCTION

The City of Springfield, Massachusetts, a city set on the bluffs and shoreline of the Connecticut River and home to just over 150,000 people,¹ is seeking to develop a strategic plan for improving the lower reaches of the Mill River (highlighted in yellow) between the Armory Watershops on Allen Street and the river's confluence with the Connecticut River just west of Interstate 91, approximately 1¼ miles to the southwest.² This section of the Mill River (referred to herein as the Lower Mill River) is heavily urbanized and functions as a barrier between its neighborhoods. Once valued for its benefits to developing industry, the river is polluted and neglected; degraded banks, illegal dumping, poor riparian buffer health, and incompatible land uses are problems present along most of the Lower Mill.³

The City seeks a solution that will establish new recreational amenities, revitalize adjacent neighborhoods, strengthen the links between existing cultural resources, foster future development, and restore the river's ecological health.⁴ A strategy for improving the Lower Mill River has the potential to revitalize the surrounding neighborhoods by remaking the river as a recreational and ecological attractor that establishes a strong link to the Connecticut River and the CT Riverwalk and Bikeway, the Armory Watershops, and Springfield College. This project establishes a framework to guide future design and planning decisions for the Lower Mill River so that the City may achieve its objectives of revitalizing both the river and its surrounding neighborhoods.

The Lower Mill River has played an important role in the cultural and hydrologic history of Springfield. Its abundant water power and proximity to the developing downtown made it a logical and convenient location for mills and other heavy industry such as the Springfield Armory Watershops, which dammed the river at Allen Street and were constructed as the mill



¹ <http://www.city-data.com>. July 2008 Population: 150,640.

² Hanson, Scott. Senior Planner, City of Springfield, Personal Communication November 2006 - May 2007.

³ Bauer, Frank. *At the Crossroads: Springfield, Massachusetts 1636-1975*. Bicentennial Committee of Springfield, Inc., 1975

⁴ Scott Hanson, Senior Planner, City of Springfield, Spring 2007

counterpart to the Springfield Armory "Hillshops," the primary campus of the nation's first National Armory on State Street.⁵

The river's contribution to the local economy exacted a steep toll on the its ecological health, riparian function, runoff intake, access and aesthetic quality.⁶ As manufacturing declined in the mid-20th century, the neglected river was regarded as a nuisance to newer development and largely ignored in the plans for adjacent properties. Because its degraded environmental quality made the land adjacent to the river less desirable, a predominance of auto-oriented uses developed, further contributing to the river's decline with large amounts of impervious surface and contaminated run-off.⁷ In order to accommodate the construction of Interstate 91 in the 1950s, the river was piped underground for approximately 350 yards starting just west of Main Street. West of the Interstate, the river daylight in a deep concrete channel in a vacant, paved lot and runs beneath the Amtrak rail line before converging with the Connecticut River.

The Mill River is a significant tributary and subwatershed to the Connecticut River.⁸ Northeast of the Armory Watersheds dam, the upper reaches of the River flow through wide coves and far less urbanized channels surrounded by a healthy riparian buffer, however poor water quality, degraded banks and riparian function are significant problems for the Lower Mill. Combined sewer overflows (CSOs) and large amounts of impervious surface surrounding the river increase runoff into the Lower Mill, impeding groundwater absorption and overloading the river's natural capacity to cleanse runoff before it joins the Connecticut, which faces similar problems.⁹ Restoring the ecological health of the river is a crucial part of any plan to improve recreational access and neighborhood stewardship because the perceptions and realities about polluted, neglected water bodies discourage people from engaging with the river and its banks.

River Access & Ecological Function

Limited access to and awareness of the river within the surrounding neighborhoods and the city translates into the loss of a tremendous ecological, recreational, and cultural resource for downtown Springfield.¹⁰ The river functions to divide, rather than unite, the urban fabric. The consequences of the river's problems are profound and impact the Connecticut River watershed as well as its immediate environment. The heavily urbanized and ecologically unhealthy confluence with the Connecticut is one example of the severe restriction of both ecological function and human access. Restoring the Lower Mill's ability to treat surface run-off and function as an effective tributary to the Connecticut would positively impact both rivers and their watersheds.

Designing for accessibility to the Lower Mill presents unique advantages because a vast majority of the land adjacent to the River is publicly owned and private property issues are non-existent in

⁵ Bauer, Frank.

⁶ Bauer, Frank.

⁷ *CSO Fact sheet #1: CSOs and Our Rivers*. Pioneer Valley Planning Commission and Connecticut River Clean-up Committee

⁸ Copeland, Alfred M. *Our county and its people: A history of Hampden County, Massachusetts*. Editor: Alfred Minott Co

⁹ *CSO Fact sheet #1:*

¹⁰ Hanson, Scott

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most areas.¹¹ The river's often steep banks have discouraged private development and, as a result, long stretches of the river's banks, particularly along Rifle and Locust Streets, are adjacent to public rights-of-way and city streets. Johnny Appleseed and Oakland Street Parks have preserved large portions of the river for public access and both present exceptional opportunities to develop a wide variety of experiences around the river as well as to enhance existing public facilities.

Enhancing access to the Lower Mill in an environmentally responsible way will benefit both the ecological function of the River and community stewardship. Currently, the river is both degraded because of historical usage and disregarded because such usage has made it unappealing. Revitalizing the river corridor through ecological and recreational measures will help to coalesce the environmental and sociological elements necessary to stimulate proper neighborhood and City stewardship over the river; a civic investment in recreational access and riparian health will reap dividends in increased usage and neighborhood investment in this renewed resource.

Linking Cultural Resources

While it currently functions as a barrier between southern neighborhoods and Springfield's Downtown and the Connecticut River waterfront, the Lower Mill has the potential to provide a unique pedestrian experience at crossings and along its length. Significant opportunities exist for linking existing resources, which include the Federal Armory/Springfield Community and Technical College (STCC), Springfield College, the Armory Watershops, the Basketball Hall of Fame, the LA Fitness Center and Onyx Restaurant and Bar in the renovated former Basketball Hall of Fame building, Riverfront Park and the Connecticut River Walk and Bikeway, and the downtown Central Business District.¹² Developing the Lower Mill as a human connector between these resources will help to stimulate the growth of new cultural and development opportunities like the waterfront parcel formerly occupied by the York Street Jail.¹³

The River Walk and Bikeway, in addition to being an obvious existing resource to link with a recreational design for the Lower Mill, would benefit significantly from improvements and connections to the Lower Mill River. The River Walk and Bikeway's southern stretch is intended to eventually connect to the South End Bridge and trails in Agawam and (planned for) West Springfield.¹⁴ However, it currently terminates in a cul-de-sac just north of the bridge and is isolated for a long stretch from crossings and street level activity by the Amtrak line railroad tracks. The nearest crossing is the pedestrian bridge, which the city is struggling to maintain, behind the recently redeveloped LA Fitness Center and Onyx Restaurant/Bar. The Springfield and Agawam sections of the River Walk were completed in 2003, however the sections planned for West Springfield and the Agawam loop are still in design phases.¹⁵ Revitalizing the Mill River and establishing a pedestrian connection at the Lower Mill confluence would benefit the

¹¹ MassGIS.gov

¹² <http://www.springfieldcityhall.com/planning>

¹³ <http://www.springfieldcityhall.com/planning>

¹⁴ Springfield River Walk and Bikeway Survey Final Report, Pioneer Valley Planning Commission., December 2005

¹⁵ Pioneer Valley Planning Commission. December 2005

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River Walk and Bikeway significantly by improving access, connectivity and safety, and would therefore presumably increase usage levels as well.

Community Involvement

A robust community process in the future planning and implementation of plans for the future of the Lower Mill will be crucial to its success as a shared resource that is valued and protected by local residents and other users.¹⁶ Charrette-style community meetings and a genuine response to community feedback will be essential to the success of all future planning efforts for the Lower Mill; this conceptual Master Plan and Land Use Strategy are intended as a starting point for discussion and community feedback to be further refined through community feedback and professional development.

This design proposal entails a significant expansion to Springfield's open space network that will help to forge connections between existing cultural institutions and between its people and their rivers. It will provide valuable trail and recreational opportunities while improving the health of the Mill River and Connecticut River watersheds and setting the stage for future economic growth along the Connecticut and Mill Riverfronts that compliments the natural functions and preserves access to both rivers.

¹⁶ Sheila Maceklevian, Springfield Resident and Connecticut River Walk and Bikeway Activist, Personal Interview, October 23, 2009

2. PROJECT GOALS, OBJECTIVES & DESIGN PRINCIPLES

The goals of this project are as follows:

- 1) **Land Use Strategy and Incompatible Uses** - Establish a land use strategy for the Lower Mill River that can be implemented as redevelopment opportunities become available
- 2) **Pedestrian Greenway and Park Development** - Provide recreational access to the Lower Mill River and a greenway pedestrian link between the Armory Watershops and the Connecticut River Walk and Bikeway by revitalizing existing public parkland and rights-of-way along the Mill River
- 3) **Recreational Access** - provide active recreational nodes and inviting gateways into the greenway system comprised of existing and newly acquired land
- 4) **Riparian Health of the Mill River Corridor** – Improve the environmental and riparian health of the River Corridor through design and land use decisions as well as increased awareness and stewardship of the river
- 5) **Cultural & Neighborhood Connections** - Restore the connection of downtown Springfield to the Lower Mill and Connecticut Rivers

This project proposes a bold planning and design vision for integrating the Lower Mill River as a key amenity and link within Springfield's open space network and the watersheds of the Mill and Connecticut Rivers. The objectives of each project goal are as follows:

1) Land Use Strategy and Incompatible Uses

- ❖ Provide a long-term strategy for removing incompatible land uses from parcels adjacent to the Lower Mill River and suggest alternative uses that optimize both the ecological health of the river corridor and human enjoyment of and access to this unique resource. The Lower Mill River's industrial history is evident in the form into which it has been shaped (such as by masonry walls and other retaining structures), in the historic brick buildings, including the Watershops, found throughout the corridor. Unfortunately, it is also revealed in the modern, light industrial and auto-oriented land uses that have replaced water-based industrial activities along what came to be a polluted and disregarded channel.
- ❖ Light industrial and auto-oriented uses, particularly those with large amounts of impervious surface, should be phased out as opportunities arise and replaced with open space, neighborhood commercial and infill housing. While these uses are inappropriate in parcels adjacent to the river, they have a place within the neighborhood and should be relocated to more appropriate parcels which are organized to accommodate these uses with the highest possible efficiency and use of space.

2) Pedestrian Greenway and Park Development

- ❖ A new greenway path between the Watershops and the Connecticut River Walk and Bikeway along the banks of the Lower Mill River will open access and views into the river corridor. It will be designed to provide a variety of experiences and choices

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between paths through wooded areas as well as those along surface roads. User safety is a paramount concern in any urban setting and will be accommodated in the design with mindful access points, lighting, vegetation management, sightlines, and route options.

- ❖ Johnnie Appleseed Park will be improved to utilize the overgrown and flooded north side so that it functions as a destination gathering space between the Watershops and the Connecticut River Walk and Bikeway and as an educational demonstration of the ecological restoration of the river. Revealing the processes of surface runoff and riparian cleansing is a valuable function of well-planned and preserved urban rivers, and this design incorporates this educational and ecological opportunity.
- ❖ A new gateway riverfront park and waterfront-oriented commercial use will be established in the parcel where the Mill River daylights and the new greenway path will connect with the River Walk and Bikeway. Because of the railroad tracks and masonry structures blocking the dry underpasses on either side of the river's tunnel beneath the tracks, there is currently no physically passable connection between this parcel and the River Walk and Bikeway, which is under-used because of limited access points and safety concerns.¹⁷

This parcel presents a unique opportunity to simultaneously naturalize the riparian buffer, expand recreational access and links to the River Walk, and contribute to the ongoing revitalization of the Connecticut Riverfront with a park design that will be highly visible and accessible from the Downtown Central Business District, Interstate 91, and the neighborhoods around the Lower Mill River. A park and waterfront-oriented commercial use on this small parcel is an appropriate use for the city to pursue not only for purposes of recreational access and riparian buffer repair to the Lower Mill River, but also because significant commercial developments occupy large tracts of the Connecticut Riverfront and the site of the former York Street Jail will likely (and appropriately) be privately developed. As such, a small public park to serve as a gateway to both the Lower Mill River Greenway and the Connecticut River Walk and Bikeway is an appropriate and vital reservation of recreational access for the city residents and visitors.

3) Recreational Access

- ❖ Improve and encourage access to, views into, and neighborhood awareness and care of the Lower Mill River. Most neighborhood development has literally turned its back on the river, which has steep banks in some areas and a history of CSO, runoff and odor problems. Illegal dumping is a problem in many areas and indicates a lack of neighborhood stewardship and comprehension of the riverbank as a public resource. Revitalizing the river corridor and turning it into an asset rather than a liability to the neighborhood will help to increase awareness and stewardship while providing a valuable recreational amenity.
- ❖ The pedestrian greenway along the Lower Mill River will be fully integrated with the existing parks adjacent to river – Harriet Tubman Park, Oakland Street, Johnny

¹⁷ Pioneer Valley Planning Commission. December 2005

Appleseed Park, and Flannery's Rest. The stretch of the Lower Mill between Oakland Street and Johnny Appleseed Parks will be further developed in a 50-scale, focus area plan. Entry points into the greenway path and both parks, gathering spaces, and existing walking routes to the park and the greenway will be examined and structured so that the existing parks serve as both neighborhood destinations and featured gateways to the Lower Mill River Greenway.

4) Riparian Health of Mill River Corridor

- ❖ Improve the riparian health of Lower Mill River and the confluence with the Connecticut River. Bank erosion is a problem throughout the river corridor, the northern half of Johnny Appleseed Park is unusable due to flooding, and the confluence with the Connecticut River is overly urbanized. The overall health of the Lower Mill River needs serious attention; raising community awareness and encouraging responsible recreational access is the first step towards encouraging stewardship of the river by the residents of adjacent neighborhoods.

In Johnny Appleseed Park, there is an opportunity to allow the river to move through a functioning wetland rather than be channeled with riprap and left to flood the low-lying land. Below Main Street, where the river has been channeled underground to pass beneath Interstate 91, there are fewer options and substantially more infrastructural complications to restoring the health and natural state of the river. Daylighting the river would be optimal, however this would require further study and complex engineering solutions. Shorter term solutions include remaking the Main Street parcel beneath which the river flows to reflect its presence and connect it with the greenway path progressing towards the confluence and trail connections with the Connecticut River Walk and Bikeway.

While this proposal aims to improve the environmental quality of the riparian buffer and the water quality in the Lower Mill River, it is important to understand that achieving such improvements will require a multi-pronged approach to address the existing problems. Substantive study of current aquatic conditions and action on environmental threats such as CSOs and illegal dumping must be undertaken. This proposal entails recommendations aimed at improving the river's health through land use and design solutions, however scientific study will be needed in concert with the revitalization plan in order to address remediating water pollution and restoring the ecological health of the river.

5) Cultural & Neighborhood Connections

- ❖ Foster future revitalization of the historic Armory Watershops complex and its connection to Springfield College, a potential partner in the redevelopment of the complex. The complex is currently marginally occupied by predominately auto-based and miscellaneous industrial uses.

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- ❖ Establish strong pedestrian and recreational connections between the Armory Watershops and the Armory, Springfield College, Forest Park, the Downtown Quadrangle, the Mill River corridor, and the Connecticut River Walk and Bikeway. This will help to link the area's cultural resources and raise the cultural profile of the Watershops as a historic hub of industry and a suitable location for modern, greener commercial and industrial activity.
- ❖ Strengthen the connection between the thriving residential Historic Districts of Maple Hill to the north and Forest Park to the south. The Lower Mill River corridor houses several marginal industrial uses, including a small complex of late 19th century brick buildings at Mill and Locust Streets, that could be effectively revitalized for commercial and office use. Transforming the Lower Mill from a disregarded back alley into an ecological recreational resource within walking distance of the Downtown Central Business District will help the surrounding residential neighborhoods turn an eye towards the river and each other.

Design Principles

The over-arching design principle for this proposal is to balance the tensions inherent between increasing human access to the river, restoring riparian function, and managing vegetation height, density and massing for optimum user safety. Other design principles include the following:

Urban Design Principles

- Utilize and improve upon existing street-side rights-of-way for paths
- Make the river corridor fully walkable either on-street or off in order to create a variety of experiences and respect accessibility and safety of potential users
- Visibility, lighting and egress routes are a priority for off-street paths
- Manage vegetation heights to create multiple sightlines in and out of gathering spaces and paths
- Gathering spaces will be of varied sizes for different individuals and types of groups
- Expose the industrial history of the river – masonry walls, metal decked bridge crossings

Ecological Principles

- Use American Sycamore trees to mark gateways into the trail system
- Design and land use recommendations will balance the intervention needed to increase access with the ecological health of the river
- Expose the ecological processes of the river, wetland and forest in order to educate users and foster greater stewardship over natural resources
- Educational interpretation signage, smaller nodes for observation and larger nodes for teaching will be provided

3. PROJECT METHODS

The methods employed in the study and design for this proposal include primary research through site investigation and personal interviews, and secondary research through library research, demographic analysis, and conference attendance.

Personal Observations, Field Work and Interviews

Site specific research included walking, observing, and photographing the Lower Mill River corridor and Connecticut River Walk and Bikeway during all four seasons and through different stages of development along the Connecticut River waterfront. Regular site visits throughout assessment and conceptual design processes were undertaken in order to ground-truth design ideas. Walking the corridor with Springfield Senior Planner Scott Hanson and engaging in informal conversations with residents encountered using the corridor revealed opinions about the Lower Mill River and the opportunities and constraints for potential improvements.

Personal interviews and correspondence with local officials and planners ensured access to and utilization of source material and fostered a better understanding of the viability of design ideas. Conversations with planners the Pioneer Valley Planning Commission led to an understanding of the Lower Mill River's role in the regional vision for recreation and future development.

Conference Attendance

In March 2007, I attended a conference in Boston entitled "The Promise and Challenge of Urban Rivers," sponsored by Mass EOE, EPA and the Center for Watershed Protection. The following sessions proved useful at further understanding the broader context of urban waterfront research, development and revitalization:

- Urban River Visions: A Potential Model for New England?
- Water in the City: Stormwater, Illicit Connections and Urban Low Impact Development (LID)
- Urban River Restoration: Ecologically Oriented Development Considering Environmental Justice

Research

Library, mapping, demographic, case study, topical and institutional research fostered an awareness of the placement of this proposal within planning and design literature in addition to revealing planning documents and subject matter relevant to the Site and this proposal. Demographic research profiles each of the four neighborhood census tracts adjacent to the Lower Mill River by age, ethnic background, and income as compared with averages for the City of Springfield.

Topic area research included urban greenways, defensible space, wetland restoration and riverfront revitalization. Significant riverfront initiatives in Connecticut, Rhode Island and Minnesota were studied for valuable insights into their design and construction. Case studies included the following:

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- **Case Study #1 – Urban Stream Integration into Neighborhood** - Rippowam-Mill River Park & Restoration Project, Stamford, Connecticut
- **Case Study #2 – Industrial River Reclamation** - Woonasquatucket River Greenway, Pawtucket, Rhode Island
- **Case Study #3 – Waterfront/Greenway Revitalization** - Mississippi Riverfront, Minneapolis, Minnesota

Data Gathering and site analysis/assessment included mapping the following resources and creating analysis diagrams of relevant site features and resources:

- Adjacent land uses, zoning and property ownership
- Transportation network and bus routes
- Trails, open space system, and scenic landscapes
- Topography and hydrology
- Impervious Surfaces
- Rare and endangered species
- Wetland and riparian areas
- Development strengths, opportunities and weaknesses

Relevant Coursework

While virtually all of the courses I completed at the University of Massachusetts while pursuing dual masters degrees in Landscape Architecture enriched my knowledge and ability to conduct research and undertake this design proposal, specific graduate work directly supported this project and included:

- LA Studio VIII – Cultural Landscape Preservation at the Springfield National Armory and Springfield Technical and Community College
- LA Studio VII – Urban Design Competition - Brickbottom District in Somerville, Massachusetts
- Green Urbanism and Ecological Infrastructure
- The Social Construction of Space
- Landscape Pattern and Process

Project goals, objectives, and design principles were developed based on feedback received from this research and a vision for how neighborhood and city residents would interact with the spaces within the Site. The land use strategy and design proposal were developed first using conceptual diagramming and then final design drawings including plans, sections, and perspective drawings.

4. LITERATURE REVIEW & CASE STUDIES

Research Topic - Urban Greenways and Riverwalks

- ❖ Ryan, Robert L, Fabos, Julius Gy., and Lindhult, Mark S. *Continuing a Planning Tradition: The New England Greenway Vision Plan*, Landscape Journal, 21:1-02 ISSN 0277-2426, 164 – 172.

In discussing the New England Greenway Vision Plan, Ryan et. al advocate a 5-step approach to greenway planning: Nature Protection, Recreation, Tourism, Historic & Cultural Preservation (Ryan et. al., 165), all of which are appropriate for the Lower Mill River. Nature protection is a critical issue for Lower Mill given its location within a dense urban area with a high concentration of impervious surfaces and problems of non-point source (NPS) runoff, Combined Sewer Overflows (CSOs), illegal dumping, poor vegetation management and water pollution. Despite the abundant parkland adjacent to the river, the corridor is uninviting because of these problems. Recreation is an important element because of the demographics of the surrounding neighborhoods and limited access to recreation, as well as the opportunity to link the Connecticut River Walk and Bikeway to the neighborhood and Springfield College. Tourism, Historic and Cultural preservation all apply to tapping into the resources of the Connecticut River Walk and Bikeway and other riverfront development in addition to preserving and promoting the industrial heritage of the Armory Watershops and other architecturally significant buildings. The Springfield Armory “Hillshops” campus on State Street is well-managed by the National Parks Service (NPS) and brings substantial tourism to the city. The Lower Mill River corridor should be developed as both an adjunct facility to the Armory and as a neighborhood-level resource.

Ryan et. al. also cites that a majority of cultural and nature protection greenways co-occur along river corridors (Ryan, 165). The Lower Mill River is an excellent candidate for both categories of greenway development on the basis of its own industrial history as Springfield's ‘Miracle Mile’ of mills and production as well as its confluence with the Connecticut River. The Connecticut is one of only 14 rivers in the United States to be designated, in 1998, as an American Heritage River, a designation which covers a one-town width on either side of the river and grants expedited priority for federal funding for natural, historic and cultural preservation (Ryan, 168). According to the Environmental Protection Agency, “The American Heritage Rivers initiative is an innovative response to help river communities that seek federal assistance and other resources to meet some tough challenges. Without any new regulations on private property owners, state, local and tribal governments, the American Heritage Rivers initiative is about making more efficient and effective use of existing federal resources, cutting red-tape, and lending a helping hand.”¹⁸ The CT River Walk and Bikeway – both the completed Springfield segment and the ongoing efforts to connect it to the South End Bridge and in other communities, marks a vital first step in providing access to the Connecticut River. The proposed Mill River Greenway would reestablish the natural, cultural and historic connection between the rivers and greatly enhance access to and safety on the CT River Walk and Bikeway.

In communicating a larger greenway concept to local residents and building support for projects, Ryan et al write that local level planning and visualization are essential to presenting human-

¹⁸ <http://www.epa.gov/rivers/initiative.html>

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scaled scenarios with which people can identify (Ryan, 170). While the Lower Mill River Greenway is a local and relatively small scale greenway plan compared with those discussed by Ryan et. al., the principle is applicable because the proposal contains both short and long term projects and a long term land use framework. The redevelopment of certain parcels, particularly those west of Main Street and surrounding the confluence with the CT River, are complex and potentially expensive long term projects. For long term land use planning, relocating industrial and auto-based uses away from the riverfront may be politically contentious; such longer term projects will require community support and vision for the larger goals of the greenway. Enhancements to Oakland Street and Johnny Appleseed Parks, along with basic maintenance and vegetation management practices are among the many aspects of the proposed design can be easily implemented by the city and can be leveraged to provide short term benefit for the neighborhood and long term buy-in for the larger project.

- ❖ van Bohemen, Hein. *Infrastructure, Ecology and Art*, Landscape and Urban Planning, 59 (2002) 187-201.

van Bohemen discusses the role of ecology and art as they relate to infrastructure in the Dutch landscape, providing an instructive perspective on highlighting the industrial heritage of the Mill River, restoring ecological function in a way that engages residents and improves perceptions of safety, and revitalizing the corridor in relation to the current auto and rail infrastructural elements that currently serve as barriers. van Bohemen advocates a system approach in which “the flow of material, transport, emissions and energy and habitats are geographically, systematically and functionally integrated.” (van Bohemen, 188) This approach to viewing ecological restoration in relation to human physical infrastructure is salient to the Lower Mill River because the Greenway proposal addresses a river that has, in all areas west of Watershops Pond, been significantly altered and constrained from its natural course by human vehicular and industrial infrastructure. While most of the river corridor has been left wild as river-based industrial uses disappeared, a “naturalized” restoration would be impossible to legitimately achieve, whereas the physical indicators of its industrial past are undeniable and should be celebrated in its revitalization.

van Bohemen asserts that “involving art & aesthetics opens up new channels for people to ask that attention be given to alterations in the landscape, thus increasing their importance” (van Bohemen, 189). The application of a structured, geomorphic form to the design master plan is one way this concept is carried through design master plan. Similar to most areas of the Dutch landscape, the Lower Mill River's surrounding environment may look natural but it is, in fact, highly constructed as a result of human activity. The geomorphic form enforces the human-built aesthetic of the corridor while simultaneously marking the newly designed and built areas as distinctly organized constructed for (safe) human use, as opposed to the current wild, disorganized and abandoned structure of the majority of the corridor.

Because pedestrian safety is a legitimate concern throughout the Lower Mill River corridor, the success of any revitalization relies on establishing many and varied cues to users that this environment is well cared for and safe to use. van Bohemen discusses the use of art to clarify the function of public spaces, particularly those adjacent to infrastructure, in order to ease public interpretation of the spaces as cared for and safe. Such visual “cues to care” are particularly

effective for “left-over” spots so that passersby will experience the meaning of a place and feel a greater responsibility for it. (van Bohemen, 197) Such a strategy can be employed to residents of the Lower Mill River neighborhoods through professionally designed specialty lighting at bridges and underpasses, community interactive painted and tile murals on large expanses of infrastructural concrete, and a program for placing outdoor sculptures throughout the corridor's open spaces.

Research Topic - Defensible Space

- ❖ Kuo, Frances E. and Sullivan, William C. *Does Vegetation Reduce Crime?* Environment and Behavior, Vol. 33 No. 3, May 2001 343-367.

Kuo and Sullivan used police crime reports to examine the relationship between vegetation and crime in an inner-city neighborhood in order to address the standard assumptions that vegetation facilitates crime because it hides perpetrators and criminal activity from view (Kuo, Sullivan, 343). They find evidence in both historical laws regarding right-of-way vegetation maintenance and in modern surveys that vegetation has been found to increase perceptions and actual reports of crime when it obstructs sightlines, provides cover for illegal activity, and/or appears abandoned (Kuo, Sullivan, 345). However, in their analysis of police reports for public housing buildings that were identical in every way except greenery, the authors found that vegetation systematically reduced perceptions and actual reports of crime when sightlines are preserved and proper maintenance gives “cues to care.” (Kuo, Sullivan, 348) Vegetation such as turf and low-growing grasses, canopy trees, flowers and low shrubs imply ownership, investment, and responsibility, deterring vandalism, dumping, and criminal activity, whereas thick understory vegetation, large shrubs and dense woods increased perceptions of crime by obscuring sightlines and appearing uncared for (Kuo, Sullivan, 345).

Kuo and Sullivan hypothesize that well-maintained vegetation potentially supplies clues to potential criminals of implied surveillance even in the absence of any active observers (Kuo, Sullivan, 346). They also suggest, based on their research and relevant previous studies, that well-maintained vegetation reduces crime by mitigating the psychological precursors to violence by reducing mental fatigue and aggression, as contact with variety in nature has been systematically linked with enhanced cognitive functioning (Kuo, Sullivan, 347).

Vegetation management and the management of crime perception are crucial elements to the success of the proposed Lower Mill River Greenway. Many of the Lower Mill's environmental, scenic and recreational strengths, such as a naturally sloping buffer and undeveloped wooded areas are also weaknesses in terms of perceived safety, access, isolation, management, and crime perception. Several less successful aspects of the existing Connecticut River Walk and Bikeway are directly related to limited access points, infrastructure maintenance and overgrown, sightline obscuring vegetation, and simply constructing new pedestrian amenities along the Lower Mill River without recognizing the role of vegetation, maintenance and sightlines would likely result in the facilities being underused and uncared for by neighbors. Kuo and Sullivan's research demonstrates evidence for the potentially ameliorative effects of well-managed vegetation as

well as a sensible approach for integrating the development of greenway amenities with the practical demands of managing crime perception.

- ❖ Jorgensen, Anna, Hitchmough, James and Calvert, Tig. *Woodland Spaces and Edges: Their Impact on Perception of Safety and Preference*, Landscape and Urban Planning, 60 (2002) 135-150.

Jorgensen et. al. evaluated the relationship between spatial arrangement and vegetation structure in urban parks in order to determine general preferences and perceptions of safety (Jorgensen et. al., 136). The authors determined that naturalized woodland edges may be more palatable to users than previously thought (in terms of crime perception) and that visual permeability and multi-layered structure of the woodland edge are key elements in assessing the crime perception involved with vegetation (Jorgensen et. al, 136). Preference survey revealed that concepts of local character and vegetation appropriateness are replacing idealized notions of scenic beauty exemplified by traditional “Victorian” style, heavily groomed and wide open parks, which are increasingly unsustainable financially and environmentally (Jorgensen et. al, 135). The authors suggest that park designers should be particularly careful in the management of understory plantings that could potentially provide cover for criminals by structuring the edge with multiple visual layers (Jorgensen et. al, 149). The setting considered the safest and most preferred was “no understory with herbaceous flowers,” suggesting that mixing more traditional horticultural plantings with natural woodland vegetation could ease the acceptance of the latter (Jorgensen et. al, 149).

Forest edge management is particularly important for the Lower Mill River, which has several wooded areas of great environmental and potential recreational value, however the current unmanaged state of these areas leaves them obscured by invasive underbrush and subject to illegal dumping. Devising and implementing a program for managing these woodland edges, as well as their interiors, is one of the earliest steps that should be undertaken in the revitalization effort and the research of Jorgensen et. al. can be instructive in this effort.

Research Topic - Urban Ecology and Wetland Restoration

- ❖ Zedler, Joy. *Progress in Wetland Restoration Ecology*, Tree, vol. 15, no. 10 October 2000, 402-407.

Zedler addresses the common dual aims of wetland restoration – increasing biodiversity and improving hydrologic function – and discusses the difficulty in simultaneously achieving both aims within a given wetland (Zedler, 402). Arguing that simple models for restoration are inadequate for achieving both aims, she explains, “Biodiversity and function are not necessarily maximized in the same wetland – species richness is most likely where nutrient supply is low (as in groundwater-fed wetlands), however optimum nutrient removal requires abundant nutrient supplies, where a single plant is often dominant (Zedler, 402).

Based on her review of existing literature, Zedler sets out 10 ecological principles that are frequently neglected in wetland restorations: (1) Landscape context and position are crucial to

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wetland restoration; (2) Natural habitat types are the appropriate reference systems; (3) The specific hydrological regime is crucial to restoring biodiversity and function; (4) Ecosystem attributes develop at different paces; (5) Nutrient supply rates affect biodiversity recovery; (6) Specific disturbance regimes can increase species richness; (7) Seed banks and dispersal can limit recovery of plant species richness; (8) Environmental conditions and life history traits must be considered when restoring biodiversity; (9) Predicting wetland restoration begins with succession theory; and (10) Genotypes influence ecosystem structure and function (Zedler, 403-406).

Zedler recommends more robust, science-based approaches for improving the predictability of success in wetland restoration based on the preceding ecological principles (Zedler,406). She emphasizes that “site-specific hydrological regime is crucial to restoring biodiversity and function – not all aspects of the historical hydrologic regime need necessarily be restored, however accurate measurements of the timing, magnitude, frequency and duration of current inundation is needed to complement assessments of the chemical content of the water” and advocates a local, highly scientific approach to restoration (Zedler, 406). The proposed river and wetland restoration approaches outlined in the Lower Mill River Greenway proposal are intended to serve as conceptual, urban design level guidance from which more specific scientific and ecological work can progress to address the health of the Lower Mill River.

- ❖ *Constructed Wetlands.* Metropolitan Council/Barr Engineering Company, Minnesota Urban Small Sites BMP Manual, 3-243-3-250

The Metropolitan Council lays out the functions, advantages and design requirements of wet swales and constructed wetlands. The primary functions of constructed wetlands are settling of suspended solids, adsorption of pollutants, and microbial breakdown of pollutants (Metropolitan Council, 3-243) Advantages of constructed wetlands include control peak discharges by reducing runoff velocity and promoting infiltration, provide effective trapping, filtering and infiltrating pollutants, provide water quality treatment by sedimentation and biological uptake, & enhance biological diversity and create beneficial habitat between upland and surface waters (Metropolitan Council, 3-243).

The Lower Mill River is artificially constrained throughout the majority of its course through the neighborhoods west of the Armory Watershops. Naturally occurring steep slopes and, in most areas, low, attractive historic masonry retaining walls direct the river, which rarely floods. The only exceptions to this are in and west of Johnny Appleseed Park. Within the park, the river banks flatten out considerably and the banks are heavily eroded in some areas and constrained with unattractive modern riprap and concrete in others. The northern half of the park has particularly low-lying topography and is frequently flooded with rainwater, making it simultaneously unusable as parkland and an underutilized resource for the river. West of the park across Mill Street, the river is channeled into a tight jog from previous industrial development, causing a rapid increase in water speed and severe bank degradation. Widening the river at both of these points and establishing a productive wetland area in the northern half of Johnny Appleseed Park would help remediate the river's hydrologic function by capitalizing on the sediment control and pollutant filtration benefits of a constructed wetland.

Research Topic - Riverfront & Urban Revitalization

- ❖ Sieber, Timothy R. *Waterfront Revitalization in Postindustrial Port Cities of North America*, *City and Society*, Volume 5 Issue 2, June 2008, 120-136

Sieber discusses the common preconditions for riverfront revitalization in postindustrial American cities and asserts the following three structural factors as essential candidates for the emergence of waterfront revitalization in port cities: technological obsolescence in transportation and cargo building, deindustrialization, and corporatization (Sieber, 120). Springfield is not a port city and its riverfronts (the Connecticut and the Mill) differ significantly from the traditional port city, but the factors of transportation obsolescence and deindustrialization are relevant. The Lower Mill River is even more atypical of riverfront revitalizations than the Connecticut and while revitalization of inland postindustrial rivers poses different challenges, it is possible, as the Woonasquatucket River Greenway Case Study later in this chapter demonstrates.

Sieber sets out three domains of riverfront revitalization: unspoiled nature (environmentalism), unchanging past (history and heritage), & spontaneous fun/enjoyment (tourism) (Sieber, 124), all of which closely relate to the 5-step approach to greenway planning mentioned in Ryan 2002 (Nature Protection, Recreation, Tourism, Historic & Cultural Preservation). Sieber attributes the cultural developments giving rise to these three domains to the “search for authentic experience in a social environment that is widely understood to be new, artificial and constantly changing” and that “modern individualistic culture drives people to seek and establish connections to external domains that are deemed real, pure and true” (Sieber, 125). Programming in waterfront revitalization creates contexts and opportunities for people to establish such connections (Sieber, 126). While the Lower Mill River differs substantially from Sieber's basis for analysis of port cities, however several of the contributing structural factors are applicable and the development domains are salient to the proposed Lower Mill River Greenway, providing a new way of approaching the development of cultural and historic waterfront experiences for the neighborhood.

- ❖ Ryan, Brent D. and Weber, Rachel. *Valuing New Development in Distressed Urban Neighborhoods*, *Journal of the American Planning Association*, Vol. 73, No. 1, Winter 2007, 100-111.

Ryan and Weber explore the relationship between urban design and housing desirability and values in poor urban neighborhoods and specifically assess the differences between three urban design housing types: enclave, traditional neighborhood design (TND) and infill (single building) (Ryan, Weber 100). Their findings indicate that urban design significantly influences housing values (Ryan, Weber 101). In neighborhoods where crime perception is a particularly dominating factor, future uncertainty about the character of surrounding units is a discouraging factor for buyers, making TND housing (more than 20 adjacent and similarly designed units built together) more attractive than infill housing, which is typically integrated on a lot by lot basis. The TND provides a stronger perceived guarantee as to how the neighborhood will develop over time because the units are of similar quality (Ryan, Weber 102). The primary disadvantage of TND development, however, is similar to the isolation issues of enclave housing in that both fail to fully integrate into the existing neighborhood and remain separate, for better and for worse

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(Ryan, Weber 108). The authors conclude that consumers value new housing that is integrated into its urban context (infill) over housing which is disassociated from it (i.e. enclave and some TND) because the latter can evoke negative 'public housing' associations (Ryan, Weber, 107).

Ryan and Weber conclude that the most effective way to revitalize urban neighborhoods is to respect and augment the urban design character of existing places (Ryan, Weber, 108). This discussion is significant to the Lower Mill River Greenway because the lumber company parcel on Oakland Street is proposed to be redeveloped for housing. The proposed conceptual scheme (10 staggered townhouse units) bears some resemblance to TND, however the number of units is low enough to closely resemble infill as well. Based on the conclusions of Ryan and Weber, a hybrid approach was taken to propose a scheme involving attached units resembling TND for enhanced perceptions of future neighborhood stability but with setbacks and building heights mirroring existing housing across Oakland Street to more closely integrate the new housing as an infill development in the neighborhood.

❖ Day, Kristen. *Planning for Physical Activity in Low Income, Black and Latino Communities*, Journal of the American Planning Association, Vol 72, No. 1, Winter 2006, 88-99.

Day demonstrates that overweight & obesity trends are substantially more severe for poor, urban minorities (Day, 89) and that rates of physical activity are conclusively tied to socioeconomic status among adults and youth (Day, 90). Personal barriers to physical activity cost (child care, equipment, gym membership), time (multiple jobs, care giving responsibilities), and knowledge about health or obesity risk factors (Day, 91). Societal and neighborhood barriers to physical recreation include safety from traffic, perceived safety from crime, nearby jobs/destinations, provision of park/recreational facilities, and upkeep levels of existing parks and playgrounds (Day, 92). Day concludes that the active living movement "could harness its considerable political and media power to bring attention to the problems facing poor, urban communities, and to demonstrate links between poor quality urban environments and the expensive health outcomes of inactivity" and that strategies along these lines could provide momentum in addressing the problems of older urban centers (Day, 95).

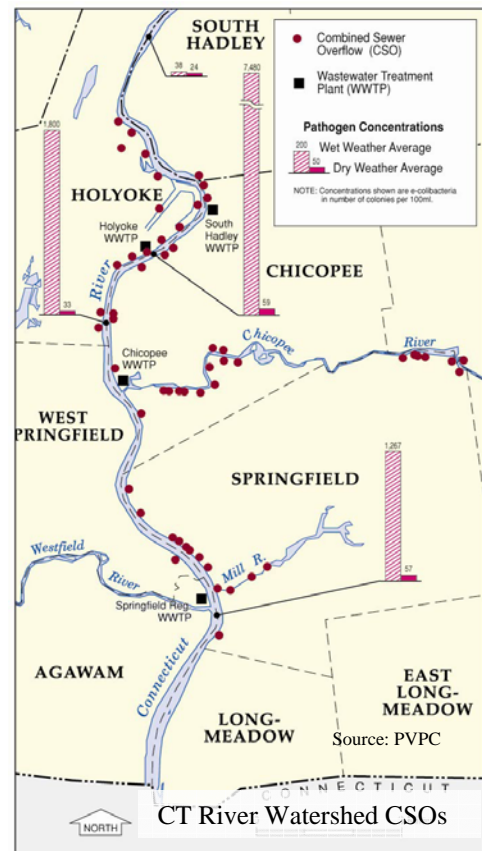
The neighborhoods of Springfield's Lower Mill River are home to a broad spectrum of city residents, including the city's second and third poorest. All areas of the South End and Six Corners neighborhoods meet the racial and income thresholds, and some areas also meet the English language proficiency threshold, an indicator that reflects concentrations of Hispanic populations that are higher than the city average. The Lower Mill River is moderately well served by neighborhood park facilities, however safe pedestrian and bike accommodations and connections between facilities and to the Connecticut River Walk and Bikeway are largely lacking. Great opportunities exist along the Lower Mill River to connect and enhance the existing recreational resources into a corridor linking the river's adjacent neighborhoods, providing a first rate recreational system to some of the City's neediest residents.

Research Topic - Mill River Environmental Quality & Combined Sewer Overflows

Research for this project included extensive mapping using MASS GIS¹⁹ to ascertain the environmental classifications applicable to the Lower Mill River based on existing data and research into the current state of combined sewer overflows (CSOs) in Springfield and the Mill and Connecticut Rivers. According to MASS GIS data, the Lower Mill River is not designated as an Area of Critical Environmental Concern (ACEC), a designation which is typically reserved for intact natural areas that are under substantial threat or considered significantly rare within the region. No wetlands or vernal pools are mapped within the Lower Mill River study area. However, Watersheds Pond & the Lower Mill River are both classified by the Massachusetts DEP as 'Polluted Waters' and 'Non-Potential Drinking Water Sources,' and the Connecticut River and its confluence with the Lower Mill River are designated 'Living Waters Habitat.' The Mill River is 'Supporting Living Rivers Habitat' to the Connecticut River.

CSOs are sewer infrastructure constructed in the late 1800s and early 1900s in which one pipe was used to carry sanitary sewage, industrial wastewater and stormwater runoff simultaneously.²⁰ Under most circumstances, CSOs transport all wastewater to treatment plants, however in periods of heavy rainfall or snowmelt, volume exceeds carrying capacity and the untreated wastewater is discharged directly into water bodies such as streams and rivers²¹. Such CSO discharges and their resultant water pollution are most common in older urban areas where older, CSO infrastructure is combined with high concentrations of impervious surface, which generates higher volumes of surface runoff (PVPC, 2).

The US EPA's 1994 CSO Control Policy and 1997 USEPA Executive Order provide guidance and requirements for modern infrastructure to employ separate pipes for sanitary sewage and stormwater runoff and to eliminate CSOs, however remediation is expensive and time-consuming, so many older urban areas continue to struggle with haltingly phased infrastructure projects to upgrade sewer systems. Negative impacts of CSOs include health problems due to pollutant exposure, bans on recreational activities, 'no fishing' advisories, unpleasant odors from rivers, decreased property values for adjacent properties, dying fish and wildlife, and loss of scenic beauty (PVPC, 1). CSOs can severely limit recreational activities because in addition to reducing the aesthetic attractiveness of a water body, they present



¹⁹ MassGIS.gov

²⁰ *CSO Fact sheet #1: CSOs and Our Rivers*. Pioneer Valley Planning Commission and Connecticut River Clean-up Committee

²¹ http://cfpub.epa.gov/npdes/home.cfm?program_id=5

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significant health threats to users because of concerns over exposure to viruses, bacteria, pathogens, and other pollutants (PVPC, 2).

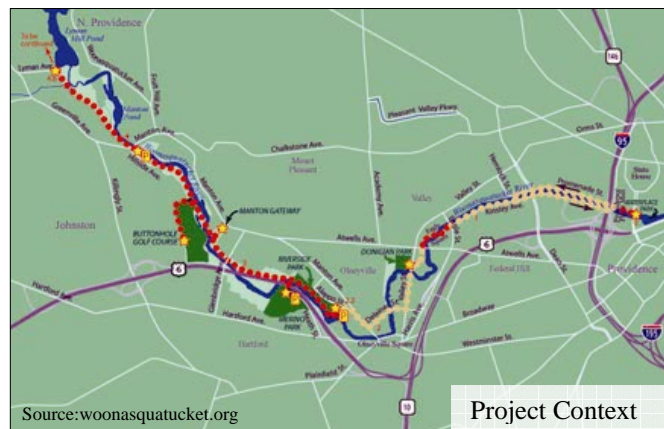
According to the PVPC, 1.8 billion gallons of combined sewer overflow are discharged into the Connecticut River or its tributaries from 72 different discharge pipes located in Chicopee, Holyoke, Springfield, Ludlow, South Hadley and West Springfield (PVPC, 3). In 2005, PVPC identified 24 CSOs in Springfield, including four active CSOs along the Lower Mill River – one at the Armory Watershops, one at the confluence with the Connecticut River, and two in between (PVPC, 3). Remediation of these CSOs is a vital component of revitalizing the Lower Mill River as a recreational and environmental amenity. Compounding the environmental implications of Springfield's CSOs are political barriers caused by Springfield's sewers being operated by the independent Springfield Water and Sewer Commission. This independent authority operates with little or no communication with the City government, including the Department of Public Works and Planning Department, and was unresponsive to requests for interviews or information regarding this project (Scott Hanson, City of Springfield, personal interview).

Case Study #1 - Industrial River Corridor Revitalization

❖ Woonasquatucket River Greenway, Providence, Rhode Island

The Woonasquatucket River Greenway bears many similarities to this proposal for the Lower Mill River Greenway. Located in Providence, Rhode Island, the Woonasquatucket River was a largely hidden natural resource that contributed significantly to the industrial growth of the city but was gradually transformed by ecological and neighborhood economic decline.²² With approximately 171,000 residents in 2008, Providence is slightly larger than Springfield (150,640 in 2008) but shares a similar history of water-based industrial growth that has taken a toll on natural resources and current economic struggles.²³

In 1993 when planning for the Woonasquatucket River Greenway project was first undertaken, residents along the 4.4 mile stretch covered by the project inhabited some of Providence's poorest and most underserved neighborhoods, and few even knew the name or the history of the



²² <http://www.woonasquatucket.org/FredLippitt.php>

²³ <http://www.woonasquatucket.org/FredLippitt.php>

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river in their midst. Illegal dumping, overgrown riverbank vegetation, and adjacent, contaminated former industrial sites made the river inaccessible and uninviting. Like the Lower Mill River, several parks were adjacent to the river but were either closed, slated for development, or undeveloped natural land. Also similar to the Lower Mill, combined sewer overflows (CSOs), water and soil contamination impacted the health of the river and the riparian corridor.²⁴

Conceived as a catalyst for neighborhood renewal and an extension of the city's highly successful Waterplace Park, located downstream of the project area on the Woonasquatucket River. The project's stated goals were very similar to those for the Lower Mill River Greenway:

- Increase the recreational and green space available to local residents
- Promote business development and reduce crime
- Promote river conservation and environmental action
- Increase awareness of local history and river ecology



Fred Lippett, the master planner for whom the Greenway is named, recruited a volunteer design staff and financed construction through a major private grant and support from local corporations and the EPA. Leveraging over \$12 million in capital funds, the project restored 67 acres of abandoned public and private riverfront land. To date, 52 acres have been redeveloped for recreational, habitat and wildlife restoration, brownfield remediation, educational and garden uses. Future plans include affordable housing construction to provide home ownership opportunities for neighborhood residents.²⁵



The Woonasquatucket River Greenway Project capitalized on volunteer design services and engaged various city departments to achieve the Master Plan without a large, upfront cost to the city of Providence.²⁶ By engaging multiple public and private stakeholders and potential funding sources early in the planning process, city staff was able to realize this project, which covers substantially more acreage than the proposed Lower Mill River Greenway. Although private investment was initially difficult to obtain, a close partnership with the Trust for Public Land and obtaining project designation as a Rhode Island "Brownfields Showcase Community," planners were able to achieve a level of public investment capable of attracting private development. A complete including lighting, wayfinding, signage, native plantings, banners and railings,

²⁴ <http://www.woonasquatucket.org/FredLippitt.php>

²⁵ <http://www.woonasquatucket.org/FredLippitt.php>

²⁶ <http://www.woonasquatucket.org/FredLippitt.php>

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produced in collaboration with local artists, strengthened the signals of revitalization to the surrounding community and to potential developers.

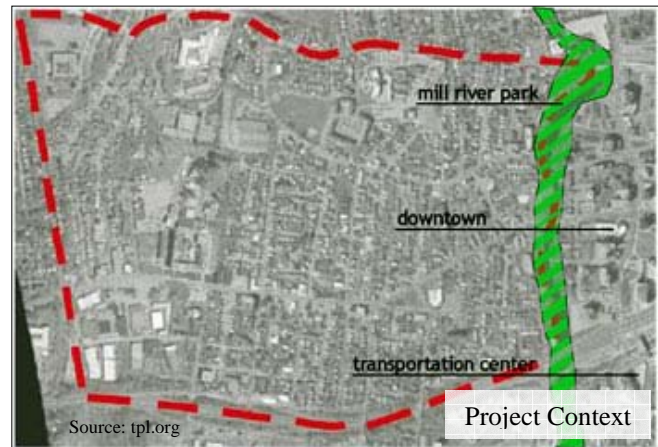
Other lessons include the importance of incorporating a land use master plan into the revitalization of a river corridor. Remediation of brownfield sites, clearance or relocation of incompatible uses, and trash clean-up/vegetation management are critical elements contributing towards reintegrating a river into the surrounding neighborhood. Designing for safety and access are especially important in neighborhoods where the perceptions and realities of crime can discourage community use and embrace of new recreational resources.

At the same time, balancing ecological restoration, such as wetland restoration in areas formerly used for auto storage, improves the health of the riparian corridor, making it more attractive to users, who can then take benefit from the educational aspects of restoration. Extensive community programming, such as tours and festivals, invites users to experience the resource in various structured settings that serve different members of the community and welcome people into what may have previously been an undesirable place.

Case Study #2 - Urban Stream Integration into Neighborhood

❖ Rippowam-Mill River Park & Restoration Project, Stamford, Connecticut

Springfield's Lower Mill River shares its history of 19th century industrial development and subsequent decline and neglect in the mid 20th century with untold urban "Mill Rivers" around the country. Stamford, Connecticut is home to another Mill River (Rippowam-Mill) that resembles the Lower Mill in many respects of urban neighborhood context, so it's recent and ongoing successful redevelopment evince important lessons for the potential development of the Lower Mill River Greenway.²⁷



With approximately 120,000 residents, Stamford is somewhat smaller than Springfield (which has approximately 150,000 residents) but has established a strong commercial/business downtown core and attracted many New York City-oriented corporate headquarters.²⁸ With its robust tax base and strong mayoral guidance, Stamford's project provides an example of a shorter term, more directly master planned



²⁷ www.tpl.org

²⁸ http://factfinder.census.gov/home/saff/main.html?_lang=en

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revitalization project undertaken with internationally recognized landscape architectural and engineering design services. While the Rippowam-Mill covers a larger area than the Lower Mill, the urban neighborhood context of the river is the most directly comparable to the Lower Mill of all three case studies.

Stamford's Mill River refers the lower eight miles of the Rippowam River between the North Stamford Reservoir and Stamford Harbor in the Long Island Sound.²⁹ Nicknamed the Mill River because of the abundance of industrial mills which flourished along it during the 19th century, by the late 20th century it had become polluted, neglected and buried at several points. The river was dammed just north of Mill River Park, forming Mill Pond, similar to Watershops Pond in Springfield.³⁰

A revitalization capitalizing on the recreational and environmental assets of the Rippowam-Mill was first proposed in the 1929 Master Plan for Stamford, however no action was taken until the early 21st century, when the Rippowam-Mill River Park Plan was developed to redevelop the river as a common ground for the surrounding community and as a major link to downtown Stamford.³¹ Working with the Army Corps of Engineers, the non-profit Mill River Collaborative, and the internationally recognized landscape architecture firm Olin Partnership, the City established its goals for the following design elements and planning objectives:



- ❖ A world-class master design that creates a compelling, inviting, intensively-used venue for area residents and employees
- ❖ A continuous off-street path for walking/cycling/jogging through downtown
- ❖ A study by the Army Corps of engineers regarding the restoration of the river's natural environment and flushing of sediment
- ❖ An exciting new playground
- ❖ A prominent role for the cherry tree groves that have long been a symbol of the Rippowam-Mill River to area residents³²



²⁹ www.tpl.org

³⁰ www.tpl.org

³¹ www.tpl.org

³² www.tpl.org

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Stamford's downtown business district is adjacent to the Rippowam-Mill River corridor and the plan specifically recognizes the importance of redeveloping the river corridor in preserving and enhancing the long-term viability of downtown commercial and residential development. Tax revenues from new development along the corridor resulting from the implementation of the Greenway Plan were estimated to at \$5 million annually.³³

The Master Plan, designed by Olin Partnership, includes bike and pedestrian paths linking the West Side neighborhood with downtown Stamford and the Long Island Sound, extensive daylighting, habitat and stream restoration, and 19 acres of open space including a playground, a sensory garden, and unified lighting and planting design.³⁴

In September 2009, the City worked with the Army Corps of Engineers to jointly finance the \$8 million effort to remove the 18th century dam creating Mill Pond (Kim, Elizabeth. "Last piece of dam at Stamford's Mill River Park is taken down" The Stamford Advocate, Sept. 30, 2009) and habitat restoration continued with a comprehensive plan to remove invasive plant species and replant natives including speckled alder, winterberry holly, low bush and high bush blueberries and chokeberry.³⁵

In addition to the highly visible design process led by the Olin Team, private funding and non-profit collaboration have been key elements for the development of the Master Plan. The City, in partnership with the Mill River Collaborative, is undertaking a \$20 million fundraising effort.³⁶ The overall planning effort for Mill River Park and the Mill River Collaborative have benefited from strong support of the Trust for Public Land, a national preservation organization, and from being a focal point of the Stamford Urban Redevelopment Commission.³⁷ The confluence of municipal and non-profit guidance along with federal and private funds make Stamford's Mill River an instructive example for Springfield's Lower Mill.

Case Study #3 - Waterfront/Greenway Revitalization

❖ Mississippi Riverfront, Minneapolis and Saint Paul, Minnesota

The Twin Cities joint revitalization of the Mississippi Riverfront is a project of much larger scope than the proposed Lower Mill River Greenway, however several lessons regarding interagency cooperation, private foundation involvement and private development are applicable to the challenges facing Springfield.



³³ www.tpl.org

³⁴ www.tpl.org

³⁵ www.millriverpark.com

³⁶ Perez, Magdalene. *Native plants return to Mill River*, The Stamford Advocate, May 24, 2009.

³⁷ www.millriverpark.com

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As the corridor that both unites and divides the two cities, the Mississippi River shaped the industrial growth of both riverfronts differently throughout the 19th century. St. Paul, the state capital, is located at the terminus of the River's navigable waters, so it developed into a shipping hub for transferring goods to trains. Minneapolis, which houses the state's federal headquarters, is home to St. Anthony Falls, the only natural major waterfall on the Upper Mississippi. The falls provided water power that fueled extensive mill development, and the city grew into the world's flour milling capital between 1880 and 1930.³⁸

The booming industrial waterfronts of both cities suffered the same fate seen across the United States as urban industry declined throughout the mid 20th century, and by the 1970s, when current planning efforts began, abandoned mill buildings and undesirable uses, including a County Jail, occupied both waterfronts.³⁹ During the 1980s, the Minneapolis waterfront, which is adjacent to the more commercially vibrant of the Twin Cities' downtowns, was targeted for commercial revitalization with the following principles:

- Remove barriers to revitalization, such as contaminated sites and unused rail lines
- Develop both cultural and recreational amenities
- Preserve the area's historic sites
- Encourage the creation of a mixed use neighborhood⁴⁰

The riverfront planning process, spearheaded by the Minneapolis' city council and community planning and economic development agency, gained momentum throughout the 1980s and resulted in the successful redevelopment of many former mill buildings into housing and commercial space. Cooperation with the Minnesota Historical Society, which joined city agencies to form the St. Anthony Falls Heritage Board, and the Minneapolis Park and Recreation Board helped to progress the process while protecting, highlighting and expanding historic and recreational resources. Catalytic preservation projects including Mill Ruins Archaeological Park and the restoration of the historic Stone Arch Bridge as a pedestrian crossing and bike path, made the riverfront a destination that soon attracted major commercial and cultural development, including the Guthrie Theater, a \$125 million complex designed by international architect Jean Nouvel, in 2005.⁴¹



Mill Ruins Archaeological Park



³⁸ Mack, Linda. *Riverfront Revival Two Ways*. Planning Magazine, November 2006, 22-27

³⁹ <http://www.minneapolis-riverfront.com/>

⁴⁰ <http://www.minneapolis-riverfront.com/>

⁴¹ Mack, Linda

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St. Paul's revitalization of the other side of the Mississippi was motivated more by pressing economic woes; in the 1980s, two prominent businesses relocated operations away from the waterfront, presenting economic challenges to the city but also opening up large tracts of riverfront land. Efforts through the mayor's office rejuvenated the dormant Riverfront Corporation and other non-profit partners, creating a coalition that established a long term master plan that envisioned the riverfront as an extension of St. Paul's downtown and part of a "collection of urban villages in the green valley."⁴²

Major cultural elements came together when the Science Museum of Minnesota located their new, \$100 million facility between the riverfront and downtown, and the Riverfront Corporation achieved a 3-year, \$14.5 million restoration of Harriet Island, a historic riverfront park that had fallen into disrepair, into a major event space hosting the annual Taste of Minnesota and other civic events.⁴³ Civic leaders have established the "St. Paul on the Mississippi Design Center," which reviews all private and public projects comply with the goals of the riverfront master plan. Future plans include the relocation of a highway leading into downtown away from the riverfront to allow for paths, and an area called "The Upper Landing," a former scrap yard, is slated for the development of 500 units of housing. The Ramsey County Jail, constructed in the 1970s, has been relocated and there are plans to replace it with a 25-story condominium building.⁴⁴



Approaches to riverfront revitalization varied between the cities, with St. Paul's guided more significantly by a master plan and guidance from civic leaders seeking economic development and Minneapolis' arising more organically through a mix of incremental public and private investment.⁴⁵ Although the Mississippi River presents a very different context from the Lower Mill River, both cities offer instructive examples to the City of Springfield in developing the proposed Lower Mill River Greenway.

Both revitalizations occurred under the guidance of non-profit organizations dedicated to the cause of the riverfront and with close working ties to civic leaders and municipal decisions makers. The St. Paul Riverfront Corporation and the St. Anthony Falls Heritage Board shepherded the projects over the long term, shielding them from changes in local government leadership and ensuring long-range accomplishment of goals. Other private sector and non-profit partnerships, particularly those involved in cultural developments such as the Science

⁴² Mack, Linda. Riverfront Revival Two Ways. Planning Magazine, November 2006, 22-27

⁴³ <http://www.riverfrontcorporation.com/>

⁴⁴ Mack, Linda

⁴⁵ Mack, Linda

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Museum of Minnesota and the Guthrie Theater, played vital roles in attracting support for development in the public interest and in line with over-arching revitalization goals.⁴⁶

Springfield's partnerships with the Basketball Hall of Fame, Springfield College, the Pioneer Valley Planning Commission/Connecticut River Walk and Bikeway, the National Parks Service/Springfield Armory, other historic preservation entities with an interest in the revitalization of the Watershops and other historic properties along the Lower Mill River corridor, and many others will need to be leveraged to mutual benefit in order for the City to pursue a successful revitalization strategy for the Lower Mill River.

Another lesson learned from both cities is the powerful impact of the initial and ongoing public investment in park and recreational facilities as a catalyst for private and cultural development. Both cities restored river-adjacent public land and existing parks, which is an opportunity available to the City of Springfield. Both acquired and developed new land to establish recreational destinations and connections, and both have recognized the importance of these initial investments in making the riverfronts more attractive to users and future development. According to one Minneapolis development planner, "it seems that whenever park improvements were made, developed followed. Parks, trails and amenities change people's perceptions and so are important development tools."⁴⁷

⁴⁶ Mack, Linda

⁴⁷ Mack, Linda.

5. PROJECT CONTEXT & HISTORY

The Mill River in Springfield History

Springfield was founded by William Pynchon in 1636 and grew steadily in regional prominence as a center of trade as its location along the Connecticut River and at the intersection of major routes proved advantageous. Evidence of the Mill River as an important source of clean water is documented by 1644, when the town had established its first board of selectmen and resolved to maintain clean water in "Town Brook, East of Main Street, used for washing off fresh killed beef and pork, for fishing, and for bathing and laundry." The ample supply of water power along the Mill and Chicopee Rivers continued to attract varied industry and provided a played a significant role in the city's economic growth.⁴⁸

The Springfield Armory and the Watershops

The town's strong economic position, its easily defended promontory bluff high above the Connecticut River and the presence of numerous munitions manufacturers, many located along the Mill and Chicopee Rivers, led to Springfield's selection for the first national armory in 1778.⁴⁹ The Armory was officially established by an Act of Congress in 1794 on 640 acres overlooking the Connecticut River and the growing downtown business district. Springfield muskets and rifles armed the Union forces of the Civil War and the American Army in two World Wars.⁵⁰

The Armory Watershops were built concurrently on the Mill River to house the forgings for arms designed and assembled at the Armory Hillshops, as the main campus at Armory Square on State Street, were known⁵¹. During an expansion of the Watershops in 1855, when the modern complex at Allen Street was constructed, the bones of a 200 million year old dinosaur, *Anchisaurus Polyzelus*, were discovered and excavated, making the Watershops site an important record in the early history of dinosaur paleontology in North America.⁵²



Mill River & Watershops c. 1905

Source: Library of Congress

⁴⁸ Bauer, Frank. *At the Crossroads: Springfield, Massachusetts 1636-1975*. Bicentennial Committee of Springfield, Inc., 1975

⁴⁹ The Mill River Watershed Study: A model of integrated urban and rural planning. Center for Rural Massachusetts and Department of Landscape Architecture and Regional Planning, University of Massachusetts, Amherst, 1998

⁵⁰ An Armed Campus: Education, Historic Preservation and Civic Life at the Springfield Armory. Department of Landscape Architecture and Regional Planning, 2006

⁵¹ Copeland, Alfred M. "Our county and its people:" A history of Hampden County, Massachusetts. / Editor: Alfred Minott Co, p. 85.

⁵² <http://www.nps.gov/spar/naturescience/index.htm>

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The town continued to grow and thrive as a center of varied industry and attracted a cosmopolitan mix of skilled workers. The introduction of the railroad in 1839 provided further stimulus to the town's industry, and in 1852 Springfield incorporated as a city. The prominent role of the Armory in the nation's wars fed the munitions industry in Springfield; when Smith and Wesson was established in 1852, 3,000 men were employed by the munitions industry.⁵³ The production demands of the Civil War and World War I led to economic booms for the city, and the demand for other consumer goods fed the local economy in other years.

Springfield was among many American cities in the late 19th century to embrace the "City Beautiful" movement of establishing large public squares and parks. Court Square was established in the Downtown Central Business District and 735 acres of the southwestern corner of the city were donated to create Forest Park; many other small parks and playgrounds were created throughout the early 20th century. Industry had taken a heavy toll on waterfronts and rivers, however, and access to them continued to diminish in Springfield as in cities throughout the country. In Springfield, the rail line established the first barrier between downtown and the Connecticut River; the construction of I-91 in the 1950s firmly cemented this visual and physical barrier.⁵⁴

The banks of the Lower Mill River, where water quality had been a problem since the 17th century, were crowded with industrial buildings and the river had become, as it remains today, a back alley to the adjacent neighborhoods. Combined sewer overflows (CSOs) directed surface runoff and waste water into the Lower Mill and although substantial remediation has occurred in recent decades, the river still receives approximately one CSO event each year, and strong odors around the river have been a persistent problem.⁵⁵

The stock market crash of 1929, sharp declines in American industry, the closure of the Armory in 1968, and myriad other economic forces contributed to Springfield's decline in the mid and late 20th century. The closure of the Armory in 1968 translated into the loss of almost 2,500 production jobs and \$19.5 million in payroll.⁵⁶ The Armory is now a National Historic Site situated on a 55-acre campus that is shared with Springfield Technical Community College. The Watershops complex, while recognized as an important piece of the city's architectural and industrial heritage, lacks historic designation, proper maintenance, and full utilization of its unique space for modern uses.⁵⁷

Contemporary Context: Ecology and Culture

The Mill River Watershed

The Mill River runs through several towns before reaching Springfield, the oldest settled and most densely urbanized part of the watershed. The watershed includes parts of Wilbraham,

⁵³ The Mill River Watershed Study, 1998.

⁵⁴ Bauer, Frank.

⁵⁵ CSO Fact sheet #1: CSOs and Our Rivers. PVPC and Connecticut River Clean-up Committee

⁵⁶ The Mill River Watershed Study, 1998.

⁵⁷ Bauer, Frank.

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Hamden, and East Longmeadow. The health of the river at the watershed scale is of tremendous importance to the varied ecosystems along the entire Mill River and, as a major tributary to the Connecticut River, it is an important piece of the Connecticut's much larger watershed. Even when one is working with a small section of a river, as in this project, it is important to understand the function of the entire watershed because, according to Richard Forman, "planning little pieces at a time leads to a fragmented world that doesn't work, either ecologically or for people."⁵⁸ Within the Connecticut River watershed, the Mill River and its watershed fall within the Southern Reach.⁵⁹



The Mill River watershed can be characterized as having three sections: the rural uplands, suburban midreach, and urban core.⁶⁰ The Springfield section of the Mill River is within the urban core, which is characterized by high percentages of impervious surface and non-point source pollution from runoff, limited public access, degraded and diminished vegetated buffers, increased water velocity in some areas and excessive sedimentation in others. CSOs and other forms of pollution contribute to unhealthy levels of harmful chemicals and bacteria.

⁵⁸ Forman, Richard T. *Land Mosaics: The Ecology of Landscapes and Regions*, Cambridge University Press, Boston, 1995.

⁵⁹ EOE. Connecticut River 5-Year Watershed Action Plan for the Massachusetts Section of the Watershed, 2002-2007

⁶⁰ The Mill River Watershed Study, 1998..

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The Mill River is not beyond repair, however; the 1998 LARP Mill River Watershed Study recommends the following action items for restoring the health of the Mill River watershed and its viability as a recreational resource:

- Ongoing water quality monitoring and education to increase public awareness
- Protect and restore vegetated buffers
- Eliminate point-source threats, especially CSOs
- Protect key parcels
- Create a greenway/loop to enhance habitat connection, recreation, water quality, and public awareness

This project will strive to meet the city's goals and objectives for the Lower Mill River within the context of enhancing the health, habitat quality, recreational access, and public awareness and stewardship of the Lower Mill River and, by extension, its entire watershed.

Vegetation Along the Lower Mill River

The riparian buffer of the Lower Mill River varies from steep and occasionally heavily eroded, (such as near the intersections of Mill Street and Fort Pleasant Avenue, along Locust Street and near the intersection of Mill and Locust Streets) to low, densely vegetated and frequently flooded (such as the northern half of Johnny Appleseed Park and areas adjacent to Watershops Pond) to relatively undisturbed, wooded areas with forest understory and natural landforms (the northern portion of Oakland Street Park, located west of the lumbar company on Oakland Street).

The plant community is largely composed of flood tolerant species and include: American Sycamore (*Platanus occidentalis*), Black Willow (*Salix nigra*), Red Maple (*Acer rubrum*), Silver Maple (*Acer saccharinum*), Butternut (*Juglans cinerea*), Butternut Hickory (*Carya cordiformis*), Eastern Cottonwood (*Populus Deltoides*), White Ash (*Fraxinus americana*), River Birch (*Betula nigra*), and Slippery Elm (*Ulmus rubra*). Shrubs, grasses and vines include Common Buckthorn (*Rhamnus cathartica*), Phragmites australis, Poison Ivy (*Rhus radicans*), various species of grape (*Vitis*) and Clematis (*Clematis virginiana*) were observed.

The People of the Lower Mill River Corridor: Ethnographic Profile

Four neighborhoods, as determined by census block groups, are adjacent to the Lower Mill River: Old Hill, Six Corners, Forest Park, and the South End. This analysis discusses the parks and open space, environmental justice thresholds, and demographic characteristics relating to population change, racial mix, and poverty levels. All data discussed in this section was taken from the 2000 U.S. Census, and local information was obtained from the City's website, www.springfieldcityhall.com.⁶¹

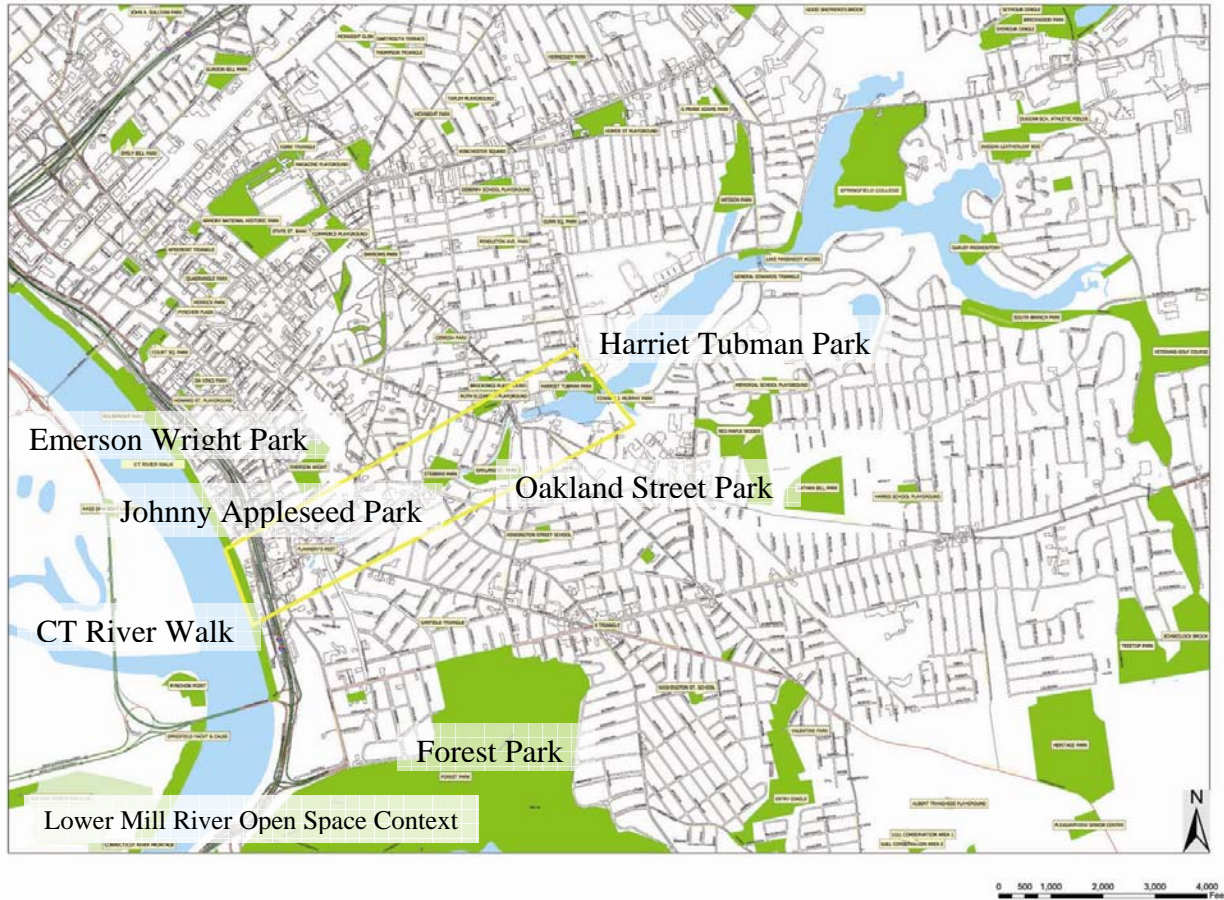
⁶¹ http://factfinder.census.gov/home/saff/main.html?_lang=en

Parks and Open Space

Most areas of the four neighborhoods of the Lower Mill River are moderately well served by city parks and open space, however connectivity, access, and maintenance are continuing problems for all of the neighborhoods. Forest Park, a major recreational destination located on the southern edge of the Forest Park neighborhood, serves the neighborhood but also the City of Springfield and the entire Western Massachusetts region. Neighborhood parks along the Lower Mill River, such as Harriet Tubman Park, the Oakland Street Park, and Johnny Appleseed Park are important resources that receive varied levels of maintenance and use.



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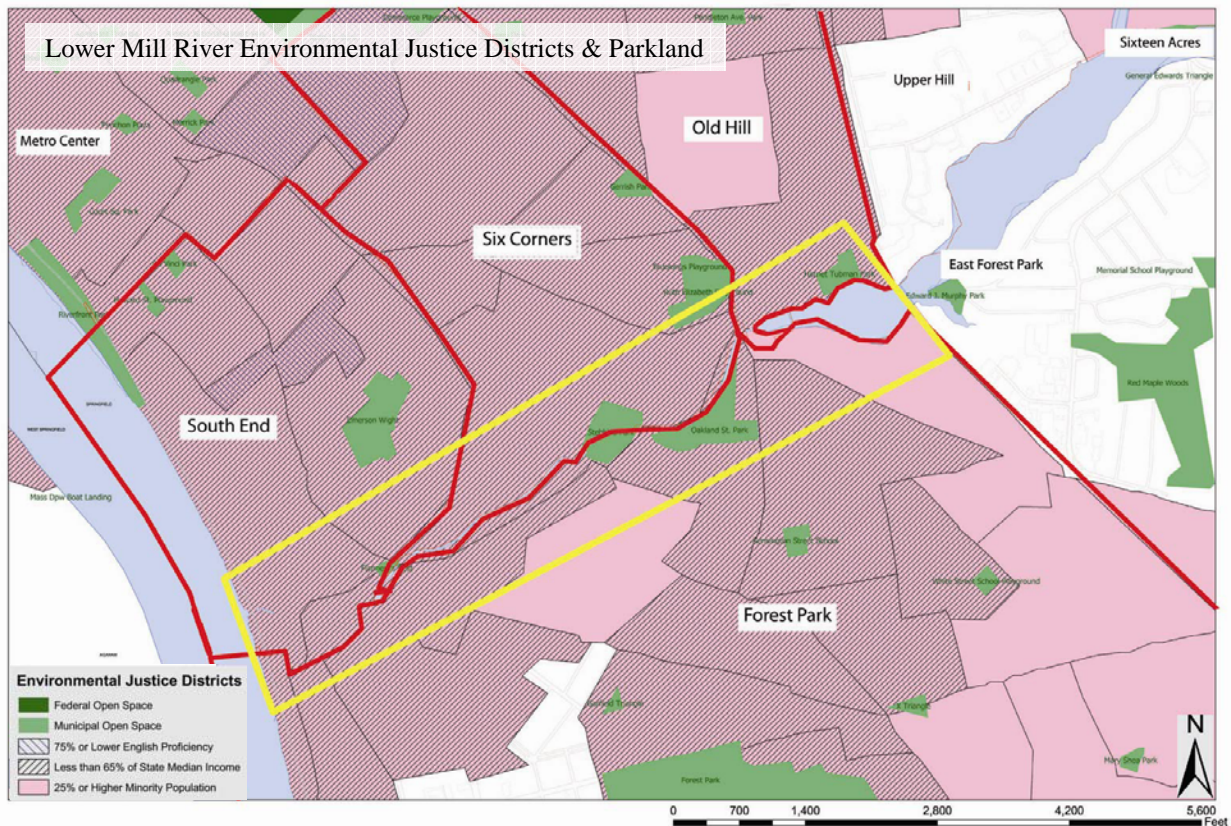


Environmental Justice Thresholds

Census data assessing neighborhood thresholds for Federal Environmental Justice (EJ) considerations are mapped below. Federal Environmental Justice thresholds are met when minority population is higher than 25%, median income is lower than 65% of the state average, and English language proficiency is met in fewer than 75% of households. Parts of the Forest Park neighborhood do not meet any of the thresholds while parts of Old Hill and Forest Park meet either the racial composition threshold, the income threshold, or both. All areas of the South End and Six Corners neighborhoods, which are the second and poorest in Springfield, meet the racial and income thresholds, and some areas also meet the English language proficiency threshold, an indicator that reflects concentrations of Hispanic populations that are higher than the city average.

Another significant pattern that emerges from the EJ mapping is the exclusion of most parts of the Forest Park Heights Historic District, which has many high quality historic homes in good repair. Conversely, the Maple Hill and Ames/Crescent Hill Historic Districts, which fall within Six Corners and the South End Neighborhoods, fall entirely within both EJ thresholds for minority population and lower income. While these neighborhoods contain many historically significant Victorian and Colonial homes, substantial disrepair is observable in many areas.

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The Environmental Justice thresholds of the neighborhoods surrounding the Lower Mill River are significant to this proposal because any ecological restoration and recreational development of the river corridor presents multiple opportunities to achieve the Environmental Protection Agency's stated goal of "providing an environment where all people enjoy the same degree of protection from environmental and health hazards and equal access to the decision-making process to maintain a healthy environment in which to live, learn, and work."⁶²

Neighborhoods

OLD HILL

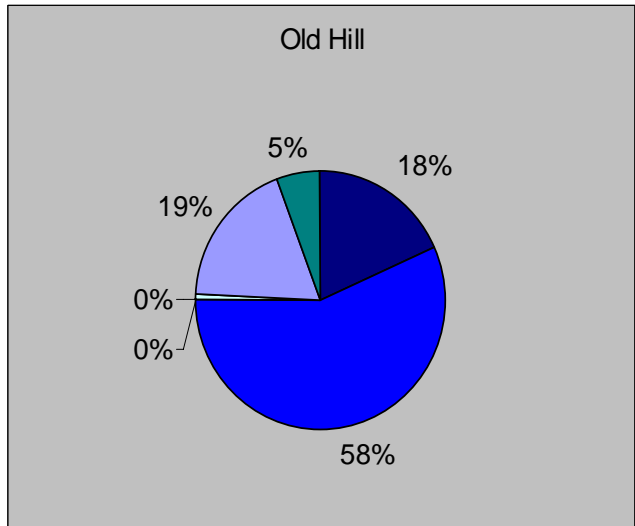
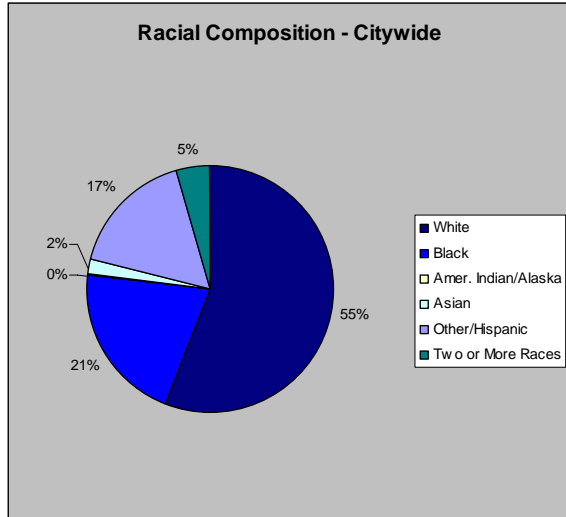
The Old Hill neighborhood is located one mile east of Springfield's Central Business District. Comprising 240 acres plus streets and railroads, Old Hill is one of the smallest neighborhoods in the city. It is bounded by Walnut Street to the west, State Street to the north, the abandoned Highland Division Railroad to the east, and Watershops Pond to the south.

The recently renovated Harriet Tubman Park, located on Hickory Street just north of the Armory Watershops, is a prominent neighborhood park and one of only a few opportunities to enjoy Watershops Pond. The neighborhood's proximity to the Springfield College campus is another significant open space resource.

⁶² <http://www.epa.gov/oecaerth/basics/ej.html>

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Old Hill has a much higher black population (58%) and lower white population (18%) than the city (21% and 55%, respectively). The Hispanic population (19%) is slightly higher than the city average of 17%.



Old Hill lost a significant percentage of its population (11.4%) between 1990 and 2000. At approximately 8% higher than the city's loss of 3%, Old Hill's population decline is substantial but by no means unusual for Springfield's neighborhoods, several of which (including Six Corners and the South End) experienced far more severe losses of residents. Nearly 40% of the neighborhood's residents are children under 18, which is roughly 11% higher than the city average. This high concentration of children coupled with a small percentage of seniors over the age of 65 (6.8%) as the city (12.4%), is a likely factor in the neighborhood's high poverty rates – 36% of families and 39% of individuals, compared with 19% and 23% citywide, respectively.

Population Trends

| | 2000 | 1990 | Percentage Change |
|----------|---------|---------|-------------------|
| Citywide | 152,082 | 156,983 | -3% |
| Old Hill | 4,557 | 5,142 | -11.4% |

Age

| | Under 18 | Percentage | 65 & over | Percentage |
|----------|----------|------------|-----------|------------|
| Citywide | 43,819 | 28.8% | 18,842 | 12.4% |
| Old Hill | 1,789 | 39.3% | 310 | 6.8% |

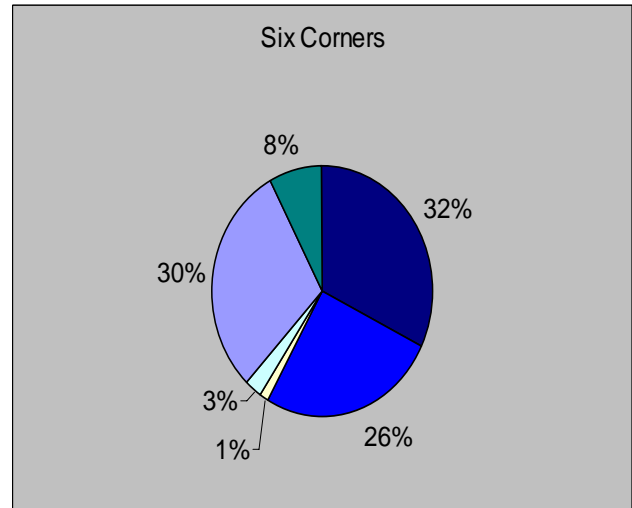
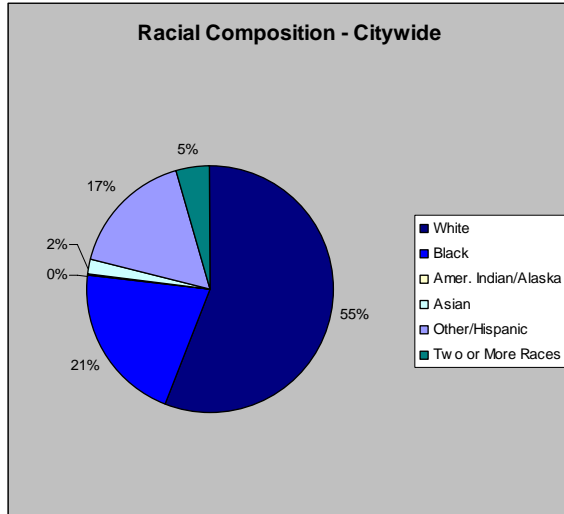
Poverty Status in 1999

| | Families | % Below Poverty Level | Persons | % Below Poverty Level |
|----------|----------|-----------------------|---------|-----------------------|
| Citywide | 36,753 | 19.0% | 146,327 | 23.0% |
| Old Hill | 1,019 | 36.0% | 4,504 | 39.0% |

SIX CORNERS

The Six Corners neighborhood is one of the smallest of the city's seventeen neighborhoods. It contains 274 acres of land plus streets. It is bounded by portions of School Street and Maple Street on the west; State Street on the north; Walnut Street on the east; and the Mill River on the south. A majority of the neighborhood is within a one mile radius of the center of the Central Business District.

Six Corners is home to several historic districts and large playgrounds. At its southern boundary is the northern half of Johnny Appleseed Park, which is unprogrammed and even unsigned as a city park. The neighborhood has one of the highest concentrations of Hispanic populations (30%) among the four districts along the Lower Mill River. This is substantially higher than the city average of 17%; populations of black, Asian, and two or more races are also higher than city averages, and the white population, at 32%, is significantly lower than the city average of 55%.



Six Corners experienced tremendous growth between 1990 and 2000, unlike the other four districts along the Lower Mill River and the city as a whole. The increase of 23.2% is slightly less significant given the small size of the neighborhood, however all other districts experienced population losses. Six Corners is somewhat younger than the city average, with approximately 4% more children under 18 and 2% fewer adults over 65.

Poverty levels, however, are the third highest in the city, at 39% for families and an alarming 46% for individuals, compared with 19% and 23% citywide. The Environmental Justice analysis indicates that a portion of Six Corners along State Street meets threshold levels for all three categories – percentage of minorities, low income, and English proficiency. Whereas the racial composition and income thresholds are common to most areas of the four neighborhoods along the Lower Mill River, the English proficiency threshold is met only in Six Corners and the South End, where Hispanic populations, and likely recent immigrants, comprise a much larger percentage of the population than the city average.

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Population Trends

| | 2000 | 1990 | Percentage Change |
|-------------|---------|---------|-------------------|
| Citywide | 152,082 | 156,983 | -3% |
| Six Corners | 7,688 | 6,238 | 23.2% |

Age

| | Under 18 | Percentage | 65 & over | Percentage |
|-------------|----------|------------|-----------|------------|
| Citywide | 43,819 | 28.8% | 18,842 | 12.4% |
| Six Corners | 2,529 | 32.9% | 806 | 10.5% |

Poverty Status in 1999

| | Families | % Below Poverty Level | Persons | % Below Poverty Level |
|-------------|----------|-----------------------|---------|-----------------------|
| Citywide | 36,753 | 19.0% | 146,327 | 23.0% |
| Six Corners | 1,640 | 39.0% | 7,347 | 46.0% |

Third Highest in City

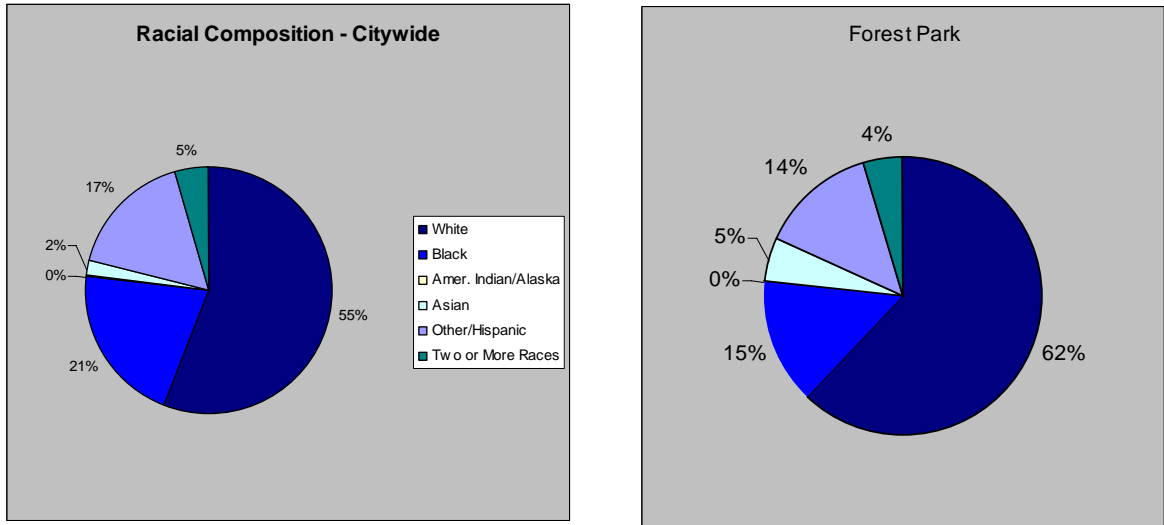
FOREST PARK

The Forest Park neighborhood begins one mile south of the Central Business District and is the second largest of the city's seventeen neighborhoods. It covers 2,103 acres of land plus roads. It is bounded by the Mill River and Watershops Pond to the north; the Town of Longmeadow to the south; the Connecticut River to the west; and the abandoned Highland Division Railroad to the east.

An impressive 41% of the Forest's Park neighborhood acreage is conservation or park land. In addition to Forest Park, the city's largest park, other well-maintained and used parks include the southern half of Johnny Appleseed Park and the Oakland Street Park. The Forest Park Heights Historic District is home to many of the Victorian and Colonial residences that earned Springfield the nickname "City of Homes" and many areas of this large neighborhood are among the most desirable and affluent in the city. Closer to the Mill River, along lines particularly visible by the Historic District Boundaries, the quality of housing stock declines rapidly. Locust Street, which runs along the Lower Mill River on the northern border of the district, is lined with four story, brick apartment buildings in various states of repair and neglect.

The neighborhood has a higher white population (62%) than the city (55%), a higher percentage of Asians (5% vs. 2% citywide) and lower-than-city-average populations of blacks, Hispanics, and two or more races.

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Forest Park lost residents at a slightly higher rate (3.95) than the city (3%) between 1990 and 2000. The percentage of children under 18 is exactly the same as the city's (28.8%), and the percentage of adults over 65 (10.5%) is slightly lower than the city average (12.4%). Similarly average in comparison with the city as a whole are the neighborhood's poverty rates (19% for families and 23% for individuals), which fall at 19% for families and 22% for individuals.

Population Trends

| | 2000 | 1990 | Percentage Change |
|-------------|---------|---------|-------------------|
| Citywide | 152,082 | 156,983 | -3% |
| Forest Park | 24,733 | 25,740 | -3.9% |

Age

| | Under 18 | Percentage | 65 & over | Percentage |
|-------------|----------|------------|-----------|------------|
| Citywide | 43,819 | 28.8% | 18,842 | 12.4% |
| Forest Park | 7,135 | 28.8% | 2,601 | 10.5% |

Poverty Status in 1999

| | Families | % Below Poverty Level | Persons | % Below Poverty Level |
|-------------|----------|-----------------------|---------|-----------------------|
| Citywide | 36,753 | 19.0% | 146,327 | 23.0% |
| Forest Park | 5,974 | 19.0% | 5,517 | 22.0% |

THE SOUTH END

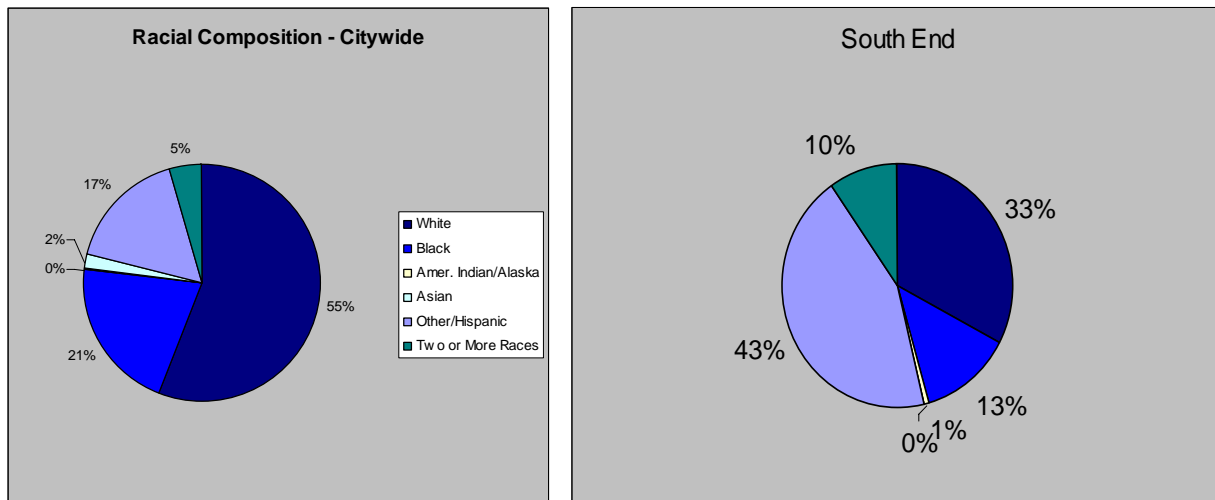
The South End neighborhood is the smallest of the city's seventeen neighborhoods and is located immediately south of the Central Business District. It covers 196 acres of land plus streets and railroads. It is bounded by Union and Howard Streets to the north; Mill Street, the Lower Mill

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River and Main Street to the south; Maple Street to the east; and the Connecticut River to the west.

Park land is noticeably scarce in the South End, and while two overlapping historic districts fall within the neighborhood's eastern border, it has struggled with dramatic demographic shifts and poverty-related problems to a greater extent than any other of the four neighborhoods around the Lower Mill River. The South End was once a predominately Italian American neighborhood, however as of 2000, Hispanic is the largest ethnic population at 43%, more than double the city average of 17%. The percentage of residents identifying as two or more races is also double (10%) the city average of 5%.

In terms of Environmental Justice thresholds, the entire neighborhood falls within racial composition and income thresholds, however a small area meets the third threshold for English language proficiency, another likely indicator that the newcomers to the neighborhood are Spanish speakers.



The South End saw a substantial loss of 33% of its population between 1990 and 2000, which has likely been an important factor in its economic struggles. The neighborhood is younger than the city average (28.8%), with children under 18 comprising 36% of the population and a population of adults over 65 (6.1%) of less than half the city average of 12.4%. Poverty rates, the second highest in the entire city, are a staggering 44% for families and 50% for individuals, compared with 19% for families and 23% for individuals citywide.

Population Trends

| | 2000 | 1990 | Percentage Change |
|-----------|---------|---------|-------------------|
| Citywide | 152,082 | 156,983 | -3% |
| South End | 3,223 | 4,815 | -33.1% |

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Age

| | Under 18 | Percentage | 65 & over | Percentage |
|-----------|-----------------|-------------------|----------------------|-------------------|
| Citywide | 43,819 | 28.8% | 18,842 | 12.4% |
| South End | 1,665 | 36.1% | 197 | 6.1% |

Poverty Status in 1999

| | Families | % Below Poverty Level | Persons | % Below Poverty Level |
|-----------|-----------------|------------------------------|----------------|---------------------------------|
| Citywide | 36,753 | 19.0% | 146,327 | 23.0% |
| South End | 764 | 44.0% | 3,093 | 50.0% Second Highest in City |

Summary of Neighborhood Statistics

Population Trends

| | 2000 | 1990 | Percentage Change |
|-------------|-------------|-------------|--------------------------|
| Citywide | 152,082 | 156,983 | -3% |
| South End | 3,223 | 4,815 | -33.1% |
| Six Corners | 7,688 | 6,238 | 23.2% |
| Old Hill | 4,557 | 5,142 | -11.4% |
| Forest Park | 24,733 | 25,740 | -3.9% |

Racial Composition

| | White | | Black | | American Indian/ Alaska | | Asian | | Other/ Hispanic | | Two or More Races | |
|-------------|--------------|-----|--------------|-----|--------------------------------|----|--------------|----|------------------------|-----|--------------------------|-----|
| Citywide | 84878 | 55% | 31472 | 21% | 590 | 0% | 2859 | 2% | 25267 | 17% | 6924 | 5% |
| South End | 1053 | 33% | 411 | 13% | 18 | 1% | 0 | 0% | 1430 | 43% | 311 | 10% |
| Six Corners | 2483 | 32% | 1984 | 26% | 97 | 1% | 201 | 3% | 2335 | 30% | 588 | 8% |
| Old Hill | 830 | 18% | 2582 | 58% | 8 | 0% | 21 | 0% | 866 | 19% | 250 | 5% |
| Forest Park | 15347 | 62% | 3590 | 15% | 32 | 0% | 1212 | 5% | 3485 | 14% | 1067 | 4% |

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| Age | Under 18 | | 65 & over | |
|-------------|----------|------------|-----------|------------|
| | Under 18 | Percentage | 65 & over | Percentage |
| Citywide | 43,819 | 28.8% | 18,842 | 12.4% |
| South End | 1,665 | 36.1% | 197 | 6.1% |
| Six Corners | 2,529 | 32.9% | 806 | 10.5% |
| Old Hill | 1,789 | 39.3% | 310 | 6.8% |
| Forest Park | 7,135 | 28.8% | 2,601 | 10.5% |

Poverty Status

| | Families | % Below Poverty Level | | |
|-------------|----------|-----------------------|-----------------------|------------------------------|
| | | Persons | % Below Poverty Level | |
| Citywide | 36,753 | 146,327 | 19.0% | 23.0% |
| South End | 764 | 3,093 | 44.0% | 50.0% Second Highest in City |
| Six Corners | 1,640 | 7,347 | 39.0% | 46.0% Third Highest in City |
| Old Hill | 1,019 | 4,504 | 36.0% | 39.0% |
| Forest Park | 5,974 | 5,517 | 19.0% | 22.0% |

In terms of economics and racial composition, Springfield's Lower Mill River is part of the neighborhood fabric to a broad spectrum of city residents, including the city's second and third poorest. Even within each neighborhood, there exists significant observable economic variation typical of Springfield and the urban cores of many American cities. The river's industrial past is revealed in the lingering presence of industrial and auto-oriented businesses, and the related water quality issues persist through CSOs, odor problems, and illegal dumping on the river's banks.

An initial mapping of city parks and opportunities for outdoor recreation indicates the scarcity of facilities in the southwestern reach of the Lower Mill River Corridor. The initial appearance of an abundance of facilities in the northeastern reach is somewhat misleading because of the vastly varied levels of maintenance and programming from park to park. The northern half of Johnny Appleseed Park and the northern portion of Oakland Street Park, for example, are designated park land but virtually inaccessible and rarely used. Great opportunities exist along the Lower Mill River to connect and enhance the existing recreational resources into a corridor linking the river's adjacent neighborhoods. A plan to link the neighborhoods of the Lower Mill River with a linear park system would help to change this perception, at once increasing stewardship of the river and unifying the neighborhoods and their individual recreational, economic, and demographic strengths.

Neighborhood Cultural Resources

The Connecticut River Watershed and River Walk and Bikeway

The Pioneer Valley Planning Commission (PVPC) is the lead agency behind the Connecticut River Walk and Bikeway. The Springfield and Agawam sections were completed in 2003 and PVPC is currently working to develop links to the existing path and moving along with plans for additional River Walk and Bikeway segments in Chicopee, Holyoke, and eventually in West Springfield.⁶³



Ensuring the successful integration of the Springfield section to the ongoing revitalization of the Connecticut Riverfront and Downtown Springfield will be an economic and recreational boost to the entire region and the success of the River Walk as envisioned in the neighboring cities. PVPC is also working on a 2007 update to the Regional Bikeway and Pedestrian Plan, in which the Connecticut River Walk is a prominent regional resource.

At the scale of the Southern Reach of the Connecticut River Watershed, which encompasses Agawam, West Springfield, Springfield, Chicopee and Holyoke, the Executive Office of Environmental Affairs' 2003 5-Year Watershed Action Plan makes the following recommendations that are significant to the Mill River and this project:

- **Public Access and Recreation:** Create a series of lateral greenways along the major tributaries of the Connecticut River that connect the town and city centers to the planned greenways along the Connecticut River.⁶⁴ Connections within to recreational resources in Springfield, such as to Forest Park, are cited. Additionally, the City of Springfield is interested in linking the Springfield Armory and Watershops to the ongoing development along the river and within the Downtown Central Business District.
- **Riparian Corridors:** Restore riparian corridors and buffers, especially at points of confluence that have been altered through channelization – the Mill River is indicated one of five confluences in need of high priority action restoration.
- **Water Quality:** Take steps to encourage the implementation of the Combined Sewer Overflow (CSO) Abatement Plan and conduct education and outreach to citizens about the quality of fish in the Connecticut River and its tributaries. The neighborhoods

⁶³ Springfield River Walk and Bikeway Survey Final Report, PVPC, December 2005

⁶⁴ EOE A Connecticut River 5-Year Watershed Action Plan for the Massachusetts Section of the Watershed, 2002-2007

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surrounding the lower Mill River are heavily urbanized with large amounts of impervious surface, which contributes to non-point source runoff into the river.⁶⁵ The Mill River has a significant history of CSO pollution that has been largely, though not entirely, remedied, and fishing is common in Watershops Pond and at the channelized confluence with the Connecticut River.⁶⁶

The Connecticut River 5-Year Watershed Action Plan stresses the important role which the major tributaries to the Connecticut River play in overall health of the watershed.⁶⁷ The Mill River is one tributary of such importance, and the present state of the river below the Watershops, in terms of pedestrian access, riparian health and water quality, evinces the necessity of a project such as the one proposed here to begin addressing these problems.

Springfield College

Springfield College, with a student population of 5,000, is a four-year institution founded in 1885 as the International YMCA Training School.⁶⁸ It is the historic birthplace of basketball, which was invented there in 1891, and was the original home of the Naismith Memorial Basketball Hall of Fame. It is well respected for its degree programs in Physical Education and Sports/Occupational Therapy and a high percentage of its students (approximately 85%) are student athletes.⁶⁹ Springfield College is a valuable educational resource with significant cultural ties to the city and the Basketball Hall of Fame, and its student athletes represent a neighborhood user group that would benefit from and likely utilize new recreational trails and amenities along the Lower Mill River, particularly if a connection is provided to the Connecticut River Walk.



Neighborhood Schools

Schools are important neighborhood hubs of activity, sources of recreational resources, and anticipated user groups for educational elements incorporated into any recreational resource. Two elementary/middle schools are located within walking distance (approximately ½ mile) of the Lower Mill River Corridor, and one middle school is located approximately one mile away next to Forest Park.⁷⁰ Those schools are as follows:

⁶⁵ CSO Fact sheet #1: CSOs and Our Rivers. PVPC and Connecticut River Clean-up Committee

⁶⁶ Hanson, Scott.

⁶⁷ EOEIA Connecticut River 5-Year Watershed Action Plan for the Massachusetts Section of the Watershed, 2002-2007

⁶⁸ <http://www.spfldcol.edu/homepage/dept.nsf/>

⁶⁹ Gene Verel, International Clinical Coordinator, Division of Athletic Training and Therapy, Dublin City University. Personal communication, January 2009.

⁷⁰ <http://www.education.com/schoolfinder/>

- Elias Brooks Middle School, 367 Hancock St – 464 students, grades K-5 and 7-8
- Kensington Avenue School, 31 Kensington Ave – 328 students, grades K-5
- Forest Park Middle School, 46 Oakland St – 914 students, grades 6-8

Recent and Ongoing Neighborhood Planning and Investment

Urban Land Institute Assessment

In 2006, the City of Springfield invited the Urban Land Institute (ULI) to the city for assistance in creating a strategy for economic development.⁷¹ Established in 1936, the mission of the ULI is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide.⁷² The Advisory Report prepared by the ULI made city-wide recommendations for revitalizing neighborhoods and specific recommendations for the South End Neighborhood, which is adjacent to the Lower Mill River and covered in the demographic analysis earlier in this chapter. The South End Revitalization Project entailed recommendations for improving specific residential and retail areas and streetscape improvements to particular streets and is discussed below.

While the ULI Report did not specifically address the Lower Mill River, several city-wide recommendations for strengthening neighborhoods apply directly to the Project Site and this design proposal. Those recommendations are as follows:

- ❖ Employ neighborhood level interventions such as *major catalytic projects* and increased law enforcement in targeted areas experiencing low home ownership, high crime and low property values (South End residential areas highlighted as an example)
- ❖ Increase home ownership by adding more market-rate housing in a variety of housing types to meet the market, such as lofts, townhomes, condominiums, and single-family homes
- ❖ Eight criteria for use of scarce resources:
 - *Does it strengthen downtown?*
 - Does it provide skilled labor jobs or pay livable wages?
 - Does it leverage private investment, generally \$3-4 private/\$1 public?
 - *Does it improve the quality of life in Springfield?*
 - Does it increase home ownership?
 - *Does it positively impact real estate values?*
 - *Is it a catalyst for future, good development?*
 - Does it increase local tax revenues?⁷³

As a major catalytic development that could spur substantial private investment in neighborhood residential, local commercial, and major commercial activity on the Connecticut Riverfront, this

⁷¹ <http://www.springfieldcityhall.com/planning/149.0.html>

⁷² Springfield, Massachusetts: Strategies for a Sustainable City, An Advisory Services Panel Report. The Urban Land Institute, 2006-2007

⁷³ Springfield, Massachusetts: Strategies for a Sustainable City, An Advisory Services Panel Report. The Urban Land Institute, 2006-2007

proposal has the capability to meet the italicized criteria immediately and the other criteria as public investment inspires private investment.

South End Revitalization Project and Main Street Improvement Project

Community members and stakeholders have been meeting since 2007 to establish short and long term economic development goals and physical improvements to the South End Neighborhood, as supported by the ULI Advisory Report. Engineering work is currently underway to make improvements to Main Street near the intersection with Mill Street, and improvements are anticipated for Main Street retail and Emerson Wight Park.⁷⁴ Streetscape improvements to Main Street north of Howard Street in the downtown Central Business District were completed in 2007 and improvements to the South End section of Main Street, which is a few blocks north of the Lower Mill River project site, are intended to enhance this gateway to the city from the south. Extensive sidewalk construction and tree removal were completed in 2009, and approximately 90 new trees will be planted. This project proposes additional, integrated gateway enhancements in this 'Downtown Gateway' area in the Master Plan design.⁷⁵

Walnut Street Reconstruction

In October 2006, the City completed a \$1.5 million reconstruction of Walnut Street, which is the main artery linking the Watershops to the Springfield Armory and the extensive redevelopment of the State Street Corridor, which was completed in Fall 2008. The new paving, street signs, decorative lighting, and sidewalk enhancement with colored bands of concrete along Walnut Street from Union to Hickory Streets will improve the pedestrian link between the Armory and the Watershops. Additional signage, street tree planting, and the redevelopments proposed to the Watershops (including a SPAR and Springfield College presence) will help to further strengthen the link from downtown to the Lower Mill River greenway and connection to the Connecticut River.⁷⁶

Connecticut Riverfront Redevelopment and Planning Context

At the City level, plans are underway at PVPC and the City to link Springfield's Central Business District to the River Walk and the new Basketball Hall of Fame facility, which PVPC has dubbed the Springfield "Walk of Fame" project. Downtown Springfield's riverfront, which the Interstate Highway System, as in many American cities, separated from the Central Business District, is undergoing a renaissance after many years of deterioration. In addition to the River Walk and its regional connections, several large developments are in place or in the works for the Connecticut riverfront.⁷⁷

⁷⁴ <http://www.springfieldcityhall.com/planning/southendproject.0.html>

⁷⁵ <http://www.springfieldcityhall.com/planning/southendproject.0.html>

⁷⁶ <http://www.springfieldcityhall.com/planning>

⁷⁷ <http://www.springfieldcityhall.com/planning>

York Street Site

Just south of the Basketball Hall of Fame complex is the 4 acre site of the recently demolished York Street Jail. After several failed redevelopment attempts, the 1886 jail was taken down by the city in late 2008. The demolition was supported by recommendations in the recent Urban Land Institute assessment of the city in order to facilitate economic development along the riverfront. The City's Office of Planning and Economic Development and the Springfield Redevelopment Authority indicates that it is currently seeking development proposals that compliment the Naismith Memorial Hall of Fame and the recent successful commercial, hotel, retail and fitness-oriented development.⁷⁸



Source: springfieldcityhall.com/planning

The land is currently vacant and all buildings have been cleared. The property is located just south from the Naismith Memorial Basketball Hall of Fame, Hilton Garden Inn, Pizzeria Uno, Sam's Tavern, Subway, and FL Roberts gas station. The York Street Redevelopment Site includes the half-acre 'snow dump' parcel where the channelized Mill River emerges from beneath Interstate 91 and enters the Connecticut River. This proposal recommends that the City work with future private developers to preserve the Lower Mill River parcel for a gateway



park and pursue a compatible commercial or mixed-use neighbor to be well integrated with greenway and park plans for the Lower Mill. Proposed redevelopments for the York Street Site must be in line with the West Columbus Avenue Urban Renewal Plan.⁷⁹

West Columbus Avenue Urban Renewal Plan

Article XIV-D of the Springfield Zoning Ordinance details the West Columbus Avenue Urban Renewal Plan, which encompasses the Connecticut Riverfront included as part of the Site for this proposal. According to the ordinance, "The West Columbus Avenue Urban Renewal District is intended to accommodate the development of riverfront land located within the West Columbus Avenue Urban Renewal Area, for retail, commercial, cultural and entertainment activities in a manner respectful of and in keeping with the natural and aesthetic qualities of the Connecticut

⁷⁸ <http://www.springfieldcityhall.com/planning/index.php?id=riverfront>

⁷⁹ <http://www.springfieldcityhall.com/planning>

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River for the overall welfare of the general public, consistent with the protection of lands owned by the public as a natural resource for open space and park-oriented activities.”⁸⁰

Basketball Hall of Fame

The Naismith Memorial Basketball Hall of Fame was created on February 17, 1968, on the campus of Springfield College, where the game was invented in 1891. By 1985, the Hall had outgrown its quarters and opened in a new building along the riverfront and I-91 in order to be closer to the Downtown Central Business District. By 1993, the Hall set an attendance record of 173,898, and in 2003 the Hall opened a massive new home building in a complex of retail shops, restaurants, and a hotel on the 18-acre parcel south of the original building.⁸¹ The new hall, which received significant attention within the design community because of its massive, LED-lighted, round façade, is a major presence along the I-91 corridor through Springfield and a source of regional and national tourism.⁸²

River's Landing Project and Visitor's Information Center

In March 2008, the Rivers Landing complex opened in the former Basketball Hall of Fame on the Riverfront, featuring a 60,000 square foot LA Fitness Center and Onyx Restaurant & Fusion Bar.⁸³ The opening of the new Basketball Hall of Fame building in 2003 left the original building vacant. Capitalizing on the sports-oriented appeal of the Naismith Basketball Hall of Fame, a major development project recently rehabilitated the building using over \$15 million worth of private investment with no public subsidies.⁸⁴



The existing access to the River Walk via the pedestrian bridge over the Amtrak rail tracks has been preserved, however the city-owned, handicapped-accessible bridge, has a broken elevator and is in need of repair and maintenance for four-season use.



⁸⁰ Springfield Zoning Ordinance, Article XIV-D.
<http://www.springfieldcityhall.com/ordinances/zoning.0.html?pid=21>

⁸¹ http://www.hoophall.com/history/history_of_hall.htm

⁸² <http://www.springfieldcityhall.com/planning>

⁸³ http://www.springfieldcityhall.com/planning/index.php?id=river_landing

⁸⁴ http://www.springfieldcityhall.com/planning/index.php?id=river_landing

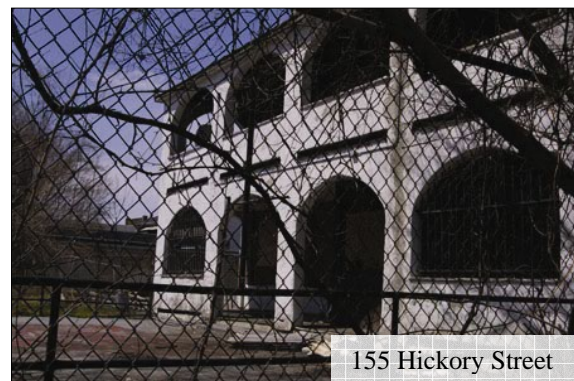
The City is also currently seeking a developer for the current site of the Visitor's Information Center located just north of the River's Landing Redevelopment on West Columbus Avenue. After July 2009, the visitor's facility is being relocated to inside the Basketball Hall of Fame, making the 4,100 square foot building available for lease for use as retail, office, restaurant, or any other use approved by the West Columbus Avenue Urban Renewal Plan. The property has 38 parking spaces and space for bus parking.⁸⁵



Springfield Brownfields Redevelopment Program

The goal of the City of Springfield's Brownfields Redevelopment Program is to promote the sustainable reuse existing brownfields and preventing the creation of additional ones. Redeveloping brownfields shifts development pressures away from undeveloped land, improving and protecting the environment. Further, brownfields redevelopment returns non-productive real estate assets to productive use, promoting economic development.⁸⁶ Along with the York Street Site, the following brownfield sites relevant to this proposal currently undergoing environmental assessment include:

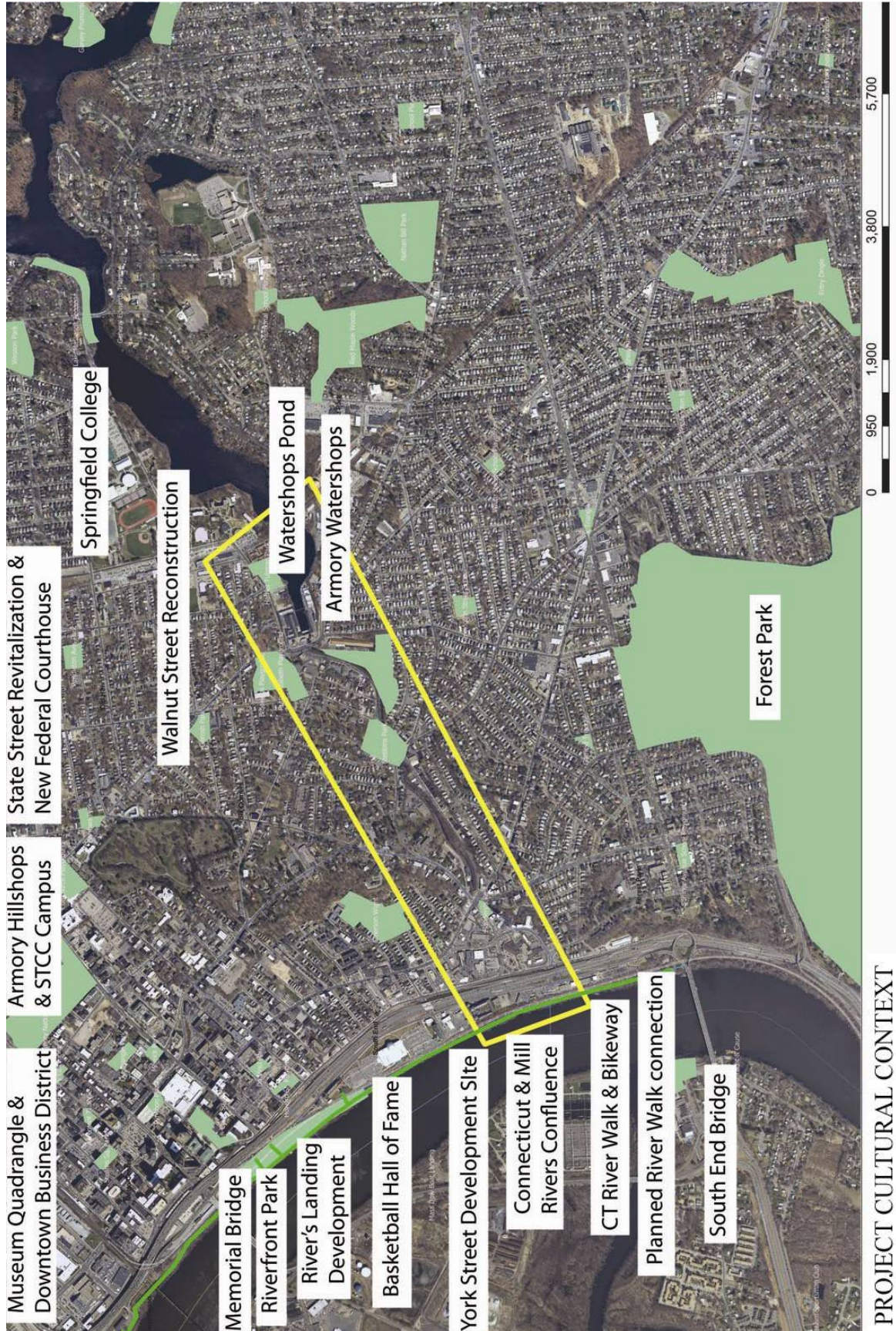
- **460 Walnut Street** – the parcel on the northeast corner of Walnut and Hickory Street, across Hickory Street from the Armory Watershops, which was cleared in 2009 of several vacant homes.
- **155 Hickory Street** – the parcel west of and adjacent to Harriet Tubman Park along Hickory Street and Watershops Pond. This parcel contains a building that was formerly a restaurant and could potentially be a desirable restoration opportunity, however substantial illegal dumping has occurred on the site, which is predominantly paved with asphalt.



⁸⁵ <http://www.springfieldcityhall.com/planning/riverfront-proj.0.html>

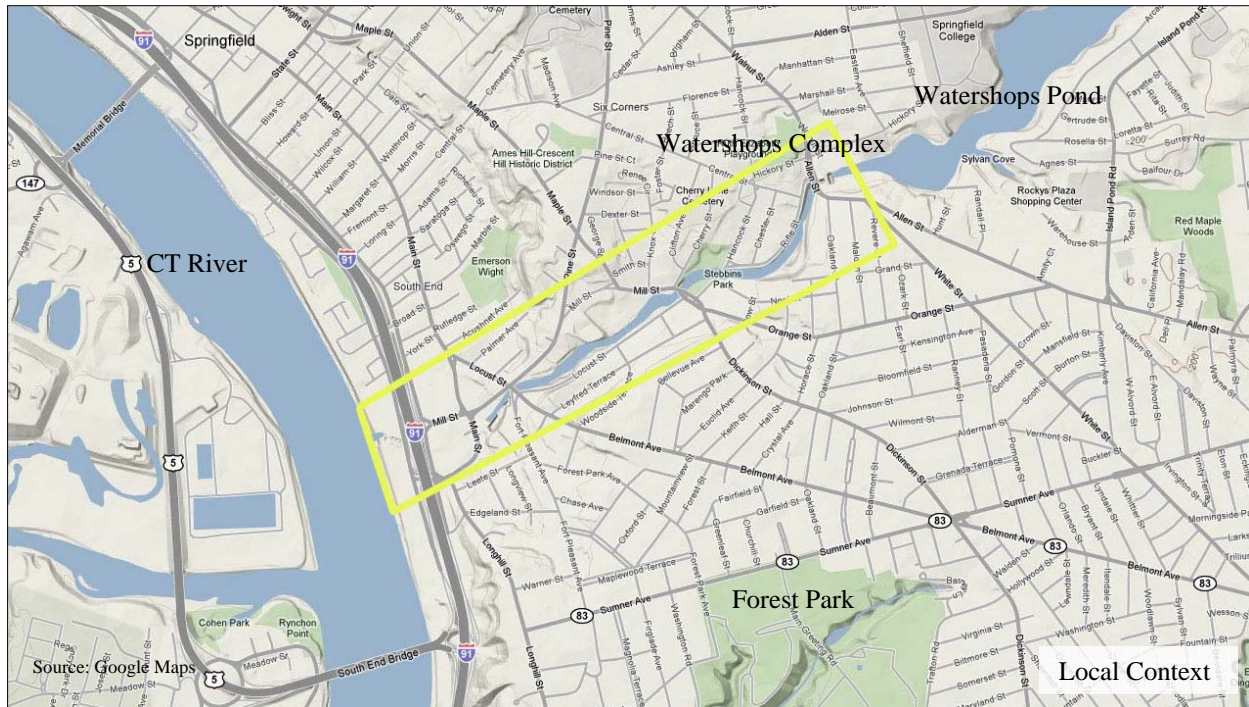
⁸⁶ <http://www.springfieldcityhall.com/planning/258.0.html>

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6. PROJECT SITE

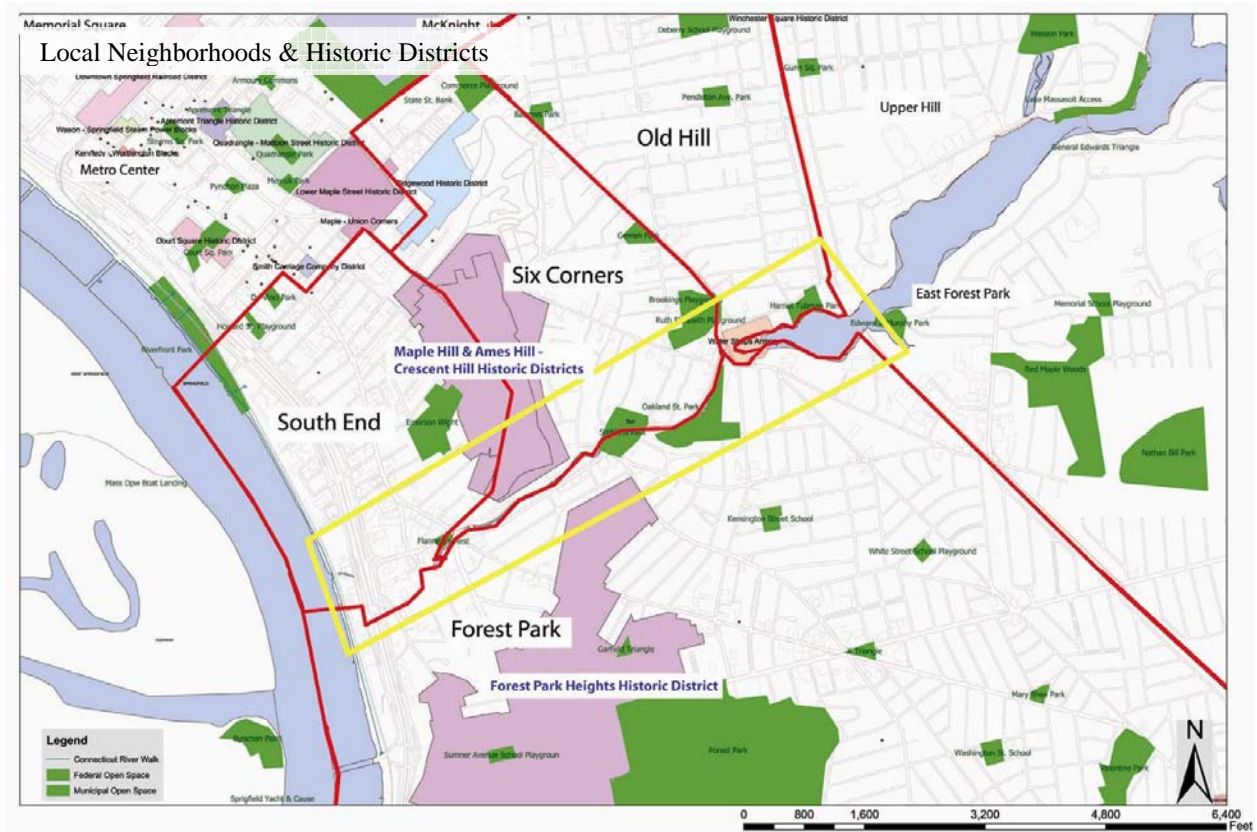
The Site boundary just east of the Armory Watershops on Allen Street and continues along the Lower Mill River as it heads west to the confluence with the Connecticut River, a distance of approximately 1.2 miles. This segment of the river is significant and selected for this project for several reasons. The Watershops signifies the beginning of the urbanized portion of the Mill River; its reaches northeast of the complex on Allen Street are substantially wider, with a more natural, less constrained meander and wider, forested banks. Less dense development, a lower percentage of impervious surfaces, and adjacency to wetland and floodplain areas (including a small pond with a floating island, a rare ecological phenomenon) further contribute to the health of the Lower Mill River northeast of the Watershops complex.



Neighborhood Context

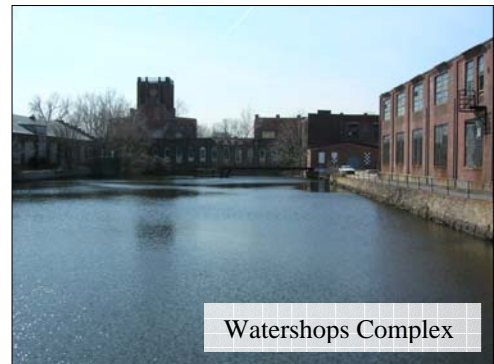
The Site lies between the Forest Park (south) and Maple Hill (north) Historic Districts, both of which contain many high quality, well-maintained historic homes. The housing stock and economic stability of the neighborhood immediately surrounding the Lower Mill River decreases noticeably from the Historic Districts, reflecting the historic and modern presence of industrial and auto-oriented uses adjacent to the river. The city is interested in revitalizing the Lower Mill River as a means to creating a cultural, ecological and recreational destination to stimulate growth and investment in the surrounding neighborhoods.

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Armory Watershops & Highland Rail Line

The river is dammed beneath the Watershops, forming Watershops Pond, which is enclosed on three sides by the wings of the main building. Approximately 230 yards east of the main building, the “Pond” widens to create a picturesque boating and fishing resource that is surrounded by both appropriate (Harriet Tubman Park) and incompatible uses (industrial uses across from and west of the Park). Harriet Tubman Park is a small park with playground equipment but limited shoreline access located on Hickory Street between the Watershops and Springfield College on the northeast bank.



About 250 yards east of the Watershops, the former Highland Division Rail Line crosses the cove but is derelict and inaccessible; there have been some attempts to convert the disused rail line into a trail, but efforts have stalled.⁸⁷ This rail corridor and bridge have the potential to be redeveloped into a valuable regional connector and top loop for a greenway path on the Lower



⁸⁷ Hanson, Scott.

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Mill River. Harriet Tubman Park is a recently refurbished community resource that represents a valuable node in a potential neighborhood greenway path, so the parcels adjacent to Watershops Pond and the Highland Rail Line/Bridge are included within the defined "Site" for this proposal.

The Watershops complex, which was built in 1778 to house the forgings for arms designed and assembled at the Armory Hillshops on State Street, is partially vacant and partially occupied by a mix of small, heavy industrial uses including auto servicing, which may potentially contribute to non-point source (NPS) runoff into the Lower Mill River.⁸⁸ Non-point source pollution occurs when surface runoff water picks up and moves natural and man-made pollutants until they are deposited in larger water bodies such as rivers, ponds, wetlands, coastal waters, and underground aquifers. Fertilizers, automotive fluids, erosion from construction sites, and road salt are significant contributors to NPS pollution, a problem which is exacerbated in urban areas with a high percentage of impervious surfaces.⁸⁹

Continued industrial use of the Watershops would be appropriate, although the proximity of the river would make cleaner, lighter industrial uses preferable to the current heavier, auto-oriented uses. The Lower Mill River is dammed beneath the Watershops and Allen Street and exits west of the Allen Street bridge into a channel defined by 10-15 foot-high stone retaining walls and steeply sloping, moderately forested terrain.

The Lower Mill River West of The Watershops

Between the Watershops and the confluence with the Connecticut River, the Lower Mill River is surrounded by an urbanized environment. Dense and varied urban land uses contribute to the higher percentage of adjacent impervious surface, and the river is constrained into a narrow channel enclosed in many places by stone walls and riprap. As such, the Lower Mill River is in greater need of ecological remediation and renewal than other areas of the Mill River. Additionally, the Lower Mill's proximity to a greater number of residents and potential recreational users makes it the most logical opportunity to serve the community with land use and recreational enhancements.

The steep slopes that surround much of the Lower Mill River hinder access in some areas but have, in fact, preserved public access by being impractical for private development. As a result, the Lower Mill River is largely abutted by public right-of-way and is, in most areas, directly accessible from public streets. Unlike many urban rivers, very little private property stands in the way of developing recreational amenities along the Lower Mill River. With the burdens



Mill River West of Watershops

⁸⁸ EOE A Connecticut River 5-Year Watershed Action Plan for the Massachusetts Section of the Watershed, 2002-2007

⁸⁹ US EPA website. <http://www.epa.gov/owow/nps/qa.html>

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and expense of land acquisition minimized, the City has the opportunity to begin installing early phases of trail connections proposed by this design. Furthermore, the adjacency of existing parks - Harriet Tubman Park, Oakland Street Park, Johnny Appleseed Park and Flannery's Rest at the intersection of Main, Pine, and Mill Streets – add to the publicly-held land that can be easily enhanced by improvements to the Lower Mill River.

Approximately 600 yards downstream of the Watershops, the terrain levels out and the river crosses beneath Hancock Street and through Johnny Appleseed Park, a small neighborhood park. The southern half of the park has play equipment and is used regularly, however there is little access to the river due to a thick buffer of understory growth. In the section of the park north of the river, only a small lawn area has been cleared out of dense wetland forest. This side has a small, graceful bank along the river however the space is unstructured, unmarked as a public park, less frequently used, and sunken down several feet from the road. Other open and shoreline areas are prone to flooding and uncleared of vegetation which obscures sightlines. This seclusion could be an asset, however safety concerns need to be addressed in terms of visibility from the road and other well-traveled spaces nearby.



Flowing west, the Lower Mill River passes beneath Mill Street and runs alongside Locust Street to the south for approximately 700 yards before passing under Belmont Avenue. Four incompatible and poorly maintained auto-oriented uses with substantial paved areas occupy the parcels on either side of the river just west of the underpass. The river narrows through a sharp, man-made chase edged with concrete retaining walls on the north side; bank erosion is severe and scrub vegetation and illegal dumping obscure views of the river.



The southern bank of the river is characterized by steeper, varied slopes and a higher density neighborhood with early 20th century brick apartment buildings between Darwell Street and Woodside Terrace and single/two-family homes south of Woodside Terrace. There is little to no interaction between the neighborhood and the river; tall stockade fencing along the roadside and dense understory on the slopes block both access and



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views. In sections where the fence is missing or in disrepair, illegal dumping is a problem. The right-of-way is wide enough to accommodate a sidewalk but is unpaved, despite the placement of a bus shelter across from the intersection with Woodside Terrace.

The northern shore of the river in this section of Mill Street has a variety of private uses on lots that back up to the river, making it one of the few areas inaccessible from public right-of-way. A light industrial use behind the large single-family homes along the street has excessive paved areas adjacent to the river. Closer to the Belmont Avenue intersection on the northern side of the river is a cluster of low, brick commercial/industrial buildings of approximately the same vintage as the Watershops. These are moderately well-maintained and occupied by a mix of small commercial uses. Access to or views of the river are particularly difficult to obtain from this area because of derelict fencing and extremely thick understory growth. A derelict, wood frame structure attached to the older brick buildings spans the river, blocking views and access to the river entirely.



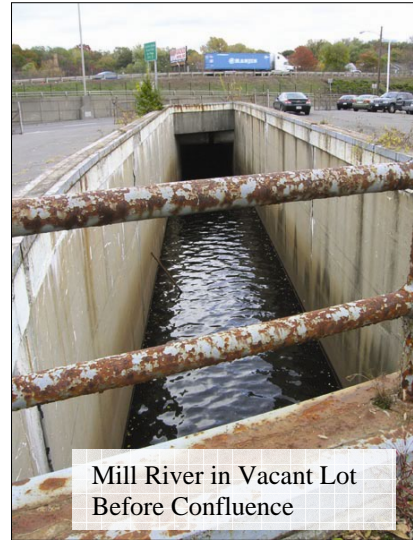
West of this building at the eastern tip of a complex 6-way intersection is a City water pumping facility and small patch of lawn with a bench and two mature American Sycamore trees, whose mottled and exfoliating white bark makes them prominent gateway features for the river corridor.



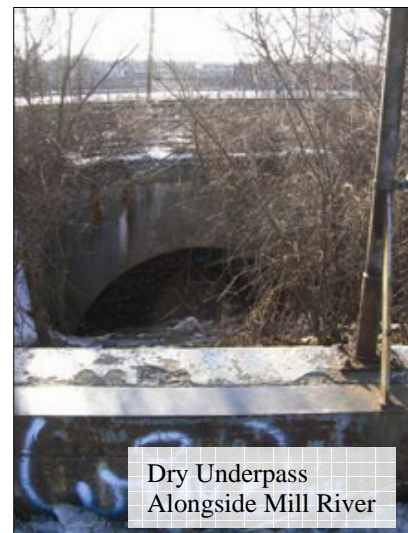
The river crosses under Belmont Avenue and widens next to the site of a former mill on the north bank, the partial foundation of which has been carefully preserved and landscaped to shape the edge of a parking lot for the adjacent 19th century brick building. The building was previously occupied by a restaurant but is now used as a crematory. It backs up to the river at the point where it drops off into the underground channel that takes it beneath the next block beneath Main Street and Interstate 91. The brick foundation wall in the parking lot and the building make the river's edge inaccessible on the northern shore, and the

southern shore is extremely steep, heavily wooded, and bordered by private lots with neighborhood development and multi-family homes on Fort Pleasant Street. A vacant lot south of the neighborhood commercial on Fort Pleasant presents an opportunity for developing river access.

Once west of I-91 and West Columbus Avenue, the river emerges inelegantly in a deep, concrete channel almost parallel to Mill Street across the Interstate. This parcel is a vacant parking lot just south of the York Street Jail; it is split by the channel connected by a concrete bridge passing over the channel at the western edge, and high metal fencing and dense understory growth prevent access or views down the steep grade towards the Connecticut River. The Mill River passes through the center underpass and is flanked by two dry underpasses, which are filled most of the way with soil, trash and underbrush vegetation, however they could potentially be cleared out for pedestrian passage. The Connecticut River bank drops approximately 10 feet, and the Amtrak rail line crosses about 20 yards from the edge of the parking lot. The Mill River passes beneath the rail line and the Connecticut River Walk, just west of the rail, and enters the Connecticut River.



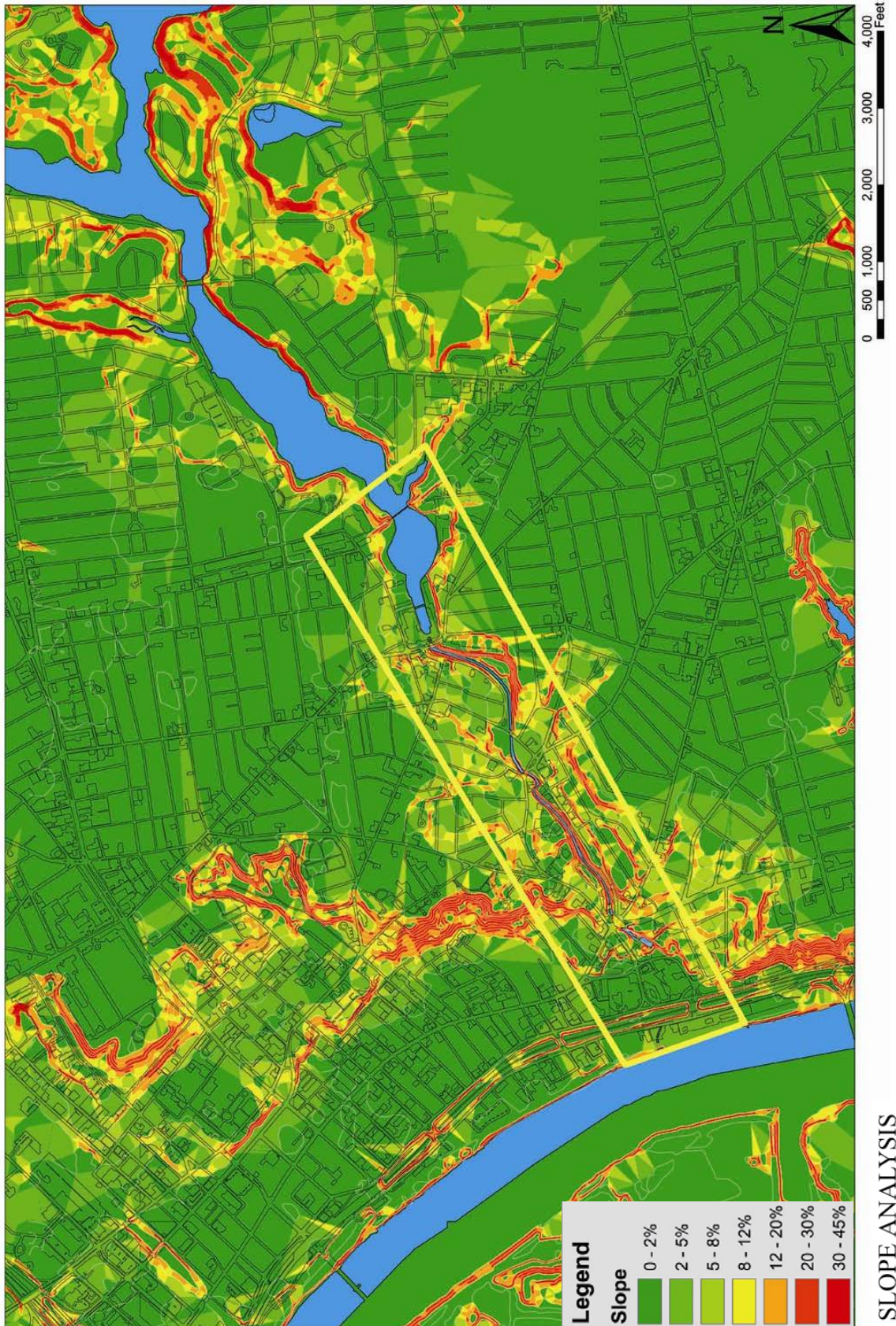
Mill River in Vacant Lot Before Confluence



Dry Underpass Alongside Mill River

The Lower Mill River west of the Armory Watershops comprises the most heavily urbanized section of the Mill River. As the river progresses towards the confluence with the Connecticut, it decreases significantly in accessibility, visual aesthetics, water quality, and riparian function. It joins the Connecticut River in a severely compromised state from all of these important perspectives, significantly hampering its health and ability to contribute to the health of the larger Connecticut River Watershed. This project proposes a land use strategy and design intended to remedy these deficits and make a significant contribution to the cultural resources, open space and recreation network, and ecological health of Springfield.

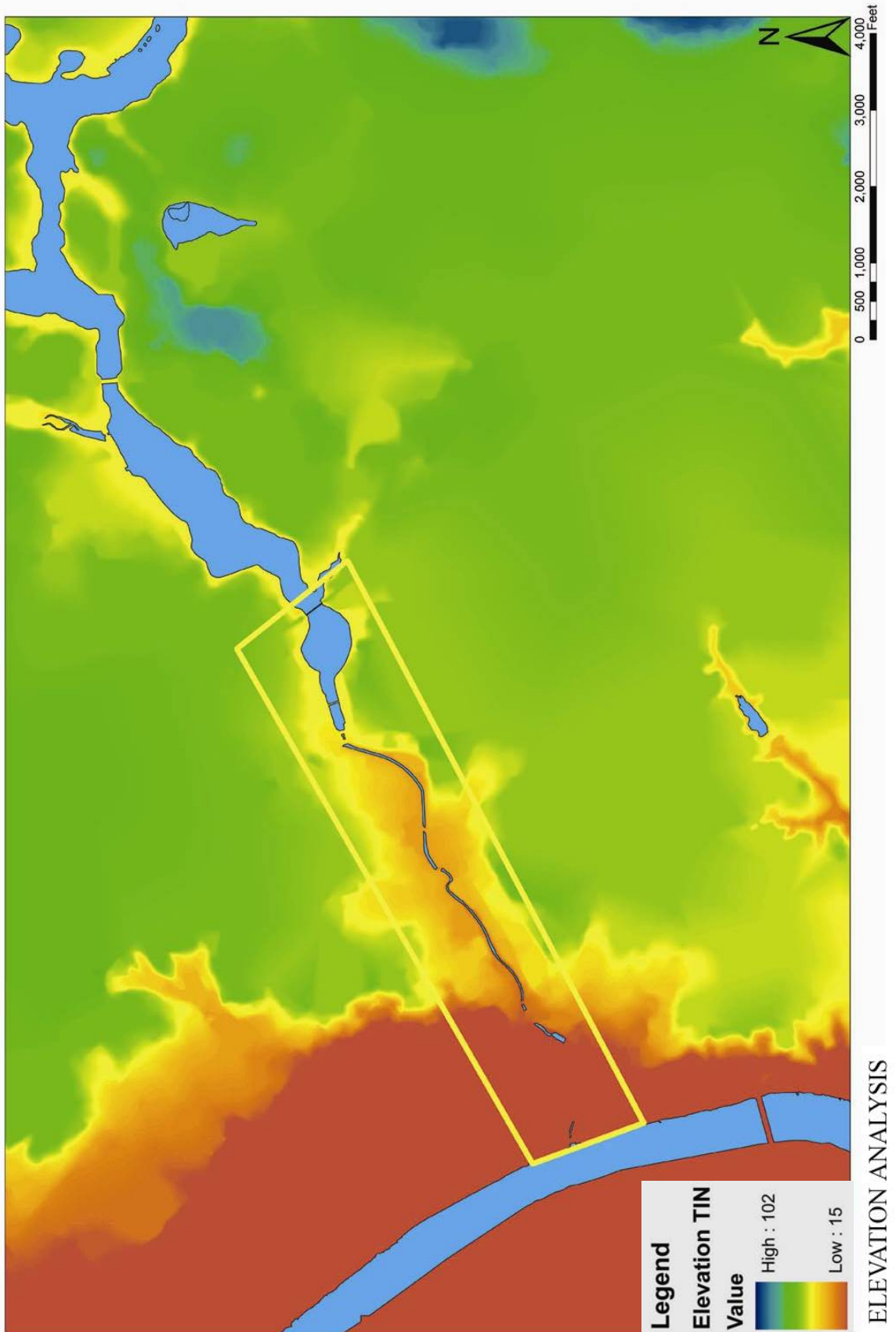
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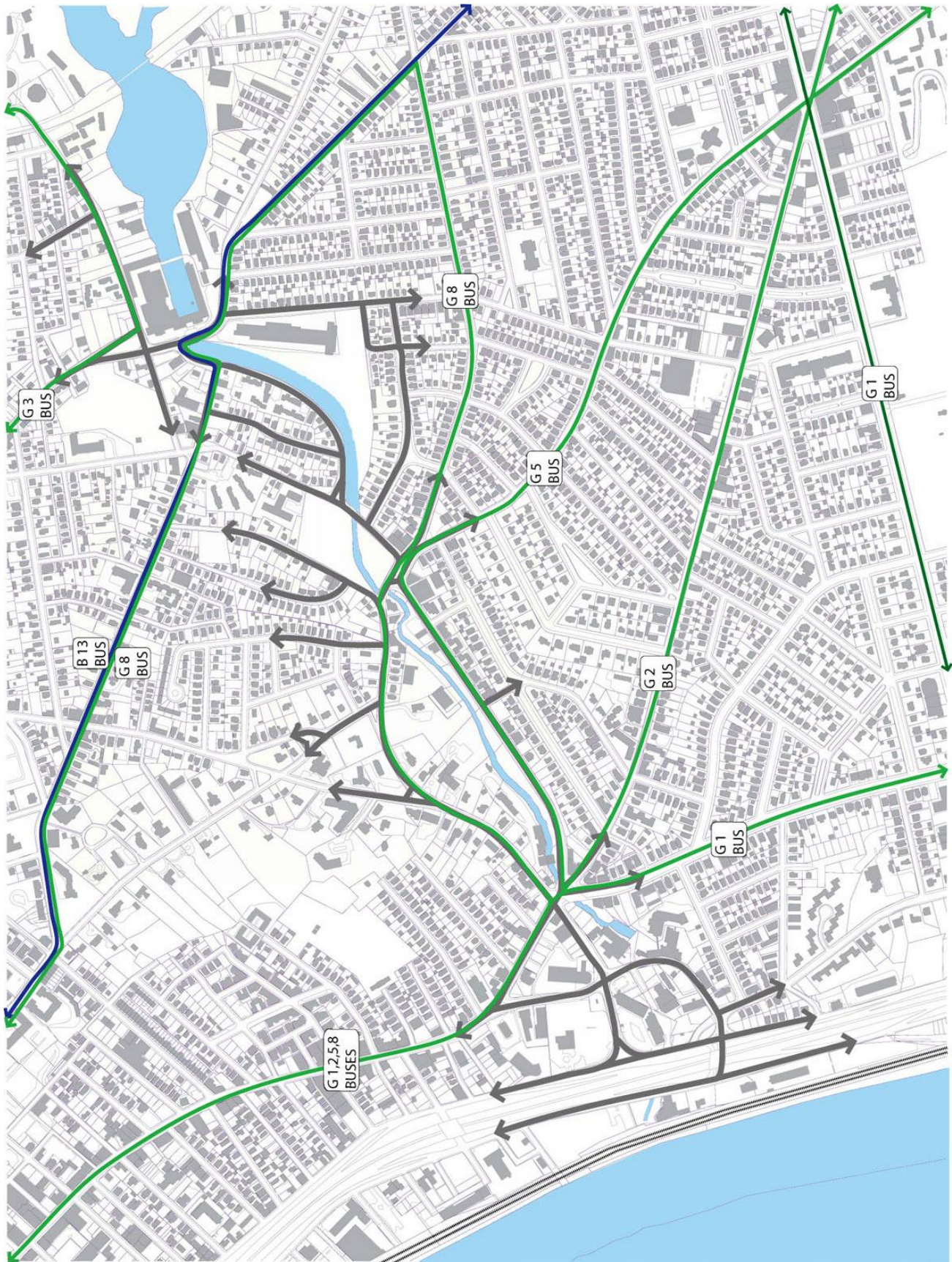
IMPERVIOUS SURFACE ANALYSIS

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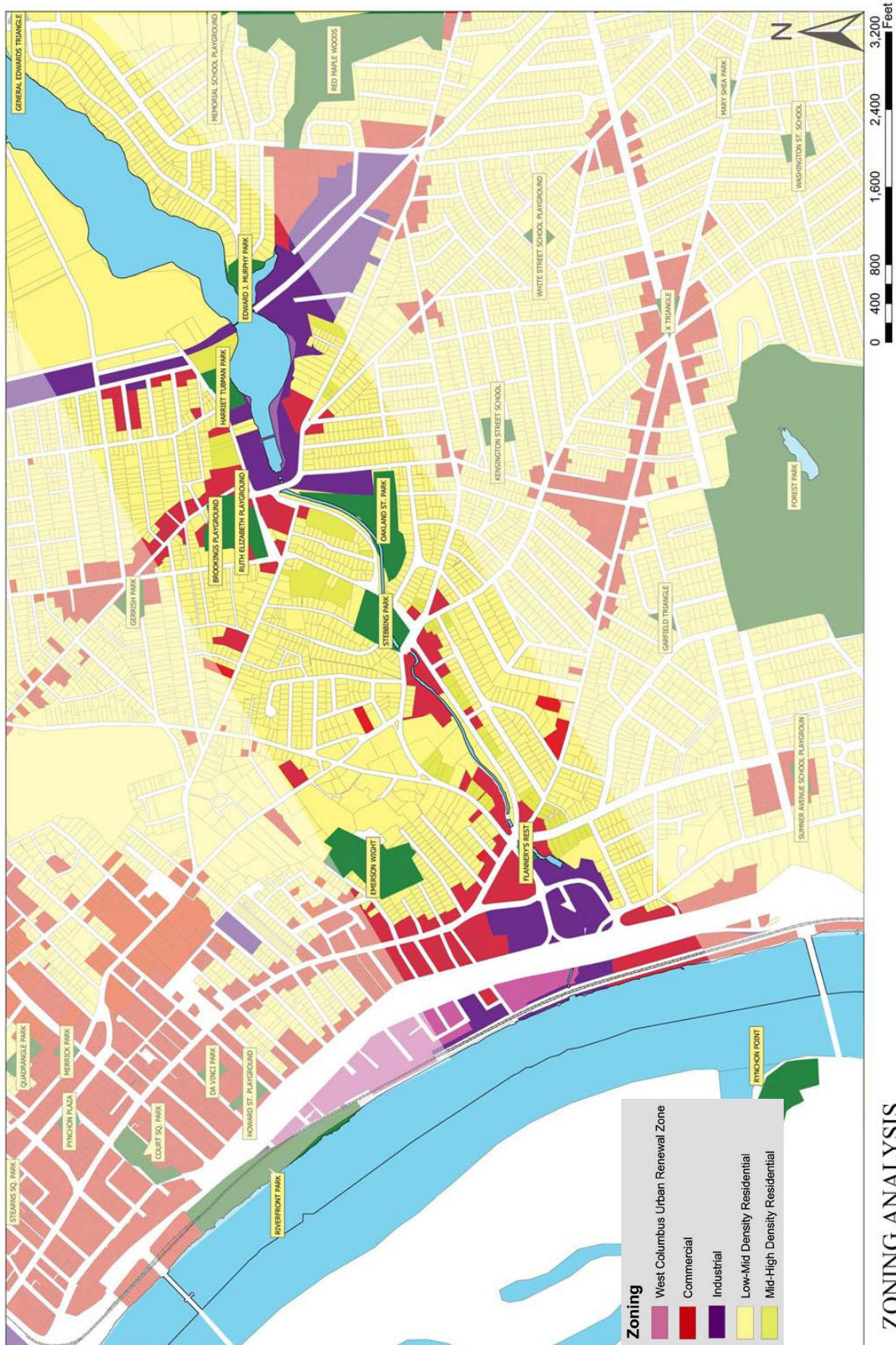
URBAN GRAIN ANALYSIS

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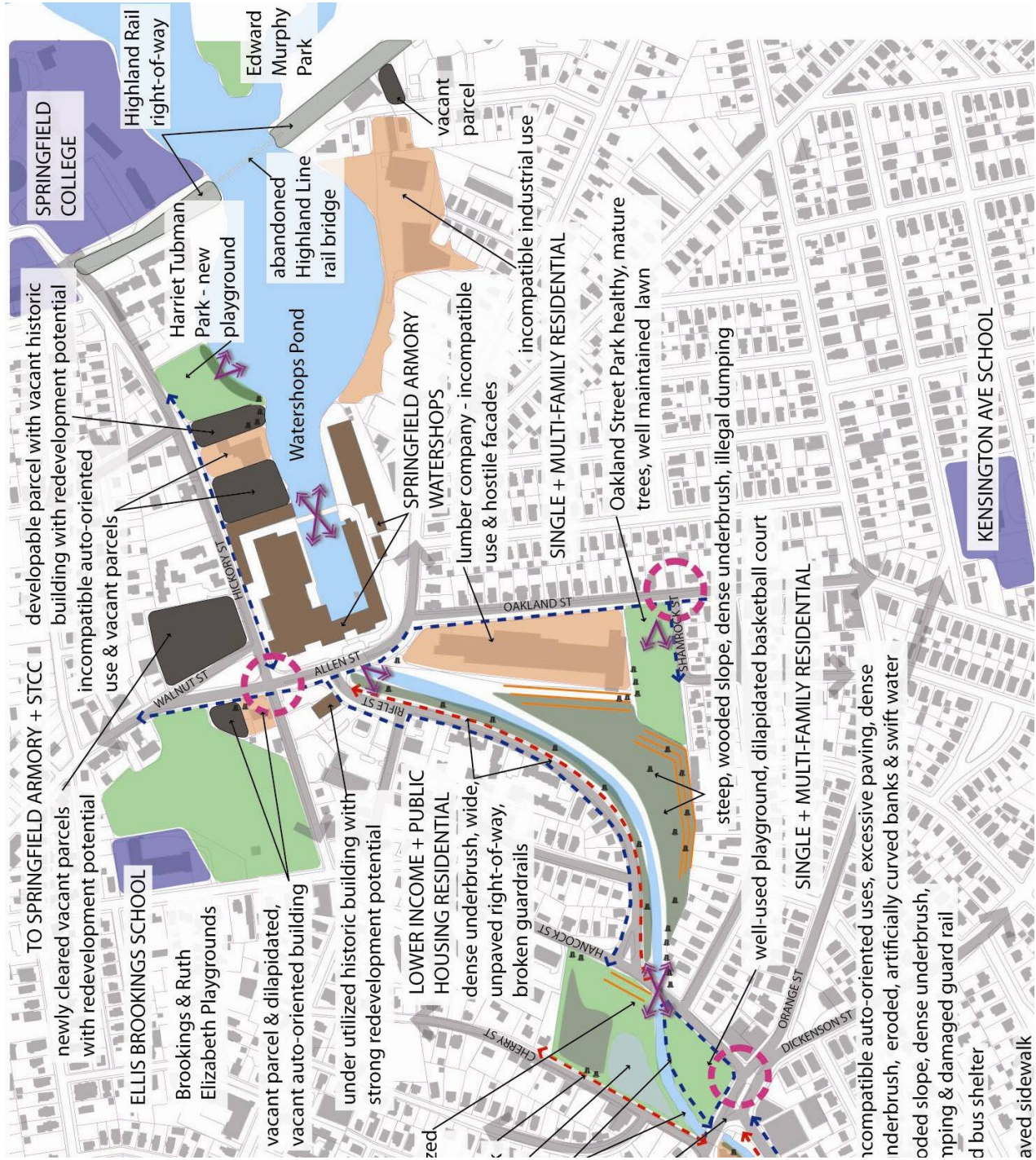


VEHICULAR & BUS ACCESS

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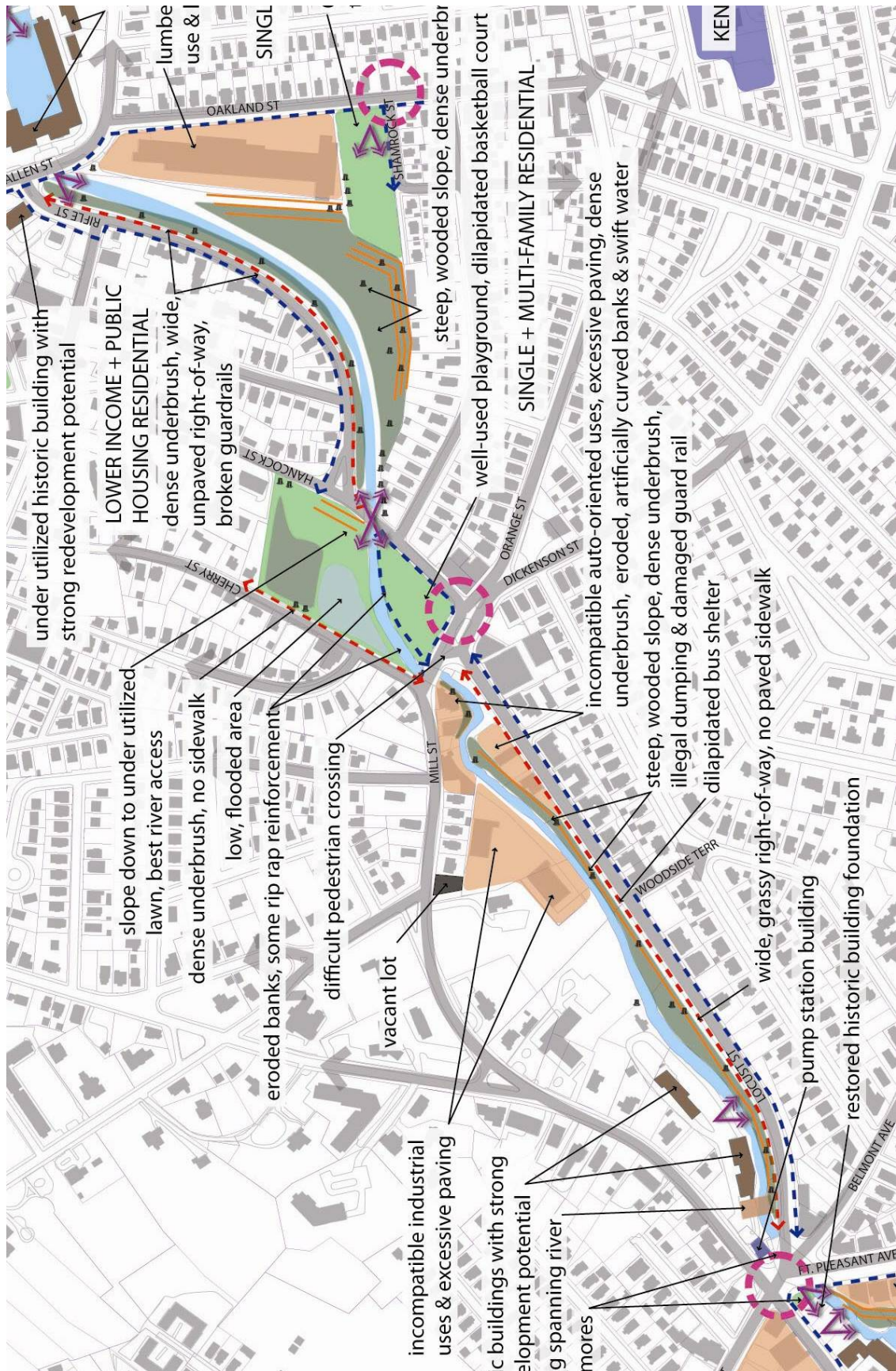


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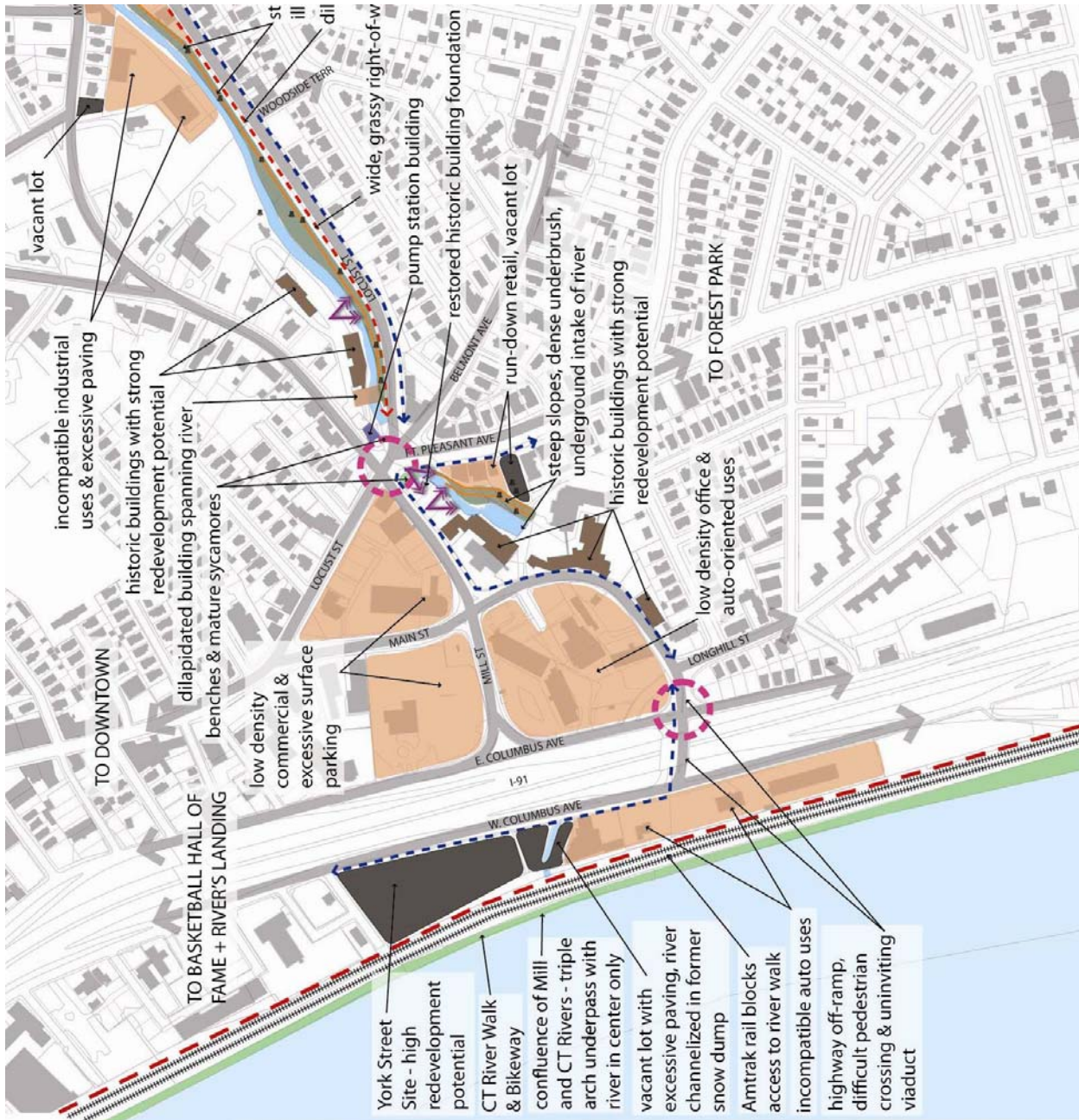
SITE ANALYSIS - SECTION 1

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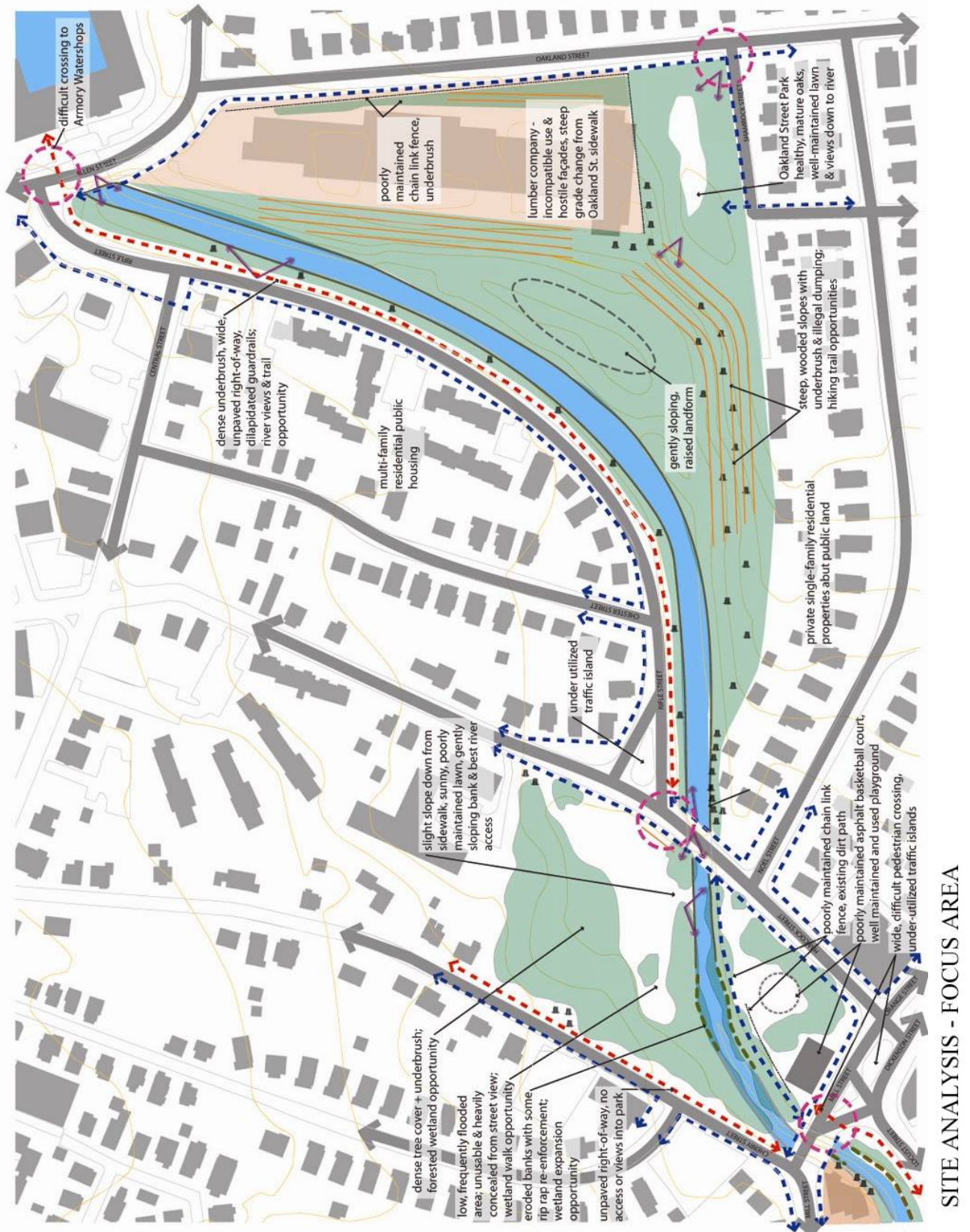
SITE ANALYSIS - SECTION 2

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SITE ANALYSIS - SECTION 3

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7. DESIGN CONCEPT FOR THE LOWER MILL RIVER

Overview and Land Use Strategy

The Conceptual Master Plan establishes a new pedestrian greenway path and park system along the Lower Mill River and a direct pedestrian link to the Connecticut River Walk and Bikeway. The challenge of this design is to accomplish fluid pedestrian connections and gathering spaces that create an enjoyable and safe experience for visitors while protecting, enhancing, and exposing the natural functions of the river and the riparian buffer.

This design framework achieves the goals and objectives of this proposal by presenting a strategy for future land use; mapping on and off-street greenway trails along the Lower Mill River between the Highland Rail Bridge crossing Watershops Pond and connecting to the Connecticut River Walk and Bikeway; improving existing parks and adding new parkland and parking facilities along the river corridor; reducing impervious surfaces on river-adjacent parcels and creating a wetland area for natural floodway, water remediation and wildlife habitat; and establishing multiple gateways into the greenway system that link to existing resources and future redevelopment areas.

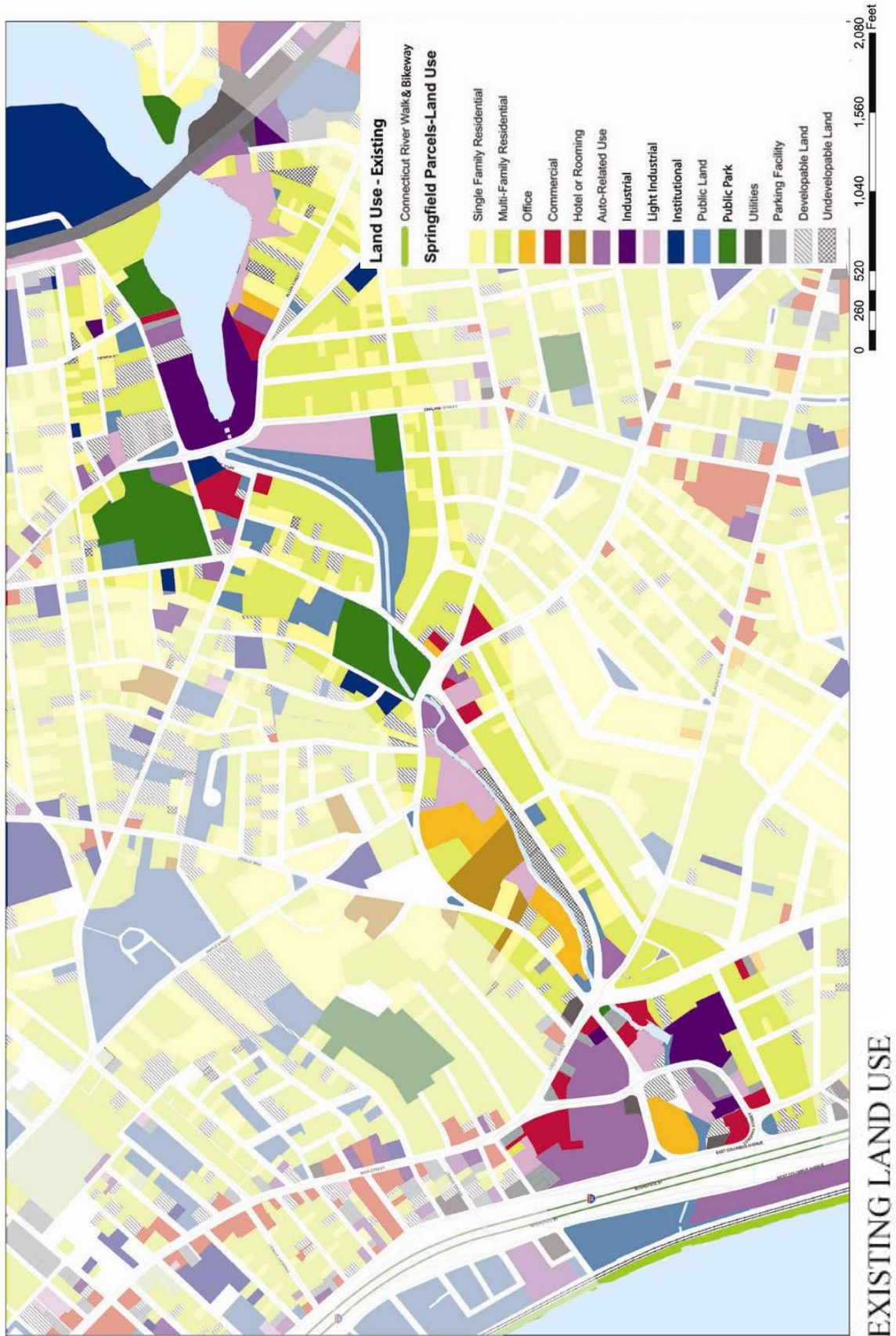
Land Use Strategy and Incompatible Uses

Land uses were deemed incompatible with river adjacency if they (a) created large amounts of impervious surface, thereby increasing runoff into the river, (b) potentially generated non-point source (NPS) runoff contaminated with environmentally harmful substances, i.e. motor oil and cleaning chemicals, or (c) substantially blocked public access and views to the river corridor, either with building mass inappropriately close to the river and/or unmanaged scrub and invasive vegetation. Compatible uses included those which enhance the existing neighborhood residential or commercial and parkland character, such as existing and infill housing, neighborhood commercial and light industrial not negatively impacting the river corridor with excessive paving or otherwise contributing significantly to pollutant runoff. And new parkland.

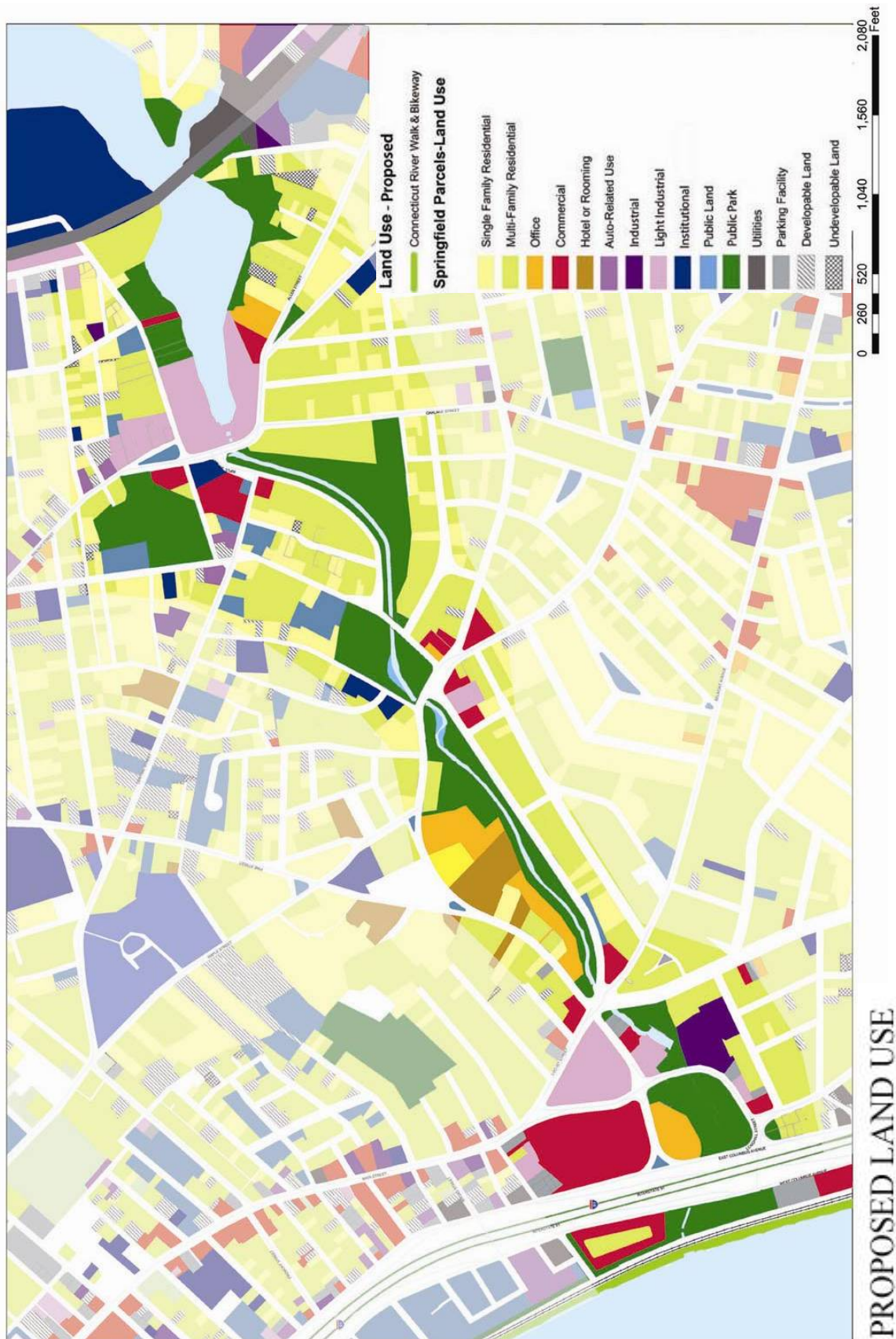
Incompatible uses, which are predominantly auto-oriented but also include industrial uses and some neighborhood commercial uses, are suggested to be removed in several areas. The heavier industrial uses in the Armory Watershops would be replaced with lighter, cleaner industrial uses. Several parcels along Watershops Pond, including the Springfield College auto-oriented use adjacent to the Watershops along Hickory Street and the industrial use which wraps around the southern side of the pond, behind and mixed with residential use, would be replaced with parkland. The former is redeveloped as a sports annex to Harriet Tubman Park, located on the other side of a vacant commercial/restaurant property with redevelopment potential. The latter, which could be developed with pedestrian connections to the Highland Rail Bridge from Hunt Street and Randall Place as well as the Watershops property, is cleared of industrial uses and paved surfaces and replaced with a passive wetland natural area.

The lumber company on Oakland Street at the corner of Allen Street is another incompatible industrial use. The exceptionally large building is substantially out of scale with and generates excessive truck in the residential neighborhood, and makes the publicly owned, forested slope

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between it and the Lower Mill River hidden, unwelcoming and unsafe. New neighborhood commercial, infill housing in the form of town houses, and a sloped park area adjacent to the existing Oakland Street Park is proposed for the lumber company parcel. This would allow for the creation of a gateway into the greenway path system, shared parking for greenway visitors and the commercial retail, and new paths along with wooded slope.

Because commercial auto-oriented uses and other light industrial activities which may be inappropriate for river adjacency need a place within the neighborhood, several alternative locations are suggested for their relocation. Two parcels - the parcel at the northeast corner of Hickory and Walnut Streets, which was recently cleared of residential homes and is a brownfield undergoing environmental assessment, and the triangular parcel bounded by Locust, Mill and Main Streets, which is currently occupied by an aging car dealership, low density commercial and excessive surface parking – could be redeveloped as light industrial service park areas. Both parcels have excellent access to major transit routes and public transportation and could generate good sources of local jobs in light industry. The Main Street parcel has exceptional access to Interstate 91 and Downtown Springfield, and the Hickory Street parcel is adjacent to the Armory Watershops, which is envisioned for redevelopment as a clean/creative industrial and technology center.

Pedestrian Greenway and Park Development

The design establishes a greenway path loop between the Armory Watershops and Springfield College to the east and the Connecticut River confluence and Connecticut River Walk and Bikeway to the west. Throughout the study area, existing parkland is improved where necessary or linked to where current maintenance and design are worth preserving. New major and minor park spaces are added throughout the corridor in order to provide needed facilities and connections such as passive wetland walks, a rail bridge crossing, and active athletic facilities such as basketball courts.

The greenway path system offers users the option to select the experience and setting best suited to their individual needs and preferences. On-street paths are always an option for those who prefer not to venture into more vegetated, off-street areas. These paths utilize existing public rights-of-way and would be constructed to be 100% ADA accessible in grade and surface material, usable by wheeled conveyances including bicycles, wheelchairs, and baby strollers, and provide an entirely equal alternative experience to off-street paths. Off-street paths would be constructed to ADA accessible grade and permeable surface material wherever possible, however grades will occasionally necessitate stairs on some slopes. Visual sightlines, both for visual orientation and perceptions of safety, would be maintained in all seasons through regular vegetation management and monitoring of any illegal dumping or littering.

Recreational Access

Major new parks and enhancements to existing parks will provide an array of new recreational resources along with Lower Mill River. Neighborhood residents currently have some access to active recreation and virtually no access to more passive, nature walk recreation. The proposed park spaces throughout the corridor offer additional active recreation to Harriet Tubman Park

and revitalized facilities at Johnny Appleseed Park, however the primary focus for new spaces is on passive recreation. New passive facilities are created along the south edge of Watershops Pond, adjacent to the existing Oakland Street Park, in the northern half of Johnny Appleseed Park, along the southern edge of the river between Fort Pleasant Avenue and Main Street, in a major new public park bounded by Main Street, Mill Street and East Columbus Avenue, and at the Connecticut River confluence. Existing park facilities will be upgraded on the south side of Johnny Appleseed Park.

In addition to establishing connections between existing and proposed neighborhood resources, the integrated greenway and park developments proposed open multiple gateways and destinations near and far to entice users from both the surrounding neighborhoods and those from Springfield College, the Connecticut River Walk and Bikeway, greater Springfield and beyond. A new signage program and corridor-specific details such as lighting, streetscaping, bridge and railing materials, rotating sculpture, artwork and murals, and plantings would welcome neighborhood residents and visitors by communicating a standard of care, maintenance and safety.

Riparian Health of Mill River Corridor

Remediating the health of the Lower Mill River is essential to its success as a recreation and natural amenity for the neighborhood the city of Springfield, and the health of the Connecticut River Watershed. While water quality issues such as sedimentation, NPS runoff, CSO discharges and illegal dumping need to be studied and addressed at a closer level of scientific detail, this design proposes land use and conceptual design measures to improve water quality and riparian buffer health at a macro level.

These proposals include removing excessive paved surfaces (on the south edge of Watershops Pond, at the proposed Harriet Tubman annex adjacent to the Watershops, at the lumber company parcel, west of the intersection of Mill and Locust Streets, near the intersection of Mill Street and Fort Pleasant Avenue, and at the Connecticut River confluence), widening the river banks in two places (on the north side of Johnny Appleseed Park and by removing the remnant mill chase just west of the intersection of Mill and Locust Streets), and by significantly increasing vegetation and permeable surfaces throughout the corridor.

Cultural & Neighborhood Connections

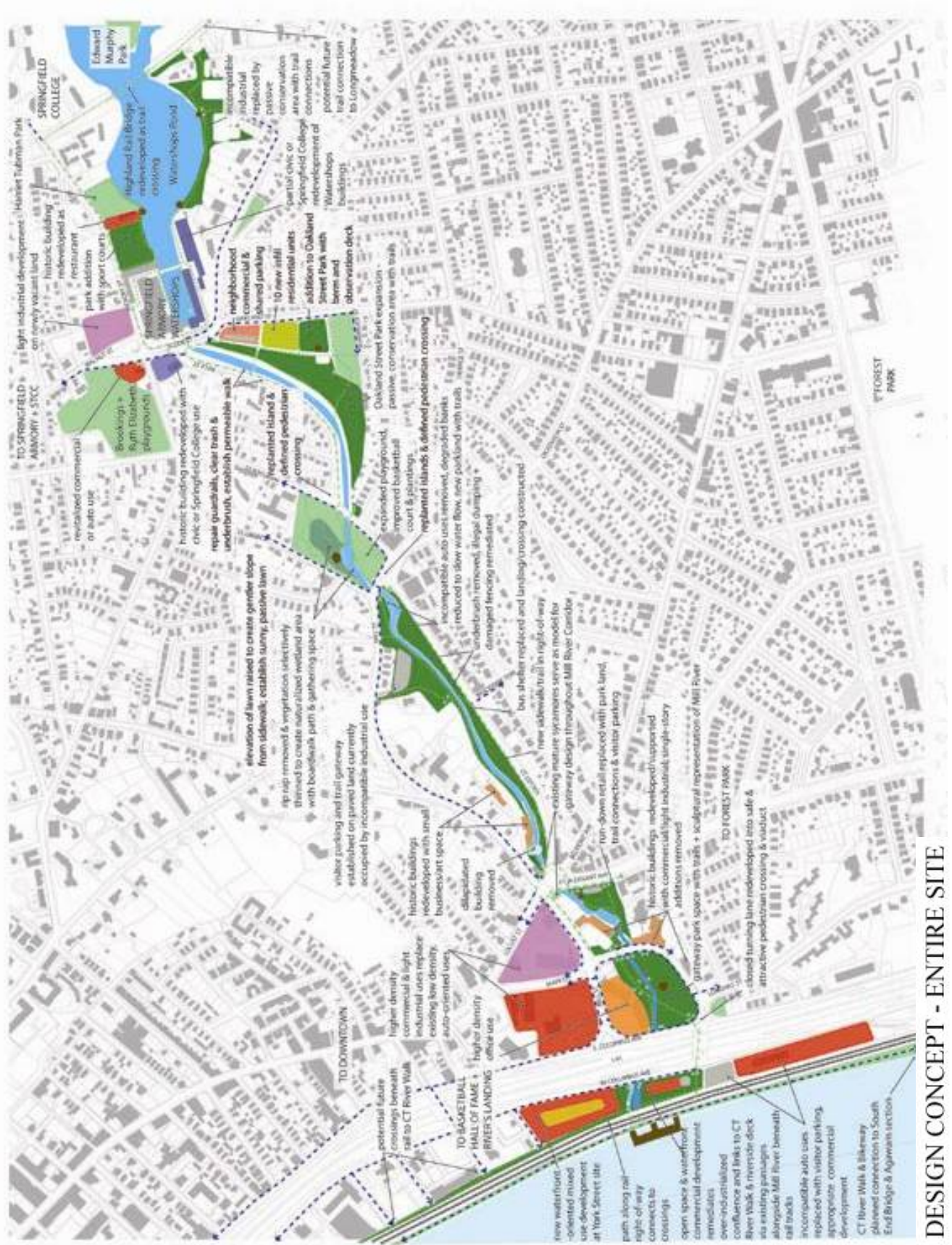
The proposed Mill River Greenway unites the cultural resources of the neighborhood by establishing a strong pedestrian and recreational connections between the Armory Watershops and the Armory, Springfield College, Forest Park, the Downtown Quadrangle, the Mill River corridor, and the Connecticut River Walk and Bikeway. Linking the Armory Watershops to Springfield College will establish it as a historic, cultural, and clean industry neighborhood hub. The Watershops Complex could be revitalized with College and/or municipal uses as well as an attractor for small, cleaner industry incubator businesses such as metalworking and artists workspace. The recently cleared brownfield parcels across Hickory Street north of the Watershops could also be redeveloped for light industry, providing jobs and an economic base in a location with excellent access to public transportation, educational advancement, residential

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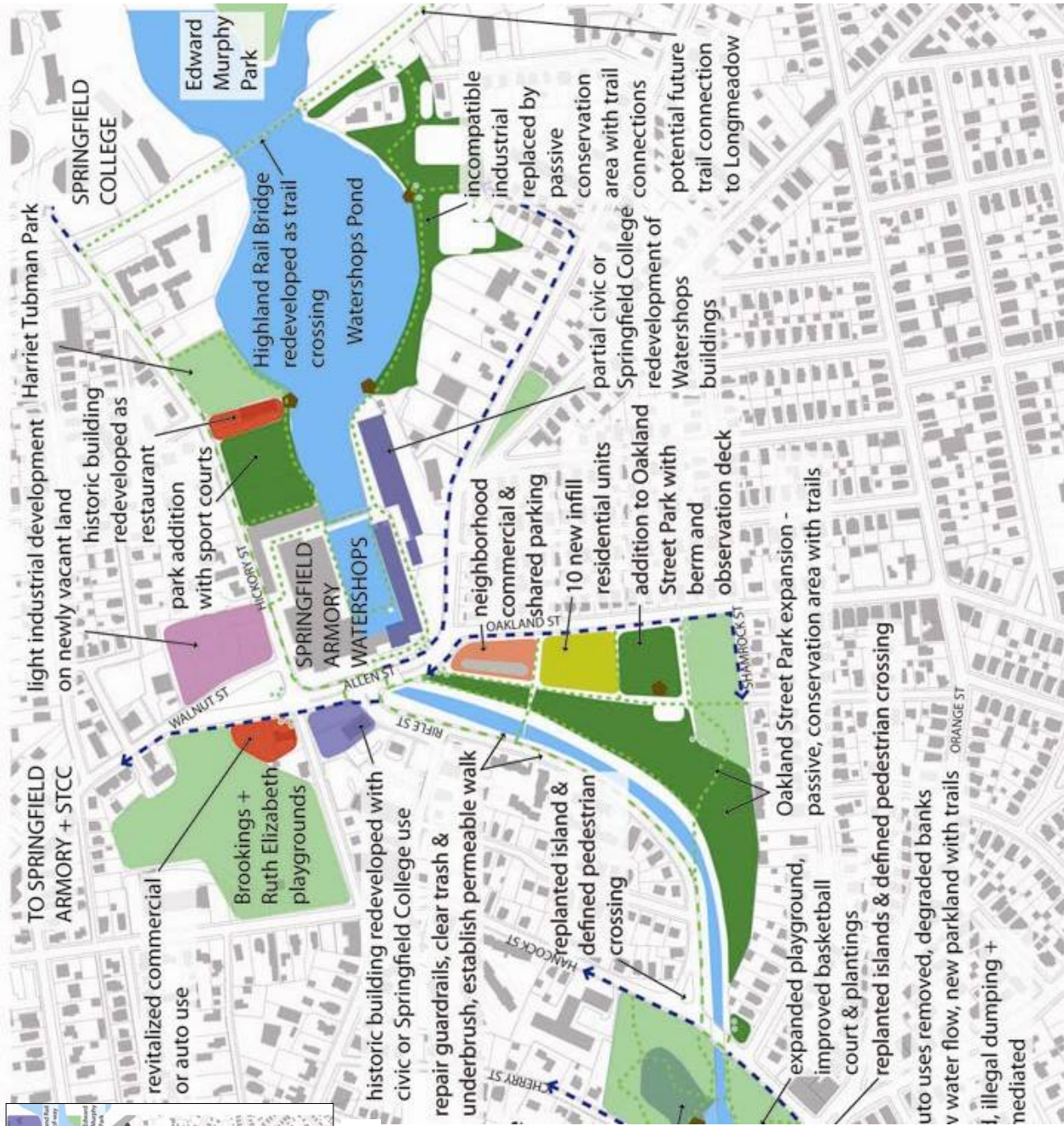
housing and the new recreational amenity of the Mill River Greenway. The proximity of this new hub to the Springfield Armory, located just up the newly refurbished Walnut Street, would also establish an important link between the Armory and the Watershops so that Armory visitors could be encouraged to incorporate the Watershops and potentially the Mill River Greenway into their visits.

In addition to revitalizing the Watershops Complex, the Mill River Greenway will link the neighborhood to the surrounding residential historic districts, the existing and new parks along the Mill River, the Basketball Hall of Fame and other waterfront development, the Connecticut River Walk and Bikeway, Forest Park, and the Downtown Business District and Quadrangle. Transforming the Lower Mill from a disregarded back alley into an ecological recreational resource within walking distance of the Downtown Central Business District will help the surrounding residential neighborhoods turn an eye towards the river and each other.

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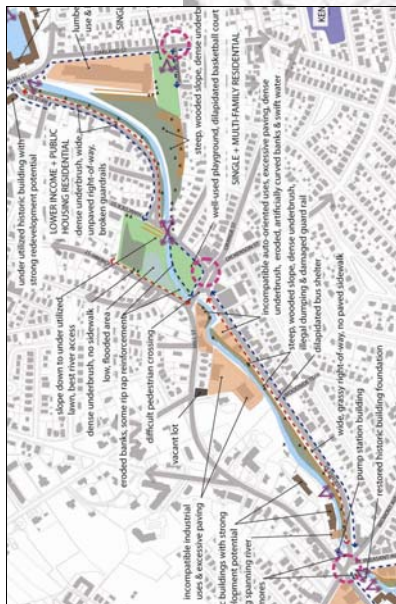
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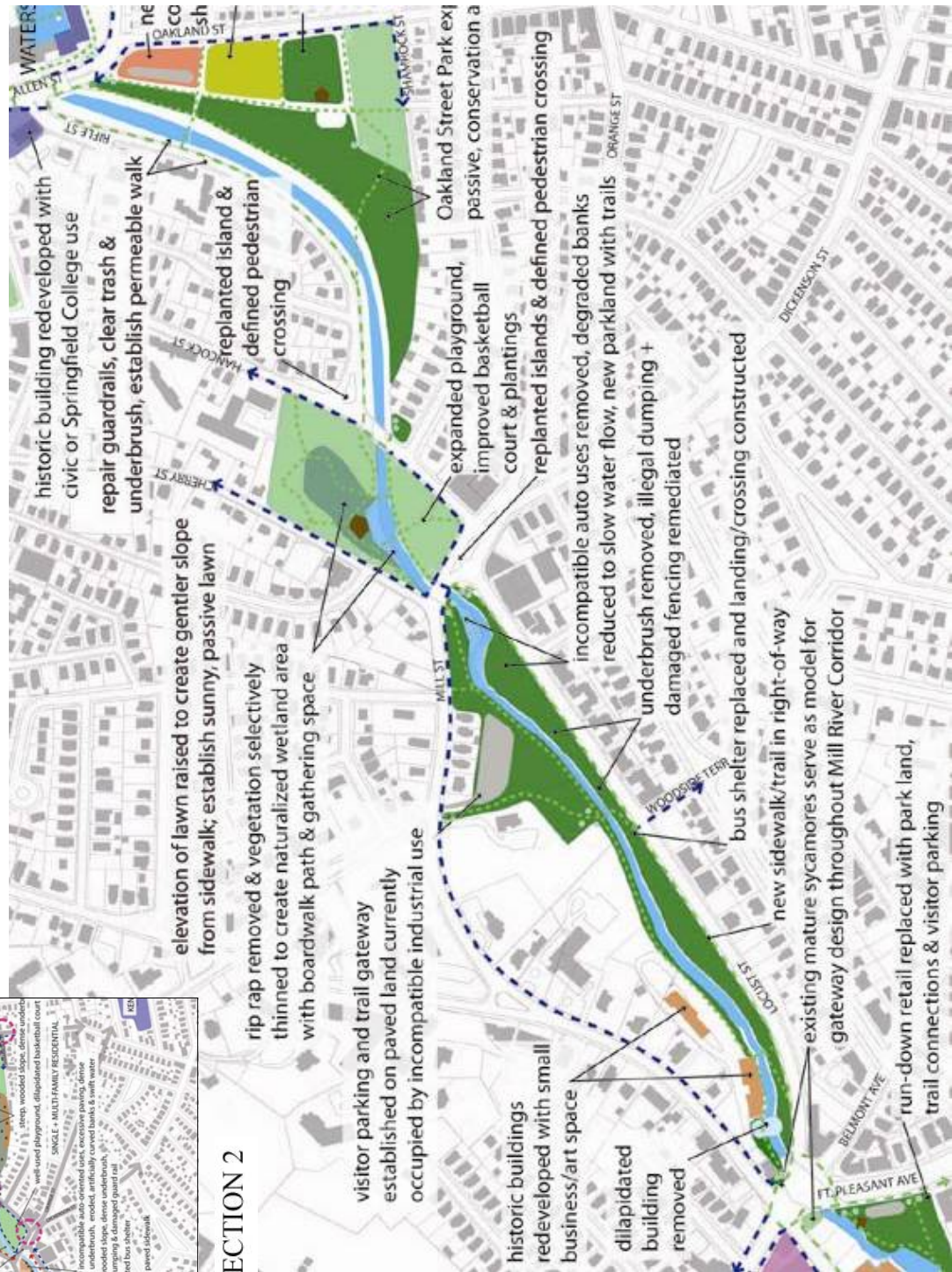
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DESIGN CONCEPT - SECTION 1

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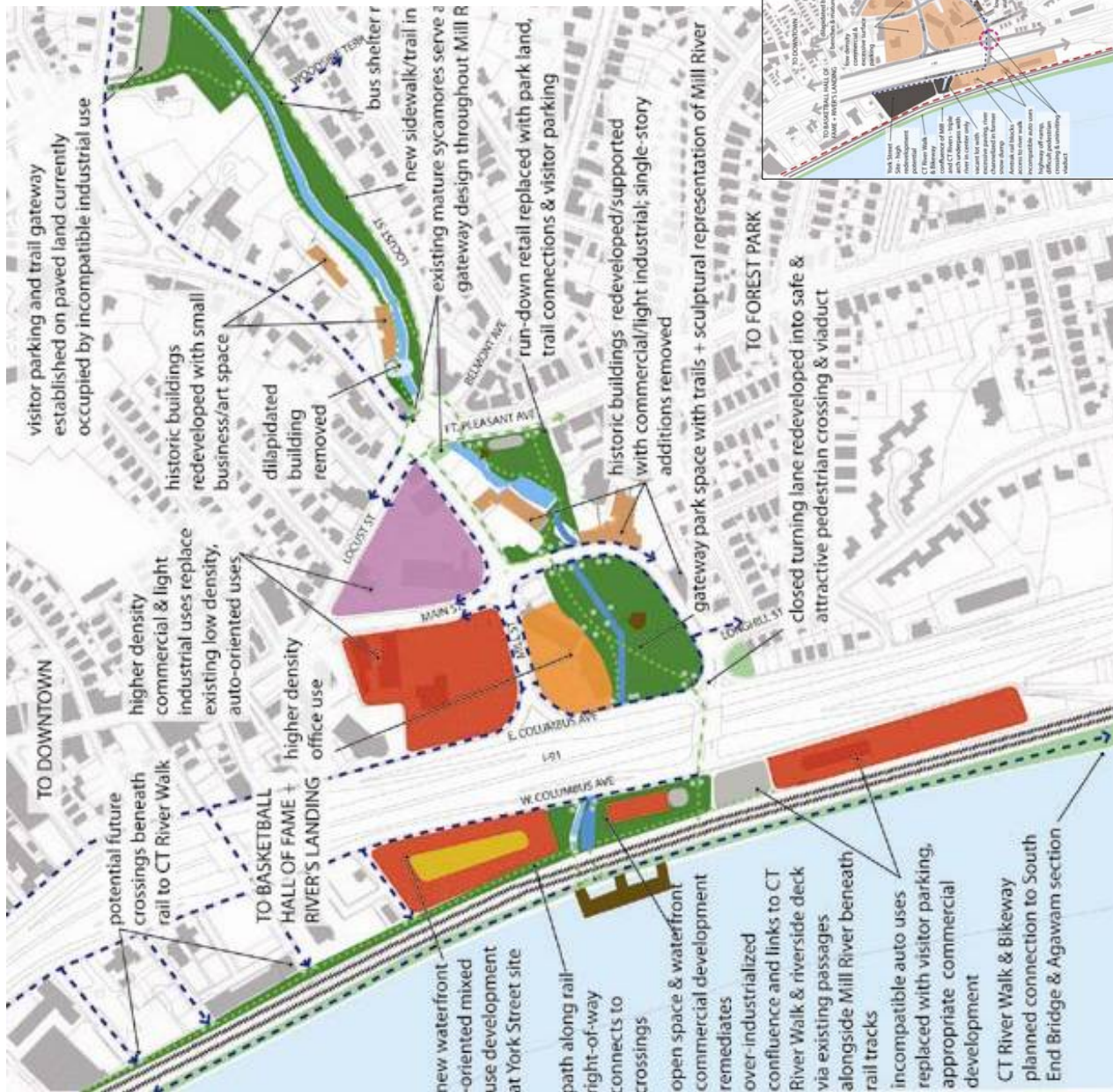


SITE ANALYSIS - SECTION 2



DESIGN CONCEPT - SECTION 2

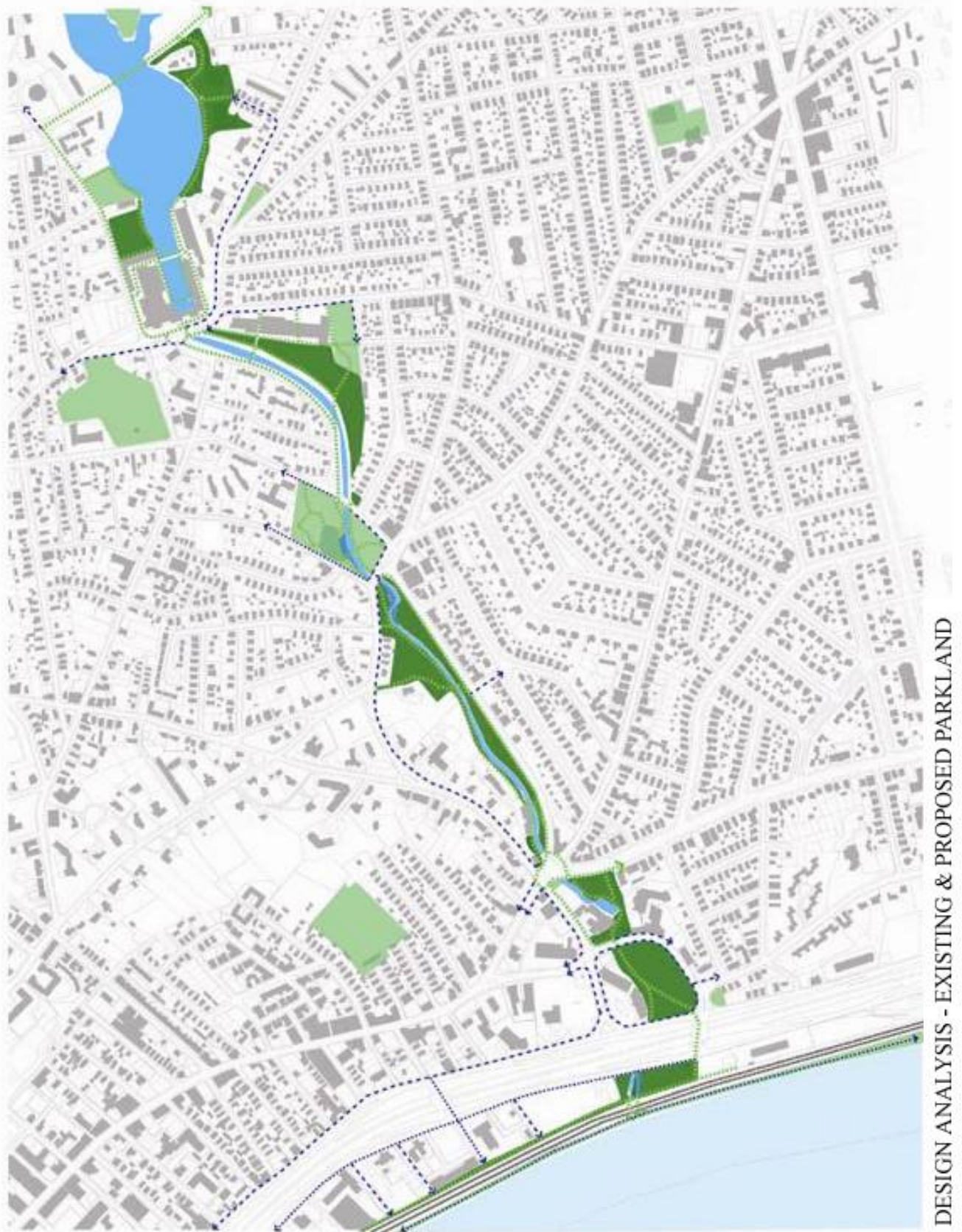
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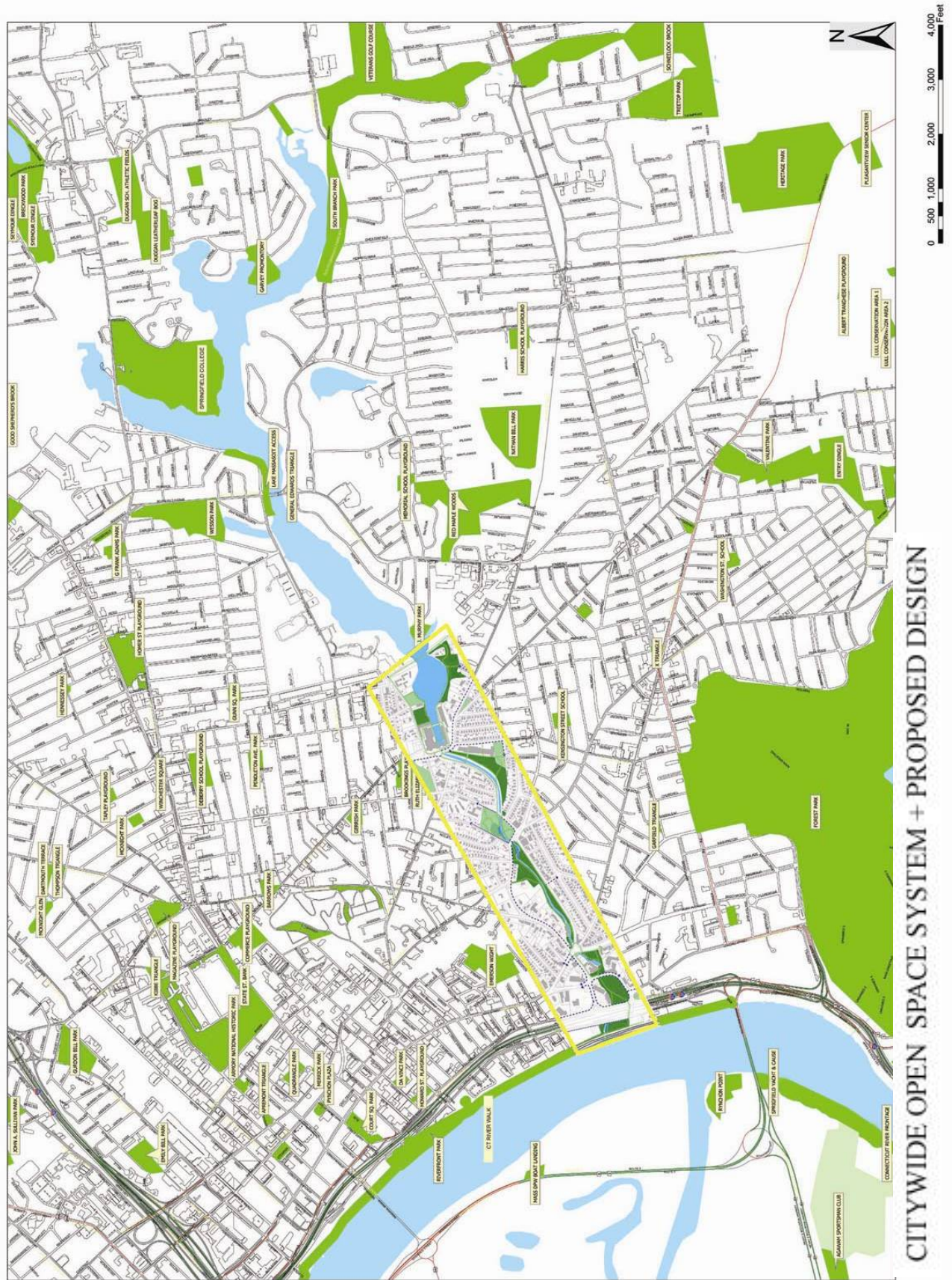
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DESIGN CONCEPT - SECTION 3

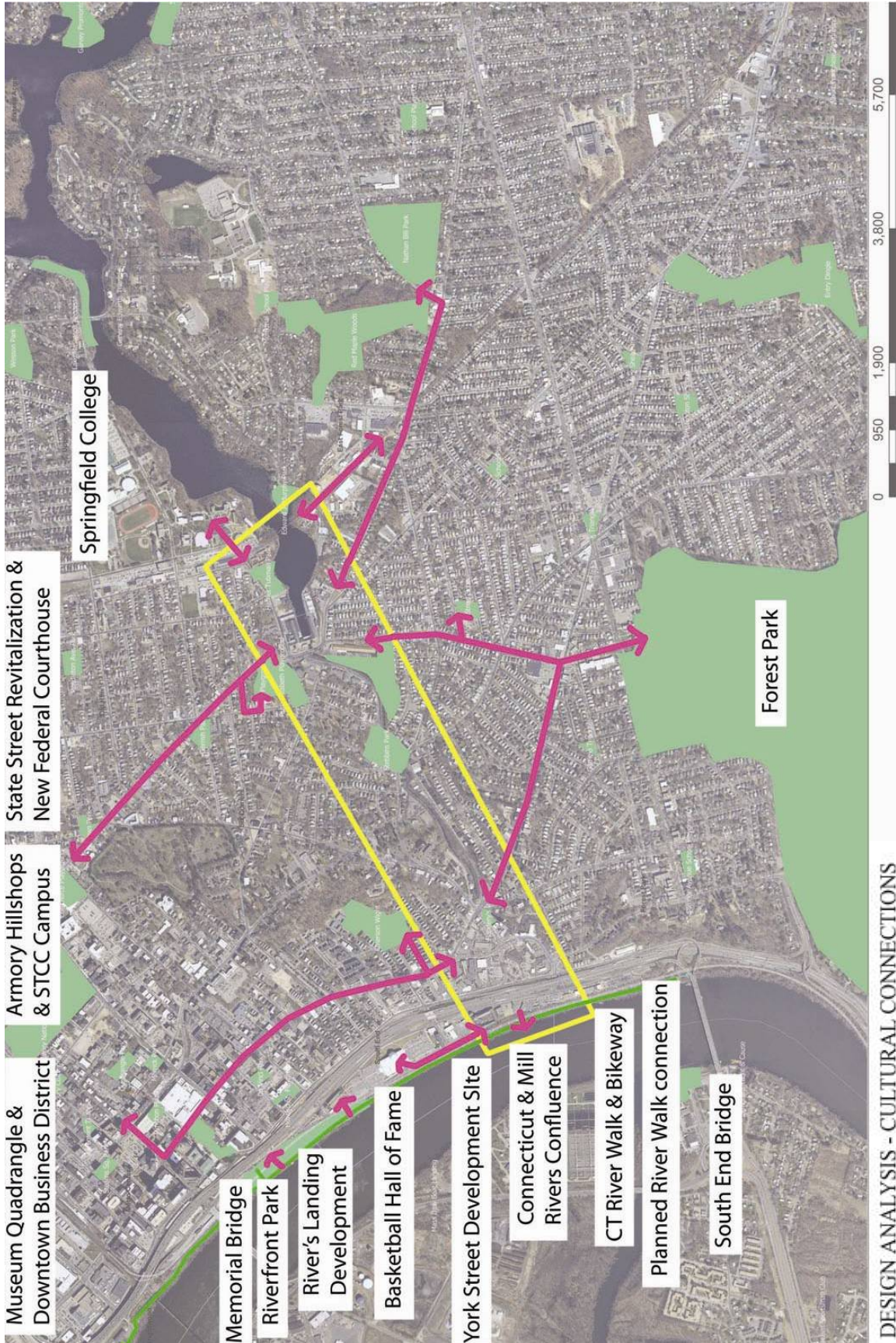
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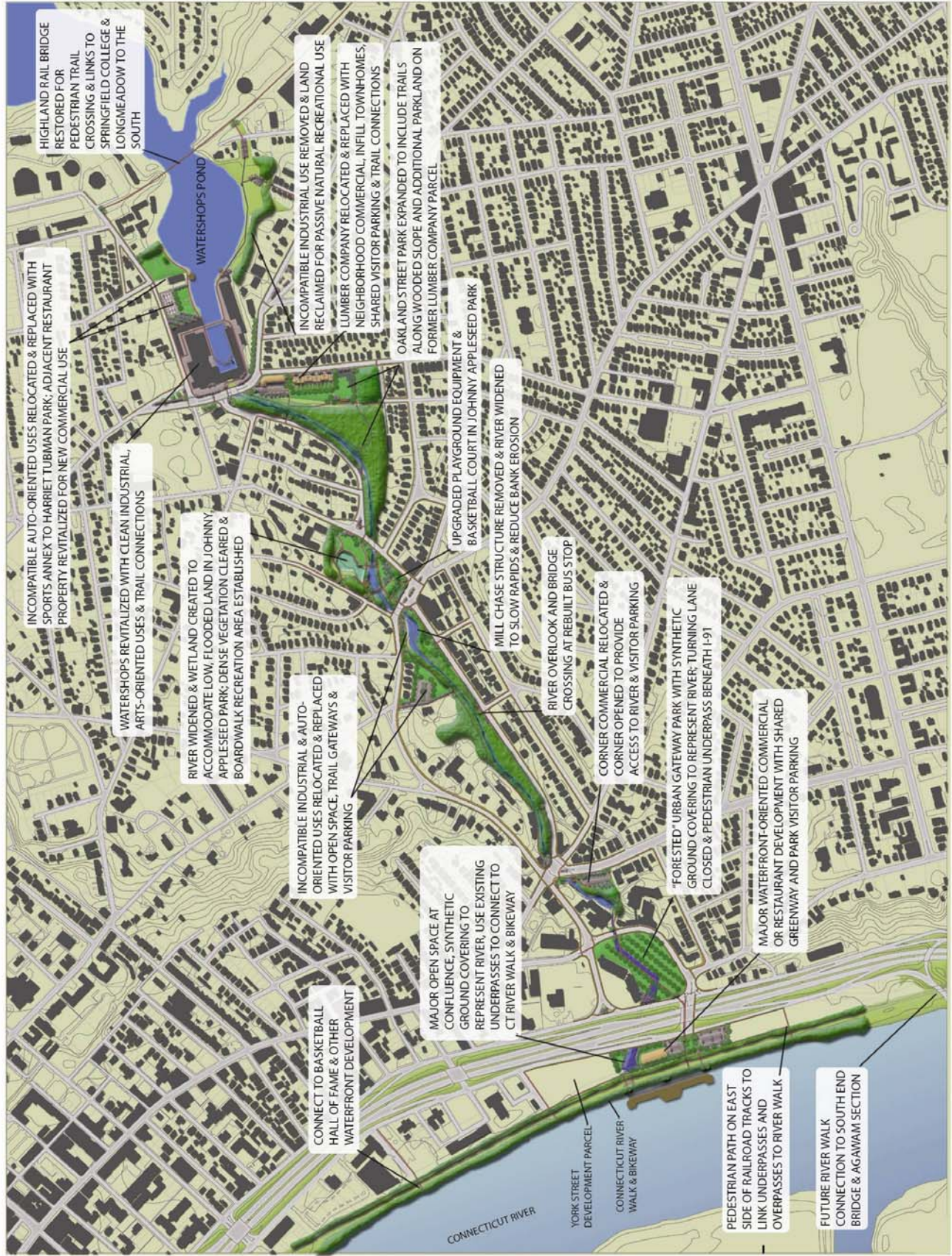
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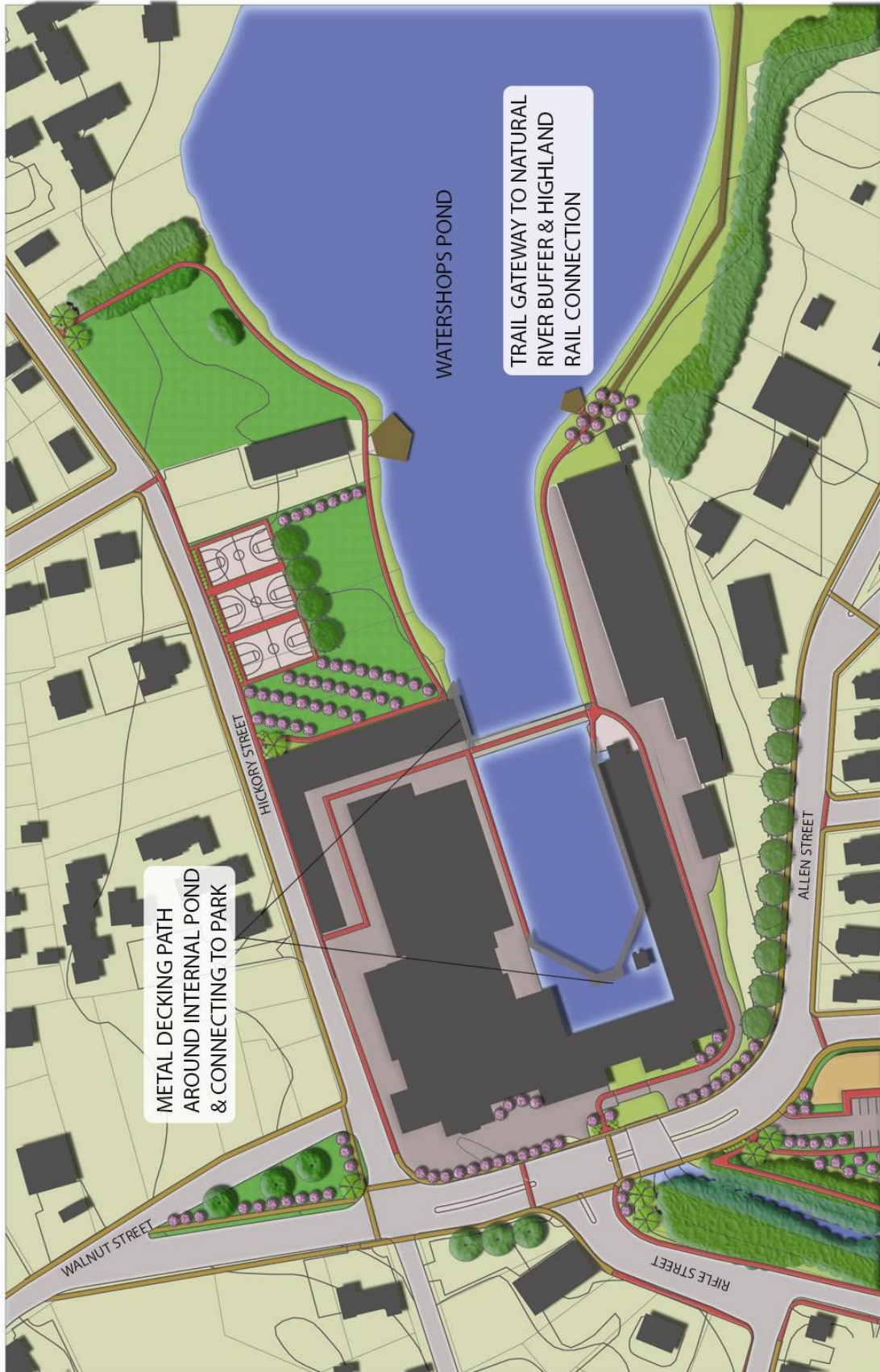


DESIGN MASTER PLAN

Reclaiming the Miracle Mile:
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DESIGN MASTER PLAN - D

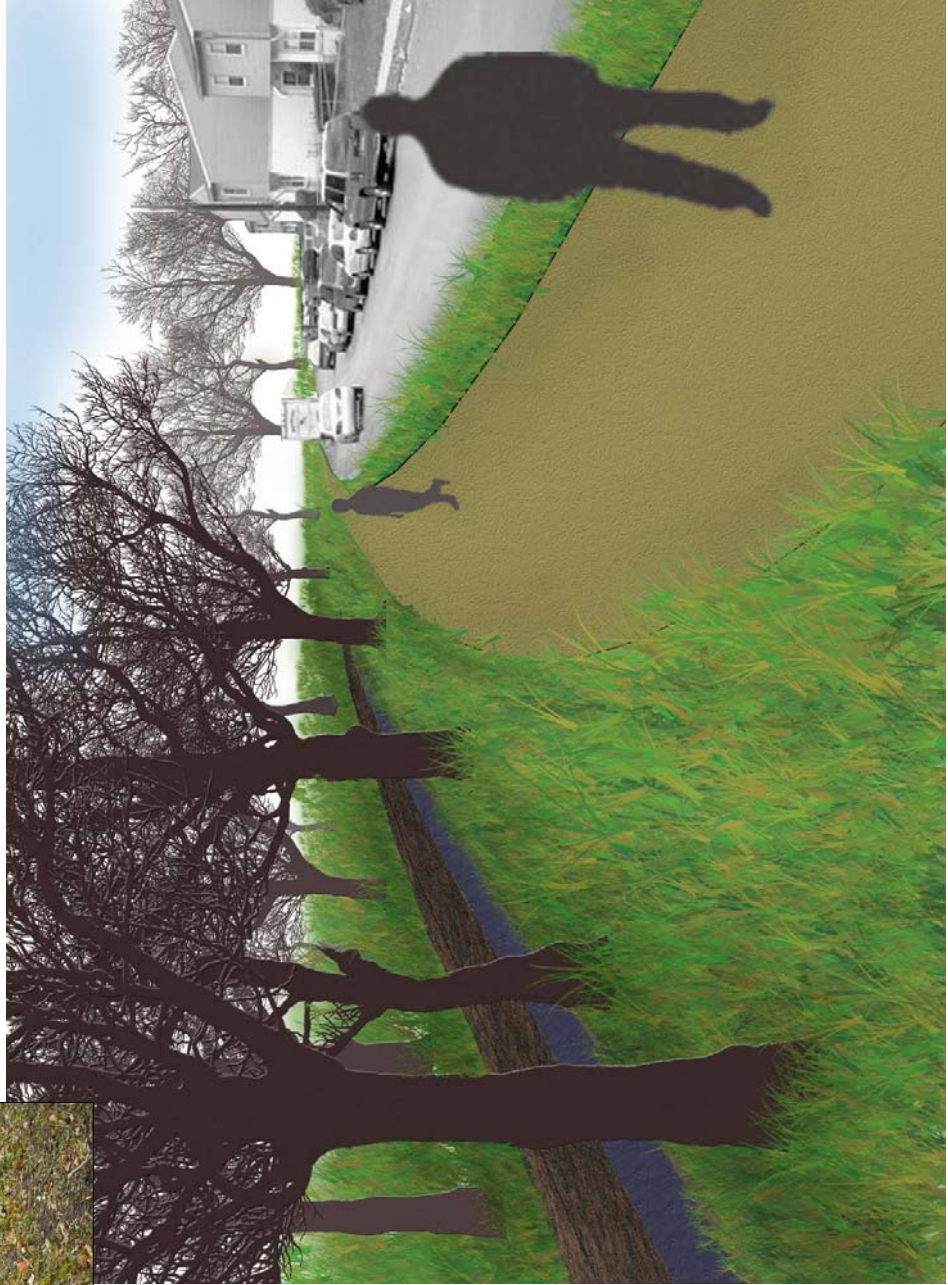
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DESIGN INSPIRATION

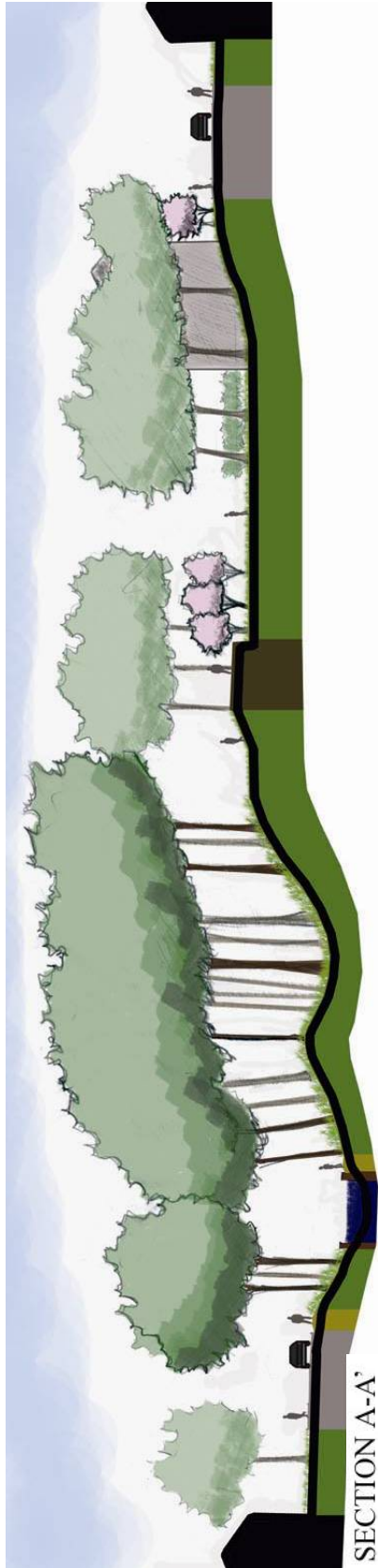


EXISTING



PERSPECTIVE - RIFLE STREET

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DESIGN MASTER PLAN - E

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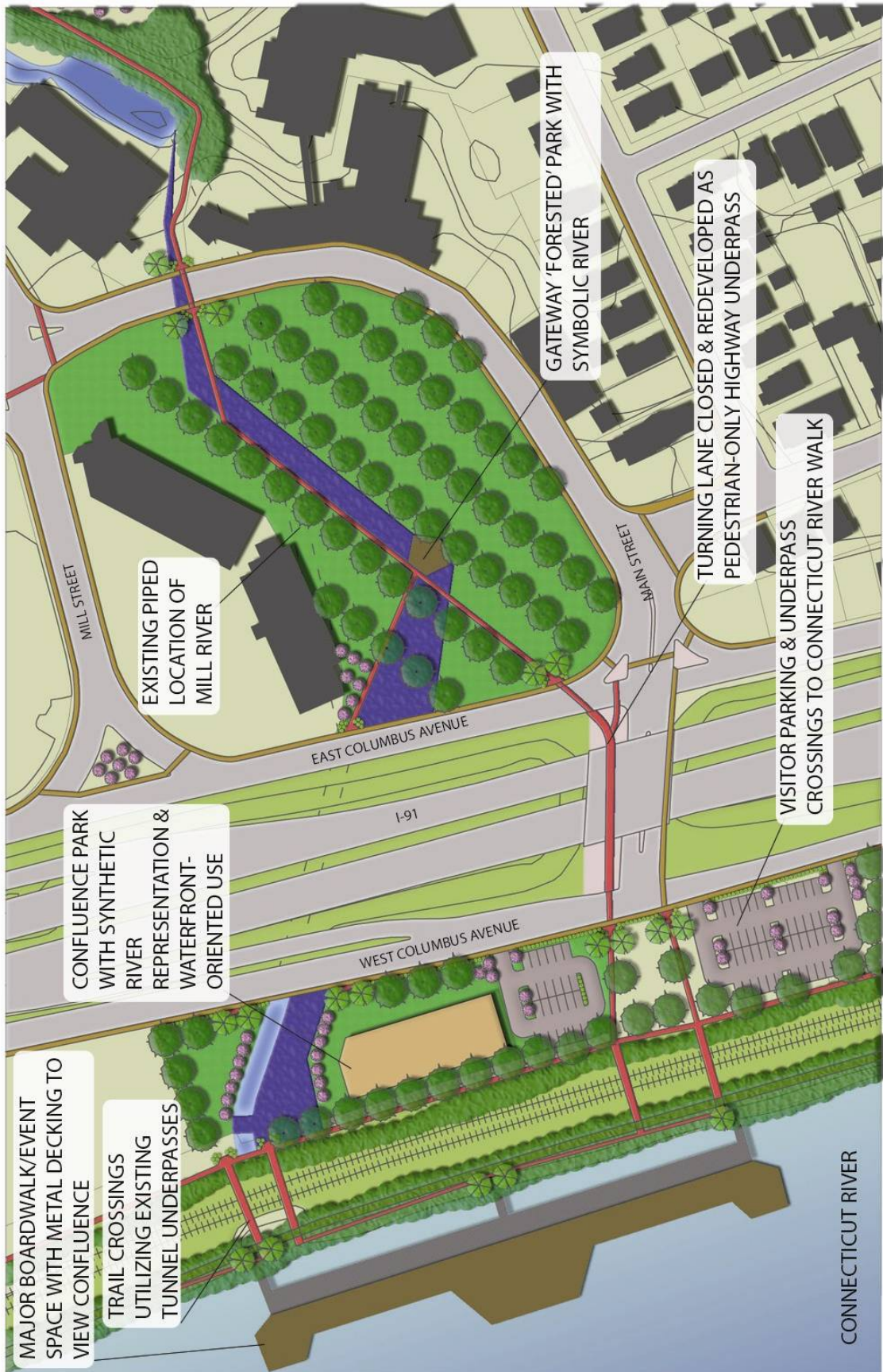
DESIGN MASTER PLAN - F

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DESIGN MASTER PLAN - G

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DESIGN INSPIRATION



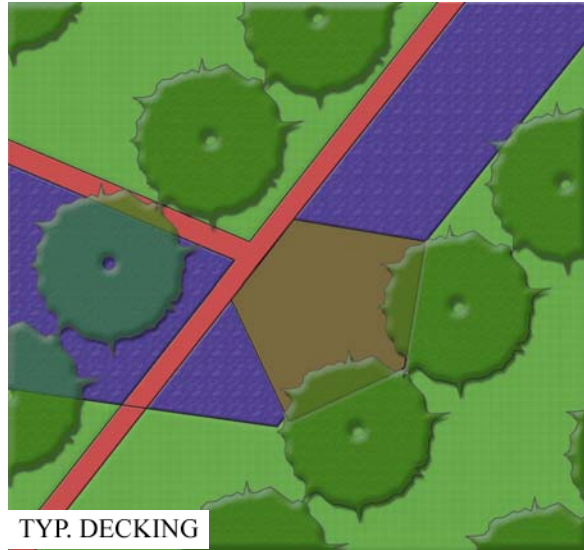
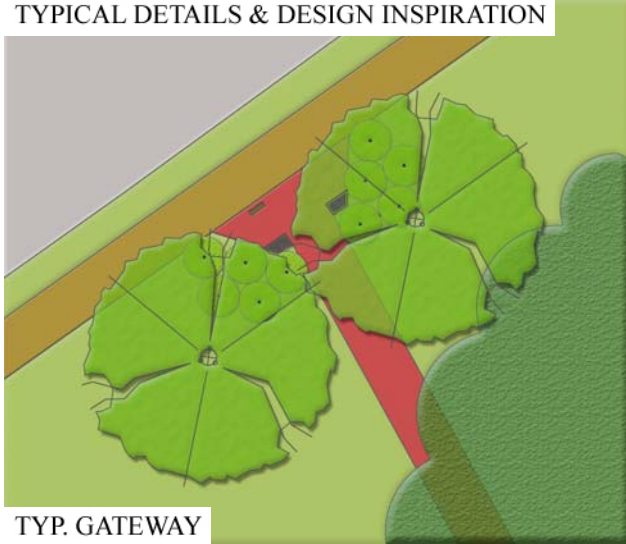
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PERSPECTIVE - I-91 PEDESTRIAN UNDERPASS

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TYPICAL DETAILS & DESIGN INSPIRATION



8. CONCLUSION & PROJECT IMPLEMENTATION

This project proposed the Lower Mill River Greenway, a bold planning and design vision for integrating the Lower Mill River as a key amenity and link within Springfield's open space network and the watersheds of the Mill and Connecticut Rivers. The following goals and objectives were achieved in the execution of the land use strategy and conceptual master plan:

- ❖ **Land Use Strategy and Incompatible Uses** - Establish a land use strategy for the Lower Mill River that can be implemented as redevelopment opportunities become available.

A long term strategy has been established for removing incompatible uses from the riverfront and encouraging compatible uses as relocation opportunities/incentive and private development interests permit. Light industrial and auto-oriented uses, particularly those with large amounts of impervious surface, should be phased out as opportunities arise and replaced with open space, neighborhood commercial and infill housing. While these uses are inappropriate in parcels adjacent to the river, they have a place within the neighborhood and should be relocated to more appropriate parcels which are organized to accommodate these uses with the highest possible efficiency and use of space.

Rezoning will be easier with vacant parcels and more challenging with active businesses. As such, the land use strategy should be referenced and continually updated as a guide for one recommended scenario; variations and compromises with property owners are likely an inevitable and healthy element of the process. In the event that an undesirable use cannot be relocated away from the river as recommended, the city should work with property owners to remediate the site elements most detrimental to the river's riparian health and public access. These include finding mutually agreeable ways to reduce paved and impervious surface and maintaining river-facing facades and private property so that it is free of illegal dumping and sightline obscuring underbrush vegetation.

- ❖ **Pedestrian Greenway and Park Development** - Provide recreational access to the Lower Mill River and a greenway pedestrian link between the Armory Watershops and the Connecticut River Walk and Bikeway by revitalizing existing public parkland and rights-of-way along the Mill River.

This project sets the stage for a new greenway path between the Watershops and the Connecticut River Walk and Bikeway along the banks of the Lower Mill River to open access and views into the river corridor. It has been designed to provide a variety of experiences and choices between paths through wooded areas as well as those along surface roads. User safety is accommodated in the design with mindful access points, lighting, vegetation management, sightlines, and varied route options. Johnny Appleseed Park receives a major overhaul and effective expansion by making the entire park accessible to users while improving the health of the riparian buffer with less constrained banks and a new wetland area. The additions to Harriet Tubman Park, the southern edge of Watershops Pond and the Highland Rail Bridge, and Oakland Street Park will directly serve neighborhood residents with new passive and active recreational amenities.

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The Main Street and confluence parcels are completely revitalized by relocating marginal uses and reestablishing the Mill River's presence, however symbolic, as it approaches the confluence with the Connecticut River. Both parcels are highly visible from Interstate 91 and the proposed park developments anchors the Lower Mill River Greenway Plan with a highlight park that directly links to the regional resource of the Connecticut River Walk and Bikeway and is more accessible to visitors and tourists from outside the neighborhood.

- ❖ **Recreational Access** - Provide active recreational nodes and inviting gateways into the greenway system comprised of existing and newly acquired land.

The pedestrian greenway system establishes a comprehensive and inviting link between the river corridors existing parks, cultural facilities (Springfield College and Armory Watershops), proposed new park spaces, and the Connecticut River Walk and Bikeway. Multiple activity nodes and gathering spaces throughout the corridor will serve as gateways into the system and destinations along the greenway path. By linking these spaces and providing a much-needed connection to the River Walk and Bikeway, the Lower Mill River evolve from disregarded and mistreated back alley to a neighborhood focal point. Basic, initial investments by the city, such as vegetation management and utilizing rights-of-way for street-side paths along the river, will convey to residents and visitors that the Lower Mill River is a destination to enjoy and take care of. Revitalizing the river corridor and turning it into an asset rather than a liability to the neighborhood will help to increase awareness and stewardship while providing a valuable recreational amenity.

Vegetation management and trash pickup can be accomplished in part by engaging neighborhood civic groups and school programs interested in service and environmental education programs. A group of Springfield residents including Sheila Maceklevian actively monitor and engage the City and PVPC regarding the Connecticut River Walk and Bikeway; they report on vegetation maintenance needs and vagrancy problems in addition to collaborating with local business owners and non-profits to organize walking tours and other community events involving the River Walk.⁹⁰ Springfield College hosts an annual 'Humanics in Action Day' in which classes are cancelled and the entire student body spends the day on service projects on and off-campus.⁹¹ Some educational and gardening non-profits are particularly interested in the removal of invasive species and could be tapped for volunteer services and coordination in progressing such an effort along the river corridor, which would aid significantly in clearing sightline-blocking underbrush vegetation.

- ❖ **Riparian Health of the Mill River Corridor** – Improve the environmental and riparian health of the River Corridor through design and land use decisions as well as increased awareness and stewardship of the river.

At the land use and conceptual urban design level, the Lower Mill River Greenway proposes significant measures to improve the health of the Mill River and the watershed of the Connecticut River. These measures include reducing impervious surface and incompatible land uses adjacent to the river, widening the river where natural processes are pushing in that

⁹⁰ Maceklevian, Sheila. Phone interview, October 23, 2009

⁹¹ <http://www.spfldcol.edu/homepage/dept.nsf/>

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direction in Johnny Appleseed Park and just west across Mill Street, adding new open space and vegetation/wildlife habitat while also removing invasive species, establishing a wetland area in Johnny Appleseed Park to improve water and habitat quality, and helping to raise community awareness and encouraging stewardship of the river by the residents of adjacent neighborhoods.

While this proposal aims to improve the environmental quality of the riparian buffer and the water quality in the Lower Mill River, it is important to understand that achieving such improvements will require a multi-pronged approach to address the excising problems. Substantive study of current aquatic conditions and action on environmental threats such as CSOs and illegal dumping must be undertaken. This proposal entails recommendations aimed at improving the river's health through land use and design solutions, however scientific study will be needed in concert with the revitalization plan in order to address remediating water pollution and restoring the ecological health of the river.

❖ **Cultural & Neighborhood Connections** - Restore the connection of downtown Springfield to the Lower Mill and Connecticut Rivers

The Lower Mill River Greenway is intended to foster the revitalization of the Armory Watershops as a historic, cultural and modern industrial complex, create a link between neighborhood resources and residents, and strengthen the connection between the neighborhoods of the Lower Mill River with the thriving residential Historic Districts of Maple Hill to the north and Forest Park to the south. By transforming the Lower Mill River into a destination and viable loop system with substantial gateway destinations, the proposal establishes a strong pedestrian and recreational connections between the Armory Watershops and the Armory, Springfield College, Forest Park, the Downtown Quadrangle, the Mill River corridor, the Connecticut River Walk and Bikeway, Basketball Hall of Fame and other present and future waterfront development.

An active arts-management program is a site-level cultural piece that is recommended as a means of enlivening public spaces, conveying community investment, and involving community members and organizations. Lighting design, painted or mosaic murals, customized streetscape elements and signage, and rotating works of sculpture are among the ideas embraced by many communities as a way of involving local residents as well as showcasing local talent and cultural diversity. Local non-profit arts groups for children and adults can be effective partners for procuring and installing pieces cheaply and supplying manpower for related service projects such as trash pick-ups. University arts programs could also be contacted for student presentations and projects. Eventually the city could also consider larger fundraising efforts to sponsor professional installations of temporary and permanent artwork and sculptures throughout the corridor.

Project Implementation

Because the proposed land use strategy and greenway design involves planning and design proposals ranging from short to long term, the following potential phasing scheme would be one way for the city to approach implementation:

Shorter Term

- Engage residents and non-profit groups in conceptual planning efforts, using the proposed Lower Mill River Greenway as a starting point
- Improve existing sidewalks along river corridor
- Public right-of-way cleanup - trash removal, fence and barrier repairs/improvements
- Vegetation management/clearance
- Construct street side pedestrian path alongside the Mill River from the Watershops to Main Street, thereby establishing a clear link from the Watershops and Springfield College to Main Street
- Begin installing off-street paths
- Install new signage and lighting around the corridor
- Johnny Appleseed Park design, infrastructure, path/crossing improvements

Longer Term

- Pursue redevelopment and revitalization of Watershops
 - Springfield College as a potential tenant
 - Joint Springfield Armory-NPS run satellite museum/City-run visitor information center in Central Watershops building
 - Other environmentally appropriate industry and businesses
- Pursue relocation of incompatible land uses as detailed in the proposed land use plan; focus efforts on long-term plan for (a) removing lumber company from Oakland Street location and redeveloping the parcel for neighborhood commercial, shared visitor parking, infill housing, Oakland Street Park addition and off-street paths in this area and (b) Fort Pleasant/Mill Street intersection and Main Street parcel businesses.
- Begin park enhancements and path construction for Highland Rail Bridge, Harriet Tubman Park and southern edge of Watershops Pond, Fort Pleasant/Mill Street intersection and Main Street parcels
- Begin redevelopment of City-owned confluence parcel into a public space
- Construct physical pedestrian link beneath 1-91 to confluence parcel and down to Connecticut River Walk
- Pursue acquiring car dealership parcel south of confluence parcel for redevelopment as visitor parking and waterfront-oriented commercial development
- Integrate confluence parcel development future development at York Street parcel, focusing on establishing a pedestrian path on eastern side of railroad tracks, creating a link between underpass connections beneath existing and future passages to the Connecticut River Walk and Bikeway beneath and above the railroad tracks.

Summary

In sum, the Lower Mill River Land Use Strategy and Greenway Plan presents a comprehensive conceptual framework for accomplishing the goals of managing land use and incompatible uses, establishing a pedestrian greenway and park development, improving recreational access, improving the riparian health of the Mill River corridor, and re-establishing important cultural and neighborhood connections.

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