LEGACY GREENWAY

Lawrence Greenway Proposal
Lawrence, Ma.
University of Massachusetts
Department of Landscape Architecture & Regional Planning
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Project Team
Joe Agrillo
Tom Holt
Charles Richard
David Ross
Julia Sim
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About Lawrence
Introduction

The Legacy Greenway Plan is the product of a six week studio project focused on regional planning, particularly in regards to developing a greenway system connecting various assets within Lawrence and throughout the city’s greater regional context. The project was completed by Tom Holt, Julia Sim, Joe Agrillo, Chuck Richard, and David Ross as a part of the University of Massachusetts Landscape Architecture and Regional Planning Senior Capstone Studio on the behalf of Groundwork Lawrence, who has studied and implemented greenways and green infrastructure throughout the city. Groundwork Lawrence provided our class with documents of existing studies and implemented projects within the city.

Lawrence is a city with a rich multifaceted history including impressive architecture from various time periods and one of the most important events in world labor history. Lawrence is diverse, with a strong Hispanic/Latino cultural component. The city has a large population and many community organizations that seek to improve the city. The city also has great natural assets such as the Merimack, Shawsheen, and Spicket rivers, although there is very little ecologically sound habitat.

Our greenway plan seeks to improve the city of Lawrence’s ecological, social, and physical attributes while providing connections between the area’s assets to make them more accessible to the general population via non-motorized transportation such as walking, jogging, or biking. It is a timeless plan that seeks to continually improve Lawrence far into the unforeseeable future.

We would like to thank Brad Boucher from Groundwork Lawrence for providing many helpful documents and materials, and showing us around the city. We would also like to thank Professors Robert Ryan and Ethan Carr for their teachings and guidance that helped us throughout our six week studio. It is our hope that our greenway plan can inspire and drive actual action to be taken to help the City of Lawrence reach its fullest Potential.
**History**

Lawrence is a small post-industrial city. It was begun by a man named Daniel Saunders in the 1830’s. He purchased property along the Merrimack River to gain control of water power rights. The property stretched from Dracut to present day Lawrence (Lawrence History Center).

In 1845 the Essex Company took the land purchased by Daniel and began establishing it for textile manufacturing purposes. During this year the dam and canal were commissioned to be built. The idea behind the dam was to provide power for the textile mills that were to be built on either side of the river. It would be completed in 1848, and was at the time the largest dam in the world, and the reason for Lawrence’s successful industrial history. It was also a large part of the American Industrial Revolution.

It wasn’t until 1847 that the town of Lawrence was incorporated. Much of the land already purchased, the town took land from Methuen and Andover (Lawrence History Center). From this point in time Lawrence was planned by the Essex Company.

The design of the infrastructure and street systems was to accommodate the new purpose and create an ease of use. This would include larger street to accommodate horse and buggy and a grid system for town blocks. The town Common would be surrounded by stately homes, city hall, and Protestant churches (Lawrence History Center). This created the beautiful downtown we know today.
The town plan was not the only planned system within Lawrence. Charles Storrow, the chief engineer and the City’s first Mayor, planned every piece of Lawrence, from schools, banks, cultural activities. The detail with which he planned Lawrence was greater than any other mill town within New England (Lawrence History Center).

During the 1850’s Lawrence grew exponentially. This increase was mainly due to the immigrant population that was working within the mills. 42% of the population was immigrant workers (Lawrence History Center).

By the turn of the 20th century the manufacturing industry was in decline. The city had thrived because of the industrial period, and now that its major business was declining the city was as well.

The population being mostly immigrants caused much strife within Lawrence at the beginning of the 20th century. There was the Great Strike in 1912 which caused Congressional Hearings to call attention to workers conditions (Lawrence History Center). This was followed by numerous conflicts which caused population decreases, more strikes, and an all-around decline in the way of life.

Present day Lawrence is beginning to turn around. A large number of the population is trying to create urban renewal, and increasing economic development throughout the city. It has seen a large Latino influence within the 20th century (Lawrence History Center). The current residences have been focusing on the historic past, converting mill buildings and bringing a new group of residents to Lawrence.
Regional Context

Lawrence Massachusetts is a city located in the Merrimack Valley region of Massachusetts; a collection of 17 communities along the Merrimack River in Essex County, from where the Merrimack enters the state in Tyngsboro, to where its water meets the Atlantic Ocean in Salisbury. Lawrence is located about 30 minutes North of Boston, 30 minutes South of Manchester New Hampshire, and about an hour North-East of Worcester. This can be seen in Fig 1.1, which displays roads in red to show the relative distances and densities with regard to the region’s urban development. Similar to Lawrence, there are other post-industrial mill towns who harnessed the power of the Merrimack and its tributaries, such as Lowell, Haverhill, and Amesbury (Fig 1.2).
Land Use

The map to the right shows the land use of Lawrence (outlined in black) and its neighboring towns. By far the most prominent land use in Lawrence is residential. So much of the city’s seven square miles is devoted to residential use to house the city’s population of 76,916 people.

Lawrence was the country’s first planned industrial city, and being such it has quite a bit of land devoted to industrial use, mostly in the form of large mill buildings. Seen in purple, industrial land use is concentrated around bodies of water like the Merrimack River which can be seen running through the center of city of Lawrence.

Commercial land use is shown on the map in red. Although there are some larger commercial shopping centers, commercial businesses are typically smaller scale, located on main roads, and serve the surrounding residential neighborhoods.

In pink on the land use map is transportation related land use is displayed. Major roads corridors can be seen, as well as the Lawrence Municipal Airport, which is the largest concentration of pink located just East of Lawrence.
**Transportation**

Lawrence is literally encircled by highways. I-495 runs North-South along Lawrence’s eastern border before taking a more South-West course parallel to Lawrence’s southern border where it intersects I-93. I-93 also runs North-South, but to the west of Lawrence. I-495 is a half beltway that provides commuters with access to the Greater Boston area, but runs outside of the city of Boston itself. Commuters must use I-93 for access into Boston. To the North of Lawrence, MA-213 connects I-495 to I-93.

MA-28, MA-113, MA-114, and MA-110 are major road corridors within the city of Lawrence that provide more local access around the city and surrounding communities.

The Haverhill-Boston line of the MBTA Commuter Rail travels through the Southern portion of Lawrence providing citizens from the region public transit from Haverhill through and eventually into Boston, stopping in many communities along the way.
Economic Development

Industrial Manufacturing continues to employ a lot citizens from Lawrence and the surrounding area. Manufacturing in Lawrence today still exists in the old factory buildings. Some companies still manufacturing in Lawrence include Polar-Tec and New Balance. Smaller scale commercial businesses scattered along the city’s major routes also employ a large amount of the local population. Citizens of Lawrence also find employment outside the city at various businesses and larger corporations such as Raytheon, Verizon, and Aetna. Lawrence Municipal Airport has a large economic impact on the area because it provides business travel and shipping for over 80 local and corporate firms such as those previously mentioned.

Demographics

Population: 76,976
Population Density: 10,009 people per Sq. Mi.
Persons of Hispanic or Latino origin: 73.8%
Persons under 18: 29%
High school graduates age 25+: 64.7%
Bachelor’s degree or higher age 25+: 11.7%
Median household income: $31,478 (Massachusetts: 65,981)
Average commute to work: 23.2 minutes
Housing Units: 27,137
Businesses: 4,329

Lawrence has an incredibly large and densely situated population for its area of only seven square miles. Being primarily Hispanic or Latino, much of the city’s cultural vibrance comes from the traditions and celebrations of these cultures. Furthermore, Lawrence is an incredibly young city. This abundance of youthful energy adds to the cities vibrance as well. Taking advantage of the youth to raise educational achievement levels has potential to greatly improve the cities economic environment. Improving the economic environment would enable the city to also improve its physical environment,
Lawrence, outlined in black, fits into a larger regional greenway network of walking trails (purple), and bicycle trails (red). Proposed trails into New Hampshire are shown in dashed purple. Walking trails provide access along the entire length of the Merrimack River’s course via the envisioned Merrimack River Trail, and throughout the Commonwealth of Massachusetts Via the Bay State Trail. Various bicycle trails make travel possible all the way into Boston.
In this map, the city of Lawrence (outlined in black) has our greenway master plan superimposed on it. This makes it possible to observe how our greenway plan for the city connects to the regional walking trails (purple), biking trails (red), proposed trails out of state (dashed purple). The map also shows the public open space surrounding Lawrence that are made accessible to the citizens of Lawrence upon implementation of our greenway.
Open Space & Recreation

Open Space and areas for recreation in cities are important to the health and strength of the community and its residents. Cities’ built environment encompassing streets, sidewalks, buildings, and infrastructure and the less structured open space affect the daily lives of residents by providing healthy means of getting to work and safe places to exercise. A community as a whole is healthy because of safe access to parks and open space across their City.

Open space in the city of Lawrence is chiefly comprised of recreational fields, playgrounds, historic parks and monuments. Although not dominant features in Lawrence, boating areas, a skate park, community gardens, and nature trails also exist within the city. Much of the open space in northern Lawrence consists of small parks, only of which a few are in a reputable condition. The only other dominant open space is most notably the Bellevue Cemetery located in the northwest corner of Lawrence.

Much of the recreational open space in Lawrence is located along the Spicket River in Northern Lawrence. Groundwork Lawrence has been working to improve certain parks that provide the people of Lawrence with spaces to enjoy as well as creating green spaces that serves as tools for aiding flood damage in Northern Lawrence.

The City of Lawrence has relatively few wetlands, due to the intensive development of riverfront lands and other areas over the past 150 years. Most of the wetlands that remain are concentrated along the undeveloped portions of the Shawsheen River and Merrimack River. This makes the case all the more important to preserve these existing. North Lawrence has virtually no wetlands, save for a narrow band along the north bank of the Merrimack between the Spicket River and I-495. In South Lawrence, there are a few wetlands along the Shawsheen River as well as several small, isolated wetlands in the southwestern part of the city, including Jacques Pond and behind Donovan Park.
The following is an in depth look at recognizable parts to Lawrence's open space plan. These are predominant public open spaces that provide residents with areas for recreation and rest as well as functioning as sources of stormwater management.

**Spicket River Greenway:**
The Spicket River Greenway can be categorized as the future of open space in the City of Lawrence. It is envisioned as a three-mile long “emerald bracelet” of green spaces and walking paths connecting parks and open space through multiple neighborhoods of Lawrence. It is a project that attempts to join integral parts of Lawrence’s open space as well as provide riverfront restoration and neighborhood revitalization. The Greenway will link parks in north Lawrence including Manchester Street Park, William Kennedy Community Park, Hayden Schofield Playstead, Immigrant Park, Dr. Nina Scarito Park, Misserville Park, and the proposed Oxford Paper Site and Ferrous Site Parks. The Greenway starts in the Lower Tower Hill Neighborhood at the Methuen line through the Arlington Neighborhood, the North Common Neighborhood and ending in the Downtown Canal District. (Groundwork Lawrence)
The Greenway also connects Lawrence schools: Central Catholic High School, the Leahy School, and the Leonard School. Portions of the Greenway exist formally in the parks, but also informally in the streets and sidewalks along the river. The four anchor sites along the Greenway that have recently been rehabilitated or built are Dr. Nina Scarito Park, Misserville Skate Park, William Kennedy Community Park, and Manchester Street Park.

**Manchester Street Park:**
Manchester Street Park can be considered one of Lawrence’s hidden gems. Recently constructed in 2009, this open space is a linear 5-acre parcel of land situated in the northwest corner of the city and bordering Stevens Pond at the head of Lawrence’s stretch of the Spicket River. Like many industrial sites in Lawrence, the area suffered from a history of contamination that has long posed challenges to its redevelopment. At the same time, the site offers great new green space and serves as a spectacular anchor for the Spicket River Greenway. Construction was completed in 2009, and since then, the park has served many residents in Lawrence as a thriving green space. (Groundwork Lawrence Online)
Misserville Park:
Originally a highly impervious 1.6 acre open space, Misserville Park recently had a facelift with the intention of constructing an urban skate park along the Spicket River that would serve as a school yard for the Leonard School. This space was formally a hot-topped park with almost no green space but has been transformed into a dynamic new recreation area with basketball courts, a mini-turf field, walking path, lawns, trees and plantings, and a picnic area next to the river. (Groundwork Lawrence Online) In addition, a new courtyard garden has been constructed on the south-facing side of the school with raised garden beds that provide an opportunity for outdoor classroom activities and schoolyard gardening.

William Kennedy Community Park:
Located in the Arlington neighborhood it is a new 1-acre green space along the Spicket River adjacent to Central Catholic High School. The park, which sits in the flood plain, will provide much-needed open space for local residents while helping to absorb storm water and minimizing the impact of chronic flooding on the surrounding neighborhood. The park contains a newly constructed playground and a large open green space with a baseball field. (Groundwork Lawrence) The park is being enhanced by planned improvements to Central Catholic’s parking lot and adjacent city-owned property, which will further contribute to improved storm water management in the area.

Dr. Nina Scarito Park:
Brook Street site, a 2.7-acre former brownfield, is located in a densely settled residential neighborhood on the banks of the Spicket River. This former mill building and commercial laundry site had been abandoned for nearly 20 years, when a neighborhood planning process identified the site as key to local revitalization efforts. After construction the park hosts a large green lawn space as well as a playground and community garden, all of which are connected by pathways throughout the park. The open space becomes a picturesque landscape during autumn with its elaborate canvas of fall colors from surrounding vegetation making it a much loved space by local neighboring residents. The park is considered the first ‘jewel’ in the Spicket River Greenway (Groundwork Lawrence).
Campagnone Common:  
Campagnone Common (North Common) is one of the most used, recognized and loved parks in Lawrence and very much the city’s centerpiece. It provides quiet respite from the urban streetscape, unstructured play lawns, magnificent trees, a traditional playground and formal baseball field. Certain parts of the Common are also adopted by certain residents such as the northeast corner that sees locals playing dominoes all hours of the day when the weather is nice. Currently the North Common is the site for Semana Hispana and the Bread and Roses Festival, two festivals with high turnout celebrating the rich culture and history of the city. The Common is one of the few open spaces that has remained since the city’s founding. (City of Lawrence)

Pemberton Park:  
This long linear park offers superb views of the city’s mills and historic dam, and opportunities for fishing and boating. The park property is about five acres and will soon extend to the Great Stone Dam. Walking trails, lighting, and benches make this park an attractive place to visit in daylight or at dusk. (Department of Conservation and Recreation)

Riverfront State Park:  
Located just south of the Merrimack River, Riverfront State Park offers active recreation facilities such as tennis, basketball, and street hockey courts, and a children’s play area. The park also provides the public with wooded walking trails and much open green space. The park is also home to the Greater Lawrence Community Boating Program. (Department of Conservation and Recreation)

Den Rock Park:  
Den Rock Park is a 120-acre wooded preserve that includes walking trails, a granite rock face with fissures perfect for technical climbing, scenic overlooks, and access to the Shawsheen River. The park serves as a recreational amenity for the region and attracts hundreds of visitors throughout the year.
Corridor Assessment

Two major corridors running through Lawrence, the Merrimack River and Lawrence rail line north of the Merrimack, were analyzed as part of our study for their current conditions and potential to have future improvements, connections, and rehabilitation. The Merrimack River has been classified as having class B waters, which are fairly healthy conditions, capable of hosting habitat. However some of the main challenges of the river are the river banks, and what lies adjacent to the water. Much of the river does not have adequate riparian corridor, having buildings or impervious surfaces right up to the river banks. The rail corridor shows much potential in gaining a second life of use as a greenway connection. This is a 100’ wide corridor that runs from the Merrimack River, north to the Methuen town line. The rail line will face challenges with the multiple street crossings in the lower half, but will prove to be a key connection that links many open spaces such as the Manchester Park, Cemetery, and River Park.

The Merrimack River possess a major transportation issue becoming a barrier that separates the town in two. There are five bridges starting at the Old Stone Dam and moving east that connect the town by road and railroad. The bridges will be key piece to any system that wishes to utilize the northern and southern parts of Lawrence. They will also limit any of these systems to crossings at the bridges in place. The railroad corridor has the barrier issues, but one that is more penetrable; here the roads cross the rail line five times in the southern section.
Corridor Assessment

This will prove to be a challenge in any future redevelopment of the rail line because the roads will hold dominance over any pedestrian use. In only one of the northern crossings the rail system crosses with a bridge.

The land coverage map of Lawrence reveals a striking view of the post industrial city; one that shows the incredible amount of impervious surfaces and the limited cover of forests and vegetated ground covers. Within the river corridor, much of the post industrial remnants are seen surrounding the island and canal areas. Here, almost every surface is impervious, whether it is a roof, road, or parking lot. Vegetation is limited to the east and west ends, as well as the river bank. The eastern point of the island where the Spicket River meets the Merrimack has a notable amount of vegetation cover that is in early successional stages. This area is critical for habitat and green space, being at the confluence of the two rivers. The banks of the mainland across from this site hold a large amount of forested area as well that are key for wildlife and the river quality. The western point of the island is home to the Pemberton State Park which brings a bit of green space to the industrial land, although it needs to gain a better presence in the area. This park does not have much value for habitat space because it is mostly open grass fields. However adjacent to the park is some forested area that has limited habitat potential. The greatest vegetated area within the river corridor lies on the western half of the river surrounding the banks of the river. This area is also home to some of the only wetland areas that lie within the city. The southern half of the area is backed up to industrial buildings, while on the northern side residential housing is dominant.
Corridor Assessment

Riverfront State Park is connected to this vegetation on the southern side of the Merrimack. This is critical habitat area in that it is one of the few large continuous patches of vegetation in the city. As well as providing protection and a buffer from the river, this is the only spot on the Merrimack within Lawrence that starts to look like a riparian corridor. Along the length of the riverbanks there is scattered vegetation, some making small massings, and other areas simply having successional plants growing out of rip rap. The easting portion of the Merrimack holds a large amount of green space, however it is surrounded and intertwined within Rt. 495; making this a challenging area for wildlife and any potential for human use. Here, the river banks are covered with a small strip of vegetation that continues for a continuous mile. This area has potential to expand this successional river bank into a forested riparian corridor. With the canal being in the center of the east and west vegetated areas, it is going to be nearly impossible to connect the two with a habitat friendly riparian corridor. The industrial mills that line the river banks are the reason for this. They were once utilizing the water for energy production.

The commercialized and paved surfaces areas seem to go hand and hand with each other when looking at the two maps. These two categories will always be somewhat related because with commercialization comes the need for infrastructure, roads, parking, and buildings. Studying the maps it is obvious that the impervious surfaces and industrial areas follow the river corridor, being heavily concentrated along the canal area and stretching out towards the town green.
Corridor Assessment

The town history reflects why these industrial buildings are so heavily concentrated along the riverbanks. Water was a key source of power for these mills during the industrial times. Commercial businesses are dominant along the Lawrence rail corridor as well. There is a pattern that emerges when studying these key corridors in the city; business and industry border them.

One of Lawrence’s largest open space assets is the cemetery in the north west corner of the town. This is directly next to the rail corridor line that runs into Methuen. This has much potential to be incorporated as part of a greenway system that is the future of the rail line. Aside from this area, there is only a dozen or so minimal open space areas within Lawrence that are not already parks. There is a large association between the parks and open space within Lawrence. There are several parks that are within the reaches of the river corridor and the rail corridor, as well as some that fall directly abutting these systems. Some of the parks in within the town are also held accountable for the forested and vegetated space within the town. There is great potential to create a system within the rail and river corridors that could work to connect these assets of the town as well as connect the town to the surrounding areas.
Spicket River Greenway

The Spicket River is a 15 mile long tributary of the Merrimac River, flowing for the Big Island Pond in Derry, NH, to Lawrence, MA where it then meets the Merrimac River. The Spicket River covers a watershed of about 75 square miles, where only 5 percent is located the urbanized Lawrence corridor. 2.36 miles of the river runs through Lawrence, where you can visibly see how the river affected the industrialization of Lawrence, and in turn how industry affected the river. Over the years the river has been cut, filled, channelized, redirected, and polluted. As with many industrial urban areas, there is little to no buffer between the river and the surroundings, often you will find buildings, roads, and parking lots within feet of the river’s edge. This reworking of the river is a large contributor to problems with flooding because all the natural flood plains have been removed, filled in, and built on.

“Groundwork has begun planning and implementing a Spicket River Greenway with the goal of improving accessibility to and the aesthetics of the river, restoring the riverbanks, managing invasive plant species, and improving water quality and instream habitat while providing a safe, continuous pedestrian linkage from Steven’s Pond to the river’s confluence with the Merrimack River.”

The vegetation along the river included many native species of trees, shrubs, and groundcover. Many invasive plants in all categories are presents as well, which is not uncommon for disturbed and highly developed river banks.

The Highly developed and channelized river makes for a limiting wildlife habitat area, mainly because the supporting ecosystems required are not intact. Some fish species have been spotted and evidence of muscles is present, however a full study has not been completed for wildlife evaluation.
Field evaluations have revealed the presence of benthic macroinvertebrates in the substrates. Several bird species were observed along the riverbanks, many common to urbanized areas as is true with many mammal species found in the area.

A water quality assessment was conducted at given locations throughout the river, however water quality in urbanized areas are typically poor. Run off from parking lots and roads pollute water quality and increase temperatures, which increase the degradation of microorganisms. The temperatures for the Spicket River were about average for an urban area, increasing water temperatures as you move downstream. The Spicket River within Lawrence is an urbanized river that has varying instream habitats and conditions.

The lower reaches of the Spicket River are surrounded by a highly urbanized area, which in turn leads to a poor quality river and surrounding habitat. The river within this reach is made up of stones cobbles and coarse sand, and is relatively shallow throughout. The middle reaches of the river have many riffles and runs with occasional pools present. Here there is a generally higher water velocity and narrower channels, still a tough place for organisms to inhabit. The upper reaches also have runs and riffles with occasional pools. The streambed consists of stones, cobbles, brick, asphalt, and concrete pieces. This area still proves to be a poor place for animals to inhabit. All reaches of the river are polluted with anthropogenic debris.

In addition to the MA DEP Waterways and Wetland Regulations, recommended to the city was a plan to establish a Spicket River Riparian Overlay Zone. The intent and purpose of the riparian overlay zone would be to govern the use and alteration of land within a specified distance from the Spicket River in order to accomplish certain objectives.
Lawrence Greenway Proposal
The Composite assessment is a compilation of each town feature our team used to analyze for our greenway proposal. Through the next few pages you will see how the City of Lawrence is defined by these features and the system they create.
The base map we used for our analysis. The included information is the roads and water within the city. The Merrimack river is prominent through the center of Lawrence with the Spicket River flowing to the north while the Shawsheen River flows south.
The first of the layers looked at for the composite assessment. The wetlands as you can see there is only a small amount in the southwestern corner.
Composite Assessment

Again the wetlands are demonstrated in the lower southwestern corner.
This next layer shows the impervious pavement throughout Lawrence. The point to take from this map is that there are large swaths of paving throughout Lawrence.
Within the composite we can now see the wetlands are in a precarious site. There are large amounts paved surfaces surrounding the wetlands.
The Urban Grain is an important part of Lawrence. The larger buildings are commercial while the finer grain is residential.
The composite assessment is coming along. The Spicket river is completely surrounded by both commercial and residential, causing issues for it’s residents.
FEMA flood zones are extreme. The 100 year flood zone takes large amount of the landscape, this is common problem since Lawrence commonly has 100 year floods.
Composite Assessment

Here you can see how the floods will affect the community. Low income residences are the most affected within the flood zones.
The train system is an excellent system within Lawrence. The train running from the northeastern corner is still running while the line running north to south is abandoned.
The train system will be a major aspect of our Greenway; it allows us to connect a large part of Lawrence to each other.
There are almost no large amounts of habitat or connected green space within Lawrence.
As the layers are connected the issues are beginning to arise. Lack of habitat, lack of connections, problems with floods. These are all the things we have looked into for our Greenway.
These trails demonstrate the active existing paths in green. While the yellow are trails which Lawrence has already proposed.
Composite Assessment

This map shows where the trails are working.
Most of the historic sections are within residential areas, as well as the downtown and island which include Mill buildings.
Composite Assessment

We see the historic areas which are in trouble from flooding.
The Gateways are the only ways to access Lawrence. Making them important points of interest in the City.
These access points are not in areas of interest, they happen around residential and commercial mostly. The most important gateway is the largest circle denoting the Rt 495 access ramp.
These denote the properties which could be potentially used within out greenway.
Composite Assessment

Noting where these pieces of land are, most of them occur along the Merrimack River. These would be very important to include within our plan.
This Bus Route tells us how the bus system works and where they are lacking stops. There are plenty of routes that satisfy the Downtown, but many residential areas that don't have stops.
This Bus map expresses again the lack of connection to the residential areas. The people who are going to need the Bus are not able to get to it easily.
Our final Greenway design. Demonstrating new bus stops and all of the connections we will discuss in the next section.
Vision

Our vision was to create a multi-purpse greenway for the people of Lawrence that will provide long term benefits to the future generations of the city. This means that the project will be assembled and implemented overtime and will be formed on not just the effort from the city but the community of Lawrence as well.

The greenway aims to contribute to preserve natural landscapes, encourage physical activity, provide recreational benefits, promote alternative transportation as well as draw visitors and tourists from the surrounding areas.

Although its developments is broken down into phases, the product is a timeless process that will endure for generations.
### Legacy Greenway in Lawrence

#### Three-Phase Plan

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Phase 1 of our vision entails program elements that would be completed and implemented within the first year of the greenway plan. These include components seen as highly important for the progression of the greenway as well as improvements that require only a small amount of work to become effective.
**Legacy Greenway in Lawrence**  
**Three-Phase Plan**

<table>
<thead>
<tr>
<th>Greenway Program Elements</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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Phase 2 consists of program elements that will take closer to 5 years to be put into full effect. In addition to implementing new features, phase 2 also consists of completing currently ongoing work within the city of Lawrence. Work on these components will commence at the same time as Phase 1 but due to their longer timespan for completion will be issued a Phase 2 status.
### Legacy Greenway in Lawrence
#### Three-Phase Plan

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Phase 3 of our vision does not have a completion date as it will be a timeless process that will provide long-term benefits to the people of Lawrence. The phase will consist of multiple programs that to improve the health of Lawrence as well as the health of the population.
Phase 1

Andover Trail Connector

Connect the current Andover Trail to the south bank of the Merrimack River.

1.

2.

Rail Line Trail

Convert the abandoned railway line to serve as a source for active recreation.

3.

4.
Revamp Public Transportation

Implement several additional bus stops along the proposed greenway for people in residential areas far from existing bus stops.

Downtown Historic Tour Trail

Historic tour of Lawrence to draw tourists and visitors.
Phase 2

Spicket River Greenway Completion

Completion of Groundwork Lawrence’s work on the Spicket River Greenway.

Historic Mill Redevelopment

Redevelopment of vacant mill buildings in Lawrence.

Recreational Park Improvements

Improvements to parks in Lawrence in poor condition.
North Canal Restoration

Lowering of North Canal with intent of implementing walks and winter recreation activities while continuing the use of the canal as an energy source.

Bicycle Lane System

Bicycle Lanes implemented on the streets of Lawrence.
Phase 3

Lively Lawrence

Tackles health and fitness problems within the City of Lawrence, specifically childhood obesity.

Community Clean-up Program

Extension of the Spicket River clean-up program into a city-wide project.
Environmental Education

Educate the young population to appreciate the natural environment.

Ecological Rejuvination

Protect and preserve the natural features of Lawrence that are scarce and important to the ecology of the city.
Greenway Design

The Legacy Greenway in Lawrence Massachusetts is a multi-phase project that will be developed over a number of years.

The Legacy Greenway Plan focuses on creating connections between important assets in Lawrence. Parks, open space, ecological corridors, schools, public transportation nodes, and historic sites are the key assets focused on in the Legacy Greenway. Since the open spaces are small and scattered with the only two large open spaces wedged into opposite corners of the town it is imperative to create connections to and between these open spaces for the people. These connections include bike paths, pedestrian trails, downtown historic tour trails, improved sidewalks, and 14 proposed bus stops.

Circulation on the Legacy Greenway can be broken down into 4 dominant sections: Rail Trail, North Canal Walk, Spicket River, and Merrimack River. The rail trail connects the industrial park on the southwest side of Lawrence north over the Merrimack River to the existing Rail Trail in Methuen. Proposed draining of the canal to create an artificial wetland would improve flood control as well as create an important connection between the Rail Trail and Spicket River. The Spicket River Greenway is currently under construction and is nearly finished. Only a small section south from Dr. Nina Scarito Park the mouth of the Spicket River remains to be constructed. Connecting the Legacy Greenway to surrounding towns is critical and the Merrimack River corridor is key in achieving this goal. On the west side of the town the Andover Trail abuts the Lawrence border. Creating this connection would connect the Legacy Greenway to Bay Circuit Trail. On the eastern border of Lawrence the Merrimack River Bikeway connects to the Legacy Greenway. There is also a vision for a Merrimack River Trail that runs 50 miles along the Merrimack River through Lawrence and other mill towns before it reaches the ocean and New Hampshire border.
Concept Perspectives

Before

After
Legacy Greenway | Lawrence, MA
Before

After
Concept Sections

1. Converted Bike Trail

2. Merrimack River

River Walk

Open seating area

Open Space

Cafe/Eatery

Open Seating Area

Open Space
Spicket River Greenway Section

3.

- Proposed Building
- Outdoor Seating
- Spicket River Greenway Trail
- River Overlook
- Spicket River

Cafe/Restaurant
- Offices
- Offices
Conclusion

Currently the city of Lawrence has 4.03 miles of existing trail. These trails are fragments of proposed trails that will connect across the city to surrounding towns and regional trails. Lawrence has 2.55 miles of proposed sidewalk improvements mostly in the downtown north canal historic district. The existing trails and proposed sidewalk combine for 6.58 miles of pedestrian way. Another 6.64 miles of potential trail has been mapped out, totaling 13.22 miles. The Legacy Greenway Plan proposes 7.90 miles of new trail, and 22.33 miles of sidewalk improvements for the downtown historic tour trail. This proposal calls for 30.23 miles of new and improved pedestrian ways, which when totaled with the existing 6.58 miles of trail and proposed sidewalk improvements equals 36.81 miles of total trail and sidewalk improvements. The Legacy Greenway plan calls to triple the amount of trail in Lawrence from 4.03 miles to 11.93 miles.

The Legacy Greenway in Lawrence will be an on-going process constructed and expanded over generations of people in Lawrence. To aid this plan we are proposing a three phase implementation plan. Phase 1 will focus on developing important aspects of the greenway’s backbone as well as completing simple improvements, such installing additional bus stops and mapping out a historic trail in the city. Phase 2 aims to conquer the more difficult tasks that require more time and capital, like repurposing the North Canal and completing the Spicket River Greenway. Phase 3 is a period that will not have a completion date. This phase will be passed on from generation-to-generation. It includes programs that create awareness for health, the environment, and community, while also adding to the constructed foundation of the Legacy Greenway. The vision for Legacy Greenway is to create not just a system of physical connections throughout the city, but to build and develop Lawrence through the people and community that inhabit it.
Sources
Front Cover: JETravers
Pg. 4 Picture: Ken Schwartz
Pg. 6 Picture: CecilDHubbard

All Maps Produced in ArcMap with data from MassGIS

History written by Julia Sim
Lawrence History Center. http://www.lawrencehistorycenter.org/
Pic.1. Historic Structures
Pic.2. Lawrence History
Pic.3. JETravers
Pic.4. Rollof
Pic.5. Mgk_Man

Regional Context written by Tom Holt
Lowell Photo - http://www.getfoundquick.com/seo-lowell-ma
Haverhill Photo - http://www.menupix.com/massachusetts/n/210013/Haverhill-restaurants

Recreation & Open Space written by David Ross
Pic.1. Cityoflawrence
Pic.2. Flickr
Pic.3. CityofLawrence
Pic.4. GroundworkLawrence
Pic.5. GroundworkLawrence
Pic.6. CityofLawrence

Corridor Assessment Written by Joe Agrillo
City of Lawrence Open Space Plan
All pictures were taken by Joe Agrillo

Spicket River Greenway written by Joe Agrillo
City of Lawrence Spicket River Assessment
All pictures taken by Joe Agrillo

Composite Assessment GIS Maps exported by Chuck Richards
Sources

Concept Images
Pic.1. google.maps
Pic.2. andover.patch.com
Pic.3. davidrossphoto
Pic.4. archdaily.com
Pic.5. bus-history.org
Pic.6. seattletransitblog.com
Pic.7. flickr.com
Pic.8. donaldsweblog.blogspot.com
Pic.9. GroundworkLawrence
Pic.10. flickr.com
Pic.11. cityoflawrence
Pic.12. flickr.com
Pic.13. google.maps
Pic.14. Groundwork Lawrence
Pic.15. David Ross
Pic.16. Julia Sim
Pic.17. flickr.com
Pic.18. cityoflawrence
Pic.19. mynextrace.com
Pic.20. bicycling.com
Pic.21. handsonblog.org
Pic.22. flickr.com
Pic.23. friendsoftarrywilepark.org
Pic.24. flickr.com
Pic.25. cityoflawrence
Pic.26. forestandrange.com

Concept Perspective
Pg. 72 Before - Robert Ryan
After - David Ross
Pg. 73 Before - Robert Ryan
After - David Ross
Pg. 74 Before - Robert Ryan
After - David Ross
Pg. 75 Before - Robert Ryan
After - Julia Sim

Concept Sections
Pic.1. David Ross
Pic.2. Julia Sim
Pic.3. David Ross